M.O. 209 *f.*

METEOROLOGICAL OFFICE.

HOURLY VALUES FROM AUTOGRAPHIC RECORDS:

GEOPHYSICAL SECTION.

1912.

Forming Section 2 of Part IV. of the British Meteorological and Magnetic Year Book for 1912.

COMPRISING:

HOURLY READINGS OF TERRESTRIAL MAGNETISM AT ESKDALEMUIR:

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.

THE present volume is the second of the series. The tables which are given complete the publication of Hourly Readings by giving those for Terrestrial Magnetic Force at Eskdalemuir, and summarise the results obtained by the self-recording instruments at the various observatories in connexion with the Meteorological Office during the year 1912. They represent a continuation in extended form of the tables and summaries giving the results of observations in Terrestrial Magnetism and Atmospheric Electricity which have been included in the Reports of the Committee of Management of the Kew Observatory from 1842 to 1910.

Daily Values at fixed hours of various meteorological and geophysical elements at the three observatories, Kew, Eskdalemuir, Valencia, and of wind at certain Anemograph Stations, have already been published in the *Geophysical Journal*; Hourly Readings of the meteorological elements at the three observatories have also been published. The figures here presented complete the representation in tabular form of the year's work at these observatories, and it has been amplified by the addition of summaries of Hourly Values for the meteorological and magnetic elements at Falmouth, and the meteorological elements at Aberdeen. The table of magnetic results for the observatories of the globe, which formed a notable feature of the Report of the Kew Observatory for some years, has been continued in slightly modified form.

The tables are followed by notes on the management of the recording instruments at the observatories, and on the meteorological summaries. Notes on the meteorological instruments will be found in Section 1 of Part IV. of the Year Book.

It is proper to add that in all matters concerning the scientific work of the observatories full advantage has been 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. It is therefore hardly necessary to state that in the preparation of the material presented in this volume the recommendations of the Gassiot Committee have been followed.

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 :—

Wt. 45575/353—400—6/14.—N. & Co., Ltd. **Gp. XV.**

"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. This principle has been carried out, with the advice of the Gassiot Committee, not only as regards the present volume, but also as regards the volume of *Hourly Readings of the Meteorological Elements at the Observatories of the Meteorological Office* (Year Book, Part IV. 1), the *Geophysical Journal* (Year Book, Part III. 2), and in *Daily Readings at Stations of the First and Second Orders* (Year Book, Part III. 1).

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

The difficulties connected with the recording of the intensity of the vertical component of terrestrial magnetic force at Eskdalemuir which were briefly mentioned in the concluding note to last year's volume, increased during 1912, and it became apparent that the results were affected to an extent too great to admit of the application of estimated or computed corrections with a proper degree of certainty. It was therefore decided, on the advice of the Gassiot Committee, to omit the hourly values of vertical force from the present volume and the daily maximum and minimum values from the concluding numbers of the Geophysical Journal for 1912.

At the end of 1913 re-determinations of the azimuths of the magnetic axes of the N and W instruments at Eskdalemuir indicated that there was an error in the positions assumed for the calculation of the values published in the present volume. It is not possible to determine precisely what the errors of azimuth were in 1912, but from the determinations made at the beginning of 1911 and at the end of 1913 and beginning of 1914, it appears probable that the magnetic axis of the North instrument was in the direction W 0° 40′ S and that of the West instrument in the direction N $1\frac{1}{4}^{\circ}$ W.

In the Magnetic Notes for each month (pp. 9, 13, etc.) "X" has been used as an abbreviation for "the curve of the North Component" and "Y" for "the curve of the West Component." In both curves the ordinate increases with the force so that "a rise on X" means an increase in the value of the North Component and "a fall on X" a decrease in the value of the North Component, and similarly for Y and the West Component.

The exigencies of printing have made it necessary in the tables of diurnal inequalities to reduce the width of the column used to indicate the months and seasons to the space necessary for two letters at most. No difficulty can be experienced by the reduction of the names of the months to their initial letters, J., F., etc., standing for *January*, *February*, and so on, and in the same way Y. will easily be appreciated as representing *Year*. But "W." "Eq." and "S." standing for *Winter*, *Equinox*, and *Summer* require some explanation. The *Winter*, which "W" represents in these tables, includes the months of *November*, *December*, *January*, *February*, the *Summer*, *May*, *June*, *July*, *August*, and the *Equinox*, the remaining four months of the year, viz., *September*, *October*, *March*, and *April*. The division of the year into these seasons is somewhat arbitrary, but the practice has the sanction of the tradition of Kew Observatory.

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

The publication of meteorological and geophysical data for the British Isles in the year 1912, is arranged in accordance with the following scheme of observations and data for stations in the United Kingdom :—

(*a*) DAILY WEATHER REPORT.—

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

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

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

Part I.—*Weekly Weather Report*, comprising weekly results of observations of the meteorological elements for stations and districts in the British Isles, a table and a map of sea temperature, and daily synoptic charts of the North Atlantic Ocean and adjoining continents, with annual and occasional appendices. Issued on Thursday of each week. Price 6d. per number. Annual subscription (which includes the Monthly Weather Report) 30s., postage paid.

Part II.—*Monthly Weather Report*, with an annual summary. Issued as a supplement to the Weekly Weather Report on the 27th day of each month. Price 6d. per number.

Part III. (in C.G.S. units).—(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. (in C.G.S. units).—(1) *Meteorological Office Observatories. Hourly Values from Autographic Records—Meteorological Section.* Hourly Readings from self-recording meteorological instruments at three observatories in connexion with the Meteorological Office. Issued in monthly parts for each observatory within about six weeks of the end of each month. Price 6d. each part. Annual Volume 20s.

(2) *Meteorological Office Observatories. Hourly Values from Autographic Records—Geophysical Section.* Terrestrial Magnetism, Atmospheric Electricity and Meteorology. Issued at the end of each year. Price 5s.

The publications include the results of the work of the observatories in the departments of Meteorology, Terrestrial Magnetism, and Atmospheric Electricity, together with a brief journal of events as recorded on the seismograms at Eskdalemuir. The summary of the seismological data comprising the times of commencement and amplitudes of the various movements, has been sent to the late Professor J. Milne, F.R.S., and after his death to Professor H. H. Turner, F.R.S., for inclusion in the Reports of the Seismological Committee of the British Association for the Advancement of Science.

W. N. SHAW,
Director.

METEOROLOGICAL OFFICE,
SOUTH KENSINGTON, S.W., *May 13th*, 1914.

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

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Notes.—(1) The Hourly Readings of Meteorological Elements for Kew, Eskdalemuir, and Valencia have been printed in the Meteorological Section of this Publication.

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

* The height given is that of the ground on which the rain gauge is situated.

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

Eskdalemuir. (X.) **January, 1912.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
	15000 γ (·15 C.G.S. unit) +																									
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	1006	1006	1005	1007	1006	1005	1007	1008	1007	1014	1019	1018	1015	1012	1012	1007	1004	1005	1011	1012	1012	1008	1006	1007	1007	1009
2	1007	1003	1006	1006	1009	1013	1012	1011	1008	1007	1010	1012	1015	1016	1012	1008	1008	1012	1014	1014	1013	1012	1010	1006	1006	1010
3	1006	1006	1010	1012	1014	1015	1015	1016	1015	1016	1014	1011	1012	1017	1016	1013	1014	1015	1014	1014	1013	1013	1012	1012	1012	1012
4	1012	1012	1012	1012	1015	1014	1013	1016	1015	1012	1008	1012	1014	1020	1021	1018	1016	1016	1015	1015	1012	1011	1011	1003	1006	1013
5	1005	1002	1011	1015	1018	1017	1016	1018	1018	1016	1014	1013	1018	1018	1012	1004	1002	1011	1011	1007	1008	1010	1008	1010	1022	1012
6	1022	1010	1008	1011	1014	1015	1021	1018	1016	1012	1004	1006	1011	1016	1020	1018	1016	1016	1018	1018	1014	1012	1011	1011	1010	1014
7	1010	1010	1011	1013	1014	1014	1015	1015	1014	1014	1012	1015	1020	1021	1023	1022	1020	1021	1020	1019	1019	1018	1028	1016	1010	1017
8	1010	1008	1017	1020	1022	1022	1018	1016	1017	1018	1012	1013	1018	1025	1024	1019	1018	1018	1018	1018	1017	1018	1019	1015	1014	1018
9	1013	1012	1013	1015	1019	1020	1024	1022	1018	1016	1015	1017	1019	1022	1019	1017	1012	1004	993	1003	1016	1015	1015	1014	1013	1015
10	1013	1013	1013	1013	1014	1017	1019	1018	1017	1018	1018	1017	1019	1025	1025	1015	1006	1005	1010	1011	1011	1010	1006	1014	1010	1015
11	1010	1009	1011	1012	1013	1021	1024	1021	1015	1012	1010	1011	1014	1019	1021	1018	1017	1018	1013	997	989	978	1002	989	993	1010
12	993	996	1004	1010	1009	1019	1023	1031	1027	1010	1003	1005	1006	1009	1006	993	991	986	984	1000	1005	1010	995	984	1002	1004
13	1002	987	989	1000	1014	1013	1027	1001	1017	1012	1003	1000	999	982	986	1009	1009	1010	1010	1010	1009	1004	1006	1003	1022	1005
14	1021	1003	1003	1002	1002	1004	1008	1009	1007	1002	996	1001	1004	1009	1009	1009	999	1000	1004	1009	1009	1009	1010	1009	1010	1006
15	1010	1007	1007	1003	1007	1009	1010	1009	1005	1002	1000	999	999	1005	1010	1010	1010	1011	1011	1011	1011	1011	1010	1009	1009	1007
16	1009	1009	1008	1008	1009	1012	1014	1013	1009	1008	1004	1007	1010	1014	1016	1014	1014	1016	1016	1017	1014	1013	1011	1011	1010	1012
17	1010	1011	1011	1013	1015	1022	1027	1030	1029	1028	1008	1008	1011	1012	1018	1013	1015	1017	1016	1016	1016	1016	1014	1011	1012	1016
18	1011	1011	1013	1012	1015	1012	1019	1010	1008	1010	1008	1001	1001	994	997	1012	1013	1013	1013	1014	1014	1016	1011	1013	1015	1010
19	1015	1011	1009	1009	1011	1017	1021	1024	1023	1018	1010	1009	1010	1016	1018	1018	1016	1012	1015	1015	1011	1019	1017	1014	1015	1015
20	1015	1016	1017	1018	1019	1019	1019	1018	1017	1015	1011	1012	1015	1019	1021	1020	1019	1018	1017	1018	1018	1015	1020	1012	1016	1017
21	1016	1012	1014	1015	1017	1019	1019	1018	1016	1012	1010	1010	1015	1019	1022	1025	1019	1018	1018	1019	1020	1018	1019	1019	1019	1017
22	1018	1019	1018	1022	1016	1024	1026	1028	1028	1025	1020	1019	1012	993	996	1007	1009	1007	1009	1013	1005	994	1019	1010	1006	1014
23	1006	1002	1005	1008	1011	1016	1017	1015	1009	1007	1007	1007	1009	1009	1011	1014	1014	1013	1014	1010	1008	1008	1009	1010	1009	1010
24	1009	1009	1007	1012	1016	1021	1020	1019	1018	1020	1018	1013	1007	1000	996	1000	1007	1009	1011	1014	1013	1014	1013	1012	1011	1012
25	1011	1012	1012	1009	1007	1011	1014	1015	1017	1016	1010	1009	1007	1011	1016	1017	1015	1010	1010	1014	1014	1016	1018	1017	1016	1013
26	1015	1014	1012	1009	1013	1015	1016	1015	1012	1011	1009	1012	1013	1015	1016	1016	1015	1014	1012	1014	1015	1015	1015	1014	1015	1014
27	1015	1015	1015	1016	1017	1019	1020	1020	1016	1010	1008	1007	1009	1016	1025	1027	1023	1018	1019	1020	1021	1020	1019	1018	1019	1018
28	1019	1019	1016	1011	1015	1020	1023	1022	1018	1013	1008	1007	1009	1015	1017	1020	1021	1018	1022	1022	1016	1013	1007	1015	1009	1016
29	1009	1011	1013	1014	1017	1018	1017	1016	1011	1007	996	997	1003	1010	1014	1014	1015	1014	1015	1015	1016	1017	1017	1019	1019	1013
30	1018	1014	1012	1012	1012	1015	1017	1016	1023	1013	1008	1002	998	1001	1009	1010	1012	1012	1016	1017	1017	1018	1019	1019	1018	1013
31	1018	1016	1015	1014	1017	1018	1018	1016	1014	1013	1010	1011	1009	1016	1019	1021	1017	1015	1014	1012	1004	1003	1010	1012	1013	1014
Mean	1011	1009	1010	1011	1014	1016	1018	1017	1016	1013	1009	1009	1010	1012	1014	1014	1013	1012	1012	1013	1012	1011	1013	1011	1012	1013

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

Eskdalemuir. (−Y.) **January, 1912.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
	5000 γ (·05 C.G.S. unit) +																									
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	236	237	246	246	246	247	248	247	248	250	255	263	259	256	254	254	258	251	253	248	246	242	241	236	240	249
2	239	241	239	240	245	242	245	244	246	248	249	251	251	247	246	246	247	247	246	245	245	244	242	243	245	245
3	245	244	245	247	248	247	247	245	245	245	248	249	253	255	250	248	249	248	247	246	245	245	244	244	242	247
4	241	243	243	242	244	244	244	244	244	244	245	248	251	256	249	248	248	249	247	246	245	239	228	238	230	244
5	230	234	238	243	246	246	246	245	246	247	251	252	256	256	248	255	255	247	250	249	247	243	240	238	225	246
6	225	228	226	238	247	247	246	247	246	246	247	249	254	254	252	247	246	246	246	245	243	243	244	244	244	244
7	243	244	245	246	246	246	245	244	243	244	249	252	254	254	252	250	248	245	245	243	242	240	238	238	237	246
8	237	243	246	246	244	244	243	243	244	248	251	251	254	255	251	248	249	248	248	246	245	236	238	245	245	246
9	245	244	246	245	245	246	247	249	252	253	252	254	255	252	248	246	251	252	256	254	246	245	244	243	243	249
10	242	242	242	244	244	245	245	245	247	252	255	259	257	253	249	243	247	250	246	245	245	245	241	242	236	247
11	236	236	236	242	243	242	244	246	249	253	254	255	259	254	246	243	244	245	246	244	243	242	236	235	233	245
12	232	231	217	212	217	215	224	233	248	260	268	274	272	273	272	277	269	257	268	252	245	239	240	233	209	247
13	209	222	231	225	218	232	230	234	245	250	254	260	265	260	246	248	251	248	245	242	238	229	236	232	231	240
14	231	246	240	235	242	242	242	244	243	242	244	247	254	258	252	249	251	247	246	242	241	238	238	241	242	244
15	241	236	235	238	238	240	240	240	239	240	245	249	253	258	254	250	249	245	243	242	241	240	239	240	239	243
16	239	240	241	239	240	240	235	239	240	241	245	249	251	253	250	243	244	246	244	242	240	238	242	239	239	243
17	238	240	241	242	241	243	243	245	244	249	247	259	264	265	265	258	258	252	249	245	242	241	242	240	242	248
18	242	245	241	243	233	234	234	239	239	242	246	249	252	258	255	248	242	241	240	240	239	240	241	240	242	243
19	242	242	241	240	239	239	240	241	243	247	249	251	251	251	251	247	246	245	245	247	244	233	243	246	246	244
20	245	244	244	244	244	244	243	242	241	243	247	249	250	251	250	248	247	245	245	244	237	238	237	240	242	244
21	242	240	240	240	242	242	241	241	241	243	248	251	255	256	251	247	244	246	247	244	243	242	241	241	241	245
22	240	248	239	233	226	231	237	241	246	247	249	255	256	268	268	256	250	250	243	239	238	223	202	231	230	242
23	230	237	242	243	241	240	243	245	245	243	243	246	248	247	245	241	242	243	244	239	237	237	237	239	240	242
24	240	243	248	240	239	239	241	242	244	248	253	254	257	260	266	250	247	246	243	243	241	239	239	239	239	246
25	238	238	238	237	236	236	237	239	244	247	249	254	253	251	248	241	240	242	243	242	241	236	237	240	239	242
26	239	243	238	236	231	235	237	238	241	246	249	252	252	250	247	245	244	243	239	240	241	242	241	242	243	242
27	243	244	244	244	244	244	244	245	245	246	248	249	254	254	249	246	244	246	246	246	245	244	244	244	242	246
28	241	243	242	240	235	233	238	241	243	244	247	252	254	260	256	249	245	244	244	245	245	239	236	235	236	244
29	236	239	239	238	238	237	239	237	237	238	244	248	254	254	250	244	243	244	244	243	243	242	241	242	240	242
30	240	241	238	237	235	237	241	241	244	243	252	254	257	254	256	253	252	249	246	245	244	243	244	244	244	246
31	243	240	240	241	237	236	236	238	239	243	247	253	253	253	249	245	243	243	242	238	234	235	240	237	238	242
Mean	238	240	240	240	239	240	241	242	244	246	249	253	255	256	252	250	248	247	246	244	242	239	239	240	238	245

III.—VERTICAL COMPONENT OF TERRESTRIAL MAGNETIC FORCE.

Eskdalemuir. (Z.) **January, 1912.**

For reasons which are set out in the notes on instruments it has been decided not to publish the hourly tabulations of vertical magnetic force for the year 1912. The following table gives the values of the vertical force deduced from the absolute observations entered in Table IV. below, after smoothing the values for the horizontal force and correcting them to the time of the dip observation.

Date.	Time, G.M.T.	Vertical Component Z.
	h m	10γ
Jan. 2	12 39	4531
9	11 46	4542
16	12 29	4536
23	14 52	4542
30	14 2	4542

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

Eskdalemuir. **January, 1912.**

Date.	Time, G.M.T.	Horizontal Force.	Declination.	Dip.	Temperature in Magnet House.*	Magnetic Character of day (0-2).	Date.
	h m	γ	° ′ ″	° ′	°		
Jan. 2	11 30		18 10 15		10·3	1	1
,,	12 2	16854			10·3	0	2
,,	12 39			69 35·8	10·3	1	3
					10·2	1	4
					10·3	1	5
Jan. 5	11 22		18 10 11				
,,	11 59	16860			10·2	0	6
					10·2	0	7
					10·1	0	8
					10·0	1	9
Jan. 9	11 9		18 9 26		10·1	1	10
,,	11 23	16869					
,,	11 46			69 38·2			
					10·0	1	11
					10·0	1	12
					10·0	2	13
Jan. 12	11 19		18 15 0		10·0	1	14
,,	11 59	16843			10·0	0	15
					9·9	0	16
Jan. 16	11 7		18 9 42		9·9	1	17
,,	11 36	16841			9·8	1	18
,,	12 29			69 37·3	9·8	0	19
					9·9	1	20
Jan. 19	11 41		18 9 12				
,,	12 16	16856			9·8	0	21
					9·8	1	22
					9·8	0	23
Jan. 23	11 27		18 9 11		9·7	1	24
,,	11 46	16853			9·7	1	25
,,	14 52			69 38·7			
					9·7	0	26
Jan. 26	11 13		18 9 20		9·6	0	27
,,	11 54	16854			9·5	0	28
					9·5	0	29
					9·5	1	30
Jan. 30	11 53		18 10 45				
,,	12 37	16843					
,,	14 2			69 38·7	9·5	0	31

JANUARY.

JANUARY was magnetically a quiet month, the average magnetic character figure being ·58. [This figure, obtained by dividing the sum of the magnetic character figures for each day of the month by the number of days, varies during 1912 from ·50 for November, the quietest month, to ·87 for June and July, the two most disturbed.] Only one day, the 13th, was classed as of magnetic character (2). Sixteen were (1) and fourteen were (0) days, of which six may be said to have been very quiet the whole day. A number of other days were very quiet until a late hour, 18 or 20, after which more or less disturbance occurred, lasting till midnight. Slight pulsations, lasting usually an hour or two, were frequent on the X and Y curves, in particular during the hours around midnight, but were practically absent on the Z record. The most disturbed day, the 13th, was not *highly* disturbed. The perturbations lasted all day, but presented no special features calling for remark. The range was only 78γ on X, and 70γ on Y. On Z the range of disturbance on this day, 25γ, fell considerably short of that on the previous day, 39γ, which was the most disturbed day of the month for this element. For X the extreme readings of the month differed by 80γ, and for Y by 92γ. Quick runs were made on the 22nd and 26th, from 18–20. Both of these were very quiet. Among other features may be mentioned a sudden rise on X, at $23\frac{3}{4}^{h}$ on the 29th, after a very quiet day.

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

V.—READINGS OF THE NORTH COMPONENT OF TERRESTRIAL MAGNETIC FORCE

Eskdalemuir. (X.) AT EACH HOUR OF GREENWICH MEAN TIME. **February, 1912.**

Hour G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
											15000 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	1013	1009	1010	1013	1014	1016	1017	1018	1017	1015	1008	1007	1007	1011	1016	1017	1017	1017	1018	1019	1020	1020	1018	1019	1018	1015
2	1018	1015	1015	1022	1023	1024	1025	1025	1021	1017	1015	1009	1014	1016	1014	1015	1009	1005	1008	1013	1017	1016	1008	1013	1016	
3	1012	1009	1010	1015	1016	1020	1016	1018	1023	1017	1016	1009	1006	1009	1012	1012	1009	1016	1016	1017	1019	1018	1016	1015	1015	1015
4	1015	1014	1015	1014	1013	1013	1016	1018	1019	1020	1018	1019	1024	1025	1023	1018	1014	1011	1017	1020	1022	1019	1015	1017	1015	1018
5	1015	1015	1015	1018	1022	1024	1021	1020	1019	1022	1019	1018	1019	1023	1025	1025	1022	1020	1020	1020	1023	1022	1021	1022	1021	1021
6	1021	1021	1020	1018	1022	1023	1024	1022	1022	1021	1017	1016	1020	1027	1032	1031	1023	1021	1021	1020	1022	1022	1022	1020	1018	1022
7	1017	1017	1017	1017	1017	1017	1017	1017	1018	1019	1016	1014	1014	1019	1023	1021	1016	1017	1012	1015	1021	1018	1017	1014	1018	1017
8	1018	1014	1015	1019	1018	1022	1027	1030	1022	1015	1008	1010	1011	1015	1018	1015	1013	1014	1014	1014	1016	1013	1013	1015	1018	1016
9	1018	1015	1020	1019	1021	1019	1020	1021	1017	1013	1014	1016	1019	1022	1024	1023	1021	1020	1020	1021	1022	1023	1021	1021	1021	1020
10	1021	1017	1015	1012	1021	1024	1023	1024	1017	1022	1017	1017	1016	1013	1015	1017	1008	1009	1014	1016	1017	1015	1007	1016	1011	1016
11	1010	1012	1007	1011	1011	1012	1016	1016	1009	1009	1006	1014	1017	1019	1010	1011	1014	1013	1015	1016	1015	1017	1017	1016	1016	1013
12	1016	1019	1016	1016	1017	1018	1021	1020	1020	1012	1012	1016	1019	1019	1020	1014	996	997	1005	1022	997	1002	1009	1015	1012	1013
13	1012	1010	1009	1011	1013	1016	1016	1012	1018	1017	1009	1001	1003	1003	995	1005	1013	1010	1001	1007	1006	1012	1014	1018	1016	1010
14	1016	1013	1013	1015	1014	1014	1015	1013	1015	1013	1009	1007	1006	1005	1014	1015	1013	1016	1016	1013	1016	1018	1019	1023	1021	1014
15	1021	1014	1013	1013	1011	1015	1013	1018	1017	1014	1005	1004	1005	1005	1009	1013	1015	1016	1017	1018	1020	1023	1019	1019	1017	1014
16	1016	1015	1015	1014	1015	1016	1018	1019	1018	1018	1011	1010	1014	1021	1028	1027	1022	1017	1021	1010	1024	1018	1017	1017	1017	1018
17	1017	1006	1019	1009	996	1011	1017	1019	1017	1011	1007	1002	1005	1011	1019	1022	1021	1017	1017	1017	1024	1014	1017	1019	1019	1014
18	1019	1017	1014	1030	1021	1019	1019	1018	1016	1013	1009	1008	1011	1015	1017	1021	1015	1015	1015	1018	1018	1020	1019	1018	1018	1017
19	1017	1014	1014	1012	1015	1015	1021	1021	1021	1020	1014	1009	1008	1016	1019	1016	1011	1012	1013	1014	1015	1017	1018	1017	1016	1015
20	1016	1016	1014	1013	1014	1018	1020	1019	1015	1014	1010	1009	1011	1011	1014	1016	1014	1012	1016	1016	1018	1015	1016	1013	1011	1015
21	1011	1016	1015	1014	1016	1019	1019	1019	1018	1014	1010	1009	1010	1011	1015	1018	1017	1018	1019	1020	1020	1021	1020	1019	1019	1016
22	1019	1019	1018	1019	1020	1021	1022	1025	1022	1019	1011	1009	1014	1021	1024	1022	1022	1020	1019	1025	1027	1021	1022	1021	1019	1020
23	1019	1017	1018	1020	1023	1027	1025	1022	1023	1016	1010	1004	1009	1016	1022	1011	999	1004	1007	1014	1014	1014	1011	1017	1020	1015
24	1019	1030	1013	1010	1011	1017	1015	1020	1020	1017	1014	1013	1014	1013	1013	1014	1015	1016	1014	1013	1017	1007	1013	1013	1013	1015
25	1013	1029	1017	1011	1012	1016	1015	1017	1018	1014	1010	1009	1012	1011	1011	1014	1013	1015	1015	1016	1020	1019	1020	1019	1020	1015
26	1020	1016	1017	1014	1015	1016	1029	1027	1009	1001	985	984	998	1003	1006	1007	1009	1012	1013	1020	1019	1013	1021	1016	1015	1011
27	1015	1014	1013	1013	1014	1015	1015	1017	1017	1014	1011	1007	1007	1009	1011	1014	1015	1017	1018	1018	1019	1018	1016	1017	1019	1014
28	1018	1016	1015	1015	1014	1013	1018	1020	1017	1012	1008	1006	1008	1009	1009	1009	1009	1010	1010	1015	1017	1015	1017	1014	1016	1013
29	1016	1016	1016	1016	1016	1016	1017	1019	1018	1014	1006	999	999	1005	1007	1009	1013	1015	1017	1017	1014	1027	1020	1019	1025	1014
Mean	1017	1016	1015	1015	1016	1018	1019	1020	1018	1015	1011	1009	1011	1014	1016	1016	1014	1014	1015	1017	1018	1017	1017	1017	1017	1016

VI.—READINGS OF THE WEST COMPONENT OF TERRESTRIAL MAGNETIC FORCE

Eskdalemuir. (−Y.) AT EACH HOUR OF GREENWICH MEAN TIME. **February, 1912.**

Hour G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
											5000 γ (·05 C.G.S. unit) +															
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	238	239	240	236	237	237	242	241	240	241	246	247	252	254	252	246	242	241	240	240	240	241	239	234	238	242
2	238	239	237	234	237	237	241	242	244	245	248	253	252	259	257	254	250	251	246	246	238	241	218	228	236	243
3	235	236	239	236	236	235	237	242	243	242	242	246	252	252	255	250	241	243	244	242	242	241	240	239	237	242
4	237	236	236	232	235	239	241	241	244	245	246	252	258	258	252	247	248	241	244	242	241	239	235	234	236	243
5	236	235	235	236	236	234	239	240	242	244	246	248	251	251	252	246	243	244	244	243	243	242	242	240	241	242
6	240	241	240	240	242	242	242	242	243	244	247	251	251	252	251	246	242	243	243	243	242	241	240	238	238	244
7	238	234	237	235	238	238	238	238	242	244	247	251	253	254	253	250	245	245	242	243	243	242	233	228	227	242
8	227	227	236	236	226	232	235	238	243	248	252	260	264	259	253	249	248	245	245	244	242	237	233	230	231	242
9	230	233	248	235	231	233	234	236	239	240	244	250	251	250	246	242	241	242	243	243	242	241	238	236	237	241
10	237	235	234	238	235	224	231	235	244	251	254	262	265	267	270	264	253	250	245	245	243	242	230	229	215	245
11	215	214	228	231	234	231	232	234	236	245	250	251	252	252	247	237	238	239	239	239	235	235	237	235	236	237
12	235	238	238	237	238	240	239	240	243	243	243	249	257	257	254	250	249	245	249	230	228	231	237	238	232	242
13	232	232	237	238	239	238	233	242	255	248	248	248	254	257	254	249	245	230	214	233	232	215	225	230	231	239
14	231	233	238	233	235	234	232	234	237	237	240	248	249	250	249	246	243	243	243	241	241	241	239	233	232	240
15	232	234	233	232	232	236	233	236	237	239	242	246	251	255	252	248	242	240	240	239	236	232	238	239	236	239
16	235	235	237	238	236	236	237	236	237	240	245	252	258	260	257	253	247	245	242	230	225	237	232	236	231	241
17	231	238	248	218	217	222	233	236	238	239	240	242	254	256	254	248	244	242	245	241	221	229	241	241	239	238
18	239	239	244	242	223	230	232	235	237	236	238	245	249	250	248	246	240	240	239	239	236	239	238	238	237	239
19	236	237	236	239	237	238	231	233	235	236	238	244	249	255	254	248	244	242	241	240	239	234	238	237	237	240
20	237	238	237	239	239	238	237	236	235	233	236	244	253	255	251	246	239	241	240	235	239	237	227	228	232	239
21	232	234	234	235	236	236	235	234	234	234	239	247	253	256	254	248	241	240	241	241	239	235	235	235	237	240
22	236	238	238	239	240	239	239	238	237	235	236	240	248	254	254	247	244	241	238	244	242	231	231	230	232	240
23	232	229	238	237	236	236	236	235	236	235	240	243	253	258	257	256	256	254	254	246	241	231	226	235	235	242
24	235	241	221	228	230	227	229	230	228	227	231	245	256	259	260	252	246	240	240	233	228	207	226	229	230	235
25	229	229	221	226	232	234	235	237	236	238	239	246	260	263	258	251	242	238	238	232	229	232	228	229	230	238
26	230	231	218	214	210	219	222	227	233	264	260	256	260	256	254	248	240	237	237	242	242	232	220	235	235	237
27	235	233	234	236	236	237	237	237	236	235	236	242	246	245	245	242	238	237	239	239	239	236	237	234	237	238
28	237	234	234	233	230	237	236	235	234	234	236	241	245	244	244	244	242	240	238	227	235	233	232	237	239	237
29	238	237	236	236	236	236	234	233	233	230	231	239	247	251	251	246	241	238	239	238	235	231	231	229	231	237
Mean	234	234	236	234	233	234	235	237	239	240	243	248	253	255	253	248	244	242	241	239	237	235	233	234	234	240

VII.—VERTICAL COMPONENT OF TERRESTRIAL MAGNETIC FORCE.

Eskdalemuir. (Z.) **February, 1912.**

For reasons which are set out in the notes on instruments it has been decided not to publish the hourly tabulations of vertical magnetic force for the year 1912. The following table gives the values of the vertical force deduced from the absolute observations entered in Table VIII. below, after smoothing the values for the horizontal force and correcting them to the time of the dip observation.

Date.	Time, G.M.T.	Vertical Component Z.
	h m	10 γ
Feb. 6	14 34	4533
13	12 28	4533
20	12 26	4533
27	12 17	4530

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

Eskdalemuir. **February, 1912.**

Date.	Time, G.M.T.	Horizontal Force.	Declination.	Dip.	Temperature in Magnet House.*	Magnetic Character of day (0–2).	Date.
	h m	γ	° ′ ″	° ′	°		
Feb. 6	11 5		18 9 27		9·4	0	1
,,	11 54	16862			9·4	1	2
,,	14 34			69 35·0	9·3	1	3
					9·2	1	4
					9·2	0	5
Feb. 9	11 11		18 9 5		9·1	0	6
,,	11 49	16857			9·1	0	7
					9·0	1	8
					9·0	0	9
Feb. 13	11 2		18 10 22				
,,	11 41	16845			9·0	1	10
,,	12 28			69 36·7	9·0	1	11
					9·0	1	12
					9·0	1	13
					9·0	0	14
Feb. 16	10 56		18 9 44				
,,	11 34	16853			9·0	0	15
					8·9	1	16
					8·9	1	17
					8·9	1	18
Feb. 20	10 56		18 8 21		8·9	1	19
,,	11 34	16848					
,,	12 26			69 36·5			
					8·8	0	20
					8·9	0	21
					8·8	0	22
					8·8	1	23
Feb. 23	11 10		18 8 33		8·7	1	24
,,	11 45	16845					
					8·7	1	25
					8·7	2	26
Feb. 27	11 1		18 8 0		8·7	1	27
,,	11 34	16842			8·7	1	28
,,	12 17			69 36·2	8·7	1	29

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

FEBRUARY.

FEBRUARY, judged by its average magnetic character figure ·72, was a month of the medium type. Like January, it comprised only one day of character (2). Eighteen were (1) days and ten (0). The 26th, the day of greatest disturbance, was not highly disturbed, but the minimum values for the month were reached on this day both for the X and Z elements. The ranges on the three components were respectively 58, 72, and 26 γ. On the 17th the ranges were approximately the same, being 59, 74, and 24 γ, and there was a well-marked bay on γ at 20^h. On the whole, the curves were without any very marked features, but on the 24th a sharp rise on X, commencing suddenly at 20$\frac{1}{4}^h$, is worthy of mention. There were no quick runs during the month. Pulsations, usually best marked on X, occurred on the 5th at 16$\frac{1}{2}^h$–17$\frac{1}{2}^h$, the 9th at 2^h, 11th at 20^h, 19th at 3$\frac{1}{2}^h$, 21st at 20$\frac{1}{2}^h$–21$\frac{1}{2}^h$, and 28th at 14^h–19^h.

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

Eskdalemuir. (X.) **March, 1912.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
													15000 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	1026	1027	1018	1018	1019	1023	1024	1017	1015	1017	1011	1010	1008	1013	1007	1013	1016	1013	1013	1019	1020	1020	1019	1019	1018	1017
2	1018	1018	1017	1016	1018	1019	1020	1019	1015	1012	1010	1013	1016	1018	1018	1020	1020	1018	1019	1020	1021	1020	1022	1020	1023	1018
3	1023	1019	1019	1020	1022	1024	1027	1027	1025	1020	1015	1010	1012	1017	1020	1019	1020	1020	1020	1011	1007	1023	1019	1020	1017	1019
4	1017	1017	1018	1018	1019	1019	1020	1020	1018	1011	1006	1004	1011	1018	1021	1024	1020	1018	1018	1019	1019	1019	1019	1019	1020	1017
5	1020	1018	1018	1018	1019	1020	1020	1019	1017	1013	1008	1003	1001	1008	1010	1008	1005	1005	1016	1027	1023	1026	1023	1024	1022	1015
6	1022	1023	1020	1019	1020	1020	1021	1024	1022	1015	1005	999	999	1005	1010	1009	1013	1010	1015	1021	1015	1013	1016	1030	1018	1015
7	1018	1009	1017	1016	1012	1017	1020	1021	1020	1016	1008	1005	1003	1006	1010	1003	1016	1011	1010	1019	1021	1021	1020	1022	1025	1014
8	1025	1014	1011	1024	1010	1019	1024	1027	1019	1018	990	976	999	992	999	1012	1010	995	1001	996	1007	1027	1022	1022	1013	1010
9	1013	1025	1016	1008	1009	1015	1018	1019	1014	1009	997	989	993	992	1003	1009	1019	1019	1015	1012	1013	1014	1013	1016	1020	1011
10	1020	1010	1010	1010	1013	1013	1017	1017	1013	1004	999	999	1003	1000	1006	1006	1012	1007	1005	1006	996	1007	1017	1018	1014	1009
11	1014	1016	1011	1013	1013	1011	1016	1017	1015	1004	1004	994	994	1001	1010	1015	1019	1020	1022	1022	1023	1021	1021	1019	1016	1013
12	1016	1015	1014	1016	1018	1020	1020	1025	1023	1020	1012	1009	1006	1007	1009	1008	1010	1010	1020	1025	1024	1014	1018	1018	1017	1016
13	1017	1020	1017	1018	1019	1019	1020	1020	1024	1019	1019	1007	1006	1006	1009	1012	1014	1013	1018	1020	1024	1021	1020	1020	1019	1017
14	1019	1019	1018	1018	1018	1020	1025	1024	1020	1018	1016	1009	1008	1010	1009	1017	1025	1027	1025	1031	1025	1026	1027	1026	1026	1020
15	1026	1022	1024	1023	1023	1024	1026	1026	1026	1018	1003	1008	1004	1006	1009	1016	1018	1018	1020	1022	1024	1027	1027	1034	1019	1020
16	1019	1018	1012	1014	1015	1019	1020	1020	1018	1009	1002	992	999	999	1003	1013	1017	1018	1020	1020	1023	1022	1022	1023	1021	1014
17	1021	1020	1020	1021	1020	1021	1025	1025	1020	1013	1004	1001	1003	1006	1009	1015	1017	1019	1019	1019	1021	1020	1021	1022	1022	1017
18	1022	1021	1021	1020	1023	1025	1026	1024	1020	1016	1010	1007	1011	1013	1017	1018	1020	1020	1019	1021	1022	1021	1023	1022	1022	1019
19	1022	1021	1021	1021	1023	1025	1026	1026	1023	1010	999	991	993	1001	1006	1009	1017	1020	1021	1021	1023	1022	1020	1019	1020	1016
20	1020	1020	1020	1021	1021	1023	1020	1020	1016	1005	993	987	990	999	1008	1015	1015	1017	1019	1023	1026	1026	1027	1029	1028	1015
21	1028	1027	1027	1027	1026	1027	1028	1028	1023	1013	1001	998	996	1003	1009	1017	1017	1020	1023	1027	1031	1017	1017	1017	1039	1019
22	1039	1019	1026	1018	1017	1019	1014	1015	1013	1009	992	981	984	992	1002	1012	1014	1013	1010	1009	1002	1010	1019	1017	1018	1010
23	1018	1017	1019	1019	1019	1018	1015	1023	1020	1017	1010	995	999	999	999	1005	1012	1013	1021	1024	1019	1019	1018	1017	1017	1014
24	1017	1017	1017	1018	1017	1017	1017	1016	1014	1009	1002	998	994	999	1004	1009	1013	1019	1020	1020	1023	1020	1020	1020	1024	1014
25	1024	1020	1019	1020	1020	1020	1020	1020	1019	1010	1003	999	997	999	1006	1013	1017	1020	1025	1026	1027	1025	1030	1028	1020	1017
26	1020	1028	1026	1023	1022	1023	1024	1025	1020	1018	1006	999	992	1001	1011	1018	1020	1022	1025	1023	1018	1017	1019	1041	1025	1019
27	1025	1025	1022	1021	1020	1018	1019	1020	1013	1006	998	991	989	998	1004	1009	1015	1020	1023	1022	1027	1024	1020	1020	1020	1014
28	1020	1019	1020	1021	1025	1028	1031	1034	1029	1013	999	991	995	1004	1013	1013	1020	1013	1019	1024	1027	1027	1026	1025	1024	1018
29	1024	1022	1020	1020	1022	1024	1027	1025	1019	1010	1000	998	995	1001	1015	1027	992	1011	1014	1023	1026	1020	1020	1020	1020	1016
30	1020	1018	1017	1017	1017	1019	1024	1016	1013	1013	1007	999	992	997	1005	1011	1017	1020	1027	1027	1027	1027	1026	1025	1020	1016
31	1020	1020	1021	1021	1020	1021	1025	1020	1013	999	988	984	981	986	996	1006	1020	1022	1030	1029	1028	1029	1027	1027	1026	1013
Mean	1021	1020	1019	1019	1019	1020	1022	1022	1019	1012	1004	998	999	1003	1008	1013	1016	1016	1019	1020	1020	1021	1021	1023	1021	1016

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

Eskdalemuir. (−Y.) **March, 1912.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
													5000 γ (·05 C.G.S. unit) +													
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	231	228	233	233	231	232	230	234	235	233	230	234	244	259	254	252	245	243	238	241	239	238	237	237	237	238
2	237	237	237	236	236	235	234	234	234	234	238	244	252	260	259	251	244	240	240	240	239	236	235	236	236	240
3	235	235	236	237	237	242	237	234	232	230	231	237	246	252	253	248	242	237	237	228	228	223	223	230	228	236
4	228	229	238	234	235	236	235	233	230	228	234	243	253	255	252	245	241	240	241	241	238	237	236	236	235	238
5	235	236	236	237	237	235	234	233	229	228	228	235	245	262	266	258	251	243	228	242	238	238	236	236	237	240
6	237	237	237	237	237	237	235	235	231	225	230	240	246	256	260	254	247	235	232	242	237	228	224	205	199	236
7	198	229	243	223	227	232	233	234	231	227	231	239	251	256	258	248	243	242	242	239	238	235	229	220	208	239
8	208	220	234	250	248	225	235	234	232	236	233	248	256	266	262	260	260	240	214	223	231	241	200	217	223	237
9	223	261	229	218	223	226	229	229	229	227	229	230	242	252	251	256	242	245	227	228	222	221	226	241	226	234
10	226	223	234	233	234	236	236	236	231	231	233	239	250	253	259	252	251	248	241	234	220	221	216	207	218	235
11	217	217	222	228	231	231	229	228	226	224	232	241	250	255	255	250	244	240	241	241	240	239	239	235	234	236
12	234	232	231	229	228	225	228	231	234	233	235	243	254	266	267	267	256	241	238	239	241	238	236	235	234	240
13	234	239	233	233	233	232	233	234	230	229	232	240	251	260	258	250	244	241	240	239	239	233	231	233	234	238
14	234	234	233	232	233	233	233	233	229	227	234	242	249	265	261	258	257	254	248	249	238	235	237	239	240	241
15	239	239	238	238	234	233	233	231	227	227	231	242	250	253	257	251	246	240	240	241	240	241	222	199	213	237
16	213	227	227	231	232	233	231	231	225	224	234	243	259	261	254	249	243	240	240	240	240	240	240	240	240	238
17	240	240	239	238	237	237	237	235	230	223	225	236	247	251	249	247	241	237	233	234	239	239	239	240	240	238
18	239	239	238	238	237	236	235	232	229	225	227	236	251	256	256	252	245	240	239	239	239	239	238	239	239	239
19	239	239	239	238	238	238	237	233	229	221	220	232	248	263	26	257	249	239	237	239	236	237	238	236	237	239
20	237	238	239	238	238	234	231	227	222	220	220	231	254	266	265	259	247	242	240	239	240	240	239	242	241	240
21	241	241	240	239	239	239	246	233	226	221	228	239	250	259	258	257	245	239	239	240	245	218	231	225	214	239
22	213	177	213	200	213	220	225	227	225	229	231	238	251	257	256	256	244	233	228	232	225	228	234	238	237	229
23	237	237	237	237	236	232	238	234	227	228	233	236	242	247	247	246	244	238	238	239	238	238	237	237	237	238
24	237	236	236	236	236	236	235	231	228	223	225	237	246	252	253	251	246	244	238	232	233	238	238	237	238	238
25	238	238	235	233	232	233	232	229	223	223	230	235	244	253	257	255	247	244	243	243	243	237	230	234	236	238
26	235	232	218	222	228	232	235	234	228	224	222	231	245	256	258	254	246	243	239	234	215	228	231	223	212	233
27	212	214	221	227	229	230	230	225	219	219	224	231	243	255	261	257	249	242	239	237	229	237	238	239	238	234
28	238	237	237	236	236	234	233	231	225	224	229	236	251	257	260	260	252	239	237	236	237	238	239	239	238	239
29	238	238	237	235	234	233	231	226	218	222	231	245	259	268	272	280	264	252	246	244	240	231	237	237	237	242
30	236	237	236	235	235	234	232	236	232	225	226	234	243	254	258	257	251	243	240	237	238	240	240	240	239	239
31	239	238	238	238	237	236	233	228	219	217	220	236	248	257	261	255	249	242	237	239	238	240	238	238	237	238
Mean	231	232	234	233	234	233	233	232	228	226	229	238	249	258	258	255	248	242	237	238	236	235	233	232	231	238

XI.—VERTICAL COMPONENT OF TERRESTRIAL MAGNETIC FORCE.

Eskdalemuir. (Z.) **March, 1912.**

For reasons which are set out in the notes on instruments it has been decided not to publish the hourly tabulations of vertical magnetic force for the year 1912. The following table gives the values of the vertical force deduced from the absolute observations entered in Table XII. below, after smoothing the values for the horizontal force and correcting them to the time of the dip observation.

Date.	Time. G.M.T.	Vertical Component Z.
	h m	10 γ
March 5	12 21	4528
12	12 24	4536
19	12 14	4538
25	12 20	4534

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

Eskdalemuir. **March, 1912.**

Date.	Time, G.M.T.	Horizontal Force.	Declination.	Dip.	Temperature in Magnet House.*	Magnetic Character of day (0–2).	Date.
	h m	γ	° ′ ″	° ′	°		
Mar. 5	11 3		18 6 45		8·7	1	1
,,	11 37	16839			8·6	0	2
,,	12 21			69 35·8	8·7	1	3
					8·7	0	4
					8·7	1	5
Mar. 8	11 19		18 11 35		8·6	1	6
,,	11 57	16840			8·6	1	7
					8·6	2	8
					8·6	1	9
					8·7	1	10
Mar. 12	10 59		18 9 14				
,,	11 40	16840			8·7	0	11
,,	12 24			69 36·8	8·6	1	12
					8·7	0	13
					8·7	1	14
					8·7	1	15
Mar. 15	11 22		18 9 26				
,,	12 2	16839					
					8·7	0	16
					8·7	0	17
					8·7	1	18
Mar. 19	11 2		18 6 41		8·7	0	19
,,	11 30	16828			8·7	0	20
,,	12 14			69 38·6			
					8·7	1	21
					8·7	1	22
Mar. 22	11 15		18 9 39		8·7	1	23
,,	11 51	16824			8·7	0	24
					8·8	0	25
Mar. 25	11 0		18 6 25		8·7	1	26
,,	11 42	16833			8·7	0	27
,,	12 20			69 37·8	8·7	1	28
					8·7	2	29
					8·7	1	30
Mar. 29	11 24		18 10 42				
,,	12 2	16832			8·7	0	31

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

MARCH.

MARCH was also a comparatively quiet month, its average magnetic character figure being ·68. Two days, the 8th and 29th, were of character (2), making only four for the whole first quarter of the year as against eight for the quarter July–September. On the 8th the disturbances lasted all day, the curves of X and Y showing a number of sudden rises and falls, particularly that of X between 21^h and $22\frac{1}{2}^h$; also inverted bays on Y from $2\frac{1}{4}^h$ to $3\frac{1}{2}^h$, and from 4^h to 5^h. The range of disturbance on X was 83 γ, on Y 65 γ, and on Z 66 γ. The 29th was quiet till 10^h, afterwards disturbed. The most noteworthy feature was the very sudden rise on X and Y at 15^h. The readings attained during the disturbance were the maxima for the month for all three elements. A sudden sharp rise on X at $22\frac{1}{2}^h$ on the 26th may be mentioned. Four days were very quiet all day. Quick runs were made between 8^h and 10^h on the 19th, and between 17^h and 19^h on the 21st. Both were quiet, without features.

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

Eskdalemuir. (X.) **April, 1912.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
	15000 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	1026	1026	1026	1026	1023	1023	1023	1020	1015	1007	993	988	990	993	1000	1008	1013	1020	1028	1028	1027	1027	1027	1027	1027	1016
2	1027	1025	1026	1026	1027	1027	1027	1025	1019	1007	996	988	991	997	1006	1014	1021	1022	1021	1024	1020	1021	1023	1029	1020	1017
3	1020	1021	1018	1027	1026	1026	1026	1026	1019	1010	...	988	995	1002	1006	1012	1020	1020	1019	1023	1020	1019	1016	1020	1020	1017
4	1020	1017	1018	1019	1020	1023	1025	1027	1020	1009	1000	999	1001	1009	1014	1020	1027	1021	1024	1027	1026	1027	1025	1026	1025	1019
5	1025	1027	1020	1025	1017	1027	1026	1026	1023	1017	1002	999	997	1002	994	1007	1023	1011	1019	1030	1020	995	1006	1009	1010	1014
6	1010	990	1000	1018	1017	1006	1002	999	992	987	979	982	981	993	1008	1015	1011	1015	1007	1016	1017	1005	1006	1017	1017	1003
7	1017	1022	1013	1015	1010	1011	1009	1007	1001	991	979	986	989	993	1003	1009	1007	1018	1018	1020	1043	1020	1022	1019	1017	1009
8	1017	1013	1013	1013	1015	1017	1017	1016	1010	999	987	980	982	991	1002	1011	1016	1019	1020	1022	1025	1025	1024	1021	1022	1011
9	1022	1020	1019	1018	1019	1020	1019	1018	1016	1011	1001	993	990	993	1006	1016	1020	1020	1019	1025	1027	1027	1028	1037	1041	1016
10	1042	1035	1036	1037	1038	1029	1028	1028	1023	986	964	977	979	982	990	1002	1007	1011	1018	1021	1021	1021	1019	1019	1018	1013
11	1018	1018	1017	1017	1018	1019	1020	1020	1014	1007	1002	1001	1000	1002	1011	1017	1021	1028	1025	1024	1023	1022	1023	1023	1021	1016
12	1021	1022	1021	1021	1020	1021	1022	1020	1018	1012	1002	1001	1002	1000	1003	1012	1014	1021	1020	1031	1032	1033	1030	1029	1028	1018
13	1028	1029	1029	1028	1029	1037	1032	1029	1021	1011	1002	997	999	997	1002	1009	1014	1019	1025	1028	1028	1026	1022	1022	1028	1019
14	1028	1023	1020	1022	1023	1025	1027	1023	1016	1010	1003	998	993	1001	1014	1022	1035	1040	1043	1038	1023	1023	1017	1019	1021	1020
15	1021	1020	1021	1029	1035	1045	1042	985	974	979	967	956	961	967	973	994	999	1018	1020	1024	1021	1019	1021	1020	1021	1005
16	1021	1022	1015	1014	1018	1008	1030	1020	991	977	986	966	969	990	1003	1011	1008	1036	1028	1031	1031	1021	1019	1017	1018	1010
17	1018	1019	1024	1027	1008	1021	1005	1014	1004	986	975	992	1000	999	1003	999	1008	1018	1025	1031	1018	1017	1023	1032	1014	1011
18	1014	1009	1014	1018	1014	1014	1014	1012	1006	994	974	973	981	991	1001	1008	1007	1014	1023	1031	1027	1023	1022	1021	1020	1009
19	1020	1020	1020	1020	1020	1020	1020	1017	1009	996	989	981	982	990	1007	1011	1012	1020	1024	1035	1028	1027	1037	1019	1019	1014
20	1019	1021	1018	1019	1025	1027	1025	1019	1013	998	982	977	979	985	1001	1014	1020	1027	1031	1033	1029	1024	1021	1020	1020	1014
21	1020	1021	1020	1020	1021	1021	1021	1018	1010	1000	990	981	982	996	1012	1021	1024	1026	1027	1031	1027	1028	1029	1029	1023	1016
22	1023	1026	1025	1022	1025	1027	1029	1024	1017	1014	1005	991	985	986	999	1003	1017	1025	1032	1035	1034	1025	1025	1021	1021	1017
23	1021	1020	1020	1019	1020	1021	1023	1024	1018	1011	1000	990	986	993	1005	1019	1026	1029	1037	1029	1026	1020	1017	1016	1024	1016
24	1025	1027	1022	1022	1023	1027	1023	1020	1020	1016	1008	1001	995	1000	1003	1009	1016	1023	1029	1034	1036	1030	1030	1033	1030	1020
25	1030	1029	1028	1028	1028	1028	1025	1018	1012	1005	1000	994	1001	995	1001	1012	1015	1022	1036	1037	1034	1033	1033	1032	1030	1020
26	1030	1029	1029	1028	1028	1027	1022	1021	1022	1018	1009	1008	1008	1008	1015	1022	1025	1029	1031	1035	1038	1035	1037	1035	1032	1025
27	1032	1029	1029	1028	1027	1022	1023	1024	1026	1018	1008	998	992	998	1007	1017	1022	1024	1029	1033	1033	1031	1029	1029	1027	1021
28	1027	1027	1024	1025	1022	1022	1022	1023	1021	1009	995	988	980	987	1001	1015	1027	1032	1036	1036	1034	1030	1029	1030	1028	1018
29	1028	1028	1029	1028	1028	1023	1021	1019	1017	1012	1004	1001	1001	1008	1016	1017	1021	1025	1029	1029	1030	1029	1030	1031	1029	1021
30	1029	1029	1028	1025	1023	1022	1023	1022	1020	1014	1009	1002	999	1008	1029	1022	1030	1029	1027	1035	1037	1036	1036	1036	1036	1024
Mean	1023	1022	1021	1023	1022	1023	1022	1019	1013	1004	994	989	990	995	1005	1012	1018	1023	1026	1029	1028	1024	1024	1025	1024	1016

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

Eskdalemuir. (−Y.) **April, 1912.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
	5000 γ (·05 C.G.S. unit) +																									
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	235	235	235	234	234	233	231	224	215	209	215	227	245	264	268	261	252	246	236	237	237	236	236	236	237	237
2	236	236	235	235	234	234	233	226	217	213	216	231	249	261	265	261	256	246	240	237	232	227	221	222	235	236
3	235	217	224	224	218	220	224	221	216	213	...	234	252	264	268	261	254	245	239	235	233	232	231	230	231	234
4	231	230	238	231	230	229	232	227	223	222	225	239	256	267	267	260	254	243	239	235	229	236	232	232	237	238
5	236	232	231	226	237	232	232	225	218	214	218	232	257	276	280	284	281	259	251	236	179	184	220	206	145	233
6	145	151	170	204	219	225	224	220	214	214	224	239	254	268	269	268	264	258	256	238	219	213	219	226	223	227
7	223	219	219	222	222	223	222	220	218	226	228	240	254	260	260	258	247	238	235	232	213	228	237	232	234	233
8	233	231	228	229	227	223	221	215	212	212	223	235	247	255	255	247	238	236	232	233	232	231	234	236	237	232
9	237	233	233	233	231	229	229	226	222	216	214	225	241	255	257	251	250	249	244	239	240	239	237	237	236	236
10	236	235	234	232	229	228	236	229	220	217	234	235	242	250	253	249	239	233	234	236	237	237	237	236	234	235
11	233	233	231	229	227	228	226	222	219	217	222	231	240	247	249	247	246	246	237	235	234	233	233	233	234	233
12	234	231	230	230	229	228	224	220	214	214	222	230	246	255	257	256	252	245	239	238	239	239	238	236	236	235
13	235	231	232	233	230	229	228	235	229	230	235	237	245	253	253	247	239	235	232	231	234	235	235	235	232	236
14	232	230	229	229	228	228	223	217	213	215	220	235	248	261	263	257	255	251	246	236	225	223	218	224	229	234
15	229	230	229	239	203	241	235	234	235	237	229	237	236	253	251	252	244	244	238	236	235	233	230	230	229	236
16	228	232	227	231	219	225	214	213	212	215	224	237	252	255	256	250	239	222	232	227	224	225	228	229	230	230
17	230	228	228	216	225	225	211	209	204	207	217	222	234	247	250	244	234	240	236	222	225	231	232	213	214	226
18	214	228	228	226	226	229	222	216	208	209	215	234	247	256	256	254	247	237	233	228	214	214	221	222	227	229
19	226	226	224	224	226	225	221	214	208	208	219	233	243	252	252	248	245	245	238	226	228	234	246	219	221	230
20	221	227	235	244	222	221	216	216	211	212	217	227	236	244	250	248	246	242	236	230	229	232	233	232	231	231
21	230	230	230	228	227	225	223	215	209	209	217	228	239	247	250	247	244	238	235	235	228	225	224	220	224	229
22	224	226	226	226	226	226	220	218	218	216	220	229	244	251	255	252	249	245	239	235	233	223	228	232	232	232
23	232	231	230	228	226	228	220	213	208	209	216	224	231	242	244	244	243	238	234	233	231	225	220	220	219	228
24	218	226	221	220	217	217	217	216	218	217	225	230	232	235	234	234	234	236	234	233	233	230	233	233	231	227
25	231	227	225	224	223	221	219	219	219	216	220	232	246	249	245	242	244	243	243	239	235	235	234	233	231	232
26	231	229	228	225	225	223	219	219	219	221	227	237	245	250	250	251	249	248	244	242	241	240	236	232	232	235
27	231	230	228	227	225	223	223	220	218	219	227	235	246	252	255	250	248	241	237	233	230	230	232	232	230	233
28	230	231	232	231	224	224	221	215	211	211	217	229	237	248	250	242	238	241	228	231	232	233	233	231	231	230
29	231	232	232	231	229	224	219	209	205	206	220	232	244	255	258	250	242	234	231	231	232	232	232	230	230	231
30	229	229	227	226	223	221	216	210	205	206	214	226	242	253	259	249	248	240	231	232	234	232	231	231	230	230
Mean	227	227	227	228	225	226	223	219	215	215	221	232	244	254	256	252	247	242	238	234	229	229	231	229	227	232

XV.—VERTICAL COMPONENT OF TERRESTRIAL MAGNETIC FORCE.

Eskdalemuir. (Z.) **April, 1912.**

For reasons which are set out in the notes on instruments it has been decided not to publish the hourly tabulations of vertical magnetic force for the year 1912. The following table gives the values of the vertical force deduced from the absolute observations entered in Table XVI. below, after smoothing the values for the horizontal force and correcting them to the time of the dip observation.

Date.	Time, G.M.T.	Vertical Component Z.
	h m	10 γ
April 2	12 24	4535
9	12 29	4545
16	12 22	4539
23	12 17	4536
30	12 24	4547

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

Eskdalemuir. **April, 1912.**

Date.	Time, G.M.T.	Horizontal Force.	Declination.	Dip.	Temperature in Magnet House.*	Magnetic Character of day (0–2).	Date.
	h m	γ	° ′ ″	° ′	°		
Apr. 2	11 6		18 6 15		8·7	0	1
,,	11 42	16838			8·7	0	2
,,	12 24			69 38·2	8·7	1	3
					8·7	1	4
Apr. 9	12 29			69 40·9	8·7	2	5
					8·7	1	6
					8·8	1	7
					8·7	0	8
Apr. 12	11 10		18 6 57		8·7	0	9
,,	11 42	16841					
					8·7	1	10
					8·7	1	11
Apr. 16	11 4		18 9 42		8·7	1	12
,,	11 37	16802			8·7	1	13
,,	12 22			69 40·4	8·7	1	14
					8·7	2	15
Apr. 19	10 58		18 7 51		8·8	1	16
,,	11 29	16815			8·8	1	17
					8·8	1	18
					8·8	1	19
Apr. 23	11 5		18 5 8		8·8	0	20
,,	11 39	16817			8·8	0	21
,,	12 17			69 39·2	8·8	0	22
					8·8	0	23
					8·9	0	24
Apr. 26	11 2		18 6 52		8·8	1	25
,,	11 39	16843			8·9	1	26
					8·9	1	27
					8·9	1	28
					8·9	1	29
Apr. 30	11 11		18 7 27				
,,	11 44	16817					
,,	12 24			69 40·2	8·9	1	30

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

APRIL.

The month of APRIL was rather more disturbed than the previous three months, its average magnetic character figure being ·78. Two days, the 5th and 15th, were of character (2), nineteen of (1), and nine of (0). The 5th was moderately disturbed on X, more highly on Y, the maximum reading for the month on Y being followed by a fall of over 150 γ in six hours to a minimum at $20\frac{1}{2}^h$. A fairly rapid rise then occurred, followed by a fall to a second minimum attained just after midnight, which was, with one exception, the lowest reading of Y reached during the year. On the 15th the disturbance commenced about 3^h, the most prominent feature being a bay well marked on Y between 3^h and 5^h, followed by a gradual fall and recovery on X and Z with sudden small oscillations at intervals on X and Y. Among other features may be mentioned a sharp fall on Z on the 6th between 0^h and 1^h, with gradual recovery, and a sharp rise and fall on X on the 7th, commencing at $19\frac{3}{4}^h$. A number of days were quiet or very quiet till about 10^h, but none were characterised as very quiet all day. Pulsations were noted on the 4th at 17^h–23^h, 7th at 16^h–17^h, 10th at 6^h–8^h, 21st at 12^h–24^h, 22nd at 20^h–22^h, and 23rd at 13^h–19^h. Quick runs were made on the 16th between 8^h and 10^h and 18th between 17^h–19^h.

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

Eskdalemuir. (X.) **May, 1912.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
											15000 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	1036	1032	1032	1030	1028	1025	1018	1022	1019	1010	1003	1000	998	1001	1008	1017	1023	1023	1029	1032	1033	1033	1032	1030	1029	1021
2	1029	1028	1029	1029	1028	1029	1025	1014	1013	1007	1001	998	1005	1014	1022	1032	1029	1036	1038	1029	1026	1025	1028	1030	1040	1023
3	1040	1038	1030	1025	1022	1022	1019	1012	1013	1008	1003	995	1002	1016	1018	1027	1034	1030	1036	1038	1036	1040	1026	1027	1025	1023
4	1025	1018	1022	1019	1022	1021	1019	1014	1008	1003	1001	1003	1008	1012	1018	1021	1026	1034	1037	1040	1039	1040	1039	1048	1050	1023
5	1050	1046	1043	1038	1035	1038	1036	1028	1014	975	979	975	961	1015	1009	1018	1018	1015	1030	1029	1043	1028	1022	1022	1023	1019
6	1023	1022	1020	1018	1021	1022	1019	1016	1009	1001	987	985	980	994	1006	1012	1020	1029	1028	1028	1025	1022	1026	1036	1036	1015
7	1036	1025	1020	1014	1016	1017	1016	1014	1013	1008	1000	979	981	992	1003	1012	1022	1024	1029	1030	1045	1026	1030	1032	1022	1016
8	1022	1021	1021	1019	1019	1022	1022	1021	1020	1012	994	1001	1000	999	1004	1011	1022	1028	1029	1022	1022	1021	1020	1019	1020	1016
9	1021	1021	1019	1019	1017	1017	1016	1014	1009	1001	996	996	1001	1008	1004	1020	1022	1024	1026	1023	1027	1024	1023	1023	1024	1016
10	1024	1028	1022	1023	1023	1020	1021	1022	1018	1009	1006	1009	1009	1011	1019	1022	1023	1026	1027	1031	1032	1030	1032	1034	1032	1022
11	1032	1030	1027	1024	1025	1025	1023	1020	1016	1012	1006	1003	1003	1008	1010	1023	1030	1024	1032	1036	1033	1036	1047	1047	1036	1024
12	1036	1040	1041	1044	1049	1016	1013	1019	1006	1012	1002	978	984	993	1006	1023	1019	1022	1026	1028	1037	1040	1057	1033	1037	1022
13	1037	1019	1011	1026	1020	1010	994	1009	986	951	953	985	1006	1009	1012	1017	1017	1029	1050	1030	1056	1031	1019	1016	1013	1012
14	1013	1035	1035	1026	1015	1026	993	996	994	1003	1001	997	993	994	994	998	1012	1033	1042	1051	1037	1032	1021	1019	1021	1015
15	1021	1016	1013	1015	1009	1016	1019	1013	1011	1005	1000	995	1001	1006	1010	1013	1017	1028	1029	1029	1025	1024	1022	1020	1021	1015
16	1021	1021	1019	1020	1020	1019	1019	1015	1008	998	995	997	1006	1014	1010	1018	1020	1023	1032	1034	1035	1030	1025	1023	1023	1018
17	1023	1024	1027	1023	1026	1028	1022	1016	1012	1007	1001	998	1009	1014	1023	1024	1028	1031	1036	1038	1037	1032	1031	1027	1026	1022
18	1026	1023	1027	1029	1026	1027	1027	1023	1016	1002	992	992	996	1010	1026	1030	1022	1034	1037	1032	1031	1027	1023	1023	1022	1021
19	1022	1022	1020	1020	1021	1021	1021	1020	1015	1005	996	993	992	991	994	1002	1014	1022	1032	1042	1035	1031	1030	1028	1026	1016
20	1026	1035	1020	1019	1022	1020	1020	1021	1022	1013	999	989	987	992	997	1005	1019	1028	1037	1040	1039	1035	1033	1032	1031	1019
21	1032	1031	1028	1027	1024	1024	1021	1019	1015	1005	998	998	999	1010	1017	1022	1031	1030	1041	1040	1039	1033	1032	1031	1026	1023
22	1026	1030	1024	1022	1023	1023	1022	1019	1009	999	993	988	989	1003	1016	1023	1028	1032	1039	1039	1036	1031	1031	1031	1031	1020
23	1031	1031	1031	1031	1032	1031	1031	1029	1024	1016	1006	1002	1003	1008	1017	1025	1032	1038	1038	1038	1037	1039	1031	1031	1030	1026
24	1030	1028	1027	1028	1030	1029	1027	1022	1017	1013	1007	1006	1006	1010	1014	1026	1038	1040	1043	1041	1045	1042	1038	1043	1038	1027
25	1038	1035	1031	1029	1030	1031	1026	1019	1014	1008	1004	1004	1006	1008	1014	1014	1029	1027	1033	1038	1038	1034	1031	1030	1028	1024
26	1028	1024	1024	1025	1028	1028	1022	1017	1012	998	993	989	1002	1006	1020	1026	1036	1040	1041	1038	1042	1039	1038	1037	1031	1023
27	1031	1031	1026	1027	1029	1024	1019	1014	1012	1008	1003	1002	1003	1005	1010	1016	1023	1031	1036	1038	1039	1033	1032	1030	1031	1022
28	1031	1025	1023	1023	1022	1022	1020	1011	1003	996	994	997	1005	1015	1019	1022	1028	1035	1035	1032	1031	1031	1027	1024	1019
29	1024	1024	1025	1028	1030	1031	1031	1027	1017	1006	998	996	995	997	1012	1021	1038	1032	1038	1040	1036	1031	1030	1028	1024	1022
30	1024	1027	1025	1026	1027	1030	1025	1024	1022	1013	1010	1006	1002	1008	1014	1020	1026	1034	1039	1046	1043	1036	1029	1023	1026	1024
31	1026	1025	1025	1026	1027	1028	1024	1022	1020	1014	1010	1004	1004	1001	989	1004	1020	1039	1038	1051	1049	1058	1052	1052	1046	1026
Mean	1029	1028	1025	1025	1025	1024	1020	1018	1013	1004	998	995	998	1005	1011	1018	1025	1030	1035	1036	1036	1033	1031	1030	1029	1020

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

Eskdalemuir. (−Y.) **May, 1912.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
											5000 γ (·05 C.G.S. unit) +															
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	230	230	228	225	224	218	215	216	214	213	218	226	243	254	250	243	235	232	231	235	234	233	228	230	226	229
2	226	228	229	225	223	215	217	222	223	217	224	237	252	260	256	255	247	243	228	227	230	230	230	230	231	232
3	231	215	204	215	212	213	206	216	215	214	224	223	245	255	252	244	242	237	235	233	227	209	218	225	208	225
4	208	211	211	212	213	213	213	209	208	213	223	233	237	250	247	242	239	238	238	237	230	227	234	219	211	225
5	211	223	235	232	222	218	213	217	209	217	231	249	273	268	268	256	243	236	230	230	211	215	231	230	230	232
6	229	230	230	227	219	215	208	207	208	212	219	226	236	240	248	248	230	234	233	232	232	231	232	224	222	227
7	222	221	217	225	223	216	213	206	207	211	218	224	238	244	248	243	239	230	224	220	207	221	229	224	222	224
8	222	225	226	231	230	221	212	205	205	214	230	240	251	255	257	248	245	241	233	228	229	230	229	229	229	231
9	229	228	228	225	223	218	212	204	204	211	217	226	237	242	242	241	239	237	235	231	230	231	230	230	230	227
10	229	228	227	223	219	216	219	210	208	215	224	238	247	247	244	241	234	231	233	235	234	233	233	232	230	229
11	230	230	228	225	222	219	216	215	215	222	230	241	249	250	248	248	247	241	240	236	229	235	236	227	222	232
12	222	228	216	199	188	184	218	198	200	204	219	233	248	255	256	253	245	232	228	230	233	232	211	203	203	222
13	203	189	197	210	210	205	212	216	196	214	239	249	258	260	255	250	241	244	248	231	233	203	198	198	231	224
14	231	227	216	210	221	219	206	211	214	212	219	236	246	249	248	249	241	241	245	222	225	210	218	229	223	227
15	222	221	229	225	225	219	212	207	210	216	226	234	238	240	240	240	239	240	235	232	230	228	227	227	227	228
16	227	228	228	224	221	215	211	211	215	220	226	235	250	253	245	243	237	232	232	231	227	223	228	230	228	229
17	228	230	229	223	221	216	215	219	221	221	227	239	247	246	243	247	243	238	239	239	237	233	230	230	229	232
18	229	227	228	227	223	219	218	212	206	213	230	249	256	256	257	252	239	239	239	236	235	223	226	229	229	232
19	228	227	226	226	220	212	208	208	209	210	220	233	246	250	253	249	246	243	239	238	220	224	226	228	229	229
20	229	213	201	220	215	212	213	214	209	207	214	222	235	245	246	245	248	248	247	246	244	239	233	226	220	228
21	220	219	218	219	214	214	214	211	207	201	204	218	229	243	248	247	244	243	247	245	239	236	235	233	228	227
22	228	233	235	229	221	217	214	214	212	209	215	227	244	253	255	249	242	239	242	245	242	239	238	235	230	232
23	230	228	226	224	220	217	213	214	218	220	221	227	239	246	247	246	242	240	241	243	240	236	235	233	231	231
24	230	227	225	223	220	216	212	213	211	216	219	230	245	247	246	247	245	241	244	245	246	243	237	235	225	232
25	225	224	225	225	224	218	214	214	216	222	229	239	246	246	247	241	237	240	244	244	242	237	233	235	233	232
26	233	228	226	225	219	215	212	211	213	219	224	232	243	247	247	244	243	241	240	239	238	234	234	230	227	231
27	227	223	219	219	219	213	207	204	209	217	225	237	245	248	251	246	243	239	238	237	237	236	237	235	234	230
28	234	229	228	226	220	222	219	217	217	219	225	238	246	252	254	252	248	243	240	238	237	235	233	232	231	233
29	230	227	226	226	223	218	211	205	210	218	224	237	246	250	254	250	251	244	244	237	233	228	228	226	229	231
30	229	233	230	228	226	220	214	212	209	212	218	229	242	249	253	256	253	247	244	243	219	217	220	217	217	230
31	217	218	219	218	218	217	217	212	208	208	209	215	233	248	249	250	253	245	241	237	235	...	...	...	...	...
Mean 30 days	226	224	223	222	219	215	213	211	211	214	223	234	245	250	250	247	242	239	238	236	232	228	229	227	226	229

XIX.—VERTICAL COMPONENT OF TERRESTRIAL MAGNETIC FORCE.

Eskdalemuir. (Z.) **May, 1912.**

For reasons which are set out in the notes on instruments it has been decided not to publish the hourly tabulations of vertical magnetic force for the year 1912. The following table gives the values of the vertical force deduced from the absolute observations entered in Table XX. below, after smoothing the values for the horizontal force and correcting them to the time of the dip observation.

Date.	Time, G.M.T.	Vertical Component Z.
	h m	10γ
May 7	12 39	4530
14	12 27	4535
21	11 5	4534
28	12 16	4532

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

Eskdalemuir. **May, 1912.**

Date.	Time, G.M.T.	Horizontal Force.	Declination.	Dip.	Temperature in Magnet House.*	Magnetic Character of day (0–2).	Date.
	h m	γ	° ′ ″	° ′	°		
May 3	11 20		18 8 23		8·9	1	1
,,	11 54	16843			8·9	1	2
					8·9	1	3
					9·0	1	4
May 7	11 27		18 8 42				
,,	12 0	16814			9·0	2	5
,,	12 39			69 37·3	9·0	1	6
					9·0	1	7
					9·0	1	8
					9·0	0	9
May 10	11 18		18 8 17				
,,	11 56	16855					
					9·0	1	10
					9·0	1	11
					9·0	2	12
May 14	11 9		18 7 0		9·1	2	13
,,	11 47	16826			9·1	1	14
,,	12 27			69 38·6			
					9·1	0	15
					9·1	0	16
May 21	11 5		18 3 50		9·2	1	17
,,	11 38	16822			9·2	1	18
,,	12 20			69 37·6	9·2	1	19
					9·2	0	20
					9·2	1	21
May 24	11 35		18 7 19		9·2	0	22
,,	12 10	16845			9·2	0	23
					9·3	1	24
May 28	11 2		18 8 48		9·3	0	25
,,	11 36	16832			9·3	0	26
,,	12 16			69 37·0	9·4	0	27
					9·4	0	28
					9·5	1	29
May 31	11 10		18 3 5		9·4	1	30
,,	11 39	16838			9·4	1	31

MAY.

The month of MAY was fairly disturbed, its average magnetic character figure being ·78, the same as that of April. Three days were of character (2)—the 2nd, 12th, and 13th; eighteen were (1) days and ten (0). Of the disturbed days the first two were only moderately, while the 13th was considerably, disturbed On that day there was a well pronounced bay on X between 1^h and 2^h and a very steep peak at $19\frac{3}{4}^h$. The bay was also well marked on Z, having its lowest point at about $1\frac{3}{4}^h$, the fall involved being one of the largest during the year. The ranges for the day were 186 γ on X, 85 on Y, and 109 on Z. On the 5th the disturbance lasted nearly all day, the most pronounced features being a bay on X between 11^h and $12\frac{1}{2}^h$ and a sharp peak at 20^h. Z increased steadily from 12^h to 18^h. On the 12th the Y component was considerably disturbed from 2^h, and a sharp peak occurred just before 22^h. Pulsations were noted on the 3rd at 0^h–1^h and 20^h–21^h, on the 10th from 12^h, the 19th at 19^h–$20\frac{1}{2}^h$, the 23rd at 20^h–23^h, and the 26th at 21^h–24^h. Quick runs were made between 8^h and 10^h on the 14th, showing small pulsations, and between 17^h and 19^h on the 16th.

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

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

Eskdalemuir. (X.) **June, 1912.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
											15000 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	1046	1042	1039	1035	1035	1030	1019	1022	1020	1000	996	1000	996	997	1004	1005	1020	1032	1038	1038	1035	1032	1029	1030	1028	1022
2	1028	1027	1026	1026	1020	1010	1013	1007	1010	1011	1001	990	989	995	1007	1031	1030	1031	1038	1042	1038	1039	1029	1028	1022	1019
3	1023	1022	1025	1022	1026	1029	1008	1005	1017	1008	990	983	992	999	1009	1012	1024	1032	1038	1034	1032	1029	1034	1034	1024	1018
4	1024	1022	1022	1023	1026	1030	1026	1021	1014	1002	997	991	993	991	1001	1009	1021	1026	1033	1040	1034	1030	1026	1025	1024	1018
5	1024	1023	1023	1023	1025	1026	1024	1018	1012	1009	997	988	989	996	1004	1004	1014	1030	1034	1040	1036	1031	1026	1025	1024	1018
6	1024	1023	1021	1021	1022	1022	1018	1018	1011	1005	997	992	994	996	997	1007	1015	1025	1032	1040	1039	1033	1032	1030	1030	1017
7	1030	1028	1027	1029	1029	1031	1029	1028	1025	1021	1014	1011	1010	1013	1016	1019	1026	1032	1044	1051	1051	1054	1055	1049	1041	1030
8	1041	1047	1039	1023	1030	1036	1035	1013	1004	1005	1005	1001	990	1003	990	1018	1034	1037	1039	1047	1049	1047	1026	1031	1026	1024
9	1026	1032	1032	1025	1025	1020	1013	1004	1006	1004	998	994	991	1005	1010	1015	1032	1038	1039	1031	1037	1037	1038	1034	1025	1020
10	1025	1024	1012	1021	1025	1025	1007	1009	1004	1000	996	997	997	1004	1018	1030	1013	1035	1053	1046	1040	1034	1036	1031	1033	1020
11	1033	1026	1021	1020	1011	1015	1011	1007	1001	996	990	984	987	1004	1013	1017	1020	1022	1026	1025	1030	1032	1029	1029	1025	1014
12	1025	1022	1023	1021	1019	1021	1022	1014	1007	999	994	997	999	1004	1018	1024	1021	1031	1039	1032	1031	1031	1028	1030	1028	1019
13	1029	1026	1024	1025	1026	1025	1019	1012	1007	997	990	991	1000	1010	1019	1028	1037	1039	1038	1035	1033	1033	1033	1030	1028	1021
14	1028	1029	1029	1026	1025	1019	1019	1019	1019	1013	1004	1004	1004	1010	1012	1009	1022	1029	1038	1039	1037	1033	1030	1030	1033	1022
15	1033	1027	1024	1022	1022	1023	1020	1014	1008	1006	998	995	992	998	1006	1012	1021	1031	1037	1033	1033	1031	1027	1026	1025	1018
16	1025	1026	1025	1026	1026	1023	1018	1012	1007	1004	1001	992	991	997	1006	1018	1031	1042	1045	1041	1035	1030	1029	1030	1032	1020
17	1032	1032	1033	1033	1032	1026	1021	1017	1012	1009	1003	995	991	998	1008	1014	1026	1046	1041	1047	1042	1039	1032	1027	1029	1023
18	1029	1030	1032	1032	1030	1029	1025	1020	1015	1008	998	994	994	1006	1016	1021	1029	1033	1040	1040	1040	1035	1033	1033	1033	1024
19	1033	1032	1027	1026	1026	1026	1026	1024	1016	1009	1006	1005	1010	1012	1009	1015	1019	1027	1033	1033	1033	1030	1029	1028	1026	1022
20	1026	1025	1025	1026	1028	1030	1030	1027	1021	1016	1010	1005	998	1001	1015	1018	1020	1025	1033	1035	1036	1033	1033	1032	1031	1023
21	1031	1031	1032	1033	1033	1031	1026	1026	1021	1011	998	996	1002	1006	1013	1012	1021	1025	1028	1034	1036	1035	1033	1032	1029	1023
22	1029	1026	1026	1026	1031	1032	1030	1027	1022	1019	1000	1000	1005	1011	1019	1021	1014	1033	1039	1037	1036	1033	1033	1031	1026	1024
23	1026	1023	1023	1025	1026	1026	1021	1018	1012	1002	1000	1005	1010	1010	1026	1031	1033	1039	1049	1043	1043	1036	1033	1039	1029	1025
24	1030	1028	1033	1033	1028	1030	1021	1016	1006	997	998	999	996	993	1004	1013	1022	1028	1034	1036	1034	1031	1030	1027	1030	1020
25	1030	1040	1028	1025	1027	1023	1017	1009	1004	1006	1006	1004	1005	1011	1017	1019	1024	1026	1032	1035	1033	1030	1029	1026	1027	1021
26	1027	1027	1027	1022	1025	1024	1019	1008	1002	999	992	991	999	1005	1011	1017	1019	1022	1028	1027	1029	1031	1027	1025	1023	1017
27	1023	1026	1027	1031	1032	1031	1027	1022	998	980	993	999	1004	1002	1020	1021	1025	1021	1023	1030	1032	1031	1030	1041	1041	1020
28	1041	1027	1027	1027	1030	1028	1025	1014	1001	999	1003	1002	998	999	999	1022	1027	1032	1041	1028	1034	1033	1027	1027	1033	1020
29	1033	1025	1024	1027	1027	1027	1022	1006	999	997	1002	1002	1000	1011	1012	1025	1034	1036	1033	1042	1036	1034	1027	1029	1033	1021
30	1033	1022	1021	1023	1026	1025	1020	1014	1011	1006	1000	992	995	1001	1001	1007	1020	1023	1032	1037	1038	1036	1036	1030	1022	1019
Mean	1030	1028	1027	1026	1026	1026	1021	1016	1010	1005	999	997	997	1003	1010	1017	1024	1031	1037	1037	1036	1034	1031	1031	1029	1021

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

Eskdalemuir. (−Y.) **June, 1912.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
											5000 γ (·05 C.G.S. unit) +															
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	...	...	...	231	229	219	224	222	205	207	215	229	238	248	252	251	247	244	242	241	236	229	229	227	229	...
2	228	227	228	229	229	226	220	210	207	203	215	233	247	255	253	253	248	242	243	241	221	221	226	225	224	230
3	224	219	219	215	218	208	212	228	209	210	221	236	255	261	259	249	244	243	240	239	236	232	233	215	217	230
4	217	224	228	232	227	219	216	207	201	201	206	219	234	242	243	237	236	235	233	234	234	234	233	233	232	226
5	232	229	228	226	223	219	213	206	200	198	210	223	234	236	242	239	235	234	234	235	235	234	234	233	233	226
6	232	229	227	227	224	219	214	206	203	206	216	226	235	239	240	239	237	238	241	242	238	235	235	233	230	228
7	230	227	225	223	221	215	210	208	210	216	224	235	241	242	242	243	246	247	249	250	247	246	245	225	207	232
8	207	210	223	225	236	207	201	195	211	216	225	235	239	257	251	254	260	256	250	247	222	207	222	224	225	229
9	225	229	231	216	205	203	197	203	210	213	224	235	242	247	252	253	252	250	249	243	241	224	216	216	202	228
10	201	205	219	225	213	211	205	205	207	215	227	230	234	240	249	252	238	241	229	233	238	238	240	232	232	226
11	232	227	234	228	233	221	213	212	210	214	215	221	242	231	230	231	247	241	235	232	229	232	229	228	227	228
12	227	227	225	221	226	220	212	206	202	205	221	234	247	253	259	255	244	242	242	238	233	231	230	230	229	231
13	229	225	225	223	221	215	207	202	198	201	215	228	241	247	247	248	250	247	241	241	238	236	234	223	226	228
14	225	223	222	219	216	212	211	210	208	212	222	235	248	259	262	255	253	249	246	249	237	233	230	229	224	232
15	224	222	224	220	217	214	208	202	203	208	219	233	246	254	257	254	251	245	240	232	230	230	229	228	227	229
16	227	228	227	226	220	217	207	196	194	199	210	222	234	240	243	251	252	249	243	237	233	228	229	225	224	227
17	224	223	224	223	220	219	214	209	202	202	209	220	237	248	253	257	252	252	246	245	240	233	230	229	227	230
18	226	223	223	220	219	216	206	201	201	207	219	235	246	250	250	248	243	238	240	239	239	236	233	235	231	229
19	231	229	227	226	223	222	218	207	204	203	212	216	224	239	245	245	241	242	241	239	237	235	232	230	229	228
20	229	228	227	226	225	219	211	210	207	206	212	219	227	233	235	236	233	234	239	240	238	237	235	232	229	227
21	228	226	225	225	223	217	212	210	208	212	225	231	240	247	255	252	251	243	238	238	239	241	232	227	227	231
22	227	225	225	223	219	214	206	204	205	207	211	217	231	241	249	254	251	247	244	240	236	235	234	225	218	228
23	218	222	218	217	212	208	206	205	204	208	218	230	246	250	256	257	250	244	247	238	232	223	234	233	218	228
24	218	221	225	218	225	214	209	199	204	208	221	230	246	256	257	251	249	244	240	241	240	238	238	238	237	231
25	236	237	220	222	212	206	199	197	198	205	214	226	239	244	240	237	234	230	233	235	234	233	233	230	231	225
26	231	228	230	230	230	214	207	205	206	208	221	234	245	247	243	239	235	234	234	233	233	234	234	234	231	229
27	231	230	228	225	218	211	205	205	213	231	232	235	243	251	254	247	239	233	234	235	230	230	231	219	217	229
28	217	213	215	219	217	214	205	205	216	221	222	231	243	253	251	249	247	240	239	234	234	233	230	234	210	228
29	209	212	212	216	215	210	205	209	215	219	226	239	255	263	267	259	257	254	249	245	226	223	229	228	222	231
30	222	223	220	218	214	207	202	202	204	204	209	218	232	238	239	238	238	233	235	234	235	232	229	221	227	223
Mean 29 days	224	224	224	223	221	214	209	206	206	209	218	228	240	247	249	248	245	242	240	239	235	232	232	228	225	229

XXIII.—VERTICAL COMPONENT OF TERRESTRIAL MAGNETIC FORCE.

Eskdalemuir. (Z.) **June, 1912.**

For reasons which are set out in the notes on instruments it has been decided not to publish the hourly tabulations of vertical magnetic force for the year 1912. The following table gives the values of the vertical force deduced from the absolute observations entered in Table XXIV. below, after smoothing the values for the horizontal force and correcting them to the time of the dip observation.

Date.	Time, G.M.T.	Vertical Component Z.
	h m	10 γ
June 4	12 16	4533
18	12 30	4535
25	12 39	4535

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

Eskdalemuir. **June, 1912.**

Date.	Time, G.M.T.	Horizontal Force.	Declination.	Dip.	Temperature in Magnet House.*	Magnetic Character of day (0–2).	Date.
	h m	γ	° ′ ″	° ′	°		
June 4	11 2		18 4 26		9·4	1	1
,,	11 35	16823			9·4	1	2
,,	12 16			69 37·9	9·5	1	3
					9·5	1	4
					9·5	0	5
					9·5	0	6
					9·5	1	7
					9·6	2	8
					9·5	2	9
June 11	11 25		18 7 41		9·6	1	10
,,	12 0	16825			9·6	1	11
					9·7	0	12
					9·8	1	13
					9·8	1	14
					9·8	0	15
					9·8	0	16
					9·9	1	17
					9·9	1	18
June 18	11 13		18 8 7		9·9	0	19
,,	11 50	16825			9·9	1	20
,,	12 30			69 37·8	9·9	1	21
					10·0	1	22
					10·0	1	23
					10·0	1	24
					10·0	1	25
					10·0	1	26
					10·1	1	27
					10·1	1	28
June 25	11 24		18 5 50				
,,	12 1	16836			10·2	1	29
,,	12 39			69 37·3	10·2	1	30

JUNE.

JUNE was one of the most disturbed months of the year, its average magnetic character figure reaching ·87. Two days, the 8th and 9th, were of character (2); no less than twenty-two were (1) days and only six (0). The most disturbed day was the 8th, which included both the maximum and minimum readings of X and the minimum of Y for the month. The disturbance lasted all day, and the range on X was 116 γ, on Y 83 γ, and on Z 41 γ. On the 9th the disturbances were smaller. During the early part of the day a gradual fall occurred on X, which reached a minimum value at 12^h. On a number of days the first half of the day was quiet or very quiet, the disturbances commencing often rather suddenly about noon. Fairly sudden disturbances, consisting of a rise on X and fall on Y and Z were noted on the 27th at 21^h and on the 29th at 0^h. Three days were very quiet all day. Pulsations were observed on the 3rd at $22\frac{1}{2}^h$, 4th at 18^h, 6th at 19^h–21^h, 7th at $6\frac{1}{2}^h$, 9th at 21^h–$21\frac{1}{2}^h$, 13th at 22^h–23^h, 14th at $21\frac{1}{2}^h$–24^h, 16th at $8\frac{1}{2}^h$, 19th at 22^h on X, 21st at 21^h–22^h on X, 22nd at 23^h, 25th at 0^h–1^h and $18\frac{1}{2}^h$–$19\frac{1}{2}^h$.

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

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

Eskdalemuir. (X.) **July, 1912.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
	15000 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	1022	1023	1026	1025	1024	1021	1021	1023	1022	1009	993	985	976	989	998	1013	1020	1024	1031	1035	1030	1029	1028	1025	1025	1016
2	1025	1026	1024	1022	1026	1030	1031	1027	1020	1014	1010	998	990	996	1009	1020	1028	1035	1035	1032	1031	1031	1027	1027	1027	1022
3	1028	1030	1032	1034	1038	1041	1038	1035	1026	1020	1008	994	994	1003	1012	1019	1039	1049	1048	1042	1042	1040	1042	1046	1063	1030
4	1063	1043	1041	1050	1038	1032	1033	1027	1007	1003	1011	991	992	999	986	998	1007	1022	1042	1042	1035	1032	1026	1032	1018	1022
5	1018	1024	1025	1018	1013	1016	1024	1016	1003	982	983	986	982	989	974	1005	1005	1026	1042	1039	1036	1037	1021	1019	1015	1012
6	1015	1014	1017	1021	1023	1021	1015	1016	1014	1008	999	988	978	995	1007	1014	1022	1024	1025	1036	1039	1033	1025	1028	1028	1016
7	1029	1022	1021	1015	1021	1020	1018	1012	1010	1001	992	991	998	1009	1019	1023	1028	1039	1038	1028	1036	1038	1039	1029	1023	1020
8	1023	1022	1021	1017	1021	1022	1019	1016	1013	1003	989	987	988	1001	1007	1024	1026	1019	1017	1024	1030	1028	1024	1023	1024	1015
9	1024	1019	1020	1021	1020	1018	1017	1012	1005	998	998	997	989	1000	1015	1024	1029	1029	1030	1033	1032	1028	1024	1022	1021	1017
10	1021	1022	1024	1024	1026	1029	1024	1016	1009	1006	992	991	998	1003	1008	1011	1015	1029	1036	1033	1030	1024	1027	1023	1024	1018
11	1024	1023	1023	1025	1026	1027	1023	1017	1010	1006	1001	998	1002	1008	1010	1019	1029	1035	1031	1034	1032	1030	1028	1026	1025	1020
12	1026	1027	1027	1026	1028	1030	1026	1020	1018	1017	1011	1004	1008	1011	1016	1026	1030	1029	1030	1036	1033	1033	1029	1027	1024	
13	1027	1025	1026	1027	1029	1029	1022	1017	1012	1004	1002	1008	1015	1013	1012	1016	1017	1024	1034	1030	1036	1030	1028	1026	1026	1021
14	1026	1029	1033	1033	1032	1028	1026	1025	1023	1017	1009	1004	1000	1001	1011	1021	1026	1027	1037	1037	1037	1037	1031	1030	1029	1024
15	1029	1029	1027	1025	1028	1028	1026	1020	1012	1002	995	994	994	1000	1009	1019	1023	1022	1021	1026	1029	1030	1029	1028	1028	1019
16	1029	1030	1027	1028	1030	1032	1024	1017	1013	1025	1017	1003	998	997	1003	1011	1016	1023	1031	1034	1031	1029	1029	1024	1021	1021
17	1021	1022	1023	1022	1023	1027	1023	1020	1019	1016	1010	1005	1003	999	1006	1010	1012	1035	1048	1048	1038	1025	1021	1020	1021	1021
18	1021	1010	1029	1028	1021	1021	1020	1017	1011	1003	996	993	991	986	989	1002	1013	1030	1036	1038	1038	1038	1038	1029	1031	1017
19	1031	1031	1030	1029	1031	1031	1028	1024	1020	1011	1005	997	996	997	1009	1018	1022	1028	1036	1043	1044	1038	1037	1038	1034	1024
20	1035	1032	1031	1031	1031	1032	1032	1023	1019	1013	1003	1000	995	1004	1009	1018	1026	1029	1037	1032	1032	1032	1032	1034	1026	1023
21	1026	1026	1034	1029	1023	1025	1026	1013	1010	1004	997	987	988	1006	1018	1028	1026	1025	1030	1032	1031	1031	1030	1032	1032	1020
22	1032	1022	1022	1026	1029	1030	1034	1021	1017	1008	993	988	994	1005	1011	1017	1022	1024	1026	1024	1029	1030	1030	1030	1028	1019
23	1028	1024	1021	1022	1026	1030	1028	1021	1013	1005	1001	995	997	1003	1013	1014	1019	1025	1026	1028	1029	1028	1029	1029	1027	1019
24	1028	1029	1029	1028	1029	1030	1026	1021	1019	1015	1003	995	995	999	1009	1023	1028	1028	1026	1025	1031	1030	1030	1027	1025	1021
25	1025	1025	1023	1023	1025	1031	1028	1024	1018	1007	997	992	998	1005	1011	1020	1021	1039	1033	1024	1031	1036	1038	1038	1037	1022
26	1037	1033	1035	1033	1034	1039	1024	1026	1023	1015	1005	1007	1016	1006	1016	1029	1021	1028	1040	1033	1031	1029	1031	1026	1024	1025
27	1024	1019	1018	1014	1022	1015	1013	1014	1008	994	987	986	994	998	1008	1020	1034	1029	1030	1026	1028	1028	1022	1021	1021	1015
28	1021	1021	1021	1020	1019	1018	1019	1020	1014	1008	1004	1000	1003	1005	1010	1012	1019	1019	1028	1026	1032	1031	1031	1029	1026	1018
29	1027	1027	1027	1027	1027	1031	1026	1019	1014	1009	1003	1005	1007	1013	1022	1024	1026	1030	1034	1034	1034	1031	1030	1029	1027	1023
30	1027	1027	1029	1029	1021	1030	1026	1020	1012	1005	1002	1008	1013	1007	1006	1013	1010	1014	1024	1030	1028	1024	1025	1025	1025	1019
31	1025	1028	1031	1032	1029	1031	1025	1019	1017	1017	1006	1007	1020	1023	1013	1015	1049	1043	1055	1059	1045	1034	1033	1033	1030	1029
Mean	1027	1025	1026	1026	1026	1027	1025	1020	1015	1008	1001	996	997	1002	1008	1017	1023	1029	1034	1034	1034	1031	1030	1028	1027	1020

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

Eskdalemuir. (−Y.) **July, 1912.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19	20.	21.	22.	23.	Midt.	Mean.
	5000 γ ('05 C.G.S. unit) +																									
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	227	229	223	216	215	216	232	221	210	204	215	234	252	255	256	251	244	236	234	229	226	226	227	226	224	229
2	223	223	223	226	218	209	203	203	206	206	212	221	233	242	246	249	251	243	234	231	230	228	226	226	225	226
3	225	224	224	223	220	214	209	206	198	194	203	215	233	247	257	261	264	249	247	243	244	238	238	234	184	229
4	184	187	191	216	215	198	205	197	199	196	203	222	244	264	263	269	257	251	247	234	227	226	222	221	217	223
5	216	206	216	213	227	234	209	196	196	193	209	220	240	250	245	246	246	240	237	238	231	222	215	219	227	224
6	227	230	226	216	214	214	210	206	207	202	209	221	231	238	246	246	244	234	231	235	223	223	224	227	219	224
7	218	218	218	223	219	212	205	199	197	198	205	216	232	239	244	244	244	245	238	231	227	227	226	221	224	223
8	224	236	217	212	213	211	204	202	201	203	214	226	242	255	254	250	246	240	235	230	223	224	225	223	228	226
9	228	222	222	220	215	213	208	196	192	191	201	213	225	233	235	231	230	230	230	230	229	229	227	226	224	220
10	223	222	223	217	210	205	203	205	206	206	213	217	227	235	238	239	235	234	236	234	232	230	229	225	225	223
11	225	228	228	218	212	207	204	206	204	203	208	219	232	235	234	235	233	232	232	232	230	229	226	227	225	223
12	224	222	220	216	213	205	199	197	199	205	217	225	233	237	241	244	241	233	232	233	232	229	224	222	221	223
13	221	222	220	219	216	210	205	205	207	215	228	240	251	254	253	248	238	236	236	232	232	229	226	225	224	228
14	224	226	225	224	221	211	207	202	199	201	213	231	249	262	265	256	241	232	229	229	228	224	223	225	224	227
15	223	220	217	216	215	210	206	201	204	206	216	227	247	257	255	248	237	228	222	224	228	227	228	228	223	225
16	223	226	222	221	217	211	205	204	217	221	216	222	233	244	248	248	240	231	224	222	222	223	223	218	221	224
17	221	221	222	220	217	210	204	204	204	210	218	230	237	247	258	255	246	245	244	237	229	222	220	219	210	226
18	209	209	221	209	204	202	202	205	207	207	207	209	220	229	237	241	240	238	231	230	229	226	219	221	217	219
19	217	210	216	207	205	203	201	203	202	203	214	228	240	254	260	257	247	239	235	235	236	235	231	230	232	226
20	231	230	221	214	209	202	196	200	214	218	219	227	230	246	253	251	243	233	231	228	228	228	222	209	214	224
21	214	220	230	205	204	203	200	202	197	198	203	217	234	242	245	244	236	229	228	228	228	228	227	227	220	221
22	220	217	216	216	217	209	202	203	205	210	216	228	238	241	240	239	238	229	232	230	231	229	228	226	225	223
23	224	221	220	218	217	211	206	201	201	199	205	214	222	249	253	245	235	227	220	221	224	225	224	223	220	221
24	220	224	220	216	213	207	202	201	200	199	207	220	233	243	245	245	238	231	226	223	225	227	227	225	224	222
25	224	221	218	218	218	209	204	201	196	195	201	214	229	244	249	250	243	241	232	227	224	225	227	228	227	223
26	226	223	223	218	216	203	199	205	200	205	213	227	242	250	247	250	233	235	229	227	227	217	215	213	217	222
27	217	222	235	236	201	200	199	199	201	203	210	214	219	233	237	237	236	233	232	226	220	218	218	218	219	219
28	219	219	219	218	216	213	213	210	208	209	209	225	238	232	238	231	226	219	219	222	224	225	226	226	225	221
29	224	218	217	214	210	203	198	198	202	206	212	223	234	236	233	226	225	224	225	227	227	226	225	222	218	219
30	218	221	219	215	213	208	206	207	211	217	219	227	238	243	244	242	233	227	227	231	231	225	225	221	222	224
31	221	221	217	204	198	196	188	187	190	198	212	225	241	248	246	238	249	249	250	239	209	222	183	194	211	218
Mean	221	221	220	217	214	208	204	202	203	204	211	223	236	245	247	246	241	235	232	230	228	226	223	222	221	223

XXVII.—VERTICAL COMPONENT OF TERRESTRIAL MAGNETIC FORCE.

Eskdalemuir. (Z.) **July, 1912.**

For reasons which are set out in the notes on instruments it has been decided not to publish the hourly tabulations of vertical magnetic force for the year 1912. The following table gives the values of the vertical force deduced from the absolute observations entered in Table XXVIII. below, after smoothing the values for the horizontal force and correcting them to the time of the dip observation.

Date.	Time, G.M.T.	Vertical Component Z.
	h m	10γ
July 3	12 30	4532
9	14 30	4537
16	12 33	4534
26	12 40	4538

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

Eskdalemuir. **July, 1912.**

Date.	Time, G.M.T.	Horizontal Force.	Declination.	Dip.	Temperature in Magnet House.*	Magnetic Character of day (0–2)	Date.
	h m	γ	° ′ ″	° ′	°		
July 3	11 21		18 4 12		10·2	1	1
,,	11 25	16832			10·3	0	2
,,	12 30			69 37·5	10·3	1	3
					10·3	2	4
					10·3	2	5
					10·4	1	6
					10·4	1	7
					10·4	1	8
					10·5	1	9
					10·5	0	10
July 9	11 45		18 4 35		10·5	0	11
,,	12 32	16828			10·5	1	12
,,	14 30			69 37·3	10·6	1	13
					10·6	1	14
					10·7	0	15
					10·7	1	16
					10·8	1	17
					10·8	0	18
					10·9	1	19
July 16	11 9		18 4 41		10·9	1	20
,,	11 54	16831			10·9	1	21
,,	12 33			69 38·0	11·0	1	22
					11·0	1	23
					11·0	0	24
					11·1	1	25
					11·1	1	26
					11·1	1	27
					11·2	1	28
July 26	11 35		18 6 10		11·1	0	29
,,	11 59	16866			11·2	1	30
,,	12 40			69 37·1	11·2	2	31

JULY.

JULY was also one of the most disturbed months, its average magnetic character figure being ·87, the same as that of June. Three days, the 4th, 5th, and 31st, were of character (2), twenty-one of (1), and only seven of (0). The vertical recorder, on account of its tendency to drift, was adjusted several times near the end of the month, and its data are therefore somewhat uncertain, but it should be noted that one of the largest disturbances of the year on Z took place on the 5th from 0^h–$0\frac{3}{4}^h$. The range of the disturbances on the 4th and 5th were 105 and 100 γ on X and 114 and 70 on Y. In this month also, as in June, it was observed that the earlier hours of the day were on many days quiet or very quiet, disturbance only beginning at or about noon. Three of the (0) days were very quiet all day. Pulsations occurred on the 11th at 19^h–21^h, 12th at $21\frac{1}{2}^h$–$22\frac{1}{2}^h$, 13th at 21^h–22^h, 14th at 19^h–21^h, 16th at 0^h–1^h and 21^h–23^h, 18th at $20\frac{1}{2}^h$–$21\frac{1}{2}^h$, 21st at 23^h–24^h, 28th at 18^h–20^h, and 31st at $18\frac{1}{2}^h$–$19\frac{1}{2}^h$. It will be observed that there seems to be a tendency, at any rate during this month, for pulsations to occur around the hour 20.

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

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

Eskdalemuir. (X.) **August, 1912.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
														15000 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	1028	1032	1036	1037	1022	995	1018	1013	998	986	988	991	997	1002	1005	1011	1015	1018	1022	1029	1031	1025	1019	1019	1021	1014
2	1021	1022	1021	1020	1018	1019	1021	1018	1012	1008	1002	994	1000	1001	1000	997	1008	1022	1027	1025	1025	1026	1023	1021	1020	1015
3	1021	1021	1019	1019	1022	1020	1008	1007	1004	999	997	991	992	999	1006	1009	1015	1024	1030	1031	1031	1027	1023	1023	1020	1014
4	1020	1018	1019	1019	1016	1016	1015	1013	1008	998	991	985	989	997	1008	1019	1023	1025	1026	1026	1026	1023	1019	1020	1019	1013
5	1019	1017	1018	1021	1024	1024	1021	1014	1005	998	990	985	987	997	1011	1025	1038	1026	1036	1037	1038	1047	1045	1019	1012	1018
6	1012	1054	1068	1051	1068	1032	987	899	951	941	920	921	935	952	979	1004	1011	1016	1015	1033	1023	1020	1022	1023	1025	998
7	1025	1024	1020	1019	1019	1019	1016	1013	1004	997	991	991	996	1005	1010	1021	1026	1021	1022	1017	1019	1020	1019	1016	1019	1014
8	1019	1018	1019	1015	1013	1012	1007	1004	999	992	986	985	988	997	1003	1011	1013	1019	1022	1022	1021	1024	1025	1026	1024	1010
9	1024	1022	1020	1020	1021	1020	1021	1022	1014	1003	995	994	994	1002	1011	1017	1021	1025	1018	1024	1027	1029	1028	1030	1034	1017
10	1035	1031	1024	1024	1023	1024	1023	1016	1006	994	988	988	988	999	1012	1020	1026	1030	1030	1034	1030	1026	1020	1024	1026	1017
11	1026	1025	1020	1020	1020	1022	1017	1009	1003	*993*	989	996	999	999	1005	1016	1024	1025	1026	1025	1024	1027	1022	1022	1021	1015
12	1021	1020	1020	1021	1022	1023	1020	1015	1004	989	988	998	999	1006	1013	1017	1026	1027	1022	1020	1024	1024	1022	1022	1024	1015
13	1024	1023	1024	1024	1025	1022	1018	1014	1004	996	988	985	987	989	999	1014	1023	1026	1030	1030	1030	1028	1029	1030	1030	1015
14	1030	1030	1032	1032	1029	1030	1027	1021	1006	1002	994	984	990	1003	1013	1020	1017	1022	1024	1028	1029	1028	1025	1025	1028	1018
15	1028	1029	1025	1010	1027	1025	1026	1020	1013	1000	992	989	991	1002	1012	1022	1026	1025	1024	1027	1030	1030	1031	1025	1026	1018
16	1026	1023	1022	1021	1020	1018	1018	1013	1004	992	985	984	991	999	1012	1021	1022	1022	1024	1020	1027	1029	1037	1034	1027	1015
17	1028	1031	1021	1035	1039	1016	1017	1016	1009	1003	997	994	997	995	1003	1005	1008	1017	1015	1027	1029	1027	1027	1026	1028	1016
18	1028	1021	1020	1017	1018	1018	1018	1016	1012	1004	995	992	995	1006	1008	1019	1020	1024	1033	1033	1049	1027	1021	1016	1005	1017
19	1005	1009	1009	1007	1007	1004	1006	1007	999	*990*	983	982	980	983	988	1010	1018	1014	1017	1024	1021	1017	1018	1023	1022	1005
20	1022	1023	1020	1016	1019	1015	1017	1016	1007	995	989	988	993	1003	1005	1007	1007	1012	1021	1027	1028	1028	1026	1027	1025	1013
21	1025	1023	1021	1021	1019	1019	1021	1014	1016	1013	1002	992	996	1007	1009	1018	1015	1018	1020	1023	1019	1021	1035	1021	1034	1016
22	1034	1035	1034	1014	1007	1014	1016	1008	993	987	985	992	1007	1016	1032	1031	1022	1036	1032	1024	1044	1014	1024	1026	1019	1018
23	1019	1024	1021	1020	1014	1016	1016	1006	1000	989	979	982	986	998	994	1015	1031	1027	1021	1026	1020	1024	1036	1021	1017	1012
24	1018	1016	1015	1015	1016	1015	1015	1003	992	989	987	987	992	1001	1008	1008	1010	1022	1023	1025	1027	1024	1024	1032	1022	1011
25	1022	1017	1018	1017	1015	1014	1022	1008	1008	998	990	996	1003	1015	1016	1016	1017	1017	1024	1023	1023	1022	1025	1023	1020	1015
26	1020	1017	1019	1018	1018	1017	1022	1016	1008	996	986	987	999	1006	1015	1020	1019	1022	1025	1023	1023	1024	1037	1031	1027	1016
27	1027	1022	1021	1020	1022	1030	1034	1026	1005	997	982	977	980	999	1014	1017	1017	1015	1027	1017	1032	1032	1035	1032	1029	1016
28	1029	1023	1023	1024	1024	1024	1024	1019	1008	997	996	992	994	1003	1013	1020	1016	1021	1026	1028	1022	1023	1022	1022	1024	1016
29	1024	1022	1022	1022	1022	1019	1015	1009	1001	993	986	989	997	1006	1015	1020	1015	1026	1023	1022	1027	1022	1022	1022	1022	1014
30	1022	1020	1024	1021	1017	1018	1017	1010	1004	999	988	981	994	1008	1019	1025	1027	1026	1024	1026	1026	1028	1042	1025	1019	1016
31	1020	1024	1024	1025	1022	1019	1018	1016	1010	1002	992	992	996	1005	1012	1012	1020	1029	1034	1030	1023	1025	1028	1027	1037	1017
Mean	1023	1024	1023	1022	1022	1019	1018	1010	1004	995	988	987	991	1000	1008	1016	1019	1023	1025	1026	1027	1026	1027	1024	1023	1014

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

Eskdalemuir. (−Y.) **August, 1912.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
														5000 γ (·05 C.G.S. unit) +												
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	211	196	190	181	178	207	209	202	200	202	209	215	226	235	236	235	231	228	225	222	212	213	217	216	216	212
2	216	215	214	210	209	205	202	201	201	206	217	229	241	252	254	247	240	237	234	227	221	221	222	218	216	222
3	215	216	215	215	210	198	203	202	199	199	208	217	231	232	232	234	231	227	223	221	221	219	216	214	215	217
4	215	215	215	215	213	208	204	202	196	197	208	221	235	247	246	237	226	221	221	221	221	221	221	218	217	219
5	217	215	215	216	216	208	204	198	195	196	208	221	233	240	240	240	236	225	225	227	229	215	195	180	178	216
6	177	155	162	179	213	254	268	213	239	228	226	235	242	250	255	246	238	233	221	212	225	221	222	221	219	223
7	219	213	212	211	205	196	192	194	197	201	203	196	225	231	231	232	233	227	231	231	228	225	221	218	214	215
8	213	217	212	210	205	203	202	204	203	204	212	219	232	243	244	238	227	221	220	219	218	219	221	220	219	218
9	219	218	215	215	210	209	207	203	197	199	207	222	232	232	231	226	219	219	220	224	224	224	224	220	219	217
10	219	217	215	213	206	201	199	199	196	200	205	217	235	246	249	241	229	221	220	223	203	206	209	213	219	216
11	218	215	218	214	210	201	194	194	200	*209*	218	228	239	245	242	234	221	212	213	213	218	217	217	217	216	217
12	216	216	217	216	212	205	199	196	195	199	210	229	242	247	238	226	217	212	209	215	220	221	220	220	218	217
13	217	218	217	216	209	199	194	193	197	201	207	219	232	242	243	235	219	210	213	219	222	221	220	220	218	216
14	218	217	216	210	217	206	201	194	192	202	216	231	255	256	247	235	220	211	209	218	220	213	219	220	219	219
15	219	218	204	209	204	200	197	196	197	198	208	221	235	243	244	239	230	223	218	220	223	223	217	211	217	217
16	216	216	215	215	211	206	197	190	184	186	199	216	234	244	246	240	230	221	218	216	220	221	217	200	190	214
17	190	178	197	197	208	217	226	224	206	209	217	233	245	251	250	246	237	233	226	226	226	224	222	216	216	222
18	215	211	210	215	215	209	202	202	203	207	213	221	229	235	235	240	234	230	231	226	204	185	194	187	164	214
19	164	162	189	205	200	202	200	198	197	*204*	212	224	228	235	240	225	228	228	222	215	218	219	220	221	221	212
20	221	219	214	209	202	201	199	197	197	197	202	219	232	238	235	234	227	223	221	221	222	224	223	217	216	216
21	215	214	213	212	209	208	206	212	210	208	213	220	235	247	240	239	233	227	218	219	221	215	216	220	214	220
22	214	225	197	175	191	207	201	199	205	209	214	226	240	249	252	247	226	230	222	218	191	211	205	184	201	214
23	200	208	205	199	199	198	196	190	189	197	205	220	230	240	242	236	232	223	207	207	205	203	187	205	213	210
24	213	216	215	214	213	207	204	198	199	207	212	225	238	248	250	241	232	230	211	216	219	217	213	213	218	219
25	217	211	212	213	212	212	210	198	199	197	206	217	231	240	239	231	226	218	216	217	212	212	212	212	213	215
26	213	214	214	215	216	214	213	210	207	207	217	230	242	249	250	245	233	225	220	218	219	219	216	214	213	222
27	213	211	216	214	214	213	206	205	201	197	210	231	253	255	255	250	250	232	232	207	220	226	221	220	216	223
28	215	213	211	211	205	202	195	192	190	198	207	216	230	238	243	243	236	220	219	218	212	213	212	211	228	215
29	228	209	207	204	204	205	203	198	196	204	211	224	241	250	252	248	230	224	221	220	223	216	214	221	216	219
30	215	211	210	210	211	*210*	*204*	*201*	*194*	*201*	*216*	*231*	244	251	249	240	233	228	223	223	223	223	216	201	207	219
31	207	210	204	209	209	204	203	197	197	197	202	212	228	237	238	230	226	226	224	219	218	215	221	211	219	215
Mean	212	209	209	208	208	207	205	200	199	202	210	222	236	244	244	238	230	224	220	219	218	217	215	212	212	217

XXXI.—VERTICAL COMPONENT OF TERRESTRIAL MAGNETIC FORCE.

Eskdalemuir. (Z.) **August, 1912.**

For reasons which are set out in the notes on instruments it has been decided not to publish the hourly tabulations of vertical magnetic force for the year 1912. The following table gives the values of the vertical force deduced from the absolute observations entered in Table XXXII. below, after smoothing the values for the horizontal force and correcting them to the time of the dip observation.

Date.	Time, G.M.T.	Vertical Component Z.
	h m	10 γ
Aug. 2	14 48	4536
6	12 17	4531
14	12 29	4532
20	12 19	4533
27	12 24	4533

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

Eskdalemuir. **August, 1912.**

Date.	Time, G.M.T.	Horizontal Force.	Declination.	Dip.	Temperature in Magnet House.*	Magnetic Character of day (0-2).	Date.
	h m	γ	° ′ ″	° ′	°		
Aug. 2	12 5		18 8 25		11·3	1	1
,,	12 37	16838			11·3	1	2
,,	14 48			69 38·2			
					11·3	0	3
					11·3	0	4
					11·3	1	5
Aug. 6	11 7		18 2 16		11·3	2	6
,,	12 17			69 40·7	11·3	1	7
					11·3	0	8
					11·4	0	9
Aug. 9	11 21		18 5 50		11·4	1	10
,,	11 53	16826			11·4	0	11
					11·4	1	12
Aug. 14	11 22		18 8 53		11·5	0	13
,,	11 52	16822			11·5	1	14
,,	12 29			69 37·4	11·6	0	15
					11·6	1	16
					11·7	1	17
Aug. 20	11 12		18 5 14				
,,	11 43	16823			11·7	1	18
,,	12 19			69 37·8	11·7	1	19
					11·7	0	20
					11·7	1	21
					11·7	2	22
Aug. 23	11 4		18 5 16				
,,	11 35	16819			11·7	1	23
					11·8	1	24
					11·8	0	25
Aug. 27	11 9		18 7 39		11·9	0	26
,,	11 43	16812			11·9	1	27
,,	12 24			69 38·0			
					11·9	1	28
					11·9	1	29
Aug. 30	11 56		18 9 24		11·8	0	30
,,	12 29	16839			11·9	0	31

AUGUST.

AUGUST was a moderately disturbed month, its average magnetic character figure being ·68. There were two days of character (2), the 6th and 22nd, seventeen days of (1), and twelve of (0). The disturbance on the 6th, lasting practically all day, was one of the largest during the year. On the X curve there were well-marked maxima at 2^h and $18\frac{1}{2}^h$ and minima at 7^h, $10\frac{3}{4}^h$, 13^h, and 18^h. The nearly continuous fall of 234 γ, which occurred on X between 2^h and 7^h, was the largest during the month and the largest but one during the year. That occurring on Z, between 0^h and 5^h, was also relatively very large, the minimum value attained being the lowest for the year. On the 22nd the disturbances were less marked, the most noteworthy feature consisting in a series of oscillations of approximately equal amplitude on X, lasting from 14^h to 23^h. The rise and fall on Z between 19^h and $20\frac{1}{2}^h$ on the 27th, and the disturbance on the 5th, which commenced somewhat suddenly at 14^h after a very quiet period, and was part of the storm previously mentioned continuing throughout the 6th, are the other most notable features of the month's curves. The tendency previously remarked upon for disturbances to commence about noon is also somewhat in evidence in this month's records. Two days were very quiet all day. Quick runs were made on the 13th between 8^h and 10^h and on the 15th from 17^h–19^h. Neither exhibited any feature of interest.

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

XXXIII.—READINGS OF THE NORTH COMPONENT OF TERRESTRIAL MAGNETIC FORCE

Eskdalemuir. (X.) AT EACH HOUR OF GREENWICH MEAN TIME. **September, 1912.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
	15000 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	1038	1037	1022	1017	1021	1024	1014	1013	1007	996	988	986	996	1006	1016	1020	1026	1028	1029	1029	1028	1028	1029	1030	1027	1018
2	1027	1028	1026	1025	1024	1024	1023	1021	1015	1010	1002	996	993	993	1000	1009	1015	1020	1025	1029	1029	1030	1028	1028	1027	1018
3	1027	1026	1025	1024	1024	1024	1024	1020	1017	1011	1002	992	990	1000	1011	1018	1023	1026	1028	1030	1031	1037	1051	1046	1055	1022
4	1055	1049	1033	1039	1031	1030	1019	1021	1016	1005	991	978	982	994	1009	1016	1021	1024	1027	1026	1025	1024	1023	1024	1024	1019
5	1024	1025	1024	1024	1021	1021	1020	1021	1017	1013	995	982	986	996	1006	1012	1020	1022	1026	1024	1022	1025	1032	1030	1025	1016
6	1025	1024	1028	1020	1024	1022	1014	1013	1005	988	985	990	994	1007	1015	1021	1026	1027	1028	1026	1026	1025	1030	1031	1031	1017
7	1031	1025	1024	1023	1021	1021	1015	1009	1001	995	994	995	1000	1004	1012	1023	1024	1021	1022	1024	1025	1026	1026	1025	1027	1016
8	1027	1025	1025	1024	1026	1024	1024	1018	1000	997	990	993	1002	1010	1015	1016	1019	1024	1031	1033	1032	1034	1037	1037	1048	1020
9	1048	1036	1031	1028	1029	1029	1029	1023	1010	998	989	990	989	1003	1007	1008	1020	1023	1024	1027	1026	1026	1026	1030	1026	1018
10	1026	1026	1027	1027	1024	1024	1019	1013	1001	992	987	991	1001	1009	1012	1017	1020	1024	1024	1023	1025	1025	1025	1026	1024	1016
11	1024	1024	1026	1026	1024	1021	1021	1017	1004	998	1001	998	1003	1012	1017	1022	1025	1021	1026	1024	1025	1027	1026	1025	1030	1018
12	1030	1024	1027	1027	1029	1029	1016	1010	1011	995	993	990	1002	1003	1007	1016	1018	1018	1025	1024	1026	1022	1021	1023	1025	1016
13	1025	1028	1020	1021	1021	1024	1024	1017	1004	993	985	985	990	996	1008	1017	1025	1031	1025	1026	1017	1020	1020	1019	1019	1014
14	1019	1019	1021	1024	1024	1024	1019	1017	1006	999	989	995	996	1003	1012	1014	1015	1021	1025	1027	1027	1028	1024	1024	1023	1016
15	1023	1021	1020	1021	1022	1020	1019	1016	1008	998	985	982	986	997	1010	1020	1024	1026	1028	1026	1027	1026	1025	1024	1027	1015
16	1027	1022	1025	1023	1026	1027	1022	1015	1009	1000	995	1000	1008	1014	1014	1017	1019	1022	1024	1027	1029	1027	1024	1021	1025	1018
17	1025	1026	1027	1027	1026	1026	1021	1017	1010	1000	993	994	998	993	981	999	1031	991	999	1017	1052	1055	1001	1013	1010	1013
18	1010	1009	1010	992	1006	1007	1017	1001	987	983	978	972	975	990	999	1008	1009	1014	1016	1018	1028	1028	1019	1018	1014	1004
19	1014	1015	1015	1015	1013	1012	1013	1008	1004	994	990	992	994	1000	1006	1010	1005	1005	1006	1012	1017	1020	1029	1018	1019	1009
20	1019	1019	1025	1029	1021	1016	1017	1017	1007	1000	993	993	985	995	1002	1009	1013	1020	1020	1022	1022	1029	1021	1022	1022	1013
21	1022	1022	1022	1021	1021	1021	1022	1021	1017	1009	1003	996	998	994	998	999	1008	1009	1012	1018	1019	1017	1019	1017	1020	1013
22	1020	1018	1018	1022	1024	1027	1024	1025	1015	1008	1001	993	991	998	1003	1002	1005	1011	1016	1018	1020	1026	1025	1045	1022	1015
23	1022	1023	1024	1024	1024	1027	1027	1026	1018	1002	1002	997	997	1005	1009	1016	1019	1012	1010	1019	1026	1025	1024	1024	1031	1017
24	1031	1030	1024	1020	1010	1011	1008	957	949	935	939	968	989	998	998	1002	1013	1008	1016	1017	1009	1008	976	1034	1003	997
25	1003	1012	1012	1017	1016	1016	1011	1010	1004	1000	993	991	996	1003	1009	1010	1010	1010	1013	1016	1017	1017	1017	1017	1017	1010
26	1017	1017	1018	1016	1021	1023	1022	1014	1005	996	992	990	993	999	1007	1012	1017	1019	1021	1024	1047	1023	1017	1021	1020	1014
27	1020	1019	1019	1019	1020	1020	1021	1019	1012	1002	989	981	980	990	1001	1010	1012	1017	1017	1021	1021	1024	1024	1023	1020	1012
28	1020	1019	1019	1019	1020	1023	1024	1022	1017	1008	996	988	978	981	1000	1010	1017	1021	1024	1026	1026	1027	1027	1027	1030	1014
29	1030	1024	1024	1020	1021	1025	1026	1025	1018	1007	996	993	996	1003	1010	1016	1021	1022	1022	1020	1024	1025	1026	1027	1028	1018
30	1028	1028	1024	1027	1025	1024	1025	1026	1024	1016	1007	996	996	1003	1009	1013	1017	1019	1020	1022	1026	1026	1035	1034	1034	1020
Mean	1025	1024	1023	1022	1022	1022	1020	1015	1007	998	991	990	993	1000	1007	1013	1018	1019	1021	1023	1026	1026	1024	1026	1025	1015

XXXIV.—READINGS OF THE WEST COMPONENT OF TERRESTRIAL MAGNETIC FORCE

Eskdalemuir. (−Y.) AT EACH HOUR OF GREENWICH MEAN TIME. **September, 1912.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
	5000 γ (·05 C.G.S. unit) +																									
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	219	218	198	201	204	202	203	202	200	203	209	217	233	244	243	232	226	222	222	221	219	217	216	213	209	216
2	209	210	212	212	210	209	206	198	196	197	205	216	229	239	239	236	232	229	223	221	220	217	216	215	214	217
3	213	212	211	211	211	209	204	202	200	200	204	215	229	239	237	232	228	227	224	221	220	222	228	222	210	218
4	210	194	201	222	204	201	202	196	200	203	212	223	234	235	237	230	226	221	220	218	221	209	217	216	216	215
5	216	218	218	213	212	210	208	201	201	209	212	219	234	234	229	227	224	221	219	218	218	218	222	216	216	217
6	215	227	215	208	203	204	207	202	203	209	224	229	236	237	233	227	220	218	219	220	218	218	217	215	217	218
7	217	216	217	216	215	211	208	202	203	208	217	228	236	242	236	229	224	219	216	218	220	219	218	218	220	219
8	220	217	218	216	215	213	207	201	200	203	214	229	240	243	235	228	226	225	227	227	221	227	224	221	212	221
9	211	214	217	216	212	207	201	200	200	203	214	231	245	245	240	231	225	220	219	218	219	218	219	211	218	218
10	218	215	220	216	209	200	199	198	198	205	214	226	234	234	232	225	215	214	216	219	218	219	218	218	218	216
11	218	214	212	209	207	209	207	207	207	211	224	232	237	243	238	230	224	220	220	218	220	218	215	218	226	219
12	225	209	211	210	209	210	206	212	210	215	225	231	244	244	238	232	226	220	217	214	202	196	206	212	218	218
13	218	219	212	210	206	208	201	200	197	200	208	222	235	238	237	229	222	217	204	205	202	209	198	203	210	212
14	210	209	210	210	210	212	207	205	206	210	220	231	236	241	239	230	224	220	218	217	212	207	210	214	216	217
15	215	215	211	211	207	208	206	199	196	195	201	213	226	235	233	230	224	220	217	216	216	216	214	213	211	214
16	211	208	209	208	208	205	204	199	196	202	214	218	240	242	237	228	222	218	216	216	216	215	212	211	214	215
17	214	214	215	214	212	210	206	203	199	201	209	225	248	257	259	248	260	231	221	199	136	144	182	202	215	213
18	214	229	208	207	204	204	202	196	194	198	212	230	230	242	234	230	223	215	214	213	204	198	204	212	213	213
19	213	216	212	212	210	212	206	200	198	198	204	215	227	233	231	223	218	215	212	210	212	211	209	207	210	213
20	209	221	206	179	184	196	198	202	206	210	212	224	231	239	235	228	219	216	213	214	212	208	214	214	213	212
21	213	212	211	209	208	207	205	202	197	199	207	215	222	231	231	226	226	219	214	213	212	212	211	202	202	212
22	202	214	215	208	206	208	205	202	196	197	205	218	227	232	234	228	223	232	219	214	221	215	202	192	195	213
23	194	204	210	206	208	208	205	203	202	202	211	222	232	239	241	234	237	228	212	217	219	214	211	210	205	216
24	205	197	191	177	220	258	271	262	245	235	230	253	237	229	226	220	221	215	212	208	185	223	171	202	176	220
25	176	187	193	201	204	204	202	198	195	193	197	208	218	222	221	218	214	211	213	212	211	211	211	210	210	206
26	209	208	205	205	208	203	203	207	193	194	198	209	220	226	229	227	220	216	214	204	184	187	202	208	210	208
27	210	213	208	206	205	205	203	196	188	185	195	206	217	229	233	230	221	212	213	215	213	209	205	206	209	209
28	209	210	209	209	211	210	207	201	194	189	197	209	223	228	230	228	224	220	218	215	213	212	212	211	207	212
29	206	206	204	205	206	206	206	202	194	191	193	204	218	226	230	228	221	218	218	215	210	210	210	210	207	210
30	207	207	207	211	210	211	210	206	200	193	194	202	214	225	230	228	221	215	212	212	206	208	211	209	211	211
Mean	211	212	210	208	208	209	207	204	201	202	209	221	231	236	235	229	225	220	217	215	210	210	210	211	211	215

XXXV.—VERTICAL COMPONENT OF TERRESTRIAL MAGNETIC FORCE.

Eskdalemuir. (Z.) **September, 1912.**

For reasons which are set out in the notes on instruments it has been decided not to publish the hourly tabulations of vertical magetic force for the year 1912. The following table gives the values of the vertical force deduced from the absolute observations entered in Table XXXVI. below, after smoothing the values for the horizontal force and correcting them to the time of the dip observation.

Date.	Time, G.M.T.	Vertical Component Z.
	h m	10γ
Sept. 3	12 20	4530
10	12 28	4532
17	12 19	4535
24	12 26	4531

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

Eskdalemuir. **September, 1912.**

Date.	Time, G.M.T.	Horizontal Force.	Declination.	Dip.	Temperature in Magnet House.*	Magnetic Character of day. (0–2).	Date.
	h m	γ	° ′ ″	° ′	°		
Sept. 3	11 8		18 4 7		11·9	0	1
,,	11 39	16819					
,,	12 20			69 37·5			
					12·0	0	2
					11·9	1	3
					11·9	1	4
Sept. 6	11 22		18 6 58		12·0	1	5
,,	12 0	16830			12·0	1	6
					12·0	0	7
Sept. 10	11 7		18 5 45		12·0	1	8
,,	11 51	16832			12·0	1	9
,,	12 28			69 36·9	12·0	0	10
					12·0	0	11
Sept. 13	11 18		18 6 23		12·0	1	12
,,	11 56	16820			12·0	1	13
					12·0	1	14
					12·0	0	15
					12·0	0	16
Sept. 17	11 8		18 6 9				
,,	11 42	16834					
,,	12 19			69 37·9	11·9	2	17
					12·0	1	18
					12·0	1	19
					12·0	1	20
Sept. 20	11 46		18 7 13		12·0	0	21
,,	12 19	16824					
					12·0	1	22
					12·0	2	23
					12·0	2	24
Sept. 24	11 14		18 11 23		12·0	0	25
,,	11 47	16826			12·0	1	26
,,	12 26			69 37·6			
					12·0	0	27
					12·0	0	28
Sept. 27	11 13		18 3 5		12·0	0	29
,,	11 51	16807			12·0	0	30

SEPTEMBER.

SEPTEMBER, like August, may be termed a moderately disturbed month. Its average magnetic character figure is ·67. Three days, the 17th, 23rd, and 24th, were of character (2), fourteen of (1), and thirteen of (0). On the 17th and 24th the disturbances were large. On the 17th all curves were very quiet till 8h, the disturbance commencing gradually about this hour. Its most characteristic feature was an extremely rapid rise on X and fall on Y, commencing nearly simultaneously at 20h. The maximum value on X and minimum on Y for the month were reached in about 20 minutes, the range of the disturbance for the day being 245 γ on X and 172 γ on Y. On Z there was a gradual rise from 14h to a maximum at 18h, followed by a slight fall and a second maximum at 20¼h. On the 24th the disturbance lasted all day, the most notable feature being a very sudden rise on X from a low value to the maximum reading of the day, reached just before 23h. This sharp peak was followed by a sudden fall and a well-marked bay lasting till 0½h of the next day. On Z the disturbance commenced at 2h, with a nearly continuous fall to a minimum value reached at 5h, followed by a gradual recovery to 12h. A well-marked bay follows a rather sudden fall at 22¾h. The minimum values for the month of all three components were reached on this day, but at different times. Two days were noted as very quiet. Quick runs were made on the 10th from 8h to 10h, which was fairly quiet, and on the 12th from 17h to 19h, also quiet. Pulsations were observed on the 4th at 0h to 1h, 8th at 23½h to 24h, 23rd at 16h to 19h, 27th at 21h to 22½h, and 29h at intervals, in most cases best marked on the X component.

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

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

Eskdalemuir. (X.) **October, 1912.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
													15000 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	1030	1023	1027	1028	1016	1025	1028	1021	988	977	964	945	954	964	977	998	985	996	1002	1012	1017	1018	1017	1016	1015	1001
2	1015	1015	1014	1014	1017	1019	1020	1021	1019	1013	1003	991	987	989	995	1004	1013	1017	1019	1017	1016	1017	1016	1020	1023	1012
3	1023	1020	1018	1015	1018	1023	1022	1027	1013	1006	997	992	992	996	999	1007	1014	1014	1020	1023	1018	1027	1020	1020	1020	1013
4	1019	1018	1019	1019	1020	1019	1023	1023	1018	1005	990	988	991	998	1005	1013	1019	1021	1020	1019	1019	1019	1020	1020	1019	1014
5	1019	1019	1019	1021	1021	1021	1020	1019	1013	1002	989	984	989	998	1008	1019	1021	1020	1021	1022	1023	1022	1021	1022	1023	1014
6	1023	1022	1020	1022	1023	1024	1026	1024	1016	1003	992	984	988	996	1004	1011	1014	1014	1015	1017	1021	1023	1024	1023	1023	1014
7	1022	1021	1021	1021	1022	1024	1025	1025	1021	1011	997	989	991	1001	1008	1006	1017	1023	1025	1027	1029	1029	1024	1023	1022	1017
8	1022	1023	1025	1022	1024	1032	1028	1022	1021	1009	994	987	984	987	996	1003	1012	1018	1021	1022	1020	1023	1025	1019	1021	1014
9	1021	1020	1018	1022	1019	1019	1023	1023	1021	1013	1004	998	997	1000	1004	1011	1015	1016	1017	1020	1021	1026	1025	1024	1023	1016
10	1023	1020	1020	1019	1022	1022	1022	1023	1019	1013	997	990	988	993	999	1004	1011	1009	1015	1023	1020	1018	1021	*1021*	*1021*	1013
11				Clock stopped.							979								Clock stopped.							
12				Clock stopped.							994	987	986	992	999	1003	1010	1014	1021	1022	1023	1026	1028	1023	1027	...
13	1027	1026	1004	1010	1030	1027	1015	1010	1010	998	985	976	989	997	1000	1005	1008	1010	1014	1014	1021	1021	1020	1021	1019	1010
14	1019	1021	1022	1022	1025	1023	1027	1023	998	1008	982	980	983	976	985	1000	985	998	1039	988	981	1020	994	1024	959	1004
15	958	998	1006	1006	1013	1013	1008	1013	1012	995	988	984	976	963	984	990	1000	998	992	1002	1030	1022	1010	1008	1017	1000
16	1017	1008	998	1007	1013	1016	1014	1016	1009	1002	986	985	981	992	1002	1000	1010	1020	1004	1012	1015	1011	1015	1016	1018	1006
17	1018	1036	1016	1018	1016	1016	1018	1013	1016	1006	995	988	992	995	1002	1010	1011	1012	1011	1009	1010	1012	1011	1015	1013	1010
18	1013	1013	1014	1011	1016	1017	1018	1018	1016	1002	995	993	994	995	1000	1005	1009	1011	1013	1015	1016	1016	1016	1016	1015	1010
19	1014	1013	1015	1015	1016	1017	1017	1018	1017	1010	1000	993	994	996	1002	1008	1009	1012	1015	1017	1019	1021	1020	1019	1019	1012
20	1019	1017	1018	1019	1018	1020	1020	1022	1019	1013	1008	1003	1002	1008	1012	1017	1019	1021	1029	1024	1021	1025	1025	1026	1024	1018
21	1024	1021	1019	1020	1023	1023	1024	1023	1020	1012	999	993	994	1003	1002	1005	1010	1013	1016	1021	1021	1018	1019	1022	1022	1015
22	1021	1017	1018	1018	1019	1023	1025	1025	1021	1017	1001	1000	1001	1009	1014	1019	1020	1021	1023	1021	1020	1018	1016	1010	1010	1016
23	1010	1015	1014	1014	1016	1018	1020	1023	1017	1007	995	991	996	1005	1010	1012	1014	1014	1018	1016	1018	1018	1023	1026	1019	1013
24	1019	1019	1019	1019	1017	1019	1022	1021	1016	1007	997	992	996	1021	1011	1015	1019	1020	1024	1025	1024	1026	1027	1025	1025	1016
25	1024	1020	1018	1017	1018	1019	1021	1020	1017	1010	999	997	999	1004	1009	1013	1014	1018	1019	1019	1021	1022	1021	1018	1015	1015
26	1015	1019	1019	1018	1020	1022	1020	1020	1015	1014	1005	998	997	999	1006	1010	1015	1017	1020	1021	1021	1025	1023	1022	1024	1015
27	1023	1026	1016	1015	1015	1023	1024	1022	1019	1012	1004	998	998	999	1003	1004	1004	1005	1011	1010	1018	1025	1025	1026	1026	1014
28	1026	1024	1023	1025	1026	1019	1021	1026	1019	1006	993	995	998	998	1000	1005	1003	1005	1007	1018	1017	1020	1019	1017	1022	1013
29	1019	1018	1016	1016	1021	1022	1022	1018	1008	1004	1000	1002	1004	1007	1013	1016	1016	1018	1022	1023	1025	1025	1023	1021	1016
30	1021	1018	1019	1020	1018	1019	1021	1020	1016	1008	1000	995	995	995	1000	1010	1017	1022	1015	1010	1014	1014	1017	1017	1018	1013
31	1018	1019	1015	1016	1018	1021	1022	1018	1015	1011	1004	999	999	1003	1004	1007	1014	1015	1016	1019	1021	1022	1020	1018	1021	1014
Mean 29 days	1018	1019	1017	1018	1019	1021	1021	1021	1015	1004	999	990	995	995	1002	1004	1011	1014	1017	1017	1018	1021	1019	1020	1018	1012

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

Eskdalemuir. (−Y.) **October, 1912.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
													5000 γ (·05 C.G.S. unit) +													
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	211	215	215	218	202	215	221	239	240	240	231	230	248	259	257	255	254	229	215	210	209	206	205	206	207	226
2	207	207	206	207	207	206	205	203	201	196	200	205	217	224	227	224	221	216	214	214	212	212	211	212	213	211
3	212	212	207	201	204	207	206	203	201	199	202	215	226	232	229	225	220	213	214	216	209	198	207	211	210	211
4	210	209	210	214	207	210	209	204	199	194	200	214	229	234	230	222	214	211	212	211	212	212	213	213	212	212
5	212	212	212	211	211	210	207	201	193	192	204	217	230	238	235	227	218	213	214	213	212	210	210	212	212	213
6	212	207	205	207	207	206	204	199	193	190	196	211	226	238	238	230	220	214	214	214	212	210	211	210	212	211
7	212	211	210	208	206	206	205	203	197	194	198	208	224	237	246	230	224	219	218	214	217	219	214	212	216	214
8	216	220	211	202	205	203	201	203	202	197	200	209	222	233	233	226	217	212	211	212	211	210	206	212	213	211
9	213	213	212	210	207	207	209	205	201	201	201	212	224	228	229	226	217	212	212	211	211	206	208	210	210	212
10	209	209	210	211	210	210	211	206	200	198	200	211	225	237	236	228	219	205	211	211	208	205	200	*200*	*200*	211
11				Clock stopped.							205								Clock stopped.							
12				Clock stopped.							202	219	232	238	238	230	223	220	219	218	216	206	196	203	234	...
13	234	193	203	217	206	205	206	204	199	196	207	213	221	230	228	226	218	212	210	207	200	206	209	209	210	210
14	210	211	211	210	211	207	207	207	218	217	212	224	239	239	244	237	231	211	158	187	165	124	164	138	181	203
15	181	225	198	202	207	209	217	212	202	194	194	209	221	214	220	231	195	200	200	211	213	196	192	194	200	206
16	200	203	227	210	208	208	208	204	200	201	198	209	219	226	231	222	213	193	210	214	211	203	207	210	209	210
17	209	213	189	198	201	201	200	205	206	204	206	209	216	220	221	218	211	206	194	207	209	204	206	209	209	207
18	208	208	208	212	209	206	204	201	198	193	202	209	217	219	218	213	208	209	210	210	210	209	209	209	209	208
19	209	208	208	208	208	208	207	205	200	196	199	209	218	223	220	216	212	214	217	212	211	210	210	209	209	210
20	209	208	208	208	208	210	208	205	199	193	198	208	218	220	222	219	216	217	224	224	217	213	211	206	195	211
21	195	199	202	204	208	207	207	203	199	194	199	206	219	232	226	224	223	218	210	217	215	209	206	205	207	210
22	208	210	211	211	212	213	212	209	204	202	204	220	228	228	224	219	216	214	212	212	211	211	201	200	207	212
23	205	204	207	201	202	207	202	201	198	198	203	213	222	223	221	216	212	211	211	210	207	205	202	203	206	208
24	206	207	208	207	210	209	205	201	198	196	200	215	226	230	227	223	217	216	216	211	209	207	207	204	206	211
25	206	206	208	211	210	208	204	199	198	198	205	214	223	226	224	218	214	215	212	209	208	207	206	204	205	210
26	205	208	211	212	210	209	208	203	200	202	208	215	220	223	219	214	210	212	212	210	209	206	207	204	208	210
27	207	203	208	201	207	203	203	202	199	200	205	216	224	225	224	220	217	217	213	200	197	206	206	206	208	209
28	208	208	208	208	208	210	207	203	198	197	199	208	217	222	222	216	213	215	203	197	203	206	205	205	206	208
29	206	206	208	207	204	207	206	204	199	197	202	212	217	221	218	215	211	210	210	212	210	206	205	204	206	208
30	206	206	208	209	209	208	208	205	200	197	202	210	220	222	216	215	215	216	212	208	201	202	205	206	210	209
31	210	208	207	208	208	208	207	207	206	206	208	215	217	219	215	209	208	210	210	210	209	208	207	205	206	209
Mean 29 days	208	209	208	208	207	208	207	205	202	199	203	213	223	228	228	223	217	212	210	210	208	204	205	204	207	210

XXXIX.—VERTICAL COMPONENT OF TERRESTRIAL MAGNETIC FORCE.

Eskdalemuir. (Z.) **October, 1912.**

For reasons which are set out in the notes on instruments it has been decided not to publish the hourly tabulations of vertical magnetic force for the year 1912. The following table gives the values of the vertical force deduced from the absolute observations entered in Table XL. below, after smoothing the values for the horizontal force and correcting them to the time of the dip observation.

Date.	Time, G.M.T.	Vertical Component Z.
	h m	10 γ
Oct. 1	12 25	4531
15	11 54	4537
22	11 26	4538
29	11 18	4531

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

Eskdalemuir. **October, 1912.**

Date.	Time, G.M.T.	Horizontal Force.	Declination.	Dip.	Temperature in Magnet House.*	Magnetic Character of day (0–2).	Date.
	h m	γ	° ′ ″	° ′	°		
Oct. 1	11 13		18 9 28		12·0	2	1
,,	11 49	16810					
,,	12 25			69 39·1			
					12·0	0	2
					11·9	0	3
					11·9	0	4
					11·9	0	5
Oct. 11	11 27		18 7 22		11·9	0	6
,,	14 23			69 37·5			
					11·9	1	7
					11·9	0	8
					11·9	1	9
					11·9	1	10
Oct. 15	11 2		18 2 53		11·9	...	11
,,	11 31	16811					
,,	11 54			69 39·9			
					11·9	...	12
					11·9	1	13
					11·8	2	14
					11·8	2	15
					11·8	1	16
Oct. 18	11 29		18 3 22				
,,	12 2	16821					
					11·8	1	17
					11·8	0	18
					11·8	0	19
					11·7	1	20
					11·7	1	21
Oct. 22	11 26			69 39·0			
					11·7	1	22
					11·7	1	23
					11·7	1	24
					11·6	1	25
Oct. 25	11 39		18 4 22		11·6	0	26
,,	12 15	16822					
					11·5	0	27
					11·5	1	28
					11·5	0	29
					11·5	1	30
Oct. 29	11 18			69 37·7	11·5	0	31

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

OCTOBER.

OCTOBER, like August and September, may be termed a moderately disturbed month. Owing to accidental stoppages of the driving clock the traces for all three elements were lost for the whole day of the 11th and part of the 12th. Of the remaining twenty-nine days three were of character (2), fourteen of (1), and twelve of (0). The mean character number for the month was ·69. Of the two disturbed days, the 14th was more disturbed than the 15th. The disturbance on the 14th only became considerable after 12^h. Its most noteworthy features are two well-marked peaks on X at $17\frac{1}{2}^h$ and $20\frac{3}{4}^h$, corresponding almost exactly to similarly shaped sharply defined hollows on the Y trace. The Z trace also shows peaks occurring at the same times as those on X. These were followed by a fall continuing till about 1^h on the following day. During the rapid increase of X and decrease of Y from 17^h, well-marked pulsations were superimposed on the general course of the trace. Pulsations were also present on the 12th at 21^h, the 20th between 22^h and 24^h, and on the 26th at 21^h. Among other features of the month may be mentioned a sharp rise on Y and fall on Z at $23\frac{1}{2}^h$ on the 12th. Three of the (0) days were very quiet all day. Quick runs were made on the 8th from 8^h to 10^h and the 10th from 17^h to 19^h. Both were without any marked features.

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

Eskdalemuir. (X.) **November, 1912.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
											15,000 γ (·15 C.G.S. unit) +															
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	1019	1023	1022	1022	1024	1024	1024	1017	1011	1008	993	990	995	1003	1003	1001	998	1002	1007	1010	1014	1015	1014	1016	1013	1011
2	1013	1011	1011	1012	1015	1023	1030	1022	1013	998	987	992	996	996	998	1003	1008	1013	1010	1003	1004	1017	1018	1017	1015	1009
3	1015	1013	1013	1014	1017	1019	1021	1020	1014	1008	1002	996	998	1006	1011	1014	1016	1016	1017	1017	1017	1017	1019	1017	1018	1013
4	1017	1014	1012	1013	1014	1016	1016	1014	1013	1009	995	992	995	1002	1009	1014	1016	1019	1020	1021	1019	1018	1023	1014	1013	1012
5	1013	1013	1014	1015	1017	1019	1019	1020	1016	1012	1005	1003	1009	1017	1018	1018	1012	991	987	1003	1010	1014	1015	1016	1018	1012
6	1017	1010	1010	1011	1012	1015	1017	1017	1016	1012	1003	995	1003	1007	1007	1005	1001	1008	1012	1012	1010	1012	1019	1015	1014	1010
7	1014	1013	1014	1015	1017	1019	1020	1019	1014	1006	1001	997	995	994	999	1008	1009	1012	1014	1017	1015	1017	1015	1013	1014	1011
8	1014	1013	1011	1011	1015	1017	1020	1016	1007	1006	1004	1003	1001	997	1002	1000	997	1008	1014	1014	1014	1012	1008	1004	1008	1009
9	1007	1007	1010	1013	1017	1016	1016	1016	1012	1012	1009	1004	1004	1009	1008	1009	1012	1017	1021	1021	1026	1022	1019	1033	1008	1014
10	1008	1009	1006	1010	1021	1024	1025	1013	995	1002	993	994	994	959	964	984	982	988	993	1008	998	1000	1003	1004	1005	999
11	1005	1005	1007	1014	1002	1011	1020	1011	990	1002	993	987	971	993	993	993	986	999	1010	1005	1020	1004	1009	1009	1007	1002
12	1006	1004	1008	1007	1008	1009	1010	1009	1007	1005	1002	1001	1001	1002	1006	1007	1008	1010	1010	1010	1011	1011	1010	1011	1010	1007
13	1010	1010	1010	1011	1013	1015	1017	1016	1011	1006	1000	999	1002	1006	1011	1013	1014	1016	1017	1016	1019	1017	1022	1016	1017	1012
14	1017	1015	1018	1024	1026	1030	1026	1027	1020	1009	993	985	981	973	958	964	954	963	992	999	1000	999	994	999	1003	998
15	1002	1001	992	990	1002	1008	1009	1007	1003	993	988	990	996	1002	1006	1009	1011	1014	1018	1022	1018	1015	1009	1005	1007	1005
16	1007	1005	1005	1010	1000	1011	1014	1017	1012	1007	998	998	995	998	1001	1004	1007	1009	1010	1011	1012	1014	1027	1005	1000	1007
17	999	998	1002	1005	1002	1005	1010	1013	1012	1009	1006	1003	1004	1009	1010	1009	1013	1012	1012	1015	1014	1012	1011	1011	1009	1008
18	1009	1006	1008	1009	1010	1014	1015	1014	1010	1008	1006	1006	1007	1008	1004	1009	1011	1007	997	1004	1011	1028	1011	1009	1006	1009
19	1006	1006	1008	1009	1011	1013	1014	1013	1013	1011	1016	1018	1017	1016	1013	1009	1002	1011	1013	1016	1016	1016	1016	1020	1015	1013
20	1014	1012	1010	1013	1016	1019	1015	1018	1016	1007	1007	1007	1007	1008	1009	1010	1012	1015	1016	1016	1014	1013	1012	1012	1010	1012
21	1010	1010	1010	1010	1012	1014	1014	1013	1009	1007	1007	1006	1007	1009	1012	1014	1016	1017	1016	1016	1014	1015	1012	1014	1014	1012
22	1013	1015	1015	1016	1018	1012	1021	1023	1015	1005	998	995	985	988	984	971	986	1006	1010	1012	1009	1008	1007	1007	1006	1005
23	1006	1008	1011	1014	1016	1016	1016	1021	1013	997	1011	1013	1010	1009	1012	1012	1012	1011	1014	1016	1014	1013	1011	1010	1009	1012
24	1008	1007	1011	1013	1016	1014	1014	1014	1014	1012	1006	1004	1007	1007	1009	1011	1011	1009	1009	1006	1005	1008	1010	1013	1013	1010
25	1013	1011	1012	1012	1013	1013	1014	1014	1014	1012	1010	1006	1005	1004	1006	1008	1011	1014	1015	1014	1015	1015	1013	1014	1016	1012
26	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
27	1008	1007	1011	1009	1012	1013	1014	1014	1014	1013	1010	1011	1011	1012	1012	1010	1011	1010	1013	1014	1010	1003	1004	1007	1005	1011
28	1005	1006	1011	1011	1011	1012	1013	1013	1010	1007	1003	1002	1003	1006	1010	1012	1013	1013	1014	1014	1014	1013	1013	1012	1011	1010
29	1011	1011	1011	1012	1013	1014	1016	1015	1014	1012	1006	1004	1005	1010	1014	1014	1016	1017	1019	1019	1020	1018	1014	1014	1013	1013
30	1012	1011	1011	1011	1013	1013	1015	1015	1013	1012	1008	1004	1003	1005	1009	1012	1014	1019	1019	1018	1016	1013	1012	1012	1010	1012
Mean 29 days	1010	1009	1010	1012	1013	1015	1017	1016	1011	1007	1002	1000	1000	1002	1003	1005	1005	1008	1011	1013	1013	1013	1013	1012	1011	1009

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

Eskdalemuir. (−Y.) **November, 1912.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean
											5000 γ (·05 C.G.S. unit) +															
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	205	208	198	204	207	206	203	206	208	207	215	228	226	222	221	215	214	211	207	205	203	205	204	203	205	210
2	205	206	206	207	218	207	205	212	214	211	215	220	221	223	224	215	213	213	209	209	201	207	206	205	205	211
3	205	204	205	207	208	207	207	205	200	196	200	209	217	222	219	215	214	215	214	213	209	206	205	207	207	209
4	206	206	205	205	206	204	201	200	197	196	203	208	216	221	218	214	211	209	207	207	203	205	202	204	204	206
5	204	205	206	208	208	207	206	205	202	200	205	212	219	221	218	213	211	212	220	206	205	206	203	202	201	208
6	201	206	206	205	205	204	203	202	204	205	214	219	228	224	220	213	217	209	207	206	207	198	196	207	206	209
7	206	207	206	207	208	207	204	204	205	208	214	225	230	232	222	211	206	205	205	206	205	205	204	202	203	210
8	202	206	204	207	203	204	203	203	203	205	207	213	220	214	215	219	219	212	205	205	205	203	198	190	221	207
9	221	201	204	203	204	204	204	205	204	206	211	214	215	213	210	207	207	207	208	207	207	205	202	198	189	206
10	189	185	197	204	207	205	207	207	217	224	223	225	234	236	242	232	223	213	194	177	159	169	198	201	204	207
11	203	203	205	202	210	217	212	212	206	214	215	219	217	228	220	214	215	193	193	202	190	187	197	200	199	207
12	199	203	206	206	204	204	204	204	204	206	206	210	211	210	206	205	207	209	208	206	205	204	202	203	203	206
13	203	206	205	205	204	204	204	203	202	199	203	207	212	212	211	209	211	209	208	206	196	203	202	204	206	205
14	204	212	216	204	208	203	204	204	204	201	204	213	216	229	243	260	245	221	204	201	195	189	183	161	185	209
15	186	182	202	213	202	203	202	202	201	200	202	210	213	217	213	211	210	209	210	210	209	204	200	199	196	205
16	195	197	203	206	210	204	201	199	201	209	204	210	216	216	213	211	209	207	204	203	198	178	177	183	195	202
17	195	212	204	202	204	208	207	203	203	204	209	213	218	217	218	209	209	206	203	202	202	182	198	202	199	206
18	199	203	202	202	202	203	202	202	202	204	209	212	217	215	210	209	210	213	210	208	200	197	200	203	203	206
19	202	203	205	202	202	202	201	201	205	206	209	215	213	209	209	209	208	207	203	203	203	202	203	205	199	205
20	199	196	200	203	200	201	203	211	202	205	210	215	216	214	209	206	206	205	204	205	204	202	201	201	203	205
21	202	202	203	204	202	203	202	202	202	202	203	207	209	212	208	207	207	207	206	206	203	200	200	206	202	204
22	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	..	...	...	...
23	200	204	210	207	208	206	206	203	202	204	209	213	215	214	208	205	205	204	202	204	201	200	200	199	200	205
24	199	199	201	207	201	200	201	201	199	199	200	206	210	209	207	206	205	205	204	201	198	197	197	200	193	202
25	193	199	203	205	206	206	205	201	199	199	201	205	209	212	212	210	208	207	207	207	204	201	201	201	204	204
26	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
27	198	200	200	198	198	202	203	203	203	203	205	206	208	207	209	208	212	212	206	205	205	190	197	199	200	203
28	200	202	203	204	200	200	204	203	200	198	200	204	209	212	212	207	206	205	206	204	202	198	197	198	199	203
29	198	198	200	203	203	202	202	202	200	199	202	207	212	213	211	206	205	205	205	205	199	203	201	200	200	203
30	200	200	201	203	204	201	203	204	203	203	206	211	213	213	212	211	209	206	205	205	205	204	203	202	203	205
Mean 28 days	201	202	204	205	205	204	204	204	203	204	207	213	216	217	216	213	212	208	206	204	201	198	199	199	201	206

XLIII.—VERTICAL COMPONENT OF TERRESTRIAL MAGNETIC FORCE.

Eskdalemuir. (Z.) **November, 1912.**

For reasons which are set out in the notes on instruments it has been decided not to publish the hourly tabulations of vertical magnetic force for the year 1912. The following table gives the values of the vertical force deduced from the absolute observations entered in Table XLIV. below, after smoothing the values for the horizontal force and correcting them to the time of the dip observation.

Date.	Time, G.M.T.	Vertical Component Z.
	h m	10γ
Nov. 1	12 42	4536
5	12 38	4530
8	14 15	4533
12	11 4	4535
15	14 32	4530
29	12 32	4538

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

Eskdalemuir. **November, 1912.**

Date.	Time. G.M.T.	Horizontal Force.	Declination.	Dip.	Temperature in Magnet House.*	Magnetic Character of day (0–2).	Date.
	h m	γ	° ′ ″	° ′	°		
Nov. 1	12 42			69 38·6	11·4	0	1
					11·4	1	2
					11·4	0	3
					11·4	0	4
					11·4	1	5
Nov. 5	11 18		18 2 56·5				
,,	11 54	16835					
,,	12 38			69 36·1	11·4	1	6
					11·3	0	7
					11·4	0	8
					11·3	1	9
					11·3	2	10
Nov. 8	11 23		18 3 26·5				
,,	12 00	16828					
,,	14 15			69 37·7	11·3	1	11
					11·2	0	12
					11·1	0	13
					11·1	2	14
					11·0	1	15
Nov. 12	11 2			69 38·3			
					11·1	1	16
					11·0	0	17
					11·0	1	18
					11·0	0	19
Nov. 15	11 13		18 2 30		11·0	0	20
,,	11 55	16821					
,,	14 31			69 36·9			
					11·0	0	21
					11·0	1	22
					11·0	1	23
					11·0	0	24
Nov. 19	12 23			69 36·6	11·0	0	25
					11·0	1	26
					11·0	0	27
Nov. 29	11 18		18 0 40		11·0	0	28
,,	11 52	16842			11·0	0	29
,,	12 33			69 38·9	10·9	0	30

NOVEMBER.

NOVEMBER was the quietest month of the year. Its average magnetic character figure was only ·50. Two days, the 10th and 14th, were of character (2), only eleven of (1), and seventeen of (0). The most disturbed day was the 14th, which was, however, not highly disturbed. Its most conspicuous feature was a gradual rise on Z, accompanied by small oscillations, commencing at 11^h and reaching its maximum at almost exactly 16^h, afterwards falling steadily to normal value. On X and Y the disturbance, which was of less magnitude, consisted of a series of oscillations, which were most marked between 14^h and $16\frac{1}{2}^h$. On the 10th, which was only moderately disturbed, the most noteworthy features were well-marked V's between 19^h and 20^h, similar on X and Y, and accompanied by a slight depression on Z. On the 11th, between 17^h and 20^h, the disturbances on X and Y, consisting of two well-defined peaks with some minor oscillations, were an almost exact complement one of the other, the corresponding disturbance on 2^h bearing no very intimate relation to either. On the 8th at $23\frac{1}{2}^h$ there was a disturbance on Y, while X and Z were but slightly affected. On the 5th a sudden small rise took place on X at $23\frac{1}{4}^h$, accompanied by no change on Y and little on Z. Six of the (0) days were very quiet.

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

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

Eskdalemuir. (X.) **December, 1912.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
	15,000 γ (·15 C.G.S. unit) +																									
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	1010	1010	1010	1011	1013	1013	1013	1013	1013	1010	1009	1009	1010	1011	1015	1014	1015	1020	1021	1020	1017	1017	1013	1016	1013	1014
2	1012	1011	1011	1012	1011	1017	1016	1021	1014	1012	1007	984	988	993	993	982	984	984	985	991	1010	985	1002	1019	1000	1002
3	1000	1004	1002	1002	1008	1011	1009	1009	1005	1005	1000	1006	1004	1008	1011	1014	1017	1017	1012	1007	1004	1004	1004	1005	1007	1007
4	1007	1007	1008	1010	1010	1011	1011	1011	1011	1008	1002	1000	1005	1011	1011	1012	1012	1012	1011	1012	1011	1011	1012	1011	1009	1010
5	1008	1008	1009	1009	1013	1015	1015	1015	1012	1010	1006	1007	1009	1012	1012	1012	1015	1016	1016	1015	1016	1017	1015	1011	1010	1012
6	1010	1010	1012	1013	1017	1018	1019	1021	1018	1016	1009	1002	998	1001	1004	1009	1013	1011	1004	997	1011	1015	1004	1008	1001	1010
7	1000	999	1006	1001	1010	1005	1010	1017	1012	975	1001	1009	1010	1004	999	967	1003	1002	1004	1009	1003	1016	1017	1001	999	1003
8	999	1002	1001	1004	1006	1007	1009	1010	1005	990	1001	1001	997	997	1001	1001	1008	1014	1011	1013	1010	1010	1009	1017	1017	1006
9	1017	1007	1008	1010	1014	1016	1017	1018	1019	1008	1005	999	993	999	1007	1010	1011	1013	1006	1004	1009	1009	1011	1009	1009	1009
10	1008	1008	1009	1009	1011	1010	1014	1016	1014	1008	1001	1000	1002	1005	1006	1006	1005	1007	1006	1011	1009	1010	1010	1009	1008	1008
11	1008	1009	1008	1009	1012	1014	1016	1016	1016	1016	1009	1007	1007	1008	1008	1009	1009	1009	995	1003	1009	1008	1006	1009	1006	1009
12	1006	1008	1008	1008	1009	1012	1013	1016	1017	1016	1015	1012	1009	1011	1013	1014	1016	1016	1016	1016	1016	1015	1015	1014	1009	1013
13	1008	1011	1009	1004	1012	1014	1015	1016	1015	1017	1022	1022	1015	1016	1017	1011	1014	1014	1016	1020	1015	1014	1024	1009	1011	1015
14	1010	1008	1008	1010	1012	1015	1015	1017	1015	1015	1009	1008	1007	1008	1008	1006	1009	1008	1011	1009	1012	1009	1012	1014	1014	1011
15	1013	1012	1011	1008	1013	1016	1014	1014	1014	1014	1014	1013	1012	1012	1014	1014	1014	1015	1017	1017	1015	1014	1013	1014	1014	1014
16	1014	1014	1014	1014	1014	1015	1019	1019	1017	1015	1013	1014	1014	1016	1020	1017	1016	1020	1019	1014	1019	1014	1014	1014	1013	1016
17	1012	1015	1013	1013	1013	1014	1015	1018	1017	1014	1013	1012	1004	1014	1016	1016	1020	1021	1020	1013	1014	1014	1014	1013	1013	1015
18	1013	1013	1013	1013	1016	1016	1019	1014	1013	1013	1012	1015	1015	1019	1020	1020	1019	1013	1006	1004	1011	1016	1014	1015	1014	1014
19	1014	1013	1013	1014	1015	1020	1020	1020	1019	1014	1011	1012	1012	1012	1010	1009	1011	1013	1015	1017	1013	1012	1014	1016	1015	1014
20	1014	1014	1014	1012	1019	1019	1018	1019	1019	1016	1012	1005	1004	1006	1011	1012	1012	1012	1014	1016	1015	1015	1015	1016	1012	1014
21	1012	1012	1012	1014	1019	1019	1019	1019	1019	1019	1012	1011	1012	1015	1019	1019	1018	1013	1018	1019	1020	1021	1019	1015	1015	1017
22	1014	1012	1013	1015	1018	1018	1020	1020	1020	1018	1012	1010	1011	1012	1015	1017	990	977	1008	1017	1018	1017	1004	991	1018	1011
23	1018	1004	1005	1005	1008	1008	1020	1023	1008	1004	1004	993	984	1004	994	985	995	1000	1013	1007	1006	1026	1035	1008	997	1006
24	997	1002	1004	1003	1003	1004	1011	1012	1011	1004	1008	1009	1004	1003	1005	1010	1013	1011	1010	999	1006	1004	1016	1011	1044	1008
25	1043	1003	1002	1003	1007	1010	1010	1013	1010	1001	1001	1003	1004	1004	1009	1009	1009	1008	1002	1003	1006	1021	1010	1009	1007	1008
26	1007	1015	1008	1003	1003	1011	1014	1013	1010	1009	1005	1003	1002	1003	1002	1001	1006	1010	1015	1017	1014	1008	1003	1006	1002	1008
27	1002	1003	1006	1006	1005	1010	1011	1011	1010	1009	1009	1009	1010	1010	1011	1011	1012	1014	1016	1017	1017	1010	1014	1013	1011	1010
28	1010	1010	1009	1010	1014	1016	1017	1016	1013	1013	1015	1014	1015	1015	1013	1014	1013	1016	1018	1018	1017	1015	1016	1014	1013	1014
29	1013	1011	1011	1014	1014	1014	1017	1016	1016	1014	1011	1010	1010	1013	1013	1013	1016	1019	1019	1012	1009	1016	1014	1016	1016	1014
30	1015	1012	1024	1014	1015	1018	1018	1018	1022	1018	1014	1011	1008	1005	1009	1010	1014	1011	1015	1014	1015	1015	1014	1011	1010	1014
31	1010	1010	1013	1015	1018	1022	1026	1025	1023	1018	1014	1008	1008	1008	1008	1008	1009	1009	1014	1015	1015	1015	1016	1014	1011	1014
Mean	1010	1009	1009	1010	1012	1014	1015	1016	1014	1010	1009	1007	1006	1008	1009	1008	1010	1010	1011	1011	1012	1013	1013	1011	1011	1011

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

Eskdalemuir. (−Y.) **December, 1912.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
	5000γ (·05 C.G.S. unit) +																									
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	203	206	205	204	203	202	203	202	202	203	207	213	214	213	211	207	207	206	205	204	204	202	201	198	197	205
2	197	199	202	201	204	204	207	204	200	205	210	216	236	230	227	232	228	217	210	195	191	185	179	150	171	205
3	170	177	192	196	199	197	195	197	197	197	197	206	204	209	207	204	203	202	202	201	199	183	193	202	203	198
4	203	201	200	201	201	200	197	195	195	195	201	204	209	207	210	205	203	202	200	200	200	198	197	202	202	201
5	201	202	202	203	202	202	201	200	200	199	200	204	208	208	204	202	202	202	201	200	195	196	197	198	200	201
6	200	202	202	202	202	202	202	201	200	201	205	215	217	222	216	210	206	204	200	195	201	196	185	122	175	200
7	174	141	193	200	199	205	217	211	208	201	216	207	215	214	219	183	199	201	199	195	188	169	143	165	192	195
8	192	200	201	202	203	201	201	199	198	197	195	202	207	209	207	201	200	199	198	198	195	194	193	194	194	200
9	193	196	200	198	199	200	201	200	199	193	196	203	206	213	210	208	206	201	197	175	180	184	191	193	198	198
10	198	199	200	201	204	205	204	200	200	199	199	200	206	207	205	202	201	201	200	190	188	192	193	193	194	199
11	193	199	199	202	199	199	199	199	199	198	199	203	208	209	208	205	204	207	199	203	199	194	188	185	180	200
12	180	182	188	197	199	199	201	200	199	199	198	200	200	201	202	204	201	200	199	199	198	195	193	193	193	197
13	192	195	195	196	198	198	199	198	198	198	206	207	207	218	218	213	214	209	205	202	199	180	176	187	197	200
14	197	197	198	198	202	198	198	198	198	196	198	203	208	211	209	208	201	204	205	202	191	183	191	197	198	200
15	197	197	198	198	203	200	198	197	197	197	199	204	206	206	204	203	203	200	197	197	197	196	196	197	197	200
16	197	197	199	203	203	203	203	202	202	202	203	205	207	211	207	205	205	204	204	203	197	198	197	197	197	202
17	196	197	196	196	197	199	202	199	198	200	203	204	207	210	207	204	203	204	205	204	199	196	196	196	196	201
18	196	196	197	198	199	201	201	197	198	202	205	209	210	212	211	207	205	205	203	201	199	196	197	201	202	202
19	201	201	201	202	202	202	202	201	201	201	201	203	204	204	204	202	202	202	201	198	198	193	196	195	198	201
20	198	201	201	203	205	199	201	201	197	195	198	202	205	209	210	206	204	203	203	202	201	197	195	195	196	201
21	195	197	200	202	202	201	201	201	201	202	202	206	208	211	210	208	208	210	206	202	200	201	199	200	201	203
22	201	201	202	203	203	203	202	201	200	198	199	205	207	208	207	212	202	219	203	203	203	200	188	150	149	200
23	148	187	184	198	190	194	205	218	212	199	207	210	212	210	209	173	198	193	175	193	183	177	177	164	185	193
24	185	209	200	200	202	200	199	200	199	196	195	204	210	207	195	202	204	203	203	205	187	193	185	187	183	199
25	182	188	197	193	192	192	198	190	192	191	192	198	202	204	202	201	199	200	198	198	198	194	192	192	192	195
26	192	192	191	195	199	195	195	197	194	195	198	202	202	208	210	204	202	201	199	198	197	181	182	183	183	196
27	183	186	191	192	195	199	198	197	196	198	205	210	210	211	210	207	205	206	206	205	202	196	198	198	198	201
28	197	197	197	199	200	200	200	198	198	199	203	203	204	206	207	205	203	202	203	202	200	198	197	197	197	201
29	197	198	198	200	201	202	202	202	201	202	199	204	207	208	210	208	207	210	210	203	201	198	195	197	197	203
30	188	199	193	178	182	196	198	207	202	196	198	205	211	210	212	209	209	206	203	202	199	197	196	196	197	200
31	197	198	201	202	204	202	201	201	199	196	197	202	204	208	210	206	202	201	201	200	197	196	196	197	198	201
Mean	192	195	198	199	200	200	201	200	199	198	201	205	208	210	209	205	204	204	201	199	196	192	190	188	192	200

XLVII.—VERTICAL COMPONENT OF TERRESTRIAL MAGNETIC FORCE.

Eskdalemuir. (Z.) **December, 1912.**

For reasons which are set out in the notes on instruments it has been decided not to publish the hourly tabulations of vertical magnetic force for the year 1912. The following table gives the values of the vertical force deduced from the absolute observations entered in Table XLVIII. below, after smoothing the values for the horizontal force and correcting them to the time of the dip observation.

Date.	Time, G.M.T.	Vertical Component Z.
	h m	10 γ
Dec. 3	11 21	4537
6	14 2	4532
10	12 26	4530
17	12 11	4535
20	12 32	4527
27	12 5	4539

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

Eskdalemuir. **December, 1912.**

Date.	Time, G.M.T.	Horizontal Force.	Declination.	Dip.	Temperature in Magnet House.*	Magnetic Character of day (0–2).	Date.
	h m	γ	° ′ ″	° ′	°		
Dec. 3	11 21			69 38·7	10·9	0	1
					10·9	1	2
					10·9	1	3
					10·8	0	4
					10·8	0	5
Dec. 6	11 33		18 3 10·5				
,,	12 10	16828					
,,	14 2			69 37·6	10·7	1	6
					10·6	2	7
					10·5	1	8
					10·5	1	9
Dec. 10	12 26			69 37·1	10·5	0	10
					10·5	1	11
Dec. 14	12 1		18 0 57·5		10·4	0	12
,,	12 30	16834			10·3	1	13
					10·3	1	14
					10·3	0	15
Dec. 17	12 13			69 37·9	10·3	0	16
					10 3	0	17
					10·2	1	18
					10·2	0	19
					10·1	0	20
Dec. 20	11 26		18 0 7·5				
,,	11 58	16832					
,,	12 31			69 36·2	10·0	0	21
					10·0	1	22
					10·0	2	23
					10·0	1	24
					10·0	1	25
Dec. 24	11 40		18 2 38				
,,	12 17	16828					
,,	12 50			69 36·5	10·0	1	26
					10·0	0	27
					9·9	0	28
					10·0	0	29
					10·0	1	30
Dec. 27	11 30		18 1 31				
,,	11 47	16844					
,,	12 5			69 39·1	9·9	0	31

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

DECEMBER.

DECEMBER was a fairly quiet month. On some days the traces were practically straight lines for hours together, although disturbances, when they occurred, were generally considerable. The average magnetic character figure was ·58. Two days, the 7th and 23rd, were of character (2), fourteen of (1), and fifteen of (0). On the 22nd the disturbance commenced gradually about 15^h, after a very quiet time, which had lasted throughout the 19th, 20th, and 21st. Its most conspicuous features were a sharp peak on X, less pronounced on Z, with maximum at $23\frac{1}{2}^h$ on the 22nd, and two pronounced peaks on X at $20\frac{1}{2}^h$, and $21\frac{3}{4}^h$ on the 23rd. The intervening movements consisted mostly of small sudden oscillations. On the 6th, after a very quiet time lasting for some days, a minor disturbance with small oscillations commenced at 18^h, followed at $22\frac{1}{2}^h$ by a well-marked bay on Y at $22\frac{1}{2}^h$–24^h, and a second bay from 0^h–$1\frac{1}{2}^h$ on the 7th. A considerable rise in Z began at 13^h, reaching a maximum at $17\frac{1}{2}^h$, afterwards falling slowly to normal. Other disturbances of note were a very sudden rise on X and fall on Y and Z, beginning at $19\frac{1}{2}^h$ on the 2nd. The unusually large number of nine days were noted as very quiet all day.

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

Eskdalemuir. *Mean Hourly Values, Greenwich Mean Time, for the Months, Year, and Seasons.* **1912.**

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.
	ΔX (or ΔN).							XLIX.—NORTH COMPONENT (all days except Oct. 11, 12, and Nov. 26).																
	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.	−3·1	−2·2	−1·0	1·1	3·6	x 5·6	4·5	3·2	0·7	−3·3	n 3·4	−2·2	−0·4	1·2	1·2	−0·1	−0·6	−0·3	0·5	−0·4	−1·3	−0·2	−2·2	−0·9
F.	0·4	−0·5	−0·4	0·3	2·4	3·8	x 4·3	2·7	−0·1	−4·9	n 6·6	−4·7	−1·8	0·4	0·5	−1·8	−1·7	−1·1	0·7	2·0	1·4	1·0	1·2	1·2
M.	4·0	3·1	3·1	3·2	4·8	6·4	6·4	3·2	−3·1	−11·7	n 17·2	−16·4	−12·4	−7·2	−2·6	0·0	0·3	3·0	4·8	4·9	5·3	5·7	x 7·0	5·6
A.	6·7	6·0	7·4	6·8	7·5	7·0	3·4	−2·5	−11·8	−22·0	n 26·3	−25·8	−20·3	−11·0	−3·2	1·9	7·1	10·1	x 13·6	12·2	8·4	8·6	9·0	8·0
M.	7·3	5·1	4·6	4·4	3·6	0·1	−2·2	−7·6	−16·4	−22·6	n 25·0	−22·7	−15·4	−9·7	−2·3	4·0	9·0	14·4	15·2	x 15·9	12·2	10·5	9·6	8·3
J.	6·9	5·5	4·9	5·4	4·8	0·1	−5·2	−10·5	−16·2	−21·6	n 24·1	−23·3	−17·8	−10·6	−3·5	3·3	10·4	16·1	x 16·9	16·0	13·7	11·0	10·3	8·5
J.	5·0	6·1	5·6	5·9	7·0	4·4	−0·4	−5·8	−12·4	−19·6	n 24·1	−23·1	−18·0	−12·4	−3·3	2·5	8·2	13·2	x 13·3	x 13·3	11·1	9·3	8·0	6·7
A.	9·4	8·9	7·2	7·2	4·4	3·2	−4·6	−10·8	−19·5	−26·5	n 27·7	−22·9	−14·3	−6·2	1·2	4·9	8·2	10·3	11·7	x 13·1	11·2	12·5	10·0	9·1
S.	9·2	8·0	7·2	7·2	7·4	5·2	0·3	−7·5	−16·5	−23·4	n 25·2	−22·0	−14·8	−8·0	−2·1	3·1	3·7	6·2	8·4	11·0	11·2	8·8	x 11·6	10·4
O.	6·7	4·6	5·3	7·1	8·3	x 9·0	8·5	2·9	−8·5	−13·4	n 22·3	−17·5	−16·9	−10·6	−8·0	−1·3	1·4	4·3	4·5	6·2	8·5	7·0	7·6	5·7
N.	0·2	0·9	2·3	4·0	6·2	x 7·8	6·7	1·8	−2·2	−7·3	n 9·2	−9·1	−7·4	−6·0	−4·3	−3·9	−0·9	1·6	3·3	3·7	3·7	3·3	2·6	1·1
D.	−1·6	−1·1	−1·1	1·3	3·1	4·8	x 5·6	3·6	−0·5	−2·0	−3·8	n 5·0	−2·6	−1·4	−2·8	−0·7	−0·5	0·4	0·2	1·3	1·8	1·8	0·2	−0·2
Y.	4·3	3·7	3·8	4·5	5·3	4·8	2·3	−2·3	−8·9	−14·9	n 17·9	−16·2	−11·8	−6·8	−2·4	1·0	3·7	6·5	7·8	x 8·3	7·3	6·6	6·2	5·3
W.	−1·0	−0·7	−0·1	1·7	3·8	x 5·5	5·3	2·8	−0·5	−4·4	n 5·8	−5·3	−3·1	−1·5	−1·4	−1·6	−0·9	0·2	1·2	1·7	1·4	1·5	0·5	0·3
Eq.	6·7	5·4	5·8	6·1	7·0	6·9	4·7	−1·0	−10·0	−17·6	n 22·8	−20·4	−16·1	−9·2	−4·0	0·9	3·1	5·9	7·8	8·6	8·4	7·5	x 8·8	7·4
S.	7·2	6·4	5·6	5·7	5·0	2·0	−3·1	−8·7	−16·1	−22·6	n 25·2	−23·0	−16·4	−9·7	−2·0	3·7	9·0	13·5	14·3	x 14·6	12·1	10·8	9·5	8·2
	−ΔY (or ΔW).							L.—WEST COMPONENT (all days except May 31, June 1, Oct. 11, 12, Nov. 22, 26).																
	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.	−4·4	−4·6	−4·8	−5·1	−4·6	−3·6	−2·3	−0·5	1·8	4·9	8·3	10·6	x 11·2	7·9	4·9	3·6	2·2	1·7	−0·4	−3·1	−5·3	−6·1	−5·0	n 6·6
F.	−5·7	−4·5	−6·0	−6·7	−5·8	−4·9	−3·4	−1·4	0·3	2·7	7·8	13·1	x 14·7	12·9	8·1	3·8	1·9	1·0	−0·8	−2·9	−5·4	n 6·8	−6·2	−6·2
M.	−4·9	−3·7	−4·4	−3·8	−4·2	−4·0	−5·6	−9·5	n 11·6	−8·3	0·3	11·5	20·0	x 20·6	17·0	10·0	3·9	−0·2	0·2	−2·0	−3·1	−5·0	−5·8	−6·7
A.	−5·2	−4·8	−4·2	−6·7	−5·9	−8·7	−12·8	−16·9	n 17·2	−10·8	−0·1	12·1	22·0	x 23·8	19·9	15·2	9·9	5·3	1·4	−3·4	−3·4	−1·6	−3·6	−4·9
M.	−4·9	−6·2	−6·8	−9·8	−14·1	−16·3	−17·9	n 18·5	−14·8	−6·4	4·5	16·1	20·9	x 21·1	18·1	13·2	10·1	8·8	6·5	2·7	−0·6	−0·4	−2·0	−3·5
J.	−4·5	−4·1	−5·5	−7·7	−14·0	−19·7	−22·8	n 22·9	−19·5	−10·5	0·0	12·0	18·5	x 20·6	19·2	16·8	13·8	11·6	10·4	6·1	3·3	3·2	−0·5	−4·0
J.	−2·7	−3·0	−6·4	−9·8	−14·9	−19·0	n 21·0	−20·7	−19·4	−12·1	−0·8	12·2	21·3	x 24·0	22·4	17·3	12·0	9·1	7·0	4·0	2·9	0·1	−0·9	−2·7
A.	−7·4	−8·1	−8·8	−9·2	−9·9	−12·3	−16·8	n 17·6	−14·8	−6·6	5·1	19·0	x 26·5	26·4	21·0	12·9	6·9	3·2	2·1	0·8	−0·4	−2·1	−5·1	−4·9
S.	−2·7	−5·0	−6·6	−6·6	−5·8	−7·7	−11·0	n 14·0	−12·6	−5·1	6·2	16·6	x 21·9	20·4	14·6	10·0	5·0	2·2	0·4	−4·5	−4·3	−4·3	−3·5	−3·6
O.	−2·4	−2·7	−2·8	−3·5	−3·1	−3·6	−5·6	−8·9	n 11·2	−7·6	2·2	12·8	x 18·1	17·3	12·7	6·5	2·3	−0·4	0·2	−2·1	−5·5	−4·7	−5·4	−2·8
N.	−3·9	−2·1	−1·1	−0·8	−1·6	−2·1	−2·1	−2·7	−1·9	1·2	6·5	10·3	x 11·3	9·6	6·6	5·3	2·2	−0·3	−1·8	−5·5	n 8·1	−7·1	−6·8	−5·1
D.	−4·8	−2·1	−0·8	0·1	0·4	1·3	0·7	−0·4	−1·3	1·2	5·3	8·6	x 10·3	9·1	4·8	4·5	4·1	1·4	−0·8	−3·7	−7·8	−9·6	n 12·4	−7·9
Y.	−4·5	−4·2	−4·9	−5·8	−7·0	−8·4	−10·1	n 11·2	−10·2	−4·8	3·8	12·9	x 18·1	17·8	14·1	10·0	6·2	3·6	2·0	−1·1	−3·1	−3·7	−4·8	−4·9
W.	−4·7	−3·3	−3·2	−3·1	−2·9	−2·3	−1·8	−1·3	−0·3	2·5	7·0	10·7	x 11·9	9·9	6·1	4·3	2·6	1·0	−1·0	−3·8	−6·7	−7·4	n 7·6	−6·5
Eq.	−3·8	−4·1	−4·5	−5·2	−4·8	−6·0	−8·8	−12·3	n 13·2	−8·0	2·2	13·3	x 20·5	x 20·5	16·1	10·4	5·3	1·7	0·6	−3·0	−4·1	−3·9	−4·6	−4·5
S.	−4·9	−5·4	−6·9	−9·1	−13·2	−16·8	−19·6	n 19·9	−17·1	−8·9	2·2	14·8	21·8	x 23·0	20·2	15·1	10·7	8·2	6·5	3·4	1·3	0·2	−2·1	−3·8

ΔZ (or ΔV). LI.—VERTICAL COMPONENT.

For reasons which are set out in the notes on Instruments it has been decided not to publish hourly results for vertical magnetic force for 1912.

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

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

Eskdalemuir. *Mean Hourly Values, Greenwich Mean Time, for the Months and Year.* **1912.**

ΔD LII.—DECLINATION (all days except May 31, June 1, Oct. 11, 12, Nov. 22, 26).

Month and Year.	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′66	−0′76	−0′87	−1′06	−1′12	−1′05	−0′73	−0′30	0′31	1′16	1′83	2′19	*x* 2′20	1′46	0′87	0′70	0′46	0′35	−0′11	−0′58	−0′95	−1′17	−0′83	$\bar{n}$ 1′23
F.	−1·13	−0·84	−1·15	−1·32	−1·28	−1·19	−0·94	−0·44	0·06	0·83	1·93	2·84	*x* 2·96	2·47	1·53	0·85	0·48	0·26	−0·21	−0·69	−1·14	$\bar{n}$ 1·39	−1·28	−1·28
M.	−1·20	−0·91	−1·05	−0·94	−1·12	−1·18	−1·49	$\bar{n}$ 2·05	$\bar{n}$ 2·05	−0·87	1·15	3·27	*x* 4·66	4·45	3·46	1·94	0·74	−0·23	−0·27	−0·70	−0·94	−1·33	−1·57	−1·65
A.	−1·43	−1·31	−1·28	−1·73	−1·62	−2·13	−2·69	$\bar{n}$ 3·11	−2·59	−0·70	1·65	3·98	*x* 5·55	5·31	4·07	2·83	1·47	0·39	−0·59	−1·43	−1·19	−0·85	−1·26	−1·45
M.	−1·41	−1·52	−1·60	−2·19	−2·96	−3·16	$\bar{n}$ 3·33	−3·11	−1·84	0·19	2·45	4·57	*x* 5·03	4·71	3·66	2·30	1·39	0·80	0·30	−0·49	−0·89	−0·75	−0·99	−1·20
J.	−1·31	−1·14	−1·37	−1·83	−3·02	−3·83	$\bar{n}$ 4·08	−3·78	−2·76	−0·66	1·54	3·81	*x* 4·72	4·67	3·94	3·06	2·02	1·24	0·96	0·18	−0·22	−0·08	−0·74	−1·30
J.	−0·85	−0·97	−1·60	−2·28	−3·34	−3·96	$\bar{n}$ 4·04	−3·65	−2·97	−1·10	1·38	3·83	5·29	*x* 5·44	4·56	3·21	1·82	0·95	0·53	−0·05	−0·12	−0·55	−0·66	−0·94
A.	−2·03	−2·13	−2·16	−2·24	−2·20	−2·59	$\bar{n}$ 2·97	−2·73	−1·64	0·40	2·74	5·14	*x* 6·05	5·51	4·00	2·19	0·82	−0·03	−0·33	−0·67	−0·79	−1·20	−1·62	−1·53
S.	−1·11	−1·48	−1·74	−1·74	−1·59	−1·82	−2·15	$\bar{n}$ 2·24	−1·40	0·49	2·80	4·61	*x* 5·18	4·46	2·96	1·74	0·74	0·03	−0·45	−1·57	−1·54	−1·39	−1·41	−1·36
O.	−0·89	−0·81	−0·88	−1·12	−1·12	−1·27	−1·62	$\bar{n}$ 1·91	−1·63	−0·63	1·84	3·59	*x* 4·58	4·02	2·96	1·34	0·35	−0·35	−0·25	−0·81	−1·61	−1·36	−1·54	−0·90
N.	−0·77	−0·46	−0·37	−0·42	−0·69	−0·90	−0·83	−0·64	−0·25	0·70	1·84	2·58	*x* 2·66	2·23	1·55	1·27	0·49	−0·18	−0·57	−1·29	$\bar{n}$ 1·80	−1·60	−1·51	−1·07
D.	−0·83	−0·34	−0·09	−0·06	−0·12	−0·05	−0·22	−0·30	−0·22	0·36	1·27	1·98	*x* 2·16	1·85	1·11	0·92	0·83	0·25	−0·17	−0·80	−1·63	−1·98	$\bar{n}$ 2·42	−1·52
Y.	−1·14	−1·06	−1·18	−1·41	−1·68	−1·93	$\bar{n}$ 2·09	−2·02	−1·42	0·01	1·87	3·53	*x* 4·25	3·88	2·89	1·86	0·97	0·29	−0·10	−0·74	−1·07	−1·14	−1·32	−1·29

ΔI. LIII.—INCLINATION.

For reasons which are set out in the notes on instruments it has been decided not to publish the diurnal inequalities of inclination at Eskdalemuir for 1912.

ΔH. LIV.—HORIZONTAL FORCE (all days except May 31, June 1, Oct. 11, 12, Nov. 22, 26).

	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.	$\bar{n}$ 4·3	−3·5	−2·4	−0·5	2·0	*x* 4·2	3·6	2·9	1·2	− 1·7	− 0·7	1·2	3·1	3·6	2·7	1·0	0·1	0·3	0·4	− 1·3	−2·8	−2·1	− 3·6	−2·9
F.	−1·4	−1·9	−2·2	−1·8	0·6	2·1	3·0	2·1	0·0	$\bar{n}$ 3·8	$\bar{n}$ 3·8	− 0·4	2·9	*x* 4·4	3·0	−0·5	−1·0	− 0·7	− 0·4	1·0	−0·3	−1·2	− 0·8	−0·8
M.	2·3	1·8	1·6	1·9	3·3	4·8	4·3	0·1	− 6·6	−13·7	$\bar{n}$ 16·2	−12·0	− 5·6	−0·4	2·8	3·1	1·5	2·8	4·6	4·0	4·1	3·9	*x* 4·9	3·2
A.	4·8	4·2	5·7	4·4	5·3	4·0	− 0·7	− 7·6	−16·6	−24·3	$\bar{n}$ 25·0	−20·8	−12·4	−3·1	3·1	6·5	9·8	11·3	*x* 13·4	10·5	6·9	7·7	7·4	6·1
M.	5·4	2·9	2·3	1·1	−0·9	−5·0	− 7·6	−13·0	−20·2	$\bar{n}$ 23·5	−22·4	−16·6	− 8·2	−2·7	3·4	7·9	11·7	16·4	*x* 16·5	15·9	11·4	9·9	8·5	6·8
J.	5·1	3·9	2·9	2·8	0·2	−6·1	−12·0	−17·1	−21·5	$\bar{n}$ 23·8	−23·0	−18·5	−11·1	−3·7	2·6	8·3	14·2	18·9	*x* 19·2	17·1	14·1	11·4	9·6	6·7
J.	3·9	4·9	3·3	2·6	2·0	−1·7	− 6·9	−11·9	−17·8	−22·4	$\bar{n}$ 23·2	−18·2	−10·5	−4·4	3·8	7·7	11·5	*x* 15·4	14·8	13·9	11·5	8·9	7·3	5·5
A.	6·6	6·0	4·1	4·0	1·1	−0·8	− 9·6	−15·7	−23·1	$\bar{n}$ 27·2	−24·8	−15·9	− 5·4	2·3	7·7	8·7	9·9	10·8	11·8	*x* 12·7	10·5	11·2	7·9	7·1
S.	7·9	6·1	4·8	4·8	5·2	2·6	− 3·1	−11·5	−19·6	$\bar{n}$ 23·8	−22·0	−15·8	− 7·3	−1·3	2·5	6·0	5·1	6·6	8·1	9·1	9·3	7·0	*x* 9·9	8·8
O.	5·6	3·5	4·2	5·7	6·9	*x* 7·4	6·4	0·0	−11·5	−15·1	$\bar{n}$ 20·5	−12·7	−10·5	−4·7	−3·7	0·8	2·0	4·0	4·2	5·2	6·4	5·2	5·6	4·6
N.	−0·9	0·3	1·9	3·6	5·5	*x* 6·8	5·7	0·9	− 2·6	− 6·4	$\bar{n}$ 6·6	− 5·4	− 3·5	−2·7	−2·0	−2·0	−0·1	1·5	2·6	1·8	1·0	1·0	0·3	−0·5
D.	−3·0	−1·7	−1·3	1·2	3·1	4·9	*x* 5·5	3·3	− 0·9	− 1·6	− 2·0	− 2·1	0·7	1·5	−1·2	0·7	0·8	0·8	− 0·1	0·1	−0·7	−1·3	$\bar{n}$ 3·7	−2·6
Y.	2·7	2·2	2·1	2·5	2·9	1·9	− 1·0	− 5·6	−11·6	−15·6	$\bar{n}$ 15·9	−11·4	− 5·7	−0·9	2·1	4·0	5·5	7·3	*x* 7·9	7·5	6·0	5·1	4·4	3·5

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

LV.-LVI.—QUIET DAYS—KEW OBSERVATORY—DIURNAL INEQUALITIES

Kew. *Mean Hourly Values, Greenwich Mean Time,*

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.	Mdt.
	ΔD						LV.—DECLINATION (measured positive towards the west).																	
J.	0·02	−0·38	−0·51	−0·48	−0·19	−0·24	$\overline{n}$ 0·67	−0·60	−0·09	0·52	1·42	x 1·59	1·20	0·35	−0·29	−0·19	−0·24	−0·34	−0·24	−0·03	−0·25	−0·05	−0·12	−0·10
F.	−0·24	−0·49	−0·63	−0·15	0·11	0·02	−0·66	−0·76	−0·46	0·31	1·71	2·65	x 2·71	1·91	0·76	−0·32	−0·16	−0·16	−0·75	−0·85	−1·13	−1·21	$\overline{n}$ 1·36	−0·90
M.	−0·21	−0·48	−0·48	−0·63	−0·65	−0·50	−1·48	−2·33	$\overline{n}$ 2·81	−1·68	0·88	3·35	x 4·08	3·40	2·35	0·81	−0·10	−0·12	−0·73	−0·71	−0·54	−0·64	−0·47	−0·39
A.	0·00	−0·38	−0·57	−1·18	−1·07	−1·75	−3·10	$\overline{n}$ 4·05	−3·50	−1·82	1·57	4·18	x 5·41	4·68	3·10	1·81	0·64	−0·43	−0·33	−0·50	−0·69	−0·76	−0·90	−0·31
M.	−0·65	−0·83	−1·43	−1·81	−2·77	−3·07	$\overline{n}$ 3·43	−3·27	−2·03	−0·29	1·75	3·99	x 5·13	4·23	2·87	1·31	0·35	0·35	0·47	0·33	−0·01	−0·31	−0·25	−0·53
J.	−0·10	−0·26	−0·68	−0·94	−1·42	−2·22	−4·28	$\overline{n}$ 4·44	−4·08	−2·08	0·60	2·60	3·50	x 3·94	3·34	2·16	1·22	1·00	0·54	0·68	0·46	0·36	0·20	−0·08
J.	−0·01	−0·39	−1·43	−1·64	−2·82	−3·32	−3·80	$\overline{n}$ 3·90	−3·04	−1·19	1·13	4·09	x 4·71	4·47	3·54	2·04	0·64	0·22	0·20	0·18	0·27	−0·01	−0·01	0·03
A.	−0·34	−0·70	−1·12	−1·46	−2·00	−2·54	$\overline{n}$ 3·23	−3·13	−2·05	0·03	2·55	4·85	x 6·09	5·05	3·17	0·55	−0·77	−1·10	−0·62	−0·48	−0·46	−0·60	−0·80	−0·90
S.	−0·40	−0·65	−0·83	−0·95	−1·08	−1·48	−3·10	$\overline{n}$ 3·83	−3·09	−1·45	1·48	4·24	x 5·40	4·69	3·17	1·67	0·68	0·02	−0·24	−0·49	−0·61	−1·01	−1·20	−0·88
O.	−0·50	−0·33	−0·21	−0·40	−0·23	−0·60	−1·87	$\overline{n}$ 2·96	−2·76	−1·11	1·28	3·23	x 3·68	3·03	1·78	0·44	0·19	0·18	−0·05	−0·46	−0·55	−0·57	−0·56	−0·57
N.	−0·38	−0·18	−0·09	−0·05	0·20	−0·22	−0·79	$\overline{n}$ 1·00	−0·68	0·25	0·71	x 2·06	1·93	1·21	0·54	0·44	0·19	0·06	−0·52	−0·55	−0·67	−0·84	−0·86	−0·65
D.	−0·04	0·17	0·16	0·14	0·25	0·22	−0·75	$\overline{n}$ 0·94	−0·85	−0·07	1·04	x 1·51	1·32	0·95	0·47	0·34	0·13	−0·18	−0·61	−0·90	−0·62	−0·89	−0·66	−0·29
Y.	−0·24	−0·41	−0·65	−0·79	−0·97	−1·31	−2·26	$\overline{n}$ 2·60	−2·12	−0·72	1·34	3·19	x 3·76	3·16	2·07	0·92	0·23	−0·04	−0·24	−0·32	−0·40	−0·54	−0·58	−0·46
W.	−0·16	−0·22	−0·27	−0·13	0·09	−0·05	−0·72	$\overline{n}$ 0·83	−0·52	0·25	1·22	x 1·95	1·79	1·10	0·37	0·07	−0·02	−0·16	−0·53	−0·58	−0·67	−0·75	−0·75	−0·48
Eq.	−0·28	−0·46	−0·52	−0·79	−0·76	−1·08	−2·39	$\overline{n}$ 3·29	−3·04	−1·52	1·30	3·75	x 4·64	3·95	2·60	1·18	0·35	−0·09	−0·34	−0·54	−0·60	−0·75	−0·78	−0·54
S.	−0·28	−0·55	−1·17	−1·46	−2·25	−2·79	$\overline{n}$ 3·69	$\overline{n}$ 3·69	−2·80	−0·88	1·51	3·88	x 4·86	4·42	3·23	1·52	0·36	0·12	0·15	0·18	0·06	−0·14	−0·22	−0·37

LVII.-LX.—QUIET DAYS—FALMOUTH OBSERVATORY—DIURNAL INEQUALITIES OF DECLINATION,

Falmouth. *Mean Hourly Values, Greenwich Mean Time,*

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Mdt.
	ΔD						LVII.—DECLINATION (measured positive towards the west).																	
J.	−0·44	−0·60	−0·32	−0·40	−0·48	$\overline{n}$ 0·70	−0·58	−0·48	0·10	0·88	1·48	x 1·92	1·76	1·10	0·14	−0·02	0·10	−0·20	−0·44	−0·50	−0·62	−0·60	−0·68	−0·52
F.	−0·57	−0·65	−0·47	−0·49	−0·72	−0·58	−0·78	−0·90	−0·64	0·13	1·13	2·53	x 2·81	2·29	1·14	0·04	0·02	0·18	−0·18	−0·57	−0·89	−0·85	$\overline{n}$ 1·15	−0·89
M.	−0·56	−0·21	−0·32	−0·44	−0·67	−0·72	−1·05	−1·93	$\overline{n}$ 2·76	−2·07	0·17	2·72	x 3·83	3·53	2·68	1·49	0·11	−0·28	−0·73	−0·66	−0·60	−0·53	−0·50	−0·54
A.	−0·19	−0·40	−0·51	−0·95	−1·08	−1·60	−2·63	−3·76	$\overline{n}$ 3·84	−2·27	0·27	2·88	x 4·85	4·83	3·54	2·16	1·13	0·04	−0·20	−0·29	−0·61	−0·50	−0·51	−0·33
M.	−0·53	−0·42	−0·91	−1·34	−2·31	−2·96	$\overline{n}$ 2·99	−2·90	−2·81	−1·16	0·43	3·08	x 4·61	4·14	2·81	1·70	0·89	0·55	0·45	0·32	−0·05	−0·18	−0·13	−0·60
J.	−0·22	−0·02	−0·12	−0·54	−0·98	−2·27	−3·59	−4·41	$\overline{n}$ 4·43	−2·55	−0·57	2·03	3·23	x 3·83	3·31	2·43	1·75	1·27	0·87	0·38	0·28	0·30	0·12	−0·14
J.	−0·10	−0·17	−1·16	−1·35	−2·43	−3·46	−3·43	$\overline{n}$ 3·50	−3·25	−1·53	0·46	2·89	3·98	x 4·13	3·37	2·28	1·23	0·22	0·51	0·35	0·48	0·29	0·18	−0·03
A.	−0·49	−0·63	−0·87	−1·14	−1·78	−2·65	−2·81	$\overline{n}$ 3·27	−2·32	−0·42	1·57	3·87	x 5·63	5·46	3·70	1·09	−0·21	−0·87	−0·56	−0·54	−0·47	−0·65	−0·69	−0·88
S.	−0·73	−0·85	−0·87	−0·92	−1·20	−1·70	−2·76	$\overline{n}$ 3·65	−3·55	−2·09	0·92	3·44	x 5·04	4·97	3·83	2·31	1·14	0·40	−0·02	−0·40	−0·61	−0·93	−0·95	−0·90
O.	−0·56	−0·54	−0·30	−0·41	−0·49	−0·81	−1·21	−2·32	$\overline{n}$ 2·76	−1·80	0·23	2·57	x 3·77	3·40	2·20	0·90	0·17	0·15	0·03	−0·25	−0·48	−0·42	−0·50	−0·55
N.	−0·42	−0·35	−0·10	−0·12	−0·17	−0·40	−0·60	−0·83	$\overline{n}$ 0·86	−0·27	0·99	2·00	x 2·27	1·73	0·78	0·33	0·28	−0·06	−0·59	−0·54	$\overline{n}$ 0·86	−0·83	−0·74	−0·64
D.	−0·31	−0·12	0·05	−0·05	−0·08	−0·05	−0·39	−0·66	−0·53	−0·10	0·48	1·23	x 1·42	1·14	0·71	0·56	0·49	0·01	−0·44	−0·57	−0·65	$\overline{n}$ 0·88	−0·81	−0·47
Y.	−0·43	−0·41	−0·49	−0·68	−1·03	−1·49	−1·90	$\overline{n}$ 2·38	−2·28	−1·10	0·63	2·60	x 3·60	3·38	2·35	1·27	0·63	0·12	−0·11	−0·27	−0·42	−0·48	−0·53	−0·54
W.	−0·44	−0·43	−0·21	−0·26	−0·36	−0·43	−0·59	−0·72	−0·48	0·16	1·02	1·92	x 2·06	1·56	0·69	0·23	0·22	−0·02	−0·41	−0·55	−0·76	−0·79	$\overline{n}$ 0·84	−0·63
E.	−0·51	−0·50	−0·50	−0·68	−0·86	−1·21	−1·91	−2·91	$\overline{n}$ 3·23	−2·06	0·40	2·90	x 4·37	4·18	3·06	1·71	0·64	0·08	−0·23	−0·40	−0·57	−0·59	−0·59	−0·58
S.	−0·33	−0·31	−0·77	−1·09	−1·88	−2·83	−3·21	$\overline{n}$ 3·52	−3·13	−1·41	0·47	2·97	4·36	x 4·39	3·30	1·88	0·92	0·29	0·32	0·13	0·06	−0·06	−0·13	−0·41

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Mdt.
	ΔI.						LIX.—INCLINATION.																	
J.	−0·04	−0·06	−0·18	−0·12	0·06	0·08	0·10	−0·07	−0·29	$\overline{n}$ 0·53	−0·49	−0·21	0·14	x 0·28	0·14	0·09	0·10	0·14	0·22	0·21	0·17	0·14	0·05	0·06
F.	−0·07	−0·10	−0·11	−0·07	0·09	0·02	0·11	−0·05	−0·20	$\overline{n}$ 0·51	−0·49	−0·31	0·13	x 0·33	0·31	0·08	−0·04	0·20	0·20	0·20	0·23	0·12	−0·02	−0·05
M.	0·22	x 0·27	0·25	0·26	0·25	0·26	0·21	0·03	−0·56	−0·91	$\overline{n}$ 0·95	−0·57	−0·23	−0·06	−0·02	0·08	0·15	0·09	0·09	0·26	0·20	0·19	0·22	0·24
A.	0·49	0·41	0·44	0·35	0·31	0·21	0·14	−0·14	−0·80	−1·43	−1·69	$\overline{n}$ 1·76	−1·30	−0·57	−0·05	0·38	0·63	0·57	x 0·75	0·66	0·70	0·57	0·56	0·53
M.	0·52	0·45	0·32	0·25	0·08	−0·15	−0·35	−0·67	−1·05	−1·47	$\overline{n}$ 1·52	−1·21	−0·72	−0·28	0·04	0·26	0·47	0·76	0·86	x 0·92	0·84	0·67	0·53	0·43
J.	0·42	0·27	0·19	0·17	0·26	0·08	−0·28	−0·60	−0·99	−1·13	$\overline{n}$ 1·37	−1·24	−1·13	−0·70	−0·32	0·03	0·48	0·91	x 1·19	1·01	0·92	0·78	0·58	0·52
J.	0·49	0·45	0·24	0·26	0·30	0·02	−0·35	−0·60	−1·05	$\overline{n}$ 1·41	−1·40	−1·12	−0·80	−0·46	0·17	0·39	0·56	0·58	0·61	x 0·83	0·73	0·64	0·47	0·41
A.	0·44	0·44	0·43	0·41	0·33	0·06	−0·24	−0·70	−1·37	$\overline{n}$ 1·57	−1·31	−0·89	−0·46	−0·24	0·25	0·36	0·23	0·52	0·49	0·60	0·55	0·45	x 0·64	0·54
S.	0·48	0·44	0·39	0·40	0·40	0·38	0·20	−0·22	−0·89	−1·39	$\overline{n}$ 1·54	−1·49	−0·88	−0·33	−0·01	0·21	0·31	0·38	0·60	x 0·67	0·60	0·45	0·41	0·47
O.	0·35	0·34	0·32	0·39	0·39	0·42	0·42	0·25	−0·35	−1·07	$\overline{n}$ 1·53	−1·36	−1·03	−0·58	−0·17	0·08	0·07	0·27	0·48	0·47	0·44	0·45	x 0·49	0·45
N.	−0·08	0·07	0·14	0·26	0·31	0·31	0·23	0·01	−0·30	−0·66	$\overline{n}$ 0·88	−0·75	−0·43	−0·11	−0·02	0·13	0·11	0·28	0·35	0·35	x 0·37	0·18	0·08	0·07
D.	−0·11	−0·06	−0·05	0·08	0·15	0·08	0·09	0·15	−0·02	−0·28	$\overline{n}$ 0·40	−0·14	0·05	x 0·19	0·06	−0·02	0·03	0·03	0·14	0·13	0·10	−0·02	−0·10	−0·11
Y.	0·26	0·24	0·20	0·22	0·24	0·15	0·01	−0·22	−0·66	−1·03	$\overline{n}$ 1·13	−0·92	−0·56	−0·21	0·03	0·17	0·26	0·39	0·50	x 0·53	0·49	0·39	0·33	0·30
W.	−0·07	−0·04	−0·05	0·04	0·15	0·12	0·13	0·01	−0·20	−0·50	$\overline{n}$ 0·57	−0·35	−0·03	0·17	0·12	0·07	0·05	0·16	x 0·23	0·22	0·22	0·11	0·00	−0·01
E.	0·38	0·37	0·35	0·35	0·34	0·32	0·24	−0·02	−0·65	−1·20	$\overline{n}$ 1·43	−1·30	−0·86	−0·39	−0·06	0·19	0·29	0·33	0·48	x 0·51	0·48	0·42	0·42	0·42
S.	0·47	0·40	0·30	0·27	0·24	0·00	−0·31	−0·64	−1·12	$\overline{n}$ 1·40	$\overline{n}$ 1·40	−1·12	−0·78	−0·42	0·04	0·26	0·44	0·69	0·79	x 0·84	0·76	0·64	0·56	0·48

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

OF DECLINATION AND HORIZONTAL FORCE.

for the Month, Year and Seasons. **1912.**

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.
	ΔH.											LVI.—HORIZONTAL FORCE.												
J.	γ −4·5	γ −7·3	γ $\overline{n}$8·7	γ −6·5	γ −2·0	γ −0·5	γ 0·2	γ − 1·4	γ − 3·7	γ − 3·9	γ − 3·7	γ 1·0	γ 5·9	γ x7·4	γ 5·6	γ 3·6	γ 4·4	γ 4·6	γ 5·1	γ 4·5	γ 3·4	γ 0·6	γ −2·2	γ −1·6
F.	−4·0	−7·0	$\overline{n}$7·1	−5·9	−1·6	−1·2	0·9	0·7	− 1·4	− 2·4	− 2·6	2·6	6·8	x8·6	6·3	2·6	0·4	1·8	1·4	2·8	2·1	0·2	−1·3	−2·4
M.	−0·1	−1·4	−1·1	−1·6	−1·0	0·6	1·3	− 1·5	− 9·3	$\overline{n}$11·4	− 6·8	− 1·7	1·4	3·6	3·3	3·3	1·3	2·6	2·4	x 4·1	3·7	2·6	3·0	2·3
A.	4·5	2·0	1·3	0·4	0·4	0·3	− 1·2	− 7·1	−12·6	−18·5	$\overline{n}$21·5	−18·6	−11·3	−2·6	3·0	6·6	9·9	8·6	x 11·2	10·1	9·6	8·5	8·8	7·8
M.	4·4	0·8	−0·6	−0·7	−2·2	−5·8	− 6·3	−11·8	−15·7	$\overline{n}$18·0	−16·7	− 9·4	− 2·7	2·9	3·2	3·8	7·1	10·9	x 12·8	x 12·8	11·7	7·7	6·3	5·1
J.	4·4	−0·4	−2·2	−0·3	1·2	−2·8	−7·0	− 7·2	−15·3	$\overline{n}$17·0	−16·3	−11·9	−11·9	−5·2	−2·7	1·4	7·4	14·2	x 16·6	15·1	13·0	11·0	8·3	7·2
J.	2·6	−0·4	−2·7	0·9	1·6	−2·6	−5·3	− 9·8	−15·0	$\overline{n}$19·1	−15·8	− 9·5	− 6·4	−0·8	6·6	6·6	9·3	7·8	10·4	x 11·3	10·6	9·1	6·3	6·6
A.	2·1	2·1	1·3	1·4	−0·9	−2·5	−6·9	−14·9	$\overline{n}$20·5	−19·4	−14·1	− 4·9	0·5	2·1	6·3	5·5	6·0	6·6	8·0	8·0	8·9	x 9·7	8·7	4·6
S.	3·6	2·9	2·6	1·8	1·7	1·6	−1·6	− 9·4	−15·7	$\overline{n}$19·8	−19·6	−14·4	− 4·0	1·2	5·1	4·9	5·9	6·8	8·5	x 9·4	x 9·4	6·8	5·3	7·3
O.	2·1	0·1	1·1	2·6	4·2	5·8	5·8	1·3	− 6·4	−14·7	$\overline{n}$17·3	−14·6	−10·1	−5·0	−1·2	1·1	2·7	6·5	6·5	x 7·3	7·1	6·2	4·4	4·8
N.	−2·2	−3·5	−2·4	−0·9	0·2	3·1	2·0	− 1·5	− 4·4	$\overline{n}$ 6·7	− 6·1	− 5·2	− 1·9	1·2	2·0	2·5	5·1	x 5·4	4·5	2·8	3·0	1·3	1·2	0·9
D.	−4·3	$\overline{n}$4·9	−4·3	−3·4	−0·9	0·9	2·4	x 3·3	1·0	− 1·4	− 3·4	− 0·7	2·6	2·5	1·9	0·4	1·8	2·6	3·0	1·7	2·7	0·6	−1·4	−2·7
Y.	0·7	−1·4	−1·9	−1·0	0·1	−0·3	−1·3	− 4·9	− 9·9	$\overline{n}$12·7	−12·0	− 7·3	− 2·6	1·3	3·3	3·5	5·1	6·5	x 7·5	x 7·5	7·1	5·4	4·0	3·3
W.	−3·8	$\overline{n}$5·7	−5·6	−4·2	−1·1	0·6	1·4	0·3	− 2·1	− 3·6	− 4·0	− 0·6	3·3	x4·9	3·9	2·3	2·9	3·6	3·5	2·9	2·8	0·7	−0·9	−1·5
Eq.	2·5	0·9	1·0	0·8	1·3	2·1	1·1	− 4·2	−11·0	−16·1	$\overline{n}$16·3	−12·3	− 6·0	−0·7	2·6	4·0	5·0	6·1	7·2	x 7·7	7·5	6·0	5·4	5·6
S.	3·4	0·5	−1·0	0·3	−0·1	−3·4	−6·4	−10·9	−16·6	$\overline{n}$18·4	−15·7	− 8·9	− 5·1	−0·3	3·3	4·3	7·4	9·9	x 12·0	11·8	11·0	9·4	7·4	5·9

HORIZONTAL FORCE, INCLINATION, AND VERTICAL FORCE.

for the Month, Year, and Seasons. **1912.**

	ΔH.											LVIII.—HORIZONTAL FORCE.												
J.	γ −1·5	γ −1·4	γ −2·7	γ −1·5	γ 1·1	γ 1·5	γ 1·5	γ − 1·1	γ − 3·7	$\overline{n}$ 7·1	γ − 5·9	γ − 2·0	γ 3·0	x 5·0	γ 2·9	γ 2·0	γ 2·0	γ 1·9	γ 2·8	γ 2·1	γ 1·4	γ 1·1	γ −0·7	γ −0·8
F.	−1·5	−1·9	−2·4	−1·8	0·7	0·2	1·4	0·4	− 1·5	$\overline{n}$ 5·8	− 4·8	− 1·8	4·3	x 6·1	4·2	−0·6	−2·3	1·0	1·1	1·9	2·4	1·5	−0·5	−1·0
M.	1·6	2·3	1·9	2·3	2·8	x 3·7	3·6	1·3	− 7·1	$\overline{n}$11·5	− 9·6	− 3·6	0·3	1·8	0·2	−0·2	−0·3	− 1·1	− 0·8	2·8	2·3	2·4	2·6	2·1
A.	5·9	4·6	4·8	3·5	3·2	1·9	0·3	− 3·4	−11·8	−19·8	$\overline{n}$21·5	−21·3	−14·3	− 5·1	0·5	5·8	8·7	7·6	x 10·2	8·8	9·3	7·5	7·3	6·7
M.	5·6	4·8	3·2	2·3	−0·3	−3·0	−4·9	−10·0	−14·4	$\overline{n}$18·6	−17·3	−11·7	− 5·1	−0·3	1·9	2·8	4·9	9·3	11·3	x 12·0	10·3	7·9	5·6	4·2
J.	6·2	4·0	2·9	2·1	2·8	0·3	− 5·3	− 9·8	−13·9	−14·5	$\overline{n}$16·0	−13·1	−12·7	− 7·7	− 4·1	−0·4	5·0	11·0	x 15·0	12·1	11·3	10·1	7·9	7·3
J.	6·1	6·0	3·4	3·7	3·9	0·2	− 5·0	− 8·5	−15·2	$\overline{n}$19·4	−17·6	−12·2	− 8·4	− 4·7	3·4	5·4	6·6	6·6	7·1	x 10·3	9·2	8·1	5·6	4·7
A.	5·6	5·5	5·4	5·2	3·7	−0·2	− 4·9	−11·6	−20·3	$\overline{n}$21·1	−15·5	− 8·4	− 2·2	− 1·1	4·1	4·5	1·5	5·7	6·0	7·7	7·4	6·2	x 9·0	7·2
S.	6·7	5·6	4·4	4·3	4·3	3·9	1·1	− 4·9	−13·3	−19·4	$\overline{n}$19·6	−17·8	− 8·0	− 1·5	1·1	2·6	2·9	3·7	7·5	x 8·9	8·4	6·7	6·2	7·0
O.	4·4	4·4	4·4	5·6	5·7	6·2	5·9	3·1	− 5·3	−14·5	$\overline{n}$19·0	−16·3	−12·3	−6·7	− 2·5	−0·3	−0·3	2·5	5·7	5·7	5·4	5·9	x 6·6	5·6
N.	−1·8	0·5	1·6	3·8	4·7	x 5·0	4·0	1·2	− 2·8	− 7·4	$\overline{n}$10·0	− 8·2	− 4·9	− 2·2	− 1·6	0·5	−0·1	2·4	3·7	4·1	4·7	1·9	1·1	0·5
D.	−2·0	− 1·4	− 1·3	1·0	2·0	1·0	1·3	2·2	0·1	− 2·6	$\overline{n}$ 4·0	− 1·0	1·3	x 3·1	0·8	−0·5	−0·1	− 0·2	1·6	1·7	1·3	− 1·0	−2·0	−1·9
Y.	2·9	2·7	2·1	2·5	2·9	1·7	−0·1	− 3·4	− 9·1	$\overline{n}$13·5	−13·4	− 9·8	− 4·9	− 1·1	0·9	1·8	2·4	4·2	5·9	x 6·5	6·1	4·9	4·1	3·5
W.	−1·7	− 1·1	− 1·2	0·4	2·1	1·9	2·0	0·7	− 2·0	− 5·7	$\overline{n}$ 6·2	− 3·3	0·9	x 3·0	1·6	0·4	−0·1	1·3	2·3	2·4	2·4	0·9	−0·5	−0·8
E.	4·6	4·2	3·9	3·9	4·0	3·9	2·7	− 1·0	− 9·4	−16·3	−17·4	$\overline{n}$22·2	− 8·6	− 2·9	−0·2	2·0	2·7	3·2	5·6	x 6·6	6·4	5·6	5·7	5·4
S.	5·9	5·1	3·7	3·3	2·5	−0·7	−5·0	−10·0	−16·0	$\overline{n}$18·4	−16·6	−11·4	− 7·1	− 3·5	1·3	3·1	4·5	8·2	9·9	x 10·5	9·6	8·1	7·0	5·9

	ΔZ (or ΔV).											LX.—VERTICAL FORCE.												
J.	γ 2·3	γ 1·1	γ 0·2	γ −0·6	γ −0·6	γ −0·6	γ −0·1	γ 0·2	γ −1·6	γ −1·9	$\overline{n}$ 3·1	γ − 2·6	γ − 2·2	γ −2·0	γ −1·7	γ −1·5	γ −1·2	γ 0·4	γ 1·1	γ 2·5	γ 2·5	γ 2·2	γ 3·2	γ x3·8
F.	1·0	1·0	1·7	1·8	1·5	0·1	−0·7	−2·5	−3·4	−4·1	− 5·8	$\overline{n}$ 6·5	− 5·6	−2·8	0·9	4·1	3·8	x 4·5	4·3	2·6	2·3	0·7	0·4	0·7
M.	3·7	3·9	4·1	3·6	2·2	0·4	−1·2	−1·9	−2·8	−4·7	−10·5	$\overline{n}$11·1	− 8·7	−6·1	−1·1	3·2	x 5·9	5·6	4·8	2·5	1·7	1·1	1·8	3·5
A.	3·3	3·3	x 4·2	3·8	3·3	3·0	4·0	3·0	−0·1	−3·4	− 8·6	−11·5	$\overline{n}$11·6	−7·7	−2·9	−0·5	1·7	2·0	2·2	2·3	2·6	2·4	2·4	2·8
M.	4·8	4·4	3·6	3·3	3·4	1·9	0·6	−0·1	−2·8	−7·8	−12·2	$\overline{n}$14·6	−12·9	−8·7	−3·1	2·4	4·8	4·8	3·5	4·1	5·2	5·0	x 5·2	x 5·2
J.	0·1	−0·4	0·0	1·0	2·3	2·0	2·6	2·1	−1·9	−5·3	−10·3	$\overline{n}$12·2	− 9·5	−6·3	−1·7	1·8	4·9	5·8	6·3	x 6·8	5·5	3·6	1·7	1·0
J.	2·9	1·8	0·5	0·4	1·2	0·4	−0·6	−1·0	−1·2	−3·8	− 7·6	$\overline{n}$10·4	− 3·3	−5·0	−1·9	1·1	4·0	x 4·7	x 4·7	x 4·7	3·9	3·2	3·1	3·2
A.	2·4	2·4	2·3	2·0	2·9	2·6	3·1	2·8	−0·5	−5·4	− 9·5	$\overline{n}$11·1	−10·6	−5·8	−0·7	1·8	4·2	x 4·7	3·1	3·0	1·9	1·1	1·5	2·0
S.	1·0	2·4	3·3	3·9	3·9	4·1	4·4	3·8	−0·1	−3·2	− 7·6	−10·2	$\overline{n}$11·8	−7·8	−2·8	1·3	3·8	x 4·6	3·4	2·4	1·4	0·0	−0·2	0·1
O.	2·0	1·5	0·8	0·5	0·3	0·2	0·8	1·6	0·2	−3·5	− 8·9	$\overline{n}$ 9·3	− 7·2	−4·3	0·0	3·4	3·2	x 3·6	3·5	3·1	2·6	2·0	1·8	2·6
N.	1·4	1·1	1·1	0·3	−0·1	−0·8	−1·2	−2·2	−3·7	−5·5	$\overline{n}$ 7·2	− 7·0	− 3·3	1·4	2·9	3·4	x 4·1	4·0	3·5	2·6	1·9	1·8	0·4	1·4
D.	0·8	1·3	1·2	0·3	0·5	0·4	0·2	0·1	−1·0	−3·8	$\overline{n}$ 4·7	− 2·4	− 1·3	−0·7	0·2	0·4	1·4	1·4	1·1	0·7	0·6	x 1·6	1·1	0·5
Y.	2·1	2·0	1·9	1·7	1·7	1·1	1·0	0·5	−1·6	−4·4	− 8·0	$\overline{n}$ 9·1	− 7·8	−4·7	−1·0	1·7	3·4	x 3·8	3·5	3·1	2·7	2·1	1·9	2·2
W.	1·4	1·1	1·0	0·4	0·3	−0·2	−0·5	−1·1	−2·4	−3·8	$\overline{n}$ 5·2	− 4·6	− 3·1	−1·0	0·6	1·6	2·0	x 2·6	2·5	2·1	1·8	1·6	1·3	1·6
E.	2·5	2·8	3·1	3·0	2·4	1·9	2·0	1·6	−0·7	−3·7	− 8·9	$\overline{n}$10·5	− 9·8	−6·5	−1·7	1·8	3·6	x 4·0	3·5	2·6	2·1	1·4	1·5	2·2
S.	2·6	2·1	1·6	1·7	2·4	1·7	1·4	0·9	−1·6	−5·6	− 9·9	$\overline{n}$12·1	−10·3	−6·4	−1·9	1·8	4·5	x 5·0	4·4	4·6	4·1	3·2	2·9	2·8

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

LXI.–LXIII.—QUIET DAYS—ESKDALEMUIR OBSERVATORY—DIURNAL INEQUALITIES OF THE GEOGRAPHICAL COMPONENTS OF MAGNETIC FORCE.

Eskdalemuir. *Mean Hourly Values, Greenwich Mean Time, for the Months, Year and Seasons.* **1912.**

LXI.—NORTH COMPONENT.

ΔX (or ΔN)

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

LXII.—WEST COMPONENT.

−ΔY (or ΔW)

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
J.	−2·3	$\overline{n}$ 3·8	$\overline{n}$ 3·8	−3·7	−3·1	−3·2	−2·3	−1·3	0·6	3·6	6·3	8·5	x 8·6	5·3	2·1	1·6	1·4	−0·5	−1·2	−1·8	−2·7	−2·7	−2·8	−2·9
F.	−3·7	−4·4	−3·9	−3·3	−3·2	−3·2	−2·9	−2·4	−1·8	1·3	6·5	11·0	x 13·0	11·1	5·9	0·4	0·5	0·5	−1·0	−1·5	−3·9	−5·0	$\overline{n}$ 5·4	−4·7
M.	−1·4	−0·1	−1·3	−1·6	−1·6	−2·5	−5·5	−9·2	$\overline{n}$ 14·4	−12·3	−1·7	10·4	x 16·8	15·9	11·7	5·6	1·2	−1·3	−1·9	−2·0	−1·0	−1·3	−1·5	−1·4
A.	−0·1	−0·9	−1·9	−4·3	−5·5	−7·7	−14·0	−19·0	$\overline{n}$ 20·6	−13·4	−2·2	9·4	20·0	x 22·1	16·5	11·3	9·1	1·3	1·9	0·2	−0·8	−0·4	−1·2	0·2
M.	−1·6	−2·4	−5·5	−9·9	−14·4	$\overline{n}$ 17·8	−17·5	−16·3	−14·4	−9·8	−1·1	13·4	x 20·2	18·5	14·7	9·6	6·6	7·1	8·5	6·2	3·0	2·7	1·7	−1·5
J.	−0·2	−1·0	−2·6	−5·2	−9·0	−14·8	−21·4	$\overline{n}$ 24·2	−23·4	−13·8	−4·2	5·6	12·6	x 16·2	15·0	11·8	11·0	11·4	10·0	8·0	6·6	5·4	3·6	2·0
J.	0·7	−0·9	−6·0	−10·0	−15·8	−19·8	$\overline{n}$ 20·7	−20·1	−18·9	−10·5	−1·2	11·6	18·6	x 19·8	19·3	13·9	8·7	6·7	6·2	6·4	5·4	3·8	2·3	0·5
A.	−1·1	−2·2	−2·9	−6·4	−11·7	−15·2	−16·7	$\overline{n}$ 18·2	−16·3	−7·2	5·6	18·5	x 27·4	25·9	17·8	5·9	−0·8	−2·1	−0·4	1·1	1·2	0·6	−0·7	−2·2
S.	−2·1	−3·5	−4·1	−5·1	−5·9	−8·1	−14·7	−19·3	$\overline{n}$ 19·7	−10·9	−0·9	13·7	x 21·3	21·0	17·0	11·2	6·4	4·0	3·2	2·2	0·4	−1·6	−2·2	−2·4
O.	−1·4	−1·8	−0·8	−1·5	−2·5	−4·1	−6·7	−10·6	$\overline{n}$ 13·6	−7·6	0·8	9·6	x 14·3	12·7	7·5	3·1	2·0	2·6	1·4	0·4	−0·7	−1·1	−1·1	−0·8
N.	−3·1	−1·6	−0·1	−0·6	−1·5	−1·4	−1·6	−3·3	−4·0	−1·9	3·4	6·9	x 8·4	5·5	3·0	2·5	2·4	1·6	0·9	−2·0	−2·9	$\overline{n}$ 4·2	−2·9	−3·6
D.	−1·7	−1·3	0·3	0·7	−1·0	−1·4	−2·4	−3·2	−3·4	−0·6	2·4	5·3	x 6·7	x 6·7	3·7	2·5	2·3	1·0	−0·4	−2·4	−3·6	$\overline{n}$ 4·6	−3·3	−2·5
Y.	−1·5	−2·0	−2·7	−4·2	−6·3	−8·3	−10·5	−12·2	$\overline{n}$ 12·5	−6·9	1·1	10·3	x 15·7	15·1	11·2	6·6	4·2	2·7	2·3	1·2	0·1	−0·7	−1·1	−1·6
W.	−2·7	−2·8	−1·9	−1·7	−2·2	−2·3	−2·3	−2·6	−2·2	0·6	4·6	7·9	x 9·2	7·2	3·7	1·8	1·7	0·6	−0·4	−1·9	−3·3	$\overline{n}$ 4·1	−3·6	−3·4
Eq.	−1·2	−1·6	−2·0	−3·1	−3·9	−5·6	−10·2	−14·5	$\overline{n}$ 17·1	−11·5	−1·0	10·8	x 18·1	18·0	13·2	7·8	4·7	1·7	1·1	0·2	−0·5	−1·1	−1·5	−1·1
S.	−0·6	−1·6	−4·2	−7·9	−12·7	−16·9	−19·1	$\overline{n}$ 19·7	−18·2	−10·3	−0·2	12·3	19·7	x 20·1	16·7	12·1	6·4	5·8	6·1	5·4	4·1	3·1	1·7	−0·3

LXIII.—VERTICAL COMPONENT.

ΔZ (or ΔV)

For reasons which are set out in the notes on instruments it has been decided not to publish the diurnal inequalities of vertical force at Eskdalemuir for 1912.

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

LXIV.—RANGE OF THE MEAN DIURNAL INEQUALITIES OF MAGNETIC FORCE AND NON-CYCLIC CHANGE ($24^h - 0^h$) FOR THE MONTHS, YEAR AND SEASONS OF 1912, AT THREE OBSERVATORIES.

	ESKDALEMUIR.														KEW.				FALMOUTH.					
	All days except May 31, June 1, Oct. 11, 12, Nov 22, 26.								Selected quiet Days.						Selected quiet Days.				Selected quiet Days.					
Refer to Table.	XLIX.		L.		LI.		LII.	LIII.	LIV.	LXI.		LXII.		LXIII.			LV.		LVI.		LVII.		LVIII.	LIX.	LX.	
	X.		—Y.		Z.		D.	I.	H.	X.		—Y.		Z.			D.		H.		D.		H.	I.	Z.	
	Range.	24 − 0.	Range.	24 − 0.	Range.	24 − 0.	Range.	Range.	Range.	Range.	24 − 0.	Range.	24 − 0.	Range.	24 − 0.		Range.	24 − 0.	Range.	24 − 0.	Range.	24 − 0.	Range.	Range.	Range.	24 − 0.
	γ	γ	γ	γ	γ	γ	′	′	γ	γ	γ	γ	γ	γ	γ		′	′	γ	γ	′	′	γ	′	γ	γ
J.	9·0	+0·5	17·8	+0·5			3·43	...	8·5	9·5	+0·6	12·4	+ 1·4				2·26	+1·25	16·1	+ 3·1	2·62	+0·48	12·1	0·81	6·9	−3·0
F.	10·9	+0·6	21·5	0·0			4·35	...	8·2	9·3	+0·4	18·4	+ 1·4				4·07	+0·42	15·7	+ 0·5	3·96	−0·54	11·9	0·84	11·0	+7·1
M.	24·2	0·0	32·2	+0·4			6·71	...	21·1	23·0	+1·8	31·2	+ 1·2				6·89	+0·12	15·5	+ 2·2	6·59	+0·32	15·2	1·22	17·0	−5·0
A.	39·9	+0·3	41·0	+0·2			8·66	...	38·4	40·6	+2·6	42·7	+ 0·4				9·46	−0·18	32·7	+ 2·1	8·69	+0·34	31·7	2·51	15·8	+3·6
M.	40·9	+0·3	39·6	−0·2			8·36	...	40·0	41·2	+0·4	38·0	− 1·2				8·56	−0·48	30·8	+ 0·9	7·60	−0·24	30·6	2·44	19·8	+1·2
J.	41·0	−0·9	43·5	+0·2			8·80	...	43·0	39·8	−0·8	40·4	0·0				8·38	0·00	33·6	− 0·3	8·26	−0·02	31·0	2·56	19·0	+2·0
J.	37·4	0·0	45·0	−0·1			9·48	...	38·6	35·2	+0·2	40·5	+ 0·6				8·61	−0·04	30·4	− 0·6	7·63	−0·28	29·7	2·24	15·1	+6·3
A.	40·8	+0·1	44·1	+0·6			9·02	...	39·9	36·6	+4·0	45·6	+ 2·2				9·32	−0·02	30·2	+ 5·5	8·90	+0·38	30·1	2·21	15·8	−6·1
S.	36·8	−0·1	35·9	0·0			7·42	...	33·7	36·9	+2·4	41·0	+ 0·2				9·23	+0·08	29·2	+ 2·7	8·69	−0·08	28·5	2·21	16·4	−2·4
O.	31·3	−0·1	29·3	−1·2			6·49	...	27·9	28·3	+4·4	27·9	+ 0·6				6·64	−0·20	24·6	+ 4·3	6·53	+0·06	25·6	2·02	12·9	−3·0
N.	17·0	+0·3	19·4	+0·5			4·46	...	13·4	13·5	+2·2	12·6	+ 2·2				3·06	−0·14	12·1	+ 2·2	3·13	+0·64	15·0	1·25	11·3	−4·0
D.	10·6	+0·5	22·7	+0·5			4·58	...	9·2	9·0	+1·6	11·3	+ 0·4				2·45	−0·28	8·2	+ 0·8	2·30	−0·18	7·1	0·59	6·3	+0·9
Y.	26·2	...	29·3	...			6·34	...	23·8	25·7	...	28·2	...				6·36	...	20·2	...	5·98	...	20·0	1·66	12·9	...
W.	11·3	...	19·5	...			...	...	...	9·5	...	13·3	...				2·78	...	10·6	...	2·90	...	9·2	0·80	7·8	...
Eq.	31·6	...	33·7	...			...	...	...	30·2	...	35·2	...				7·93	...	24·0	...	7·60	...	28·8	1·94	14·5	...
S.	39·8	...	42·9	...			...	...	...	37·6	...	39·8	...				8·55	...	30·4	...	7·91	...	28·9	2·24	17·1	...

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

The formula used is—Inequality $= a_1 \sin 15t^\circ + b_1 \cos 15t^\circ + a_2 \sin 30t^\circ + b_2 \cos 30t^\circ + \ldots$
$= c_1 \sin (15t^\circ + \alpha_1) + c_2 \sin (30t + \alpha_2) + \ldots$

Eskdalemuir. t being time of day measured in hours from midnight G.M.T. **1912.**

Month and Year.	North Component. ΔX. (or ΔN.) All days except Oct. 11, 12, Nov. 26.								West Component. −ΔY. (or ΔW.) All days except May 31, June 1, Oct. 11, 12, Nov. 22, 26.								Vertical Component. ΔZ. or (ΔV.)							
	a_1.	b_1.	a_2.	b_2.	c_1.	α_1.	c_2.	α_2	a_1.	b_1.	a_2.	b_2.	c_1.	α_1.	c_2.	α_2.	a_1.	b_1.	a_2.	b_2.	c_1.	α_1.	c_2.	α_2.
	γ	γ	γ	γ	γ	°	γ	°	γ	γ	γ	γ	γ	°	γ	°	γ	γ	γ	γ	γ	°	γ	°
J.	−0·4	1·1	−2·3	0·1	1·2	342·0	2·3	273·3	−7·0	−1·8	1·9	0·9	7·2	235·6	2·1	64·7								
F.	1·8	0·7	−1·7	−0·3	1·9	68·7	1·7	260·0	−8·1	−2·9	2·7	1·9	8·6	250·3	3·3	54·9								
M.	8·2	0·3	−5·1	−0·5	8·2	87·9	5·1	264·4	−6·6	−5·9	2·2	6·8	8·9	228·2	7·1	17·9								
A.	14·0	−3·1	−9·0	1·2	14·3	102·5	9·1	277·6	−6·3	−10·5	3·1	8·9	12·2	211·0	9·4	19·2								
M.	14·0	−7·0	−6·5	1·4	15·7	116·6	6·6	282·2	−6·5	−13·3	5·0	6·1	14·8	206·0	7·8	39·4								
J.	14·7	−7·5	−7·6	1·2	16·5	118·0	7·7	279·0	−4·1	−16·3	3·9	7·2	16·8	194·0	8·2	28·7								
J.	13·5	−4·6	−8·3	0·9	14·3	108·8	8·3	276·2	−4·7	−15·7	4·8	8·1	16·4	196·7	9·4	30·7								
A.	15·0	−6·5	−6·4	4·1	16·3	113·4	7·6	302·6	−8·3	−11·6	5·5	6·7	14·3	215·6	8·7	39·4								
S.	14·4	−3·5	−5·9	2·8	14·8	103·7	6·5	295·4	−7·3	−7·3	4·8	4·9	10·3	225·0	6·9	44·4								
O.	11·1	1·1	−6·7	−0·4	11·1	84·8	6·7	273·4	−5·5	−4·9	3·1	6·1	7·4	228·3	6·8	26·9								
N.	4·9	1·6	−4·2	−1·0	5·1	71·9	4·3	256·6	−6·3	−1·0	1·6	3·6	6·3	260·5	3·9	23·9								
D.	1·3	1·2	−2·4	−1·1	1·7	48·0	2·6	245·8	−6·7	−0·2	−0·7	3·5	6·7	268·5	3·6	349·3								
Y.	9·4	−2·2	−5·5	0·7	9·6	103·1	5·6	277·2	−6·4	−7·6	3·2	5·4	9·9	220·3	6·2	30·4								

For reasons which are set out in the notes on instruments, these values are not published for 1912.

Kew and Eskdalemuir. LXVI.—QUICK RUNS OF THE RECORDING MAGNETOGRAPHS. **1912.**

Date.		Time G.M.T.	KEW. Character of Trace.	KEW. Approximate Range. D.	KEW. Approximate Range. H.	ESKDALEMUIR. Character of Trace.	ESKDALEMUIR. Approximate Range. N.	W.	V.
1912.		hours.		′	γ		γ	γ	γ
January	22	18 to 20	Quiet.	1¼	9	N irregular; W decreasing.	14	5	
	26	18 ,, 20	Quiet.	0¾	6	N largest in middle; W largest in middle.	6	6	
March	19	8 ,, 10	Quiet.	1¾	18	N decreasing; W nearly constant.	23	11	
	21	17 ,, 19	Quiet.	1½	8	N wave-shaped; W lowest in middle.	10	4	
April	16	8 ,, 10	Moderately disturbed.	3½	37	Pulsations; period 50ˢ to 100ˢ; amplitudes 3 to 2γ in N or W, 0·7γ in V. Also more rapid ones.	49	20	
	18	17 ,, 19	Quiet.	2	11	N increasing; W decreasing.	20	9	
May	14	8 ,, 10	Slightly disturbed.	2	16	Pulsations; period 50ˢ to 100ˢ; amplitude 3γ in N, 2γ in W, 0·7γ in V.	15	16	
	16	17 ,, 19	Quiet.	0¾	12	N irregular; W largest in middle.	17	9	
June	11	8 ,, 10	Quiet.	4	6		...	...	
	13	17 ,, 19	Quiet.	1	11		...	...	
July	16	8 ,, 10	Slightly disturbed.	2	18	No quick runs made.	...	...	
	18	17 ,, 19	Quiet.	1½	9		...	...	
August	13	8 ,, 10	Quiet.	3½	6	N decreasing; W increasing.	14	13	
	15	17 ,, 19	Quiet.	1¼	7	N fairly constant; W lowest in middle.	5	4	
September	10	8 ,, 10	Slightly disturbed.	4	8	Pulsations; period 50ˢ to 100ˢ; amplitude 2γ in N, 1γ in W, 0·7γ in V.	18	19	
	12	17 ,, 19	Quiet.	1	11	N largest in middle; W decreasing, then constant.	15	4	
October	8	8 ,, 10	Slightly disturbed.	3	24	N decreasing; W lowest in middle, irregular.	30	16	
	10	17 ,, 19	Quiet.	1½	13	N increasing irregularly; W increasing then constant.	>14	9	

For reasons which are set out in the notes on instruments, these values are not published for 1912.

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

	KEW (quiet days D and H, absolute observations I. See p. 65).				ESKDALEMUIR (all days).				FALMOUTH (quiet days only).				VALENCIA (2 absolute observations per month).			
1912.	North.	West.	Vertical.	Total.	North.	West.	Vertical.*	Total.	North.	West.	Vertical.	Total.	North.	West.	Vertical.	Total.
	C.G.S.	C.G.S.	C.G.S.	C.G.S.	C.G.S.	C.G.S.	C.G.S.	C.G.S.	C.G.S.	C.G.S.	C.G.S.	C.G.S.	C.G.S.	C.G.S.	C.G.S.	C.G.S.
January	·17794	·05054	·43463	·47235	·16013	·05245	·45361	·48389	·17942	·05640	·43154	·47073	·16776	·06299	·44745	·48198
February	·17802	·05046	·43471	·47245	·16016	·05240	·45291	·48324	·17932	·05642	·43122	·47041	·16773	·06292	·44706	·48161
March	·17800	·05045	·43463	·47236	·16016	·05238	·45311	·48343	·17938	·05640	·43134	·47054	·16761	·06275	·44682	·48132
April	·17801	·05037	·43481	·47253	·16016	·05232	·45419	·48443	·17932	·05630	·43119	·47038	·16747	·06261	·44633	·48080
May	·17801	·05034	·43461	·47235	·16020	·05229	·45342	·48372	·17950	·05639	·43122	·47044	·16753	·06258	·44650	·48097
June	·17800	·05031	·43457	·47229	·16021	·05228	·45357	·48386	·17938	·05624	·43129	·47047	·16768	·06262	·44680	·48131
July	·17801	·05029	·43427	·47203	·16020	·05223	·45349	·48378	·17938	·05620	·43122	·47042	·16765	·06247	·44682	·48130
August	·17799	·05025	·43441	·47215	·16014	·05217	·45364	·48389	·17931	·05614	·43115	·47032	·16762	·06260	·44661	·48111
September	·17800	·05020	·43453	·47225	·16015	·05215	·45318	·48346	·17941	·05617	·43126	·47047	·16747	·06253	·44622	·48069
October	·17804	·05011	·43451	·47224	·16013	·05210	·45358	·48383	·17929	·05600	·43105	·47020	·16773	·06255	·44700	·48150
November	·17801	·05010	·43437	·47210	·16009	·05206	·45326	·48351	·17927	·05603	·43082	·47000	·16779	·06252	·44731	·48181
December	·17813	·05006	·43443	·47219	·16011	·05200	·45339	·48364	·17958	·05601	·43080	·47008	·16782	·06263	·44718	·48172
Year 1912	·17801	·05029	·43454	·47227	·16015	·05224	·45345	·48374	·17938	·05622	·43118	·47037	·16766	·06265	·44684	·48134
Year 1911	·17792	·05076	·43490	·47262	·16003	·05264	·45344	·48372	·17923	·05669	·43172	·47087	·16741	·06305	·44730	·48174
Year 1910	·17781	·05117	·43546	·47313	·15976†	·05311†	·45343†	·48368†	·17913	·05714	·43208	·47121	·16732	·06337	·44771	·48215
Year 1905	·17743	·05272	·43742	·47496	...	...	...	...	·17817	·05837	·43328	·47212	·16640	·06447	·44893	·48313

1912.	Declination (West).	Inclination (North).	Horizontal Force.	Declination (West).	Inclination (North).*	Horizontal Force.	Declination (West).	Inclination (North).	Horizontal Force.	Declination (West).	Inclination (North).	Horizontal Force.
	° ′	° ′	C.G.S.	° ′	° ′	C.G.S.	° ′	° ′	C.G.S.	° ′	° ′	C.G.S.
January	15 51·4	66 56·7	·18498	18 8·2	69 37·3	·16850	17 27·0	66 27·0	·18808	20 34·7	68 10·5	·17919
February	15 49·6	66 56·6	·18503	18 7·0	69 35·5	·16851	17 28·0	66 26·7	·18799	20 33·7	68 9·8	·17914
March	15 49·5	66 56·5	·18501	18 6·6	69 36·0	·16851	17 27·2	66 26·7	·18804	20 31·4	68 10·3	·17897
April	15 48·0	66 57·1	·18500	18 5·5	69 38·8	·16849	17 25·9	66 26·9	·18795	20 29·9	68 10·2	·17879
May	15 47·5	66 56·6	·18499	18 4·6	69 36·7	·16852	17 26·4	66 25·6	·18815	20 28·9	68 10·3	·17884
June	15 46·9	66 56·6	·18497	18 4·4	69 37·0	·16853	17 24·4	66 26·9	·18799	20 28·6	68 10·1	·17899
July	15 46·5	66 55·7	·18498	18 3·4	69 37·0	·16850	17 23·7	66 26·8	·18798	20 26·2	68 10·7	·17891
August	15 45·9	66 56·3	·18495	18 2·7	69 37·9	·16842	17 23·0	66 27·2	·18789	20 28·6	68 10·0	·17893
September	15 45·0	66 56·7	·18494	18 2·2	69 36·7	·16843	17 23·1	66 26·8	·18800	20 28·5	68 10·1	·17876
October	15 43·2	66 56·5	·18496	18 1·4	69 38·0	·16839	17 20·7	66 27·3	·18783	20 27·0	68 10·5	·17901
November	15 43·1	66 56·3	·18493	18 0·8	69 37·5	·16834	17 21·4	66 26·7	·18782	20 26·0	68 11·0	·17906
December	15 41·9	66 55·8	·18503	17 59·5	69 37·8	·16835	17 19·4	66 24·7	·18811	20 27·9	68 10·2	·17913
Year 1912	15 46·5	66 56·5	·18498	18 3·9	69 37·2	·16846	17 24·2	66 26·6	·18799	20 29·3	68 10·3	·17898
Year 1911	15 55·3	66 57·2	·18502	18 12·4	69 37·1	·16846	17 33·0	66 28·2	·18798	20 38·1	68 12·1	·17889
Year 1910	16 3·2	66 58·7	·18503	18 23·3†	69 37·8†	·16836†	17 41·6	66 29·0	·18802	20 44·6	68 13·0	·17892
Year 1905	16 32·9	67 3·8	·18510	...	...	...	18 8·4	66 36·1	·18749	21 10·4	68 19·2	·17848

* The values of Vertical Force and Inclination at Eskdalemuir for 1912 are derived from absolute dip observations corrected by inequalities of 1911.
† The values for 1910 at Eskdalemuir are derived from 2 to 5 absolute observations per month. See M.O. publication, *Summaries of Results for* 1910.

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

Place.	Latitude.	Longitude.	1912.				1911.				1910.			
			Declination.	Inclination.	Horizontal Force.	Vertical Force.	Declination.	Inclination.	Horizontal Force.	Vertical Force.	Declination.	Inclination.	Horizontal Force.	Vertical Force.
	N.			N.	C.G.S.	C.G.S.		N.	C.G.S.	C.G.S.		N.	C.G.S.	C.G.S.
	° ′	° ′	° ′	° ′			° ′	° ′			° ′	° ′		
Sitka (Alaska)	57 3	135 20 W.	...	...	...	...	...	...	...	...	30 16·4 E.	74 32·2	·15593	·56368
Rude Skov	55 51	12 27 E.	9 12·2 W.	68 45·4	·17342	·44610	9 20·4 W.	68 44·8	·17359	·44631	9 28·7 W.	68 45·0	·17375	·44680
Eskdalemuir	55 19	3 12 W.	18 3·9 W.	69 37·2	·16846	·45345	18 12·4 W.	69 37·1	·16846	·45344	18 23·3 W.	69 37·8	·16836	·45343
Stonyhurst	53 51	2 28 W.	17 3·5 W.	68 41·4	·17398	·44601	17 13·3 W.	68 41·4	·17412	·44637	17 20·0 W.	68 42·2	·17407	·44655
Wilhelmshaven	53 32	8 9 E.	...	...	...	...	...	...	...	...	11 37·0 W.	...	·18124	...
Potsdam	52 23	13 4 E.	8 45·9 W.	66 20·4	·18803	·42914	8 54·5 W.	66 20·0	·18816*	·42930	9 2·9 W.	66 19·6	·18828	·42945
Seddin	52 17	13 1 E.	8 47·2 W.	66 17·4	·18841	·42899	8 55·8 W.	66 17·0	·18854	·42915	9 4·4 W.	66 16·6	·18866	·42932
De Bilt (Utrecht)	52 5	5 11 E.	...	...	...	...	12 50·7 W.	66 45·4	·18540	·43169	12 58·2 W.	66 46·5	·18541	·43208
Valencia	51 56	10 15 W.	20 29·3 W.	68 10·3	·17898	·44684	20 38·1 W.	68 12·1	·17889	·44730	20 44·6 W.	68 13·0	·17892	·44771
Kew	51 28	0 19 W.	15 46·5 W.	66 56·5	·18498	·43454	15 55·3 W.	66 57·2	·18502	·43490	16 3·2 W.	66 58·7	·18503	·43546
Greenwich	51 28	0 0	15 24·3 W.	66 51·8	·18528	·43360	15 33·0 W.	66 52·1	·18529	·43374	15 41·2 W.	66 52·6	·18532	·43399
*Uccle (Brussels)	50 48	4 21 E.	...	...	...	...	13 13·9 W.	66 0·1	·19025	·42734	13 22·2 W.	...	·19028	...
Falmouth	50 9	5 5 W.	17 24·2 W.	66 26·6	·18799	·43118	17 33·0 W.	66 28·2	·18898	·43172	17 41·6 W.	66 29·0	·18802	·43208
Prague	50 5	14 25 E.	7 50·3 W.	...	...	...	7 59·3 W.	...	...	...	8 9·6 W.	...	...	...
Cracow	50 4	19 58 E.	5 13·4 W.	64 10·7	...	...	5 18·1 W.	64 15·5	...	...	5 27·4 W.	...	...	...
Val Joyeux (near Paris)	48 49	2 1 E.	14 8·9 W.	64 40·1	·19747	·41714	14 17·6 W.	64 41·6	·19744	·41757	14 25·7 W.	64 43·0	·19738	·41788
Munich	48 9	11 37 E.	...	...	...	...	...	...	...	...	9 31·5 W.	63 8·4	·20639	·40751
†O'Gyalla (Pesth)	47 53	18 12 E.	6 17·5 W.	...	·21064	...	6 25·6 W.	...	·21067	...	6 34·5 W.	...	·21076	...
Pola	44 52	13 51 E.	...	...	...	...	8 17·5 W.	60 3·6	·22190	·38526	8 28·0 W.	60 4·7	·22194	·38562
Agincourt (Toronto)	43 47	79 16 W.	6 13·7 W.	74 39·8	·16178	·58988	6 9·0 W.	74 39·1	·16204	·59036	6 3·9 W.	74 38·5	·16268	·59228
Perpignan	42 42	2 53 E.	...	...	...	...	...	...	...	...	12 44·8 W.	...	...	...
Capodimonte (Naples)	40 52	14 15 E.	...	...	...	...	...	56 11·7	...	...	...	56 11·9	...	...
Tortosa	40 49	0 30 E.	...	...	...	...	13 18·6 W.	57 54·8	·23256	·37092	13 25·9 W.	57 57·3	·23251	·37145
Coimbra	40 12	8 25 W.	16 19·7 W.	58 42·0	·23033	·37886	16 27·4 W.	58 46·4	·23008	·37950	16 34·5 W.	58 50·1	·22986	·38006
Cheltenham, U.S.	38 44	76 50 W.	5 50·0 W.	70 39·1	·19702	·56108	5 45·6 W.	70 37·4	·19765	·56197	5 41·4 W.	70 35·4	·19826	·56265
San Fernando	36 28	6 12 W.	14 54·3 W.	54 26·7	·24923	·34870	15 5·2 W.	54 31·5	·24894	·34932	15 13·6 W.	54 43·4	·24879	·35053
Tokio	35 41	139 45 E.	...	...	...	...	...	...	...	...	4 58·2 W.	49 7·3	·30007	·34668
Tucson (Arizona)	32 15	110 50 W.	...	...	...	...	...	...	...	...	13 25·8 E.	59 19·6	·27406	·46206
Dehra Dun	30 19	78 3 E.	...	...	...	...	2 29·2 E.	44 2·0	·33238	·32136	2 31·9 E.	43 54·8	·33257	·32019
Helwan	29 52	31 21 E.	2 25·4 W.	40 43·7	·30063	·25884	2 33·2 W.	40 41·9	·30030	·25828	2 41·5 W.	40 40·5	·30029	·25806
Barrackpore	22 46	88 22 E.	...	...	...	...	0 49·9 E.	30 45·5	·37337	·22220	0 55·5 E.	30 42·2	·37329	·22168
Hong Kong	22 18	114 10 E.	0 4·3 W.	30 56·3	·37193	·22294	0 2·4 W.	30 58·5	·37145	·22297	0 0·4 E.	30 58·8	·37108	·22279
Honolulu (Hawaii)	21 19	158 4 W.	9 34·8 E.	39 38·4	·29124	·24128	9 32·2 E.	39 42·2	·29139	·24195	9 29·7 E.	39 47·2	·29161	·24284
Toungoo	18 56	96 27 E.	...	...	...	...	0 19·3 E.	23 3·0	·38853	·16532	0 24·9 E.	23 2·1	·38801	·16498
‡Alibag (Bombay)	18 39	72 52 E.	0 51·2 E.	23 56·1	·36874	·16367	0 54·7 E.	23 47·6	·36856	·16250	0 57·7 E.	23 39·6	·36845	·16143
Vieques (Porto Rico)	18 9	65 26 W.	...	...	...	...	...	...	...	...	2 20·6 W.	49 52·0	·28863	·34236
Kodai-Kanal	10 14	77 28 E.	...	...	...	...	1 0·2 W.	3 52·0	·37515	·02536	0 55·0 W.	3 45·2	·37485	·02459
	S.			S.				S.				S.		
Batavia	6 11	106 49 E.	...	...	...	...	...	...	...	...	0 48·7 E.	31 12·0	·36660	·22202
Mauritius	20 6	57 33 E.	...	...	...	...	...	...	...	...	9 18·1 W.	53 34·7	·23327	·31615
Rio de Janeiro	22 55	43 11 W.	...	...	...	...	...	...	...	...	9 40·0 W.	...	...	...
Pilar (Argentine)	31 40	63 53 W.	8 57·1 E.	25 45·0	·12388	·25682	9 5·4 E.	25 49·4	·12436	·25699	9 13·9 E.	25 52·8	·12474	·25712
Christchurch, N.Z.	43 32	172 37 E.	...	...	...	...	16 39·0 E.	67 56·2	·22494	·55497	16 37·6 E.	67 54·8	·22511	·55474

* Dip taken from absolute observations; vertical force calculated therefrom and from curve value of horizontal force. † May to August results omitted.

‡ Up to 1911 two sets of values were given at Alibag for Inclination and Vertical Force, derived respectively from a dip circle and a dip inductor. The former were given for 1910 and 1911 in last year's "Hourly Values." For 1912 only inductor values were available. Thus inductor values for 1910 and 1911 are given in the present table for comparison.

ADDITIONAL VALUES FOR EARLIER YEARS.

Place.	Latitude.	Longitude.	1909.				1908.				1907.			
			Declination.	Inclination.	Horizontal Force.	Vertical Force.	Declination.	Inclination.	Horizontal Force.	Vertical Force.	Declination.	Inclination.	Horizontal Force.	Vertical Force.
	N.			N.	C.G.S.	C.G.S.		N.	C.G.S.	C.G.S.		N.	C.G.S.	C.G.S.
	° ′	° ′	° ′	° ′			° ′	° ′			° ′	° ′		
Pawlowsk	59 41	30 29 E.	...	...	...	...	...	...	...	...	1 9·9 E.	70 37·7	·16503	·46937
Sitka	57 3	135 20 W.	30 13·1 E.	74 34·6	·15576	·56462	30 10·7 E.	74 36·5	·15562	·56531	30 7·1 E.	74 38·4	·15545	·56594
Katharinenburg	56 49	60 38 E.	...	...	...	...	...	...	...	...	10 35·5 E.	70 52·2	·17623	·50806
St. Helier (Jersey)	49 12	2 5 W.	...	...	...	...	...	...	...	...	16 27·4 W.	65 34·5	...	...
Capodimonte	40 52	14 15 E.	...	...	·24129	...	...	...	·24153	...	...	...	·24146	...
Coimbra	40 12	8 25 W.	16 40·5 W.	58 54·1	·22959	·38063	16 46·2 W.	58 57·3	·22946	·38120	...	...	...	...
*Mount Weather (Virginia)	39 4	77 54 W.	...	...	..	...	3 39·4 W.	...	...	...	...	...	...	...
Baldwin (Kansas)	38 47	95 10 W.	8 34·0 E.	68 50·2	·21666	55964	8 33·0 E.	68 47·8	·21714	·55973	8 31·4 E.	68 46·2	·21764	·56026
Athens	37 58	21 23 E.	...	...	...	...	4 52·9 W.	52 11·7	·26197	·33613	...	...	...	...
†Lu-kia-pang	31 19	121 2 E.	...	...	...	...	2 58·3 W.	45 35·1	·33215	·33881	...	...	...	...
Honolulu	21 19	158 4 W.	9 27·3 E.	39 51·4	·29167	·24350	9 25·7 E.	39 55·3	·29188	·24424	9 24·3 E.	39 59·1	·29201	·24489
Vieques (Porto Rico)	18 9	65 26 W.	2 11·7 W.	49 44·1	·28956	·34185	2 2·5 W.	49 36·3	·29050	·34140	1 53·7 W.	49 29·3	·29135	·34100
	S.			S				S.				S.		
Batavia	6 11	106 49 E.	0 49·5 E.	31 9·2	·36682	·22175	0 50·7 E.	31 2·4	·36694	·22082	0 52·2 E.	30 55·2	·36710	·21988
Apia	13 48	171 45 W.	...	...	...	...	9 41·9 E.	29 41·7	·35613	·20036	...	...	...	...
Pilar	31 40	63 53 W.	9 21·6 E.	25 55·8	·12526	·25762	9 29·1 E.	25 57·2	·12563	·25810	9 38·1 E.	26 0·8	·12602	·25824
Santiago (Chili)	33 27	70 42 W.	13 57·9 E.	29 57·2	...	...	...	...	...	...	...	...	...	...

* Data from first 6 months only of 1908. † Data from last 4 months only of 1908.

LXIX.–LXXIV.—NORMALS FOR THE MONTHS OF THE HOURLY VALUES OF THE METEOROLOGICAL ELEMENTS

LXIX.—PRESSURE IN MILLIBARS.

(The Mean Values are corrected

Hour, G.M.T.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.
JANUARY.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.
Aberdeen, Normal. 1000+	7·48	7·47	7·38	7·25	7·11	7·10	7·16	7·39	7·61	7·79	7·81	7·62
Difference for 1912	+ 2·61	+ 2·61	+ 2·60	+ 2·64	+ 2·60	+ 2·61	+ 2·62	+ 2·65	+ 2·64	+ 2·59	+ 2·51	+ 2·49
Eskdale, 1912. 980+	4·08	4·12	4·04	3·91	3·80	3·68	3·74	4·06	4·35	4·50	4·52	4·26
Valencia, Normal. 1000+	12·80	12·70	12·70	12·55	12·42	12·35	12·41	12·62	12·88	13·17	13·32	13·15
Difference for 1912	− 5·43	− 5·56	− 5·59	− 5·61	− 5·70	− 5·77	− 5·68	− 5·66	− 5·50	− 5·52	− 5·52	− 5·50
Kew, Normal. 1000+	16·23	16·26	16·19	16·05	15·93	15·96	16·10	16·37	16·61	16·82	16·81	16·44
Difference for 1912	− 2·60	− 2·58	− 2·61	− 2·66	− 2·76	− 2·80	− 2·76	− 2·84	− 2·87	− 2·95	− 3·09	− 3·10
Falmouth, Normal. 1000+	10·62	10·58	10·56	10·42	10·26	10·24	10·34	10·63	10·90	11·18	11·29	10·97
Difference for 1912	− 3·56	− 3·62	− 3·79	− 3·89	− 4·18	− 4·37	− 4·47	− 4·55	− 4·61	− 4·65	− 4·76	− 4·71
FEBRUARY.												
Aberdeen, Normal. 1000+	7·96	7·87	7·66	7·53	7·46	7·46	7·55	7·78	7·89	8·03	8·10	8·05
Difference for 1912	−8·83	− 8·81	− 8·74	− 8·68	− 8·64	− 8·71	− 8·73	− 8·76	− 8·80	− 8·80	− 8·80	− 8·89
Eskdale, 1912. 970+	3·92	3·76	3·60	3·50	3·44	3·44	3·45	3·67	3·97	4·11	4·29	4·22
Valencia, Normal. 1000+	12·14	11·98	11·83	11·61	11·58	11·63	11·69	11·96	12·17	12·37	12·48	12·51
Difference for 1912	−15·61	−15·69	−15·65	−15·64	−15·75	−15·94	−16·00	−16·20	−16·11	−16·11	−16·19	−16·07
Kew, Normal. 1000+	14·93	14·82	14·60	14·50	14·48	14·51	14·63	14·91	15·03	15·14	15·20	14·98
Difference for 1912	−10·80	−10·71	−10·69	−10·69	−10·65	−10·73	−10·77	−10·79	−10·71	−10·68	−10·66	−10·52
Falmouth, Normal. 1000+	9·38	9·26	9·06	8·90	8·88	8·91	9·00	9·32	9·50	9·69	9·84	9·76
Difference for 1912	−12·86	−12·84	−12·81	−12·92	−12·87	−12·97	−13·13	−13·14	−13·29	−13·34	−13·42	−13·48
MARCH.												
Aberdeen, Normal. 1000+	7·14	7·01	6·76	6·64	6·60	6·67	6·78	6·96	7·05	7·15	7·17	7·14
Difference for 1912	−11·44	−11·48	−11·47	−11·45	−11·44	−11·48	−11·32	−11·19	−11·18	−11·03	−10·72	−10·86
Eskdale, 1912. 970+	1·94	1·81	1·57	1·51	1·47	1·74	1·96	2·14	2·28	2·41	2·45	2·42
Valencia, Normal. 1000+	11·91	11·77	11·53	11·33	11·29	11·37	11·49	11·70	11·84	12·00	12·04	12·05
Difference for 1912	−10·88	−10·94	−11·05	−11·13	−11·19	−11·31	−11·31	−11·48	−11·48	−11·50	−11·49	−11·52
Kew, Normal. 1000+	13·06	12·89	12·67	12·59	12·60	12·73	12·92	13·13	13·25	13·30	13·24	13·08
Difference for 1912	− 7·30	− 7·25	− 7·12	− 7·02	− 6·86	− 6·90	− 6·96	− 7·06	− 7·10	− 7·08	− 7·13	− 7·21
Falmouth, Normal. 1000+	8·04	7·88	7·58	7·45	7·43	7·53	7·69	7·93	8·08	8·24	8·32	8·29
Difference for 1912	− 6·64	− 6·76	− 6·60	− 6·80	− 7·02	− 7·15	− 7·28	− 7·38	− 7·57	− 7·66	− 7·81	− 7·71
APRIL.												
Aberdeen, Normal. 1000+	9·24	9·09	8·91	8·80	8·80	8·98	9·11	9·25	9·32	9·38	9·36	9·36
Difference for 1912	+ 6·56	+ 6·75	+ 6·83	+ 6·87	+ 6·88	+ 6·79	+ 6·79	+ 6·69	+ 6·56	+ 6·47	+ 6·46	+ 6·44
Eskdale, 1912. 990+	1·75	1·71	1·60	1·49	1·58	1·88	2·05	2·16	2·03	1·98	1·87	1·69
Valencia, Normal. 1000+	11·09	10·88	10·69	10·56	10·52	10·65	10·82	10·99	11·05	11·18	11·21	11·20
Difference for 1912	+ 9·88	+ 9·90	+ 9·95	+ 9·94	+ 9·96	+ 9·95	+10·09	+10·09	+10·16	+10·08	+10·09	+10·08
Kew, Normal. 1000+	12·37	12·22	12·08	12·00	12·05	12·27	12·43	12·52	12·56	12·55	12·42	12·22
Difference for 1912	+ 7·80	+ 7·82	+ 7·86	+ 7·93	+ 8·01	+ 8·15	+ 8·18	+ 8·25	+ 8·23	+ 8·21	+ 8·19	+ 8·17
Falmouth, Normal. 1000+	6·88	6·69	6·50	6·35	6·32	6·53	6·70	6·87	6·97	7·14	7·19	7·12
Difference for 1912	+ 8·99	+ 9·05	+ 9·10	+ 9·22	+ 9·25	+ 9·34	+ 9·44	+ 9·58	+ 9·55	+ 9·65	+ 9·67	+ 9·74
MAY.												
Aberdeen, Normal. 1000+	11·73	11·60	11·44	11·37	11·41	11·54	11·63	11·74	11·77	11·79	11·80	11·78
Difference for 1912	− 0·61	− 0·65	− 0·72	− 0·76	− 0·75	− 0·73	− 0·84	− 0·95	− 1·01	− 1·00	− 1·12	− 1·05
Eskdale, 1912. 980+	6·33	6·16	6·01	5·91	5·95	6·00	6·15	6·26	6·24	6·23	6·12	6·04
Valencia, Normal. 1000+	13·96	13·78	13·59	13·44	13·41	13·56	13·69	13·83	13·90	13·98	14·02	14·05
Difference for 1912	− 0·07	− 0·15	− 0·11	− 0·20	− 0·20	− 0·31	− 0·25	− 0·42	− 0·43	− 0·52	− 0·58	− 0·66
Kew, Normal. 1000+	14·81	14·69	14·56	14·51	14·62	14·80	14·92	14·99	14·95	14·82	14·78	14·61
Difference for 1912	+ 0·07	+ 0·07	+ 0·02	− 0·03	+ 0·01	− 0·01	− 0·14	− 0·19	− 0·20	− 0·20	− 0·29	− 0·33
Falmouth, Normal. 1000+	9·52	9·32	9·15	9·04	9·10	9·31	9·47	9·67	9·73	9·83	9·89	9·87
Difference for 1912	+ 0·70	+ 0·62	+ 0·59	+ 0·56	+ 0·47	+ 0·43	+ 0·34	+ 0·21	+ 0·11	+ 0·08	+ 0·09	+ 0·07
JUNE.												
Aberdeen, Normal. 1000+	12·08	11·95	11·78	11·77	11·78	11·89	11·97	12·07	12·06	12·08	12·08	12·06
Difference for 1912	− 6·66	− 6·72	− 6·70	− 6·71	− 6·67	− 6·71	− 6·72	− 6·75	− 6·70	− 6·64	− 6·72	− 6·65
Eskdale, 1912. 970+	9·97	9·80	9·61	9·59	9·63	9·72	9·84	9·91	9·88	9·85	9·79	9·73
Valencia, Normal. 1000+	14·39	14·19	13·98	13·86	13·88	14·03	14·15	14·31	14·39	14·46	14·52	14·56
Difference for 1912	− 7·51	− 7·51	− 7·55	− 7·56	− 7·50	− 7·64	− 7·64	− 7·69	− 7·67	− 7·57	− 7·51	− 7·39
Kew, Normal. 1000+	15·19	15·04	14·92	14·95	15·04	15·19	15·31	15·40	15·36	15·30	15·26	15·09
Difference for 1912	− 5·66	− 5·70	− 5·80	− 5·80	− 5·82	− 5·71	− 5·80	− 5·86	− 5·84	− 5·78	− 5·80	− 5·78
Falmouth, Normal. 1000+	10·23	10·05	9·83	9·78	9·84	10·02	10·17	10·36	10·41	10·50	10·57	10·59
Difference for 1912	− 5·31	− 5·40	− 5·52	− 5·61	− 5·70	− 5·74	−·5·83	− 5·85	− 5·83	− 5·82	− 5·82	− 5·67

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

	G.M.T. of Local Mean Noon.	Lat.	Long.	Height of Barometer Cistern above M.S.L. in metres.
Aberdeen	12h 8m	57° 10′ N.	2° 6′ W.	26·8
Eskdalemuir	12h 13m	55° 19′ N.	3° 12′ W.	237·1
Valencia	12h 41m	51° 56′ N.	10° 15′ W.	13·7
Kew	12h 1m	51° 28′ N.	0° 19′ W.	10·4
Falmouth	12h 20m	50° 9′ N.	5° 4′ W.	55·9

AT THE FIVE OBSERVATORIES WITH DIFFERENCES BETWEEN THE NORMALS AND THE VALUES FOR 1912.

JANUARY TO JUNE.

for non-cyclic change.)

13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.	Hour, G.M.T.
mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	JANUARY.
7·38	7·30	7·28	7·40	7·46	7·58	7·62	7·73	7·72	7·74	7·65	7·62	7·485	Normal. Aberdeen.
+ 2·51	+ 2·41	+ 2·43	+ 2·38	+ 2·32	+ 2·36	+ 2·29	+ 2·25	+ 2·26	+ 2·27	+ 2·20	+ 2·16	+ 2·465	Diff. for 1912. ,,
4·01	3·86	3·80	3·92	3·99	4·03	3·94	3·97	3·93	3·91	3·86	3·73	4·010	1912. Eskdale.
12·80	12·53	12·48	12·56	12·65	12·79	12·91	13·02	13·07	13·10	13·06	13·02	12·794	Normal. Valencia.
− 5·45	− 5·31	− 5·36	− 5·30	− 5·38	− 5·43	− 5·50	− 5·52	− 5·48	− 5·62	− 5·75	− 5·91	− 5·534	Diff. for 1912. ,,
16·08	15·88	15·89	15·99	16·08	16·21	16·32	16·44	16·46	16·47	16·43	16·36	16·266	Normal. Kew.
− 3·12	− 3·06	− 3·04	− 2·99	− 3·02	− 3·02	− 3·08	− 3·15	− 3·09	− 3·21	− 3·17	− 3·19	− 2·936	Diff. for 1912. ,,
10·56	10·31	10·30	10·40	10·48	10·67	10·77	10·90	10·91	10·94	10·88	10·81	10·663	Normal. Falmouth.
− 4·62	− 4·47	− 4·36	− 4·14	− 4·09	− 4·07	− 3·97	− 3·94	− 3·95	− 4·01	− 4·04	− 4·08	− 4·183	Diff. for 1912. ,,
													FEBRUARY.
7·82	7·69	7·57	7·64	7·72	7·96	8·03	8·12	8·11	8·15	8·10	8·09	7·848	Normal. Aberdeen.
− 8·93	− 9·07	− 9·09	− 9·13	− 9·21	− 9·34	− 9·48	− 9·61	− 9·63	− 9·64	− 9·48	− 9·34	− 9·038	Diff. for 1912. ,,
4·02	3·82	3·67	3·59	3·56	3·67	3·74	3·75	3·76	3·84	3·79	3·84	3·774	1912. Eskdale.
12·25	11·99	11·76	11·72	11·75	11·95	12·15	12·21	12·19	12·24	12·18	12·17	12·021	Normal. Valencia.
−16·04	−16·00	−15·97	−15·85	−15·81	−15·85	−15·89	−15·95	−15·85	−15·99	−15·96	−16·00	−15·911	Diff. for 1912. ,,
14·67	14·40	14·29	14·32	14·43	14·72	14·86	14·96	15·03	15·08	15·03	15·02	14·773	Normal. Kew.
−10·61	−10·54	−10·48	−10·52	−10·57	−10·54	−10·57	−10·65	−10·66	−10·69	−10·73	−10·74	−10·653	Diff for 1912. ,,
9·44	9·16	9·01	9·02	9·10	9·35	9·49	9·56	9·58	9·61	9·53	9·51	9·328	Normal. Falmouth.
−13·46	−13·42	−13·34	−13·32	−13·36	−13·34	−13·38	−13·38	−13·23	−13·16	−13·15	−12·96	−13·188	Diff. for 1912. ,,
													MARCH.
6·97	6·81	6·69	6·70	6·75	7·00	7·17	7·31	7·32	7·34	7·28	7·25	6·986	Normal. Aberdeen.
−10·75	−10·72	−10·68	−10·69	−10·74	−10·88	−11·08	−11·19	−11·31	−11·37	−11·31	−11·33	−11·136	Diff. for 1912. ,,
2·30	2·15	1·97	1·95	1·95	2·07	2·20	2·28	2·27	2·14	2·09	2·01	2·045	1912. Eskdale.
11·91	11·70	11·51	11·46	11·46	11·65	11·86	12·04	12·12	12·20	12·17	12·13	11·772	Normal. Valencia.
−11·47	−11·40	−11·26	−11·19	−10·91	−10·88	−10·80	−10·69	−10·59	−10·67	−10·60	−10·57	−11·102	Diff. for 1912. ,,
12·78	12·52	12·35	12·27	12·37	12·65	12·87	13·05	13·13	13·17	13·14	13·09	12·869	Normal. Kew.
− 7·25	− 7·30	− 7·47	− 7·50	− 7·62	− 7·63	− 7·70	− 7·72	− 7·76	− 7·76	− 7·83	− 7·88	− 7·339	Diff. for 1912. ,,
8·09	7·86	7·69	7·60	7·62	7·84	8·02	8·20	8·25	8·31	8·24	8·17	7·931	Normal. Falmouth.
− 7·65	− 7·59	− 7·59	− 7·46	− 7·45	− 7·46	− 7·47	− 7·31	− 7·30	− 7·22	− 7·15	− 7·05	− 7·281	Diff. for 1912. ,,
													APRIL.
9·30	9·23	9·09	9·07	9·08	9·24	9·41	9·66	9·69	9·69	9·62	9·54	9·259	Normal. Aberdeen.
+ 6·33	+ 6·25	+ 6·26	+ 6·47	+ 6·47	+ 6·57	+ 6·69	+ 6·76	+ 6·90	+ 6·94	+ 7·02	+ 7·09	+ 6·651	Diff. for 1912. ,,
1·59	1·33	1·13	1·07	1·14	1·35	1·61	2·00	2·22	2·41	2·46	2·49	1·761	1912. Eskdale.
11·11	11·07	10·88	10·77	10·73	10·81	10·90	11·11	11·29	11·33	11·26	11·23	10·972	Normal. Valencia.
+10·15	+10·09	+10·14	+10·06	+10·10	+10·07	+10·14	+10·17	+10·26	+10·31	+10·35	+10·26	+10·088	Diff. for 1912. ,,
12·05	11·80	11·59	11·51	11·55	11·72	11·99	12·38	12·53	12·60	12·61	12·58	12·192	Normal. Kew.
+ 8·04	+ 8·10	+ 8·07	+ 8·02	+ 8·05	+ 8·18	+ 8·19	+ 8·29	+ 8·44	+ 8·52	+ 8·60	+ 8·69	+ 8·148	Diff. for 1912. ,,
7·05	6·95	6·76	6·68	6·65	6·72	6·82	7·12	7·23	7·24	7·17	7·11	6·865	Normal. Falmouth.
+ 9·71	+ 9·71	+ 9·66	+ 9·67	+ 9·66	+ 9·66	+ 9·56	+ 9·64	+ 9·70	+ 9·78	+ 9·83	+ 9·91	+ 9·525	Diff. for 1912. ,,
													MAY.
11·73	11·70	11·60	11·55	11·51	11·59	11·71	11·92	12·06	12·12	12·05	11·96	11·713	Normal. Aberdeen.
− 1·03	− 1·06	− 1·10	− 1·13	− 1·03	− 1·04	− 1·02	− 1·03	− 1·04	− 1·09	− 1·05	− 1·03	− 0·943	Diff. for 1912. ,,
5·97	5·85	5·73	5·62	5·54	5·57	5·69	5·88	6·08	6·16	6·12	6·00	5·993	1912. Eskdale.
14·01	14·00	13·90	13·83	13·79	13·80	13·88	14·02	14·25	14·34	14·28	14·18	13·895	Normal. Valencia.
− 0·63	− 0·66	− 0·65	− 0·69	− 0·69	− 0·77	− 0·73	− 0·70	− 0·58	− 0·67	− 0·63	− 0·64	− 0·485	Diff. for 1912. ,,
14·44	14·28	14·10	13·99	13·94	14·07	14·26	14·63	14·92	15·03	15·05	14·98	14·615	Normal. Kew.
− 0·35	− 0·29	− 0·31	− 0·43	− 0·45	− 0·53	− 0·53	− 0·62	− 0·62	− 0·56	− 0·56	− 0·54	− 0·285	Diff. for 1912. ,,
9·81	9·75	9·60	9·52	9·42	9·42	9·48	9·65	9·89	9·92	9·83	9·73	9·580	Normal. Falmouth.
0·00	− 0·01	− 0·06	− 0·12	− 0·05	− 0·02	− 0·01	+ 0·02	− 0·01	+ 0·02	+ 0·05	+ 0·08	+ 0·190	Diff. for 1912. ,,
													JUNE.
11·99	11·96	11·87	11·81	11·73	11·81	11·89	12·05	12·24	12·34	12·30	12·23	11·991	Normal. Aberdeen.
− 6·60	− 6·61	− 6·65	− 6·71	− 6·68	− 6·77	− 6·78	− 6·78	− 6·89	− 6·94	− 6·86	− 6·82	− 6·721	Diff. for 1912. ,,
9·75	9·73	9·62	9·61	9·55	9·57	9·71	9·85	10·04	10·14	10·15	10·05	9·797	1912. Eskdale.
14·54	14·49	14·44	14·38	14·30	14·31	14·37	14·46	14·63	14·80	14·72	14·62	14·366	Normal. Valencia.
− 7·27	− 7·12	− 7·00	− 6·97	− 6·95	− 6·97	− 6·95	− 7·03	− 6·98	− 7·10	− 7·11	− 7·18	− 7·316	Diff. for 1912. ,,
14·92	14·75	14·60	14·45	14·39	14·46	14·62	14·89	15·23	15·37	15·39	15·33	15·019	Normal. Kew.
− 5·70	− 5·57	− 5·52	− 5·42	− 5·41	− 5·35	− 5·37	− 5·42	− 5·45	− 5·55	− 5·64	− 5·62	− 5·649	Diff. for 1912. ,,
10·55	10·51	10·43	10·34	10·23	10·24	10·27	10·39	10·65	10·73	10·63	10·51	10·326	Normal. Falmouth.
− 5·53	− 5·49	− 5·37	− 5·32	− 5·21	− 5·18	− 5·11	− 5·09	− 5·06	− 5·06	− 5·03	− 5·04	− 5·446	Diff. for 1912. ,,

The values for 1912 are given by the excess or defect from the normal ; + indicates excess, − defect.
The pressures are for station level, corrected for temperature and gravity.
The normals are for the period 1871–1910. The observations at Eskdalemuir are in the second year of publication.

LXIX.-LXXIV.—NORMALS FOR THE MONTHS OF THE HOURLY VALUES OF THE METEOROLOGICAL ELEMENTS

LXIX.—*continued*—PRESSURE IN MILLIBARS.

(The Mean Values are corrected

Hour, G.M.T.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.
JULY.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.
Aberdeen, Normal. 1000+	9·50	9·35	9·18	9·16	9·17	9·27	9·36	9·46	9·45	9·46	9·49	9·48
Difference for 1912	+ 1·93	+ 1·94	+ 1·94	+ 1·97	+ 1·99	+ 2·03	+ 2·00	+ 1·99	+ 2·01	+ 2·02	+ 2·00	+ 2·01
Eskdale, 1912. 980+	6·24	6·14	5·99	5·89	5·88	5·93	5·91	6·08	6·07	6·05	5·96	5·99
Valencia, Normal. 1000+	14·04	13·81	13·61	13·46	13·46	13·58	13·69	13·85	13·92	13·99	14·07	14·13
Difference for 1912	− 0·85	− 0·84	− 0·85	− 0·96	− 1·01	− 1·10	− 1·10	− 1·18	− 1·20	− 1·28	− 1·28	− 1·30
Kew, Normal. 1000+	14·41	14·26	14·14	14·14	14·24	14·40	14·54	14·62	14·60	14·55	14·50	14·35
Difference for 1912	− 1·53	− 1·51	− 1·46	− 1·45	− 1·48	− 1·48	− 1·54	− 1·56	− 1·61	− 1·65	− 1·65	− 1·60
Falmouth, Normal. 1000+	10·09	9·87	9·66	9·59	9·63	9·81	9·98	10·18	10·23	10·32	10·38	10·40
Difference for 1912	− 2·48	− 2·40	− 2·49	− 2·53	− 2·60	− 2·68	− 2·85	− 2·91	− 3·00	− 3·02	− 3·01	− 2·93
AUGUST.												
Aberdeen, Normal. 1000+	8·34	8·20	8·03	7·93	7·93	8·06	8·16	8·29	8·33	8·37	8·39	8·38
Difference for 1912	− 6·71	− 6·64	− 6·67	− 6·64	− 6·67	− 6·70	− 6·66	− 6·66	− 6·66	− 6·60	− 6·62	− 6·51
Eskdale, 1912. 970+	7·36	7·29	7·12	6·98	6·94	7·05	7·08	7·13	7·16	7·19	7·20	7·22
Valencia, Normal. 1000+	12·77	12·56	12·36	12·16	12·10	12·24	12·39	12·56	12·65	12·76	12·80	12·82
Difference for 1912	− 6·40	− 6·42	− 6·30	− 6·25	− 6·10	− 6·13	− 6·04	− 6·05	− 5·96	− 5·93	− 5·95	− 5·94
Kew, Normal. 1000+	13·96	13·84	13·71	13·62	13·68	13·86	14·00	14·11	14·14	14·11	14·01	13·86
Difference for 1912	− 7·51	− 7·49	− 7·44	− 7·40	− 7·48	− 7·42	− 7·39	− 7·33	− 7·30	− 7·25	− 7·22	− 7·20
Falmouth, Normal. 1000+	9·32	9·14	8·93	8·78	8·77	8·97	9·14	9·35	9·44	9·57	9·60	9·59
Difference for 1912	− 7·14	− 7·10	− 7·13	− 7·08	− 7·10	− 7·10	− 7·10	− 7·04	− 7·00	− 6·89	− 6·89	− 6·73
SEPTEMBER.												
Aberdeen, Normal. 1000+	10·30	10·19	9·99	9·87	9·83	9·97	10·10	10·25	10·33	10·37	10·31	10·28
Difference for 1912	+ 8·22	+ 8·16	+ 8·16	+ 8·11	+ 8·18	+ 8·21	+ 8·25	+ 8·31	+ 8·30	+ 8·32	+ 8·32	+ 8·31
Eskdale, 1912. 990+	3·73	3·65	3·41	3·27	3·26	3·32	3·45	3·59	3·69	3·56	3·45	3·26
Valencia, Normal. 1000+	14·02	13·81	13·60	13·44	13·38	13·51	13·73	13·93	14·07	14·23	14·23	14·21
Difference for 1912	+ 6·63	+ 6·58	+ 6·62	+ 6·52	+ 6·52	+ 6·36	+ 6·36	+ 6·23	+ 6·27	+ 6·08	+ 6·02	+ 5·84
Kew, Normal. 1000+	15·49	15·35	15·19	15·09	15·11	15·34	15·53	15·71	15·83	15·81	15·69	15·53
Difference for 1912	+ 5·62	+ 5·59	+ 5·53	+ 5·47	+ 5·39	+ 5·32	+ 5·23	+ 5·16	+ 5·12	+ 5·13	+ 5·17	+ 5·24
Falmouth, Normal. 1000+	10·35	10·17	9·93	9·79	9·74	9·93	10·13	10·38	10·55	10·70	10·66	10·60
Difference for 1912	+ 5·12	+ 5·09	+ 5·06	+ 5·13	+ 5·05	+ 5·09	+ 5·03	+ 5·02	+ 5·05	+ 5·04	+ 5·04	+ 4·97
OCTOBER.												
Aberdeen, Normal. 1000+	6·94	6·81	6·59	6·53	6·47	6·60	6·75	7·01	7·10	7·22	7·22	7·15
Difference for 1912	− 0·79	− 0·77	− 0·79	− 0·73	− 0·77	− 0·90	− 0·95	− 1·07	− 1·19	− 1·31	− 1·35	− 1·31
Eskdale, 1912. 980+	1·80	1·61	1·42	1·33	1·26	1·27	1·45	1·67	1·76	1·94	2·00	1·95
Valencia, Normal. 1000+	10·60	10·46	10·23	10·10	10·10	10·15	10·26	10·56	10·74	10·90	10·93	10·90
Difference for 1912	− 2·10	− 2·09	− 1·90	− 1·93	− 1·78	− 1·87	− 1·91	− 2·01	− 1·78	− 1·73	− 1·60	− 1·49
Kew, Normal. 1000+	12·48	12·30	12·09	12·05	12·04	12·14	12·36	12·64	12·72	12·74	12·71	12·46
Difference for 1912	− 0·56	− 0·49	− 0·36	− 0·13	+ 0·03	+ 0·14	+ 0·28	+ 0·45	+ 0·60	+ 0·65	+ 0·70	+ 0·69
Falmouth, Normal. 1000+	6·98	6·80	6·53	6·44	6·44	6·51	6·68	7·02	7·18	7·32	7·34	7·21
Difference for 1912	− 0·31	− 0·24	− 0·17	− 0·08	− 0·05	− 0·01	+ 0·05	+ 0·18	+ 0·29	+ 0·36	+ 0·44	+ 0·60
NOVEMBER.												
Aberdeen, Normal. 1000+	6·97	6·92	6·76	6·69	6·64	6·71	6·82	7·07	7·17	7·31	7·30	7·13
Difference for 1912	− 0·71	− 0·66	− 0·72	− 0·60	− 0·60	− 0·56	− 0·50	− 0·55	− 0·58	− 0·66	− 0·87	− 1·04
Eskdale, 1912. 980+	4·11	4·06	3·89	3·71	3·67	3·57	3·62	3·75	3·82	3·81	3·79	3·51
Valencia, Normal. 1000+	11·25	11·09	10·98	10·82	10·78	10·82	10·90	11·17	11·40	11·58	11·66	11·47
Difference for 1912	+ 6·56	+ 6·47	+ 6·45	+ 6·26	+ 6·19	+ 5·91	+ 5·83	+ 5·58	+ 5·69	+ 5·75	+ 5·81	+ 5·77
Kew, Normal. 1000+	13·08	13·01	12·86	12·76	12·77	12·82	12·98	13·29	13·42	13·58	13·50	13·18
Difference for 1912	+ 2·32	+ 2·32	+ 2·28	+ 2·25	+ 2·11	+ 2·11	+ 1·97	+ 2·00	+ 1·98	+ 1·92	+ 1·89	+ 1·88
Falmouth, Normal. 1000+	7·70	7·62	7·46	7·32	7·31	7·33	7·45	7·80	7·97	8·14	8·19	7·86
Difference for 1912	+ 4·75	+ 4·83	+ 4·89	+ 4·99	+ 5·00	+ 5·05	+ 5·07	+ 5·05	+ 5·06	+ 4·99	+ 4·87	+ 4·89
DECEMBER.												
Aberdeen, Normal. 1000+	4·85	4·84	4·72	4·58	4·46	4·48	4·54	4·74	4·94	5·18	5·14	4·96
Difference for 1912	− 7·36	− 7·14	− 6·98	− 6·88	− 6·80	− 6·78	− 6·84	− 6·91	− 6·94	− 6·94	− 6·90	− 7·13
Eskdale, 1912. 970+	6·22	6·35	6·38	6·26	6·18	6·11	6·05	6·17	6·29	6·32	6·07	5·69
Valencia, Normal. 1000+	10·15	10·00	9·99	9·85	9·73	9·72	9·79	9·99	10·26	10·56	10·69	10·45
Difference for 1912	− 4·75	− 5·00	− 5·08	− 5·35	− 5·55	− 5·86	− 5·85	− 5·94	− 5·85	− 5·61	− 5·26	− 5·02
Kew, Normal. 1000+	13·03	13·05	12·96	12·80	12·70	12·75	12·87	13·14	13·38	13·63	13·51	13·18
Difference for 1912	− 0·42	− 0·30	− 0·26	− 0·15	− 0·07	+ 0·08	+ 0·08	+ 0·01	− 0·12	− 0·09	− 0·17	− 0·29
Falmouth, Normal. 1000+	7·58	7·53	7·47	7·33	7·20	7·23	7·35	7·62	7·89	8·21	8·23	7·90
Difference for 1912	+ 0·30	+ 0·18	+ 0·07	− 0·16	− 0·14	− 0·20	− 0·35	− 0·42	− 0·59	− 0·60	− 0·76	− 0·63
YEAR.												
Aberdeen, Normal. 1000+	8·55	8·44	8·27	8·18	8·10	8·23	8·33	8·50	8·59	8·68	8·68	8·62
Difference for 1912	− 1·99	− 1·95	− 1·94	− 1·91	− 1·85	− 1·92	− 1·91	− 1·93	− 2·04	− 1·97	− 1·98	− 2·02
Eskdale, 1912. 980+	2·29	2·21	2·05	1·95	1·92	1·98	2·06	2·22	2·30	2·36	2·27	2·17
Valencia, Normal. 1000+	12·44	12·26	12·09	11·93	11·89	11·99	12·09	12·29	12·44	12·60	12·67	12·63
Difference for 1912	− 2·56	− 2·61	− 2·59	− 2·69	− 2·68	− 2·83	− 2·80	− 2·89	− 2·82	− 2·82	− 2·80	− 2·77
Kew, Normal. 1000+	14·08	13·97	13·83	13·75	13·76	13·90	14·05	14·24	14·32	14·36	14·29	14·08
Difference for 1912	− 1·71	− 1·68	− 1·67	− 1·63	− 1·62	− 1·61	− 1·63	− 1·65	− 1·65	− 1·64	− 1·66	− 1·67
Falmouth, Normal, 1000+	8·90	8·74	8·56	8·43	8·41	8·53	8·68	8·93	9·08	9·25	9·29	9·19
Difference for 1912	− 1·55	− 1·55	− 1·56	− 1·59	− 1·66	− 1·70	− 1·76	− 1·77	− 1·83	− 1·83	− 1·86	− 1·81

AT THE FIVE OBSERVATORIES WITH DIFFERENCES BETWEEN THE NORMALS AND THE VALUES FOR 1912.

JULY TO DECEMBER AND YEAR.

for non-cyclic change.)

13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.	Hour, G.M.T.
mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	JULY.
9·43	9·43	9·35	9·28	9·22	9·29	9·37	9·53	9·68	9·76	9·70	9·64	9·416	Normal. Aberdeen.
+ 1·98	+ 1·88	+ 1·85	+ 1·80	+ 1·77	+ 1·78	+ 1·79	+ 1·84	+ 1·80	+ 1·74	+ 1·69	+ 1·60	+ 1·944	Diff. for 1912. ,,
5·91	5·83	5·73	5·63	5·59	5·56	5·66	5·83	6·13	6·16	6·13	5·99	5·938	1912. Eskdale.
14·14	14·15	14·11	14·03	13·97	13·99	14·07	14·18	14·36	14·47	14·42	14·32	13·993	Normal. Valencia.
− 1·24	− 1·29	− 1·35	− 1·36	− 1·31	− 1·33	− 1·35	− 1·31	− 1·18	− 1·28	− 1·35	− 1·36	− 1·183	Diff. for 1912. ,,
14·21	14·07	13·93	13·78	13·71	13·74	13·89	14·17	14·46	14·62	14·65	14·60	14·274	Normal. Kew.
− 1·63	− 1·67	− 1·74	− 1·80	− 1·86	− 1·82	− 1·77	− 1·78	− 1·77	− 1·83	− 1·92	− 2·05	− 1·664	Diff. for 1912. ,,
10·36	10·33	10·25	10·18	10·08	10·08	10·13	10·25	10·49	10·57	10·48	10·37	10·155	Normal. Falmouth.
− 2·89	− 2·82	− 2·81	− 2·88	− 2·88	− 2·91	− 2·93	− 2·81	− 2·85	− 2·83	− 2·80	− 2·83	− 2·785	Diff. for 1912. ,,
													AUGUST.
8·33	8·30	8·21	8·14	8·10	8·16	8·29	8·52	8·58	8·60	8·53	8·45	8·276	Normal. Aberdeen.
− 6·43	− 6·43	− 6·44	− 6·37	− 6·30	− 6·22	− 6·28	− 6·31	− 6·30	− 6·29	− 6·29	− 6·24	− 6·496	Diff. for 1912. ,,
7·32	7·41	7·48	7·52	7·56	7·63	7·79	8·10	8·22	8·22	8·15	8·06	7·455	1912. Eskdale.
12·82	12·81	12·74	12·63	12·59	12·60	12·66	12·84	13·00	13·01	12·95	12·86	12·653	Normal. Valencia.
− 5·89	− 5·87	− 5·93	− 5·95	− 5·93	− 5·97	− 5·90	− 5·87	− 5·81	− 5·89	− 5·85	− 5·92	− 6·023	Diff. for 1912. ,,
13·72	13·56	13·40	13·27	13·20	13·27	13·47	13·83	14·00	14·11	14·11	14·05	13·787	Normal. Kew.
− 7·13	− 6·99	− 6·83	− 6·69	− 6·65	− 6·53	− 6·42	− 6·48	− 6·50	− 6·55	− 6·60	− 6·66	− 7·037	Diff. for 1912. ,,
9·56	9·52	9·39	9·31	9·24	9·22	9·28	9·54	9·67	9·71	9·60	9·49	9·339	Normal. Falmouth.
− 6·63	− 6·48	− 6·43	− 6·32	− 6·25	− 6·26	− 6·24	− 6·27	− 6·44	− 6·55	− 6·54	− 6·53	− 6·729	Diff. for 1912. ,,
													SEPTEMBER.
10·18	10·08	9·96	9·93	9·96	10·13	10·33	10·52	10·51	10·52	10·45	10·37	10·197	Normal. Aberdeen.
+ 8·28	+ 8·24	+ 8·19	+ 8·19	+ 8·16	+ 8·16	+ 8·09	+ 8·04	+ 7·95	+ 7·87	+ 7·77	+ 7·78	+ 8·163	Diff. for 1912. ,,
3·12	2·94	2·76	2·71	2·74	2·81	3·01	3·21	3·20	3·28	3·25	3·12	3·257	1912. Eskdale.
14·14	14·03	13·86	13·76	13·74	13·81	13·94	14·16	14·23	14·21	14·13	14·03	13·925	Normal. Valencia.
+ 5·81	+ 5·69	+ 5·73	+ 5·66	+ 5·69	+ 5·71	+ 5·76	+ 5·73	+ 5·73	+ 5·77	+ 5·91	+ 5·91	+ 6·065	Diff. for 1912. ,,
15·31	15·10	14·92	14·82	14·85	15·01	15·28	15·55	15·62	15·67	15·63	15·54	15·374	Normal. Kew.
+ 5·24	+ 5·28	+ 5·23	+ 5·24	+ 5·23	+ 5·16	+ 5·09	+ 4·91	+ 4·76	+ 4·60	+ 4·49	+ 4·45	+ 5·176	Diff. for 1912. ,,
10·50	10·37	10·20	10·12	10·11	10·22	10·34	10·60	10·62	10·61	10·51	10·38	10·313	Normal. Falmouth.
+ 4·90	+ 4·79	+ 4·76	+ 4·53	+ 4·40	+ 4·23	+ 4·17	+ 4·15	+ 4·13	+ 4·21	+ 4·28	+ 4·41	+ 4·757	Diff. for 1912. ,,
													OCTOBER.
6·98	6·89	6·79	6·82	6·93	7·17	7·23	7·30	7·29	7·28	7·17	7·14	6·974	Normal. Aberdeen.
− 1·28	− 1·22	− 1·19	− 1·05	− 1·13	− 0·98	− 0·91	− 0·75	− 0·60	− 0·45	− 0·30	− 0·17	− 0·934	Diff. for 1912. ,,
1·82	1·84	1·87	1·93	2·20	2·60	2·80	2·94	3·01	3·05	2·95	2·91	2·037	1912. Eskdale.
10·71	10·56	10·43	10·43	10·49	10·69	10·86	10·93	10·97	10·82	10·89	10·77	10·603	Normal. Valencia.
− 1·34	− 1·36	− 1·33	− 1·37	− 1·43	− 1·51	− 1·52	− 1·52	− 1·36	− 1·25	− 1·26	− 1·24	− 1·633	Diff. for 1912. ,,
12·21	12·05	11·96	11·98	12·13	12·45	12·58	12·69	12·77	12·77	12·71	12·65	12·043	Normal. Kew.
+ 0·71	+ 0·78	+ 0·82	+ 0·81	+ 0·77	+ 0·73	+ 0·66	+ 0·52	+ 0·45	+ 0·41	+ 0·41	+ 0·43	+ 0·727	Diff. for 1912. ,,
6·98	6·85	6·76	6·78	6·86	7·13	7·27	7·36	7·42	7·42	7·28	7·18	6·989	Normal. Falmouth.
+ 0·63	+ 0·62	+ 0·58	+ 0·56	+ 0·44	+ 0·38	+ 0·20	+ 0·25	+ 0·26	+ 0·39	+ 0·46	+ 0·53	+ 0·241	Diff. for 1912. ,,
													NOVEMBER.
6·93	6·83	6·74	6·85	6·92	7·07	7·09	7·13	7·11	7·10	7·03	7·03	6·972	Normal. Aberdeen.
− 1·23	− 1·23	− 1·31	− 1·39	− 1·42	− 1·33	− 1·29	− 1·29	− 1·31	− 1·23	− 1·26	− 1·29	− 0·972	Diff. for 1912. ,,
3·31	3·20	3·03	3·12	3·25	3·55	3·79	3·92	3·94	3·89	3·78	3·77	3·672	1912. Eskdale.
11·18	10·97	10·80	10·89	10·99	11·20	11·34	11·42	11·45	11·53	11·44	11·45	11·191	Normal. Valencia.
+ 5·74	+ 5·61	+ 5·70	+ 5·60	+ 5·61	+ 5·62	+ 5·72	+ 5·83	+ 5·99	+ 5·93	+ 6·01	+ 5·92	+ 5·909	Diff. for 1912. ,,
12·92	12·71	12·69	12·76	12·90	13·10	13·19	13·27	13·32	13·30	13·25	13·19	13·077	Normal. Kew.
+ 1·84	+ 1·89	+ 1·88	+ 1·96	+ 1·89	+ 1·89	+ 1·87	+ 1·90	+ 1·88	+ 1·90	+ 1·89	+ 1·96	+ 2·003	Diff. for 1912. ,,
7·58	7·36	7·28	7·38	7·49	7·73	7·82	7·90	7·96	8·00	7·91	7·90	7·686	Normal. Falmouth.
+ 4·80	+ 4·68	+ 4·73	+ 4·73	+ 4·62	+ 4·69	+ 4·60	+ 4·55	+ 4·39	+ 4·35	+ 4·30	+ 4·38	+ 4·764	Diff. for 1912. ,,
													DECEMBER.
4·75	4·71	4·69	4·86	4·90	5·04	5·08	5·17	5·14	5·15	5·09	5·05	4·878	Normal. Aberdeen.
− 7·15	− 7·44	− 7·59	− 7·76	− 7·97	− 8·15	− 8·26	− 8·35	− 8·25	− 8·05	− 7·86	− 7·52	− 7·418	Diff. for 1912. ,,
5·31	5·05	4·86	4·93	4·92	5·02	5·10	5·28	5·52	5·77	5·97	6·31	5·754	1912. Eskdale.
10·13	9·91	9·82	9·98	10·08	10·23	10·30	10·38	10·38	10·40	10·34	10·31	10·143	Normal. Valencia.
− 4·70	− 4·54	− 4·37	− 4·37	− 4·26	− 4·21	− 4·09	− 4·10	− 4·10	− 4·31	− 4·46	− 4·61	− 4·883	Diff. for 1912. ,,
12·89	12·72	12·76	12·89	12·98	13·13	13·26	13·38	13·41	13·43	13·42	13·31	13·108	Normal. Kew.
− 0·46	− 0·58	− 0·77	− 0·66	− 0·66	− 0·64	− 0·68	− 0·64	− 0·56	− 0·49	− 0·41	− 0·27	− 0·358	Diff. for 1912. ,,
7·55	7·35	7·35	7·50	7·61	7·78	7·87	7·98	8·00	8·02	7·97	7·88	7·683	Normal. Falmouth.
− 0·55	− 0·42	− 0·39	− 0·20	− 0·07	+ 0·03	+ 0·08	+ 0·27	+ 0·22	+ 0·23	+ 0·25	+ 0·37	− 0·143	Diff. for 1912. ,,
													YEAR.
8·48	8·41	8·32	8·34	8·35	8·50	8·60	8·75	8·80	8·82	8·75	8·70	8·500	Normal. Aberdeen.
− 2·02	− 2·08	− 2·11	− 2·12	− 2·14	− 2·15	− 2·18	− 2·20	− 2·21	− 2·19	− 2·15	− 2·09	− 2·000	Diff. for 1912. ,,
2·04	1·92	1·80	1·80	1·83	1·95	2·09	2·25	2·36	2·41	2·39	2·36	2·125	1912. Eskdale.
12·48	12·36	12·23	12·20	12·21	12·32	12·44	12·57	12·66	12·71	12·66	12·60	12·365	Normal. Valencia.
− 2·70	− 2·69	− 2·64	− 2·64	− 2·60	− 2·63	− 2·60	− 2·59	− 2·49	− 2·57	− 2·56	− 2·62	− 2·675	Diff. for 1912. ,,
13·85	13·66	13·55	13·51	13·55	13·72	13·88	14·10	14·24	14·30	14·28	14·23	13·979	Normal. Kew.
− 1·70	− 1·67	− 1·69	− 1·67	− 1·70	− 1·68	− 1·70	− 1·73	− 1·74	− 1·77	− 1·78	− 1·79	− 1·679	Diff. for 1912. ,,
9·01	8·87	8·75	8·74	8·74	8·88	8·97	9·13	9·23	9·26	9·17	9·09	8·910	Normal. Falmouth.
− 1·78	− 1·75	− 1·72	− 1·69	− 1·69	− 1·70	− 1·71	− 1·67	− 1·69	− 1·66	− 1·63	− 1·57	− 1·700	Diff. for 1912. ,,

LXIX.-LXXIV.—NORMALS FOR THE MONTHS OF THE HOURLY VALUES OF THE METEOROLOGICAL ELEMENTS

LXX.—TEMPERATURE (in degrees absolute).

(The Mean Values are corrected

Hour G.M.T.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.
JANUARY.	°	°	°	°	°	°	°	°	°	°	°	°
Aberdeen, Normal. 200+	76·07	76·02	76·00	75·94	75·95	75·92	75·97	75·97	76·06	76·28	76·75	77·09
Difference for 1912	+ 0·45	+ 0·50	+ 0·44	+ 0·37	+ 0·29	+ 0·26	+ 0·30	+ 0·25	+ 0·32	+ 0·34	+ 0·22	+ 0·07
Eskdale, 1912. 200+	74·12	74·15	73·90	73·75	73·73	73·78	73·79	73·80	73·95	74·66	75·08	75·58
Valencia, Normal. 200+	79·82	79·76	79·77	79·73	79·74	79·70	79·72	79·70	79·78	79·95	80·31	80·61
Difference for 1912	+ 0·24	+ 0·32	+ 0·30	+ 0·34	+ 0·35	+ 0·28	+ 0·28	+ 0·20	+ 0·23	+ 0·33	+ 0·36	+ 0·28
Kew, Normal. 200+	76·29	76·21	76·20	76·12	76·10	76·03	76·04	76·02	76·25	76·74	77·34	77·82
Difference for 1912	+ 1·35	+ 1·36	+ 1·28	+ 1·27	+ 1·20	+ 1·00	+ 0·82	+ 0·85	+ 0·74	+ 0·60	+ 0·54	+ 0·41
Falmouth, Normal. 200+	79·18	79·10	79·13	79·06	79·07	79·03	79·05	79·04	79·24	79·58	80·03	80·25
Difference for 1912	+ 0·68	+ 0·65	+ 0·63	+ 0·73	+ 0·71	+ 0·96	+ 0·92	+ 0·94	+ 1·00	+ 0·99	+ 0·96	+ 0·90
FEBRUARY.												
Aberdeen, Normal, 200+	75·93	75·85	75·78	75·69	75·67	75·64	75·64	75·70	76·02	76·51	77·13	77·58
Difference for 1912	+ 1·19	+ 1·10	+ 1·13	+ 1·04	+ 0·96	+ 0·91	+ 0·88	+ 1·08	+ 0·84	+ 0·63	+ 0·56	+ 0·50
Eskdale, 1912. 200+	75·16	75·15	74·91	74·87	74·78	74·72	74·75	74·86	75·29	76·06	76·65	77·11
Valencia, Normal. 200+	79·59	79·52	79·50	79·42	79·39	79·33	79·38	79·33	79·60	79·97	80·49	80·87
Difference for 1912	+ 0·06	+ 0·12	+ 0·09	+ 0·10	+ 0·09	+ 0·10	+ 0·06	+ 0·10	+ 0·01	+ 0·07	+ 0·29	+ 0·21
Kew, Normal. 200+	76·51	76·37	76·30	76·20	76·18	76·10	76·10	76·15	76·71	77·32	78·17	78·74
Difference for 1912	+ 2·38	+ 2·38	+ 2·34	+ 2·26	+ 2·24	+ 2·08	+ 1·97	+ 1·95	+ 2·08	+ 2·33	+ 2·24	+ 2·14
Falmouth, Normal. 200+	79·06	78·97	78·95	78·87	78·86	78·78	78·79	78·80	79·20	79·74	80·21	80·49
Difference for 1912	+ 1·04	+ 1·04	+ 1·10	+ 1·14	+ 1·08	+ 1·08	+ 1·07	+ 1·19	+ 1·22	+ 1·22	+ 1·38	+ 1·32
MARCH.												
Aberdeen, Normal. 200+	76·27	76·16	76·09	75·97	75·90	75·85	75·99	76·41	77·17	77·80	78·41	78·80
Difference for 1912	+ 2·03	+ 1·98	+ 1·85	+ 1·79	+ 1·68	+ 1·69	+ 1·80	+ 1·92	+ 2·01	+ 1·99	+ 1·83	+ 1·57
Eskdale, 1912. 200+	76·32	76·28	76·24	76·27	76·22	76·14	76·18	76·67	77·34	77·96	78·61	79·22
Valencia, Normal. 200+	79·56	79·44	79·37	79·26	79·22	79·13	79·15	79·39	80·04	80·63	81·19	81·56
Difference for 1912	+ 0·54	+ 0·70	+ 0·70	+ 0·70	+ 0·78	+ 0·93	+ 0·98	+ 0·75	+ 0·61	+ 0·48	+ 0·53	+ 0·26
Kew, Normal. 200+	77·06	76·82	76·66	76·47	76·38	76·26	76·43	77·06	78·11	79·05	80·06	80·70
Difference for 1912	+ 2·77	+ 2·78	+ 2·77	+ 2·74	+ 2·78	+ 2·94	+ 3·00	+ 3·05	+ 2·79	+ 2·57	+ 2·19	+ 1·92
Falmouth. Normal. 200+	79·00	78·89	78·88	78·76	78·74	78·67	78·75	79·13	79·91	80·42	80·98	81·20
Difference for 1912	+ 1·71	+ 1·80	+ 1·79	+ 1·66	+ 1·65	+ 1·70	+ 1·88	+ 1·81	+ 1·71	+ 1·76	+ 1·68	+ 1·54
APRIL.												
Aberdeen, Normal. 200+	77·63	77·45	77·34	77·22	77·16	77·37	78·11	78·81	79·60	80·11	80·54	80·78
Difference for 1912	+ 1·34	+ 1·25	+ 1·07	+ 0·90	+ 0·92	+ 1·02	+ 1·19	+ 1·40	+ 1·46	+ 1·57	+ 1·62	+ 1·41
Eskdale, 1912. 200+	76·28	76·08	75·99	75·61	75·46	76·08	77·41	79·42	80·80	81·80	82·43	83·11
Valencia, Normal. 200+	80·81	80·66	80·58	80·42	80·36	80·28	80·67	81·26	82·04	82·59	83·20	83·55
Difference for 1912	+ 0·41	+ 0·30	+ 0·26	+ 0·34	+ 0·34	+ 0·47	+ 0·62	+ 1·35	+ 1·40	+ 1·46	+ 1·45	+ 1·42
Kew, Normal. 200+	79·05	78·76	78·54	78·29	78·17	78·31	79·16	80·16	81·38	82·30	83·31	83·91
Difference for 1912	+ 0·58	+ 0·34	+ 0·22	+ 0·19	+ 0·18	+ 0·10	+ 0·22	+ 0·38	+ 0·78	+ 0·92	+ 1·11	+ 1·24
Falmouth, Normal. 200+	80·48	80·31	80·25	80·11	80·07	80·07	80·70	81·40	82·17	82·60	83·16	83·33
Difference for 1912	+ 1·33	+ 1·27	+ 1·17	+ 1·05	+ 1·12	+ 0·98	+ 1·14	+ 1·44	+ 1·60	+ 1·72	+ 1·74	+ 1·79
MAY.												
Aberdeen, Normal. 200+	79·80	79·59	79·41	79·26	79·63	80·31	81·08	81·70	82·22	82·59	82·95	83·17
Difference for 1912	+ 0·48	+ 0·47	+ 0·50	+ 0·43	+ 0·40	+ 0·72	+ 0·86	+ 0·68	+ 0·68	+ 0·69	+ 0·98	+ 0·98
Eskdale, 1912. 200+	78·67	78·41	78·18	78·12	78·40	79·57	80·80	82·01	82·83	83·47	83·94	84·41
Valencia, Normal. 200+	82·60	82·42	82·29	82·14	82·10	82·29	83·14	83·90	84·72	85·16	85·69	85·95
Difference for 1912	+ 0·77	+ 0·70	+ 0·76	+ 0·66	+ 0·70	+ 0·81	+ 0·73	+ 0·85	+ 1·01	+ 1·15	+ 1·06	+ 1·02
Kew, Normal. 200+	81·58	81·18	80·95	80·67	80·86	81·43	82·68	83·72	84·86	85·66	86·52	87·04
Difference for 1912	+ 2·21	+ 2·22	+ 2·09	+ 2·21	+ 2·18	+ 2·29	+ 2·13	+ 2·08	+ 1·99	+ 2·07	+ 2·39	+ 2·33
Falmouth, Normal. 200+	82·38	82·22	82·14	82·00	82·01	82·33	83·46	84·18	84·97	85·28	85·78	85·90
Difference for 1912	+ 1·26	+ 1·29	+ 1·25	+ 1·16	+ 1·25	+ 1·40	+ 1·02	+ 1·02	+ 1·19	+ 1·43	+ 1·37	+ 1·39
JUNE.												
Aberdeen, Normal. 200+	82·59	82·35	82·20	82·17	82·76	83·62	84·41	84·87	85·33	85·66	86·00	86·09
Difference for 1912	+ 0·37	+ 0·25	+ 0·21	+ 0·23	+ 0·02	− 0·37	− 0·42	− 0·72	− 0·94	− 0·93	− 0·82	− 0·74
Eskdale, 1912. 200+	81·95	81·92	81·79	81·76	82·01	82·51	83·07	83·87	84·37	84·78	85·38	85·88
Valencia, Normal. 200+	85·13	84·97	84·87	84·74	84·77	85·11	85·88	86·50	87·21	87·66	88·17	88·43
Difference for 1912	− 0·63	− 0·80	− 0·75	− 0·74	− 0·63	− 0·55	− 0·51	− 0·53	− 0·57	− 0·69	− 0·62	− 0·74
Kew, Normal. 200+	84·98	84·59	84·28	84·02	84·49	85·10	86·15	87·10	88·22	88·97	89·88	90·43
Difference for 1912	+ 0·32	+ 0·30	+ 0·46	+ 0·46	+ 0·53	+ 0·50	+ 0·41	+ 0·33	+ 0·32	+ 0·22	+ 0·16	− 0·38
Falmouth, Normal. 200+	85·20	85·06	84·98	84·88	84·96	85·48	86·44	87·18	87·96	88·35	88·74	88·84
Difference for 1912	− 0·62	− 0·64	− 0·57	− 0·37	− 0·26	− 0·33	− 0·50	− 0·45	− 0·68	− 0·57	− 0·36	− 0·40

The Temperature is obtained photographically from a mercurial thermometer with a large cylindrical bulb 4 inches (0·10 metre) long, and a long stem. The column of mercury in the stem is broken at a convenient point by a small air space, which moves up or down with the rise or fall of temperature. The bulb is exposed in a louvred screen attached to the wall of the Observatory, and the stem is bent twice at right angles so that whilst one vertical portion containing the air speck is within the room where the photographic record is obtained, the other with the bulb itself is in the open air and at least 2 feet (0·61 metre) from the wall. Two such thermometers are in the screen, one being used as a dry bulb and the other as a wet bulb, with two thermometers having bulbs of the same size as standards.

AT THE FIVE OBSERVATORIES WITH DIFFERENCES BETWEEN THE NORMALS AND THE VALUES FOR 1912.

JANUARY TO JUNE.

for non-cyclic change.)

13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.	Hour, G.M.T.
°	°	°	°	°	°	°	°	°	°	°	°	°	JANUARY.
77·35	77·40	77·29	77·01	76·75	76·56	76·47	76·32	76·26	76·19	76·16	76·10	76·41	Normal. Aberdeen.
+ 0·12	+ 0·27	+ 0·25	+ 0·24	+ 0·20	+ 0·18	+ 0·30	+ 0·45	+ 0·39	+ 0·38	+ 0·36	+ 0·31	+ 0·31	Diff. for 1912. ,,
75·71	75·85	75·72	75·34	74·91	74·79	74·61	74·51	74·35	74·27	73·99	73·94	74·52	1912. Eskdale.
80·88	80·91	80·89	80·67	80·33	80·12	80·04	79·94	79·92	79·84	79·85	79·78	80·07	Normal. Valencia.
+ 0·27	+ 0·11	+ 0·07	− 0·15	− 0·09	− 0·07	− 0·07	− 0·22	− 0·22	− 0·07	+ 0·02	+ 0·27	+ 0·15	Diff. for 1912. ,,
78·26	78·39	78·34	77·95	77·52	77·20	77·04	76·86	76·75	76·61	76·52	76·38	76·87	Normal. Kew.
+ 0·47	+ 0·48	+ 0·61	+ 0·81	+ 0·96	+ 1·01	+ 1·09	+ 1·14	+ 1·04	+ 1·06	+ 1·17	+ 1·15	+ 0·94	Diff. for 1912. ,,
80·45	80·40	80·33	80·06	79·81	79·59	79·53	79·42	79·39	79·30	79·28	79·17	79·52	Normal. Falmouth.
+ 0·99	+ 1·01	+ 0·98	+ 1·03	+ 0·89	− 0·68	+ 0·57	+ 0·55	+ 0·43	+ 0·44	+ 0·45	+ 0·45	+ 0·78	Diff. for 1912. ,,
77·96	78·06	77·99	77·70	77·27	76·90	76·65	76·44	76·30	76·16	76·08	75·99	76·53	FEBRUARY. Normal. Aberdeen.
+ 0·34	+ 0·31	+ 0·39	+ 0·43	+ 0·63	+ 0·90	+ 1·00	+ 1·07	+ 1·10	+ 1·20	+ 1·33	+ 1·43	+ 0·87	Diff. for 1912. ,,
77·30	77·54	77·26	77·27	76·74	76·19	76·02	75·93	75·84	75·72	75·63	75·64	75·88	1912. Eskdale.
81·13	81·17	81·18	81·00	80·72	80·25	80·02	79·87	79·82	79·73	79·69	79·59	80·02	Normal. Valencia.
+ 0·27	+ 0·30	+ 0·33	+ 0·26	+ 0·25	+ 0·11	+ 0·27	+ 0·35	+ 0·30	+ 0·19	+ 0·26	+ 0·09	+ 0·18	Diff. for 1912. ,,
79·20	79·38	79·43	79·11	78·67	78·05	77·63	77·32	77·14	76·94	76·77	76·60	77·38	Normal. Kew.
+ 2·06	+ 2·05	+ 1·97	+ 2·04	+ 2·06	+ 2·29	+ 2·38	+ 2·50	+ 2·65	+ 2·72	+ 2·81	+ 2·70	+ 2·25	Diff. for 1912. ,,
80·73	80·72	80·66	80·39	80·07	79·69	79·49	79·32	79·25	79·16	79·13	79·05	79·52	Normal. Falmouth.
+ 1·28	+ 1·20	+ 1·28	+ 1·38	+ 1·30	+ 1·33	+ 1·37	+ 1·38	+ 1·38	+ 1·45	+ 1·51	+ 1·39	+ 1·25	Diff. for 1912. ,,
79·03	79·07	79·04	78·83	78·49	77·93	77·45	77·14	76·94	76·72	76·57	76·42	77·27	MARCH. Normal. Aberdeen.
+ 1·57	+ 1·50	+ 1·60	+ 1·63	+ 1·61	+ 1·85	+ 1·79	+ 1·89	+ 1·87	+ 1·80	+ 1·91	+ 1·86	+ 1·79	Diff. for 1912. ,,
79·28	79·30	79·31	78·89	78·62	77·94	77·49	77·00	76·74	76·60	76·43	76·38	77·40	1912. Eskdale.
81·92	81·97	82·02	81·86	81·59	81·11	80·60	80·26	80·11	79·92	79·81	79·64	80·36	Normal. Valencia.
+ 0·26	+ 0·36	+ 0·09	+ 0·16	+ 0·06	+ 0·15	+ 0·38	+ 0·39	+ 0·40	+ 0·33	+ 0·36	+ 0·47	+ 0·48	Diff. for 1912. ,,
81·27	81·47	81·64	81·39	80·95	80·10	79·36	78·78	78·37	77·93	77·59	77·29	78·63	Normal. Kew.
+ 1·66	+ 1·53	+ 1·59	+ 1·62	+ 1·70	+ 1·80	+ 1·85	+ 1·91	+ 2·15	+ 2·29	+ 2·48	+ 2·56	+ 2·31	Diff. for 1912. ,,
81·47	81·46	81·43	81·16	80·89	80·33	79·89	79·60	79·47	79·29	79·20	79·06	79·86	Normal. Falmouth.
+ 1·27	+ 1·19	+ 1·23	+ 1·26	+ 1·24	+ 1·16	+ 1·13	+ 1·18	+ 1·30	+ 1·35	+ 1·45	+ 1·55	+ 1·50	Diff. for 1912. ,,
80·94	80·91	80·87	80·60	80·34	79·97	79·45	78·94	78·65	78·35	78·08	77·86	79·05	APRIL. Normal. Aberdeen.
+ 1·57	+ 1·68	+ 1·66	+ 1·34	+ 1·28	+ 1·20	+ 1·10	+ 1·20	+ 1·26	+ 1·18	+ 1·45	+ 1·34	+ 1·30	Diff. for 1912. ,,
83·40	83·71	83·74	83·45	82·98	82·05	80·44	79·02	78·08	77·54	76·95	76·57	79·52	1912. Eskdale.
83·85	83·91	83·96	83·82	83·61	83·12	82·48	81·91	81·58	81·32	81·15	80·98	82·00	Normal. Valencia.
+ 1·39	+ 1·23	+ 1·24	+ 1·10	+ 1·13	+ 1·10	+ 1·05	+ 0·84	+ 0·97	+ 0·81	+ 0·73	+ 0·60	+ 0·92	Diff. for 1912. ,,
84·47	84·74	84·85	84·64	84·23	83·51	82·38	81·47	80·84	80·24	79·84	79·42	81·33	Normal. Kew.
+ 1·61	+ 1·46	+ 1·73	+ 1·79	+ 1·98	+ 1·84	+ 1·61	+ 1·52	+ 1·26	+ 1·20	+ 0·94	+ 0·71	+ 1·00	Diff. for 1912. ,,
83·60	83·56	83·55	83·26	82·97	82·42	81·89	81·31	81·10	80·88	80·78	80·62	81·69	Normal. Falmouth.
+ 1·62	+ 1·60	+ 1·67	+ 1·77	+ 1·86	+ 1·78	+ 1·57	+ 1·51	+ 1·30	+ 1·20	+ 1·27	+ 1·21	+ 1·45	Diff. for 1912. ,,
83·34	83·29	83·24	83·01	82·88	82·51	82·12	81·52	81·05	80·67	80·32	80·06	81·49	MAY. Normal. Aberdeen.
+ 1·04	+ 0·98	+ 0·98	+ 0·98	+ 0·85	+ 0·95	+ 0·95	+ 0·82	+ 0·75	+ 0·64	+ 0·73	+ 0·58	+ 0·75	Diff. for 1912. ,,
84·49	84·71	+84·63	84·43	84·06	83·53	82·60	81·37	80·50	79·95	79·49	79·25	81·57	1912. Eskdale.
86·19	86·28	86·37	86·25	86·12	85·63	85·07	84·33	83·75	83·39	83·13	82·86	84·24	Normal. Valencia.
+ 1·11	+ 0·97	+ 0·98	+ 1·16	+ 1·23	+ 1·08	+ 1·15	+ 1·10	+ 0·97	+ 0·88	+ 0·84	+ 0·65	+ 0·93	Diff. for 1912. ,,
87·61	87·83	88·10	87·98	87·74	87·15	86·19	84·92	83·99	83·25	82·60	82·10	84·44	Normal. Kew.
+ 2·25	+ 2·08	+ 2·01	+ 2·04	+ 1·99	+ 1·97	+ 2·02	+ 2·10	+ 2·24	+ 2·16	+ 2·32	+ 2·23	+ 2·15	Diff. for 1912. ,,
86·13	86·05	86·05	85·85	85·64	85·10	84·53	83·76	83·29	82·96	82·80	82·59	84·06	Normal. Falmouth.
+ 1·37	+ 1·55	+ 1·73	+ 1·64	+ 1·41	+ 1·42	+ 1·23	+ 1·18	+ 1·07	+ 1·02	+ 1·05	+ 1·13	+ 1·28	Diff. for 1912. ,,
86·28	86·22	86·16	85·97	85·90	85·56	85·17	84·64	84·05	83·65	83·31	82·97	84·50	JUNE. Normal. Aberdeen.
− 0·68	− 0·68	− 0·28	− 0·11	− 0·20	− 0·05	+ 0·03	+ 0·10	+ 0·06	+ 0·16	+ 0·27	+ 0·39	− 0·21	Diff. for 1912. ,,
86·10	86·24	86·38	86·04	85·93	85·57	84·93	84·12	83·40	82·94	82·54	82·20	83·99	1912. Eskdale.
88·71	88·77	88·84	88·77	88·66	88·09	87·60	87·00	86·25	85·87	85·63	85·37	86·79	Normal. Valencia.
− 0·78	− 0·77	− 0·83	− 0·52	− 0·53	− 0·59	− 0·38	− 0·55	− 0·37	− 0·50	− 0·51	− 0·52	− 0·61	Diff. for 1912. ,,
91·08	91·33	91·62	91·47	91·26	90·76	89·96	88·66	87·50	86·70	86·07	85·51	87·92	Normal. Kew.
− 0·45	− 0·33	− 0·36	− 0·70	− 0·13	− 0·19	− 0·09	− 0·10	+ 0·05	+ 0·07	+ 0·26	+ 0·31	+ 0·08	Diff. for 1912. ,,
89·04	88·99	89·00	88·80	88·64	88·10	87·50	86·70	86·06	85·73	85·55	85·36	86·98	Normal. Falmouth.
− 0·44	− 0·48	− 0·53	− 0·58	− 0·53	− 0·51	− 0·46	− 0·54	− 0·61	− 0·60	− 0·58	− 0·63	− 0·51	Diff. for 1912. ,,

The heights of the thermometers above the ground are:—

At Aberdeen	12·5 metres.
,, Eskdalemuir	0·9 ,,
,, Valencia	1·2 ,,
,, Kew	3·0 ,,
,, Falmouth	1·2 ,,

The normals for temperature are for the 40 years, 1871–1910.
The values for 1912 are given by the excess or defect from the normal; + indicates excess, − defect.

LXIX.-LXXIV.—NORMALS FOR THE MONTHS OF THE HOURLY VALUES OF THE METEOROLOGICAL ELEMENTS

LXX.—*continued*—TEMPERATURE (in degrees absolute).

(The Mean Values are corrected

Hour, G.M.T.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.
JULY.	°	°	°	°	°	°	°	°	°	°	°	°
Aberdeen, Normal. 200+	84·66	84·44	84·24	84·11	84·51	85·17	86·03	86·58	87·09	87·45	87·83	87·99
Difference for 1912	− 0·19	− 0·13	− 0·11	+ 0·01	− 0·19	− 0·30	− 0·49	− 0·53	− 0·52	− 0·75	− 0·71	− 0·78
Eskdale, 1912. 200+	83·74	83·54	83·37	83·38	83·54	84·22	85·02	85·98	86·51	87·39	88·02	88·37
Valencia, Normal. 200+	86·55	86·40	86·31	86·21	86·21	86·42	87·06	87·60	88·30	88·74	89·17	89·41
Difference for 1912	− 0·77	− 0·94	− 0·92	− 0·93	− 0·95	− 0·81	− 0·85	− 0·60	− 0·61	− 0·63	− 0·54	− 0·36
Kew, Normal. 200+	87·03	86·62	86·30	86·04	86·25	86·92	87·99	88·98	90·09	90·91	91·79	92·29
Difference for 1912	+ 0·87	+ 0·88	+ 1·05	+ 0·96	+ 0·74	+ 0·58	+ 0·58	+ 0·68	+ 0·77	+ 0·93	+ 1·02	+ 0·70
Falmouth, Normal. 200+	86·91	86·76	86·70	86·56	86·62	87·05	88·08	88·85	89·66	89·99	90·43	90·57
Difference for 1912	+ 0·39	+ 0·43	+ 0·39	+ 0·45	+ 0·35	+ 0·15	− 0·25	− 0·52	− 0·78	− 0·63	− 0·37	− 0·19
AUGUST.												
Aberdeen, Normal. 200+	84·62	84·40	84·22	84·05	84·04	84·51	85·40	86·13	86·85	87·27	87·72	87·95
Difference for 1912	− 2·02	− 2·06	− 2·05	− 1·96	− 1·91	− 2·06	− 1·98	− 1·92	− 1·98	− 2·16	− 2·32	− 2·37
Eskdale, 1912. 200+	81·46	81·26	80·87	80·80	80·67	81·09	81·85	82·97	83·98	84·62	85·01	85·48
Valencia, Normal. 200+	86·84	86·68	86·63	86·53	86·49	86·48	86·97	87·56	88·29	88·78	89·29	89·56
Difference for 1912	− 2·48	− 2·53	− 2·48	− 2·55	− 2·49	− 2·48	− 2·47	− 2·46	− 2·53	− 2·59	− 2·60	− 2·47
Kew, Normal. 200+	86·74	86·36	86·13	85·89	85·82	86·12	87·18	88·28	89·56	90·42	91·38	91·96
Difference for 1912	− 1·34	− 1·27	− 1·33	− 1·36	− 1·40	− 1·43	− 1·72	− 1·91	− 2·22	− 2·20	− 2·38	− 2·62
Falmouth, Normal. 200+	87·16	87·05	87·00	86·88	86·84	86·95	87·81	88·69	89·46	89·92	90·36	90·53
Difference for 1912	− 2·27	− 2·29	− 2·43	− 2·50	− 2·48	− 2·49	− 2·67	− 2·90	− 3·02	− 3·14	− 3·00	− 3·17
SEPTEMBER.												
Aberdeen, Normal. 200+	82·98	82·77	82·65	82·50	82·40	82·40	82·99	83·84	84·83	85·49	86·03	86·28
Difference for 1912	− 0·64	− 0·59	− 0·59	− 0·63	− 0·63	− 0·73	− 0·88	− 0·90	− 0·93	− 1·10	− 1·21	− 1·26
Eskdale, 1912. 200+	79·55	79·04	78·85	78·91	78·66	78·70	79·28	80·89	82·26	83·29	83·72	84·40
Valencia, Normal. 200+	85·58	85·48	85·42	85·28	85·25	85·17	85·31	85·85	86·59	87·20	87·81	88·13
Difference for 1912	− 0·74	− 0·83	− 0·90	− 0·87	− 0·90	− 0·96	− 0·84	− 0·79	− 0·87	− 0·98	− 0·89	− 0·94
Kew, Normal. 200+	84·66	84·35	84·15	83·95	83·84	83·79	84·39	85·37	86·73	87·78	88·86	89·47
Difference for 1912	− 1·28	− 1·21	− 1·15	− 1·22	− 1·34	− 1·34	− 1·33	− 1·38	− 1·47	− 1·60	− 1·91	− 2·20
Falmouth, Normal. 200+	85·92	85·82	85·77	85·65	85·60	85·53	85·92	86·67	87·48	88·01	88·58	88·76
Difference for 1912	− 1·05	− 1·01	− 0·98	− 0·97	− 0·97	− 0·91	− 1·11	− 1·43	− 1·49	− 1·54	− 1·60	− 1·68
OCTOBER.												
Aberdeen, Normal. 200+	80·48	80·36	80·28	80·19	80·15	80·09	80·13	80·50	81·22	81·95	82·55	82·92
Difference for 1912	− 0·19	− 0·41	− 0·40	− 0·47	− 0·42	− 0·40	− 0·50	− 0·41	− 0·39	− 0·53	− 0·45	− 0·12
Eskdale, 1912. 200+	77·96	77·97	77·95	77·98	77·72	77·86	77·90	78·71	79·52	80·69	81·30	81·68
Valencia, Normal. 200+	83·19	83·08	83·05	82·99	82·99	82·93	82·92	83·05	83·67	84·16	84·77	85·03
Difference for 1912	− 0·24	− 0·28	− 0·40	− 0·40	− 0·34	− 0·39	− 0·41	− 0·25	− 0·26	− 0·10	− 0·17	− 0·07
Kew, Normal. 200+	81·39	81·19	81·10	80·97	80·91	80·81	80·92	81·41	82·47	83·51	84·48	85·04
Difference for 1912	− 1·64	− 1·70	− 1·85	− 2·03	− 2·13	− 2·23	− 2·29	− 2·31	− 2·41	− 2·20	− 1·51	− 1·04
Falmouth, Normal. 200+	83·48	83·36	83·34	83·25	83·25	83·16	83·22	83·59	84·35	84·88	85·37	85·55
Difference for 1912	− 1·07	− 1·09	− 1·01	− 0·99	− 0·95	− 0·96	− 1·05	− 0·93	− 0·72	− 0·61	− 0·52	− 0·45
NOVEMBER.												
Aberdeen, Normal. 200+	78·22	78·17	78·11	78·05	78·03	77·99	78·04	78·11	78·43	78·85	79·36	79·77
Difference for 1912	− 0·47	− 0·61	− 0·50	− 0·55	− 0·39	− 0·28	− 0·25	− 0·40	− 0·61	− 0·42	− 0·33	− 0·33
Eskdale, 1912. 200+	76·44	76·51	76·46	76·34	76·32	76·28	76·24	76·19	76·65	77·47	78·10	78·89
Valencia, Normal. 200+	81·30	81·21	81·20	81·13	81·13	81·08	81·08	81·04	81·29	81·69	82·20	82·47
Difference for 1912	+ 0·51	+ 0·51	+ 0·54	+ 0·65	+ 0·67	+ 0·63	+ 0·72	+ 0·74	+ 0·47	+ 0·35	+ 0·30	+ 0·20
Kew, Normal. 200+	78·79	78·67	78·64	78·55	78·52	78·40	78·40	78·50	79·03	79·74	80·52	81·05
Difference for 1912	+ 0·18	+ 0·19	+ 0·18	+ 0·14	+ 0·09	+ 0·02	+ 0·08	+ 0·03	+ 0·06	− 0·06	− 0·04	− 0·03
Falmouth, Normal. 200+	81·35	81·27	81·28	81·21	81·20	81·13	81·15	81·16	81·60	82·10	82·60	82·84
Difference for 1912	+ 0·02	− 0·09	− 0·04	− 0·04	+ 0·01	+ 0·03	− 0·03	− 0·03	+ 0·11	+ 0·06	+ 0·33	+ 0·27
DECEMBER.												
Aberdeen, Normal. 200+	76·43	76·40	76·37	76·33	76·36	76·33	76·34	76·32	76·42	76·64	77·00	77·26
Difference for 1912	+ 0·91	+ 0·89	+ 0·82	+ 0·65	+ 0·56	+ 0·67	+ 0·64	+ 0·76	+ 0·88	+ 0·92	+ 0·98	+ 1·24
Eskdale, 1912. 200+	76·12	76·09	76·18	76·22	76·05	76·14	76·23	76·43	76·39	76·76	77·07	77·53
Valencia, Normal. 200+	80·35	80·28	80·28	80·20	80·20	80·12	80·12	80·10	80·16	80·33	80·78	81·03
Difference for 1912	+ 1·35	+ 1·43	+ 1·35	+ 1·44	+ 1·56	+ 1·73	+ 1·72	+ 1·65	+ 1·78	+ 1·80	+ 1·67	+ 1·53
Kew, Normal. 200+	76·85	76·74	76·71	76·63	76·65	76·61	76·65	76·63	76·91	77·29	77·90	78·34
Difference for 1912	+ 3·70	+ 3·71	+ 3·70	+ 3·60	+ 3·55	+ 3·44	+ 3·42	+ 3·43	+ 3·44	+ 3·56	+ 3·41	+ 3·30
Falmouth, Normal. 200+	79·99	79·93	79·95	79·88	79·91	79·87	79·88	79·86	80·03	80·34	80·86	81·06
Difference for 1912	+ 2·03	+ 2·07	+ 2·09	+ 2·16	+ 2·01	+ 2·08	+ 2·09	+ 2·14	+ 2·19	+ 2·14	+ 2·15	+ 2·14
YEAR.												
Aberdeen, Normal. 200+	79·67	79·52	79·41	79·30	79·39	79·63	80·02	80·40	80·95	81·37	81·87	82·13
Difference for 1912	+ 0·24	+ 0·20	+ 0·18	+ 0·14	+ 0·10	+ 0·06	+ 0·09	+ 0·11	+ 0·06	+ 0·03	+ 0·02	+ 0·02
Eskdale, 1912. 200+	78·15	78·03	77·89	77·83	77·80	78·09	78·54	79·32	79·99	80·75	81·28	81·81
Valencia, Normal. 200+	82·57	82·45	82·40	82·31	82·30	82·31	82·59	82·94	83·50	83·92	84·44	84·74
Difference for 1912	− 0·04	− 0·06	− 0·08	− 0·08	− 0·05	+ 0·01	+ 0·03	+ 0·08	+ 0·03	+ 0·04	+ 0·05	+ 0·01
Kew, Normal. 200+	80·92	80·67	80·50	80·30	80·33	80·49	81·01	81·61	82·49	83·34	84·18	84·76
Difference for 1912	+ 0·83	+ 0·81	+ 0·81	+ 0·79	+ 0·74	+ 0·66	+ 0·60	+ 0·60	+ 0·61	+ 0·58	+ 0·61	+ 0·45
Falmouth, Normal. 200+	82·48	82·36	82·33	82·23	82·23	82·30	82·74	83·23	83·86	84·26	84·78	84·95
Difference for 1912	+ 0·32	+ 0·32	+ 0·32	+ 0·32	+ 0·32	+ 0·35	+ 0·24	+ 0·17	+ 0·17	+ 0·24	+ 0·29	+ 0·28

AT THE FIVE OBSERVATORIES WITH DIFFERENCES BETWEEN THE NORMALS AND THE VALUES FOR 1912.

JULY TO DECEMBER AND YEAR.

or non-cyclic change.)

13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.	Hour, G.M.T.
°	°	°	°	°	°	°	°	°	°	°	°	°	JULY.
88·18	88·16	88·14	87·90	87·78	87·43	87·05	86·45	85·93	85·49	85·16	84·89	86·36	Normal. Aberdeen.
− 0·85	− 0·83	− 0·64	− 0·73	− 0·45	− 0·38	− 0·53	− 0·46	− 0·54	− 0·48	− 0·33	− 0·26	− 0·46	Diff. for 1912. ,,
88·60	88·93	88·92	88·63	88·19	87·76	87·03	86·10	85·24	84·61	84·30	84·15	86·06	1912. Eskdale.
89·70	89·75	89·84	89·73	89·63	89·09	88·65	88·01	87·36	87·06	86·89	86·70	87·95	Normal. Valencia.
− 0·49	− 0·68	− 0·57	− 0·59	− 0·49	− 0·60	− 0·51	− 0·59	− 0·47	− 0·78	− 0·63	− 0·75	− 0·67	Diff. for 1912. ,,
92·96	93·28	93·56	93·45	93·28	92·73	91·95	90·53	89·46	88·68	88·03	87·43	89·86	Normal. Kew.
+ 0·76	+ 0·51	+ 0·43	+ 0·53	+ 0·55	+ 0·44	+ 0·18	+ 0·45	+ 0·67	+ 0·79	+ 0·83	+ 0·90	+ 0·70	Diff. for 1912. ,,
90·84	90·76	90·74	90·48	90·24	89·77	89·15	88·33	87·65	87·32	87·16	87·01	88·65	Normal. Falmouth.
− 0·47	− 0·56	− 0·44	− 0·23	− 0·13	− 0·15	− 0·08	+ 0·05	+ 0·23	+ 0·24	+ 0·18	+ 0·27	− 0·07	Diff. for 1912. ,,
													AUGUST.
88·18	88·16	88·11	87·87	87·60	87·21	86·71	86·06	85·63	85·25	85·01	84·78	86·16	Normal. Aberdeen.
− 2·51	− 2·38	− 2·24	− 2·25	− 2·17	− 2·09	− 1·99	− 1·84	− 1·77	− 1·73	− 1·82	− 1·93	− 2·07	Diff. for 1912. ,,
85·62	85·82	85·43	85·32	84·96	84·45	83·73	83·01	82·48	82·08	81·86	81·61	83·18	1912. Eskdale.
89·87	89·92	89·94	89·75	89·55	89·05	88·56	87·84	87·40	87·17	87·07	86·92	88·05	Normal. Valencia.
− 2·48	− 2·60	− 2·49	− 2·48	− 2·47	− 2·32	− 2·28	− 2·14	− 2·05	− 2·29	− 2·24	− 2·41	− 2·44	Diff. for 1912. ,,
92·57	92·80	93·04	92·85	92·57	91·87	90·76	89·54	88·74	88·08	87·53	87·06	89·30	Normal. Kew.
− 2·72	− 2·83	− 3·30	− 3·30	− 3·30	− 3·32	− 3·04	− 2·56	− 2·21	− 1·98	− 1·72	− 1·48	− 2·20	Diff. for 1912. ,,
90·82	90·75	90·72	90·36	90·07	89·52	88·84	88·10	87·71	87·46	87·34	87·20	88·65	Normal. Falmouth.
− 3·09	− 3·07	− 3·14	− 3·05	− 3·11	− 3·07	− 2·91	− 2·74	− 2·52	− 2·38	− 2·23	− 2·20	− 2·75	Diff. for 1912. ,,
													SEPTEMBER.
86·51	86·53	86·41	86·14	85·78	85·19	84·63	84·15	83·85	83·59	83·37	83·14	84·35	Normal. Aberdeen.
− 1·32	− 1·49	− 1·42	− 1·38	− 1·42	− 1·32	− 1·23	− 1·13	− 0·99	− 0·97	− 0·92	− 0·79	− 1·02	Diff. for 1912. ,,
84·70	84·93	84·84	84·60	84·11	82·92	81·62	81·29	80·86	80·45	80·13	79·92	81·58	1912. Eskdale.
88·45	88·46	88·47	88·20	87·89	87·31	86·70	86·27	86·10	85·91	85·81	85·64	86·60	Normal. Valencia.
− 0·88	− 0·90	− 0·94	− 1·01	− 1·01	− 0·90	− 0·77	− 0·73	− 0·69	− 0·73	− 0·83	− 0·82	− 0·87	Diff. for 1912. ,,
90·06	90·27	90·39	90·11	89·62	88·54	87·37	86·62	86·08	85·61	85·18	84·84	86·75	Normal. Kew.
− 2·31	− 2·34	− 2·43	− 2·59	− 2·64	− 2·25	− 1·73	− 1·53	− 1·39	− 1·38	− 1·22	− 1·22	− 1·68	Diff. for 1912. ,,
88·96	88·88	88·80	88·49	88·09	87·42	86·87	86·46	86·28	86·14	86·05	85·92	87·00	Normal. Falmouth.
− 1·71	− 1·61	− 1·63	− 1·63	− 1·62	− 1·53	− 1·47	− 1·36	− 1·30	− 1·20	− 1·23	− 1·14	− 1·34	Diff. for 1912. ,,
													OCTOBER.
83·16	83·20	83·05	82·65	82·14	81·66	81·30	81·07	80·91	80·73	80·63	80·48	81·33	Normal. Aberdeen.
− 0·10	− 0·37	− 0·17	+ 0·02	+ 0·13	+ 0·20	+ 0·21	− 0·04	− 0·01	− 0·13	− 0·22	− 0·21	− 0·22	Diff. for 1912. ,,
82·10	82·14	81·97	81·57	80·41	79·37	78·81	78·46	77·96	78·04	77·73	77·82	79·32	1912. Eskdale.
85·24	85·26	85·21	84·97	84·59	84·04	83·80	83·62	83·51	83·32	83·24	83·01	83·82	Normal. Valencia.
− 0·10	− 0·20	− 0·11	− 0·34	− 0·32	− 0·21	− 0·28	− 0·40	− 0·42	− 0·27	− 0·27	− 0·23	− 0·27	Diff. for 1912. ,,
85·52	85·63	85·54	85·07	84·32	83·53	82·98	82·53	82·25	81·95	81·72	81·43	82·78	Normal. Kew.
− 0·51	− 0·34	− 0·21	− 0·12	− 0·26	− 0·66	− 0·84	− 0·81	− 0·94	− 1·24	− 1·51	− 1·74	− 1·35	Diff. for 1912. ,,
85·74	85·64	85·51	85·14	84·74	84·20	83·96	83·79	83·73	83·62	83·58	83·42	84·16	Normal. Falmouth.
− 0·41	− 0·39	− 0·47	− 0·35	− 0·50	− 0·77	− 0·80	− 0·89	− 1·01	− 1·06	− 1·06	− 1·00	− 0·79	Diff. for 1912. ,,
													NOVEMBER.
79·98	79·97	79·78	79·38	79·03	78·83	78·70	78·57	78·51	78·40	78·31	78·19	78·70	Normal. Aberdeen.
− 0·32	− 0·17	− 0·22	− 0·18	− 0·13	− 0·07	− 0·27	− 0·30	− 0·38	− 0·40	− 0·42	− 0·51	− 0·35	Diff. for 1912. ,,
78·90	78·84	78·59	78·09	77·76	77·44	77·00	76·72	76·54	76·40	76·31	76·31	77·12	1912. Eskdale.
82·74	82·75	82·68	82·36	82·00	81·76	81·65	81·49	81·43	81·32	81·29	81·21	81·65	Normal. Valencia.
+ 0·25	+ 0·30	+ 0·09	+ 0·22	+ 0·35	+ 0·41	+ 0·31	+ 0·34	+ 0·50	+ 0·50	+ 0·56	+ 0·51	+ 0·44	Diff. for 1912. ,,
81·44	81·52	81·35	80·89	80·35	79·96	79·72	79·42	79·24	79·04	78·92	78·76	79·56	Normal. Kew.
− 0·01	− 0·12	0·00	+ 0·10	+ 0·12	+ 0·20	+ 0·20	+ 0·15	+ 0·19	+ 0·11	+ 0·02	+ 0·13	+ 0·08	Diff. for 1912. ,,
83·05	82·92	82·76	82·35	82·00	81·76	81·67	81·54	81·52	81·40	81·36	81·27	81·77	Normal. Falmouth.
+ 0·20	+ 0·24	+ 0·01	+ 0·01	+ 0·08	+ 0·10	+ 0·07	+ 0·03	+ 0·12	+ 0·03	− 0·07	− 0·08	+ 0·06	Diff. for 1912. ,,
													DECEMBER.
77·48	77·45	77·27	77·03	76·89	76·77	76·71	76·63	76·63	76·55	76·52	76·44	76·69	Normal. Aberdeen.
+ 1·42	+ 1·39	+ 1·41	+ 1·47	+ 1·60	+ 1·56	+ 1·49	+ 1·18	+ 1·17	+ 1·16	+ 1·23	+ 1·24	+ 1·09	Diff. for 1912. ,,
77·71	77·87	77·60	77·34	77·35	77·24	77·06	77·05	76·98	76·96	76·76	76·63	76·82	1912. Eskdale.
81·26	81·30	81·22	81·01	80·76	80·58	80·54	80·45	80·44	80·36	80·37	80·31	80·52	Normal. Valencia.
+ 1·35	+ 1·23	+ 1·21	+ 1·28	+ 1·39	+ 1·42	+ 1·40	+ 1·29	+ 1·25	+ 1·41	+ 1·42	+ 1·46	+ 1·46	Diff. for 1912. ,,
78·70	78·76	78·64	78·20	77·88	77·62	77·45	77·28	77·18	77·07	76·99	76·88	77·36	Normal. Kew.
+ 3·20	+ 3·19	+ 3·34	+ 3·31	+ 3·43	+ 3·49	+ 3·65	+ 3·75	+ 3·83	+ 3·93	+ 3·98	+ 4·01	+ 3·55	Diff. for 1912. ,,
81·22	81·14	81·00	80·66	80·38	80·21	80·14	80·07	80·07	80·02	80·01	79·96	80·27	Normal. Falmouth.
+ 2·16	+ 2·14	+ 2·07	+ 2·05	+ 2·06	+ 2·05	+ 2·13	+ 2·01	+ 2·06	+ 2·11	+ 2·08	+ 2·10	+ 2·09	Diff. for 1912. ,,
													YEAR.
82·33	82·34	82·26	82·01	81·74	81·35	81·04	80·68	80·38	80·12	79·97	79·80	80·74	Normal. Aberdeen.
+ 0·06	+ 0·05	+ 0·13	+ 0·12	+ 0·16	+ 0·27	+ 0·23	+ 0·23	+ 0·26	+ 0·26	+ 0·29	+ 0·26	+ 0·15	Diff. for 1912. ,,
81·99	82·16	82·03	81·75	81·34	80·77	80·11	79·55	79·08	78·80	78·50	78·37	79·75	1912. Eskdale.
84·99	85·04	85·05	84·87	84·63	84·18	83·83	83·45	83·16	82·93	82·81	82·64	83·50	Normal. Valencia.
+ 0·02	− 0·06	− 0·08	− 0·08	− 0·05	− 0·04	0·00	− 0·06	− 0·01	− 0·04	− 0·04	− 0·03	− 0·02	Diff. for 1912. ,,
85·25	85·45	85·54	85·24	84·88	84·24	83·62	82·81	82·27	81·85	81·47	81·14	82·68	Normal. Kew.
+ 0·51	+ 0·45	+ 0·45	+ 0·48	+ 0·52	+ 0·56	+ 0·55	+ 0·73	+ 0·82	+ 0·80	+ 0·87	+ 0·86	+ 0·66	Diff. for 1912. ,,
85·15	85·09	85·04	84·77	84·47	84·01	83·66	83·21	82·96	82·76	82·66	82·52	83·50	Normal. Falmouth.
+ 0·25	+ 0·25	+ 0·24	+ 0·26	+ 0·24	+ 0·21	+ 0·16	+ 0·19	+ 0·20	+ 0·23	+ 0·26	+ 0·29	+ 0·26	Diff. for 1912. ,,

LXIX.–LXXIV.—NORMALS FOR THE MONTHS OF THE HOURLY VALUES OF THE METEOROLOGICAL ELEMENTS

LXXI.—RELATIVE HUMIDITY.

(The Mean Values are corrected

Hour, G.M.T.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.
JANUARY.	%	%	%	%	%	%	%	%	%	%	%	%
Aberdeen, Normal.	80·8	80·8	81·0	81·1	81·4	81·6	81·5	81·5	81·4	80·7	79·5	78·3
Difference for 1912	+ 2·8	+ 2·8	+ 2·8	+ 2·9	+ 1·4	+ 2·0	+ 3·3	+ 3·2	+ 2·9	+ 3·3	+ 2·7	+ 2·7
Eskdale, 1912	88·5	89·1	88·7	88·5	88·3	88·7	88·6	88·7	88·1	87·7	88·1	87·9
Valencia, Normal.	86·6	87·1	87·1	87·3	87·2	87·3	87·4	87·2	86·9	86·9	86·2	85·4
Difference for 1912	+ 0·5	+ 0·1	− 1·2	− 0·9	− 1·8	− 1·2	− 2·2	− 0·8	− 1·7	− 1·5	− 2·2	− 1·3
Kew, Normal.	86·6	86·9	86·8	86·8	86·5	87·1	87·0	87·1	86·4	85·6	82·9	81·6
Difference for 1912	− 1·4	− 0·9	− 0·1	+ 0·1	+ 0·4	+ 0·2	+ 0·2	− 1·0	− 1·2	− 1·1	+ 0·3	+ 1·2
Falmouth, Normal.	84·9	84·9	85·0	85·1	85·3	85·3	85·3	85·4	85·0	83·9	82·2	81·2
Difference for 1912	+ 0·3	+ 0·4	+ 0·4	+ 0·7	+ 0·1	− 2·9	+ 1·2	+ 1·0	+ 1·4	+ 2·5	+ 1·0	+ 1·9
FEBRUARY												
Aberdeen, Normal.	80·5	80·6	80·8	81·0	80·9	81·1	81·1	80·7	80·2	78·9	77·3	75·8
Difference for 1912	+ 6·3	+ 6·6	+ 6·2	+ 7·1	+ 6·9	+ 7·1	+ 7·1	+ 6·7	+ 5·5	+ 5·1	+ 5·2	+ 4·7
Eskdale, 1912.	84·8	85·2	87·4	85·7	86·5	84·8	84·3	85·2	87·4	83·1	83·8	83·0
Valencia, Normal.	87·2	87·3	87·5	87·4	87·5	87·6	87·0	87·4	87·1	86·4	84·5	82·7
Difference for 1912	− 0·9	− 1·4	− 0·7	+ 0·4	+ 0·9	+ 0·9	+ 1·0	+ 0·6	+ 0·6	+ 0·5	+ 0·6	+ 1·2
Kew, Normal.	84·7	85·2	85·2	85·7	85·4	85·9	85·4	85·6	84·0	82·1	78·5	76·4
Difference for 1912	− 0·6	− 0·4	− 1·3	− 1·0	− 1·8	− 1·5	− 0·7	0·0	− 0·7	− 1·3	− 0·4	+ 0·4
Falmouth, Normal.	83·6	83·5	83·7	83·7	83·9	84·0	83·9	83·9	83·2	81·4	79·4	77·9
Difference for 1912	+ 3·8	+2·9	+ 3·4	+ 3·1	+ 3·1	+ 4·2	+ 4·0	+ 3·9	+ 5·4	+ 6·5	+ 5·1	+ 6·5
MARCH												
Aberdeen, Normal.	82·1	82·2	82·5	82·7	82·9	83·0	82·9	81·0	79·3	76·4	74·9	72·9
Difference for 1912	+ 3·4	+ 3·6	+ 3·3	+ 3·1	+ 3·7	+ 3·6	+ 2·9	+ 3·0	+ 2·0	+ 0·6	+ 1·6	+ 3·6
Eskdale, 1912.	90·8	91·2	91·5	91·3	90·6	89·4	90·7	89·6	89·3	84·8	83·1	80·2
Valencia, Normal.	86·6	86·9	87·2	87·3	87·3	87·4	87·5	86·9	85·2	83·0	80·7	79·1
Difference for 1912	+ 3·0	+ 2·8	+ 2·2	+ 2·1	+ 1·4	+ 1·8	+ 0·7	+ 2·5	+ 1·9	+ 2·6	+ 2·8	+ 4·3
Kew, Normal.	85·4	86·7	86·6	87·1	86·8	87·3	86·4	85·0	81·0	77·8	73·1	70·8
Difference for 1912	+ 1·2	+ 0·3	− 0·2	+ 0·7	+ 0·4	+ 0·4	+ 0·9	− 0·1	+ 0·6	+ 0·5	+ 1·6	+ 3·3
Falmouth, Normal.	84·4	84·8	84·9	84·9	85·2	85·4	85·6	84·2	81·6	79·1	77·1	75·7
Difference for 1912	+ 0·8	+ 0·4	+ 1·3	+ 1·7	+ 2·0	+ 1·8	+ 1·2	+ 3·7	+ 1·9	+ 1·7	+ 2·5	+ 4·3
APRIL.												
Aberdeen, Normal.	83·6	84·0	84·3	84·5	84·7	84·0	82·4	79·5	76·3	73·7	72·3	71·2
Difference for 1912	− 1·5	− 1·4	− 0·5	− 1·7	− 2·3	− 2·9	− 2·5	− 3·0	− 1·3	− 2·3	− 3·3	− 2·2
Eskdale, 1912.	85·1	84·9	85·4	86·6	85·8	85·0	83·7	77·2	73·3	69·1	64·7	62·3
Valencia, Normal.	86·2	86·6	86·5	86·8	86·8	86·9	86·4	84·9	81·9	79·5	77·0	76·1
Difference for 1912	+ 2·0	+ 3·1	+ 3·0	+ 3·2	+ 3·7	+ 2·6	+ 2·5	+ 2·2	+ 1·2	+ 0·1	− 0·6	− 0·1
Kew, Normal.	84·4	85·7	86·1	87·1	86·9	86·8	83·8	80·1	75·3	70·4	66·6	63·7
Difference for 1912	− 3·6	− 2·5	− 2·6	− 2·9	− 2·3	− 1·8	− 1·9	− 3·0	− 3·6	− 3·8	− 5·4	− 6·1
Falmouth, Normal.	84·6	84·9	85·4	85·6	85·6	85·4	83·5	80·5	77·3	74·9	73·5	72·6
Difference for 1912	− 3·2	− 2·4	− 1·8	− 0·5	− 2·2	− 1·9	− 2·8	− 3·0	− 3·8	− 4·9	− 4·5	− 4·6
MAY.												
Aberdeen, Normal.	85·0	85·3	85·9	86·3	85·7	83·7	80·5	78·0	75·9	74·4	73·1	72·1
Difference for 1912	− 1·6	− 1·5	− 1·3	− 1·3	− 1·6	− 3·7	− 4·1	− 6·0	− 4·9	− 4·9	− 6·9	− 4·6
Eskdale, 1912.	87·6	87·8	88·2	88·4	88·9	87·1	84·4	79·0	75·5	73·4	70·5	69·0
Valencia, Normal.	87·0	87·0	87·4	87·7	87·8	87·4	85·3	81·9	78·7	76·9	75·1	74·2
Difference for 1912	+ 0·9	+ 1·7	+ 1·4	+ 2·1	+ 0·8	+ 1·1	+ 2·4	+ 2·7	+ 2·1	+ 1·6	+ 1·8	+ 1·9
Kew, Normal.	84·6	86·3	86·8	87·6	86·8	85·3	81·1	76·2	71·1	67·8	65·0	62·8
Difference for 1912	+ 0·2	+ 0·1	+ 0·4	+ 0·1	− 0·1	+ 0·1	− 0·4	− 0·1	+ 0·1	+ 0·6	− 1·2	− 0·4
Falmouth, Normal.	87·2	87·5	87·6	88·0	88·1	86·5	83·0	78·8	75·6	73·9	73·1	72·4
Difference for 1912	+ 2·2	+ 3·2	+ 3·2	+ 2·9	+ 3·1	+ 4·1	+ 3·8	+ 3·2	+ 3·2	+ 1·9	+ 1·9	+ 1·1
JUNE.												
Aberdeen, Normal.	85·2	86·0	86·2	86·5	85·2	82·0	78·8	76·2	74·5	73·3	72·3	72·0
Difference for 1912	+ 2·5	+ 2·9	+ 3·8	+ 3·5	+ 3·6	+ 5·2	+ 4·6	+ 7·2	+ 7·5	+ 7·1	+ 5·7	+ 6·5
Eskdale, 1912	92·4	92·5	93·1	92·9	93·0	91·2	89·1	86·4	83·0	82·7	79·8	78·4
Valencia, Normal.	87·2	87·9	87·9	88·2	88·1	87·2	85·2	82·4	79·6	77·6	76·2	75·6
Difference for 1912	+ 2·2	+ 1·9	+ 1·2	+ 1·5	+ 1·7	+ 2·9	+ 3·4	+ 3·9	+ 5·0	+ 5·7	+ 5·2	+ 5·6
Kew, Normal	84·3	85·8	87·1	87·6	85·7	83·7	79·7	75·7	71·3	67·9	64·8	62·3
Difference for 1912	+ 4·4	+ 4·9	+ 4·0	+ 3·8	+ 3·4	+ 4·0	+ 3·6	+ 3·9	+ 4·2	+ 3·2	+ 3·3	+ 5·2
Falmouth, Normal.	89·1	89·4	89·8	89·8	89·9	87·9	84·0	79·7	76·6	75·0	74·2	73·8
Difference for 1912	+ 2·3	+ 4·1	+ 3·7	+ 3·3	+ 3·1	+ 2·8	+ 3·2	+ 4·1	+ 4·4	+ 4·0	+ 3·2	+ 2·0

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

The normals for humidity are obtained from the observations for 25 years, 1886-1910.

AT THE FIVE OBSERVATORIES WITH DIFFERENCES BETWEEN THE NORMALS AND THE VALUES FOR 1912.

JANUARY TO JUNE.

for non-cyclic change.)

13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.	Hour, G.M.T.
%	%	%	%	%	%	%	%	%	%	%	%	%	JANUARY.
77·8	77·6	78·1	79·4	80·1	80·4	80·8	80·9	80·8	80·8	80·8	80·6	80·3	Normal. Aberdeen.
+ 2·5	+ 2·0	+ 1·5	+ 1·0	+ 2·1	+ 2·7	+ 2·6	+ 3·3	+ 4·6	+ 3·4	+ 2·4	+ 2·2	+ 2·7	Diff. for 1912. ,,
88·5	88·6	89·0	87·6	87·3	86·6	86·6	86·5	86·9	86·2	87·5	87·5	88·0	1912. Eskdale.
84·4	84·1	84·3	84·7	85·6	86·1	86·3	86·4	86·7	86·5	86·5	86·7	86·3	Normal. Valencia.
− 2·3	− 1·3	− 1·1	− 0·2	− 0·3	+ 0·2	− 0·5	+ 0·3	− 0·3	− 0·5	− 0·8	− 0·9	− 0·9	Diff. for 1912. ,,
79·7	79·5	79·6	81·5	82·7	84·0	84·6	85·4	85·4	86·2	86·1	86·7	84·7	Normal. Kew.
+ 0·9	+ 1·0	+ 0·9	+ 0·3	0·0	0·0	− 1·1	− 0·7	− 0·8	− 0·5	− 1·1	− 0·9	− 0·2	Diff. for 1912. ,,
80·7	80·3	81·1	82·1	83·2	83·9	84·3	84·1	84·2	84·6	84·6	84·8	83·8	Normal. Falmouth.
+ 1·9	+ 1·5	+ 1·9	− 0·3	− 0·1	+ 0·5	− 0·6	+ 1·4	+ 0·6	− 0·2	− 0·2	− 1·0	+ 0·6	Diff. for 1912. ,,
													FEBRUARY.
75·4	75·1	75·4	76·5	78·2	79·4	79·9	79·9	79·9	80·0	80·2	80·5	79·1	Normal. Aberdeen.
+ 6·6	+ 6·7	+ 6·4	+ 6·3	+ 6·2	+ 5·0	+ 5·9	+ 4·7	+ 7·1	+ 6·8	+ 6·8	+ 5·5	+ 6·2	Diff. for 1912. ,,
84·0	83·1	84·4	80·4	81·6	84·4	83·9	83·9	86·2	85·0	85·3	86·0	84·5	1912. Eskdale.
81·4	81·0	81·2	81·8	83·2	84·8	85·3	86·2	86·1	86·4	87·0	87·2	85·5	Normal. Valencia.
+ 1·5	+ 1·3	+ 0·8	+ 0·4	− 0·1	− 0·5	− 1·7	− 2·3	− 3·2	− 2·6	− 2·0	− 0·6	− 0·3	Diff. for 1912. ,,
74·6	73·7	73·7	74·7	77·1	79·8	81·2	82·7	83·2	84·0	84·3	84·8	81·6	Normal. Kew.
+ 1·4	+ 2·2	+ 3·3	+ 2·8	+ 2·5	+ 1·4	+ 1·4	+ 0·6	+ 0·2	+ 0·3	− 0·1	+ 0·5	+ 0·3	Diff. for 1912. ,,
77·1	76·7	77·2	77·9	79·7	81·4	82·2	82·9	83·4	83·5	83·8	83·8	81·7	Normal. Falmouth.
+ 6·5	+ 8·3	+ 6·1	+ 5·5	+ 4·6	+ 5·8	+ 5·1	+ 5·3	+ 4·4	+ 4·3	+ 4·0	+ 4·8	+ 4·9	Diff. for 1912. ,,
													MARCH.
72·5	72·2	72·6	73·4	75·2	77·4	79·3	80·1	80·6	81·2	81·3	81·5	78·8	Normal. Aberdeen.
+ 4·0	+ 5·2	+ 4·2	+ 3·6	+ 2·0	+ 1·4	+ 2·3	+ 4·0	+ 5·0	+ 4·5	+ 3·9	+ 2·5	+ 3·2	Diff. for 1912. ,,
80·2	80·9	79·3	82·1	81·9	85·9	87·6	88·6	89·0	89·1	90·0	90·7	87·0	1912. Eskdale.
77·9	78·0	77·7	78·4	79·4	81·2	83·5	84·8	85·0	85·6	86·0	86·6	83·7	Normal. Valencia.
+ 5·0	+ 4·2	+ 6·9	+ 5·6	+ 5·6	+ 5·1	+ 3·2	+ 2·4	+ 2·5	+ 3·3	+ 2·2	+ 2·1	+ 3·2	Diff. for 1912. ,,
68·4	67·1	67·0	67·7	69·9	73·5	76·8	79·9	81·2	83·4	84·3	85·5	79·1	Normal. Kew.
+ 5·0	+ 6·5	+ 6·9	+ 6·8	+ 6·5	+ 5·3	+ 4·6	+ 3·7	+ 2·7	+ 1·6	+ 1·1	+ 0·9	+ 2·6	Diff. for 1912. ,,
74·9	74·7	74·9	75·7	77·2	79·1	81·8	82·8	83·5	83·9	84·2	84·7	81·3	Normal. Falmouth.
+ 3·1	+ 4·3	+ 3·1	+ 2·3	+ 2·3	+ 2·8	+ 3·4	+ 3·2	+ 2·1	+ 1·9	+ 0·6	+ 0·1	+ 2·2	Diff. for 1912. ,,
													APRIL.
70·9	71·1	71·4	72·0	73·4	75·0	77·3	79·6	80·5	81·5	82·5	83·1	78·3	Normal. Aberdeen.
− 2·7	− 4·3	− 4·2	− 1·6	− 1·4	− 0·2	+ 0·1	− 2·0	+ 0·1	+ 0·3	− 0·7	− 1·5	− 1·8	Diff. for 1912. ,,
60·6	60·5	62·2	61·9	64·1	68·2	73·9	78·1	81·3	83·0	83·3	83·4	75·2	1912. Eskdale.
75·8	75·3	75·5	75·7	77·0	78·6	80·9	83·3	84·5	85·2	85·7	85·9	82·0	Normal. Valencia.
− 0·5	+ 0·5	+ 1·2	+ 1·9	+ 0·8	+ 2·0	+ 2·6	+ 3·2	+ 1·5	+ 1·7	+ 2·0	+ 2·5	+ 1·8	Diff. for 1912. ,,
62·3	61·0	61·0	61·3	62·9	65·7	69·9	74·3	77·4	79·9	81·9	83·2	74·9	Normal. Kew.
− 7·4	− 7·5	− 6·9	− 6·6	− 7·2	− 7·2	− 6·1	− 6·3	− 6·3	− 5·4	− 4·8	− 3·6	− 4·8	Diff. for 1912. ,,
72·3	72·1	72·4	73·0	74·1	75·8	79·5	82·1	83·1	83·9	84·1	84·3	79·6	Normal. Falmouth.
− 5·3	− 3·6	− 4·4	− 4·5	− 4·6	− 3·8	− 3·3	− 4·3	− 4·1	− 3·3	− 3·2	− 2·6	− 3·5	Diff. for 1912. ,,
													MAY.
72·3	72·3	72·6	73·1	73·6	74·6	76·7	79·1	81·1	82·5	83·8	84·5	78·8	Normal. Aberdeen.
− 4·8	− 4·8	− 4·6	− 4·3	− 4·8	− 4·4	− 3·3	− 3·5	− 1·7	− 2·5	− 2·3	− 1·7	− 3·5	Diff. for 1912. ,,
69·8	69·1	68·4	70·3	70·8	72·5	76·2	80·7	83·2	85·7	87·1	87·7	79·2	1912. Eskdale.
74·1	73·7	74·1	74·0	74·2	76·5	78·6	81·4	83·6	85·0	86·0	86·6	81·0	Normal. Valencia.
+ 0·9	+ 3·1	+ 0·6	+ 1·6	+ 0·4	+ 1·3	+ 0·6	+ 1·1	+ 1·2	+ 1·4	+ 0·5	+ 1·9	+ 1·5	Diff. for 1912. ,,
60·9	60·0	59·5	59·6	60·7	62·6	66·6	71·9	75·6	79·0	81·1	83·3	73·4	Normal. Kew.
− 0·7	− 0·2	− 0·3	+ 0·1	0·0	+ 0·7	+ 0·2	− 0·5	− 0·3	− 0·3	0·0	+ 0·3	0·0	Diff. for 1912. ,,
72·2	71·9	72·2	72·6	73·2	75·0	78·4	82·3	85·1	86·3	86·8	87·2	80·2	Normal. Falmouth.
+ 1·8	+ 2·6	+ 1·8	+ 1·4	+ 1·6	+ 1·6	+ 2·1	+ 1·7	+ 2·1	+ 2·1	+ 2·7	+ 4·4	+ 2·5	Diff. for 1912. ,,
													JUNE.
71·5	71·4	72·3	72·7	72·8	74·0	75·6	77·9	80·4	82·3	83·7	84·4	78·2	Normal. Aberdeen.
+ 6·0	+ 5·6	+ 5·5	+ 4·8	+ 5·2	+ 4·5	+ 3·4	+ 3·5	+ 4·6	+ 3·9	+ 3·3	+ 3·4	+ 4·8	Diff. for 1912. ,,
76·1	76·6	74·6	76·7	76·9	79·1	83·1	87·0	88·5	90·4	91·3	92·2	85·3	1912. Eskdale.
75·1	75·1	75·1	74·4	74·5	76·9	78·9	81·4	84·1	85·4	86·1	86·9	81·5	Normal. Valencia.
+ 4·8	+ 4·6	+ 3·8	+ 3·1	+ 2·6	+ 3·6	+ 1·5	+ 3·2	+ 2·0	+ 1·9	+ 2·2	+ 2·9	+ 3·2	Diff. for 1912. ,,
60·4	59·3	58·6	58·8	59·8	61·9	65·5	70·6	74·9	78·3	80·7	83·1	72·8	Normal. Kew.
+ 5·1	+ 4·2	+ 4·5	+ 6·7	+ 4·3	+ 3·9	+ 4·2	+ 4·2	+ 4·6	+ 5·5	+ 5·2	+ 4·2	+ 4·4	Diff. for 1912. ,,
73·2	72·9	72·9	73·4	74·2	75·8	78·7	82·9	86·0	87·5	88·2	88·8	81·4	Normal. Falmouth.
+ 2·8	+ 3·6	+ 4·3	+ 5·2	+ 4·6	+ 4·7	+ 3·8	+ 4·9	+ 4·6	+ 3·2	+ 2·3	+ 2·5	+ 3·6	Diff. for 1912. ,,

The values for 1912 are given by the excess or defect from the normal; + indicates excess, — defect.

LXIX.–LXXIV.—NORMALS FOR THE MONTHS OF THE HOURLY VALUES OF THE METEOROLOGICAL ELEMENTS

LXXI.—*continued*—RELATIVE HUMIDITY.

(The Mean Values are corrected

Hour, G.M.T.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.
JULY.	%	%	%	%	%	%	%	%	%	%	%	%
Aberdeen, Normal.	84·9	85·6	85·8	86·3	85·0	82·6	79·6	76·8	74·5	72·9	71·7	71·7
Difference for 1912	+ 2·9	+ 2·3	+ 2·2	+ 0·7	+ 2·2	+ 2·6	+ 2·4	+ 4·2	+ 3·5	+ 4·9	+ 4·7	+ 4·3
Eskdale, 1912.	89·7	90·2	89·8	88·8	89·5	87·9	85·6	81·5	79·4	76·8	73·6	72·4
Valencia, Normal.	88·4	88·7	89·1	89·2	89·7	89·0	87·6	85·4	83·0	81·0	79·3	78·6
Difference for 1912	− 1·6	− 1·0	− 1·1	− 1·5	− 2·2	− 2·0	− 1·8	− 1·9	− 2·8	− 0·9	− 1·8	− 2·2
Kew, Normal.	85·1	86·4	87·2	88·1	87·1	85·3	80·8	75·9	70·7	67·0	63·4	61·5
Difference for 1912	+ 2·0	+ 1·7	+ 0·7	+ 1·2	+ 2·3	+ 2·5	+ 2·7	+ 3·4	+ 3·6	+ 2·8	+ 3·4	+ 4·8
Falmouth, Normal.	89·6	90·0	90·1	90·1	90·2	89·0	85·5	81·1	77·0	75·2	73·8	72·8
Difference for 1912	− 2·4	− 1·6	− 0·5	− 0·3	+ 0·2	− 0·4	+ 3·0	+ 7·3	+ 8·4	+ 8·4	+ 6·7	+ 6·7
AUGUST.												
Aberdeen, Normal.	85·4	86·1	86·4	87·0	87·0	85·5	82·2	79·5	75·8	74·0	72·4	71·3
Difference for 1912	+ 3·5	+ 2·6	+ 3·1	+ 2·2	+ 2·5	+ 3·9	+ 4·9	+ 3·3	+ 3·4	+ 3·2	+ 3·4	+ 4·3
Eskdale, 1912.	86·7	87·0	87·5	86·6	85·4	84·4	83·7	82·2	81·0	78·3	78·3	77·0
Valencia, Normal.	88·7	89·3	89·1	89·3	89·3	89·3	88·7	86·8	84·4	82·2	80·4	79·2
Difference for 1912	+ 0·8	+ 0·9	+ 1·2	+ 1·1	+ 0·4	+ 0·2	− 0·3	− 0·2	− 0·1	+ 1·7	+ 1·3	− 0·2
Kew, Normal.	86·8	87·7	88·5	89·0	89·0	88·2	84·9	80·2	74·3	69·9	65·4	63·0
Difference for 1912	+ 1·9	+ 1·2	+ 1·7	+ 1·6	+ 1·9	+ 2·1	+ 3·4	+ 3·7	+ 4·7	+ 5·2	+ 6·0	+ 7·7
Falmouth, Normal.	89·7	89·9	90·1	90·3	90·7	90·6	87·8	83·9	79·7	77·1	75·6	74·3
Difference for 1912	+ 1·5	+ 2·4	+ 2·3	+ 2·2	+ 3·5	+ 2·2	+ 3·9	+ 7·1	+ 7·1	+ 7·1	+ 6·0	+ 7·3
SEPTEMBER.												
Aberdeen, Normal.	85·6	85·9	86·1	86·5	86·6	86·6	85·2	82·5	79·0	75·8	73·7	72·7
Difference for 1912	− 3·9	− 3·1	− 3·2	− 3·5	− 2·2	− 1·8	− 1·0	− 1·9	− 2·6	− 1·3	− 0·7	− 0·7
Eskdale, 1912.	83·6	81·3	81·5	80·4	81·6	79·6	78·5	78·1	80·8	75·3	75·8	75·9
Valencia, Normal.	88·0	87·9	88·3	88·4	88·2	88·4	88·1	87·3	84·8	82·3	79·9	78·8
Difference for 1912	− 3·7	− 2·0	− 2·4	− 2·2	− 2·1	− 1·7	− 2·3	− 2·7	− 1·6	− 1·5	− 0·9	− 0·5
Kew, Normal.	88·4	89·5	89·6	90·1	90·0	90·4	88·5	85·0	80·0	75·1	70·7	67·6
Difference for 1912	− 2·2	− 2·6	− 2·9	− 2·5	− 2·2	− 2·1	− 2·5	− 2·0	− 2·1	− 3·2	− 1·6	− 0·7
Falmouth, Normal.	88·8	89·2	89·4	89·4	89·8	90·0	88·9	86·2	82·9	80·1	78·0	76·5
Difference for 1912	− 3·6	− 3·4	− 3·6	− 3·4	− 3·1	− 4·3	− 3·1	− 2·7	− 2·3	− 2·9	− 2·8	− 2·1
OCTOBER.												
Aberdeen, Normal.	85·5	85·6	85 7	85·6	85·7	85·9	85·8	84·8	82·9	80·1	77·8	76·3
Difference for 1912	− 0·1	+ 0·9	+ 0·5	+ 0·4	− 0·4	− 0·9	− 1·0	− 0·4	+ 1·1	+ 1·7	+ 1·4	+ 0·2
Eskdale, 1912.	88·1	87·6	87·5	86·8	87·1	86·2	86·0	85·3	88·5	83·7	82·8	81·2
Valencia, Normal.	86·6	86·9	86·9	86·8	86·9	86·7	87·0	86·7	85·7	84·0	81·5	80·2
Difference for 1912	+ 1·0	+ 0·5	+ 0·7	− 0·1	+ 0·2	+ 1·2	+ 0·5	+ 0·3	− 0·9	− 0·9	+ 1·0	+ 0·9
Kew, Normal.	89·9	90·7	90·6	91·3	91·1	91·3	90·6	89·3	85·9	82·5	78·2	75·2
Difference for 1912	+ 1·7	+ 1·8	+ 0·7	+ 1·0	+ 0·4	+ 0·6	+ 1·5	+ 1·6	+ 3·5	+ 4·0	+ 2·0	+ 0·7
Falmouth, Normal.	89·9	90·5	90·6	91·2	91·2	91·3	90·6	89·3	86·1	82·8	79·1	76·5
Difference for 1912	− 0·9	+ 0·6	− 2·3	− 2·1	− 2·8	− 1·5	− 0·1	− 0·1	− 0·7	+ 0·4	+ 1·1	+ 2·7
NOVEMBER.												
Aberdeen, Normal.	83·7	83·7	83·6	83·5	83·6	83·6	83·8	83·4	82·8	81·3	80·1	78·8
Difference for 1912	− 1·9	− 0·8	− 0·8	+ 0·9	+ 0·6	+ 1·4	− 0·4	+ 1·1	+ 0·3	+ 0·5	− 0·4	− 1·0
Eskdale, 1912.	86·3	85·0	85·9	85·6	85·9	87·0	87·3	85·5	86·7	81·6	81·7	80·8
Valencia, Normal.	86·9	87·3	87·4	87·5	87·7	87·8	87·9	87·8	87·3	86·5	85·0	83·5
Difference for 1912	+ 1·0	+ 0·8	+ 0·4	+ 0·1	+ 0·3	+ 1·0	+ 1·0	+ 2·1	+ 2·3	+ 2·9	+ 3·0	+ 3·9
Kew, Normal.	89·2	89·7	89·7	89·8	89·4	90·0	89·6	89·6	87·9	86·4	83·6	81·3
Difference for 1912	− 4·1	− 3·6	− 3·5	− 3·1	− 2·7	− 3·0	− 2·1	− 2·6	− 3·2	− 2·8	− 3·2	− 2·0
Falmouth, Normal.	85·7	85·6	85·4	85·7	85·9	85·5	85·9	85·8	84·8	83·2	81·3	79·7
Difference for 1912	+ 0·6	+ 1·8	− 0·7	− 0·6	− 1·5	+ 0·6	+ 1·9	+ 1·3	+ 0·3	+ 0·3	− 1·7	− 0·9
DECEMBER.												
Aberdeen, Normal.	82·9	83·0	83·3	83·3	83·2	82·8	83·0	82·9	82·5	82·2	81·5	80·5
Difference for 1912	− 0·1	− 1·4	− 2·9	− 1·9	− 1·0	− 0·2	− 0·4	− 0·1	+ 0·1	− 0·3	− 0·5	+ 0·7
Eskdale, 1912.	89·7	88·8	89·9	89·1	89·6	88·9	88·8	88·7	89·7	87·9	87·4	87·4
Valencia, Normal.	88·1	87·6	87·8	88·0	87·5	87·9	87·9	87·8	87·7	87·6	86·4	86·1
Difference for 1912	+ 0·2	+ 1·1	+ 1·3	+ 1·4	+ 1·9	+ 2·0	+ 2·2	+ 2·3	+ 1·7	+ 1·3	+ 1·7	+ 1·1
Kew, Normal.	87·4	88·0	87·6	88·0	87·8	88·1	87·4	87·9	87·1	86·4	84·4	83·0
Difference for 1912	− 0·2	+ 0·1	+ 0·2	+ 0·2	0·0	+ 0·3	− 0·1	0·0	− 0·1	− 0·6	− 0·7	− 0·2
Falmouth, Normal.	85·0	84·8	85·0	85·0	85·1	84·7	85·2	85·1	84·9	84·2	82·8	81·5
Difference for 1912	+ 2·6	+ 3·8	+ 2·9	+ 2·9	+ 2·9	+ 3·6	+ 3·1	+ 2·5	+ 2·9	+ 3·2	+ 2·2	+ 2·7
YEAR.												
Aberdeen, Normal.	83·8	84·1	84·3	84·5	84·3	83·5	82·2	80·6	78·8	77·0	75·6	74·5
Difference for 1912	+ 1·0	+ 1·0	+ 1·1	+ 1·1	+ 1·1	+ 1·4	+ 1·3	+ 1·4	+ 1·4	+ 1·4	+ 1·0	+ 1·5
Eskdale, 1912.	86·6	86·4	86·8	86·4	86·5	85·5	84·7	82·8	83·6	79·4	78·0	76·8
Valencia, Normal.	87·3	87·5	87·7	87·8	87·8	87·7	87·2	86·0	84·4	82·8	81·0	80·0
Difference for 1912	+ 0·4	+ 0·8	+ 0·5	+ 0·6	+ 0·5	+ 0·8	+ 0·6	+ 0·9	+ 0·6	+ 1·0	+ 1·0	+ 1·2
Kew, Normal.	86·4	87·4	87·7	88·2	87·7	87·5	85·4	83·1	79·6	76·7	73·1	70·8
Difference for 1912	0·0	0·0	− 0·3	− 0·1	0·0	+ 0·1	+ 0·4	+ 0·3	+ 0·5	+ 0·2	+ 0·3	+ 1·1
Falmouth, Normal.	86·9	87·1	87·3	87·4	87·6	87·1	85·8	83·7	81·2	79·2	77·5	76·2
Difference for 1912	+ 0·3	+ 1·0	+ 0·6	+ 0·8	+ 0·7	+ 0·7	+ 1·6	+ 2·3	+ 2·4	+ 2·4	+ 1·7	+ 2·3

AT THE FIVE OBSERVATORIES WITH DIFFERENCES BETWEEN THE NORMALS AND THE VALUES FOR 1912.

JULY TO DECEMBER AND YEAR.

for non-cyclic change.)

13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.	Hour, G.M.T.
%	%	%	%	%	%	%	%	%	%	%	%	%	JULY.
71·0	71·2	71·6	72·5	73·3	74·5	76·3	78·9	81·4	82·9	83·7	84·6	78·3	Normal. Aberdeen.
+ 5·0	+ 4·3	+ 3·4	+ 4·5	+ 3·1	+ 1·3	+ 1·7	+ 2·7	+ 2·1	+ 1·9	+ 1·5	+ 1·1	+ 2·9	Diff. for 1912. ,,
71·9	71·5	70·7	73·1	75·1	77·0	80·9	84·7	86·5	87·3	88·9	89·2	81·8	1912. Eskdale.
77·8	77·4	77·0	77·1	76·9	79·0	81·2	83·8	86·0	87·1	87·8	88·3	83·7	Normal. Valencia.
− 0·9	− 1·4	− 2·1	− 0·7	− 0·7	− 0·7	− 1·5	− 0·7	− 1·6	− 0·6	− 1·9	− 1·6	− 1·5	Diff. for 1912. ,,
59·4	58·3	57·8	58·1	59·2	61·4	65·1	70·9	75·9	79·3	81·7	84·0	72·9	Normal. Kew.
+ 4·6	+ 5·2	+ 6·0	+ 4·8	+ 3·6	+ 3·8	+ 4·4	+ 2·9	+ 1·8	+ 0·9	+ 1·6	+ 1·2	+ 3·0	Diff. for 1912. ,,
72·4	72·2	72·4	72·8	73·6	75·3	78·6	83·0	86·6	88·0	88·9	89·3	81·6	Normal. Falmouth.
+ 6·1	+ 6·8	+ 5·6	+ 4·7	+ 4·4	+ 4·2	+ 3·0	+ 2·6	− 0·6	− 1·5	− 2·3	− 2·1	+ 2·7	Diff. for 1912. ,,
													AUGUST.
70·9	70·6	71·4	72·3	74·0	75·9	78·6	81·2	82·4	83·5	84·1	84·9	79·3	Normal. Aberdeen.
+ 4·9	+ 4·4	+ 5·1	+ 2·2	+ 3·0	+ 3·1	+ 2·4	+ 4·6	+ 3·1	+ 2·2	+ 3·8	+ 1·5	+ 3·3	Diff. for 1912. ,,
77·6	76·7	78·8	78·4	80·4	82·1	85·6	86·9	88·5	87·5	86·5	87·4	83·1	1912. Eskdale.
78·5	78·0	78·2	78·7	79·0	81·0	83·2	85·4	86·8	87·7	88·0	88·1	84·6	Normal. Valencia.
0·0	+ 1·8	+ 1·3	+ 1·3	+ 1·5	+ 1·1	+ 0·5	0·0	− 0·4	+ 0·1	+ 0·1	+ 1·7	+ 0·6	Diff. for 1912. ,,
61·0	59·9	59·7	59·9	61·7	64·9	70·4	75·9	79·5	82·4	84·1	85·9	75·5	Normal. Kew.
+ 6·5	+ 6·6	+ 8·9	+10·4	+11·3	+10·7	+ 9·0	+ 7·2	+ 4·9	+ 4·2	+ 3·8	+ 1·8	+ 5·3	Diff. for 1912. ,,
73·5	73·4	73·4	74·4	75·7	78·1	82·0	85·9	87·8	88·3	89·0	89·5	82·9	Normal. Falmouth.
+ 5·5	+ 6·1	+ 6·1	+ 5·8	+ 5·8	+ 6·1	+ 5·2	+ 4·3	+ 2·2	+ 3·1	+ 2·4	+ 3·3	+ 4·5	Diff. for 1912. ,,
													SEPTEMBER.
72·1	72·3	72·9	74·1	76·0	78·5	81·0	82·4	83·5	84·2	84·7	85·2	80·5	Normal. Aberdeen.
− 1·1	+ 0·2	− 0·9	− 0·6	− 1·0	− 0·5	− 1·2	+ 0·6	− 1·3	− 1·6	− 2·2	− 3·5	− 1·6	Diff. for 1912. ,,
75·3	74·7	76·0	75·9	78·6	81·2	84·5	83·4	84·9	84·2	84·0	83·5	79·9	1912. Eskdale.
77·9	77·7	77·7	78·7	79·7	82·4	84·4	85·7	86·4	86·8	87·4	87·6	84·3	Normal. Valencia.
− 1·1	− 1·1	− 1·0	− 0·7	− 1·8	− 3·0	− 3·3	− 2·8	− 2·6	− 2·3	− 3·3	− 3·7	− 2·1	Diff. for 1912. ,,
65·4	64·3	64·1	65·3	68·1	73·2	78·0	81·5	83·4	85·3	86·4	87·8	79·5	Normal. Kew.
− 1·5	− 1·4	− 0·5	+ 0·1	+ 0·2	− 0·8	− 1·6	− 2·1	− 1·8	− 1·8	− 1·8	− 1·7	− 1·7	Diff. for 1912. ,,
76·0	75·8	76·5	77·3	79·2	82·0	85·2	86·6	87·3	87·7	88·2	88·5	84·1	Normal. Falmouth.
− 1·8	− 2·6	− 3·5	− 2·8	− 3·7	− 3·2	− 4·7	− 4·4	− 2·9	− 3·7	− 2·4	− 3·7	− 3·2	Diff. for 1912. ,,
													OCTOBER.
75·8	75·0	76·3	77·8	80·4	82·1	83·6	83·8	84·4	84·7	84·9	85·3	82·3	Normal. Aberdeen.
+ 1·2	+ 2·8	+ 0·9	− 0·3	− 1·3	− 1·4	− 2·4	− 1·3	− 1·4	− 1·9	− 1·3	− 1·9	− 0·2	Diff. for 1912. ,,
79·8	79·5	80·0	81·9	85·3	84·5	87·0	85·5	87·6	85·5	86·2	85·0	85·0	1912. Eskdale.
79·4	79·0	79·1	80·2	81·6	83·7	84·3	84·9	85·3	86·0	86·1	86·6	84·3	Normal. Valencia.
+ 0·6	+ 1·8	+ 1·6	+ 2·1	+ 2·5	+ 1·8	+ 2·1	+ 2·4	+ 2·2	+ 0·7	+ 1·9	+ 1·2	+ 1·0	Diff. for 1912. ,,
73·3	72·2	72·8	75·0	79·1	83·1	85·2	87·3	87·6	88·6	89·1	90·0	84·6	Normal. Kew.
− 1·8	− 3·3	− 2·9	− 4·2	− 3·4	− 1·7	− 0·2	+ 0·1	+ 1·1	+ 1·8	+ 1·7	+ 1·1	+ 0·3	Diff. for 1912. ,,
74·8	73·9	74·4	76·6	80·3	83·9	85·9	87·7	87·9	88·7	89·2	89·9	85·1	Normal. Falmouth.
+ 3·4	+ 4·6	+ 4·4	+ 3·2	+ 2·5	+ 2·2	+ 1·0	+ 0·7	− 0·4	− 0·8	− 1·6	− 1·9	+ 0·5	Diff. for 1912. ,,
													NOVEMBER.
78·5	78·6	79·7	80·5	81·6	82·0	82·5	82·5	82·9	82·9	83·2	83·3	82·1	Normal. Aberdeen.
+ 1·1	− 1·6	− 2·3	+ 0·1	+ 0·2	− 0·1	+ 1·3	− 0·5	− 0·1	− 1·9	− 0·8	− 1·3	− 0·3	Diff. for 1912. ,,
81·7	81·9	83·0	83·4	84·0	84·1	85·7	85·8	85·3	86·1	86·0	86·2	84·7	1912. Eskdale.
82·5	82·1	82·5	83·7	84·9	85·5	85·7	86·4	86·4	86·7	86·8	87·0	86·0	Normal. Valencia.
+ 3·4	+ 2·8	+ 4·0	+ 2·1	+ 1·4	+ 1·1	+ 2·3	+ 1·7	+ 0·3	+ 0·8	− 0·1	+ 0·6	+ 1·6	Diff. for 1912. ,,
79·4	78·9	79·2	81·9	84·0	85·6	86·3	87·4	87·7	88·5	88·7	89·2	86·4	Normal. Kew.
− 2·2	− 1·7	− 1·7	− 2·6	− 3·0	− 3·6	− 4·7	− 3·6	− 4·2	− 3·5	− 2·7	− 3·3	− 3·1	Diff. for 1912. ,,
79·2	79·2	80·0	81·3	83·4	84·2	84·4	84·4	84·5	84·9	85·4	85·2	83·8	Normal. Falmouth.
+ 0·4	0·0	+ 1·4	+ 2·4	+ 0·8	+ 1·5	+ 0·7	+ 1·8	+ 1·3	+ 1·7	+ 1·6	+ 2·2	+ 0·7	Diff. for 1912. ,,
													DECEMBER.
79·9	79·7	80·8	81·2	81·7	82·0	82·4	82·2	82·3	82·4	82·5	82·4	82·1	Normal. Aberdeen.
− 0·1	− 0·2	0·0	+ 1·0	+ 0·5	+ 0·4	+ 1·5	+ 1·2	+ 0·8	+ 1·1	+ 1·3	+ 1·1	0·0	Diff. for 1912. ,,
88·7	88·4	89·4	89·1	89·3	88·4	88·6	87·9	90·4	89·5	90·5	88·5	88·9	1912. Eskdale.
85·5	85·3	85·5	86·5	86·9	87·1	87·2	87·6	88·0	87·9	88·0	87·8	87·2	Normal. Valencia.
+ 1·8	+ 1·4	+ 1·5	+ 1·2	+ 1·1	+ 1·3	+ 1·3	+ 1·5	+ 1·3	+ 1·3	+ 1·0	+ 0·9	+ 1·4	Diff. for 1912. ,,
81·8	81·1	81·9	84·0	85·0	86·1	86·2	86·8	86·8	87·4	87·3	87·9	86·1	Normal. Kew.
− 0·3	+ 0·8	0·0	− 0·6	− 0·5	+ 0·2	+ 0·2	+ 0·5	+ 0·2	+ 0·4	+ 0·2	+ 0·3	0·0	Diff. for 1912. ,,
81·2	81·1	82·0	83·1	84·0	84·2	84·6	84·4	84·7	84·8	84·8	85·0	84·1	Normal. Falmouth.
+ 3·2	+ 2·9	+ 3·4	+ 4·4	+ 3·4	+ 4·9	+ 3·5	+ 3·8	+ 3·8	+ 2·7	+ 3·4	+ 4·9	+ 3·2	Diff. for 1912. ,,
													YEAR.
74·1	73·9	74·6	75·5	76·7	78·0	79·5	80·7	81·7	82·4	83·0	83·4	79·9	Normal. Aberdeen.
+ 1·8	+ 1·7	+ 1·2	+ 1·4	+ 1·1	+ 1·0	+ 1·2	+ 1·5	+ 1·9	+ 1·4	+ 1·3	+ 0·6	+ 1·3	Diff. for 1912. ,,
76·7	76·5	78·0	76·8	78·0	79·6	82·0	83·3	86·5	85·2	85·8	85·9	82·4	1912. Eskdale.
79·2	78·9	79·0	79·5	80·2	81·9	83·3	84·8	85·7	86·4	86·8	87·1	84·2	Normal. Valencia.
+ 1·1	+ 1·5	+ 1·5	+ 1·5	+ 1·1	+ 1·1	+ 0·6	+ 0·8	+ 0·3	+ 0·4	+ 0·2	+ 0·6	+ 0·8	Diff. for 1912. ,,
68·9	67·9	67·9	69·0	70·9	73·5	76·3	79·6	81·6	83·5	84·6	86·0	79·3	Normal. Kew.
+ 0·8	+ 1·1	+ 1·5	+ 1·5	+ 1·1	+ 1·1	+ 0·9	+ 0·5	+ 0·1	+ 0·3	+ 0·3	0·0	+ 0·5	Diff. for 1912. ,,
75·6	75·4	75·8	76·7	78·2	79·9	82·1	84·1	85·3	86·0	86·4	86·8	82·5	Normal. Falmouth.
+ 2·3	+ 2·8	+ 2·5	+ 2·3	+ 1·8	+ 2·3	+ 1·6	+ 1·7	+ 1·1	+ 0·8	+ 0·6	+ 0·9	+ 1·5	Diff. for 1912. ,,

LXIX.-LXXIV.—NORMALS FOR THE MONTHS OF THE HOURLY VALUES WITH DIFFERENCES BETWEEN THE NORMALS

LXXII.—WIND VELOCITY (in Metres per second).

Hour, G.M.T.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.
JANUARY.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.
Aberdeen, Normal.	4·43	4·43	4·43	4·38	4·43	4·52	4·47	4·60	4·65	4·60	4·65	4·87
Difference for 1912	+ 0·84	+ 0·79	+ 1·02	+ 1·10	+ 0·56	+ 0·28	+ 0·75	+ 0·62	+ 0·41	+ 0·95	+ 0·93	+ 1·19
Eskdale, 1912.	5·03	4·82	4·84	4·68	4·50	4·45	4·20	4·38	4·30	4·52	4·98	5·85
Valencia, Normal.	6·48	6·44	6·35	6·30	6·35	6·30	6·35	6·35	6·48	6·39	6·30	6·92
Difference for 1912	− 0·17	− 0·09	− 0·02	+ 0·51	+ 0·16	+ 0·13	+ 0·09	+ 0·02	− 0·08	− 0·29	+ 0·01	− 0·48
Kew, Normal.	3·26	3·31	3·31	3·26	3·35	3·35	3·31	3·40	3·49	3·76	4·20	4·34
Difference for 1912	− 0·22	− 0·38	− 0·29	− 0·11	− 0·12	− 0·33	− 0·30	− 0·19	− 0·13	− 0·33	− 0·98	− 0·54
Falmouth, Normal.	5·01	5·01	5·01	5·01	4·96	4·92	4·92	4·92	5·01	5·05	5·59	5·77
Difference for 1912	− 1·62	− 1·63	− 1·62	− 1·56	− 1·51	− 1·36	− 1·21	− 1·21	− 1·16	− 1·04	− 1·22	− 1·50
FEBRUARY.												
Aberdeen, Normal.	4·34	4·29	4·34	4·29	4·25	4·34	4·34	4·43	4·47	4·60	4·87	5·19
Difference for 1912	− 0·62	− 0·46	− 0·62	− 1·11	− 0·88	− 1·06	− 1·08	− 0·85	− 1·11	− 0·88	− 0·65	− 1·03
Eskdale, 1912.	5·18	5·14	5·12	4·78	4·92	4·67	4·76	5·16	5·28	6 07	6·43	6·63
Valencia, Normal.	6·08	6·04	6·08	5·95	5·99	5·95	5·91	5·86	5·95	5·91	5·91	6·62
Difference for 1912	+ 0·51	+ 0·43	+ 0·53	+ 0·59	+ 0·48	+ 0·34	+ 0·48	+ 0·48	+ 0·25	+ 0·45	+ 0·73	+ 0·28
Kew, Normal.	3·31	3·31	3·26	3·26	3·26	3·31	3·31	3·40	3·76	4·07	4·69	4·87
Difference for 1912	+ 0·30	+ 0·56	+ 0·54	+ 0·51	+ 0·53	+ 0·30	+ 0·15	− 0·18	+ 0·03	+ 0·40	− 0·19	− 0·03
Falmouth, Normal.	4·92	4·92	4·83	4·83	4·74	4·74	4·74	4·87	4·96	5·28	5·72	5·81
Difference for 1912	− 0·36	− 0·12	− 0·10	− 0·09	+ 0·04	− 0·26	− 0·23	− 0·51	− 0·48	− 0·62	− 0·49	− 0·64
MARCH.												
Aberdeen, Normal.	4·11	4·07	4·16	4·11	4·20	4·20	4·34	4·52	4·78	5·01	5·28	5·54
Difference for 1912	− 0·71	− 0·54	− 0·77	− 0·93	− 1·15	− 0·97	− 0·98	− 0·91	− 0·62	− 0·29	0·00	− 0·09
Eskdale, 1912.	6·22	6·13	6·28	6·18	6·25	6·00	5·92	6·21	6·66	6·57	7·12	7·40
Valencia, Normal.	5·45	5·36	5·28	5·19	5·14	5·28	5·19	5·36	5·63	5·86	5·95	6·62
Difference for 1912	+ 0·76	+ 0·88	+ 0·77	+ 0·31	− 0·36	− 0·39	− 0·12	− 0·28	− 0·51	− 0·47	− 0·41	− 0·25
Kew, Normal.	3·13	3·13	3·04	3·09	3·09	3·13	3·26	3·62	4·25	4·65	5·10	5·19
Difference for 1912	+ 0·56	+ 0·82	+ 0·71	+ 0·69	+ 0·50	+ 0·60	+ 0·60	+ 0·93	+ 0·96	+ 1·25	+ 0·39	+ 0·70
Falmouth, Normal.	4·52	4·56	4·52	4·43	4·43	4·43	4·47	4·65	5·05	5·45	5·91	5·99
Difference for 1912	+ 0·65	+ 0·63	+ 0·51	+ 0·58	+ 0·42	+ 0·45	+ 0·20	+ 0·18	− 0·03	− 0·40	− 0·07	− 0·17
APRIL.												
Aberdeen, Normal.	3·26	3·40	3·35	3·31	3·35	3·40	3·67	4·20	4·60	4·92	5·14	5·36
Difference for 1912	− 0·28	− 0·59	− 0·48	− 0·35	− 0·14	− 0·15	− 0·23	− 0·47	− 0·05	+ 0·18	+ 0·32	+ 0·15
Eskdale, 1912.	3·76	3·90	3·86	3·72	4·02	3·68	4·18	4·94	5·91	6·37	7·00	7·07
Valencia, Normal.	4·69	4·65	4·60	4·60	4·60	4·69	4·78	5·10	5·45	5·77	5·86	6·44
Difference for 1912	− 1·03	− 0·77	− 0·98	− 1·13	− 1·05	− 1·16	− 1·56	− 1·56	− 1·70	− 1·69	− 1·26	− 1·53
Kew, Normal.	2·68	2·68	2·60	2·60	2·55	2·77	3·26	3·80	4·25	4·65	5·01	5·19
Difference for 1912	− 0·15	− 0·13	− 0·10	+ 0·03	+ 0·15	− 0·04	− 0·15	− 0·23	− 0·12	− 0·16	− 0·22	− 0·06
Falmouth, Normal.	3·93	3·98	4·02	3·98	3·89	3·89	4·07	4·56	5·01	5·32	5·72	5·63
Difference for 1912	− 1·38	− 1·83	− 1·55	− 1·52	− 1·29	− 1·51	− 1·55	− 1·42	− 1·55	− 1·54	− 1·85	− 1·75
MAY.												
Aberdeen, Normal.	2·73	2·68	2·68	2·77	2·86	3·04	3·44	3·98	4·34	4·56	4·74	4·87
Difference for 1912	− 0·01	+ 0·12	+ 0·17	+ 0·03	+ 0·08	+ 0·28	+ 0·48	+ 0·29	+ 0·01	− 0·10	− 0·36	− 0·22
Eskdale, 1912.	3·73	3·57	3·57	3·39	3·35	3·43	4·00	4·62	5·12	5·35	5·50	6·04
Valencia, Normal.	4·16	4·16	4·16	4·16	4·16	4·16	4·38	4·69	5·14	5·45	5·54	6·04
Difference for 1912	− 1·12	− 1·28	− 1·17	− 1·31	− 1·23	− 1·31	− 1·80	− 1·84	− 1·74	− 1·60	− 1·48	− 1·74
Kew, Normal.	2·33	2·28	2·24	2·24	2·24	2·60	3·17	3·62	4·02	4·29	4·65	4·69
Difference for 1912	− 0·34	− 0·41	− 0·43	− 0·49	− 0·43	− 0·46	− 0·48	− 0·68	− 0·67	− 0·94	− 1·07	− 0·79
Falmouth, Normal.	3·40	3·49	3·40	3·44	3·31	3·35	3·84	4·29	4·56	4·87	5·14	5·10
Difference for 1912	− 1·37	− 1·42	− 1·32	− 1·41	− 1·41	− 1·33	− 1·55	− 1·51	− 1·34	− 1·42	− 1·27	− 1·19
JUNE.												
Aberdeen, Normal.	2·37	2·37	2·41	2·46	2·55	2·77	3·13	3·49	3·80	4·02	4·34	4·47
Difference for 1912	− 0·05	+ 0·03	− 0·08	+ 0·04	+ 0·02	− 0·10	− 0·32	− 0·26	− 0·45	− 0·44	− 0·52	− 0·59
Eskdale, 1912.	3·48	3·50	3·55	3·55	3·77	4·14	4·59	5·20	5·32	5·41	5·38	5·79
Valencia, Normal.	3·71	3·62	3·62	3·62	3·62	3·76	3·98	4·34	4·74	5·01	5·23	5·63
Difference for 1912	+ 0·54	+ 0·65	+ 0·62	+ 0·46	+ 0·34	+ 0·36	+ 0·24	+ 0·04	+ 0·08	+ 0·23	− 0·03	− 0·05
Kew, Normal.	2·06	2·01	1·97	1·92	2·06	2·50	2·95	3·26	3·58	3·80	4·16	4·16
Difference for 1912	+ 0·11	− 0·12	− 0·05	+ 0·11	+ 0·18	+ 0·12	+ 0·19	+ 0·24	+ 0·31	+ 0·68	+ 0·17	+ 0·44
Falmouth, Normal.	3·13	3·09	3·09	3·00	2·95	3·17	3·58	3·89	4·25	4·47	4·78	4·74
Difference for 1912	− 0·35	− 0·20	− 0·39	− 0·26	− 0·29	− 0·31	− 0·57	− 0·36	− 0·46	− 0·16	− 0·29	− 0·05

At Aberdeen, Valencia, Kew, and Falmouth, the velocity of the wind is obtained from the records of a Robinson cup-anemometer having cups 9 inches (0·23 metre) in diameter carried on arms measuring 2 feet (0·61 metre) from the centre of the cup to the spindle. The hourly velocity is the travel of the cups in the sixty minutes from half an hour before to half an hour after the hour, reduced to miles per hour by multiplying by the factor 2·2, and converted to metres per second.

At Eskdalemuir the values are obtained from the records of a pressure-tube anemometer.

OF THE METEOROLOGICAL ELEMENTS AT THE FIVE OBSERVATORIES AND THE VALUES FOR 1912.

JANUARY TO JUNE.

13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.	Hour, G.M.T.
m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	JANUARY.
4·92	4·92	4·78	4·74	4·69	4·65	4·65	4·65	4·52	4·47	4·47	4·47	4·60	Normal. Aberdeen.
+ 1·13	+ 1·08	+ 1·06	+ 1·00	+ 1·22	+ 1·02	+ 1·03	+ 1·06	+ 0·89	+ 0·78	+ 0·88	+ 1·05	+ 0·90	Diff. for 1912. ,,
6·09	5·94	5·94	5·45	5·24	5·22	5·12	5·15	5·02	4·85	4·78	5·04	5·02	1912. Eskdale.
7·15	7·20	7·15	6·88	6·70	6·53	6·48	6·35	6·44	6·57	6·62	6·57	6·57	Normal. Valencia.
− 0·30	− 0·97	− 1·12	− 1·05	− 1·22	− 0·84	− 0·64	− 0·65	− 0·54	− 0·53	− 0·63	− 0·45	− 0·38	Diff. for 1912. ,,
4·34	4·34	4·11	3·80	3·76	3·67	3·71	3·67	3·58	3·53	3·40	3·40	3·65	Normal. Kew.
− 0·47	− 0·41	− 0·58	− 0·20	− 0·56	− 0·49	− 0·47	− 0·35	− 0·27	− 0·21	− 0·29	− 0·27	− 0·35	Diff. for 1912. ,,
5·95	5·86	5·77	5·45	5·32	5·14	5·10	5·10	5·14	5·01	5·01	5·10	5·21	Normal. Falmouth.
− 1·80	− 1·55	− 1·67	− 1·70	− 1·77	− 1·54	− 1·50	− 1·63	− 1·75	− 1·35	− 1·50	− 1·50	− 1·49	Diff. for 1912. ,,
													FEBRUARY.
5·19	5·23	5·01	4·74	4·47	4·43	4·38	4·34	4·38	4·38	4·29	4·34	4·54	Normal. Aberdeen.
− 0·92	− 0·94	− 0·78	− 0·75	− 0·60	− 0·45	− 0·57	− 0·74	− 0·70	− 0·74	− 0·13	− 0·11	− 0·74	Diff. for 1912. ,,
7·07	7·17	6·56	5·98	6·15	5·58	5·27	5·50	5·40	5·38	5·03	5·40	5·61	1912. Eskdale.
6·92	6·97	7·02	6·79	6·57	6·17	6·08	5·99	6·08	6·17	6·12	6·12	6·22	Normal. Valencia.
+ 0·10	− 0·02	− 0·06	− 0·04	− 0·16	+ 0·54	+ 0·75	+ 0·62	+ 0·73	+ 0·40	+ 0·31	+ 0·34	+ 0·38	Diff. for 1912. ,,
4·96	4·87	4·74	4·43	4·02	3·80	3·76	3·62	3·62	3·44	3·40	3·31	3·82	Normal. Kew.
− 0·05	+ 0·21	+ 0·25	+ 0·68	+ 0·52	+ 0·52	+ 0·13	+ 0·51	+ 0·29	+ 0·49	+ 0·31	+ 0·53	+ 0·31	Diff. for 1912. ,,
5·91	5·95	5·81	5·63	5·32	4·96	4·96	5·01	4·96	4·92	4·87	4·87	5·15	Normal. Falmouth.
− 0·85	− 0·98	− 0·91	− 0·86	− 0·93	− 0·72	− 0·53	− 0·26	− 0·21	− 0·15	0·00	+ 0·02	− 0·43	Diff. for 1912. ,,
													MARCH.
5·50	5·41	5·36	5·14	4·69	4·43	4·25	4·11	4·11	4·11	4·16	4·16	4·57	Normal. Aberdeen.
+ 0·01	0·00	− 0·12	− 0·36	− 0·22	− 0·53	− 0·32	− 0·36	− 0·30	− 0·40	− 0·61	− 0·55	− 0·49	Diff. for 1912. ,,
7·89	8·23	8·28	7·41	6·88	6·46	6·03	5·64	5·34	5·37	5·49	5·85	6·49	1912. Eskdale.
6·84	6·92	6·84	6·75	6·53	6·17	5·86	5·68	5·63	5·54	5·45	5·45	5·83	Normal. Valencia.
− 0·25	− 0·65	− 0·39	+ 0·05	+ 0·45	+ 0·52	+ 0·91	+ 0·93	+ 1·06	+ 1·26	+ 1·08	+ 1·44	+ 0·27	Diff. for 1912. ,,
5·23	5·23	5·05	4·92	4·47	3·93	3·67	3·53	3·53	3·26	3·17	3·13	3·91	Normal. Kew.
+ 0·59	+ 0·66	+ 0·49	+ 0·12	+ 0·29	+ 0·30	+ 0·25	+ 0·29	+ 0·31	+ 0·70	+ 0·74	+ 0·56	+ 0·58	Diff. for 1912. ,,
6·08	6·12	5·99	5·86	5·54	5·05	4·74	4·56	4·52	4·56	4·52	4·47	5·02	Normal. Falmouth.
− 0·19	+ 0·25	+ 0·32	+ 0·36	+ 0·38	+ 0·26	+ 0·40	+ 0·34	+ 0·40	+ 0·31	+ 0·53	+ 0·93	+ 0·30	Diff. for 1912. ,,
													APRIL.
5·41	5·36	5·28	5·10	4·74	4·38	3·84	3·49	3·49	3·35	3·31	3·31	4·13	Normal. Aberdeen.
+ 0·08	+ 0·14	+ 0·31	− 0·09	− 0·06	− 0·13	− 0·22	− 0·35	− 0·70	− 0·60	− 0·74	− 0·78	− 0·22	Diff. for 1912. ,,
7·27	7·09	7·35	7·06	6·31	6·06	5·46	4·35	3·89	3·83	3·77	3·53	5·18	1912. Eskdale.
6·66	6·66	6·66	6·66	6·44	6·08	5·59	5·14	4·96	4·78	4·74	4·74	5·43	Normal. Valencia.
− 1·53	− 1·49	− 1·48	− 1·65	− 1·83	− 1·65	− 1·91	− 1·85	− 1·48	− 1·13	− 1·21	− 1·14	− 1·41	Diff. for 1912. ,,
5·23	5·23	5·23	5·14	4·83	4·29	3·84	3·44	3·26	3·00	2·86	2·68	3·79	Normal. Kew.
+ 0·29	+ 0·19	+ 0·01	+ 0·07	+ 0·22	+ 0·22	+ 0·01	− 0·08	− 0·13	+ 0·11	− 0·02	− 0·15	− 0·01	Diff. for 1912. ,,
5·72	5·72	5·68	5·54	5·32	4·92	4·38	4·16	4·07	4·02	3·93	3·98	4·64	Normal. Falmouth.
− 1·82	− 1·77	− 1·93	− 1·93	− 1·97	− 1·95	− 1·70	− 1·57	− 1·42	− 1·56	− 1·42	− 1·59	− 1·64	Diff. for 1912. ,,
													MAY.
4·96	4·96	4·83	4·69	4·43	4·16	3·62	3·17	2·95	2·82	2·77	2·73	3·70	Normal. Aberdeen.
− 0·22	− 0·12	− 0·08	+ 0·02	− 0·20	− 0·21	− 0·20	− 0·20	− 0·47	− 0·15	− 0·31	− 0·03	− 0·06	Diff. for 1912. ,,
6·41	5·95	6·23	6·16	6·09	5·86	5·17	4·45	3·65	3·47	3·79	4·20	4·71	1912. Eskdale.
6·25	6·30	6·30	6·25	6·08	5·72	5·23	4·74	4·38	4·20	4·20	4·20	5·00	Normal. Valencia.
− 1·59	− 1·37	− 1·55	− 1·31	− 1·53	− 1·30	− 1·31	− 1·60	− 1·30	− 1·36	− 1·23	− 1·28	− 1·43	Diff. for 1912. ,,
4·83	4·69	4·74	4·69	4·52	4·11	3·62	3·13	2·86	2·64	2·50	2·37	3·46	Normal. Kew.
− 0·64	− 0·34	− 0·42	− 0·38	− 0·33	− 0·36	− 0·28	− 0·16	− 0·35	− 0·35	− 0·50	− 0·42	− 0·49	Diff. for 1912. ,,
5·23	5·19	5·14	5·05	4·83	4·52	4·16	3·67	3·53	3·40	3·35	3·40	4·15	Normal. Falmouth.
− 1·36	− 1·46	− 1·40	− 1·33	− 1·18	− 1·21	− 1·33	− 1·29	− 1·40	− 1·43	− 1·48	− 1·42	− 1·37	Diff. for 1912. ,,
													JUNE.
4·52	4·47	4·43	4·20	3·98	3·67	3·31	2·86	2·55	2·46	2·37	2·37	3·31	Normal. Aberdeen.
− 0·62	− 0·40	− 0·58	− 0·65	− 0·54	− 0·40	− 0·31	− 0·14	− 0·22	− 0·19	0·00	+ 0·06	− 0·28	Diff. for 1912. ,,
5·94	5·67	5·60	5·70	5·67	5·39	4·84	4·14	3·55	3·32	3·35	3·28	4·59	1912. Eskdale.
5·86	5·95	5·95	5·81	5·68	5·36	4·92	4·43	4·11	3·84	3·76	3·76	4·60	Normal. Valencia.
+ 0·10	− 0·04	− 0·33	− 0·38	− 0·03	− 0·01	− 0·15	+ 0·20	+ 0·23	+ 0·38	+ 0·60	+ 0·65	+ 0·19	Diff. for 1912. ,,
4·20	4·29	4·34	4·25	4·16	3·89	3·40	2·86	2·68	2·46	2·28	2·15	3·14	Normal. Kew.
+ 0·69	+ 0·96	+ 0·94	+ 0·36	+ 0·53	+ 0·57	+ 0·30	+ 0·17	+ 0·05	+ 0·03	+ 0·04	+ 0·31	+ 0·31	Diff. for 1912. ,,
4·87	4·87	4·87	4·74	4·60	4·34	3·93	3·40	3·17	3·09	3·09	3·13	3·84	Normal. Falmouth.
+ 0·13	+ 0·19	+ 0·14	+ 0·16	+ 0·47	+ 0·26	+ 0·22	+ 0·22	+ 0·05	0·00	− 0·16	− 0·11	− 0·08	Diff. for 1912. ,,

The heights of the anemometers above the general surface of the ground are:—Aberdeen, 22·9 metres; Eskdalemuir, 15·0 metres; Valencia, 13·9 metres; Kew, 19·8 metres, and Falmouth, 12·5 metres.

The heights of the cups of the Robinson anemometers above the roofs of the buildings on which the instruments are erected are:—Aberdeen, 3·7 metres; Valencia, 2·1 metres; Kew, 2·1 metres; Falmouth, 4·0 metres.

The normals for wind velocity are for the 30 years, 1881–1910.

The values for 1912 are given by the excess or defect from the normal; + indicates excess, − defect.

LXIX.-LXXIV.—NORMALS FOR THE MONTHS OF THE HOURLY VALUES WITH DIFFERENCES BETWEEN THE NORMALS

LXXII.—*continued*—WIND VELOCITY (in Metres per Second).

Hour, G.M.T.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.
JULY.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.
Aberdeen, Normal.	2·37	2·37	2·37	2·37	2·37	2·55	2·95	3·35	3·71	3·89	4·16	4·20
Difference for 1912	+ 0·07	+ 0·27	+ 0·15	+ 0·09	+ 0·24	+ 0·22	+ 0·10	+ 0·18	− 0·16	− 0·13	− 0·10	+ 0·07
Eskdale, 1912.	3·36	3·27	3·34	3·23	3·33	3·68	4·32	4·82	4·98	5·48	5·68	5·89
Valencia, Normal.	3·67	3·71	3·67	3·67	3·62	3·67	3·89	4·25	4·69	4·92	5·05	5·54
Difference for 1912	− 0·36	− 0·35	− 0·48	− 0·27	− 0·32	− 0·13	− 0·29	− 0·52	− 0·21	− 0·53	− 0·52	− 0·34
Kew, Normal.	1·88	1·83	1·79	1·79	1·79	2·19	2·64	3·04	3·40	3·67	3·93	3·98
Difference for 1912	+ 0·19	+ 0·28	+ 0·14	+ 0·13	+ 0·25	+ 0·10	+ 0·06	+ 0·21	+ 0·05	+ 0·14	+ 0·07	+ 0·18
Falmouth, Normal.	3·04	3·09	3·04	2·91	2·91	3·00	3·44	3·89	4·25	4·52	4·92	4·92
Difference for 1912	− 0·39	− 0·09	− 0·08	+ 0·01	− 0·03	− 0·19	− 0·31	− 0·49	− 0·78	− 0·98	− 0·97	− 1·17
AUGUST.												
Aberdeen, Normal.	2·50	2·46	2·46	2·46	2·41	2·55	2·82	3·31	3·67	3·93	4·16	4·34
Difference for 1912	+ 0·39	+ 0·46	+ 0·50	+ 0·49	+ 0·40	+ 0·18	+ 0·19	+ 0·21	+ 0·28	− 0·06	+ 0·58	+ 0·15
Eskdale, 1912.	2·84	2·60	2·87	2·88	2·77	2·76	3·24	3·96	4·59	4·73	5·05	5·37
Valencia, Normal.	4·16	4·07	4·02	4·02	4·02	3·93	4·07	4·43	4·87	5·10	5·23	5·72
Difference for 1912	− 0·66	− 0·31	− 0·10	− 0·25	− 0·66	− 0·61	− 0·53	− 0·68	− 0·86	− 0·95	− 0·98	− 0·93
Kew, Normal.	2·01	1·92	1·88	1·88	1·88	2·06	2·50	3·09	3·53	3·80	4·11	4·16
Difference for 1912	+ 1·25	+ 1·25	+ 1·18	+ 0·99	+ 1·09	+ 1·07	+ 0·92	+ 0·76	+ 0·58	+ 0·68	+ 0·33	+ 0·55
Falmouth, Normal.	3·17	3·22	3·13	3·13	3·04	3·09	3·40	3·93	4·43	4·74	5·10	5·14
Difference for 1912	+ 0·07	+ 0·10	+ 0·19	+ 0·03	+ 0·17	+ 0·03	− 0·05	− 0·08	− 0·17	− 0·48	+ 0·18	− 0·18
SEPTEMBER.												
Aberdeen, Normal.	2·77	2·77	2·82	2·82	2·82	2·86	2·95	3·31	3·62	3·89	4·20	4·34
Difference for 1912	+ 0·64	+ 0·60	+ 0·62	+ 0·48	+ 0·55	+ 0·52	+ 0·52	+ 0·54	+ 0·85	+ 0·88	+ 0·71	+ 0·83
Eskdale, 1912.	3·59	3·59	3·93	3·58	3·67	3·96	4·09	4·13	4·21	4·81	5·42	5·87
Valencia, Normal.	4·20	4·29	4·29	4·38	4·34	4·34	4·34	4·43	4·83	5·05	5·14	5·72
Difference for 1912	− 0·68	− 0·78	− 0·93	− 0·97	− 0·82	− 0·77	− 0·66	− 0·73	− 0·84	− 0·92	− 0·85	− 0·84
Kew, Normal.	1·83	1·79	1·88	1·88	1·83	1·92	2·10	2·60	3·09	3·53	3·93	3·93
Difference for 1912	+ 0·78	+ 0·91	+ 0·77	+ 0·65	+ 0·60	+ 0·48	+ 0·50	+ 0·56	+ 1·06	+ 1·54	+ 0·64	+ 1·04
Falmouth, Normal.	3·09	3·09	3·04	3·04	2·95	3·00	3·09	3·53	4·02	4·29	4·74	4·78
Difference for 1912	+ 0·19	+ 0·05	− 0·02	− 0·16	− 0·06	+ 0·10	− 0·02	− 0·24	− 0·39	− 0·89	− 0·46	− 0·87
OCTOBER.												
Aberdeen, Normal.	3·89	3·89	3·84	3·84	3·80	3·80	3·89	4·02	4·25	4·47	4·65	4·83
Difference for 1912	− 0·41	− 0·46	− 0·45	− 0·20	− 0·27	− 0·20	− 0·36	− 0·09	− 0·14	− 0·37	− 0·42	− 0·08
Eskdale, 1912.	3·58	3·76	3·73	3·93	3·86	4·08	4·21	4·87	5·33	5·64	6·58	6·73
Valencia, Normal.	5·05	5·10	5·05	5·14	5·14	5·14	5·10	5·19	5·32	5·50	5·63	6·17
Difference for 1912	+ 0·18	+ 0·09	+ 0·37	− 0·02	+ 0·18	+ 0·29	+ 0·30	+ 0·16	+ 0·38	+ 0·30	+ 0·44	+ 0·35
Kew, Normal.	2·37	2·41	2·37	2·37	2·41	2·46	2·55	2·73	3·22	3·58	4·16	4·29
Difference for 1912	+ 0·30	− 0·05	− 0·04	− 0·06	− 0·21	− 0·05	− 0·25	− 0·07	− 0·62	− 0·34	− 0·65	− 0·44
Falmouth, Normal.	3·93	3·93	3·89	3·89	3·89	3·84	3·80	3·93	4·34	4·78	5·23	5·19
Difference for 1912	− 0·41	− 0·41	− 0·45	− 0·37	− 0·32	− 0·45	− 0·43	− 0·48	− 0·59	− 0·63	− 0·17	− 0·44
NOVEMBER.												
Aberdeen, Normal.	4·16	4·11	4·07	4·07	4·07	4·11	4·16	4·29	4·34	4·34	4·52	4·69
Difference for 1912	+ 0·21	+ 0·21	+ 0·05	− 0·15	0·00	− 0·11	+ 0·04	− 0·05	− 0·11	− 0·06	+ 0·07	+ 0·34
Eskdale, 1912.	5·93	5·87	5·91	6·12	5·89	5·70	5·81	6·04	6·07	6·47	6·79	7·21
Valencia, Normal.	5·81	5·63	5·72	5·63	5·68	5·59	5·68	5·63	5·72	5·68	5·63	6·25
Difference for 1912	− 0·14	− 0·11	− 0·17	0·00	+ 0·46	+ 0·15	+ 0·04	+ 0·12	+ 0·51	+ 0·13	− 0·04	+ 0·03
Kew, Normal.	2·95	2·95	2·95	3·00	2·95	2·86	2·91	2·95	3·26	3·44	4·02	4·20
Difference for 1912	− 0·10	− 0·13	− 0·08	− 0·12	− 0·07	+ 0·01	− 0·13	0·00	− 0·02	− 0·07	− 0·74	− 0·23
Falmouth, Normal.	4·47	4·56	4·47	4·52	4·43	4·38	4·43	4·43	4·56	4·78	5·19	5·32
Difference for 1912	− 0·66	− 0·60	− 0·41	− 0·77	− 0·67	− 0·67	− 0·80	− 0·83	− 0·81	− 1·02	− 0·25	− 0·58
DECEMBER.												
Aberdeen, Normal.	4·34	4·38	4·38	4·38	4·38	4·34	4·38	4·47	4·47	4·47	4·52	4·65
Difference for 1912	− 0·04	+ 0·05	− 0·38	− 0·33	− 0·40	− 0·25	− 0·32	− 0·31	− 0·45	− 0·43	− 0·50	− 0·33
Eskdale, 1912.	7·63	7·70	7·73	8·01	8·12	8·56	8·58	8·84	8·98	9·02	9·00	8·80
Valencia, Normal.	6·48	6·48	6·53	6·44	6·44	6·39	6·30	6·25	6·30	6·17	6·12	6·66
Difference for 1912	+ 0·97	+ 1·24	+ 1·28	+ 1·36	+ 1·15	+ 1·10	+ 1·15	+ 0·55	+ 0·91	+ 0·95	+ 1·10	+ 1·37
Kew, Normal.	3·35	3·40	3·31	3·40	3·35	3·40	3·44	3·49	3·62	3·71	4·11	4·29
Difference for 1912	+ 0·95	+ 0·81	+ 0·86	+ 0·80	+ 0·57	+ 0·46	+ 0·59	+ 0·56	+ 0·65	+ 1·07	+ 0·77	+ 0·96
Falmouth, Normal.	5·14	5·19	5·14	5·14	5·10	5·14	5·05	5·10	5·01	5·19	5·59	5·72
Difference for 1912	− 0·02	+ 0·04	+ 0·18	+ 0·11	+ 0·05	+ 0·10	+ 0·19	+ 0·38	+ 0·90	+ 0·42	+ 1·59	+ 1·24
YEAR.												
Aberdeen, Normal.	3·44	3·44	3·44	3·44	3·44	3·53	3·71	3·98	4·25	4·38	4·60	4·78
Difference for 1912	0·00	+ 0·04	− 0·02	− 0·07	− 0·06	− 0·10	− 0·10	− 0·07	− 0·15	− 0·05	+ 0·01	+ 0·03
Eskdale, 1912.	4·51	4·47	4·54	4·49	4·52	4·58	4·81	5·25	5·56	5·87	6·25	6·55
Valencia, Normal.	5·01	4·96	4·96	4·92	4·92	4·92	5·01	5·14	5·41	5·54	5·63	6·21
Difference for 1912	− 0·12	− 0·03	− 0·04	− 0·05	− 0·14	− 0·16	− 0·24	− 0·34	− 0·30	− 0·34	− 0·27	− 0·36
Kew, Normal.	2·60	2·60	2·55	2·55	2·55	2·73	2·95	3·26	3·62	3·89	4·34	4·43
Difference for 1912	+ 0·30	+ 0 27	+ 0·27	+ 0·27	+ 0·26	+ 0·17	+ 0·14	+ 0·15	+ 0·17	+ 0·35	− 0·13	+ 0·16
Falmouth, Normal.	3·98	3·98	3·98	3·93	3·89	3·89	4·07	4·34	4·60	4·87	5·28	5·32
Difference for 1912	− 0·47	− 0·43	− 0·44	− 0·44	− 0·41	− 0·43	− 0·53	− 0·55	− 0·55	− 0·70	− 0·42	− 0·59

OF THE METEOROLOGICAL ELEMENTS AT THE FIVE OBSERVATORIES AND THE VALUES FOR 1912.

JULY TO DECEMBER AND YEAR.

13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.	Hour, G.M.T.
m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	JULY.
4·29	4·29	4·25	4·07	3·80	3·53	3·09	2·73	2·46	2·33	2·37	2·37	3·18	Normal. Aberdeen.
− 0·23	− 0·04	− 0·28	− 0·11	− 0·04	− 0·08	− 0·05	− 0·11	+ 0·14	+ 0·23	− 0·02	+ 0·18	+ 0·02	Diff. for 1912. ,,
5·93	6·12	5·72	5·67	5·51	4·93	4·41	3·76	3·45	3·41	3·37	3·60	4·47	1912. Eskdale.
5·72	5·81	5·81	5·63	5·54	5·28	4·87	4·34	3·98	3·80	3·71	3·76	4·53	Normal. Valencia.
− 0·25	− 0·45	− 0·40	− 0·50	− 0·34	− 0·46	− 0·55	− 0·57	− 0·58	− 0·57	− 0·35	− 0·49	− 0·41	Diff. for 1912. ,,
4·07	4·16	4·11	4·07	3·93	3·58	3·17	2·68	2·41	2·24	2·06	1·97	2·93	Normal. Kew.
+ 0·41	+ 0·36	+ 0·25	+ 0·15	+ 0·32	+ 0·44	+ 0·34	+ 0·24	+ 0·21	+ 0·21	+ 0·17	+ 0·28	+ 0·22	Diff. for 1912. ,,
4·96	5·01	4·96	4·87	4·74	4·43	3·93	3·40	3·22	3·13	3·09	3·09	3·86	Normal. Falmouth.
− 0·94	− 1·02	− 1·10	− 1·09	− 0·89	− 0·90	− 0·66	− 0·55	− 0·52	− 0·55	− 0·55	− 0·39	− 0·60	Diff. for 1912. ,,
													AUGUST.
4·34	4·29	4·16	3·98	3·71	3·35	2·95	2·73	2·68	2·64	2·55	2·50	3·21	Normal. Aberdeen.
− 0·14	− 0·11	− 0·10	+ 0·03	− 0·22	+ 0·10	+ 0·22	+ 0·30	+ 0·15	+ 0·27	+ 0·43	+ 0·42	+ 0·21	Diff. for 1912. ,,
5·66	5·71	5·64	5·56	5·16	4·96	4·38	3·74	3·39	3·20	3·16	3·15	4·06	1912. Eskdale.
5·95	5·95	5·99	5·86	5·63	5·28	4·74	4·38	4·20	4·11	4·11	4·11	4·75	Normal. Valencia.
− 0·76	− 0·73	− 0·49	− 0·42	− 0·36	− 0·37	− 0·49	− 0·59	− 0·42	− 0·68	− 0·63	− 0·61	− 0·59	Diff. for 1912. ,,
4·25	4·29	4·29	4·16	3·98	3·58	3·00	2·64	2·50	2·28	2·15	2·10	3·00	Normal. Kew.
+ 0·53	+ 0·43	+ 0·30	− 0·06	+ 0·08	+ 0·11	+ 0·04	+ 0·16	+ 0·36	+ 0·50	+ 0·86	+ 0·98	+ 0·62	Diff. for 1912. ,,
5·19	5·23	5·23	5·01	4·78	4·43	3·76	3·31	3·26	3·22	3·13	3·17	3·97	Normal. Falmouth.
− 0·30	− 0·45	− 0·38	− 0·23	− 0·06	− 0·34	− 0·09	+ 0·13	+ 0·29	+ 0·44	+ 0·33	+ 0·19	− 0·03	Diff. for 1912. ,,
													SEPTEMBER.
4·34	4·38	4·25	3·98	3·53	3·13	2·91	2·91	2·82	2·91	2·82	2·82	3·33	Normal. Aberdeen.
+ 1·13	+ 0·85	+ 0·79	+ 0·98	+ 1·05	+ 1·06	+ 1·06	+ 0·73	+ 0·89	+ 0·76	+ 0·91	+ 1·04	+ 0·79	Diff. for 1912. ,,
5·97	5·76	5·63	5·40	4·88	4·57	4·25	4·24	3·58	3·31	3·27	3·63	4·39	1912. Eskdale.
5·95	5·81	5·86	5·68	5·41	4·92	4·56	4·34	4·34	4·29	4·29	4·29	4·80	Normal. Valencia.
− 0·60	− 0·50	− 0·13	− 0·26	− 0·07	+ 0·05	− 0·30	− 0·39	− 0·54	− 0·77	− 0·61	− 0·73	− 0·61	Diff. for 1912. ,,
4·02	4·07	3·93	3·71	3·35	2·82	2·46	2·41	2·28	2·15	2·01	1·88	2·73	Normal. Kew.
+ 0·99	+ 1·11	+ 1·19	+ 1·37	+ 1·16	+ 0·99	+ 0·92	+ 0·76	+ 0·67	+ 0·67	+ 0·63	+ 0·89	+ 0·87	Diff. for 1912. ,,
4·83	4·83	4·69	4·52	4·11	3·67	3·31	3·26	3·22	3·22	3·17	3·17	3·69	Normal. Falmouth.
− 0·82	− 0·83	− 0·69	− 0·81	− 0·29	− 0·25	− 0·02	− 0·04	− 0·24	− 0·27	− 0·17	+ 0·04	− 0·29	Diff. for 1912. ,,
													OCTOBER.
4·78	4·74	4·52	4·11	3·89	3·76	3·71	3·76	3·80	3·80	3·84	3·89	4·07	Normal. Aberdeen.
− 0·10	− 0·19	+ 0·09	+ 0·02	− 0·03	+ 0·05	+ 0·14	+ 0·04	− 0·07	− 0·05	− 0·45	− 0·59	− 0·19	Diff. for 1912. ,,
6·98	6·83	6·64	6·12	5·47	5·03	4·69	4·24	3·84	3·93	4·00	3·93	4·92	1912. Eskdale.
6·30	6·35	6·35	6·08	5·77	5·50	5·28	5·23	5·14	5·14	5·14	5·10	5·45	Normal. Valencia.
+ 0·14	+ 0·09	− 0·12	+ 0·16	+ 0·22	− 0·09	+ 0·08	+ 0·28	+ 0·21	+ 0·16	+ 0·17	+ 0·27	+ 0·19	Diff. for 1912. ,,
4·29	4·16	3·89	3·53	3·09	2·86	2·73	2·64	2·60	2·55	2·50	2·41	3·01	Normal. Kew.
− 0·20	+ 0·03	− 0·21	− 0·09	− 0·09	− 0·08	− 0·02	− 0·05	+ 0·03	− 0·02	− 0·13	+ 0·15	− 0·13	Diff. for 1912. ,,
5·23	5·14	4·96	4·69	4·29	4·11	3·98	3·98	3·93	3·89	3·93	3·93	4·28	Normal. Falmouth.
− 0·58	− 0·61	− 0·51	− 0·77	− 0·50	− 0·28	− 0·04	− 0·22	− 0·23	− 0·40	− 0·51	− 0·61	− 0·43	Diff. for 1912. ,,
													NOVEMBER.
4·69	4·52	4·38	4·20	4·20	4·25	4·20	4·25	4·16	4·16	4·11	4·20	4·26	Normal. Aberdeen.
+ 0·39	+ 0·12	+ 0·24	+ 0·14	− 0·04	− 0·30	− 0·17	+ 0·01	+ 0·16	+ 0·17	+ 0·25	+ 0·52	+ 0·08	Diff. for 1912. ,,
6·89	6·75	6·53	6·49	6·20	6·13	5·78	5·68	5·54	5·62	5·91	6·00	6·14	1912. Eskdale.
6·39	6·44	6·35	6·12	5·95	5·91	5·91	5·91	5·81	5·86	5·86	5·86	5·88	Normal. Valencia.
+ 0·07	− 0·03	+ 0·21	+ 0·25	+ 0·25	− 0·16	− 0·29	− 0·12	− 0·01	+ 0·36	+ 0·14	− 0·07	+ 0·06	Diff. for 1912. ,,
4·25	4·20	3·93	3·53	3·35	3·31	3·26	3·22	3·17	3·09	3·04	2·95	3·32	Normal. Kew.
− 0·17	− 0·06	− 0·12	− 0·01	− 0·12	+ 0·04	− 0·25	− 0·05	− 0·15	− 0·22	− 0·42	− 0·10	− 0·14	Diff. for 1912. ,,
5·41	5·36	5·10	4·74	4·60	4·47	4·47	4·52	4·47	4·43	4·38	4·47	4·67	Normal. Falmouth.
− 0·82	− 0·81	− 0·89	− 0·82	− 0·82	− 0·90	− 0·82	− 0·78	− 0·84	− 0·98	− 0·79	− 0·84	− 0·76	Diff. for 1912. ,,
													DECEMBER.
4·60	4·47	4·43	4·34	4·34	4·25	4·34	4·34	4·34	4·38	4·34	4·38	4·40	Normal. Aberdeen.
− 0·23	+ 0·14	+ 0·05	− 0·01	+ 0·05	+ 0·32	− 0·29	− 0·30	+ 0·01	− 0·17	+ 0·14	− 0·08	− 0·17	Diff. for 1912. ,,
9·15	9·34	8·95	8·23	8·18	8·55	8·72	8·99	8·52	8·16	8·13	8·02	8·50	1912. Eskdale.
6·84	6·84	6·70	6·62	6·53	6·44	6·48	6·39	6·48	6·53	6·48	6·57	6·48	Normal. Valencia.
+ 1·32	+ 1·10	+ 1·12	+ 0·84	+ 0·88	+ 0·87	+ 0·52	+ 0·59	+ 0·29	+ 0·57	+ 0·67	+ 0·77	+ 0·94	Diff. for 1912. ,,
4·34	4·20	3·93	3·67	3·62	3·62	3·58	3·53	3·58	3·49	3·44	3·49	3·64	Normal. Kew.
+ 1·14	+ 1·03	+ 1·05	+ 0·95	+ 1·13	+ 1·06	+ 1·06	+ 1·25	+ 1·37	+ 1·39	+ 1·46	+ 1·21	0·96	Diff. for 1912. ,,
5·77	5·72	5·45	5·23	5·05	5·05	4·96	5·01	5·10	5·10	5·10	5·10	5·26	Normal. Falmouth.
+ 1·46	+ 1·21	+ 1·13	+ 0·65	+ 0·55	+ 0·46	+ 0·63	+ 0·34	+ 0·52	+ 0·37	+ 0·43	+ 0·17	+ 0·50	Diff. for 1912. ,,
													YEAR.
4·78	4·74	4·65	4·43	4·20	3·98	3·76	3·62	3·53	3·49	3·44	3·44	3·94	Normal. Aberdeen.
+ 0·04	+ 0·06	+ 0·04	+ 0·03	+ 0·04	+ 0·06	+ 0·04	− 0·01	− 0·03	− 0·01	+ 0·04	+ 0·12	− 0·01	Diff. for 1912. ,,
6·77	6·71	6·59	6·27	5·98	5·73	5·34	4·99	4·60	4·48	4·49	4·62	5·33	1912. Eskdale.
6·39	6·44	6·44	6·25	6·08	5·77	5·50	5·23	5·14	5·05	5·05	5·05	5·46	Normal. Valencia.
− 0·28	− 0·42	− 0·42	− 0·35	− 0·32	− 0·23	− 0·28	− 0·25	− 0·21	− 0·14	− 0·15	− 0·12	− 0·23	Diff. for 1912. ,,
4·52	4·47	4·34	4·16	3·93	3·62	3·35	3·13	3·00	2·86	2·73	2·64	3·37	Normal. Kew.
+ 0·24	+ 0·35	+ 0·28	+ 0·24	+ 0·25	+ 0·27	+ 0·17	+ 0·20	+ 0·20	+ 0·26	+ 0·24	+ 0·34	+ 0·22	Diff. for 1912. ,,
5·41	5·41	5·32	5·10	4·87	4·60	4·29	4·11	4·02	3·98	3·93	3·98	4·46	Normal. Falmouth.
− 0·64	− 0·65	− 0·67	− 0·69	− 0·58	− 0·60	− 0·44	− 0·44	− 0·42	− 0·44	− 0·41	− 0·42	− 0·52	Diff. for 1912. ,,

LXIX.–LXXIV.—NORMALS FOR THE MONTHS OF THE HOURLY VALUES WITH DIFFERENCES BETWEEN THE NORMALS

LXXIII.—RAINFALL IN MILLIMETRES.

Hour, G.M.T.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.
JANUARY.	mm.	mm.	mm.	mm.	mm.	mm.	mm	mm.	mm.	mm.	mm.	mm.
Aberdeen, Normal.	0·06	0·08	0·07	0·08	0·08	0·08	0·09	0·09	0·09	0·07	0·06	0·07
Difference for 1912	+ 0·03	− 0·04	0·00	+ 0·02	+ 0·07	+ 0·05	+ 0·04	+ 0·04	+ 0·02	+ 0·04	− 0·04	− 0·03
Eskdale, 1912.	0·06	0·12	0·22	0·29	0·27	0·18	0·14	0·18	0·09	0·06	0·11	0·19
Valencia, Normal.	0·21	0·19	0·20	0·21	0·21	0·18	0·20	0·20	0·22	0·19	0·16	0·18
Difference for 1912	+ 0·36	+ 0·41	+ 0·30	+ 0·07	− 0·01	0·00	+ 0·03	+ 0·29	+ 0·03	− 0·01	− 0·07	− 0·04
Kew. Normal.	0·05	0·06	0·07	0·07	0·06	0·06	0·06	0·07	0·07	0·07	0·05	0·05
Difference for 1912	+ 0·01	+ 0·09	+ 0·18	+ 0·01	+ 0·05	+ 0·03	+ 0·08	+ 0·08	0·00	− 0·01	+ 0·07	0·00
Falmouth, Normal.	0·16	0·17	0·16	0·17	0·16	0·15	0·17	0·16	0·15	0·15	0·13	0·16
Difference for 1912	− 0·03	+ 0·02	0·00	+ 0·24	+ 0·12	+ 0·21	+ 0·10	+ 0·04	+ 0·02	+ 0·14	+ 0·01	− 0·05
FEBRUARY.												
Aberdeen, Normal.	0·10	0·09	0·08	0·08	0·09	0·08	0·08	0·08	0·10	0·11	0·07	0·08
Difference for 1912	+ 0·01	+ 0·02	+ 0·03	+ 0·11	+ 0·09	+ 0·04	+ 0·04	+ 0·02	0·00	− 0·05	− 0·03	− 0·05
Eskdale, 1912.	0·12	0·20	0·12	0·15	0·14	0·14	0·05	0·12	0·10	0·08	0·08	0·17
Valencia, Normal.	0·20	0·20	0·20	0·20	0·19	0·17	0·17	0·17	0·16	0·17	0·18	0·18
Difference for 1912	− 0·10	− 0·13	− 0·11	+ 0·05	+ 0·15	+ 0·04	+ 0·04	+ 0·02	− 0·02	− 0·12	− 0·09	+ 0·01
Kew, Normal.	0·06	0·07	0·06	0·06	0·07	0·06	0·06	0·06	0·06	0·07	0·05	0·05
Difference for 1912	− 0·03	− 0·06	+ 0·04	+ 0·01	− 0·06	+ 0·01	+ 0·03	− 0·04	− 0·04	− 0·04	− 0·01	+ 0·02
Falmouth, Normal.	0·15	0·14	0·16	0·13	0·14	0·14	0·12	0·15	0·15	0·14	0·10	0·11
Difference for 1912	− 0·05	+ 0·01	+ 0·12	+ 0·07	+ 0·17	0·00	+ 0·18	+ 0·15	+ 0·02	− 0·02	+ 0·09	+ 0·05
MARCH.												
Aberdeen, Normal.	0·07	0·08	0·08	0·08	0·09	0·09	0·09	0·09	0·12	0·12	0·07	0·07
Difference for 1912	− 0·05	− 0·03	− 0·08	− 0·04	− 0·03	+ 0·02	− 0·03	+ 0·03	0·00	− 0·07	+ 0·06	− 0·04
Eskdale, 1912.	0·20	0·18	0·25	0·12	0·17	0·25	0·29	0·25	0·24	0·16	0·12	0·23
Valencia, Normal.	0·17	0·16	0·18	0·16	0·18	0·18	0·18	0·18	0·15	0·15	0·12	0·13
Difference for 1912	+ 0·23	+ 0·26	+ 0·26	+ 0·09	− 0·01	− 0·03	+ 0·06	+ 0·25	− 0·03	+ 0·03	+ 0·08	+ 0·08
Kew, Normal.	0·04	0·05	0·05	0·05	0·05	0·07	0·06	0·05	0·05	0·05	0·04	0·05
Difference for 1912	− 0·02	− 0·04	− 0·03	+ 0·02	− 0·02	− 0·05	− 0·03	− 0·02	0·00	+ 0·01	+ 0·02	+ 0·06
Falmouth, Normal.	0·13	0·13	0·13	0·12	0·10	0·11	0·12	0·12	0·12	0·12	0·10	0·09
Difference for 1912	+ 0·09	+ 0·11	+ 0·17	+ 0·08	+ 0·18	+ 0·13	+ 0·19	+ 0·10	+ 0·01	+ 0·18	+ 0·09	+ 0·25
APRIL.												
Aberdeen, Normal.	0·07	0·07	0·07	0·07	0·09	0·09	0·09	0·10	0·08	0·07	0·06	0·06
Difference for 1912	− 0·05	− 0·06	− 0·06	− 0·06	− 0·09	− 0·08	− 0·08	− 0·09	− 0·08	− 0·07	− 0·05	− 0·06
Eskdale, 1912.	0·01	0·00	0·02	0·01	0·00	0·03	0·06	0·05	0·08	0·03	0·02	0·01
Valencia, Normal.	0·16	0·14	0·15	0·16	0·16	0·16	0·15	0·15	0·15	0·13	0·12	0·14
Difference for 1912	− 0·11	− 0·07	− 0·12	− 0·09	− 0·07	− 0·02	− 0·01	− 0·12	− 0·11	− 0·10	− 0·10	− 0·12
Kew, Normal.	0·05	0·05	0·05	0·06	0·06	0·06	0·06	0·06	0·06	0·06	0·05	0·05
Difference for 1912	− 0·05	− 0·04	− 0·01	− 0·02	− 0·03	− 0·06	− 0·05	− 0·06	− 0·06	− 0·06	− 0·05	− 0·05
Falmouth, Normal.	0·12	0·11	0·12	0·12	0·12	0·13	0·13	0·14	0·11	0·09	0·07	0·10
Difference for 1912	− 0·09	− 0·09	− 0·12	− 0·12	− 0·11	− 0·10	− 0·10	− 0·13	− 0·10	− 0·08	− 0·06	− 0·09
MAY.												
Aberdeen, Normal.	0·08	0·06	0·07	0·07	0·08	0·09	0·07	0·06	0·06	0·05	0·05	0·07
Difference for 1912	− 0·02	+ 0·04	+ 0·04	+ 0·04	− 0·02	− 0·04	− 0·05	− 0·05	− 0·04	+ 0·03	0·00	− 0·03
Eskdale, 1912.	0·07	0·06	0·07	0·09	0·06	0·14	0·07	0·02	0·06	0·07	0·02	0·02
Valencia, Normal.	0·11	0·12	0·14	0·14	0·13	0·13	0·14	0·12	0·12	0·11	0·07	0·10
Difference for 1912	− 0·02	− 0·05	− 0·10	− 0·09	− 0·10	− 0·09	− 0·08	− 0·09	− 0·10	− 0·10	− 0·07	− 0·08
Kew, Normal.	0·04	0·04	0·06	0·05	0·08	0·07	0·06	0·06	0·06	0·06	0·05	0·06
Difference for 1912	+ 0·07	+ 0·04	+ 0·10	+ 0·04	− 0·01	− 0·07	− 0·06	− 0·06	− 0·04	− 0·03	− 0·04	− 0·05
Falmouth, Normal.	0·08	0·09	0·10	0·09	0·09	0·08	0·09	0·10	0·09	0·08	0·06	0·07
Difference for 1912	− 0·06	− 0·07	− 0·10	− 0·03	− 0·02	+ 0·03	+ 0·14	+ 0·01	− 0·02	+ 0·02	+ 0·01	+ 0·07
JUNE.												
Aberdeen, Normal.	0·05	0·06	0·06	0·06	0·07	0·07	0·07	0·06	0·06	0·08	0·07	0·07
Difference for 1912	0·00	− 0·04	+ 0·05	− 0·04	− 0·02	− 0·04	− 0·03	− 0·04	+ 0·08	+ 0·01	+ 0·03	− 0·04
Eskdale, 1912.	0·19	0·15	0·91	0·23	0·15	0·16	0·14	0·11	0·05	0·18	0·22	0·25
Valencia, Normal.	0·14	0·14	0·13	0·15	0·15	0·14	0·16	0·15	0·15	0·11	0·09	0·10
Difference for 1912	+ 0·19	+ 0·33	+ 0·19	+ 0·28	+ 0·01	+ 0·18	+ 0·26	+ 0·17	+ 0·17	+ 0·08	+ 0·16	+ 0·10
Kew, Normal.	0·07	0·07	0·06	0·07	0·08	0·08	0·08	0·07	0·06	0·07	0·08	0·09
Difference for 1912	+ 0·05	− 0·03	+ 0·03	+ 0·02	0·00	+ 0·17	+ 0·03	+ 0·05	− 0·03	+ 0·18	+ 0·04	+ 0·15
Falmouth, Normal.	0·07	0·09	0·12	0·10	0·10	0·11	0·09	0·09	0·08	0·07	0·07	0·07
Difference for 1912	− 0·01	+ 0·14	+ 0·06	+ 0·19	+ 0·15	+ 0·08	− 0·05	+ 0·11	+ 0·06	+ 0·13	+ 0·04	+ 0·07

The hourly amounts of rainfall are obtained at each observatory from the autographic records of a Beckley rain-gauge.
The heights of the gauges above the ground and also above M.S.L., are as follows :—

	Height above Ground.	Height above M.S.L.
Aberdeen	0·6 metre	14·6 metres
Eskdalemuir	0·3 ,,	242·3 ,,
Valencia	0·6 ,,	13·2 ,,
Kew	0·5 ,,	6·0 ,,
Falmouth	0·6 ,,	51·4 ,,

OF THE METEOROLOGICAL ELEMENTS AT THE FIVE OBSERVATORIES AND THE VALUES FOR 1912.

JANUARY TO JUNE.

13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.	Hour, G.M.T.
mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	JANUARY.
0·07	0·06	0·06	0·06	0·06	0·06	0·06	0·07	0·08	0·07	0·08	0·07	1·72	Normal. Aberdeen.
− 0·02	+ 0·02	+ 0·02	+ 0·12	+ 0·16	+ 0·06	− 0·01	+ 0·02	− 0·01	− 0·04	− 0·01	+ 0·04	+ 0·55	Diff. for 1912. ,,
0·11	0·14	0·25	0·14	0·14	0·08	0·09	0·10	0·19	0·15	0·11	0·05	3·50	1912. Eskdale.
0·18	0·20	0·20	0·16	0·17	0·21	0·18	0·20	0·22	0·23	0·21	0·22	4·73	Normal. Valencia.
− 0·06	− 0·06	0·00	− 0·05	− 0·04	+ 0·04	− 0·01	+ 0·05	− 0·08	− 0·10	+ 0·08	+ 0·30	+ 1·43	Diff. for 1912. ,,
0·05	0·06	0·07	0·06	0·06	0·06	0·07	0·06	0·06	0·05	0·06	0·06	1·46	Normal. Kew.
− 0·03	+ 0·01	− 0·05	+ 0·03	+ 0·12	+ 0·13	+ 0·12	+ 0·02	+ 0·15	0·00	+ 0·01	− 0·01	+ 1·09	Diff. for 1912. ,,
0·16	0·19	0·17	0·17	0·18	0·15	0·15	0·14	0·16	0·17	0·16	0·19	3·88	Normal. Falmouth.
0·00	+ 0·06	+ 0·01.	− 0·05	− 0·15	− 0·01	+ 0·01	− 0·09	− 0·11	+ 0·01	0·00	− 0·04	+ 0·46	Diff. for 1912. ,,
													FEBRUARY.
0·08	0·08	0·09	0·09	0·08	0·07	0·08	0·07	0·06	0·06	0·07	0·09	1·96	Normal. Aberdeen.
− 0·02	− 0·01	− 0·02	+ 0·09	+ 0·06	+ 0·09	+ 0·08	+ 0·07	+ 0·12	+ 0·07	+ 0·02	+ 0·01	+ 0·79	Diff. for 1912. ,,
0·13	0·14	0·28	0·35	0·20	0·13	0·22	0·18	0·25	0·13	0·07	0·08	3·63	1912. Eskdale.
0·15	0·16	0·17	0·19	0·21	0·18	0·18	0·21	0·20	0·20	0·20	0·21	4·45	Normal. Valencia.
− 0·02	+ 0·04	+ 0·03	+ 0·05	+ 0·02	+ 0·10	+ 0·10	− 0·11	0·00	− 0·08	− 0·01	+ 0·05	− 0·09	Diff. for 1912. ,,
0·06	0·07	0·05	0·05	0·06	0·05	0·05	0·04	0·05	0·05	0·04	0·06	1·36	Normal. Kew.
+ 0·04	+ 0·03	− 0·02	− 0·02	− 0·01	− 0·03	− 0·01	− 0·02	+ 0·09	− 0·03	− 0·01	0·00	− 0·16	Diff. for 1912. ,,
0·13	0·13	0·13	0·13	0·12	0·14	0·15	0·14	0·16	0·17	0·16	0·16	3·35	Normal. Falmouth.
+ 0·09	− 0·06	− 0·01	− 0·03	+ 0·05	− 0·10	− 0·04	− 0·01	− 0·01	− 0·13	− 0·08	+ 0·03	+ 0·49	Diff. for 1912. ,,
													MARCH.
0·08	0·07	0·08	0·08	0·08	0·09	0·08	0·08	0·07	0·06	0·07	0·07	1·96	Normal. Aberdeen.
− 0·02	− 0·01	− 0·05	− 0·06	− 0·03	+ 0·01	+ 0·04	+ 0·13	+ 0·06	+ 0·11	+ 0·02	+ 0·07	+ 0·01	Diff. for 1912 ,,
0·38	0·23	0·37	0·25	0·23	0·30	0·31	0·35	0·31	0·35	0·39	0·17	6·10	1912. Eskdale.
0·15	0·14	0·12	0·11	0·11	0·12	0·12	0·14	0·13	0·12	0·12	0·15	3·47	Normal. Valencia.
+ 0·04	− 0·02	+ 0·06	+ 0·16	+ 0·16	+ 0·05	+ 0·13	+ 0·11	0·00	+ 0·24	+ 0·19	+ 0·24	+ 2·63	Diff. for 1912. ,,
0·05	0·05	0·06	0·05	0·05	0·06	0·05	0·06	0·06	0·06	0·06	0·05	1·27	Normal. Kew.
+ 0·24	+ 0·25	+ 0·12	+ 0·11	+ 0·11	+ 0·08	+ 0·04	+ 0·05	+ 0·05	− 0·02	0·00	+ 0·02	+ 0·95	Diff. for 1912. ,,
0·10	0·11	0·10	0·10	0·12	0·12	0·11	0·10	0·12	0·10	0·11	0·10	2·68	Normal. Falmouth.
+ 0·33	+ 0·32	+ 0·06	+ 0·10	+ 0·04	+ 0·17	+ 0·20	+ 0·13	+ 0·04	+ 0·03	− 0·01	+ 0·19	+ 3·18	Diff. for 1912. ,,
													APRIL.
0·07	0·08	0·08	0·08	0·08	0·08	0·06	0·06	0·06	0·07	0·07	0·08	1·79	Normal. Aberdeen.
− 0·06	− 0·06	− 0·03	− 0·04	− 0·03	− 0·05	− 0·04	− 0·04	− 0·05	− 0·05	− 0·07	− 0·07	− 1·42	Diff. for 1912. ,,
0·08	0·04	0·03	0·03	0·05	0·05	0·08	0·08	0·03	0·02	—	0·01	0·82	1912. Eskdale.
0·13	0·13	0·12	0·13	0·13	0·14	0·13	0·15	0·13	0·12	0·14	0·12	3·34	Normal. Valencia.
− 0·11	− 0·07	− 0·05	− 0·10	− 0·10	− 0·14	− 0·13	− 0·14	− 0·12	− 0·09	− 0·13	− 0·04	− 2·26	Diff. for 1912. ,,
0·06	0·07	0·06	0·07	0·07	0·06	0·05	0·05	0·05	0·05	0·05	0·05	1·36	Normal. Kew.
− 0·06	− 0·07	− 0·06	− 0·07	− 0·07	− 0·06	− 0·05	− 0·05	− 0·05	− 0·05	− 0·05	− 0·05	− 1·23	Diff. for 1912. ,,
0·09	0·08	0·07	0·08	0·08	0·10	0·09	0·10	0·09	0·09	0·08	0·10	2·41	Normal. Falmouth.
− 0·09	− 0·08	− 0·07	− 0·08	− 0·08	− 0·10	− 0·09	− 0·10	− 0·09	− 0·08	− 0·08	− 0·09	− 2·22	Diff. for 1912. ,,
													MAY.
0·07	0·08	0·10	0·09	0·11	0·11	0·08	0·07	0·08	0·09	0·08	0·08	1·85	Normal. Aberdeen.
− 0·07	− 0·07	− 0·08	− 0·05	− 0·06	− 0·09	+ 0·05	+ 0·09	+ 0·04	+ 0·01	+ 0·10	0·00	− 0·23	Diff. for 1912. ,,
0·01	0·01	0·02	0·04	0·03	0·05	0·07	0·10	0·08	0·16	0·20	0·07	1·59	1912. Eskdale.
0·09	0·08	0·10	0·09	0·10	0·09	0·10	0·10	0·09	0·10	0·09	0·11	2·57	Normal. Valencia.
− 0·04	− 0·02	+ 0·03	− 0·04	− 0·03	− 0·04	− 0·04	+ 0·01	0·00	− 0·07	− 0·02	+ 0·01	− 1·22	Diff. for 1912. ,,
0·05	0·06	0·08	0·09	0·08	0·06	0·06	0·04	0·04	0·03	0·04	0·05	1·37	Normal. Kew.
− 0·04	− 0·01	− 0·06	− 0·03	− 0·02	− 0·04	− 0·05	− 0·04	− 0·01	+ 0·01	+ 0·01	+ 0·08	− 0·31	Diff. for 1912. ,,
0·05	0·06	0·06	0·06	0·06	0·06	0·08	0·08	0·09	0·08	0·08	0·09	1·87	Normal. Falmouth.
− 0·01	+ 0·01	− 0·02	− 0·02	− 0·05	+ 0·09	− 0·02	− 0·07	− 0·09	− 0·07	− 0·06	− 0·05	− 0·38	Diff. for 1912. ,,
													JUNE.
0·08	0·07	0·08	0·08	0·09	0·08	0·06	0·06	0·07	0·06	0·05	0·05	1·61	Normal. Aberdeen.
− 0·03	− 0·01	− 0·04	0·00	− 0·06	− 0·07	+ 0·04	+ 0·15	+ 0·09	+ 0·02	+ 0·03	0·00	+ 0·04	Diff. for 1912. ,,
0·11	0·14	0·16	0·81	0·15	0·11	0·09	0·18	0·14	0·17	0·22	0·21	5·23	1912. Eskdale.
0·09	0·00	0·11	0·11	0·12	0·13	0·11	0·12	0·11	0·11	0·14	0·15	3·00	Normal. Valencia.
+ 0·13	+ 0·01	+ 0·14	+ 0·07	+ 0·20	+ 0·04	+ 0·03	+ 0·08	+ 0·16	+ 0·21	+ 0·17	+ 0·17	+ 3·53	Diff. for 1912. ,,
0·08	0·08	0·09	0·09	0·11	0·09	0·10	0·09	0·09	0·10	0·07	0·06	1·93	Normal. Kew.
+ 0·21	0·00	+ 0·02	+ 0·08	− 0·10	− 0·06	− 0·07	− 0·09	− 0·03	− 0·03	+ 0·13	+ 0·05	+ 0·77	Diff. for 1912. ,,
0·09	0·09	0·09	0·08	0·08	0·07	0·06	0·08	0·08	0·08	0·09	0·10	2·05	Normal. Falmouth.
+ 0·09	0·00	+ 0·04	0·00	+ 0·15	+ 0·08	+ 0·10	+ 0·10	+ 0·03	+ 0·08	− 0·02	− 0·02	+ 1·60	Diff. for 1912. ,,

The normals for rainfall are based upon the hourly tabulations of rainfall during the period of 40 years, 1871–1910.

The values for 1912 are given by the excess or defect from the normal; + indicates excess, − defect.

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

LXIX.–LXXIV.—NORMALS FOR THE MONTHS OF THE HOURLY VALUES WITH DIFFERENCES BETWEEN THE NORMALS

LXXIII.—*continued*—RAINFALL IN MILLIMETRES.

Hour, G.M.T.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.
JULY.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
Aberdeen, Normal.	0·08	0·08	0·08	0·10	0·09	0·08	0·07	0·08	0·07	0·08	0·07	0·10
Difference for 1912	0·00	− 0·06	− 0·07	− 0·09	− 0·07	− 0·02	− 0·05	− 0·07	− 0·06	− 0·08	+ 0·04	+ 0·10
Eskdale, 1912.	0·03	0·04	0·01	0·06	0·07	0·07	0·20	0·09	0·09	0·01	0·06	0·14
Valencia, Normal.	0·14	0·15	0·16	0·16	0·15	0·16	0·16	0·17	0·16	0·13	0·11	0·12
Difference for 1912	+ 0·02	+ 0·08	− 0·04	− 0·07	− 0·08	− 0·15	− 0·07	− 0·01	+ 0·09	− 0·01	− 0·04	− 0·07
Kew, Normal.	0·07	0·07	0·07	0·06	0·06	0·06	0·08	0·06	0·05	0·06	0·08	0·09
Difference for 1912	0·00	0·00	− 0·06	− 0·06	− 0·04	− 0·06	− 0·08	− 0·06	+ 0·06	− 0·06	− 0·06	− 0·01
Falmouth, Normal.	0·11	0·12	0·15	0·13	0·12	0·14	0·11	0·10	0·11	0·10	0·06	0·09
Difference for 1912	+ 0·05	+ 0·04	+ 0·08	+ 0·07	+ 0·16	+ 0·06	+ 0·09	+ 0·27	+ 0·18	+ 0·06	+ 0·01	+ 0·13
AUGUST.												
Aberdeen, Normal.	0·11	0·10	0·11	0·12	0·11	0·11	0·11	0·11	0·09	0·10	0·07	0·08
Difference for 1912	− 0·09	− 0·05	0·00	− 0·05	+ 0·05	+ 0·13	+ 0·09	+ 0·23	+ 0·25	+ 0·27	+ 0·14	+ 0·07
Eskdale, 1912.	0·03	0·04	0·11	0·16	0·13	0·18	0·20	0·11	0·13	0·14	0·29	0·42
Valencia, Normal.	0·18	0·16	0·16	0·20	0·23	0·21	0·21	0·18	0·20	0·17	0·14	0·15
Difference for 1912	+ 0·07	+ 0·04	+ 0·01	0·00	− 0·12	− 0·05	− 0·08	+ 0·05	− 0·06	− 0·03	+ 0·02	− 0·09
Kew, Normal.	0·06	0·08	0·07	0·05	0·06	0·04	0·06	0·06	0·07	0·07	0·06	0·10
Difference for 1912	− 0·03	+ 0·03	+ 0·13	+ 0·09	+ 0·14	+ 0·25	+ 0·37	+ 0·14	+ 0·06	+ 0·11	+ 0·14	− 0·02
Falmouth, Normal.	0·12	0·12	0·14	0·12	0·13	0·16	0·11	0·11	0·12	0·12	0·12	0·11
Difference for 1912	+ 0·40	+ 0·20	+ 0·32	+ 0·49	+ 0·30	+ 0·34	+ 0·23	+ 0·38	+ 0·07	+ 0·06	− 0·07	+ 0·11
SEPTEMBER.												
Aberdeen, Normal.	0·08	0·07	0·06	0·08	0·08	0·10	0·12	0·11	0·11	0·11	0·09	0·08
Difference for 1912	+ 0·01	+ 0·04	− 0·01	− 0·02	− 0·05	− 0·10	− 0·12	− 0·11	− 0·11	− 0·08	− 0·04	0·00
Eskdale, 1912.	0·16	0·05	0·03	0·04	0·04	0·03	0·02	0·08	0·10	0·08	0·25	0·16
Valencia, Normal.	0·16	0·16	0·18	0·17	0·17	0·15	0·16	0·16	0·17	0·12	0·14	0·14
Difference for 1912	− 0·08	+ 0·03	+ 0·14	+ 0·03	+ 0·04	− 0·09	− 0·08	− 0·04	− 0·07	− 0·02	− 0·07	− 0·08
Kew, Normal.	0·09	0·07	0·08	0·09	0·10	0·06	0·06	0·06	0·07	0·06	0·06	0·06
Difference for 1912	− 0·02	− 0·01	+ 0·03	0·00	+ 0·05	+ 0·06	+ 0·07	− 0·03	− 0·05	− 0·03	− 0·06	− 0·03
Falmouth, Normal.	0·16	0·16	0·15	0·14	0·13	0·13	0·14	0·13	0·14	0·13	0·09	0·11
Difference for 1912	− 0·09	− 0·06	− 0·13	− 0·10	− 0·11	− 0·12	− 0·13	− 0·13	− 0·14	− 0·12	− 0·06	− 0·08
OCTOBER.												
Aberdeen, Normal.	0·08	0·10	0·11	0·12	0·11	0·13	0·12	0·12	0·12	0·12	0·09	0·09
Difference for 1912	+ 0·11	+ 0·10	+ 0·03	− 0·01	− 0·06	− 0·05	− 0·09	+ 0·08	+ 0·08	+ 0·08	+ 0·26	+ 0·05
Eskdale, 1912.	0·21	0·16	0·27	0·28	0·29	0·26	0·23	0·29	0·36	0·23	0·30	0·20
Valencia, Normal.	0·18	0·20	0·21	0·20	0·20	0·21	0·19	0·18	0·18	0·19	0·17	0·19
Difference for 1912	+ 0·11	− 0·02	− 0·11	− 0·12	− 0·02	− 0·03	− 0·03	0·00	− 0·06	− 0·12	− 0·09	− 0·03
Kew, Normal.	0·10	0·10	0·10	0·09	0·09	0·11	0·09	0·10	0·10	0·09	0·08	0·11
Difference for 1912	+ 0·04	− 0·08	− 0·07	− 0·03	− 0·02	− 0·08	+ 0·08	− 0·06	− 0·08	− 0·08	− 0·03	− 0·08
Falmouth, Normal.	0·22	0·20	0·21	0·22	0·22	0·21	0·19	0·22	0·18	0·19	0·14	0·17
Difference for 1912	− 0·15	0·00	− 0·10	− 0·18	− 0·05	+ 0·23	+ 0·03	− 0·04	− 0·10	− 0·08	− 0·11	− 0·05
NOVEMBER.												
Aberdeen, Normal.	0·12	0·12	0·11	0·14	0·13	0·12	0·11	0·11	0·11	0·10	0·10	0·10
Difference for 1912	− 0·10	− 0·08	− 0·02	+ 0·05	− 0·01	0·00	0·00	+ 0·03	+ 0·13	+ 0·05	+ 0·06	0·00
Eskdale, 1912.	0·08	0·09	0·08	0·15	0·20	0·24	0·25	0·37	0·38	0·18	0·15	0·15
Valencia, Normal.	0·23	0·20	0·22	0·21	0·22	0·19	0·23	0·22	0·18	0·18	0·18	0·18
Difference for 1912	− 0·19	− 0·15	− 0·13	− 0·12	− 0·11	− 0·09	− 0·12	− 0·11	− 0·06	− 0·11	− 0·10	− 0·11
Kew, Normal.	0·08	0·09	0·08	0·08	0·08	0·08	0·07	0·07	0·06	0·07	0·06	0·07
Difference for 1912	− 0·05	− 0·06	0·00	− 0·05	+ 0·16	+ 0·03	+ 0·04	− 0·03	− 0·03	− 0·05	− 0·05	− 0·06
Falmouth, Normal.	0·18	0·17	0·20	0·22	0·17	0·19	0·18	0·21	0·18	0·18	0·16	0·18
Difference for 1912	+ 0·19	+ 0·08	− 0·01	− 0·11	− 0·06	− 0·15	− 0·11	− 0·10	− 0·17	− 0·15	− 0·10	− 0·10
DECEMBER.												
Aberdeen, Normal.	0·10	0·11	0·13	0·13	0·13	0·12	0·12	0·11	0·10	0·12	0·10	0·10
Difference for 1912	− 0·09	− 0·10	− 0·12	− 0·13	− 0·11	− 0·05	− 0·06	− 0·01	− 0·08	− 0·11	− 0·08	− 0·08
Eskdale, 1912.	0·28	0·24	0·20	0·52	0·39	0·40	0·44	0·38	0·28	0·47	0·44	0·27
Valencia, Normal.	0·21	0·21	0·23	0·25	0·22	0·23	0·23	0·22	0·21	0·19	0·18	0·20
Difference for 1912	+ 0·16	+ 0·16	+ 0·12	+ 0·21	+ 0·35	+ 0·30	+ 0·31	+ 0·12	− 0·04	− 0·13	− 0·05	− 0·15
Kew, Normal.	0·07	0·08	0·08	0·08	0·08	0·07	0·06	0·07	0·07	0·06	0·06	0·06
Difference for 1912	0·00	− 0·05	− 0·06	− 0·06	− 0·04	− 0·04	− 0·05	+ 0·04	+ 0·01	− 0·06	+ 0·02	+ 0·14
Falmouth, Normal.	0·20	0·23	0·21	0·23	0·21	0·20	0·20	0·20	0·19	0·22	0·18	0·18
Difference for 1912	− 0·15	− 0·16	− 0·10	− 0·02	+ 0·27	− 0·02	0·00	− 0·02	+ 0·03	+ 0·03	+ 0·08	+ 0·14
YEAR.												
Aberdeen, Normal.	0·08	0·08	0·08	0·10	0·10	0·10	0·10	0·09	0·09	0·09	0·07	0·08
Difference for 1912	− 0·02	− 0·02	− 0·01	− 0·02	− 0·02	− 0·01	− 0·03	+ 0·01	+ 0·02	+ 0·01	+ 0·03	− 0·01
Eskdale, 1912.	0·12	0·11	0·19	0·17	0·16	0·17	0·17	0·17	0·16	0·14	0·17	0·19
Valencia, Normal.	0·17	0·17	0·18	0·18	0·18	0·18	0·18	0·18	0·17	0·15	0·14	0·15
Difference for 1912	+ 0·06	+ 0·07	+ 0·04	+ 0·02	+ 0·01	− 0·01	+ 0·02	+ 0·04	− 0·02	− 0·05	− 0·04	− 0·05
Kew, Normal.	0·07	0·07	0·07	0·07	0·07	0·07	0·07	0·06	0·06	0·07	0·06	0·07
Difference for 1912	0·00	− 0·01	+ 0·03	0·00	+ 0·02	+ 0·02	+ 0·03	0·00	− 0·01	− 0·02	0·00	+ 0·01
Falmouth, Normal.	0·14	0·14	0·15	0·15	0·14	0·14	0·14	0·14	0·13	0·13	0·11	0·12
Difference for 1912	+ 0·01	+ 0·02	+ 0·02	+ 0·05	+ 0·08	+ 0·06	+ 0·05	+ 0·06	− 0·01	+ 0·02	− 0·01	+ 0·04

OF THE METEOROLOGICAL ELEMENTS AT THE FIVE OBSERVATORIES
AND THE VALUES FOR 1912.

JULY TO DECEMBER AND YEAR.

13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.	Hour, G.M.T.
mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	JULY.
0·13	0·14	0·16	0·16	0·12	0·13	0·11	0·09	0·09	0·11	0·08	0·09	2·39	Normal. Aberdeen.
− 0·04	− 0·10	− 0·03	− 0·15	− 0·12	− 0·07	− 0·03	− 0·03	+ 0·04	− 0·04	− 0·06	+ 0·15	− 0·91	Diff. for 1912. ,,
0·08	0·07	0·02	0·17	0·21	0·26	0·25	0·33	0·37	0·07	0·11	0·04	2·85	1912. Eskdale.
0·10	0·12	0·10	0·12	0·12	0·12	0·12	0·13	0·12	0·12	0·13	0·14	3·21	Normal. Valencia.
− 0·03	0·00	0·00	− 0·02	− 0·01	− 0·09	− 0·02	0·00	− 0·05	− 0·05	− 0·09	− 0·06	− 0·77	Diff. for 1912. ,,
0·14	0·11	0·13	0·12	0·08	0·09	0·09	0·10	0·07	0·08	0·07	0·07	1·96	Normal. Kew.
− 0·08	+ 0·12	− 0·10	− 0·08	+ 0·08	0·00	+ 0·06	− 0·04	− 0·04	− 0·01	− 0·03	− 0·03	− 0·58	Diff. for 1912. ,,
0·10	0·11	0·09	0·08	0·08	0·08	0·10	0·11	0·08	0·09	0·10	0·09	2·48	Normal. Falmouth.
− 0·02	− 0·01	+ 0·04	− 0·01	+ 0·03	+ 0·01	+ 0·04	− 0·07	− 0·03	+ 0·03	− 0·05	− 0·05	+ 1·11	Diff. for 1912. ,,
													AUGUST.
0·10	0·10	0·10	0·12	0·14	0·11	0·12	0·11	0·12	0·09	0·10	0·08	2·51	Normal. Aberdeen.
− 0·02	− 0·04	− 0·02	− 0·01	− 0·07	+ 0·07	+ 0·07	+ 0·25	+ 0·04	0·00	− 0·03	− 0·03	+ 1·25	Diff. for 1912. ,,
0·43	0·30	0·26	0·29	0·21	0·22	0·29	0·07	0·11	0·09	0·13	0·11	4·45	1912. Eskdale.
0·13	0·13	0·15	0·15	0·16	0·18	0·18	0·16	0·16	0·17	0·16	0·18	4·10	Normal. Valencia.
− 0·04	+ 0·02	− 0·04	+ 0·05	+ 0·01	− 0·09	− 0·02	0·00	0·00	− 0·06	0·00	+ 0·01	− 0·40	Diff. for 1912. ,,
0·08	0·10	0·11	0·09	0·12	0·09	0·09	0·07	0·09	0·07	0·05	0·05	1·79	Normal. Kew.
+ 0·02	+ 0·06	+ 0·05	+ 0·25	+ 0·09	+ 0·05	+ 0·16	+ 0·47	+ 0·01	+ 0·03	− 0·02	− 0·04	+ 2·54	Diff. for 1912. ,,
0·11	0·08	0·10	0·09	0·10	0·11	0·12	0·11	0·11	0·12	0·12	0·12	2·77	Normal. Falmouth.
+ 0·23	+ 0·17	+ 0·08	+ 0·22	+ 0·32	+ 0·34	+ 0·37	+ 0·37	+ 0·37	+ 0·13	0·00	+ 0·40	+ 5·83	Diff. for 1912. ,,
													SEPTEMBER.
0·10	0·08	0·09	0·08	0·11	0·09	0·08	0·09	0·09	0·10	0·09	0·08	2·17	Normal. Aberdeen.
− 0·02	0·00	0·00	+ 0·07	− 0·01	− 0·06	− 0·03	− 0·02	− 0·06	− 0·05	− 0·06	0·00	− 0·83	Diff. for 1912. ,,
0·07	0·08	0·09	0·06	0·07	0·16	0·14	0·14	0·08	0·08	0·06	0·08	2·15	1912. Eskdale.
0·11	0·13	0·13	0·15	0·18	0·16	0·17	0·16	0·14	0·16	0·19	0·17	3·73	Normal. Valencia.
− 0·02	− 0·02	+ 0·02	− 0·12	− 0·16	− 0·13	+ 0·03	+ 0·01	− 0·02	0·00	− 0·01	+ 0·01	− 0·70	Diff. for 1912. ,,
0·08	0·06	0·05	0·08	0·09	0·07	0·07	0·09	0·09	0·06	0·07	0·08	1·75	Normal. Kew.
− 0·06	− 0·06	− 0·05	− 0·03	− 0·08	− 0·06	+ 0·01	− 0·01	+ 0·09	+ 0·11	+ 0·17	+ 0·06	+ 0·07	Diff. for 1912. ,,
0·10	0·09	0·10	0·09	0·11	0·11	0·13	0·13	0·10	0·11	0·12	0·14	2·94	Normal. Falmouth.
− 0·10	− 0·08	0·00	0·00	− 0·04	− 0·05	− 0·05	− 0·11	− 0·08	− 0·11	− 0·12	− 0·14	− 2·15	Diff. for 1912. ,,
													OCTOBER.
0·10	0·10	0·08	0·08	0·10	0·11	0·11	0·11	0·11	0·10	0·10	0·09	2·50	Normal. Aberdeen.
− 0·07	+ 0·09	− 0·01	+ 0·08	+ 0·07	+ 0·01	+ 0·05	+ 0·14	+ 0·03	− 0·07	+ 0·01	+ 0·18	+ 1·09	Diff. for 1912. ,,
0·10	0·10	0·21	0·11	0·25	0·14	0·16	0·15	0·11	0·11	0·09	0·12	4·73	1912. Eskdale.
0·18	0·17	0·17	0·18	0·18	0·18	0·23	0·18	0·17	0·18	0·21	0·19	4·52	Normal. Valencia.
− 0·07	− 0·02	− 0·09	− 0·06	− 0·01	+ 0·16	+ 0·19	+ 0·16	− 0·01	− 0·07	+ 0·01	+ 0·02	− 0·31	Diff. for 1912. ,,
0·12	0·09	0·09	0·10	0·10	0·10	0·10	0·10	0·09	0·07	0·07	0·07	2·26	Normal. Kew.
− 0·04	− 0·07	− 0·02	− 0·02	− 0·03	− 0·04	+ 0·06	+ 0·06	+ 0·06	+ 0·10	+ 0·04	0·00	− 0·39	Diff. for 1912 ,,
0·15	0·15	0·14	0·16	0·17	0·17	0·15	0·16	0·17	0·18	0·15	0·21	4·33	Normal. Falmouth.
− 0·06	+ 0·02	− 0·03	− 0·03	+ 0·03	+ 0·11	+ 0·10	+ 0·06	+ 0·02	+ 0·07	− 0·11	− 0·03	− 0·45	Diff. for 1912. ,,
													NOVEMBER.
0·10	0·11	0·10	0·09	0·10	0·11	0·10	0·10	0·12	0·13	0·13	0·12	2·68	Normal. Aberdeen.
+ 0·09	+ 0·08	+ 0·11	+ 0·08	+ 0·01	− 0·03	− 0·04	− 0·02	− 0·07	− 0·10	− 0·13	− 0·11	− 0·02	Diff. for 1912. ,,
0·19	0·21	0·23	0·24	0·17	0·11	0·18	0·19	0·19	0·24	0·14	0·09	4·50	1912. Eskdale.
0·18	0·17	0·18	0·16	0·18	0·19	0·17	0·17	0·18	0·19	0·20	0·19	4·60	Normal. Valencia.
− 0·01	− 0·07	− 0·08	− 0·10	− 0·06	− 0·11	0·00	− 0·02	− 0·08	− 0·12	− 0·16	− 0·12	− 2·33	Diff. for 1912. ,,
0·07	0·07	0·09	0·08	0·09	0·08	0·08	0·08	0·07	0·08	0·09	0·09	1·86	Normal. Kew.
− 0·04	− 0·07	− 0·08	+ 0·05	+ 0·01	+ 0·09	+ 0·03	+ 0·02	− 0·05	− 0·08	− 0·09	− 0·08	− 0·42	Diff. for 1912. ,,
0·17	0·21	0·17	0·19	0·22	0·21	0·19	0·17	0·18	0·17	0·16	0·17	4·43	Normal. Falmouth.
− 0·07	− 0·11	+ 0·04	− 0·06	− 0·10	− 0·09	− 0·08	− 0·04	− 0·02	− 0·06	+ 0·04	+ 0·08	− 1·26	Diff. for 1912. ,,
													DECEMBER.
0·10	0·09	0·09	0·11	0·11	0·10	0·09	0·10	0·11	0·10	0·09	0·09	2·55	Normal. Aberdeen.
− 0·08	0·00	+ 0·01	− 0·09	− 0·06	− 0·01	− 0·03	+ 0·04	− 0·05	− 0·10	− 0·07	− 0·08	− 1·54	Diff. for 1912. ,,
0·58	0·38	0·61	0·70	0·37	0·58	0·49	0·40	0·58	0·42	0·43	0·27	10·12	1912. Eskdale.
0·20	0·21	0·21	0·20	0·20	0·20	0·22	0·25	0·25	0·23	0·20	0·20	5·15	Normal. Valencia.
− 0·09	− 0·09	− 0·13	− 0·11	− 0·10	− 0·09	+ 0·07	− 0·13	− 0·11	+ 0·01	+ 0·14	0·05	+ 0·78	Diff. for 1912. ,,
0·06	0·06	0·08	0·08	0·06	0·07	0·07	0·06	0·07	0·06	0·07	0·07	1·65	Normal. Kew.
+ 0·17	+ 0·10	+ 0·11	− 0·04	+ 0·05	+ 0·04	+ 0·07	+ 0·04	+ 0·01	+ 0·04	+ 0·01	+ 0·09	+ 0·54	Diff. for 1912. ,,
0·17	0·20	0·21	0·18	0·19	0·19	0·17	0·18	0·19	0·20	0·21	0·20	4·74	Normal. Falmouth.
+ 0·14	+ 0·23	+ 0·15	+ 0·11	+ 0·06	+ 0·01	+ 0·26	+ 0·31	+ 0·10	+ 0·19	− 0·02	− 0·11	+ 1·51	Diff. for 1912. ,,
													YEAR.
0·09	0·09	0·09	0·09	0·10	0·10	0·09	0·08	0·09	0·09	0·08	0·08	2·13	Normal. Aberdeen.
− 0·03	− 0·01	− 0·01	+ 0·01	− 0·01	− 0·02	+ 0·01	+ 0·07	+ 0·01	− 0·02	− 0·02	+ 0·02	− 0·07	Diff. for 1912. ,,
0·19	0·15	0·20	0·27	0·17	0·18	0·20	0·19	0·20	0·16	0·16	0·11	4·10	1912. Eskdale.
0·14	0·14	0·15	0·15	0·16	0·16	0·16	0·16	0·16	0·16	0·17	0·17	3·91	Normal. Valencia.
− 0·03	− 0·02	− 0·01	− 0·03	− 0·02	− 0·03	+ 0·02	+ 0·01	− 0·03	− 0·01	+ 0·01	+ 0·05	0·00	Diff. for 1912. ,,
0·08	0·07	0·08	0·08	0·08	0·07	0·07	0·07	0·07	0·06	0·06	0·06	1·66	Normal. Kew.
+ 0·02	+ 0·03	− 0·01	+ 0·02	+ 0·01	+ 0·01	+ 0·03	+ 0·04	+ 0·02	+ 0·01	+ 0·01	+ 0·01	+ 0·27	Diff. for 1912. ,,
0·12	0·12	0·12	0·12	0·12	0·13	0·12	0·13	0·13	0·13	0·13	0·14	3·14	Normal. Falmouth.
+ 0·04	+ 0·04	+ 0·03	+ 0·01	+ 0·03	+ 0·03	+ 0·07	+ 0·04	+ 0·01	+ 0·01	− 0·04	+ 0·01	+ 0·67	Diff. for 1912. ,,

LXIX.–LXXIV.—NORMALS FOR THE MONTHS OF THE HOURLY VALUES OF THE METEOROLOGICAL ELEMENTS AT THE FIVE OBSERVATORIES WITH DIFFERENCES BETWEEN THE NORMALS AND THE VALUES FOR 1912.

LXXIV.—DURATION OF BRIGHT SUNSHINE (in hours arranged according to Local Apparent Time). JANUARY TO JUNE.

Hour, L.A.T.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	Day.
JANUARY.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.
Aberdeen, Normal.	...	...	...	...	...	0·06	0·22	0·31	0·32	0·31	0·25	0·09	...	...	...	...	...	1·56
Difference for 1912	...	...	...	...	...	−0·01	−0·09	−0·11	0·00	−0·09	−0·08	+0·02	...	...	...	...	...	−0·36
Eskdale, 1912.	...	...	...	...	0·01	0·08	0·08	0·15	0·19	0·17	0·15	0·07	0·01	...	...	...	...	0·91
Valencia, Normal.	...	...	...	...	0·01	0·12	0·23	0·28	0·28	0·27	0·22	0·14	0·03	...	...	...	...	1·58
Difference for 1912	...	...	...	...	−0·01	+0·09	+0·03	−0·02	−0·03	−0·03	+0·02	+0·07	+0·01	...	...	...	...	+0·19
Kew, Normal.	...	...	...	...	...	0·08	0·19	0·23	0·26	0·26	0·24	0·13	0·01	...	...	...	...	1·40
Difference for 1912	...	...	...	...	...	−0·08	−0·13	−0·13	−0·15	−0·11	−0·06	−0·07	−0·01	...	...	...	...	−0·74
Falmouth, Normal.	...	...	...	...	0·02	0·19	0·29	0·31	0·29	0·28	0·25	0·17	0·02	...	...	...	...	1·82
Difference for 1912	...	...	...	...	−0·01	−0·07	−0·05	−0·08	−0·02	−0·03	−0·03	+0·04	+0·05	...	...	...	...	−0·20
FEBRUARY.																		
Aberdeen, Normal.	...	...	...	...	0·06	0·25	0·35	0·39	0·39	0·38	0·36	0·28	0·11	0·00	...	...	...	2·57
Difference for 1912	...	...	...	...	−0·03	−0·11	−0·09	−0·14	−0·19	−0·17	−0·15	−0·10	−0·04	+0·01	...	...	...	−1·01
Eskdale, 1912.	...	...	...	..	0·04	0·16	0·23	0·26	0·29	0·32	0·25	0·18	0·11	0·01	...	...	...	1·85
Valencia, Normal.	...	...	...	...	0·10	0·25	0·32	0·35	0·35	0·34	0·33	0·27	0·16	0·02	...	...	...	2·49
Difference for 1912	...	...	...	...	−0·02	+0·02	−0·05	+0·01	−0·05	−0·03	−0·05	0·00	−0·02	+0·01	...	...	...	−0·18
Kew, Normal.	...	...	...	...	0·06	0·19	0·26	0·30	0·31	0·33	0·30	0·24	0·10	...	...	...	...	2·09
Difference for 1912	...	...	...	...	−0·05	−0·02	−0·05	−0·10	−0·15	−0·12	−0·12	−0·09	−0·06	...	...	...	...	−0·76
Falmouth, Normal.	...	...	...	0·01	0·17	0·31	0·36	0·40	0·41	0·41	0·38	0·33	0·18	0·01	...	...	...	2·97
Difference for 1912	...	...	...	−0·01	−0·02	−0·04	−0·04	−0·07	−0·08	−0·14	−0·16	−0·13	−0·12	−0·01	...	...	...	−0·82
MARCH.																		
Aberdeen, Normal.	...	...	0·01	0·11	0·29	0·37	0·42	0·43	0·42	0·40	0·39	0·35	0·29	0·14	0·01	...	...	3·63
Difference for 1912	...	...	+0·03	+0·06	+0·01	+0·03	−0·03	−0·02	+0·01	+0·03	−0·02	−0·03	−0·03	−0·02	+0·02	...	...	+0·04
Eskdale, 1912.	...	...	0·01	0·10	0·16	0·19	0·25	0·32	0·28	0·25	0·31	0·26	0·20	0·08	0·01	...	...	2·42
Valencia, Normal.	...	...	...	0·14	0·33	0·40	0·43	0·45	0·45	0·44	0·43	0·39	0·35	0·18	0·02	...	...	4·01
Difference for 1912	...	...	...	−0·11	−0·07	−0·06	+0·02	−0·04	+0·02	−0·05	−0·08	−0·09	−0·11	−0·06	−0·01	...	...	−0·64
Kew, Normal.	...	...	...	0·09	0·24	0·34	0·38	0·42	0·41	0·41	0·38	0·36	0·29	0·14	0·01	...	...	3·47
Difference for 1912	...	...	+0·02	+0·06	−0·01	−0·08	−0·09	−0·11	−0·03	−0·06	−0·06	−0·11	−0·04	0·00	+0·01	...	...	−0·50
Falmouth, Normal.	...	...	0·01	0·16	0·38	0·43	0·46	0·50	0·49	0·49	0·48	0·45	0·41	0·22	0·01	...	...	4·49
Difference for 1912	...	...	+0·01	−0·03	−0·07	−0·03	−0·04	−0·14	−0·16	−0·16	−0·14	−0·08	−0·11	−0·08	−0·01	...	...	−1·04
APRIL.																		
Aberdeen, Normal.	...	0·02	0·15	0·30	0·39	0·44	0·46	0·47	0·48	0·48	0·46	0·45	0·41	0·34	0·17	0·03	...	5·05
Difference for 1912	...	−0·02	+0·06	+0·08	+0·15	+0·20	+0·26	+0·22	+0·21	+0·18	+0·16	+0·07	+0·04	−0·01	−0·03	−0·02	...	+1·55
Eskdale, 1912.	...	0·06	0·27	0·48	0·50	0·47	0·55	0·53	0·49	0·52	0·52	0·53	0·43	0·41	0·29	0·05	...	6·10
Valencia, Normal.	...	0·01	0·15	0·34	0·42	0·46	0·48	0·48	0·48	0·49	0·48	0·46	0·42	0·38	0·22	0·02	...	5·29
Difference for 1912	...	+0·01	+0·10	+0·09	+0·05	+0·01	+0·03	+0·04	+0·07	+0·03	+0·03	+0·07	+0·12	+0·11	+0·18	+0·03	...	+0·97
Kew, Normal.	...	0·01	0·13	0·30	0·38	0·43	0·47	0·49	0·49	0·48	0·48	0·45	0·42	0·34	0·17	0·01	...	5·05
Difference for 1912	...	0·00	+0·09	+0·17	+0·21	+0·20	+0·21	+0·22	+0·26	+0·28	+0·20	+0·21	+0·24	+0·28	+0·17	+0·02	...	+2·76
Falmouth, Normal.	...	0·01	0·17	0·39	0·46	0·51	0·54	0·55	0·55	0·56	0·55	0·55	0·52	0·45	0·22	0·01	...	6·04
Difference for 1912	...	−0·01	+0·09	+0·14	+0·13	+0·09	+0·07	+0·06	+0·07	+0·06	+0·06	+0·09	+0·17	+0·12	+0·16	0·00	...	+1·30
MAY.																		
Aberdeen, Normal.	0·01	0·17	0·31	0·36	0·40	0·43	0·45	0·45	0·47	0·46	0·47	0·46	0·44	0·39	0·34	0·20	0·02	5·83
Difference for 1912	+0·02	+0·13	+0·10	+0·07	+0·05	+0·02	−0·03	+0·01	0·00	−0·04	+0·01	+0·07	+0·04	+0·05	+0·03	+0·08	+0·06	+0·67
Eskdale, 1912.	0·05	0·26	0·32	0·30	0·30	0·36	0·28	0·27	0·30	0·36	0·29	0·24	0·22	0·32	0·26	0·18	...	4·31
Valencia, Normal.	0·00	0·15	0·37	0·44	0·46	0·49	0·51	0·51	0·53	0·53	0·53	0·53	0·51	0·48	0·40	0·22	0·01	6·67
Difference for 1912	+0·01	+0·01	−0·08	−0·12	−0·01	−0·02	−0·03	+0·04	+0·01	−0·01	0·00	−0·04	−0·06	−0·04	−0·05	0·00	0·00	−0·39
Kew, Normal.	...	0·10	0·34	0·44	0·49	0·51	0·52	0·53	0·52	0·52	0·51	0·50	0·47	0·44	0·38	0·19	...	6·46
Difference for 1912	...	−0·05	−0·12	−0·10	−0·02	0·00	+0·01	+0·03	−0·07	−0·06	−0·13	−0·11	−0·15	−0·09	−0·10	−0·05	...	−1·01
Falmouth, Normal.	...	0·13	0·40	0·48	0·51	0·55	0·57	0·58	0·58	0·59	0·60	0·61	0·59	0·55	0·48	0·16	...	7·38
Difference for 1912	...	+0·03	−0·12	−0·21	−0·16	−0·09	−0·09	−0·08	−0·09	−0·07	−0·09	−0·02	−0·14	−0·11	−0·06	+0·05	...	−1·25
JUNE.																		
Aberdeen, Normal.	0·07	0·23	0·31	0·35	0·38	0·41	0·42	0·44	0·45	0·45	0·46	0·44	0·42	0·40	0·36	0·27	0·08	5·94
Difference for 1912	−0·04	−0·16	−0·15	−0·19	−0·17	−0·21	−0·22	−0·20	−0·25	−0·27	−0·24	−0·22	−0·23	−0·23	−0·20	−0·17	−0·07	−3·22
Eskdale, 1912.	...	0·03	0·10	0·15	0·21	0·13	0·21	0·24	0·20	0·23	0·25	0·22	0·21	0·26	0·20	0·10	...	2·74
Valencia, Normal.	0·02	0·20	0·32	0·39	0·42	0·45	0·47	0·47	0·48	0·51	0·50	0·50	0·47	0·44	0·38	0·28	0·04	6·34
Difference for 1912	−0·01	−0·01	−0·06	−0·10	−0·10	−0·15	−0·06	−0·06	−0·01	−0·01	+0·01	−0·01	−0·03	−0·06	−0·02	−0·06	+0·01	−0·73
Kew, Normal.	...	0·16	0·34	0·40	0·43	0·47	0·49	0·49	0·52	0·51	0·51	0·50	0·47	0·44	0·41	0·27	0·03	6·44
Difference for 1912	...	−0·04	+0·04	+0·04	−0·02	+0·01	+0·01	+0·01	−0·12	−0·08	0·00	−0·03	−0·08	+0·08	0·00	+0·07	+0·02	−0·09
Falmouth, Normal.	0·01	0·24	0·39	0·45	0·48	0·51	0·53	0·54	0·55	0·58	0·58	0·58	0·58	0·55	0·50	0·30	0·01	7·38
Difference for 1912	−0·01	−0·06	−0·08	−0·09	−0·04	−0·11	−0·03	−0·02	−0·10	−0·13	−0·18	−0·19	−0·18	−0·05	−0·05	−0·10	0·00	−1·42

The hourly duration of sunshine is obtained from the records of the Campbell-Stokes recorder, in which instrument the sun's rays are focussed through a 4-inch (0·10 m.) spherical lens of crown glass upon a strip of blue card exposed in a metal bowl, the duration of sunshine being shown by the length of the scorch on the card. The hourly amounts are measured from 30 minutes before to 30 minutes after each hour of Local Apparent Time. The height of the recorder above the ground at the several stations is as follows:—

Aberdeen	20·7 metres.
Eskdalemuir	1·5 ,,
Valencia	12·8 ,,
Kew	13·3 ,,
Falmouth	10·4 ,,

The values for 1912 are given by the excess or defect from the normal; + indicates excess, — defect.
The normals for sunshine are based upon the hourly tabulations of sunshine in the period of 30 years, from 1881–1910.

LXIX.–LXXIV.—NORMALS FOR THE MONTHS OF THE HOURLY VALUES OF THE METEOROLOGICAL ELEMENTS AT THE FIVE OBSERVATORIES WITH DIFFERENCES BETWEEN THE NORMALS AND THE VALUES FOR 1912.

LXXIV.—*continued*—DURATION OF BRIGHT SUNSHINE (in hours arranged according to Local Apparent Time). JULY TO DECEMBER AND YEAR.

Hour, L.A.T.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	Day.
JULY.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.
Aberdeen, Normal.	0·04	0·19	0·27	0·32	0·36	0·37	0·37	0·38	0·39	0·38	0·38	0·37	0·35	0·31	0·28	0·20	0·05	5·01
Difference for 1912	−0·04	−0·19	−0·19	−0·15	−0·10	−0·05	−0·10	−0·11	−0·06	−0·07	−0·04	−0·02	+0·07	+0·03	−0·08	−0·18	−0·05	−1·33
Eskdale, 1912.	...	0·01	0·14	0·20	0·19	0·30	0·37	0·38	0·42	0·47	0·40	0·41	0·38	0·27	0·16	0·03	...	4·13
Valencia, Normal.	...	0·10	0·22	0·27	0·31	0·35	0·39	0·40	0·42	0·42	0·43	0·43	0·41	0·39	0·31	0·19	0·02	5·06
Difference for 1912	...	−0·06	+0·03	+0·10	+0·07	+0·08	+0·08	+0·16	+0·12	+0·10	+0·09	+0·04	+0·03	+0·01	+0·02	−0·12	−0·02	+0·73
Kew, Normal.	...	0·13	0·34	0·42	0·47	0·51	0·53	0·53	0·52	0·52	0·52	0·49	0·47	0·45	0·40	0·25	0·01	6·56
Difference for 1912	...	−0·11	−0·14	−0·12	−0·10	−0·08	−0·07	−0·16	−0·14	−0·05	−0·09	−0·11	−0·05	−0·10	−0·16	−0·20	−0·01	−1·69
Falmouth, Normal.	...	0·19	0·38	0·44	0·48	0·51	0·54	0·55	0·54	0·55	0·56	0·57	0·56	0·54	0·48	0·27	...	7·16
Difference for 1912	...	−0·19	−0·27	−0·17	−0·17	−0·06	−0·10	−0·06	−0·06	−0·09	−0·05	−0·11	−0·11	−0·19	−0·27	−0·26	...	−2·16
AUGUST.																		
Aberdeen, Normal.	...	0·06	0·22	0·30	0·37	0·39	0·41	0·42	0·43	0·43	0·42	0·39	0·36	0·29	0·20	0·06	...	4·75
Difference for 1912	...	−0·06	−0·22	−0·18	−0·21	−0·15	−0·16	−0·20	−0·21	−0·21	−0·22	−0·20	−0·15	−0·18	−0·19	−0·06	...	−2·60
Eskdale, 1912.	...	...	...	0·01	0·12	0·14	0·11	0·15	0·15	0·17	0·20	0·14	0·14	0·07	0·01	...	...	1·41
Valencia, Normal.	...	0·03	0·19	0·28	0·34	0·38	0·41	0·42	0·43	0·45	0·44	0·43	0·41	0·36	0·27	0·07	...	4·91
Difference for 1912	...	−0·03	−0·18	−0·20	−0·15	−0·12	−0·09	−0·10	−0·10	−0·05	−0·04	−0·04	−0·05	−0·17	−0·25	−0·07	...	−1·64
Kew, Normal.	...	0·03	0·23	0·39	0·48	0·52	0·54	0·55	0·54	0·53	0·53	0·51	0·48	0·44	0·32	0·07	...	6·16
Difference for 1912	...	−0·03	−0·21	−0·13	−0·05	−0·06	−0·09	−0·11	−0·23	−0·23	−0·29	−0·28	−0·25	−0·33	−0·30	−0·07	...	−2·66
Falmouth, Normal.	...	0·04	0·30	0·45	0·50	0·55	0·56	0·58	0·59	0·59	0·60	0·57	0·55	0·51	0·36	0·05	...	6·80
Difference for 1912	...	−0·04	−0·27	−0·30	−0·23	−0·23	−0·23	−0·21	−0·18	−0·26	−0·26	−0·24	−0·24	−0·37	−0·33	−0·05	...	−3·44
SEPTEMBER.																		
Aberdeen, Normal.	...	...	0·04	0·20	0·33	0·39	0·42	0·41	0·42	0·42	0·40	0·38	0·34	0·23	0·03	...	...	4·01
Difference for 1912	...	...	−0·04	−0·16	−0·04	−0·08	−0·13	−0·07	−0·13	−0·12	−0·11	−0·07	−0·05	−0·11	−0·03	...	...	−1·14
Eskdale, 1912.	...	...	...	0·09	0·30	0·34	0·33	0·39	0·44	0·48	0·44	0·43	0·41	0·28	0·01	...	...	3·94
Valencia, Normal.	...	...	0·02	0·19	0·34	0·41	0·45	0·46	0·46	0·47	0·47	0·44	0·39	0·26	0·06	...	...	4·42
Difference for 1912	...	...	−0·02	−0·11	−0·09	−0·04	0·00	−0·04	+0·04	+0·05	+0·03	+0·02	+0·01	+0·01	−0·03	...	...	−0·17
Kew, Normal.	...	...	0·02	0·17	0·32	0·42	0·48	0·51	0·50	0·51	0·50	0·48	0·44	0·30	0·05	...	...	4·70
Difference for 1912	...	...	−0·02	−0·09	−0·04	−0·05	−0·06	−0·07	−0·09	−0·09	−0·07	−0·05	−0·10	−0·21	−0·04	...	...	−0·98
Falmouth, Normal.	...	...	0·04	0·27	0·43	0·50	0·52	0·54	0·54	0·56	0·54	0·53	0·49	0·35	0·06	...	...	5·37
Difference for 1912	...	...	−0·03	−0·18	−0·05	−0·03	−0·08	−0·02	+0·11	+0·07	+0·09	+0·05	+0·04	−0·10	−0·04	...	...	−0·17
OCTOBER.																		
Aberdeen, Normal.	...	...	...	0·02	0·16	0·33	0·39	0·39	0·40	0·40	0·38	0·32	0·19	0·03	...	...	...	3·01
Difference for 1912	...	...	...	−0·02	−0·08	−0·03	−0·07	−0·04	−0·04	−0·03	−0·03	−0·07	−0·08	−0·03	...	...	...	−0·52
Eskdale, 1912.	...	...	...	0·02	0·11	0·23	0·23	0·24	0·27	0·30	0·25	0·28	0·21	0·02	...	...	...	2·16
Valencia, Normal.	...	...	...	0·02	0·20	0·33	0·38	0·41	0·41	0·42	0·41	0·36	0·25	0·06	...	...	...	3·25
Difference for 1912	...	...	...	−0·02	−0·06	−0·01	+0·03	+0·02	+0·07	+0·01	0·00	−0·05	−0·10	−0·03	...	...	...	−0·14
Kew, Normal.	...	...	...	0·03	0·18	0·29	0·35	0·39	0·38	0·38	0·38	0·32	0·22	0·04	...	...	...	2·96
Difference for 1912	...	...	...	−0·02	−0·04	0·00	+0·03	+0·07	+0·11	+0·23	+0·17	+0·11	+0·04	−0·02	...	...	...	+0·68
Falmouth, Normal.	...	...	...	0·05	0·29	0·40	0·43	0·45	0·45	0·44	0·42	0·38	0·28	0·07	...	...	...	3·66
Difference for 1912	...	...	...	−0·04	−0·03	+0·09	+0·11	+0·16	+0·11	+0·14	+0·13	+0·11	+0·08	−0·03	...	...	...	+0·83
NOVEMBER.																		
Aberdeen, Normal.	...	...	...	...	0·01	0·11	0·26	0·29	0·32	0·33	0·28	0·14	0·01	...	...	...	...	1·75
Difference for 1912	...	...	...	...	−0·01	−0·07	−0·07	+0·07	+0·01	+0·01	−0·05	−0·10	−0·01	...	...	...	...	−0·22
Eskdale, 1912.	...	...	...	...	...	0·09	0·18	0·21	0·19	0·23	0·24	0·12	0·01	...	...	...	...	1·27
Valencia, Normal.	...	...	...	...	0·02	0·21	0·32	0·35	0·36	0·35	0·32	0·22	0·06	...	...	...	...	2·21
Difference for 1912	...	...	...	...	−0·01	−0·16	−0·14	−0·13	−0·12	−0·17	−0·18	−0·12	−0·06	...	...	...	...	−1·09
Kew, Normal.	...	...	...	...	0·01	0·10	0·21	0·27	0·30	0·30	0·28	0·20	0·03	...	...	...	...	1·70
Difference for 1912	...	...	...	...	−0·01	−0·03	−0·07	−0·10	−0·12	−0·12	−0·12	−0·09	−0·02	...	...	...	...	−0·68
Falmouth, Normal.	...	...	...	...	0·07	0·28	0·35	0·38	0·37	0·37	0·33	0·25	0·06	...	...	...	...	2·46
Difference for 1912	...	...	...	...	−0·04	−0·08	−0·10	−0·03	+0·03	−0·09	−0·04	−0·08	−0·04	...	...	...	...	−0·47
DECEMBER.																		
Aberdeen, Normal.	...	...	...	...	...	0·01	0·14	0·24	0·26	0·25	0·17	0·03	...	...	...	...	...	1·10
Difference for 1912	...	...	...	...	...	−0·01	−0·02	+0·02	−0·01	−0·03	−0·03	−0·02	...	...	...	...	...	−0·10
Eskdale, 1912.	...	...	...	...	...	...	...	0·02	0·05	0·02	0·01	...	...	..	...	...	...	0·10
Valencia, Normal.	...	...	...	...	...	0·07	0·21	0·26	0·25	0·24	0·19	0·10	...	...	...	...	...	1·32
Difference for 1912	...	...	...	...	..	−0·06	−0·10	−0·06	+0·02	−0·02	−0·03	−0·07	...	...	...	...	...	−0·32
Kew, Normal.	...	...	...	...	...	0·05	0·17	0·21	0·22	0·23	0·21	0·09	...	...	...	...	...	1·18
Difference for 1912	...	...	...	...	...	−0·04	−0·08	−0·06	−0·01	−0·02	0·00	−0·02	...	...	...	...	...	−0·23
Falmouth, Normal.	...	...	...	...	0·01	0·15	0·27	0·31	0·32	0·30	0·24	0·13	...	...	...	...	...	1·73
Difference for 1912	...	...	...	...	−0·01	−0·08	−0·04	−0·01	−0·07	−0·04	+0·01	−0·05	...	...	...	...	...	−0·29
YEAR.																		
Aberdeen, Normal.	0·01	0·06	0·11	0·16	0·23	0·30	0·36	0·38	0·40	0·39	0·37	0·31	0·24	0·18	0·12	0·06	0·01	3·69
Difference for 1912	0·00	−0·03	−0·03	−0·04	−0·04	−0·04	−0·06	−0·04	−0·06	−0·07	−0·07	−0·06	−0·03	−0·04	−0·05	−0·03	0·00	−0·69
Eskdale, 1912.	...	0·03	0·07	0·11	0·16	0·21	0·23	0·26	0·27	0·29	0·28	0·24	0·19	0·14	0·08	0·03	...	2·59
Valencia, Normal.	...	0·04	0·11	0·17	0·25	0·33	0·38	0·40	0·41	0·41	0·40	0·36	0·29	0·21	0·14	0·06	0·01	3·97
Difference for 1912	...	−0·01	−0·02	−0·04	−0·04	−0·04	−0·02	−0·01	0·00	−0·01	−0·02	−0·02	−0·02	−0·01	−0·02	−0·01	0·00	−0·29
Kew, Normal.	...	0·04	0·12	0·19	0·26	0·33	0·38	0·41	0·42	0·42	0·40	0·36	0·28	0·22	0·15	0·07	...	4·05
Difference for 1912	...	−0·02	−0·03	−0·02	−0·01	−0·02	−0·03	−0·04	−0·07	−0·04	−0·04	−0·06	−0·04	−0·04	−0·04	−0·02	...	−0·52
Falmouth, Normal.	...	0·05	0·14	0·23	0·32	0·41	0·45	0·47	0·47	0·48	0·46	0·43	0·35	0·27	0·18	0·07	...	4·78
Difference for 1912	...	−0·02	−0·06	−0·08	−0·06	−0·06	−0·05	−0·04	−0·03	−0·06	−0·05	−0·05	−0·05	−0·07	−0·05	−0·03	...	−0·76

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

Kew. MEAN HOURLY VALUES, GREENWICH MEAN TIME, FOR THE MONTHS, YEAR, AND SEASONS. **1912.**

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	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.
Jan.	−97	−107	−130	$\overline{n}$ 160	−133	−89	−32	84	x 130	100	28	25	21	37	62	34	58	57	61	65	45	16	−13	−62	−13	523
Feb.	−83	−91	−86	$\overline{n}$ 99	−81	−56	14	93	121	x155	91	49	32	− 4	−21	−21	18	36	26	− 4	− 6	− 6	−25	−52	+62	337
March	−16	− 43	$\overline{n}$ 62	− 58	− 56	−46	25	48	29	6	−13	−30	−33	−25	−22	− 4	7	33	63	x 70	60	50	25	−10	+ 6	228
April	−45	− 75	− 76	− 84	$\overline{n}$ 89	−72	−14	42	88	44	− 3	−25	−40	−41	−22	− 8	18	36	72	x105	93	81	37	−19	− 9	271
May	− 3	− 47	− 52	$\overline{n}$ 59	− 36	−24	25	31	36	16	− 5	−42	−30	−43	−36	−38	− 4	32	x 75	66	56	58	17	10	+26	204
June	−11	− 6	− 21	− 12	11	23	25	21	11	− 9	−18	−31	−38	$\overline{n}$ 46	−42	−30	−12	25	− 2	39	x 59	55	22	−15	−50	167
July	−22	− 61	− 67	$\overline{n}$ 70	− 60	−41	11	50	x 68	42	− 2	−38	−35	−43	−33	−12	9	30	48	60	61	64	44	− 4	− 6	259
Aug.	−34	− 60	$\overline{n}$ 68	− 36	− 43	−17	25	48	59	44	10	−15	−23	−33	−35	−36	−13	17	50	x 65	63	37	15	−17	+10	231
Sept.	−66	− 90	−100	−108	$\overline{n}$ 111	−88	−28	23	28	− 9	−34	−22	− 7	13	26	40	79	112	105	x124	91	59	− 7	−29	−16	334
Oct.	−89	− 49	− 42	− 28	10	18	12	95	x 145	100	0	−40	−37	−30	−35	−12	54	70	40	− 4	9	−28	−68	$\overline{n}$ 92	−18	399
Nov.	−76	− 92	− 91	$\overline{n}$ 99	− 82	−47	10	74	x 78	51	− 2	− 6	10	− 1	21	30	58	66	60	54	37	3	− 7	−47	+ 1	316
Dec.	−96	$\overline{n}$ 135	−125	−131	−121	−86	−49	12	47	37	39	24	33	47	25	76	93	100	x105	86	63	17	− 4	−57	−28	332
Year	−53	− 71	− 77	$\overline{n}$ 79	− 66	−4	2	52	x 70	48	8	−13	−12	−14	− 9	2	30	51	59	60	52	34	3	−33	...	300
Winter	−88	−106	−108	$\overline{n}$ 122	−104	−69	−14	6	x 94	86	39	23	24	20	22	30	56	65	63	50	35	7	−12	−54	...	377
Equinox	−54	− 65	$\overline{n}$ 70	− 69	− 62	−47	− 1	52	72	35	−12	−29	−29	−21	−13	4	40	63	70	x 74	63	40	− 3	−37	...	308
Summer	−17	− 44	$\overline{n}$ 52	− 44	− 32	−15	22	38	44	23	− 4	−31	−31	−41	−36	−29	− 5	26	43	57	x 60	53	25	− 7	...	215

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

MEAN HOURLY VALUES, GREENWICH MEAN TIME, FOR THE MONTHS, YEAR, AND SEASONS.

Eskdalemuir. (Computed from all the available individual Hourly Values.) **1912.**

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	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.
Jan.	−13	−22	− 61	− 90	−103	− 55	$\overline{n}$ 111	−40	−17	− 4	5	19	44	48	57	70	75	x 83	56	26	−12	29	10	− 6	+ 1	203
Feb.	−80	12	−143	35	− 89	$\overline{n}$ 177	− 4	33	46	43	45	51	x 56	46	−22	18	15	x 56	29	50	44	−10	−22	−35	− 6	189
March	22	− 9	− 58	−52	32	37	− 27	43	46	12	5	25	10	7	$\overline{n}$ 73	1	− 3	38	− 52	6	−34	−35	3	x 54	+ 2	83
April	21	21	15	6	− 5	1	6	−16	$\overline{n}$ 43	−30	−34	−31	−26	−13	−15	−21	−23	−16	0	19	44	x 56	53	37	+ 3	161
May	2	7	17	− 3	19	− 20	− 26	−16	$\overline{n}$ 34	−14	−24	−17	−16	−10	−10	−12	−13	2	14	25	x 54	39	35	10	− 11	130
June	18	26	11	19	− 4	3	14	6	− 6	−43	−43	−13	$\overline{n}$ 48	−31	−46	−25	− 1	0	27	38	3	x 47	− 6	44	+12	136
July	31	x 46	44	14	36	4	6	− 5	−20	− 6	−20	−18	−20	−15	−15	−30	−19	− 4	− 12	$\overline{n}$ 33	−15	35	21	5	− 9	160
Aug.	42	30	7	−70	− 74	6	39	62	6	−69	−25	−38	−36	$\overline{n}$ 76	−23	− 9	− 6	− 2	− 4	23	x 71	53	43	46	+ 7	172
Sept.	62	52	39	9	17	53	26	12	−52	$\overline{n}$ 87	−80	−80	−64	−58	−68	−31	−29	−12	50	−13	x 81	x 81	59	32	− 5	230
Oct.	− 3	1	− 15	−17	41	40	64	52	x 70	39	− 6	−29	− 2	4	− 7	28	16	−72	$\overline{n}$ 130	−49	−47	0	26	− 3	−19	162
Nov.	1	−20	− 33	−61	− 58	− 48	$\overline{n}$ 73	−37	12	−42	−41	−18	−38	−37	5	52	55	60	53	x 85	73	73	37	− 7	+ 4	209
Dec.	−13	−25	− 21	− 27	− 16	− 2	− 9	4	2	48	10	14	−22	$\overline{n}$ 32	−22	−28	31	25	x 63	41	2	−20	− 4	1	− 6	162
Year	8	10	− 17	$\overline{n}$ 20	− 17	− 13	− 8	8	1	−13	−18	−11	−14	−14	$\overline{n}$ 20	1	8	13	8	18	22	x 29	21	15	...	166
Winter	−26	−14	− 65	−36	− 67	$\overline{n}$ 71	− 49	−10	11	11	5	17	10	6	5	28	44	x 56	50	51	27	18	5	−12	...	191
Equinox	26	16	− 5	−14	21	33	17	23	5	−17	−29	−29	−21	−15	$\overline{n}$ 41	− 6	−10	−16	− 33	− 9	11	26	x 35	30	...	159
Summer	23	27	20	−10	− 8	− 2	8	12	−14	$\overline{n}$ 33	−28	−22	−30	$\overline{n}$,	−24	−19	−10	− 1	6	13	28	x 44	23	26	...	150

POTENTIAL GRADIENT DIURNAL INEQUALITIES AT ESKDALEMUIR, IN VOLTS PER METRE.

MEAN VALUES FOR THE SEASONS AND THE YEAR COMPUTED FROM COMPLETE QUIET (0,a) DAYS ONLY. **1912.**

Year 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.	Mean Values.
Year	− 11	− 18	− 21	− 19	− 10	− 17	3	2	− 2	−18	−35	$\overline{n}$ 49	−40	−27	−20	−19	− 2	39	58	52	x 69	64	29	− 5	242
Winter	− 61	− 78	$\overline{n}$ 87	− 63	− 63	− 72	− 40	− 1	38	25	10	− 28	−26	−13	15	20	50	x 130	112	68	70	48	− 6	−48	318
Equinox	29	22	13	− 1	20	31	42	20	−15	−55	−78	$\overline{n}$ 79	−71	−59	−64	−58	−44	− 6	43	62	78	x 80	67	33	246
Summer	− 2	3	10	7	12	− 9	7	− 12	−28	−23	−37	$\overline{n}$ 39	−22	−10	−10	−20	−12	− 7	19	27	58	x 65	26	− 1	161

* Refer to p. 65.

† Refer to p. 72.

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

Terrestrial Magnetism.—Scale value determinations of the horizontal force magnetograph were made on February 12 and 13, and on December 17. The value accepted for the year is

1 cm. = 0·000535 C.G.S.

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

1 cm. = 8′·7.

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

In the absolute observations of horizontal force use was made, as in 1911, of three deflection distances—22·5, 30, and 40 cms.,—and values were calculated for the two constants P and Q of the deflection formula from all the observations of the year combined. The values thus obtained during the last three years have been as follows:—

Year.	P.	Q.
1912	+0·749	−1286
1911	+0·832	−1377
1910	+0·882	−1354

The horizontal force data published in the course of the year in the *Geophysical Journal*—including the daily maxima and minima—were based on calculations which employed the values of P and Q applying to the year 1911. They require the correction +1γ (1×10^{-5} C.G.S.) to reduce them to what they would have been if calculated from the values of P and Q found for 1912. The daily extremes of declination given in the *Geophysical Journal* require no correction.

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

There were no really large disturbances in the whole course of the year. The principal movements recorded were those of August 6, September 17 and 24, October 14, and December 22–23.

1912.	Number of Days having Magnetic "Character."			Mean of Character Numbers.
	"0"	"1"	"2"	
January.	24	7	0	0·23
February	17	12	0	0·41
March	20	10	1	0·39
April	17	11	2	0·50
May	18	11	2	0·48
June	17	12	1	0·47
July	21	7	3	0·42
August	18	11	2	0·48
September	18	10	2	0·47
October.	19	9	3	0·48
November	16	13	1	0·50
December	19	8	4	0·52
Year (totals and means) . . .	224	121	21	0·45

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

List of Magnetic Quiet Days for 1912, *as issued by the International Commission of Terrestrial Magnetism.*

January	2, 15, 16, 26, 27	July	10, 11, 12, 15, 24
February	5, 6, 15, 20, 21	August	4, 8, 12, 13, 26
March	4, 17, 18, 19, 24	September	2, 15, 16, 27, 28
April	1, 8, 11, 21, 28	October	2, 5, 18, 19, 31
May	1, 16, 22, 23, 26	November	3, 12, 21, 29, 30
June	5, 6, 15, 19, 20	December	4, 5, 20, 21, 28

A temperature correction has been applied as usual to the horizontal force curves, the value applied being $3{\cdot}0_6\gamma$ per 1° C. The curves were smoothed in the way customary at the Observatory, and allowance was made so far as possible for all irregularities which were clearly due to artificial electric currents. The non-cyclic changes in the 24-hours were eliminated in the usual way, *i.e.* they were assumed to come in at a uniform rate throughout the day. Tables LV. and LVI. give the diurnal inequalities of declination and horizontal force, after elimination of the non-cyclic change, for each month of the year, for the year as a whole, and for three seasons—Winter (January, February, November, December), Equinox (March, April, September, October), and Summer (May to August). Table LXIV. gives under the heading "range" the algebraic difference of the extreme hourly values, and under the heading "24—0" the mean algebraic excess of the value of the element at hour 24 over that at hour 0. The units employed in the tables are 1′ in the case of declination and 1γ (or 1×10^{-5} C.G.S.) in the case of horizontal force. In the case of declination the + sign denotes that the magnet is to the west of its mean position for the day.

The disturbance due to artificial electric currents in the vertical force curves is such that the curves have not been tabulated on quiet days since 1902. (They continue

to serve a useful purpose mainly in connection with the verification of dip circles). The dip observations have, however, been reduced to the mean value for the day by reference to data available from earlier years, and values have been obtained for the vertical force by combining the values of dip thus corrected with the corresponding horizontal force data derived from the curves. Table LXVII. gives mean monthly values of declination and horizontal force derived from the curves of the selected quiet days, and mean values of inclination and vertical force derived in the way just described. The values given in the table for the total force and the north and west components are calculated from the values given for the other elements. The mean annual values from 1911 and earlier years are intended to show the nature of the secular change.

Table LXVIII. gives a list of values of magnetic elements including the latest year available at the observatories whose publications are received at Kew. The information contained in publications has been supplemented in several cases by information due to the personal courtesy of directors. When data have become available for several years subsequent to the most recent year dealt with in the corresponding list issued last year, they have been included so far as possible.

Atmospheric Electricity.—The instruments in use throughout the year have been the Kelvin water-dropping electrograph—giving a continuous record of the potential at the spot where the jet breaks up into drops—the Kelvin portable electrometer No. 53, an Ebert aspiration apparatus, and a Wilson universal electrometer.

The Kelvin portable electrometer is used to deduce from the readings of the electrograph curves the true potential gradient in the open. The apparatus for taking the absolute observations consists essentially of a long horizontal insulated rod carrying a lighted fuse at the end, the rod being connected to the terminal of the portable electrometer. Readings are taken with the fuse at 1 metre and 2 metres above the ground, the grass on which is kept short. The site is in the Observatory garden. Theoretically, if no change occurs in the discharging tube of the electrograph or in its environment, one would expect a constant ratio to persist between the potential shown by the electrograph and the corresponding reading obtained with the portable electrometer. In this event it would suffice to determine the ratio once for all, and apply the factor thus deduced to convert readings of the curves into volts per metre in the open. As a matter of fact, the assumption of a constant ratio is hazardous, at least under the conditions existing at Kew Observatory. The discharge tube is long, and a slight shift in the position of the discharging nozzle, whether through sagging of the tube or other slight mechanical change, is a possibility not to be neglected. Again, the tube occasionally freezes, and may be split, and a new tube may have to be fitted. Finally, the discharge tube is some 14 feet above the level of the ground at the site where the absolute observations are made. Thus the practice has been to take the absolute observations on all fine days, when time permits, shortly after 10 a.m. A factor is determined from the observations of each month treated independently, and is given in the *Geophysical Journal.* Table LXXV. gives the diurnal inequalities of the potential gradient for individual months, three seasons, and the year. As in the other tables, Winter denotes the four months January, February, November, and December; Equinox the four months March, April, September, and October; and Summer the remaining four months, May to August. The inequalities and mean monthly and annual values in the table are based on the curves of ten—in one case nine—"quiet" days from each month,

selected as being wholly free from negative potential. Other objects in the selection of the "quiet" days are freedom from large irregular movements, absence of indications of inferior insulation in the electrograph, and the avoidance so far as possible of large non-cyclic changes. The non-cyclic changes given in the table represent, of course, means from all the selected days of each month. As usual x and n denote respectively the maximum and minimum values. The range thence deduced is much less than the mean of the individual daily ranges. It should be understood that the mean value and the inequality derived from any single month are largely dependent on the weather that happens to prevail, and cannot be assumed to be fairly representative of the season of the year. Adequately representative data can be obtained only by combining the results of a number of years.

The Ebert apparatus has been used to determine the charge per c.c. and "mobility" of the ions of which the apparatus takes cognisance. A considerable proportion of the results—especially those for the mobility—have been of a somewhat indefinite character, the sensitiveness of the instrument being apparently insufficient under the conditions ordinarily prevailing at Kew. The Wilson apparatus has been used for measuring the vertical air-earth current. Its sensitiveness seems more adequate, and the results have been more consistent, but some uncertainty is felt as to the exact significance of the numerical results obtained. The data obtained at the ordinary hours of observation with the Ebert apparatus, so far as not obviously inconsistent, and those from the Wilson apparatus, have been published in the *Geophysical Journal*.

Seismology.—Records have continued to be taken with the old-pattern Milne seismograph, having its boom oriented north and south and measuring tilting in the east-west direction. The movements recorded during the year which appeared to be of a true seismic character numbered 148. A large proportion were mere broadenings of the trace, whose seismic character could only be established by comparison with corresponding records from other stations. This comparison depended on Shide data kindly supplied by Professor J. Milne. Particulars of the times of occurrence of all the movements and of the duration and amplitude of the larger movements were communicated to Professor Milne, as secretary of the British Association Seismological Committee, for inclusion in his half-yearly lists.

The two principal earthquakes recorded during the year were those of May 23rd, which occurred at Tsingtau, and of August 9th, which occurred at the south of the Sea of Marmora. The maximum amplitudes recorded on these occasions were 15·7 mm. and over 17 mm. respectively.

Meteorology.—Hourly readings of barometric pressure, temperature, relative humidity, wind (direction and velocity), rainfall, and duration of bright sunshine will be found as usual in the "Hourly Readings."

This also contains particulars of the daily maxima and minima of barometric pressure and temperature.

The *Geophysical Journal* gives the barometric pressure, air temperature, pressure of aqueous vapour and relative humidity, as well as the direction and velocity of the wind, at hours 9 and 21 (9 p.m.). It also gives the amount of cloud at hours 10 and 22 (10 p.m.), the total daily duration of bright sunshine, the reading of the grass minimum thermometer, and the reading at hour 10 of earth thermometers at depths of 0·3 and 1·2 metres (1 and 4 feet). The readings of solar radiation taken with the

Ångström pyrheliometer are also included. Reference will be made here only to a few of the outstanding phenomena of the year.

Barometric Pressure.—The barometric pressure throughout the year varied from 973·5 millibars (28·731 in.) on March 18th to 1037·1 millibars (30·608 in.) on October 4th.

Temperature.—The temperature in the shade varied from 303° A. (87° F.) on July 12th to 265° A. (18° F.) on January 29th.

The highest reading given by the solar radiation thermometer was 137° on June 18th. The highest reading obtained with the Ångström pyrheliometer was 0·090 Watts (1·29 calories) on May 16th.

The total duration of bright sunshine for the year, 1290 hours, was unusually low, being only about three-quarters of the duration for 1911. April gave the largest monthly total, 235 hours, and June 22nd the greatest daily total, 15 hours.

The lowest temperature on the grass during the year was 260° A. (9° F.) on February 3rd.

The readings of the earth thermometer at 0·3 metres (1 foot) during the year varied from 274° A. (34° F.) on the 5th and 6th of February to 293° A. (67° F.) on the 15th and 16th of July.

The earth thermometer at 1·2 metres (4 feet) had its extreme readings, 279° A. (42° F.) on February 10th and 11th, and 288° A. (60° F.) on July 28th to 31st.

Wind.—The highest mean hourly velocity of the year was 14·8 metres per second (33 miles per hour) on January 17th. The highest velocity attained in a gust during the year as recorded by the Dines pressure tube was 26·8 metres per second (60 miles per hour) on March 4th.

Cloud.—The mean amount of cloud for the year—scale 0 to 10—was 7·0, the monthly means varying from 4·1 in April to 8·3 in February.

Rainfall.—The total rainfall for the year was 711·5 mm. (28·01 inches). August with 137·2 mm. (5·40 inches) and April with 1·3 mm. (0·05 inches) were respectively the wettest and dryest months. The greatest daily total was 25·1 mm. (0·99 inches) on September 29th.

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

The magnetograph house at Eskdalemuir is essentially an underground house and contains two large and similar rooms. The west room is regarded as an experimental room, and is available at present for the investigation of improved forms of magnetic recorders. The east room is regarded as the standard recording room, and in addition to the magnetic recorders contains the photographic recording barometer. There is no artificial heating of the building except such as is introduced by acetylene jets which serve as the source of illumination.

The magnetographs are of the Adie pattern, with this difference, that the horizontal components are both fitted with similar bifilar suspensions and are made to record directly the north and west components instead of horizontal force and declination. The change to geographical components was made in 1910.

The scale values of all three components have been determined fortnightly by deflecting with an auxiliary magnet placed at 75 cm. from the centre of the recording magnets and at right angles to the axis, direct and reversed. In each case the auxiliary magnet and recording magnet were similarly situated, so as to eliminate as far as possible the question of distribution constants.

To deduce the scale value in absolute measure one requires to know the equivalent field produced by the auxiliary magnet. From a long series of observations while the W magnet was still recording D, it appeared that the auxiliary magnet showed little if any change, and taking H as ·168 the field produced by the auxiliary magnet (double deflexion) was equal to 432γ. From time to time comparisons with the standard collimator magnet 60A were made to provide against any change of the auxiliary magnet.

The magnetic axis of the North Variometer pointed a little to the south of west, and that of the West Instrument slightly to the west of north, the discrepancies being of the order of 0°·40′ and $1\frac{1}{4}°$ respectively.

If n' and w' are the north and west inequalities printed herewith, then the corrected values, n and w, along the true geographic directions are

$$\left.\begin{aligned} n &= n' - w' \sin 0°{\cdot}40' = n' - w'/80 \\ w &= w' + n' \sin 1\tfrac{1}{4}° \quad = w' + n'/50 \end{aligned}\right\} \text{approximately.}$$

There will be corresponding corrections to apply to the Fourier coefficients. The matter is being investigated, and it is intended to publish more exact values for the discrepancies for 1912 in the next annual volume.

The base values have been investigated as completely as has been possible and are dealt with below.

The traces themselves are interrupted every two hours for about $1\frac{1}{2}$ minute, so that the end of the break is the exact hour G.M.T. The time scale is 1 hr. = 15 mm. *quam proxime.*

The reading is the estimated mean for an hour centering at exact hours G.M.T.,

and the values differ in this respect from the values for 1911, which were readings at the exact hour.

The curves are read by a glass millimetre scale estimating to 0·1 mm. The accuracy of reading may be taken as 1γ.

In preparing the inequality tables the residual differences 24 − 0 for the month are assumed to be incident linearly, and allowed for accordingly.

Records of Vertical Force.—The tendency to drift in the vertical force magnet, which proved a serious difficulty in 1911, developed further, and, having regard to this and other sources of uncertainty, it has been decided not to publish hourly values of vertical force for 1912 or tables based thereon.

No magnetograms have been reproduced for this year, but copies will be supplied to those desiring to examine particular specimens, on application to the Director of the Meteorological Office or the Superintendent of the Observatory.

The Scheme of Absolute Observations.—The instruments in use were Dip Circle No. 74, by Dover, for measuring inclination, and Unifilar No. 60, by Elliott Brothers, for measuring declination and horizontal force.

The scheme of absolute observations was that every Tuesday the assistants should make (1) a vibration experiment, (2) a declination experiment with magnet erect and inverted, the times being precisely noted, (3) a deflexion experiment, four positions, using one distance only, viz., 25 cm., (4) an observation of inclination with 2 needles.

Every Friday when possible Mr Walker made (1) a vibration experiment, (2) a deflexion experiment, four positions, and using three distances, viz. 25 cm., 30 cm., 35 cm., each distance being a separate experiment, (3) a declination experiment.

The relative base values of the magnetographs were obtained from Mr Walker's observations almost exclusively, as also were the magnetic moment m_0 of the magnet 60A at 0° C., and the distribution constants P and Q in the expression $(1 + P/r^2 + Q/r^4)$.

The vibration observations and the deflexions at 30 and 35 cm. were corrected by curve to the mean time of the 25 cm. deflexion experiment (usually an interval of about 10 minutes).

Now, assuming that P and Q are known, we may calculate H and m_0, while if we also know m_0 we may calculate H from either the vibration experiment or the deflexion experiment.

The new temperature coefficient ·00045 is used throughout.

The figure for log $(1 + P/r^2 + Q/r^4)$, for any one of the first nine months of the year, was obtained from the average of a series of deflexion observations extending from 1910 up to the end of the month in question. For the 25 centimetre distance they ran as follows :—

	log $(1 + P/r^2 + Q/r^4)$.
January, February	·00613
March	·00615
April	·00619
May, June, July, August . . .	·00621
September	·00622

These numbers were used to correct log $\frac{m_0'}{H'}$, and the corrected value, which we may denote by log $\frac{m_0}{H}$, was combined with the value of m_0H given by a vibration

experiment made on the same day as the deflexion, in order to determine m_0. First, however, m_0H was corrected to the time of the deflexion. These individual values of m_0 were then meaned from August 1911 up to the end of the month in question, and the mean was used in conjunction with log $\frac{m_0}{H}$ to find H at the time of the deflexion.

Observations from which m_0, P *and* Q *have been deduced. The values are reduced to 0° C., and corrected from the curves to the time of the 25 cm. deflection experiment.*

Date 1912.	$\text{Log}_{10}\, m_0H$.	$\text{Log}_{10}\, m_0(1+P/r^2+Q/r^4)/H$.					
		at 25 cm.	Difference (25)—(30).	at 30 cm.	Difference (30)—(35).	at 35 cm.	m_0.
Jan. 5	2·18558	3·73794	154	3·73640	114	3·73526	909·00
12	523	836	166	670	103	567	909·08
19	501	804	159	645	118	527	908·51
26	533	808	167	641	124	517	908·89
Feb. 9	542	802	158	644	115	529	908·92
16	556	811	178	633	100	533	909·16
23	509	832	164	668	113	555	908·89
Mar. 8	514	859	169	690	112	578	909·22
15	504	851	168	683	110	573	909·03
22	450	889	155	734	117	617	908·87
29	473	868	167	701	108	593	908·89
Apr. 12	515	850	162	688	122	566	909·14
19	436	918	164	754	105	649	909·02
26	524	844	158	686	124	562	909·17
May 3	515	847	147	700	126	574	909·11
10	536	816	165	651	108	543	909·00
24	513	843	167	676	105	571	909·04
Sept. 6	456	870	168	702	117	585	908·73
13	461	896	167	729	120	609	909·05
20	435	886	169	717	106	611	908·68
27	405	929	149	780	103	677	908·81
Oct. 18	454	894	172	722	105	617	908·86
25	445	874	177	697	117	580	908·66
Nov. 8	464	864	173	692	112	580	908·75
15	446	882	160	722	107	615	908·75
Dec. 6	469	866	172	694	104	590	908·82

Values deduced from all the above observations

$$P = +11{\cdot}30 \qquad Q = -1273{\cdot}1,$$

and $\log_{10}(1+P/r^2+Q/r^4)$

at 25 cm.	at 30 cm.	at 35 cm.
·00639	·00474	·00362

The figures in the column headed m_0 have been calculated from these values of P and Q, and they are slightly less than the values of m_0 which are referred to above as having been used to form a mean for finding H: the difference varies between 0·18 and 0·35.

Mean value $m_0 = 908{\cdot}92$.

There is a presumption that P and Q may have changed at the time of the experiments in August 1911, when m_0 also changed. If all values from August 25th 1911 to December 1912 are taken, we get

$$P = +10{\cdot}99 \qquad Q = -1145{\cdot}4,$$

Base Value West Component, 1912

Temperature North Component, 1912

Base Value North Component, 1912

25 31 5 10 15 20 25 29 5 10 15 20 25 31 5 10 15 20 25 30 5 10 15 20 25 31 5 10 15 20 25 30 5 10 15 20 25 31 5 10 15 20 25 31 5 10 15 20 25 30 5 10 15 20 25 31 5 10 15 20 25 30 5 10 15

RY FEBRUARY MARCH APRIL MAY JUNE JULY AUGUST SEPTEMBER OCTOBER NOVEMBER DEC

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and the values of $\log_{10}(1 + P/r^2 + Q/r^4)$ are then

·00631 ·00466 ·00355

If these are used the mean value of m_0 from August to December 1911 would be 908·98 *, and from January to December 1912 would be 909·00.

Correction to the published values of H, *if the above values of* P *and* Q *are used in place of those actually used month by month during 1912.*

	Using P and Q as deduced from August 1911 to December 1912.	Using P and Q as deduced from January to December 1912.
January	+4γ	+5γ
February	4γ	5γ
March	3γ	4γ
April	3γ	4γ
May	2γ	3γ
June	2γ	3γ
July	2γ	3γ
August	2γ	3γ
September	2γ	3γ

For October, November, and December, log 10 $(1 + P/r^2 + Q/r^4)$ was obtained from the deflexion observations made in those months only, and was found to be 0·00606 for the 25 cm. distance. For these months H was deduced from single pairs of observations of vibration and deflexion, so that averaged values of m_0 were not involved.

The maximum and minimum values for the North and West Components published in the *Geophysical Journal* for October, November, and December differ from the corresponding values obtained by this latter method. For October the differences are slight. For November the mean corrections to the values in the *Geophysical Journal* is zero for the West Component and -5γ to the North Component: for December the corrections are -2γ for the West Component and -7γ to the North Component. In both months the correction to the North Component is zero at the beginning of the month and increases uniformly to double its mean value at the end of the month.

The base values of N were plotted, and a smooth curve drawn continuous with that for 1913.

The smoothed values of the N base were used in conjunction with the declination to obtain the base of W, but this practice of smoothing for the determination of the base of W curves has now been discontinued (1914).

The annexed diagram shows the progressive changes of the temperature and of the base values of the magnetographs during the year 1912. There is a striking resemblance between it and the corresponding diagram for 1911. For the first nine months of the year (1) observations by assistants are represented by a dot •, (2) observations by the superintendent are shown thus ⊙, (3) the average for the month is shown by an × without reference to persons or vagaries. For the last three months this distinction was abandoned and the observations are represented by a ⊕.

The range of temperature continues to be very small. The North Instrument has

* *Cf.* Hourly Values, Geophysical Section, 1911, p. 74.

an obvious temperature coefficient and a small drift. The West Instrument continues to drift at the rate of about 120γ per year.

The Electrograph.—The problem of insulation and determination of the multiplying factor to convert readings to potential gradient in the open has been dealt with in preceding reports. It will suffice here to say that the jet of water breaks at about $\frac{1}{3}$ metre from the wall, and that the factor for the early part of the year was 5·4.

The recording part of the electrograph is a Dolezalek electrometer used as a voltmeter. The scale value varied between 110 and 137 volts per cm. on the paper. In quiet weather (no precipitation) a more open scale or a longer discharge tube could be used, but the potentials experienced during precipitation are so high that, even with the present arrangement, the limits of registration are sometimes exceeded—the electrometer needle attaining a potential of over 1000 volts.

The electrometer is carried on a slate slab raggled into an inner stone wall in the main building.

The scale was tested photographically on the sheet itself in terms of a high potential Wulf electrometer connected to the system, and charged by means of a Zamboni pile. This operation was performed usually every fortnight, or more frequently when the apparatus required readjustment.

A clockwork automatically earths the system every three hours.

The curves are read by a millimetre scale (by Fuess, Berlin), and the assigned values are the estimated means for an hour centering at exact hours of G.M.T. The estimate is made to 0·1 mm., or equivalent to about one volt on the curve or about six volts in the potential gradient per metre in the open.

In preparing the first part of Table LXXVI., which contains mean hourly values, all values, whether + or −, that could reasonably be estimated, have been included whether values for all the 24 hours of the day were available or not. Naturally, all curves rendered spurious by presence of spiders are excluded.

In the shorter supplementary table the mean values are computed only from days of character (0, α) on which all the 24 hourly values were available.

These days are shown as (0, α) days in the monthly issues of the *Geophysical Journal*, but a few of the days given in the *Journal* had some negative potential. These days have not been used here. They are January 18, May 28, July 6, 7, 9, September 12, 14, 15, 16, 17, 24, October 5, 11, November 6.

The days used were distributed among the different months as indicated by the following numbers, the first number referring to January and the last to December :—
5, 3, 2, 14, 7, 2, 12, 6, 14, 7, 8, 4 days.

The total for the year was therefore 84 days. For the seasons, winter had 20 days, equinox 37, summer 27. In view of the small number of days in most of the months, the seasonal values have been computed from the values for the individual days irrespective of the month in which the days fell. This gives April with 14 days, 7 times the weight of March with 2 days, but the alternative course of forming monthly means and deducing the seasonal values as the mean of these means is open to the more serious objection of giving undue weight to one or two individual days on which the variation may have been exceptional. The values for the year were computed as the means of the three seasonal values, as there were a sufficient number of days in each season to give tolerably regular means.

NOTES ON THE MAGNETIC OBSERVATIONS MADE AT THE VALENCIA OBSERVATORY, CAHIRCIVEEN, 1912. By J. E. CULLUM, Superintendent.

Absolute observations of declination, horizontal force, and inclination were taken at least twice a month with the Dover Unifilar No. 139 and the Dover Dip Circle No. 118.

The mean hours (G.M.T.) of observations, as in previous years, were 10^h for declination, 12^h (noon) for horizontal force, and 13^h (1 p.m.) for inclination.

Particulars of the individual observations will be found in the monthly numbers of the *Geophysical Journal.* The results of the horizontal force observations given therein were based on the value obtained for the distribution constant "P" from the combined observations of the year 1911. The value obtained for P from the observations of 1912 is somewhat different, necessitating the application of the correction -1γ ($-\cdot00001$ C.G.S.) to the values published in the *Geophysical Journal.*

Table LXVII. gives the observed mean monthly and annual values of declination, horizontal force, and inclination, and corresponding calculated values for the total force, and the north, west, and vertical components.

Mean annual values are also given for the years 1911, 1910, and 1905.

NOTES ON THE MAGNETIC INSTRUMENTS AND OBSERVATIONS AT FALMOUTH OBSERVATORY, 1912. By EDWARD KITTO, Superintendent.

Scale value determinations of the magnetographs were made on the 1st January, the 30th June, the 26th October (after new suspension), and the 31st December. The following values of the ordinates of the photographic curves were found :—

	January 1st.	June 30th.	October 26th.	December 31st.
Declination, 1 cm. . .	0° 11′·7	...	...	...
Bifilar, 1 cm. δ H. . .	0·00081	0·00082	0·0012	0·0012
Balance, 1 cm. δ V. . .	0·00050	0·00050	...	0·00057

The year has been unusually free from marked magnetic disturbances ; the principal movements were recorded on the following dates :—

April 5 ; September 17, 24 ; October 14 ; December 7.

Observations with the absolute instruments for the determination of horizontal intensity, inclination, and declination have been made four times a month.

The mean values of the Magnetic Elements for the year 1912 and certain previous years are given in Tables LXVII. and LXVIII.

The results in Tables LVII.–LX. are deduced from the magnetograph curves. The values in Table LXVII. are also derived from the curves standardized by the absolute observations. These were made with the collimator magnet 66A and the mirror magnet 66C in the Unifilar Magnetometer No. 66, by Elliott Brothers, of London, and with the Inclinometer No. 86, by Dover, of Charlton, Kent, employing needles 1 and 2, which are $3\frac{1}{2}$ inches in length.

The effects of temperature on the horizontal force curves are very small and are negligible, but a temperature correction has been determined and applied to the vertical force curves.

The time given is Greenwich Mean Time, which is 20 minutes 18 seconds earlier than local time.

The results are derived from the "quiet" days selected by International agreement at De Bilt, given on p. 64.

In the Tables the seasonal means are grouped as follows :—

Winter :—January, February, November, December.
Equinox :—March, April, September, October.
Summer :—May, June, July, August.

NOTES ON THE METEOROLOGICAL SUMMARIES.

By E. GOLD, M.A., Superintendent of the Statistical Division of the Meteorological Office.

For Kew, Valencia, Falmouth, and Aberdeen, the tables give the average for the 40 years 1871–1910 of—

a. Barometric Pressure;
b. Temperature of the Air;
e. Rainfall;

and the averages for the 30 years 1881–1910 of—

d. Velocity of the Wind;
f. Sunshine;

and the averages for the 25 years 1886–1910 of—

c. Relative Humidity.

In the case of Eskdalemuir the values for the current year only are given.

The averages referred to above have been adopted as normal values for the elements mentioned at the four observatories.

Particulars of the methods of tabulation and of the instruments, additional to those given in the footnotes to the tables, are published in the Introduction to Part IV. Section (1) of the *British Meteorological and Magnetic Year Book for 1912*, and in the *Annual Reports of the Meteorological Office for the years 1867 and 1869.*

Tables for the reduction of the values of pressure to Mean Sea Level are also included in the Introduction referred to.

The values in the tables have been expressed throughout in units based upon the C.G.S. system, and the following table shows the actual units employed for the different elements:

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

Tables for the conversion from one set of units to the other are given below.

a. Barometric Pressure.—Millibars. A "bar," one thousand millibars, is equal to a pressure of one million dynes per square centimetre (one megadyne per cm.^{2}). This is nearly equal to the normal mean pressure of the atmosphere at the surface of the earth.

One millibar is approximately equal to the pressure due to $\frac{3}{100}$ of an inch or $\frac{3}{4}$ of

a millimetre of mercury under normal conditions. The exact relations are given at the head of Table I.

The barometer readings are obtained from the hourly tabulations of photographic records from similar apparatus at all five observatories.

The barographs at Kew and Aberdeen have remained unchanged throughout the whole period. The site of the observatory at Valencia was changed on March 23rd, 1892, the change in the height of the cistern of the barometer being from 7·0 m. to 13·7 m. The site of the observatory at Falmouth was changed in May 1885, the change in the height of the cistern of the barometer being from 64·3 m. to 55·8 m. Account has been taken of these changes of position in calculating the averages for the period 1871–1910, and the values given correspond with the present positions.

In forming the monthly means of the hourly values of pressure, temperature, and humidity (given in the last column in Tables LXIX., LXX., LXXI.), a correction has been applied to the tabulated values to eliminate the effect of a difference between the conditions at the beginning and end of the month.

The corrections to the individual mean hourly values are dependent upon the values for the first and second midnights. If the mean difference between these values is d, then $d(12-n)/24$ represents the value of the correction to be applied to the actual value obtained for the hour n. The values of d for Kew, Valencia, and Eskdalemuir may be obtained from the values published in Part IV. Section (1) of the *Year Book for 1912*. The values for pressure and temperature are given below in the tables on p. 80.

The normal daily variation of pressure is made up of a more or less regular semi-diurnal wave which, if local time be used, is independent of the position of the station except as regards latitude, superposed upon a diurnal wave which exhibits great irregularities from place to place. If we examine the daily variation in the departures from the normal values of the means for 1912, we find that at Kew and Aberdeen pressure was relatively low in the afternoon and high in the morning, at Valencia it was relatively high in the afternoon and low in the morning, while at Falmouth it was low in the day-time and high in the night. At all four stations the mean pressure for the year was considerably below the normal; the only months in which pressure was above the normal at all stations were April and September; it was everywhere below the normal in February, March, June, August, and December.

In a paper read before the Royal Meteorological Society in June, 1911, Dr Chree discussed the diurnal variations of barometric pressure in the neighbourhood of Eskdalemuir, basing his discussion upon seven years' records of an aneroid barograph at Castle O'er, which is situated in the parish of Eskdalemuir about 16 kilometres to the south of the Observatory and 60 metres below it. A striking feature in Dr Chree's results was the large amplitude of the 24 hour term in the Fourier series. The amplitude of the 12 hour term was also relatively large when compared with other stations in Scotland. As hourly values from the photographic barograph at the Observatory have now been tabulated and published, it seemed desirable to see if they confirmed the results which Dr Chree found from the Castle O'er records and the hourly means for 1911, 1912, have accordingly been analysed.

The amplitudes and phases for the first three terms are given in the tables below, along with the values for Castle O'er, the normal values for Kew and Aberdeen, and the values for Kew and Aberdeen in the years 1911, 1912.

The magnitude of the whole-day term for Eskdalemuir is in each year intermediate between those of Kew and Aberdeen, and the values suggest that the large amplitude at Castle O'er arises from peculiarities in the instrument or in its exposure. The values for 1911, 1912, are both less than half the Castle O'er values for 1902–1908. One small peculiarity may be noted: the amplitude at Eskdalemuir for 1912 is greater than that for 1911, although at Aberdeen and at Kew the reverse is the case.

	Amplitudes in Millibars.			Phase Angles measured from Greenwich, Midnight.		
	P_1.	P_2.	P_3.	A_1.	A_2.	A_3.
Eskdalemuir (Observatory), 1911 . .	·088	·289	·016	97° 32′	145° 46′	5° 0′
„ „ 1912 . .	·107	·249	·033	67 37	141 43	356 35
„ (Castle O'er), 1902–1908 . .	·228	·300	·031	136 42	129 48	275 0
Kew, 1911	·191	·369	·030	48 10	151 15	15 1
„ 1912	·159	·320	·035	10 17	146 58	340 7
„ 1871–1910	·133	·351	·030	29 36	149 22	7 33
Aberdeen, 1911	·054	·257	·025	117 46	146 40	358 22
„ 1912	·032	·218	·041	35 12	139 9	342 49
„ 1871–1910	·119	·249	·030	157 27	143 13	352 27
Castle O'er deduced from Observatory 1911 .	·127	·289	·013	81 46	147 25	22 23
„ „ „ 1912 .	·154	·251	·030	63 2	143 8	38 6

The values for the 12 hour term are interesting. At all three observatories the amplitude for 1912 is between 10% and 15% below the value for 1911, and the maximum is reached about 10 minutes later: the two years appear to be abnormal years of opposite character in this respect as they actually were climatically.

The amplitude P_2 is in both years less at the Observatory than at Castle O'er, and the maximum is reached at the Observatory about half an hour earlier.

The difference of level between the two stations may account for some of these differences. The hourly variation of pressure at a place 60 metres lower than the Observatory has been calculated from the hourly values of pressure and temperature for 1911, 1912, and this has been called "Castle O'er deduced from Observatory." The values are given last in the table: the amplitude of the diurnal term is nearer than that for the Observatory to the value found by Dr Chree from the Castle O'er records, but is still considerably smaller.

b. Temperature of the Air.—Degrees absolute (°A). The value of each degree is the same as that of 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 conversion from degrees A to C or *vice versa* is therefore a simple addition. Table II. enables degrees F to be converted directly into degrees A or *vice versa*.

The values of temperature at all five observatories are obtained from the tabulation of photographic records from similar and similarly exposed mercurial thermometers; at Eskdalemuir the thermometer screen is away from the observatory building, while at the other observatories the screen is on the north wall of the building.

The principal feature in the diurnal variation of temperature for 1912 is the increase in the night minimum. The mean temperature for the year was slightly above the normal value, but the excess is more marked during the night than the day; especially is this the case during the months of February and March. In April and May the difference is in the opposite direction.

c. Relative Humidity.—This 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 five observatories: they have cylindrical bulbs about 4 inches long. The values of the humidity are calculated by the use of the Meteorological Office Tables, which are based upon Glaisher's factors. At Eskdalemuir the wet-bulb values after August 7th were obtained from the records of a bimetallic thermograph standardised by comparison with the readings of an ordinary mercury wet-bulb thermometer taken three times a day.

The means for Kew, Eskdalemuir, and Valencia are obtained from the hourly values of humidity for each day: the means for Falmouth and Aberdeen are calculated from the mean hourly values for the month of the dry- and wet-bulb temperatures. The year generally was more humid than usual. September was the only month in which the humidity was below normal at all observatories, although in April the values at Aberdeen, Kew, and Falmouth were very low.

The values of the humidity depend chiefly on the difference between the readings of the wet- and dry-bulb thermometers, and a small error in the tabulated values of these records may produce a considerable error in the value of the humidity. The tabulated values are taken directly from the curves and are not corrected for the difference between the tabulated values at fixed hours and the results of eye-observations at those hours. The tabulating scale is so adjusted that these differences are always small. The actual mean values are shown in the table. These corrections have not been applied to the published figures except in the case of Eskdalemuir.

Mean monthly values of the differences between the tabulated and the standard readings of the thermometers.

	Valencia.			Kew.			Eskdalemuir.*		Aberdeen.			Falmouth.		
	Standard—Curve.		Approx. Correction to Relative Humidity.	Standard—Curve.		Approx. Correction to Relative Humidity.	Standard—Curve.		Standard—Curve.		Approx. Correction to Relative Humidity.	Standard—Curve.		Approx. Correction to Relative Humidity.
	Dry Bulb.	Wet Bulb.		Dry Bulb.	Wet Bulb.		Dry Bulb.	Wet Bulb.	Dry Bulb.	Wet Bulb.		Dry Bulb.	Wet Bulb.	
	°A.	°A.	%	°A.	°A.	%	°A.	°A.	°A.	°A.	%	°A.	°A.	%
January	−·02	+·01	+0·3	−·09	+·11	+1·8	−·28	−·07	−·06	−·04	+0·2	−·16	−·03	+1·4
February	−·02	−·04	−0·3	−·07	+·05	+1·3	−·11	−·08	−·08	−·05	+0·3	−·14	+·03	−1·8
March	−·01	−·02	−0·1	−·05	−·03	+0·3	−·14	−·12	−·04	−·10	−0·6	−·16	+·03	+2·0
April	+·01	−·02	−0·3	−·01	+·06	+0·8	−·08	+·07	+·01	−·15	−1·7	−·17	+·01	+1·8
May	+·02	+·02	0·0	+·05	−·12	−1·8	+·01	+·14	·00	−·04	−0·4	+·06	+·01	−0·6
June	−·04	+·01	+0·5	−·10	−·14	−0·4	+·03	+·14	+·02	+·05	−0·3	+·12	+·03	−1·0
July	−·04	−·01	+0·3	−·11	−·16	−0·5	+·07	+·10	−·02	·00	+0·2	+·13	+·09	−0·4
August	−·01	+·01	+0·3	−·13	−·15	−0·3	+·12	+·07	−·01	+·01	+0·3	+·20	+·09	−1·1
September	+·03	+·01	−0·3	−·13	−·13	0·0	+·16	+·07	+·02	+·09	+0·8	+·16	+·21	+0·4
October	−·03	−·05	−0·2	−·03	+·05	+0·8	+·06	+·04	+·08	+·07	−0·2	+·11	−·06	−1·8
November	−·02	−·09	−0·8	−·03	+·11	+1·4	−·01	−·07	−·05	−·07	−0·3	−·12	−·22	−1·0
December	−·03	−·09	−0·7	−·13	+·07	+2·1	−·05	+·07	−·07	+·06	+1·4	−·19	−·06	+1·4
Year	−·01	−·02	−0·1	−·07	−·02	+0·5	−·02	+·03	−·02	−·01	0·0	−·01	−·01	+0·2

* In the case of Eskdalemuir the tabulated values have been corrected before publication.

d. Wind.—The velocity and direction of the wind are obtained from the records of similar Robinson Anemographs at Kew, Valencia, Falmouth, and Aberdeen. At

Eskdalemuir only the velocity is recorded, and is obtained from a Dines Pressure Tube Anemometer. The records from the two instruments when exposed at the same place give approximately the same values for the mean velocity.

The normal daily variation of wind velocity at ground level shows a maximum in the middle of the day and a minimum near midnight or in the early morning. It is of some interest to compare the ratio of the daily range ΔV and the actual values of the velocity V for 1912, with the values for 1911 and with the normal values of the ratio.

The following table shows the values of the ratio $\Delta V/V$:—

	Valencia.	Kew.	Eskdalemuir.	Aberdeen.	Falmouth.
Normal ratio,	·269	·585	—	·340	·341
Ratio for 1911,	·312	·553	·413	·350	·345
Ratio for 1912,	·258	·560	·432	·369	·332

The ratio is much larger at Kew than at the other observatories. It is smallest at Valencia. In 1912 it was practically normal: a little above at Aberdeen and Eskdalemuir; a little below at Kew, Falmouth, and Valencia.

e. Rainfall.—The tables give the mean values of the hourly measurements for each month, *i.e.* the value entered to noon is the total amount which fell between the hours of 11.30 a.m. and 12.30 p.m. during the month, divided by 30, 31, or 29 according to the month. The amount entered in the column headed "Day" is similarly the total amount recorded during the month, divided by the number of days in the month. This differs from the practice hitherto adopted in the publication of hourly readings, but it has the great advantage of giving mean values comparable with the actual values for individual hours or days.

The rainfall was below the normal simultaneously at all the four observatories for which normals exist for April, May, and November, and above it for January, March, and June. September was relatively dry in the daytime at all observatories, but it was wet in the night at Kew. August was very wet except at Valencia.

f. Sunshine.—The method of expressing the results is similar to that adopted for rainfall. The values are given in hours and are obtained by dividing the totals for each month by the number of days in the month. The values under the column headed "Day" are therefore the mean number of hours of sunshine per day, and the individual day is directly comparable with the average day.

The sunshine for the year at all four observatories was below the normal. In January, March, May, July, and October the sign of the difference from average varied between the observatories; but in each of the months February, June, August, September, November, and December the duration was below the normal at all the observatories: April was the only month in which sunshine was above the normal at all the observatories. A remarkable feature at Kew, Valencia, and Falmouth is the relatively great deficiency of morning and afternoon sunshine in the summer months: the deficiency in the middle of the day was less marked.

Normals.—In the case of *a*, *b*, *e*, each normal hourly value is the mean of about 1200 readings, the exact number depending of course upon the month. Within what limits such a series is sufficient to determine a normal value is a question which deserves investigation. It is not unusual for the mean value of

the pressure for an individual month to differ by 15 or 20 millibars from the normal value, so that the inclusion of an extra year may affect the normal value by as much as 0·5 millibar, and the selection of a different 40-years period may lead to differences equally great or indeed greater. Thus, if we take the period 1854–1893, the mean value of the pressure in London for the month of January is less by 1·7 millibars than its value for the period 1871-1910. Clearly, therefore, a period of 40 years is not sufficient to determine within 1 millibar the normal monthly value of atmospheric pressure.

Again, with reference to temperature, a month may have a mean temperature as much as 5° A below the normal, but it rarely exceeds this value. Thus the 40-years mean is uncertain to at least 0°·1 A, and probably to a considerably greater extent.

For rainfall a single instance will suffice to illustrate the degree of uncertainty. The total fall for the month of June at Kew for the 30 years 1871–1900 was less than double the amount for the 10 years 1901–1910, the amounts being 151 mm. and 81 mm. respectively; while it was three times the amount for the 10 years 1861–1870, 50 mm. Thus the 40 years' average for 1861–1900 would be 50 mm., while that for the 40 years 1871–1910 would be 58 mm. It follows that the 40 years' normal for rainfall for an individual month may vary by between 10 per cent. and 20 per cent. of its value.

Non-Cyclic Change (24 h.–0 h.) of Pressure and Temperature.

Differences between the Normal Monthly Mean Values of Pressure and Temperature for the 2nd and 1st Midnights, and the corresponding Differences for 1912.

	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Year.
						Pressure—Millibars.							
Aberdeen, Normal	−0·01	+0·01	−0·03	+0·11	+0·06	0·00	−0·02	−0·06	−0·05	+0·05	−0·11	+0·03	0·00
„ 1912.	−0·40	−0·38	+0·12	+0·68	−0·36	−0·16	−0·44	+0·51	−0·51	+0·78	−0·58	+0·04	−0·05
Eskdalemuir, 1912.	−0·44	−0·30	−0·01	+0·67	−0·43	−0·05	−0·43	+0·53	−0·73	+0·99	−0·51	+0·09	−0·05
Valencia, Normal	+0·05	−0·08	+0·08	0·00	+0·02	+0·05	+0·09	−0·08	−0·15	+0·03	+0·04	−0·03	0·00
„ 1912.	−0·52	−0·43	+0·38	+0·41	−0·56	+0·44	−0·47	+0·45	−0·83	+1·05	−0·56	+0·04	−0·05
Kew, Normal	−0·02	−0·05	−0·04	+0·05	+0·03	+0·02	+0·05	−0·06	−0·08	+0·06	−0·06	+0·10	+0·01
„ 1912.	−0·53	+0·02	−0·61	+0·98	−0·54	+0·06	−0·45	+0·74	−1·21	+1·19	−0·42	+0·36	−0·03
Falmouth, Normal	0·00	−0·05	0·00	+0·03	0·00	+0·05	+0·07	−0·06	−0·15	+0·06	−0·01	+0·05	0·00
„ 1912.	−0·57	−0·13	−0·41	+0·99	−0·67	+0·31	−0·37	+0·58	−0·91	+0·98	−0·36	+0·17	−0·03
						Temperature—Degrees Absolute.							
Aberdeen, Normal	+0·01	−0·01	+0·04	+0·06	+0·07	+0·10	+0·02	−0·04	−0·03	−0·11	−0·09	−0·03	0·00
„ 1912.	−0·13	+0·23	−0·17	+0·11	+0·07	+0·18	−0·10	0·00	+0·01	−0·28	−0·22	+0·33	0·00
Eskdalemuir, 1912.	−0·34	+0·38	−0·22	+0·01	+0·23	+0·08	0·00	+0·02	0·00	−0·32	−0·20	+0·39	0·00
Valencia, Normal	−0·03	+0·01	+0·02	+0·05	+0·08	+0·08	+0·02	−0·02	−0·03	−0·22	−0·06	0·00	−0·01
„ 1912.	−0·12	+0·11	−0·13	+0·21	−0·10	+0·17	−0·03	+0·05	−0·09	−0·21	−0·11	+0·16	−0·01
Kew, Normal	+0·03	−0·02	+0·06	+0·07	+0·11	+0·11	+0·01	−0·04	−0·07	−0·10	−0·11	−0·02	0·00
„ 1912.	−0·29	+0·35	−0·15	+0·04	+0·17	+0·07	+0·07	−0·10	+0·02	−0·27	−0·20	+0·27	0·00
Falmouth, Normal	−0·03	−0·01	+0·04	+0·06	+0·11	+0·08	+0·02	−0·02	−0·05	−0·10	−0·08	−0·01	0·00
„ 1912.	−0·22	+0·28	−0·13	+0·01	+0·16	+0·08	−0·06	+0·04	−0·08	−0·10	−0·17	+0·22	+0·01

TABLES FOR CONVERTING FROM BRITISH TO METRIC UNITS, AND *VICE VERSA*.

TABLE I.—PRESSURE.

Equivalents in Millibars of Inches of Mercury at 32° F. and 45° Latitude.

For brevity, the fundamental equations may be written :—

g_{45} = 980·617 cm/sec^2.
density of mercury at normal freezing-point of water = 13·5955.
1 mercury-inch = 33·8632 millibars ; 1 mercury-millimetre = 1·33320 millibars.
1 millibar = 0·0295306 mercury-inches.
= 0·750076 mercury-millimetres.
using 1 inch = 2·54000 cm.

Inches and Tenths.	0	1	2	3	4	5	6	7	8	9
	Millibars.									
27·0	914·31	914·65	914·98	915·32	915·66	916·00	916·34	916·68	917·02	917·35
27·1	917·69	918·03	918·37	918·71	919·05	919·39	919·72	920·06	920·40	920·74
27·2	921·08	921·42	921·76	922·09	922·43	922·77	923·11	923·45	923·79	924·13
27·3	924·47	924·80	925·14	925·48	925·82	926·16	926·50	926·84	927·17	927·51
27·4	927·85	928·19	928·53	928·87	929·21	929·54	929·88	930·22	930·56	930·90
27·5	931·24	931·58	931·92	932·25	932·59	932·93	933·27	933·61	933·95	934·29
27·6	934·62	934·96	935·30	935·64	935·98	936·32	936·66	936·99	937·33	937·67
27·7	938·01	938·35	938·69	939·03	939·37	939·70	940·04	940·38	940·72	941·06
27·8	941·40	941·74	942·07	942·41	942·75	943·09	943·43	943·77	944·11	944·44
27·9	944·78	945·12	945·46	945·80	946·14	946·48	946·82	947·15	947·49	947·83
28·0	948·17	948·51	948·85	949·19	949·52	949·86	950·20	950·54	950·88	951·22
28·1	951·56	951·89	952·23	952·57	952·91	953·25	953·59	953·93	954·26	954·60
28·2	954·94	955·28	955·62	955·96	956·30	956·64	956·97	957·31	957·65	957·99
28·3	958·33	958·67	959·01	959·34	959·68	960·02	960·36	960·70	961·04	961·38
28·4	961·71	962·05	962·39	962·73	963·07	963·41	963·75	964·09	964·42	964·76
28·5	965·10	965·44	965·78	966·12	966·46	966·79	967·13	967·47	967·81	968·15
28·6	968·49	968·83	969·16	969·50	969·84	970·18	970·52	970·86	971·20	971·54
28·7	971·87	972·21	972·55	972·89	973·23	973·57	973·91	974·24	974·58	974·92
28·8	975·26	975·60	975·94	976·28	976·61	976·95	977·29	977·63	977·97	978·31
28·9	978·65	978·99	979·32	979·66	980·00	980·34	980·68	981·02	981·36	981·69
29·0	982·03	982·37	982·71	983·05	983·39	983·73	984·06	984·40	984·74	985·08
29·1	985·42	985·76	986·10	986·44	986·77	987·11	987·45	987·79	988·13	988·47
29·2	988·81	989·14	989·48	989·82	990·16	990·50	990·84	991·18	991·51	991·85
29·3	992·19	992·53	992·87	993·21	993·55	993·88	994·22	994·56	994·90	995·24
29·4	995·58	995·92	996·26	996·59	996·93	997·27	997·61	997·95	998·29	998·63
29·5	998·96	999·30	999·64	999·98	1000·32	1000·66	1001·00	1001·33	1001·67	1002·01
29·6	1002·35	1002·69	1003·03	1003·37	1003·71	1004·04	1004·38	1004·72	1005·06	1005·40
29·7	1005·74	1006·08	1006·41	1006·75	1007·09	1007·43	1007·77	1008·11	1008·45	1008·78
29·8	1009·12	1009·46	1009·80	1010·14	1010·48	1010·82	1011·16	1011·49	1011·83	1012·17
29·9	1012·51	1012·85	1013·19	1013·53	1013·86	1014·20	1014·54	1014·88	1015·22	1015·56
30·0	1015·90	1016·23	1016·57	1016·91	1017·25	1017·59	1017·93	1018·27	1018·61	1018·94
30·1	1019·28	1019·62	1019·96	1020·30	1020·64	1020·98	1021·31	1021·65	1021·99	1022·33
30·2	1022·67	1023·01	1023·35	1023·68	1024·02	1024·36	1024·70	1025·04	1025·38	1025·72
30·3	1026·05	1026·39	1026·73	1027·07	1027·41	1027·75	1028·09	1028·43	1028·76	1029·10
30·4	1029·44	1029·78	1030·12	1030·46	1030·80	1031·13	1031·47	1031·81	1032·15	1032·49
30·5	1032·83	1033·17	1033·50	1033·84	1034·18	1034·52	1034·86	1035·20	1035·54	1035·88
30·6	1036·21	1036·55	1036·89	1037·23	1037·57	1037·91	1038·25	1038·58	1038·92	1039·26
30·7	1039·60	1039·94	1040·28	1040·62	1040·95	1041·29	1041·63	1041·97	1042·31	1042·65
30·8	1042·99	1043·33	1043·66	1044·00	1044·34	1044·68	1045·02	1045·36	1045·70	1046·03
30·9	1046·37	1046·71	1047·05	1047·39	1047·73	1048·07	1048·40	1048·74	1049·08	1049·42

TABLE II.—TEMPERATURE.

Degrees Absolute to Degrees Fahrenheit.

The equations are $A = 273 + \frac{5}{9}(F - 32)$, $F = 32 + \frac{9}{5}(A - 273)$.

Degrees Absolute.	0	1	2	3	4	5	6	7	8	9
	Degrees Fahrenheit.									
250	− 9·4	− 9·2	− 9·0	− 8·9	− 8·7	− 8·5	− 8·3	− 8·1	− 8·0	− 7·8
251	− 7·6	− 7·4	− 7·2	− 7·1	− 6·9	− 6·7	− 6·5	− 6·3	− 6·2	− 6·0
252	− 5·8	− 5·6	− 5·4	− 5·3	− 5·1	− 4·9	− 4·7	− 4·5	− 4·4	− 4·2
253	− 4·0	− 3·8	− 3·6	− 3·5	− 3·3	− 3·1	− 2·9	− 2·7	− 2·6	− 2·4
254	− 2·2	− 2·0	− 1·8	− 1·7	− 1·5	− 1·3	− 1·1	− 0·9	− 0·8	− 0·6
255	− 0·4	− 0·2	0·0	+ 0·1	+ 0·3	+ 0·5	+ 0·7	+ 0·9	+ 1·0	+ 1·2
256	+ 1·4	+ 1·6	+ 1·8	+ 1·9	+ 2·1	+ 2·3	+ 2·5	+ 2·7	+ 2·8	+ 3·0
257	+ 3·2	+ 3·4	+ 3·6	+ 3·7	+ 3·9	+ 4·1	+ 4·3	+ 4·5	+ 4·6	+ 4·8
258	+ 5·0	+ 5·2	+ 5·4	+ 5·5	+ 5·7	+ 5·9	+ 6·1	+ 6·3	+ 6·4	+ 6·6
259	+ 6·8	+ 7·0	+ 7·2	+ 7·3	+ 7·5	+ 7·7	+ 7·9	+ 8·1	+ 8·2	+ 8·4
260	+ 8·6	+ 8·8	+ 9·0	+ 9·1	+ 9·3	+ 9·5	+ 9·7	+ 9·9	+ 10·0	+ 10·2
261	+10·4	+10·6	+10·8	+10·9	+11·1	+11·3	+11·5	+11·7	+11·8	+12·0
262	+12·2	+12·4	+12·6	+12·7	+12·9	+13·1	+13·3	+13·5	+13·6	+13·8
263	+14·0	+14·2	+14·4	+14·5	+14·7	+14·9	+15·1	+15·3	+15·4	+15·6
264	+15·8	+16·0	+16·2	+16·3	+16·5	+16·7	+16·9	+17·1	+17·2	+17·4
265	+17·6	+17·8	+18·0	+18·1	+18·3	+18·5	+18·7	+18·9	+19·0	+19·2
266	+19·4	+19·6	+19·8	+19·9	+20·1	+20·3	+20·5	+20·7	+20·8	+21·0
267	+21·2	+21·4	+21·6	+21·7	+21·9	+22·1	+22·3	+22·5	+22·6	+22·8
268	+23·0	+23·2	+23·4	+23·5	+23·7	+23·9	+24·1	+24·3	+24·4	+24·6
269	+24·8	+25·0	+25·2	+25·3	+25·5	+25·7	+25·9	+26·1	+26·2	+26·4
270	+26·6	+26·8	+27·0	+27·1	+27·3	+27·5	+27·7	+27·9	+28·0	+28·2
271	+28·4	+28·6	+28·8	+28·9	+29·1	+29·3	+29·5	+29·7	+29·8	+30·0
272	+30·2	+30·4	+30·6	+30·7	+30·9	+31·1	+31·3	+31·5	+31·6	+31·8
273	+32·0	+32·2	+32·4	+32·5	+32·7	+32·9	+33·1	+33·3	+33·4	+33·6
274	+33·8	+34·0	+34·2	+34·3	+34·5	+34·7	+34·9	+35·1	+35·2	+35·4
275	+35·6	+35·8	+36·0	+36·1	+36·3	+36·5	+36·7	+36·9	+37·0	+37·2
276	+37·4	+37·6	+37·8	+37·9	+38·1	+38·3	+38·5	+38·7	+38·8	+39·0
277	+39·2	+39·4	+39·6	+39·7	+39·9	+40·1	+40·3	+40·5	+40·6	+40·8
278	+41·0	+41·2	+41·4	+41·5	+41·7	+41·9	+42·1	+42·3	+42·4	+42·6
279	+42·8	+43·0	+43·2	+43·3	+43·5	+43·7	+43·9	+44·1	+44·2	+44·4
280	+44·6	+44·8	+45·0	+45·1	+45·3	+45·5	+45·7	+45·9	+46·0	+46·2
281	+46·4	+46·6	+46·8	+46·9	+47·1	+47·3	+47·5	+47·7	+47·8	+48·0
282	+48·2	+48·4	+48·6	+48·7	+48·9	+49·1	+49·3	+49·5	+49·6	+49·8
283	+50·0	+50·2	+50·4	+50·5	+50·7	+50·9	+51·1	+51·3	+51·4	+51·6
284	+51·8	+52·0	+52·2	+52·3	+52·5	+52·7	+52·9	+53·1	+53·2	+53·4
285	+53·6	+53·8	+54·0	+54·1	+54·3	+54·5	+54·7	+54·9	+55·0	+55·2
286	+55·4	+55·6	+55·8	+55·9	+56·1	+56·3	+56·5	+56·7	+56·8	+57·0
287	+57·2	+57·4	+57·6	+57·7	+57·9	+58·1	+58·3	+58·5	+58·6	+58·8
288	+59·0	+59·2	+59·4	+59·5	+59·7	+59·9	+60·1	+60·3	+60·4	+60·6
289	+60·8	+61·0	+61·2	+61·3	+61·5	+61·7	+61·9	+62·1	+62·2	+62·4
290	+62·6	+62·8	+63·0	+63·1	+63·3	+63·5	+63·7	+63·9	+64·0	+64·2
291	+64·4	+64·6	+64·8	+64·9	+65·1	+65·3	+65·5	+65·7	+65·8	+66·0
292	+66·2	+66·4	+66·6	+66·7	+66·9	+67·1	+67·3	+67·5	+67·6	+67·8
293	+68·0	+68·2	+68·4	+68·5	+68·7	+68·9	+69·1	+69·3	+69·4	+69·6
294	+69·8	+70·0	+70·2	+70·3	+70·5	+70·7	+70·9	+71·1	+71·2	+71·4
295	+71·6	+71·8	+72·0	+72·1	+72·3	+72·5	+72·7	+72·9	+73·0	+73·2
296	+73·4	+73·6	+73·8	+73·9	+74·1	+74·3	+74·5	+74·7	+74·8	+75·0
297	+75·2	+75·4	+75·6	+75·7	+75·9	+76·1	+76·3	+76·5	+76·6	+76·8
298	+77·0	+77·2	+77·4	+77·5	+77·7	+77·9	+78·1	+78·3	+78·4	+78·6
299	+78·8	+79·0	+79·2	+79·3	+79·5	+79·7	+79·9	+80·1	+80·2	+80·4
300	+80·6	+80·8	+81·0	+81·1	+81·3	+81·5	+81·7	+81·9	+82·0	+82·2
301	+82·4	+82·6	+82·8	+82·9	+83·1	+83·3	+83·5	+83·7	+83·8	+84·0
302	+84·2	+84·4	+84·6	+84·7	+84·9	+85·1	+85·3	+85·5	+85·6	+85·8
303	+86·0	+86·2	+86·4	+86·5	+86·7	+86·9	+87·1	+87·3	+87·4	+87·6
304	+87·8	+88·0	+88·2	+88·3	+88·5	+88·7	+88·9	+89·1	+89·2	+89·4
305	+89·6	+89·8	+90·0	+90·1	+90·3	+90·5	+90·7	+90·9	+91·0	+91·2
306	+91·4	+91·6	+91·8	+91·9	+92·1	+92·3	+92·5	+92·7	+92·8	+93·0
307	+93·2	+93·4	+93·6	+93·7	+93·9	+94·1	+94·3	+94·5	+94·6	+94·8
308	+95·0	+95·2	+95·4	+95·5	+95·7	+95·9	+96·1	+96·3	+96·4	+96·6
309	+96·8	+97·0	+97·2	+97·3	+97·5	+97·7	+97·9	+98·1	+98·2	+98·4
310	+98·6	+98·8	+99·0	+99·1	+99·3	+99·5	+99·7	+99·9	+100·0	+100·2

TABLE III.—VAPOUR PRESSURE.

Mercury-Inches to Millibars.

Inches.	0	1	2	3	4	5	6	7	8	9
	Millibars.									
0·0	0·0	0·3	0·7	1·0	1·4	1·7	2·0	2·4	2·7	3·0
0·1	3·4	3·7	4·1	4·4	4·7	5·1	5·4	5·8	6·1	6·4
0·2	6·8	7·1	7·4	7·8	8·1	8·5	8·8	9·1	9·5	9·8
0·3	10·2	10·5	10·8	11·2	11·5	11·9	12·2	12·5	12·9	13·2
0·4	13·5	13·9	14·2	14·6	14·9	15·2	15·6	15·9	16·3	16·6
0·5	16·9	17·3	17·6	17·9	18·3	18·6	19·0	19·3	19·6	20·0
0·6	20·3	20·7	21·0	21·3	21·7	22·0	22·3	22·7	23·0	23·4
0·7	23·7	24·0	24·4	24·7	25·1	25·4	25·7	26·1	26·4	26·8
0·8	27·1	27·4	27·8	28·1	28·4	28·8	29·1	29·5	29·8	30·1
0·9	30·5	30·8	31·2	31·5	31·8	32·2	32·5	32·8	33·2	33·5
1·0	33·9	34·2	34·5	34·9	35·2	35·6	35·9	36·2	36·6	36·9

TABLE IV.—WIND VELOCITY.

Miles per Hour to Metres per Second.

1 mile per hour = 0·44704 metres per second.

Miles per hour.	0	1	2	3	4	5	6	7	8	9
	Metres per Second.									
0	0·0	0·4	0·9	1·3	1·8	2·2	2·7	3·1	3·6	4·0
10	4·5	4·9	5·4	5·8	6·3	6·7	7·2	7·6	8·0	8·5
20	8·9	9·4	9·8	10·3	10·7	11·2	11·6	12·1	12·5	13·0
30	13·4	13·9	14·3	14·8	15·2	15·6	16·1	16·5	17·0	17·4
40	17·9	18·3	18·8	19·2	19·7	20·1	20·6	21·0	21·5	21·9
50	22·4	22·8	23·2	23·7	24·1	24·6	25·0	25·5	25·9	26·4
60	26·8	27·3	27·7	28·2	28·6	29·1	29·5	30·0	30·4	30·8
70	31·3	31·7	32·2	32·6	33·1	33·5	34·0	34·4	34·9	35·3
80	35·8	36·2	36·7	37·1	37·6	38·0	38·4	38·9	39·3	39·8
90	40·2	40·7	41·1	41·6	42·0	42·5	42·9	43·4	43·8	44·3
100	44·7	45·2	45·6	46·0	46·5	46·9	47·4	47·8	48·3	48·7
110	49·2	49·6	50·1	50·5	51·0	51·4	51·9	52·3	52·8	53·2
120	53·6	54·1	54·5	55·0	55·4	55·9	56·3	56·8	57·2	57·7
130	58·1	58·6	59·0	59·5	59·9	60·3	60·8	61·2	61·7	62·1
140	62·6	63·0	63·5	63·9	64·4	64·8	65·3	65·7	66·2	66·6

TABLE V.—RAINFALL.

Inches to Millimetres.

Inches.	0	1	2	3	4	5	6	7	8	9
	Millimetres.									
0·0	0·00	0·25	0·51	0·76	1·02	1·27	1·52	1·78	2·03	2·29
0·1	2·54	2·79	3·05	3·30	3·56	3·81	4·06	4·32	4·57	4·83
0·2	5·08	5·33	5·59	5·84	6·10	6·35	6·60	6·86	7·11	7·37
0·3	7·62	7·87	8·13	8·38	8·64	8·89	9·14	9·40	9·65	9·91
0·4	10·16	10·41	10·67	10·92	11·18	11·43	11·68	11·94	12·19	12·45
0·5	12·70	12·95	13·21	13·46	13·72	13·97	14·22	14·48	14·73	14·99
0·6	15·24	15·49	15·75	16·00	16·26	16·51	16·76	17·02	17·27	17·53
0·7	17·78	18·03	18·29	18·54	18·80	19·05	19·30	19·56	19·81	20·07
0·8	20·32	20·57	20·83	21·08	21·34	21·59	21·84	22·10	22·35	22·61
0·9	22·86	23·11	23·37	23·62	23·88	24·13	24·38	24·64	24·89	25·15
1·0	25·40	25·65	25·91	26·16	26·42	26·67	26·92	27·18	27·43	27·69
1·1	27·94	28·19	28·45	28·70	28·96	29·21	29·46	29·72	29·97	30·23
1·2	30·48	30·73	30·99	31·24	31·50	31·75	32·00	32·26	32·51	32·77
1·3	33·02	33·27	33·53	33·78	34·04	34·29	34·54	34·80	35·05	35·31
1·4	35·56	35·81	36·07	36·32	36·58	36·83	37·08	37·34	37·59	37·85
1·5	38·10	38·35	38·61	38·86	39·12	39·37	39·62	39·88	40·13	40·39
1·6	40·64	40·89	41·15	41·40	41·66	41·91	42·16	42·42	42·67	42·93
1·7	43·18	43·43	43·69	43·94	44·20	44·45	44·70	44·96	45·21	45·47
1·8	45·72	45·97	46·23	46·48	46·74	46·99	47·24	47·50	47·75	48·01
1·9	48·26	48·51	48·77	49·02	49·28	49·53	49·78	50·04	50·29	50·55
2·0	50·80	51·05	51·31	51·56	51·82	52·07	52·32	52·58	52·83	53·09