METEOROLOGICAL OFFICE.

HOURLY VALUES FROM AUTOGRAPHIC RECORDS:

GEOPHYSICAL SECTION.

1911.

Forming Section 2 of Part IV. of the British Meteorological and Magnetic Year Book for 1911.

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, *the Kew Committee
of the Royal Society,* 1872–1899, and *of the Kew Observatory Committee of the
British Association,* 1842–1871.

Published by the Authority of the Meteorological Committee.

METEOROLOGICAL OFFICE OBSERVATORIES.

HOURLY VALUES FROM AUTOGRAPHIC RECORDS:

GEOPHYSICAL SECTION.

BRITISH METEOROLOGICAL AND MAGNETIC YEAR BOOK, PART IV. 2.

PREFACE.

THE tables which are given in this section of the Year Book 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 connection with the Meteorological Office during the year 1911. 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 the 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 has formed a notable feature of the Report of the Kew Observatory for some years, has been added in slightly modified form.

The tables are followed by notes on the management of the recording magnetic instruments, etc., at Kew Observatory, Eskdalemuir Observatory, and Falmouth Observatory, by the Superintendents, Dr C. Chree, F.R.S., Mr G. W. Walker, and Mr E. Kitto. Notes on the meteorological instruments will be found in Section 1 of Part IV. of the Year Book. The notes on the Meteorological Summaries which are included in this section have been drawn up by Mr E. Gold, Superintendent of the Statistical Division of the Office.

These tables complete the meteorological and geophysical data for the British Isles in the year 1911, which are issued in accordance with the following scheme of observations and data for stations in the United Kingdom :—

(a) DAILY WEATHER REPORT, including meteorological observations for 7 a.m. and 6 p.m. at thirty stations and supplementary data from about forty 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 three appendices and a special supplement of observations of the upper air.* 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.—(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 1s. each part. Annual Volume 10s. 6d.
>
> (2) *Geophysical Journal* of the Observatories of the Meteorological Office. Issued in monthly parts. Price 4d. each part.
>
> Part IV.—(1) *Meteorological Office Observatories. Hourly Values— Meteorological Section.* Obtained from self-recording instruments at three observatories in connection 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.
>
> (2) *Meteorological Office Observatories. Hourly Values—Geophysical Section.* Issued as soon as possible after the close of each year.

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 Professor J. Milne, F.R.S., for inclusion in the Reports of the Seismological Committee of the British Association for the Advancement of Science.

At the end of the present volume a concluding note has been added upon points which have arisen during the passage of the tables through the press.

W. N. SHAW,
Director.

METEOROLOGICAL OFFICE,
SOUTH KENSINGTON, S.W., *October* 1912.

* For the year 1912 the results of the investigation of the Upper Air are omitted from the *Weekly Weather Report* and included in the *Geophysical Journal*.

TABLE OF CONTENTS.

LIST OF OBSERVATORIES AND INDEX OF TABLES.

	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.	243·2
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

TERRESTRIAL MAGNETISM.

Tables I.-XLVIII.—HOURLY READINGS.—Tabulations of the North, West, and Vertical Components of Magnetic Force at Eskdalemuir at each hour of Greenwich Mean Time, with the magnetic character of each day, the control measurements of absolute horizontal force, declination, inclination, etc., for each month, and the values adopted for the base-lines of the traces for each day.

Tables XLIX.-LI.—DIURNAL INEQUALITIES of the Geographical Components at Eskdalemuir for each month, the seasons, and the year.

Tables LII.-LIV.—DIURNAL INEQUALITIES of the Declination, Inclination, and Horizontal Force at Eskdalemuir for each month, and the year.

Tables LV.-LVI.—QUIET DAYS.—DIURNAL INEQUALITIES of the Declination and Horizontal Force at Kew Observatory for each month, the seasons, and the year.

Tables LVII.-LX.—QUIET DAYS.—DIURNAL INEQUALITIES of the Declination, Horizontal Force, Inclination, and Vertical Force at Falmouth Observatory for each month, the seasons, and the year.

Tables LXI.-LXIII.—QUIET DAYS.—DIURNAL INEQUALITIES of the Geographical Components at Eskdalemuir for each month, the seasons, and the year.

Table LXIV.—RANGE and NON-CYCLIC CHANGE of the Mean Diurnal Inequalities of Magnetic Force for the months, year, and seasons of 1911, at three Observatories.

Tables LXV.—HARMONIC COMPONENTS of the Diurnal Inequality at Eskdalemuir for the months and the year.

Table LXVI.—QUICK RUNS.—List of dates with notes on the curves obtained.

Table LXVII.—MEAN MONTHLY AND ANNUAL VALUES of the Magnetic Elements at Kew, Eskdalemuir, Falmouth, and Valencia Observatories.

Table LXVIII.—ANNUAL MEAN VALUES for Magnetic Observatories of the Globe.

METEOROLOGICAL SUMMARY.

Tables LXIX.-LXXIV.—MONTHLY NORMALS FOR EACH HOUR of Pressure, Temperature, Relative Humidity, Wind Velocity, Rainfall, and Sunshine, at the Five Observatories, arranged according to Latitude, with differences between the Normals and the Values for 1911.

ATMOSPHERIC ELECTRICITY.

Table LXXV.—POTENTIAL GRADIENT.—DIURNAL INEQUALITIES at Kew Observatory, from the tabulations of 10 "quiet" days for each month.

Table LXXVI.—POTENTIAL GRADIENT.—DIURNAL INEQUALITIES at Eskdalemuir, from the tabulations of all available days.

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.

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

Eskdalemuir. (X.)   January, 1911.

15000 γ (·15 C.G.S. unit) +

Hour G.M.T. Day.	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.
1	999	997	1009	994	996	998	1001	1002	1001	1000	995	989	997	1003	1002	1000	1005	1006	1004	1002	996	1083	1002	995	1002	1003
2	1002	1004	1006	1005	1022	1012	1014	1013	1005	997	1006	1002	999	1004	995	990	987	992	1004	994	991	993	979	1012	1002	1001
3	1002	990	985	1006	979	1001	991	1002	1004	1000	996	980	955	989	998	988	994	1003	994	1037	986	992	1000	955	1003	993
4	1003	985	992	990	1002	1004	1001	1005	999	994	988	986	988	994	995	976	974	958	1016	990	1005	997	996	1002	996	993
5	996	995	995	999	997	1001	1000	1004	1001	985	1000	997	993	999	1006	1006	996	980	980	997	1002	1012	1002	979	989	997
6	989	990	989	993	996	1011	1005	1001	1005	1000	988	987	995	970	1006	1005	1006	978	1004	978	1011	1029	1000	993	996	997
7	995	994	999	996	998	1001	1004	1003	994	996	1003	996	977	995	996	999	997	1005	1004	1003	1002	1006	1005	999	999	999
8	999	998	998	999	1003	1004	1003	1000	999	996	996	995	999	1005	1005	1005	1005	1011	1015	1001	1007	986	1060	966	985	1002
9	985	987	990	993	1001	999	1001	994	1004	988	996	1004	1000	985	971	987	990	1019	978	994	1017	1015	998	1009	989	996
10	989	1017	1000	995	1003	1002	1005	1007	999	992	990	986	986	979	999	996	992	1001	1007	1006	1002	1003	1012	1004	995	999
11	995	1005	1013	1024	999	1003	1002	986	996	996	986	979	984	993	996	1003	1000	999	1004	999	999	1000	1004	1005	999	999
12	998	999	1001	1000	998	1002	1003	1002	1001	995	992	986	990	994	1001	1001	1010	995	1004	1004	1005	1007	1007	1009	1005	1000
13	1005	1009	1004	1010	1007	1011	1013	1012	1011	984	978	976	965	967	994	1001	990	984	965	995	993	998	1009	1002	997	995
14	997	999	997	1002	1011	995	1007	1015	1012	1004	1004	994	994	995	989	986	1001	1004	1000	999	994	997	998	1004	1002	1000
15	1002	1003	1003	1007	1009	1009	1008	1009	998	1005	998	996	994	998	1003	1004	992	986	1008	1010	1011	994	1005	1029	1019	1004
16	1019	987	996	1002	1001	1010	1018	1011	994	980	994	980	957	985	992	999	999	1000	1001	1004	997	989	1014	1014	1002	997
17	1001	998	997	1002	1003	1003	1003	1008	1007	1003	1003	997	994	994	1000	996	1001	1002	1001	1000	1004	1006	1008	1013	1010	1002
18	1010	1010	1002	1002	1010	1009	1012	1018	1013	1001	995	993	982	985	993	994	997	997	1003	1027	993	991	1009	1009	1003	1002
19	1003	1003	1003	1005	1004	1009	1012	1009	1000	1004	1003	993	973	981	993	999	1003	1005	1007	996	1003	1003	1006	1007	1006	1001
20	1006	1007	1003	1006	1009	1008	1000	1009	1009	1003	995	988	983	986	1001	1003	1003	1007	1009	1009	1011	1015	1002	1000	1006	1003
21	1006	1001	1001	1001	1002	1009	1009	1009	1010	1007	1009	1005	1002	999	1001	1003	1007	1006	1004	1003	1007	1009	1009	1009	1004	1005
22	1003	1017	1001	1005	1009	1010	1011	1016	1008	1008	1001	977	973	975	994	998	1010	1006	1002	1005	1002	1002	1002	1012	1012	1002
23	1012	1002	1005	1004	1006	1008	1009	1010	1010	996	1014	1010	1002	1001	1009	1002	1003	1009	1014	992	990	972	1000	995	1001	1002
24	1006	1006	1005	1002	1009	1008	1010	1015	1016	1017	1012	1010	985	989	1009	1018	993	969	1032	1035	949	988	1014	974	1039	1004
25	1039	954	1001	965	985	991	996	993	983	985	967	982	988	994	985	1001	1015	1014	976	981	1044	974	992	989	999	991
26	999	1053	992	991	991	996	966	998	1015	1001	992	983	969	979	992	995	994	1001	986	983	1001	1042	978	1008	1032	997
27	1031	995	982	989	996	1007	1002	983	993	995	993	981	988	982	988	990	995	992	1026	994	1004	1002	1000	1008	1017	996
28	1017	1008	999	993	995	1000	1006	1010	1010	992	992	995	994	980	939	974	987	1002	1001	1001	997	1008	1019	1010	997	997
29	997	998	994	1000	988	1005	1001	1005	1002	1001	1001	1006	1001	992	994	992	996	1000	1009	989	1010	1007	1009	1001	999	1000
30	999	1000	998	997	1001	999	1001	1005	1001	1007	995	990	991	994	989	983	983	971	989	1030	982	992	1001	997	1003	996
31	1003	1007	998	996	1000	1002	1008	1018	1008	995	989	974	943	982	992	990	1001	997	1015	990	1110	983	991	1000	992	999
Mean	1004	1001	999	999	1001	1004	1004	1006	1003	998	996	991	985	989	994	996	998	997	1001	1002	1004	1004	1004	1001	1003	999

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

Eskdalemuir. (−Y.)   January, 1911.

5000 γ (·05 C.G.S. unit) +

Hour G.M.T. Day.	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.
1	277	275	277	277	276	282	280	277	276	276	277	281	288	291	285	286	287	283	283	279	283	251	274	268	276	279
2	276	279	282	291	283	283	283	283	284	276	284	292	289	310	294	294	295	292	232	277	269	257	241	268	233	279
3	233	262	265	251	274	280	278	283	278	279	279	277	287	283	288	284	284	270	271	242	260	274	263	262	267	271
4	267	264	273	287	278	281	283	281	277	276	279	293	275	295	302	282	287	274	267	277	277	275	277	270	276	279
5	276	277	277	274	284	283	284	278	275	277	283	285	296	294	299	290	289	233	277	282	267	271	236	257	300	277
6	299	267	265	281	279	279	283	278	276	279	277	277	289	282	292	286	294	262	244	270	264	258	266	270	276	275
7	276	284	275	281	286	282	278	279	278	282	282	283	283	291	284	291	284	285	289	288	276	275	281	275	274	282
8	274	274	291	272	275	276	276	276	276	279	276	287	291	291	288	285	287	290	307	278	259	214	239	278	270	279
9	270	281	270	275	278	272	285	284	301	284	275	283	292	292	283	282	262	211	256	283	249	270	275	276	268	275
10	267	289	284	281	283	287	287	290	303	284	275	283	298	296	291	296	255	275	284	275	269	262	274	272	277	282
11	277	289	284	300	258	283	284	291	283	283	287	281	298	302	293	282	269	274	277	276	273	269	268	278	277	282
12	277	281	280	281	282	278	277	277	275	273	275	280	284	289	289	282	280	275	282	281	281	281	281	283	281	280
13	281	283	291	282	280	281	281	281	278	297	300	307	294	298	297	292	282	291	238	281	272	254	265	274	276	282
14	275	296	275	280	277	289	286	283	281	280	283	283	289	290	290	279	290	282	287	283	280	268	267	271	274	282
15	274	280	281	304	274	273	280	282	293	285	278	284	289	293	301	293	289	287	289	282	279	261	277	244	247	282
16	247	247	285	274	281	283	284	289	302	314	283	300	281	295	290	293	287	286	275	271	260	262	261	273	273	281
17	273	280	280	284	283	286	285	282	281	279	279	274	282	288	290	286	284	286	286	280	280	277	274	274	257	281
18	256	272	259	276	268	289	290	284	289	288	284	289	278	291	295	295	290	288	263	244	279	250	259	264	270	276
19	270	277	279	288	285	280	286	288	291	280	289	289	286	294	292	290	286	281	280	275	277	279	279	274	279	283
20	279	274	279	279	279	279	280	281	280	279	280	291	290	294	293	290	284	280	288	283	284	282	270	269	279	282
21	279	273	279	279	277	281	288	285	287	283	288	284	287	285	288	285	285	283	281	281	280	279	279	280	279	282
22	278	271	279	282	284	286	288	279	280	279	284	285	289	297	298	291	287	284	281	280	274	274	273	273	272	282
23	272	278	280	281	278	278	279	282	284	278	282	280	288	291	294	291	295	295	259	269	290	280	275	276	279	282
24	279	280	273	280	284	284	287	286	285	272	279	293	299	290	314	306	302	340	253	193	202	253	276	272	223	277
25	223	194	251	285	280	273	279	278	283	279	270	288	298	296	290	300	271	219	258	278	251	247	272	273	271	269
26	270	265	268	258	277	277	268	285	288	280	285	293	283	297	298	294	278	282	278	265	278	298	263	256	277	279
27	277	273	260	309	278	278	277	270	280	271	277	278	288	293	286	297	295	296	271	288	283	263	279	272	277	281
28	277	259	265	282	279	274	277	276	271	274	279	276	289	304	259	287	286	279	282	279	269	234	253	254	263	273
29	263	273	283	295	290	278	279	280	279	277	275	285	285	287	294	287	273	285	275	282	260	281	263	265	253	279
30	252	270	287	270	270	271	277	278	277	275	270	286	280	288	294	276	288	273	264	225	270	265	258	263	256	272
31	256	266	248	277	277	277	285	279	279	272	274	291	290	297	303	309	225	286	284	268	272	245	263	277	228	274
Mean	269	272	275	281	279	280	282	282	283	280	280	286	288	293	292	290	282	279	273	271	270	265	267	270	268	279

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

Eskdalemuir. (Z.)　　　　　　January, 1911.

45000 γ (·45 C.G.S. unit) +

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	368	368	364	365	364	364	364	364	364	366	365	364	363	364	365	365	363	363	363	364	364	359	356	362	361	364
2	357	354	353	341	335	341	342	342	344	348	348	348	347	351	356	355	365	380	386	368	365	365	352	355	357	354
3	354	342	340	337	342	338	348	350	352	352	352	353	361	361	365	367	364	363	363	359	364	361	362	362	352	356
4	348	353	352	352	354	354	354	354	353	354	354	352	354	354	362	364	370	372	381	372	366	363	363	361	360	358
5	357	352	350	350	350	350	351	351	350	350	349	351	352	352	356	357	361	374	371	366	366	356	350	355	337	355
6	333	324	359	346	352	352	352	352	352	352	353	353	354	360	362	360	361	370	372	372	366	357	351	352	353	355
7	350	348	350	352	351	352	353	354	356	355	351	351	352	354	356	358	359	359	359	359	359	359	358	359	359	355
8	355	354	352	352	353	353	354	355	355	355	354	354	354	354	354	355	355	355	355	368	393	384	358	358	364	358
9	361	361	360	358	357	354	353	358	353	361	357	354	353	355	361	357	366	378	371	370	361	352	352	352	352	359
10	348	334	333	338	340	341	342	345	346	350	350	350	348	349	350	358	365	358	357	358	359	359	354	356	352	350
11	349	337	334	310	320	326	336	337	344	346	347	353	354	350	350	354	356	354	354	355	355	354	351	349	351	344
12	347	349	349	349	350	348	340	350	351	351	351	352	351	350	353	366	352	353	352	353	353	352	352	351	352	351
13	349	348	346	343	346	346	346	346	349	349	347	353	359	365	365	366	367	366	383	367	367	367	365	364	363	357
14	359	351	351	354	354	356	351	351	352	352	354	357	358	359	366	372	368	367	366	366	368	369	367	366	368	360
15	365	359	357	350	354	354	354	355	356	359	361	361	363	366	371	368	370	374	370	376	369	375	378	368	367	364
16	363	358	355	362	363	362	361	360	362	357	359	361	370	369	375	377	379	376	378	380	379	380	374	363	370	368
17	367	368	370	370	372	371	371	370	371	371	369	369	370	371	373	381	381	381	381	381	382	381	380	380	377	374
18	373	368	369	368	368	368	367	367	368	369	369	369	369	369	370	377	377	378	380	380	382	383	379	373	370	372
19	367	367	367	366	365	368	367	366	365	366	364	366	367	374	376	374	375	375	375	376	378	376	376	375	375	371
20	371	370	370	363	364	368	369	367	371	371	370	366	367	366	368	372	376	376	374	373	368	369	371	371	373	370
21	370	364	363	364	364	370	367	366	372	365	364	364	365	366	367	369	370	371	370	371	371	371	370	367	367	368
22	363	360	360	361	362	362	362	362	363	364	363	359	362	358	363	367	367	366	367	367	369	368	368	368	361	363
23	358	363	360	354	358	360	361	361	364	363	364	363	365	366	367	372	372	373	383	385	386	389	389	385	379	370
24	375	372	372	371	371	367	371	366	369	364	364	362	370	366	377	372	380	397	522	413	439	381	386	386	359	384
25	356	329	321	333	357	361	366	366	375	370	376	375	375	376	380	387	394	403	396	388	377	382	379	384	377	372
26	373	359	346	354	354	363	364	362	362	364	363	364	373	378	377	383	386	381	383	387	383	365	361	368	347	369
27	343	342	344	341	350	354	360	363	363	366	363	360	363	364	365	369	373	373	374	372	371	372	366	365	361	362
28	358	345	350	351	353	356	356	353	353	356	356	356	356	358	384	384	375	372	367	365	365	365	355	354	356	360
29	353	345	346	343	344	341	342	343	345	347	349	349	351	355	359	368	371	369	368	369	370	365	353	359	361	355
30	356	355	354	353	354	354	353	352	353	354	355	354	355	355	357	366	370	381	375	384	373	372	362	363	359	361
31	355	346	341	349	350	350	349	308	350	350	351	351	357	352	360	365	386	374	367	376	358	360	363	344	339	354
Mean	358	353	353	352	354	355	356	355	358	358	358	358	360	361	365	368	370	373	376	372	372	368	365	364	361	362

IV.—AUXILIARY OBSERVATIONS IN ABSOLUTE MEASURE; BASE VALUES ADOPTED FOR THE CURVES, AND DETERMINATIONS OF SCALE VALUES OF CURVE ORDINATES.

Eskdalemuir.　　　　January, 1911.

Day.	Hour.	Absolute observations with unifilar magnetometer and dip circle.			Measurements of curve ordinates.			Deduced values of base lines.		
	h m	γ	D. (West) ° ′ ″	I. (North) ° ′	N. mm.	W. mm.	V. mm.	N. γ	W. γ	V. γ
3rd	11 43	16826	18 18 30		32·9	27·6		15990	5263	
,,	12 11				33·3	27·2				
,,	15 13			69 37·9	33·1	27·1	60·6			45753
10th	11 25	16847	—					—	—	
,,	11 42				34·2	28·4				
,,	14 28			69 37·7	35·7	27·8	63·4			45784
17th	11 45	16841	18 17 15		35·2	27·1		15989	5267	
,,	12 15				35·0	27·5				
,,	15 12			69 37·2	35·8	27·3	63·9			45707
24th	11 17	16835	18 17 41		34·7	28·0		15993	5261	
,,	11 35				34·2	27·0				
,,	14 42			69 36·7	36·0	28·9	66·2			45673
31st	11 38	16807	18 19 47		30·2	28·0		15997	5260	
,,	12 12				30·0	28·0				
,,	16 4			69 38·7	37·0	21·4	69·3			45686

Day.	Base values adopted. N. γ	W. γ	V. γ	Temperature in the covers of the recording magnets at 9h. N. °C	W. °C	V. °C	in the magnet-house (by thermograph). At 9h. °C	Range. °C	Scale values of magnetograms. N. γ/mm.	W. γ/mm.	V. γ/mm.	Character of the day (0–2).
1	15996	5267	45781	10·4	10·3	10·4	10·26	·02	8·64	8·64	9·80	0
2			45777	10·4	10·3	10·4	10·25	·01	[8·68]	[8·61]	[9·52]	1
3			45774	10·4	10·3	10·3	10·32	·04*	8·64	8·64	9·80	2
4			45770	10·3	10·3	10·3	10·26	·02	,,	,,	,,	1
5			45767	10·3	10·2	10·3	10·26	·02	,,	,,	,,	1
6		5266	45763	10·3	10·2	10·2	10·20	·02	,,	,,	,,	1
7	15995		45760	10·2	10·2	10·3	10·20	·00	,,	,,	,,	1
8			45756	10·2	10·2	10·2	10·20	·01	,,	,,	,,	1
9			45753	10·2	10·2	10·2	10·12	·02	[8·74]	[8·64]	[9·82]	1
10		5265	45749	10·2	10·2	10·2	10·18	·04*	8·64	8·64	9·80	1
11			45746	10·1	10·1	10·1	10·06	·06	,,	,,	,,	1
12	15994		45742	10·1	10·1	10·1	10·04	·02	,,	,,	,,	0
13			45739	10·0	10·0	10·0	9·98	·02	,,	,,	,,	1
14		5264	45735	10·0	10·0	10·0	9·98	·00	,,	,,	,,	1
15			45732	10·0	10·0	10·0	9·98	·00	,,	,,	,,	1
16			45728	10·0	10·0	10·0	9·98	·00	,,	,,	,,	1
17	15993		45725	10·0	10·0	10·0	9·96	·02*	,,	,,	,,	0
18		5263	45721	10·0	9·9	10·0	9·86	·02	,,	,,	,,	1
19			45718	10·0	9·9	10·0	9·86	·04	,,	,,	,,	0
20			45714	10·0	9·9	10·0	9·86	·02	,,	,,	,,	0
21			45711	10·0	9·9	10·0	9·84	·02	,,	,,	,,	0
22	15992	5262	45707	9·9	9·9	9·9	9·80	·02	,,	,,	,,	1
23			45704	10·0	9·9	9·9	9·80	·00	[8·73]	[8·57]	[9·82]	1
24			45700	9·9	9·9	9·9	9·85	·05*	8·64	8·64	9·80	2
25			45696	9·9	9·9	9·9	9·80	·00	,,	,,	,,	1
26		5261	45693	9·9	9·9	9·8	9·80	·00	,,	,,	,,	1
27	15991		45689	9·9	9·9	9·9	9·80	·02	,,	,,	,,	1
28			45686	9·8	9·8	9·8	9·80	·00	,,	,,	,,	1
29			45683	9·8	9·8	9·8	9·74	·02	[8·64]	[8·64]	[9·71]	1
30		5260	45678	9·8	9·8	9·8	9·70	·00	8·64	8·64	9·80	1
31			45674	9·8	9·7	9·8	9·70	·10*	8·64	8·64	9·80	1

Notes.—The range of temperature is that within the 18 hours before 9 a.m. of each day. On the days marked * the conditions were disturbed by the presence of the observer for determination of Scale Value, etc.　　[ ] The Scale Values in square brackets show the actual determinations upon which the daily Values are based.

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

Eskdalemuir. (X.)   February, 1911.

15000 γ (·15 C.G.S. unit) +

Hour. G.M.T. / Day.	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.
1	992	999	1000	994	1000	998	1001	1007	999	998	991	983	982	983	975	985	981	1043	999	996	1000	993	992	1001	1007	996
2	1006	1001	990	1005	1006	990	1000	1002	1006	996	923	942	964	990	991	981	969	981	998	1000	1034	1025	1022	1002	987	992
3	987	997	1000	1000	999	999	1002	1000	990	999	990	986	986	974	990	988	1000	996	1006	1010	1000	1001	1013	999	999	997
4	999	1002	1000	1001	998	1000	1006	1007	1007	1009	1000	994	988	988	996	1000	1006	1006	1001	1006	996	990	1005	1006	1007	1001
5	1007	1007	1005	1000	1015	1024	1020	1026	1018	1011	1003	968	963	986	990	998	982	1007	1008	976	981	992	986	982	1013	998
6	1013	1005	1000	1000	1004	1006	1010	1012	1010	1009	1000	988	983	995	981	994	979	1005	1000	999	996	1026	1016	1003	999	1001
7	999	998	1000	1005	1007	998	1005	1006	1006	987	1004	999	991	987	999	1002	1006	1006	1002	1016	999	1007	1016	1013	1012	1003
8	1012	1006	1005	1006	1010	1008	1015	1010	1000	1004	990	982	990	984	999	999	1007	999	1003	1006	1005	999	1007	1007	1006	1002
9	1006	1000	1000	1003	1006	1006	1009	1006	1009	994	994	989	982	980	990	1000	1006	998	999	993	1007	1006	1006	1007	1016	1000
10	1015	1011	1006	1007	996	1007	1009	1015	1015	998	954	957	973	991	989	981	996	1001	998	995	992	1012	999	1003	1002	997
11	1002	1005	1005	1009	1009	1009	1010	1010	1011	1005	999	994	989	995	985	985	965	992	1000	998	990	1000	1005	1004	1018	999
12	1018	1009	1006	1004	1006	1008	1014	1010	1007	1006	1005	998	993	995	1002	1008	1005	1005	1005	1007	1021	1030	1032	1030	1032	1010
13	1032	1016	1018	1009	1012	1015	1015	1007	1012	1008	1005	1000	1005	999	1002	990	999	999	1015	1024	1041	982	1006	1025	989	1009
14	988	981	992	1005	998	990	1005	1005	1005	992	973	979	978	993	971	983	979	994	1000	1005	1028	999	997	1004	1003	994
15	1003	997	1005	998	1005	1008	999	1004	1010	1004	992	981	988	982	996	1005	1006	998	1005	1005	1006	1005	1002	1008	1009	1001
16	1009	1007	1003	997	1002	1001	1010	1014	1009	1006	995	994	988	988	968	979	988	973	997	997	1005	1006	1004	1005	1013	1001
17	1013	1005	1000	1003	1003	1004	1003	1015	1007	988	988	972	979	977	988	999	981	1015	997	1006	1021	1010	1010	1023	1021	1001
18	1021	1003	998	1004	997	1003	1010	1010	1004	986	991	991	987	972	972	985	988	1006	1015	1008	995	1031	1005	1004	1010	999
19	1010	1000	1005	1007	998	1002	1004	1010	1009	1006	1001	997	992	991	996	998	1003	1006	997	1006	1006	1006	1015	1005	1007	1003
20	1007	1004	1006	1006	1005	1007	1010	1013	1014	1011	1004	1001	998	996	993	995	992	998	1004	1007	1009	1004	1009	1017	1007	1005
21	1006	1001	1015	996	1011	1013	1011	1022	1022	1005	1007	994	1012	986	946	970	965	964	963	962	966	961	901	1004	989	987
22	989	988	976	985	961	984	991	1000	961	986	979	980	954	949	961	971	1008	1004	977	987	1080	991	989	1011	962	985
23	962	988	985	964	1001	1003	998	1005	982	996	971	969	981	963	992	993	1003	1021	1022	1016	990	1011	1007	1003	996	994
24	996	991	993	988	996	990	993	982	976	971	977	978	991	987	987	971	1004	1009	1004	1000	1082	1026	988	983	996	994
25	995	994	996	991	985	995	996	1001	996	995	971	966	953	977	995	1013	986	1001	1000	1004	1000	1006	1007	1005	1002	993
26	1002	1012	1010	1002	995	996	986	1001	999	977	971	964	955	970	986	991	1002	996	1004	1004	1002	1002	1004	999	1006	993
27	1006	1000	993	1013	1008	1021	1003	995	1001	1002	970	984	979	987	987	986	992	993	1000	997	1030	977	988	995	1011	996
28	1011	987	1003	995	987	977	1006	1005	1003	986	958	962	965	960	986	996	1020	989	977	1019	975	994	977	968	1008	988
Mean	1004	1001	1001	1000	1001	1002	1005	1007	1003	998	986	982	982	983	986	991	994	1000	1000	1002	1009	1003	1000	1004	1005	998

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

Eskdalemuir. (−Y.)   February, 1911.

5000 γ (·05 C.G.S. unit) +

Hour. G.M.T. / Day.	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.
1	228	250	276	292	270	277	276	276	277	272	279	284	279	289	295	301	269	286	288	281	277	260	260	266	266	276
2	266	275	269	257	258	278	277	277	275	274	269	297	295	295	297	298	287	225	277	287	272	270	266	244	259	274
3	258	275	285	288	277	285	276	279	274	273	268	278	285	278	291	277	281	275	268	273	279	275	277	269	269	277
4	269	275	276	274	277	277	278	279	279	274	272	278	282	292	294	294	297	294	292	268	285	261	260	270	275	279
5	275	261	288	276	300	280	275	275	278	278	277	284	294	295	294	294	294	286	282	263	250	210	259	287	272	277
6	272	261	278	282	280	281	285	288	288	281	284	301	295	304	295	294	255	273	284	276	251	292	268	267	274	281
7	274	280	281	300	272	—	—	—	—	—	—	—	291	285	294	290	287	277	242	269	276	283	283	280	274	280
8	273	299	268	275	275	278	279	280	288	284	273	285	285	276	293	292	280	284	249	274	278	274	274	278	274	279
9	274	275	276	280	279	283	280	278	283	279	278	285	294	293	285	285	280	270	239	282	283	281	281	276	279	283
10	279	274	274	277	280	279	275	281	278	277	275	293	304	300	303	295	289	283	280	267	282	278	273	283	282	283
11	282	283	284	281	280	282	280	279	279	275	277	284	287	299	301	293	284	284	280	274	268	273	277	272	281	282
12	280	278	279	278	283	282	282	279	279	274	272	276	283	292	294	294	288	284	282	281	276	254	257	267	273	279
13	273	282	263	283	275	282	281	277	281	284	281	288	293	301	298	295	292	292	281	281	162	188	250	239	242	271
14	242	240	286	282	267	279	289	283	283	277	280	287	273	300	259	274	286	266	284	279	248	273	266	261	275	274
15	275	287	292	284	279	281	289	297	286	281	273	274	285	291	292	292	283	285	284	284	283	282	278	273	271	284
16	270	278	274	279	282	283	282	283	281	276	273	283	284	299	301	305	302	279	267	283	279	277	272	273	266	282
17	266	286	281	290	281	279	282	281	285	278	290	285	300	282	299	293	276	200	265	282	250	267	275	265	257	280
18	257	274	278	281	278	288	284	284	281	265	272	275	288	289	293	306	291	289	273	281	270	239	271	298	278	280
19	278	273	274	276	277	278	282	280	283	279	272	274	283	285	288	288	287	283	245	274	282	277	273	273	274	279
20	273	276	277	277	283	282	279	281	278	276	271	273	280	284	286	290	288	288	284	288	287	275	258	260	265	279
21	265	244	256	257	272	274	274	281	265	277	279	284	301	317	326	359	326	302	147	229	238	199	316	248	248	272
22	248	253	290	257	245	287	266	272	263	264	271	281	290	291	274	298	286	239	264	272	264	246	245	265	235	268
23	234	264	271	279	266	247	271	276	271	273	272	265	287	288	277	288	288	227	230	220	246	263	276	284	268	266
24	268	239	285	264	250	272	265	268	276	277	277	279	282	289	304	289	289	233	279	283	262	263	235	277	269	271
25	269	283	282	273	279	286	275	271	270	267	271	279	298	306	306	295	297	289	289	255	279	273	281	256	263	280
26	263	232	264	278	258	272	270	281	276	274	280	281	283	303	304	297	288	289	270	281	277	277	267	271	271	277
27	271	270	280	270	268	274	275	271	264	258	268	281	290	300	311	297	294	270	228	277	246	235	264	263	266	272
28	265	315	272	271	275	288	270	263	271	270	275	286	290	298	306	305	279	286	262	249	263	275	218	253	259	275
Mean	266	271	277	277	274	279	278	279	278	275	275	282	289	294	295	296	287	273	265	272	265	261	267	269	267	277

VII.—READINGS OF THE VERTICAL COMPONENT OF TERRESTRIAL MAGNETIC FORCE

Eskdalemuir. (Z.) AT EACH HOUR OF GREENWICH MEAN TIME. **February, 1911.**

45000 γ (·45 C.G.S. unit) +

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
Day. γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ				γ	γ	γ	γ	γ	γ	γ
1	335	339	345	337	340	347	348	348	349	349	352	353	353	357	358	360	386	391	366	362	362	362	360	334	347	354
2	344	346	335	316	334	335	339	343	342	344	350	354	353	350	350	360	377	391	369	370	350	337	328	342	343	348
3	339	341	347	340	340	343	344	344	345	346	345	343	343	345	350	353	358	358	353	352	351	350	348	349	349	347
4	346	346	346	346	346	346	346	344	345	343	347	348	348	348	348	353	356	357	358	366	358	363	358	357	355	351
5	351	344	337	344	338	335	341	337	339	342	345	347	347	352	350	354	361	362	356	364	373	364	360	358	331	350
6	328	338	344	345	344	349	345	344	345	347	347	347	346	350	353	354	364	365	359	362	368	349	338	342	345	345
7	341	339	338	333	330	338	339	339	339	339	340	341	341	341	342	344	348	352	359	352	352	352	348	345	345	343
8	342	339	339	340	341	341	342	342	342	342	343	340	339	343	342	349	354	353	355	348	345	346	343	340	340	344
9	336	336	336	335	336	335	335	336	333	335	332	331	334	336	336	346	346	348	348	346	337	337	336	336	336	338
10	333	326	326	325	325	325	326	326	327	325	329	325	324	323	328	335	337	337	337	345	342	332	333	332	333	330
11	329	328	328	327	325	325	324	324	324	324	325	325	327	323	328	334	342	344	338	338	339	337	334	333	327	330
12	324	320	324	324	324	324	324	324	324	324	324	319	321	326	327	328	330	329	329	328	329	327	325	319	312	325
13	308	313	315	314	314	315	315	316	317	316	317	317	317	319	323	327	328	328	328	326	362	349	336	284	289	321
14	286	295	273	289	303	308	311	314	315	317	318	312	318	323	342	351	350	346	332	328	331	326	326	319	319	319
15	315	315	307	309	314	314	315	313	313	315	316	317	317	318	319	325	328	326	325	321	319	318	319	319	319	318
16	316	314	315	315	314	313	313	312	313	314	313	309	311	314	321	325	330	345	342	331	325	324	324	319	315	320
17	311	312	308	309	311	312	312	311	310	312	311	313	317	318	318	323	335	343	331	324	324	314	313	314	308	317
18	305	308	310	312	313	315	309	312	309	313	313	308	307	312	311	315	322	322	323	318	323	317	313	310	294	313
19	290	298	295	287	300	302	302	305	305	304	302	301	300	301	303	306	311	312	318	312	311	311	310	311	310	305
20	307	307	307	309	307	307	307	307	302	302	296	296	297	299	302	304	306	304	305	305	305	306	311	304	296	304
21	292	290	283	292	290	291	293	291	291	296	294	292	289	285	293	329	373	365	411	383	366	302	240	260	282	308
22	279	287	258	245	251	293	300	301	300	306	303	298	301	310	328	314	315	329	330	332	278	290	313	265	264	295
23	260	285	292	278	249	266	279	286	292	292	295	298	297	301	306	303	308	319	311	311	306	292	291	284	263	292
24	260	268	243	240	261	273	282	284	288	289	289	295	295	295	303	307	308	329	312	304	294	288	296	293	296	288
25	292	284	282	285	286	288	291	291	292	293	292	292	295	298	297	305	304	301	301	304	301	301	279	279	280	293
26	276	261	271	272	268	276	281	280	282	286	289	291	296	296	298	306	307	307	307	298	298	298	301	298	296	289
27	292	291	286	256	268	272	279	283	283	282	286	286	285	285	289	306	297	312	321	307	287	294	294	293	287	289
28	283	265	256	273	275	270	265	279	285	285	295	298	309	314	328	329	337	330	328	322	307	309	276	294	278	296
Mean	311	312	309	307	309	313	315	315	316	317	318	318	319	321	324	330	336	340	338	334	330	325	320	316	313	321

VIII.—AUXILIARY OBSERVATIONS IN ABSOLUTE MEASURE; BASE VALUES ADOPTED FOR THE CURVES, AND DETERMINATIONS OF SCALE VALUES OF CURVE ORDINATES.

Eskdalemuir. **February, 1911.**

Day.	Hour.	Absolute observations with unifilar magnetometer and dip circle. H. γ	D. (West) ° ′ ″	I. (North) ° ′	Measurements of curve ordinates. N. mm.	W. mm.	V. mm.	Deduced values of base lines. N. γ	W. γ	V. γ
	h m									
7th ,, ,,	14 14			69 35·6	Trace failed 36·8	29·1	23·3			45624
10th ,,	11 7		18 21 13		32·0	29·2		15987‡	5263‡	
	11 41	16826			33·0	29·9				
14th ,, ,,	11 54		18 15 31		32·9	26·7		15990	5255	
	12 25	16840			35·1	27·8				
	15 37			69 39·5	35·4	29·4	27·1			45720
21st ,, ,,	11 14		18 14 43		36·4	28·8		15989	5242*	
	11 30	16855			37·1	29·3				
	14 46			69 38·2	38·7	36·0	27·2			45780
28th ,, ,,	11 29		18 17 30		33·4	28·1		15983	5252	
	12 9	16813			32·5	28·7				
	15 54			69 37·8	38·2	28·3	27·9			45650

Day.	Base values adopted. N. γ	W. γ	V. γ	Temperature — in the covers of the recording magnets at 9ʰ. N. °C.	W. °C.	V. °C.	in the magnet-house (by thermograph). At 9ʰ. °C.	Range. °C.	Scale values of magnetograms. N. γ/mm.	W. γ/mm.	V. γ/mm.	Character of the day (0–2).
1†	15991	5260	45670	9·8	9·7	9·8	9·64	·00	8·64	8·64	8·64	I
2	15990		45667	9·8	9·7	9·7	9·62	·06	,,	,,	,,	I
3		5259	45663	9·75	9·7	9·75	9·60	·02	,,	,,	,,	I
4			45660	9·7	9·7	9·8	9·60	·02	,,	,,	,,	O
5			45656	9·8	9·7	9·75	9·64	·00	[8·73]	[8·61]	[8·64]	I
6			45653	9·75	9·7	9·8	9·62	·00	8·64	8·64	8·64	I
7			45649	9·7	9·6	9·7	9·60	·12*	,,	,,	,,	I
8		5258	45646	9·7	9·65	9·7	9·58	·00	,,	,,	,,	I
9			45642	9·7	9·65	9·7	9·60	·02	,,	,,	,,	O
10	15989		45639	9·7	9·65	9·7	9·60	·40*	,,	,,	,,	I
11			45635	9·6	9·6	9·6	9·54	·04	,,	,,	,,	O
12		5257	45632	9·6	9·6	9·6	9·56	·02	[8·64]	[8·64]	[8·68]	O
13			45628	9·6	9·5	9·6	9·52	·00	8·64	8·64	8·68	I
14	15988		45625	9·5	9·5	9·5	9·50	·08*	8·64	8·64	8·68	I
15			45621	9·5	9·5	9·5	9·46	·00	,,	,,	,,	O
16		5256	45618	9·5	9·5	9·5	9·44	·04	,,	,,	,,	I
17			45614	9·5	9·4	9·5	9·40	·02	,,	,,	,,	I
18			45611	9·4	9·3	9·4	9·40	·04	,,	,,	,,	I
19			45607	9·3	9·3	9·3	9·34	·06	,,	,,	,,	I
20		5255	45604	9·3	9·3	9·4	9·28	·02	[8·73]	[8·64]	[9·04]	O
21	15987		45600	9·3	9·3	9·4	9·26	·20*	8·64	8·64	9·04	2
22			45597	9·3	9·3	9·4	9·24	·00	,,	,,	,,	2
23		5254	45593	9·3	9·2	9·3	9·20	·08	,,	,,	,,	I
24			45590	9·3	9·2	9·4	9·20	·00	,,	,,	,,	I
25	15986		45586	9·3	9·2	9·3	9·24	·02	,,	,,	,,	I
26			45582	9·3	9·2	9·3	9·24	·00	[8·73]	[8·64]	[9·04]	I
27			45578	9·3	9·2	9·3	9·24	·00	8·64	8·64	9·04	I
28		5253	45574	9·25	9·2	9·25	9·24	·04*	8·64	8·64	9·04	I

‡ Recomputed April 1912.   † The vertical force recorder was re-adjusted on 1st February.   * See note for January.   2

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

Eskdalemuir. (X.)   March, 1911.

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	15000 γ ('15 C.G.S. unit) + γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	1008	1001	993	1011	995	1000	996	996	962	984	982	970	970	970	978	1002	996	1014	1012	996	1029	1000	1002	997	1019	995
2	1018	995	994	995	999	1003	1008	995	1004	1008	1004	996	993	990	992	994	998	997	1002	1007	1009	1010	1007	1007	1008	1001
3	1008	1010	1007	1009	1010	1011	1011	1013	1014	994	999	986	969	966	959	959	980	984	1002	1041	998	993	1004	998	1012	997
4	1012	1001	1004	1003	1000	1000	1000	1001	1014	1014	1001	988	984	984	978	984	992	1002	1010	1027	1020	986	1020	1004	1004	1001
5	1004	1002	1003	1006	1014	999	1012	1015	1012	1010	954	975	981	978	1000	985	998	942	1003	1012	992	1071	995	1020	1000	999
6	1000	1007	1001	996	1001	1002	1002	999	1007	993	982	968	969	963	986	994	1005	1007	992	1036	984	997	1001	1004	1002	996
7	1002	1002	1002	1001	1002	996	995	1009	1013	999	985	980	979	978	977	981	993	1002	1003	1012	1006	1009	1002	1009	1020	998
8	1020	1003	1003	1004	1007	1008	1011	1017	1019	1008	991	975	926	958	986	993	978	1001	1003	1002	1003	1005	1007	1004	1002	997
9	1001	1003	1003	1002	999	994	1005	1008	1012	995	989	975	973	974	979	984	999	1000	1004	1003	1003	1009	1002	1007	1021	997
10	1021	1016	1007	1008	1008	1009	1010	1010	1009	1002	993	992	984	984	988	993	997	1001	1002	1005	1007	1009	1010	1009	1006	1003
11	1006	1006	1008	1006	1008	1010	1010	1010	1010	1003	993	984	981	983	991	996	1001	1004	1006	1008	1009	1006	1010	1009	1010	1002
12	1010	1010	1010	1011	1013	1012	1012	1019	1019	1010	993	980	975	976	980	985	1000	1002	1007	1009	1010	1009	1009	1010	1009	1003
13	1008	1008	1008	1008	1011	1012	1018	1024	1028	1024	1004	984	986	985	984	1000	999	1008	1019	1017	1000	993	1012	1012	1008	1006
14	1008	1011	1012	1011	1020	1008	1029	1007	1018	1005	993	987	987	988	993	1000	1001	1005	1010	1009	1010	1008	1001	1007	1008	1005
15	1008	992	1011	993	1009	1001	1012	1010	1007	1010	993	986	975	973	991	1000	1005	1010	1012	1010	1018	1012	1010	1010	1040	1003
16	1040	1005	1009	1009	1010	1010	1009	1018	1003	999	993	973	975	973	985	973	992	990	1009	1005	1006	1012	1008	1010	1009	1000
17	1009	1010	1017	1006	1005	1010	1012	1012	1010	1001	991	982	980	979	983	987	999	1000	1009	1012	1014	1010	1011	1006	1007	1002
18	1007	1007	1009	1006	1005	1006	1007	1007	1009	1006	994	984	982	983	987	996	1003	1008	1009	1009	1009	1009	1008	1016	1006	1003
19	1006	1008	1006	1007	1010	1011	1011	1012	1014	1009	1000	987	980	980	986	999	1006	1009	1010	1012	1012	1013	1018	1015	1018	1005
20	1017	1035	1037	1025	999	1021	1024	1033	1029	997	939	905	931	930	962	969	1092	983	994	1096	985	974	969	1010	1010	998
21	1010	991	965	968	972	993	966	999	999	979	950	941	969	965	965	976	990	973	995	991	1002	1020	992	984	978	981
22	978	1015	983	991	994	1004	1001	996	991	988	956	975	970	973	983	1006	1005	1007	1008	1000	1051	997	994	1007	1035	996
23	1035	1046	987	992	991	991	998	991	982	980	974	978	972	991	991	982	1015	1044	998	997	1031	1016	1028	974	971	999
24	971	1008	992	974	990	999	998	997	983	982	974	956	963	971	967	991	994	1000	1003	1005	1009	1016	1010	1017	987	991
25	987	996	939	1017	998	993	991	982	970	973	970	970	965	977	978	975	991	1009	1005	1016	1043	1005	1018	1009	1007	991
26	1007	998	985	1008	983	991	999	997	974	984	984	986	979	981	984	1005	1000	1009	1034	998	1017	1033	991	982	994	996
27	993	993	981	989	1002	965	978	983	971	956	946	940	947	977	972	1000	997	1007	1016	1016	1062	1004	992	987	985	986
28	985	1029	997	989	998	1002	997	985	993	991	981	972	981	989	991	998	1009	1023	997	979	1026	1016	1017	1003	992	998
29	992	1029	971	998	1008	980	1003	1006	991	979	971	966	964	963	978	1005	987	985	1015	1001	1003	1006	1006	1005	1001	932
30	1001	1008	983	999	998	1003	997	999	990	978	970	965	963	982	990	990	998	1006	1011	1008	1005	1005	1007	1025	1010	994
31	1010	1001	999	1000	1008	1008	1005	1002	998	996	988	985	977	989	990	992	991	991	998	985	1002	1004	1005	1006	1005	997
Mean	1006	1008	998	1001	1002	1002	1004	1005	1002	995	982	974	972	976	982	990	1000	1001	1006	1011	1012	1008	1005	1006	1006	998

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

Eskdalemuir. (−Y.)   March, 1911.

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	5000 γ ('05 C.G.S. unit) + γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	259	212	257	280	271	275	273	277	270	282	282	282	288	288	290	304	279	269	268	278	245	268	271	269	263	273
2	263	249	270	276	280	279	276	279	272	271	265	271	280	288	293	294	295	282	288	288	284	282	279	277	278	279
3	278	278	279	280	279	279	281	281	280	278	273	274	288	300	304	303	305	292	281	253	272	255	275	269	280	281
4	279	268	261	282	279	280	279	276	274	268	266	272	290	298	300	295	292	288	287	294	252	262	268	276	271	278
5	271	274	279	284	287	287	289	289	277	285	284	290	291	296	318	269	294	236	284	268	277	279	266	294	269	282
6	269	276	282	287	288	283	288	293	277	269	265	281	289	295	296	296	293	287	279	269	268	263	274	277	273	281
7	273	272	271	278	278	285	286	280	273	264	255	267	283	294	293	295	295	269	278	276	278	261	277	272	278	277
8	277	284	276	275	277	283	281	285	279	269	267	280	277	294	300	305	288	284	284	276	277	276	267	277	273	281
9	273	275	276	274	280	280	278	275	277	262	259	266	277	286	293	291	286	280	279	279	278	273	277	277	293	278
10	293	287	276	274	276	277	277	274	267	261	264	274	279	288	294	292	287	285	281	280	280	280	279	280	279	279
11	278	277	278	277	277	276	276	273	267	260	259	266	282	292	294	292	285	282	282	281	282	274	279	281	282	278
12	282	281	280	279	277	280	279	278	276	263	265	267	279	294	302	298	293	285	280	280	279	276	278	279	279	280
13	279	279	279	280	278	283	278	277	272	266	266	270	288	297	299	310	300	302	296	279	269	268	282	279	279	283
14	279	285	284	285	286	294	312	336	301	268	265	272	282	291	298	298	299	293	293	285	283	277	260	258	257	286
15	256	284	292	266	282	293	278	269	264	264	264	269	284	293	306	306	295	286	283	279	281	278	275	274	270	280
16	270	276	278	276	279	279	278	281	266	258	259	264	284	293	305	297	280	279	276	271	275	273	273	278	277	277
17	277	283	286	276	279	277	275	275	270	268	273	268	277	292	300	295	292	284	283	275	276	276	276	276	278	280
18	278	282	284	275	277	276	277	273	266	260	259	268	278	294	301	301	293	286	283	280	280	278	278	275	276	279
19	275	275	277	277	277	276	277	277	275	266	265	269	285	296	300	302	299	291	284	282	280	281	278	277	277	281
20	277	285	277	248	291	252	283	264	282	263	283	289	301	309	309	309	244	283	265	160	200	280	255	271	258	270
21	258	247	274	267	274	259	273	271	269	268	257	261	291	285	312	305	259	260	239	264	248	239	265	299	264	268
22	263	237	282	257	256	291	269	266	267	273	265	274	291	300	294	307	296	265	286	285	247	263	273	275	282	275
23	282	246	236	251	269	262	266	277	282	268	282	269	269	290	300	284	280	198	251	263	289	237	244	247	264	264
24	264	275	255	266	271	271	269	266	264	264	262	267	272	294	297	298	276	283	282	280	275	243	230	213	241	268
25	240	268	300	262	236	271	263	263	271	268	255	272	288	291	288	289	281	255	263	251	262	273	269	242		270
26	242	252	271	264	256	271	270	264	263	263	262	273	298	300	309	297	296	291	275	273	258	231	204	208	262	267
27	262	265	271	281	263	256	304	277	288	255	282	282	298	310	292	294	285	281	282	281	256	230	253	281	293	277
28	293	271	237	274	265	287	332	297	264	258	268	276	289	298	296	290	290	304	288	267	281	298	256	268	284	281
29	283	267	279	254	253	279	262	262	259	252	258	280	289	304	309	299	299	294	271	281	280	275	274	278	273	277
30	273	266	288	274	263	263	264	267	262	263	266	277	287	297	299	292	286	280	271	261	274	272	274	273	285	275
31	285	270	269	274	266	268	268	268	269	263	251	280	289	298	299	297	289	280	262	262	261	269	271	274	267	274
Mean	272	269	274	273	273	277	279	277	272	266	266	273	287	295	300	297	288	279	278	272	269	267	267	271	273	277

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

Eskdalemuir. (Z.) March, 1911.

45000 γ (·45 C.G.S. unit) +

Hour G.M.T. Day	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.
1	273	259	272	266	268	284	288	297	296	293	292	296	302	312	314	312	318	321	316	311	305	304	305	307	303	297
2	299	300	302	302	301	300	299	299	299	296	297	298	299	303	303	306	314	317	318	311	314	313	314	311	314	305
3	311	308	309	309	308	308	307	305	304	303	302	303	304	308	318	323	328	330	329	330	325	328	321	315	303	314
4	299	306	309	308	307	308	309	307	306	306	303	301	299	301	305	312	320	320	314	314	332	337	328	326	313	312
5	310	310	309	309	292	299	309	307	306	308	299	304	309	309	318	331	341	366	346	339	335	316	312	305	310	316
6	307	309	309	308	310	313	314	310	309	311	316	316	315	319	325	325	325	328	332	316	325	328	325	317	322	318
7	318	318	319	319	320	319	316	316	320	319	320	317	316	318	321	323	330	330	329	328	327	330	306	315	311	320
8	308	309	315	316	316	316	315	313	315	316	316	321	325	324	319	319	325	327	326	325	323	323	323	320	320	319
9	317	316	315	315	315	314	312	313	310	313	315	315	315	310	314	316	324	323	324	323	324	321	321	320	314	317
10	310	307	309	310	312	312	314	312	314	313	311	311	312	312	315	317	318	320	324	324	323	324	324	321	322	316
11	318	320	321	319	320	321	318	321	321	323	319	314	313	314	318	320	321	321	321	322	321	322	320	322	321	320
12	318	319	318	317	317	316	316	312	312	315	318	318	320	318	318	327	328	330	329	325	328	328	327	328	328	321
13	324	324	325	322	323	321	319	316	317	314	317	318	317	317	324	326	327	328	329	329	334	337	343	335	335	326
14	332	331	332	331	327	327	307	306	304	311	314	316	323	324	325	328	330	333	335	334	334	340	342	333	329	325
15	325	319	310	310	310	311	318	321	327	328	327	326	325	331	332	332	334	335	333	333	333	333	333	333	323	326
16	319	326	329	329	330	330	329	329	330	333	328	330	333	333	334	348	350	353	350	345	342	337	341	340	338	336
17	335	332	330	331	330	331	331	332	335	336	337	337	335	330	334	338	343	343	342	345	341	341	340	341	342	336
18	338	338	335	339	332	335	332	335	339	340	334	339	333	331	334	336	339	343	343	340	342	341	341	341	343	338
19	340	333	338	335	335	340	340	337	335	334	335	329	326	325	334	336	337	344	342	343	345	340	347	342	343	337
20	339	332	329	332	329	318	301	298	307	315	327	343	341	359	373	374	402	402	400	384	354	314	334	299	280	341
21	277	303	314	321	331	333	337	339	343	342	346	345	344	349	364	353	391	388	409	383	382	355	353	344	306	348
22	302	304	273	285	314	293	302	323	338	340	341	342	340	343	348	353	359	363	359	359	350	350	350	350	305	333
23	302	284	317	328	336	338	339	340	341	342	343	350	350	350	356	369	380	396	384	381	360	360	341	343	311	347
24	307	299	326	328	336	345	348	353	356	354	355	353	354	354	354	354	364	364	358	356	357	362	348	331	325	347
25	322	333	293	290	310	325	329	336	345	345	345	351	346	358	360	361	366	369	369	365	360	352	352	316	326	342
26	322	332	333	327	337	342	345	347	347	347	347	347	345	355	360	368	366	366	372	373	363	358	345	328	337	349
27	333	341	342	343	345	344	327	323	326	337	345	346	347	347	351	359	359	356	356	360	355	350	352	345	317	345
28	314	306	328	340	342	335	315	315	332	336	340	340	341	345	351	356	359	367	368	376	368	340	337	350	342	342
29	338	306	291	307	325	327	340	347	352	355	355	354	355	360	372	378	383	381	378	370	377	377	374	363	363	352
30	360	360	357	351	357	357	358	359	360	359	362	362	361	362	362	366	368	364	374	370	377	374	373	370	365	362
31	358	358	362	361	358	359	361	362	361	360	359	356	350	358	361	364	368	374	384	395	390	380	375	371	369	366
Mean	319	318	318	320	322	323	322	323	326	326	328	329	329	332	336	340	346	349	348	346	343	339	337	332	325	331

XII.—AUXILIARY OBSERVATIONS IN ABSOLUTE MEASURE; BASE VALUES ADOPTED FOR THE CURVES, AND DETERMINATIONS OF SCALE VALUES OF CURVE ORDINATES.

Eskdalemuir. March, 1911.

Day.	Hour. h m	Absolute observations with unifilar magnetometer and dip circle. H. γ	D.(West) ° ' "	I.(North) ° '	Measurements of curve ordinates. N. mm.	W. mm.	V. mm.	Deduced values of base lines. N. γ	W. γ	V. γ
3rd	11 14	16812	18 17 14		35·1	28·1		15977	5253	
,,	11 45				33·1	28·1				
7th	11 18	16823	18 15 11		34·7	27·1		15982	5253	
,,	11 35				34·4	27·4				
,,	14 39			69 36·3	35·2	30·2	27·2			45524
10th	11 19	16828	18 15 12		35·1	27·6		15982	5249	
,,	11 55				34·9	28·1				
14th	11 29	16829	18 15 30		35·3	27·9		15978	5247	
,,	11 59				35·3	28·3				
,,	15 42			69 38·0	37·9	31·0	27·6			45625
17th	11 12	16826	18 14 38		34·5	27·3		15983	5247	
,,	11 47				34·3	28·1				
24th	11 36	16817	18 18 39		31·0	28·3		15990	5251	
,,	12 15				32·2	28·3				
28th	11 40	16838	18 17 58		34·2	29·4		15984	5246	
,,	12 21				35·2	30·2				
,,	16 4			69 38·2	38·2	30·0	28·2			45541
31st	11 36	16821	18 18 50		35·2	30·1		15982	5247	
,,	12 12				33·5	29·2				

Day.	Base values adopted. N. γ	W. γ	V. γ	Temperature in the covers of the recording magnets at 9h. N. °C	W. °C	V. °C	in the magnet-house (by thermograph). At 9h. °C	Range. °C	Scale values of magnetograms. N. γ/mm.	W. γ/mm.	V. γ/mm.	Character of the day (0–2).
1	15986	5253	45570	9·3	9·2	9·3	9·22	·00	8·64	8·64	9·04	1
2	15985		45566	9·3	9·2	9·3	9·20	·04	,,	,,	,,	0
3			45563	9·3	9·2	9·3	9·20	·02	,,	,,	,,	1
4		5252	45559	9·3	9·2	9·3	9·20	·00	,,	,,	,,	0
5			45556	9·2	9·2	9·2	9·16	·04	[8·78]	[8·64]	[8·94]	1
6			45553	9·25	9·2	9·2	9·14	·02				1
7			45549	9·2	9·1	9·2	9·24	·02*	8·64	8·64	8·94	0
8		5251	45546	9·2	9·2	9·2	9·18	·02	,,	,,	,,	1
9	15984		45542	9·2	9·1	9·2	9·18	·02	,,	,,	,,	0
10			45539	9·2	9·1	9·2	9·12	·04	,,	,,	,,	0
11		5250	45535	9·2	9·1	9·2	9·10	·02	,,	,,	,,	0
12			45532	9·2	9·1	9·2	9·12	·00	[8·64]	[8·64]	[9·19]	0
13	15983		45528	9·2	9·1	9·2	9·10	·00				0
14			45525	9·1	9·0	9·1	9·10	·10*	8·64	8·64	9·19	1
15		5249	45521	9·1	9·0	9·1	9·06	·02	,,	,,	,,	1
16			45517	9·1	9·0	9·1	9·02	·02	,,	,,	,,	1
17			45514	9·0	9·0	9·0	9·00	·02	,,	,,	,,	0
18			45510	9·0	8·9	9·0	9·00	·02	,,	,,	,,	0
19		5248	45507	9·0	9·0	9·0	9·00	·00	,,	,,	[9·19]	0
20†	15982		45503	9·0	9·0	9·1	8·98	·02	,,	,,		2
21			45500	9·0	8·9	9·0	9·00	·04*	,,	,,	,,	2
22		5247	45496	9·0	8·9	9·0	8·94	·00	,,	,,	,,	1
23			45493	9·0	8·9	9·0	9·00	·02	,,	,,	,,	2
24			45489	9·0	8·9	9·0	8·94	·04	,,	,,	,,	1
25		5246	45486	9·0	8·9	9·0	8·96	·02	,,	,,	,,	2
26			45482	9·0	8·9	9·0	8·94	·04	,,	,,	,,	1
27	15981		45478	9·0	8·9	9·0	8·88	·00	[8·64]	[8·64]	[9·31]	2
28			45475	8·9	8·9	8·9	8·90	·08*	8·64	8·64	9·31	1
29			45471	8·9	8·9	8·9	8·88	·02	,,	,,	,,	1
30		5245	45468	8·9	8·9	8·9	8·88	·02	,,	,,	,,	1
31			45464	8·9	8·9	8·9	8·82	·04	,,	,,	,,	1

† On the 20th the traces of the North and West components were too disturbed to admit of Scale Values being assigned. * See note for January.

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

Eskdalemuir. (X.) — April, 1911.

15000 γ (·15 C.G.S. unit) +

Hour G.M.T. Day	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.
1	1005	1000	998	999	1001	1003	1006	1004	1003	990	980	972	974	989	981	1003	1002	1007	987	1019	1015	1015	1016	1044	1010	1001
2	1010	997	1002	999	1006	1002	1008	1008	1006	996	989	981	984	982	983	990	990	997	1007	1014	1023	1013	1013	1015	1024	1001
3	1024	1029	1007	992	1010	1008	1016	1016	1009	994	978	967	976	979	997	1003	998	1000	1008	998	1015	1008	1009	1010	1011	1002
4	1011	1012	1012	1013	1007	1011	1014	1015	1015	998	975	955	979	980	986	997	991	991	985	1012	1009	1033	999	1010	1006	1000
5	1006	1005	1005	1008	1008	1008	1008	1015	1012	1000	981	967	965	981	996	1003	1005	1007	1010	1014	1016	1016	1015	1013	1012	1003
6	1011	1010	1010	1010	1009	1011	1012	1009	1006	994	981	963	977	980	988	996	999	1008	1015	1015	1023	1028	1007	1012	1014	1003
7	1014	1013	1013	1009	1012	1009	1017	1015	1015	1014	1002	990	984	987	989	996	996	1009	1009	1017	1015	1013	1026	1007	1008	1007
8	1008	1008	1007	1015	1005	1003	1012	1014	1009	1005	991	974	987	985	991	999	1018	1023	1016	1040	1033	999	990	960	1015	1004
9	1015	963	937	984	999	911	963	942	904	897	890	884	908	962	984	983	981	971	988	998	998	1001	997	1013	975	961
10	975	984	999	1004	964	999	1000	999	990	982	970	980	969	976	946	997	983	996	1003	1002	1002	1017	1024	996	1015	991
11	1015	973	989	996	996	996	996	998	997	990	984	976	972	976	976	996	996	1007	1005	1009	1010	1013	1014	1012	1002	995
12	1002	1001	1004	1005	1011	1013	997	999	997	989	973	964	957	960	981	981	997	995	1010	1032	999	1005	1006	1016	1006	996
13	1006	1008	1003	1005	999	1005	1006	1005	1001	991	979	973	972	980	985	994	1005	1006	1015	1015	1015	1007	1015	1006	1006	1000
14	1006	1007	1007	1007	1006	1006	1006	1005	997	996	984	978	977	981	991	997	1003	1007	1006	1013	1008	1007	1006	1006	1007	1004
15	1007	1006	1006	1006	1006	1006	1008	1009	1005	996	984	977	980	987	994	997	1004	1008	1011	1015	1015	1022	1018	1023	1032	
16	1032	1039	1045	1008	999	1003	1002	996	984	990	987	977	971	997	996	951	1001	999	1094	986	1015	995	1020	1000	1005	1003
17	1005	1002	982	1018	1013	1007	998	947	928	941	951	950	961	937	980	990	997	990	981	997	1006	1068	990	1005	989	985
18	989	1001	1002	1005	983	1002	1007	1008	1011	980	967	961	947	985	980	997	986	998	997	1014	1003	1025	1036	998	1032	996
19	1032	993	998	985	985	993	1011	1009	1005	996	989	961	971	990	999	996	1001	1010	1018	1009	1012	1007	1003	1013	1000	999
20	1000	1011	1015	979	1015	990	1006	991	990	995	997	970	974	979	990	995	997	1015	1018	1018	1014	1084	1049	1009	990	1004
21	990	1005	998	995	1015	988	1013	1007	1004	997	986	973	971	975	980	989	1010	1022	1033	1084	1026	1010	1002	997	1023	1004
22	1023	973	1008	991	996	987	990	995	984	989	984	979	954	975	990	984	1006	1021	1038	1009	1009	1007	996	1022	1023	997
23	1023	1014	997	997	1024	998	985	996	984	974	980	972	958	975	989	996	1011	1017	1027	1024	1024	1014	1007	1008	1015	1000
24	1015	1007	1004	1008	1012	1008	1015	1015	1002	994	980	958	979	990	996	992	990	1021	1012	1015	1011	1014	1014	1018	1013	1004
25	1013	1002	1008	1009	1009	1006	1005	1008	1003	996	981	982	984	980	1007	1017	1015	1022	1008	1015	1014	1014	1018	1015	1007	1005
26	1007	1005	1007	1008	1014	1014	1015	996	1000	990	977	971	979	990	1006	1009	1015	1015	1010	1015	1015	1015	1027	1023	1013	1005
27	1013	1012	1015	1015	1015	1012	1015	997	996	990	989	990	995	1004	1004	1009	1015	1015	1023	1024	1034	1024	1032	1029	1013	1011
28	1023	1026	1009	1018	1020	1024	1020	1014	1002	984	980	970	984	991	972	1002	1015	1013	1032	1018	1010	1015	1015	1017	1028	1007
29	1028	1012	999	997	1001	1011	1014	1002	988	996	991	982	980	983	998	1006	1006	1013	1022	1013	1008	1015	1015	1014	1015	1004
30	1015	1015	1014	1017	1010	1019	1019	1014	971	997	993	984	982	997	981	971	1002	1092	1008	1000	1006	1032	978	997	1002	1005
Mean	1011	1004	1003	1003	1005	1002	1006	1002	994	988	979	969	972	981	988	994	1001	1010	1013	1015	1013	1018	1013	1011	1011	1000

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

Eskdalemuir. (−Y.) — April, 1911.

5000 γ (·05 C.G.S. unit) +

Hour G.M.T. Day	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
1	267	272	274	271	271	270	267	261	255	257	261	278	288	318	308	306	296	294	278	274	284	280	273	257	270	278
2	269	254	271	270	281	271	276	271	268	262	264	270	290	302	305	298	288	285	279	279	260	273	278	279	278	277
3	278	286	235	275	265	264	268	267	263	263	267	286	310	313	311	313	287	278	278	267	269	273	279	277	275	278
4	275	274	274	275	266	269	269	265	260	261	266	270	292	305	289	287	273	274	270	269	271	276	266	270	271	274
5	271	272	272	271	273	270	271	268	262	258	260	275	292	305	298	291	282	279	280	279	279	279	279	278	277	277
6	276	275	272	272	270	270	268	261	259	253	255	262	284	294	295	288	278	278	278	278	265	268	270	272	271	272
7	271	270	269	268	267	265	268	263	260	253	253	262	278	297	297	297	289	293	284	280	282	260	235	262	270	272
8	270	271	278	272	265	272	268	260	257	259	263	272	301	319	312	312	304	304	304	306	307	253	272	200	229	278
9	229	228	236	304	351	313	373	330	306	284	308	309	329	325	296	280	272	266	274	274	273	274	272	289	258	292
10	257	260	256	253	277	258	249	251	242	243	259	259	268	287	280	277	277	277	276	274	271	259	242	251	207	262
11	207	227	262	264	264	264	260	252	248	253	254	265	275	285	289	287	283	284	276	277	276	277	276	271	270	267
12	270	270	272	275	266	269	277	277	259	251	254	263	283	291	296	290	281	275	260	252	267	271	274	274	271	272
13	271	273	277	282	277	271	269	263	251	246	251	265	278	288	287	280	278	277	271	269	267	271	267	270	270	271
14	269	270	272	274	274	270	267	257	249	248	252	265	276	287	292	284	276	276	273	275	273	271	271	271	271	271
15	271	272	274	273	270	268	266	259	251	246	250	261	276	289	289	283	277	276	276	276	276	281	282	281	276	272
16	276	280	270	222	267	252	251	250	260	250	257	267	285	326	320	329	292	315	257	267	284	242	250	276	276	273
17	275	275	267	282	255	259	249	257	262	287	259	268	282	277	289	288	287	283	266	281	277	282	250	262	266	271
18	266	265	265	270	275	275	274	265	256	250	256	276	275	292	304	284	289	281	258	275	266	269	251	242	243	270
19	243	222	248	224	248	258	288	286	267	257	266	269	277	288	297	290	283	282	258	262	269	240	258	267	278	265
20	278	261	257	277	275	248	261	261	266	270	257	266	284	291	294	292	283	284	277	275	269	287	240	239	274	270
21	273	271	255	277	260	267	280	259	256	255	252	263	282	296	298	289	292	293	293	212	249	249	223	278	231	267
22	231	268	267	263	264	274	280	275	255	252	258	268	282	289	300	282	287	300	286	267	261	253	249	267	277	271
23	277	260	242	274	262	256	260	266	256	259	261	279	282	288	287	291	275	277	281	273	269	273	273	283	274	271
24	274	273	264	265	256	256	257	245	243	250	265	280	296	306	308	302	293	292	276	274	271	273	251	255	242	266
25	241	260	255	254	254	250	257	250	243	250	255	267	289	291	291	284	273	273	271	273	273	270	273	273	266	266
26	266	292	265	274	264	259	264	252	255	252	262	276	292	299	299	290	281	274	273	273	275	267	264	252	267	272
27	267	267	267	269	264	261	254	247	246	260	266	283	299	307	309	301	293	289	290	288	290	284	283	281	276	278
28	276	282	266	268	264	262	262	263	261	264	280	280	291	311	302	315	300	282	252	279	273	276	273	275	275	277
29	274	263	272	290	270	263	255	253	253	254	263	264	272	280	285	290	289	288	280	273	272	273	272	274	272	272
30	272	272	275	280	263	264	254	254	250	280	271	272	280	300	309	291	307	247	289	276	272	240	254	204	230	269
Mean	265	266	264	270	269	266	269	263	257	258	262	271	286	298	298	293	286	283	276	273	273	268	263	264	264	272

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

Eskdalemuir. (Z.) April, 1911.

45000 γ (·45 C.G.S. unit) +

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
Day. γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	366	365	366	366	367	369	371	368	368	366	362	359	352	358	369	367	369	375	383	381	378	377	375	366	364	368
2	360	357	359	364	363	363	364	365	366	366	362	358	355	357	361	367	370	376	376	72	370	368	367	367	357	365
3	353	343	341	345	352	358	357	359	361	361	362	352	349	355	360	370	375	379	377	382	374	373	371	372	372	362
4	369	369	369	369	369	369	368	368	367	366	365	361	356	355	358	370	374	381	384	384	384	370	375	374	374	370
5	370	371	371	371	372	371	371	371	370	370	370	369	364	364	368	373	375	375	376	377	378	378	378	378	378	372
6	375	375	375	375	376	376	374	375	375	374	372	367	361	365	370	375	376	378	378	380	381	376	376	376	376	374
7	372	371	372	373	373	373	372	373	373	373	373	368	367	366	368	374	377	380	385	385	385	387	386	379	377	375
8	374	375	377	374	374	374	374	375	373	372	368	364	349	355	360	369	370	372	372	372	375	413	387	329	350	370
9	352	341	193	245	226	222	208	246	283	327	343	357	386	378	380	384	386	386	383	381	382	385	386	361	366	330
10	363	375	374	376	363	367	368	372	373	374	378	378	379	382	395	400	399	390	389	388	388	388	386	371	335	379
11	331	320	350	368	375	377	381	383	382	380	381	382	383	384	386	387	389	390	390	390	389	389	389	389	390	379
12	387	386	386	385	385	385	386	383	385	386	382	386	384	390	391	398	400	403	405	404	402	398	397	395	396	391
13	392	392	393	387	390	390	391	394	394	393	389	387	385	387	393	394	398	400	402	403	402	401	400	395	397	394
14	393	395	397	397	397	397	398	399	399	397	396	396	396	398	403	407	409	410	409	408	406	405	404	405	406	401
15	403	403	404	404	404	404	403	403	404	401	401	396	393	395	400	404	406	407	407	407	407	404	404	404	402	403
16	399	395	369	377	361	372	382	390	390	394	392	395	392	398	409	440	457	448	449	447	430	412	408	406	409	405
17	405	407	399	362	372	388	397	396	391	391	406	406	406	407	412	410	409	418	429	417	413	387	381	382	388	399
18	384	390	393	392	391	384	390	392	392	391	384	401	400	401	416	418	418	419	410	410	395	390	388	361	397	
19	358	364	353	352	358	370	360	364	373	380	381	388	391	389	391	396	396	402	416	414	408	387	390	387	373	382
20	369	377	384	380	355	367	367	372	375	376	383	380	383	384	386	394	401	403	404	405	407	387	376	380	377	383
21	373	372	362	372	369	376	373	380	382	381	381	380	379	386	399	399	397	398	403	419	408	400	392	363	363	385
22	359	357	352	369	375	375	368	378	385	385	385	384	380	386	390	401	408	403	412	415	413	395	395	386	378	386
23	374	360	368	376	372	379	381	379	383	383	381	380	377	381	385	390	393	395	395	398	397	391	391	389	376	383
24	372	377	381	385	387	386	383	383	385	382	377	378	377	379	386	391	397	400	406	403	399	395	387	381	378	387
25	375	371	373	379	383	384	383	381	378	375	374	370	365	370	376	380	384	384	391	391	391	391	384	383	384	380
26	382	378	377	380	382	382	382	385	384	382	381	376	372	373	378	383	388	389	389	389	389	390	383	382	382	382
27	378	378	378	379	381	382	384	384	382	378	373	369	365	367	370	377	376	377	380	380	378	380	379	379	382	377
28	378	378	377	380	378	377	375	374	374	374	370	364	358	357	357	373	382	389	392	389	384	382	381	380	374	376
29	371	371	370	370	367	371	372	375	375	371	369	369	370	374	379	379	379	379	381	382	384	384	379	379	379	375
30	375	375	374	370	374	374	375	375	375	358	360	361	361	366	375	388	393	418	413	403	394	377	374	350	357	377
Mean	374	373	368	371	370	372	372	375	377	377	377	375	375	377	382	389	392	394	397	396	394	389	386	379	377	380

XVI.—AUXILIARY OBSERVATIONS IN ABSOLUTE MEASURE; BASE VALUES ADOPTED FOR THE CURVES, AND DETERMINATIONS OF SCALE VALUES OF CURVE ORDINATES.

Eskdalemuir. April, 1911.

Day.	Hour.	Absolute observations with unifilar magnetometer and dip circle.			Measurements of curve ordinates.			Deduced values of base lines.		
	h m	H. γ	D. (West) ° ' "	I. (North) ° '	N. mm.	W. mm.	V. mm.	N. γ	W. γ	V. γ
4th	11 15		18 16 32		31·3	27·8		15986	5245	
,,	11 30	16810			32·2	28·1				
,,	14 53			69 37·4	37·0	30·2	31·2			45450
7th	11 24		18 14 47		35·6	27·9		15981	5245	
,,	11 59	16833			35·4	29·0				
11th	11 17		18 15 50		34·3	28·0		15981	5246	
,,	11 54	16822			34·1	28·6				
,,	15 53			69 37·9	36·6	29·8	33·1			45412
14th	11 23		18 15 25		34·6	28·1		15980	5244	
,,	11 59	16830			34·7	29·1				
18th	11 9		18 18 3		32·9	29·6		15982	5240	
,,	11 26	16776			29·0	27·2				
,,	15 14			69 37·4	39·5	30·4	37·1			45395
12st	11 17		18 15 29		33·3	28·1		15974	5238	
,,	11 52	16821			34·6	30·1				
25th	11 31		18 16 25		35·7	29·6		15985	5240	
,,	12 12	16849			36·1	31·8				
,,	15 45			69 37·6	39·1	29·1	36·0			45393
28th	11 15		18 17 12		34·1	30·0		15979	5235	
,,	11 54	16836			35·6	31·5				

Day.	Base values adopted.			Temperature					Scale values of magnetograms.			Character of the day (0-2).
				in the covers of the recording magnets at 9h.			in the magnet-house (by thermograph).					
	N. γ	W. γ	V. γ	N. °C.	W. °C.	V. °C.	At 9h. °C.	Range. °C.	N. γ/mm.	W. γ/mm.	V. γ/mm.	
1	15981	5245	45461	8·9	8·9	8·8	8·82	·02	8·64	8·64	9·31	1
2		5244	45457	8·9	8·9	8·8	8·82	·02	[8·73]	[8·64]	[9·00]	0
3			45453	8·9	8·9	8·9	8·80	·00	,,	,,	,,	1
4			45450	8·8	8·8	8·8	8·80	·08*	8·64	8·64	9·00	2
5			45446	8·8	8·8	8·8	8·78	·02	,,	,,	,,	0
6	15980	5243	45443	8·8	8·7	8·8	8·74	·04	,,	,,	,,	0
7			45439	8·8	8·7	8·8	8·68	·02	,,	,,	,,	1
8			45436	8·8	8·7	8·8	8·68	·02	,,	,,	,,	2
9			45432	8·75	8·7	8·75	8·68	·04	,,	,,	,,	2
10		5242	45429	8·8	8·7	8·7	8·66	·00	,,	,,	,,	2
11			45425	8·75	8·7	8·7	8·72	·00*	,,	[8·82]	[8·61]	[9·29]	0
12			45422	8·8	8·7	8·75	8·72	·00	[8·82]	[8·61]	[9·29]	1
13			45418	8·75	8·65	8·75	8·74	·08*	8·64	8·64	9·29	1
14		5241	45414	8·75	8·7	8·75	8·68	·02	,,	,,	,,	0
15			45411	8·75	8·65	8·7	8·70	·02	,,	,,	,,	0
16			45408	8·75	8·65	8·75	8·72	·04	,,	,,	,,	2
17†		5240	45404	8·7	8·65	8·7	8·68	·00	,,	,,	,,	2
18‡			45400	8·75	8·65	8·75	8·72	·68*	[ ]	[8·64]	[8·64]	2
19			45397	8·75	8·65	8·75	8·68	·08*	8·64	8·64	8·64	1
20			45393	8·75	8·65	8·75	8·68	·02	,,	,,	,,	1
21		5239	45389	8·75	8·65	8·75	8·64	·02	,,	,,	,,	2
22			45385	8·75	8·65	8·75	8·64	·04	,,	,,	,,	2
23			45381	8·75	8·65	8·75	8·62	·04	[8·69]	[8·64]	[8·82]	1
24			45377	8·75	8·7	8·75	8·62	·00	[8·69]	[8·64]	[8·82]	1
25		5238	45374	8·75	8·65	8·8	8·72	·06*	8·64	8·64	8·82	1
26			45371	8·75	8·65	8·75	8·68	·00	,,	,,	,,	0
27			45368	8·75	8·65	8·75	8·72	·04	,,	,,	,,	1
28			45364	8·8	8·7	8·75	8·68	·02	,,	,,	,,	1
29		5237	45361	8·75	8·7	8·8	8·68	·02	,,	,,	,,	1
30			45357	8·8	8·8	8·8	8·72	·00	,,	,,	,,	2

† On the 17th the pier supporting the Vertical Force Magnet was cut free from the floor of the hut.
‡ On the 18th the trace of the North Component was too disturbed to admit of a Scale Value being assigned.
* See note for January.

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

Eskdalemuir. (X.)   May, 1911.

15000 γ (·15 C.G.S. unit) +

Hour G.M.T. / Day	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.
1	1002	996	1005	1003	1001	1003	1002	1001	997	990	988	980	980	982	990	996	1001	1009	1015	1014	1022	1021	1012	1012	1014	1001
2	1014	1015	1008	999	1006	1015	1019	1007	992	979	976	970	968	980	980	996	1013	1002	1014	1016	1017	1015	1015	1013	1011	1001
3	1011	1010	1012	1009	1012	1010	1009	1006	999	995	981	970	966	983	998	1013	1016	1015	1018	1028	1036	1013	1012	1011	1010	1006
4	1010	1008	1009	1007	1007	1008	1007	1003	997	990	979	971	976	981	995	1009	1016	1015	1016	1015	1014	1014	1015	1015	1014	1003
5	1014	1014	1015	1014	1015	1010	1005	1007	1000	990	981	977	972	985	1002	1004	1007	1027	1031	1040	1011	1007	1008	1023	1013	1007
6	1013	1009	1014	1015	1015	1015	1003	995	991	984	979	972	980	992	997	1017	990	1027	1044	1023	1016	1013	1005	1035	1018	1006
7	1018	1006	1006	1019	1015	1006	1007	1002	980	970	962	947	954	959	975	989	1018	984	1039	1017	1013	1006	999	1007	1006	996
8	1006	1014	1003	1023	990	996	1003	1006	989	982	982	966	963	971	984	997	1007	1010	1015	1009	1001	1000	1005	999	1005	997
9	1005	1002	1003	998	1005	1008	1000	992	994	985	973	975	977	979	989	1015	990	1022	1022	1015	1034	1017	1019	1015	1018	1002
10	1018	1004	1012	1005	1007	1008	1011	1005	996	982	979	980	984	982	990	1003	1009	1005	1024	1028	1022	1015	1023	1023	1031	1005
11	1031	1023	1015	1009	1015	1015	1014	1008	998	989	980	980	981	973	985	1009	990	1057	1017	1015	1012	1007	1029	1024	1002	1007
12	1002	1005	996	1002	1006	998	996	998	996	980	969	964	971	980	986	992	1000	1006	1019	1022	1015	1015	1014	1010	1009	998
13	1009	1015	1006	1009	1012	1014	1009	1006	990	981	976	977	984	991	997	1006	999	1006	1015	1022	1023	1023	1022	1021	1020	1005
14	1020	1023	1021	1025	1024	1021	1017	1007	997	990	971	970	979	997	993	994	998	1026	1023	1022	1039	1046	1051	1001	927	1009
15	928	967	968	914	957	971	947	998	968	941	938	955	952	959	985	997	1015	1013	1017	1062	1000	1002	1026	1015	991	980
16	991	1003	994	985	1021	992	940	982	984	964	955	956	963	946	977	997	1007	1025	1052	1022	1007	1005	1012	1015	997	992
17	997	993	998	1001	998	990	970	973	971	980	960	963	971	966	985	982	998	1016	1024	1024	1006	1008	1008	1008	1008	992
18	1008	1009	999	991	985	995	994	985	980	971	969	972	971	973	981	991	1000	1016	1023	1034	1010	1011	1022	1017	1003	996
19	1003	1002	1009	1016	1016	1006	1007	999	981	974	973	981	965	978	993	1000	1002	1016	1033	1042	1030	1024	1016	1042	1016	1005
20	1016	1015	1015	1015	1010	1016	1009	1002	993	979	981	983	979	972	976	994	1007	1017	1016	1008	1015	1021	1016	1028	1009	1003
21	1009	1007	1007	999	1010	1018	1015	1000	991	978	946	965	984	999	998	992	992	1004	1032	1013	1029	1017	1010	1007	1015	1001
22	1016	1003	1021	1002	1008	999	998	998	998	992	985	979	978	984	983	985	998	1011	1018	1017	1017	1010	1011	1016	1017	1001
23	1017	1012	1011	1010	1011	1011	1007	1003	1002	998	983	981	974	977	983	986	1000	1018	1019	1028	1026	1024	1025	1014	1009	1005
24	1009	1008	1010	1012	1013	1009	1009	1009	1006	1007	999	991	992	982	978	976	1004	1016	1020	1013	1022	1016	1013	1010	1010	1005
25	1010	1008	1008	1005	1004	1001	1001	1006	1005	1000	999	994	992	997	986	973	1022	974	1051	1017	1031	1009	1021	1017	1014	1006
26	1012	1012	1015	1010	1010	1008	1005	1002	999	992	994	987	994	1011	1020	1000	1000	995	1015	1016	1022	1014	1014	1010	1012	1007
27	1012	1009	1005	1018	1003	1005	1004	1001	994	988	979	984	983	992	991	996	1005	1009	1018	1019	1019	1018	1017	1018	1009	1004
28	1009	1009	991	1010	1018	1006	987	1001	999	990	984	974	987	999	1001	1007	999	1018	1017	1031	1018	1025	1018	1021	1012	1005
29	1012	1010	1012	1009	1010	1012	1010	1008	997	986	983	974	984	988	987	999	1005	1014	1021	1029	1028	1025	1018	1024	1021	1006
30	1021	1021	1019	1024	1026	1020	1012	1012	1009	1003	983	974	974	1000	1005	1003	1015	1018	1018	1009	1011	1020	1009	1012	1018	1009
31	1019	1011	1003	1025	1007	1009	1002	978	997	986	961	941	959	962	983	1001	1001	1002	1036	1013	1012	1005	1001	1011	990	996
Mean	1009	1008	1007	1006	1008	1006	1001	1000	993	985	976	973	976	981	989	999	1003	1015	1023	1023	1019	1015	1016	1016	1008	1002

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

Eskdalemuir. (−Y.)   May, 1911.

5000 γ (·05 C.G.S.) unit +

Hour G.M.T. / Day	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.
1	230	263	268	269	266	265	259	251	248	248	262	272	282	291	293	288	283	284	281	278	279	271	272	272	269	271
2	269	274	272	280	278	264	265	263	257	269	262	272	288	298	293	294	281	279	272	273	274	275	275	272	272	275
3	271	269	271	271	271	270	269	254	253	252	258	272	288	303	305	300	289	280	277	270	258	271	272	271	271	274
4	271	271	271	271	271	263	254	249	243	243	245	269	272	282	287	285	278	272	271	271	272	276	276	276	271	268
5	271	271	271	267	265	257	246	253	239	243	253	258	280	291	302	297	284	289	288	262	256	261	262	272	232	268
6	232	252	259	263	261	254	247	242	244	253	267	279	289	297	290	297	274	290	296	282	280	262	261	220	253	267
7	252	258	259	252	251	254	244	245	248	270	279	286	303	316	305	323	344	281	293	285	253	251	259	262	276	274
8	276	296	243	245	245	261	261	260	261	262	268	272	281	279	276	271	268	262	264	267	270	270	271	268	272	267
9	272	270	270	270	260	253	247	244	245	255	264	275	285	283	278	281	270	274	277	279	277	276	276	272	270	269
10	270	282	261	263	260	254	255	255	258	253	265	276	285	286	287	282	274	264	270	277	280	278	283	262	251	270
11	251	330	230	256	261	252	247	248	247	252	259	270	281	284	286	289	287	265	273	278	272	275	288	302	279	271
12	278	271	286	269	270	263	269	249	243	236	244	261	277	280	277	272	269	269	277	278	275	275	275	276	270	268
13	270	271	272	268	262	257	252	250	253	257	269	282	295	291	290	286	281	279	280	286	285	281	280	274	273	274
14	273	276	272	271	277	265	254	243	243	251	269	286	297	306	297	286	282	300	295	295	289	295	288	310	233	279
15	232	206	225	284	311	258	302	249	236	237	261	274	278	287	295	269	268	276	284	224	259	268	312	268	253	266
16	253	259	267	281	286	254	284	263	225	230	244	257	275	277	280	287	281	285	270	269	262	268	278	262	256	267
17	256	273	274	260	262	251	243	259	259	243	258	271	281	295	293	287	287	287	276	268	271	266	269	268	268	269
18	268	270	270	269	276	265	260	257	249	249	262	272	281	284	286	288	288	287	276	285	277	276	283	295	277	274
19	276	269	260	259	249	250	250	248	250	255	258	271	279	289	292	288	285	284	280	278	267	274	267	292	262	269
20	262	251	252	251	264	259	250	248	241	241	261	275	293	301	307	291	293	294	278	276	277	274	265	276	259	270
21	259	264	262	261	261	253	250	234	241	251	258	283	281	285	285	285	266	274	285	276	282	278	261	278	280	268
22	280	258	258	257	263	258	261	262	257	263	267	276	285	285	284	284	284	284	284	276	274	273	270	270	270	272
23	269	266	266	265	260	255	252	257	257	257	260	269	283	295	298	286	281	279	280	282	282	275	279	240	243	271
24	243	259	266	265	261	256	258	257	250	257	260	266	277	284	285	282	283	281	272	274	272	269	267	268	268	268
25	268	268	267	266	264	259	256	250	241	242	253	265	275	283	283	300	285	309	285	283	267	275	274	273	273	271
26	273	272	301	267	260	257	257	257	256	256	265	274	290	292	295	283	285	274	276	280	278	275	272	269	271	274
27	270	265	273	283	254	246	247	245	248	252	259	268	281	278	282	277	274	272	271	273	273	271	274	277	271	267
28	271	274	301	273	251	252	252	251	255	256	259	272	291	298	291	283	278	282	273	282	275	279	265	267	267	272
29	267	266	270	265	264	264	256	252	250	248	257	270	285	293	291	291	284	281	278	280	278	275	273	273	272	271
30	271	267	268	257	250	246	241	248	242	239	245	256	273	292	297	300	306	299	283	281	272	231	242	238	232	265
31	232	243	293	233	255	243	256	236	236	243	249	264	284	298	307	302	300	299	307	292	277	276	249	245	230	267
Mean	263	267	267	265	264	256	256	251	248	250	259	271	285	290	291	288	284	282	280	276	273	272	272	270	263	270

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

Eskdalemuir. (Z.)　　　　　　　　　　　　　　　　　　　**May, 1911.**

45000 γ ('45 C.G.S. unit) +

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	354	367	373	375	377	378	376	374	371	365	363	362	356	357	363	367	374	374	376	376	374	373	372	372	372	370
2	369	369	370	370	368	369	369	369	371	369	363	357	355	356	360	363	374	376	377	374	371	370	369	369	369	367
3	366	366	367	367	366	367	367	367	367	368	367	359	357	357	359	365	368	371	375	377	375	371	371	370	370	366
4	366	367	366	367	367	368	370	370	364	362	358	354	349	352	354	357	362	365	367	367	367	366	365	365	365	363
5	363	364	365	365	367	370	370	365	362	359	353	351	347	347	352	360	362	362	369	376	379	377	371	351	347	363
6	345	351	355	358	360	366	367	366	363	359	354	349	343	342	348	357	368	367	373	385	384	371	369	355	351	361
7	348	355	357	356	360	363	358	345	344	341	344	349	363	383	401	400	400	423	401	390	396	387	382	369	366	372
8	363	345	321	329	342	349	343	344	351	354	358	360	358	362	363	365	371	371	371	370	372	371	370	369	363	357
9	360	361	362	364	366	367	366	366	360	358	350	349	348	354	360	368	376	368	368	367	363	365	364	363	360	362
10	357	356	346	355	358	364	359	357	355	355	348	344	347	355	362	361	366	367	365	364	363	363	359	358	356	358
11	354	335	319	335	344	353	355	361	359	355	354	353	346	351	354	361	372	382	382	380	375	371	362	353	345	357
12	343	351	350	351	351	352	353	358	361	363	350	349	346	350	353	359	361	360	360	360	361	360	360	359	359	355
13	357	357	357	357	357	355	359	360	359	351	342	341	342	347	351	352	359	358	356	354	354	355	354	354	354	354
14	352	351	352	350	348	348	350	353	354	341	338	336	336	342	348	350	356	358	358	356	356	355	350	322	272	347
15	270	297	266	230	211	263	274	300	325	339	344	348	349	353	364	373	387	381	374	382	368	367	346	320	337	324
16	336	344	346	336	318	319	317	320	337	345	344	337	335	347	368	366	367	375	386	383	375	368	357	343	337	349
17	335	344	346	351	355	358	354	351	347	347	343	336	335	342	352	354	351	363	365	363	363	364	356	353	353	352
18	352	353	354	352	343	342	341	344	344	345	345	344	345	347	350	357	363	364	370	366	365	362	354	343	331	352
19	330	331	335	338	343	346	349	351	352	351	344	342	341	342	343	342	344	351	350	362	358	358	357	335	325	350
20	324	341	347	349	351	351	352	356	354	351	347	341	339	345	346	360	361	366	372	369	364	360	357	348	349	353
21	348	348	341	347	350	352	356	360	356	349	346	339	339	340	347	355	368	364	361	368	368	342	357	355	342	352
22	341	347	347	349	350	354	357	358	360	357	348	346	347	349	352	355	355	355	360	363	361	359	357	356	356	354
23	355	355	357	355	356	356	357	357	356	352	348	350	356	354	349	347	349	354	356	356	358	358	356	341	353	354
24	352	353	354	355	355	356	357	356	355	348	346	345	346	348	351	353	353	353	354	355	356	356	357	356	356	353
25	355	355	354	355	355	355	354	352	354	350	337	334	335	341	345	346	349	354	364	362	365	361	359	357	356	352
26	355	352	331	341	346	349	351	353	349	343	335	335	336	341	345	350	354	361	363	358	354	354	353	354	354	348
27	354	354	353	338	334	344	346	347	350	347	346	343	336	337	343	347	350	353	353	353	354	354	353	353	353	348
28	352	352	341	330	334	342	346	347	346	343	341	341	339	338	344	346	352	350	353	354	359	360	355	352	353	347
29	352	352	353	353	354	353	356	356	353	350	343	335	337	346	350	350	351	353	352	351	351	351	351	351	351	350
30	351	351	351	351	352	354	353	351	350	346	343	343	342	343	349	354	364	381	388	389	383	372	360	351	344	357
31	343	341	304	308	313	320	329	342	343	343	349	349	344	347	351	358	367	378	380	382	385	375	367	362	352	349
Mean	349	351	347	346	347	351	352	353	354	352	348	346	345	349	354	358	363	366	368	368	367	364	360	354	350	355

XX.—AUXILIARY OBSERVATIONS IN ABSOLUTE MEASURE; BASE VALUES ADOPTED FOR THE CURVES, AND DETERMINATIONS OF SCALE VALUES OF CURVE ORDINATES.

Eskdalemuir.　　　　　　　　　　　　　　　　　　　**May 1911.**

Day.	Hour.	Absolute observations with unifilar magnetometer and dip circle. H. γ	D. (West) ° ' "	I. (North) ° '	Measurements of curve ordinates. N. mm.	W. mm.	V. mm.	Deduced values of base lines. N. γ	W. γ	V. γ	Day.	Base values adopted. N. γ	W. γ	V. γ	Temperature in the covers of the recording magnets at 9h. N. °C.	W. °C.	V. °C.	in the magnet-house (by thermograph). At 9h. °C.	Range. °C.	Scale values of magnetograms. N. γ/mm.	W. γ/mm.	V. γ/mm.	Character of the day (0-2).
	h m	γ	° ' "	° '	mm.	mm.	mm.	γ	γ	γ		γ	γ	γ	°C.	°C.	°C.	°C.	°C.	γ/mm.	γ/mm.	γ/mm.	
2nd	11 13	16817	18 16 15		33·4	29·1		15982	5237		1	15980	5237	45354	8·8	8·7	8·8	8·72	·00	[8·78]	[8·64]	[9·00]	1
,,	11 29				33·3	29·6					2			45351	8·8	8·7	8·8	8·80	·02*	8·64	8·64	9·00	1
,,	14 27			69 36·9	35·6	31·5	36·2			45303	3		5236	45348	8·8	8·8	8·8	8·78	·02	,,	,,	,,	1
5th	11 18		18 16 13		35·6	29·9		15980	5235		4			45344	8·8	8·8	8·8	8·76	·02	,,	,,	,,	0
,,	11 55	16822			34·2	30·2					5			45342	8·9	8·8	8·8	8·74	·02	,,	,,	,,	1
											6			45340	8·9	8·9	8·8	8·80	·02	,,	,,	,,	1
9th	11 57	16831	18 18 48		34·6	30·9		15980	5237		7		5235	45337	8·9	8·9	8·8	8·82	·00	[8·64]	[8·61]	[9·15]	2
,,	12 35				34·9	31·0					8			45334	8·9	8·9	8·9	8·80	·00	8·64	8·64	9·15	1
,,	16 0			69 38·1	36·7	29·1	39·8			45325	9			45331	8·9	8·9	8·9	8·88	·16*				1
											10			45328	8·9	8·8	8·9	8·84	·02	,,	,,	,,	1
12th	11 28	16817	18 15 47		33·7	29·1		15977	5234		11			45326	8·9	8·9	9·0	8·88	·02	,,	,,	,,	2
,,	12 1				33·9	30·0					12		5234	45324	9·0	8·9	9·0	8·86	·00	,,	,,	,,	0
											13			45322	9·0	8·9	8·9	8·88	·02	,,	,,	,,	0
16th	11 22	16795	18 15 23		32·0	28·0		15974	5233		14			45320	9·0	8·9	9·0	8·92	·02	,,	,,	,,	1
,,	11 40				32·1	28·8					15†	15981	5233	45318	9·0	8·9	9·0	8·92	·00	[8·87]	[8·73]	[9·54]	2
,,	15 17			69 38·4	35·9	30·4	40·1			45322	16			45317	9·0	8·9	9·0	9·02	·02*	8·64	8·64	9·54	2
											17			45315	9·0	9·0	9·0	9·00	·00	,,	,,	,,	2
19th	11 29	16813	18 17 22		35·0	30·5		15982	5234		18			45314				9·04	·02	,,	,,	,,	1
,,	12 4				32·7	30·3					19		5232	45313	9·1	9·0	9·0	9·04	·02	,,	,,	,,	2
											20			45312	9·2	9·1	9·1	9·08	·00	,,	,,	,,	1
23rd	11 31	16828	18 17 10		34·5	30·0		15982	5237		21			45311	9·1	9·1	9·2	9·10	·02	,,	,,	,,	2
,,	12 8				34·2	31·0					22	15982		45310	9·2	9·1	9·2	9·12	·00	[8·71]	[8·64]	[9·37]	1
,,	15 55			69 36·7	37·1	31·2	39·3			45302	23		5231	45309	9·2	9·1	9·2	9·20	·28*	8·64	8·64	9·37	1
											24			45308	9·2	9·1	9·2	9·14	·02	,,	,,	,,	1
26th	11 18		18 15 59		36·1	30·8		15987	5230		25			45307	9·25	9·15	9·25	9·20	·00	,,	,,	,,	2
,,	11 54	16850			36·2	31·8					26	15983		45306	9·3	9·2	9·3	9·20	·00	[8·78]	[8·64]	[9·48]	1
											27		5230	45306	9·3	9·2	9·4	9·26	·16*				0
30th	11 6		18 13 2		34·3	28·7		15997	5231		28			45305	9·3	9·3	9·4	9·30	·04	8·64	8·64	9·48	1
,,	11 22	16851			35·9	29·8					29			45304	9·5	9·4	9·4	9·32	·00	,,	,,	,,	0
,,	15 17			69 36·5	38·3	33·7	40·7			45321	30		5229	45304	9·5	9·4	9·5	9·44	·02*	,,	,,	,,	2
											31	15984		45303	9·5	9·4	9·5	9·42	·00	,,	,,	,,	2

* Natural conditions disturbed by presence of Observer for Scale Value experiments and other duties.　　† The magnetic conditions on the 15th were much disturbed.

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

Eskdalemuir. (X.)   June, 1911.

15000 γ ('15 C.G.S. unit) +

Hour. G.M.T. Day.	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.
1	990	984	983	1021	1024	1016	1014	1003	986	970	970	982	967	992	978	1001	1008	1029	1015	1027	1021	1019	1021	1013	1014	1002
2	1014	1007	1016	1011	1011	1011	1006	1001	993	990	988	985	985	985	998	1001	1001	1009	1008	1022	1017	1016	1011	1010	1014	1004
3	1014	1008	1002	1004	993	1003	1005	1004	1001	994	991	987	986	985	994	1000	1001	1009	1023	1022	1019	1012	1018	1014	1019	1004
4	1020	1016	1020	1019	1019	1014	1018	1017	1011	1003	992	988	994	988	1002	1002	1023	1057	1064	1076	1085	1018	1022	1018	1002	1020
5	1002	1012	1009	1011	1005	1012	1015	1002	956	968	973	978	981	990	994	998	993	1002	1038	1023	1021	1029	1004	1011	1011	1001
6	1011	1010	1009	1002	1001	1002	1005	1007	1010	986	961	956	960	976	981	989	996	1006	1029	1031	1050	1020	1012	1010	1009	1001
7	1009	1009	1018	1002	1005	1006	1003	999	995	988	988	985	984	994	1002	1011	1012	1013	1007	1012	1012	1013	1009	1009	1011	1004
8	1012	1003	1003	1006	1010	990	997	1001	996	995	986	980	981	992	1002	1012	1021	1018	1013	1014	1016	1013	1011	1011	1012	1004
9	1012	1011	1012	1011	1009	1009	1007	1007	1003	994	995	996	996	996	997	1006	1007	1024	1023	1030	1029	1024	1015	1047	1024	1011
10	1024	995	1012	1006	1001	971	983	984	974	979	976	978	991	981	1013	998	1013	1031	1019	1021	1029	1031	989	996	1022	1000
11	1022	1021	999	1031	998	964	989	961	969	983	966	969	963	979	990	997	1003	1065	1022	1012	1031	1002	1011	1003	1010	998
12	1011	990	1005	997	1001	981	978	984	991	990	977	968	983	997	1001	1013	1014	1028	1018	1030	1010	1016	1040	1014	1017	1002
13	1017	1014	1011	997	1007	992	1000	988	996	980	974	976	982	979	996	1031	1011	1023	1011	1020	1008	1010	1010	1018	1022	1002
14	1022	1007	1010	1013	1013	1005	986	987	991	970	979	970	961	994	1001	1008	1018	1017	1031	1039	1010	1021	1017	1015	984	1003
15	984	1003	1021	1007	998	997	994	988	979	977	981	987	990	996	1006	1015	1018	1018	1017	1036	1033	1014	1007	1012	1008	1003
16	1009	1013	1012	1013	1014	1012	1006	998	994	991	988	991	993	993	1005	1023	1011	1022	1025	1028	1045	1015	1017	1018	998	1010
17	998	1007	998	1005	1008	1012	1005	996	998	992	980	971	981	990	1005	1005	1016	1014	1018	1016	1019	1014	1011	1007	1006	1003
18	1006	1006	1006	1006	1008	1012	1008	1006	1005	998	991	988	989	988	996	1005	1005	1009	1022	1019	1022	1015	1013	1012	1012	1005
19	1013	1009	1018	1014	1014	1018	1015	1007	998	988	988	990	989	989	997	1004	1010	1020	1018	1015	1013	1015	1016	1015	1017	1007
20	1017	1020	1020	1031	1029	1028	1022	1017	1022	1010	999	989	989	999	997	1014	1018	1016	1032	1016	1023	1015	1020	1023	1018	1015
21	1018	1031	1032	1034	1031	1016	1014	989	1000	996	992	984	976	1002	999	996	1006	1027	1016	1015	1041	1023	1016	1029	1016	1012
22	1017	1008	1008	1017	998	1007	1015	999	993	991	992	967	989	996	1013	1017	1021	1041	1038	1025	1027	1015	1013	1009	1010	1009
23	1010	1013	1014	1007	1008	1008	1009	1005	999	983	965	973	998	1000	1000	1007	1010	1016	1024	1032	1051	1011	1015	1023	1001	1007
24	1001	1007	999	1010	1013	1011	1008	999	994	995	992	995	995	999	1004	1007	1010	1019	1017	1017	1015	1013	1010	1010	1014	1006
25	1015	1015	1015	1010	1012	1011	1009	1001	992	987	990	991	999	1001	1001	1006	1012	1018	1015	1017	1018	1020	1019	1018	1016	1008
26	1016	1016	1015	1016	1015	1010	1008	1007	1000	994	991	992	994	993	1000	1008	1002	1010	1017	1012	1020	1015	1015	1015	1015	1008
27	1015	1014	1016	1015	1017	1017	1017	1011	1011	1007	998	993	985	995	1001	1009	1008	1022	1026	1028	1031	1029	1024	1026	1024	1013
28	1025	1028	1029	1032	1018	1011	1017	1014	1009	995	993	980	988	975	992	1011	1018	1022	1021	1024	1029	1019	1018	1016	1020	1012
29	1020	1015	1012	1018	1009	1018	1011	1002	1002	1002	1001	993	995	993	995	1000	1002	1018	1025	1023	1026	1024	1016	1016	1015	1012
30	1015	1011	1012	1012	1013	1011	1010	1009	1008	1002	997	999	996	1000	994	1003	1014	1011	1018	1028	1029	1027	1036	1026	1027	1012
Mean	1012	1010	1011	1013	1010	1006	1006	1000	996	990	985	983	985	991	999	1007	1010	1021	1022	1024	1027	1018	1015	1016	1013	1007

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

Eskdalemuir. (−Y.)   June, 1911.

5000 γ ('05 C.G.S. unit) +

Hour. G.M.T. Day.	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.
1	230	220	251	239	229	246	251	247	254	256	257	262	264	282	285	296	290	299	280	278	279	272	271	258	255	263
2	254	259	254	255	252	253	253	255	251	252	257	265	277	282	288	285	285	283	277	280	271	269	266	264	265	269
3	265	264	262	260	263	257	249	250	248	249	255	263	273	281	287	281	280	281	286	280	280	277	277	270	265	268
4	265	261	262	263	256	255	255	247	246	247	252	263	280	286	290	289	297	310	315	298	256	253	270	232	266	269
5	265	236	237	243	267	254	255	248	238	262	262	268	275	288	281	284	287	273	290	279	254	245	264	272	269	264
6	269	266	262	261	262	255	245	234	243	236	243	262	270	282	281	277	273	267	270	277	270	260	259	252	252	261
7	252	275	247	248	257	251	247	246	244	243	244	259	271	286	288	289	287	277	272	278	273	273	263	264	264	264
8	264	270	270	264	262	258	253	245	245	244	249	256	264	273	280	282	280	275	274	270	264	270	268	269	268	265
9	267	267	267	263	262	255	251	242	243	242	252	268	280	289	288	288	287	289	289	287	286	275	283	241	251	269
10	251	274	225	254	240	269	256	238	249	235	254	266	291	288	305	303	300	304	278	267	262	257	286	273	252	268
11	252	261	269	275	273	278	242	230	245	245	250	264	272	277	287	288	290	275	287	280	279	268	253	256	274	267
12	273	284	268	255	259	252	253	259	248	239	244	262	275	278	285	286	286	280	267	283	268	266	266	259	257	266
13	257	275	252	252	254	250	249	242	243	233	235	249	268	279	290	288	286	279	275	276	271	269	266	261	260	263
14	260	253	251	266	252	245	251	258	252	252	260	267	260	273	279	288	288	284	286	289	271	276	294	254	262	267
15	262	267	243	260	254	249	241	235	242	246	250	264	278	285	291	290	283	279	277	282	252	260	258	260	260	263
16	259	260	262	261	259	245	246	242	242	251	263	272	276	285	293	300	289	284	285	278	293	259	270	259	254	268
17	254	264	262	253	250	241	234	240	241	244	257	261	267	268	275	278	285	278	277	270	268	267	265	261	261	261
18	261	260	259	259	254	248	241	242	242	247	259	267	276	277	278	285	280	275	279	277	277	271	268	260	259	264
19	258	258	259	256	258	258	249	247	247	246	257	264	270	275	284	284	284	283	280	278	275	273	270	269	264	266
20	264	263	260	258	247	240	240	256	247	250	257	266	275	292	292	302	296	285	284	275	277	276	277	270	265	269
21	265	263	255	258	252	250	243	245	245	247	263	277	284	292	292	301	292	291	283	278	266	273	270	271	260	269
22	259	258	285	247	239	250	248	249	250	249	254	251	258	268	278	286	282	282	278	264	273	273	269	267	267	263
23	267	268	266	258	257	254	247	238	234	240	250	275	301	310	306	295	283	276	277	278	243	264	270	269	264	268
24	264	265	279	264	259	250	244	250	248	251	256	273	282	288	294	289	283	282	276	273	271	266	267	267	267	268
25	266	270	272	260	256	247	241	243	245	245	256	270	285	294	300	299	283	276	271	270	267	269	269	269	266	268
26	266	267	267	262	256	249	246	243	241	239	246	262	274	283	294	293	282	273	266	266	272	272	271	269	269	265
27	269	269	272	266	258	254	245	248	247	252	256	263	275	281	284	283	281	275	274	275	275	280	277	277	266	268
28	265	271	274	258	245	237	237	234	246	255	258	268	289	289	294	299	295	288	281	280	275	266	266	257	246	267
29	246	253	255	261	262	262	247	246	248	244	246	255	263	274	289	289	283	281	274	269	268	268	266	263	261	264
30	260	259	257	256	255	248	242	241	247	251	254	256	267	283	289	290	289	284	280	282	274	274	280	254	242	265
Mean	260	263	260	259	255	252	247	245	245	246	253	264	275	283	290	290	286	282	280	277	270	268	270	262	261	266

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

Eskdalemuir. (Z.)   June, 1911.

45000 γ ('45 C.G.S. unit) +

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
Day. γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	351	345	327	320	314	323	329	334	336	337	341	340	341	349	352	355	357	358	371	370	365	352	350	348	345	344
2	345	339	338	344	346	349	349	350	350	350	350	350	349	347	348	349	350	353	359	359	359	357	355	355	349	350
3	348	348	350	350	351	349	350	349	348	348	345	343	343	345	346	348	350	350	350	355	356	357	351	350	350	349
4	349	350	352	352	353	354	352	350	347	346	347	346	340	341	347	347	349	350	358	376	403	387	366	302	336	353
5	336	347	348	348	347	347	347	348	349	349	348	347	346	347	351	357	364	375	376	369	372	367	364	359	347	355
6	346	348	353	355	356	357	358	355	348	347	348	355	356	358	356	358	364	368	367	366	364	357	357	355	354	357
7	353	340	329	345	348	354	355	354	355	350	347	345	347	347	346	352	356	362	366	365	363	362	362	357	355	353
8	354	355	354	354	356	358	355	357	356	355	355	351	349	354	356	357	362	363	361	361	363	362	360	359	359	357
9	359	358	357	358	358	361	357	356	356	354	346	345	343	346	346	347	354	349	348	353	355	356	357	362	350	353
10	349	325	304	316	316	315	315	326	335	342	345	341	340	345	347	352	354	355	371	370	369	364	354	311	336	340
11	335	313	283	294	283	298	327	337	342	347	352	353	345	350	350	354	362	370	371	367	361	355	355	354	347	340
12	346	339	336	346	353	351	344	349	350	352	351	344	336	342	345	348	352	353	357	359	362	361	348	344	347	349
13	347	342	343	344	347	348	345	345	350	351	351	350	351	353	356	362	372	380	372	362	362	357	356	354	355	354
14	354	353	353	354	357	357	355	346	345	343	342	337	345	347	352	352	353	358	354	356	361	361	352	334	334	351
15	333	323	331	344	346	349	351	352	352	349	342	336	332	340	342	343	349	355	359	354	363	363	359	359	360	348
16	360	358	360	357	357	359	360	360	359	354	349	344	343	342	343	346	360	368	367	369	363	364	360	354	352	356
17	351	346	348	349	350	351	351	350	348	344	342	339	332	334	340	345	349	357	359	359	359	356	353	352	351	349
18	350	349	350	351	354	356	355	352	352	349	342	337	337	336	340	344	350	353	356	354	354	353	352	352	352	349
19	352	353	350	351	353	352	349	350	351	349	343	342	339	341	344	344	350	354	357	358	359	357	356	353	352	350
20	351	350	350	348	349	348	348	342	347	346	344	347	348	346	350	354	352	358	359	363	360	359	357	354	355	351
21	354	348	347	347	348	348	349	347	345	348	340	338	345	347	347	346	346	360	366	367	365	358	356	344	340	350
22	340	340	330	336	341	341	346	344	343	342	338	338	337	340	340	346	347	353	359	367	362	358	355	354	352	346
23	351	349	348	349	351	351	348	348	351	350	343	336	331	332	339	345	349	355	355	355	361	357	353	348	348	348
24	347	347	346	346	348	349	350	350	351	346	345	344	340	345	347	347	354	354	356	354	353	354	353	352	351	349
25	350	348	347	349	350	352	348	345	344	336	335	334	328	330	339	344	346	354	356	355	354	353	351	351	352	346
26	351	351	351	352	353	354	352	351	342	335	330	321	315	323	333	334	345	346	349	344	343	344	345	345	345	342
27	345	348	349	349	349	348	347	344	336	334	334	333	333	334	344	345	350	351	355	353	352	350	348	348	350	345
28	349	348	345	343	345	350	345	339	341	334	331	328	324	332	339	337	340	341	345	348	344	348	349	349	346	341
29	345	343	344	344	349	342	341	343	339	333	334	335	336	337	339	340	343	351	352	352	351	351	351	350	350	344
30	349	349	350	350	350	351	348	346	342	340	331	330	331	335	339	340	345	350	351	348	349	349	344	346	350	344
Mean	348	345	342	345	346	347	348	347	347	345	343	341	339	342	345	348	353	357	359	360	360	358	354	349	349	349

XXIV.—AUXILIARY OBSERVATIONS IN ABSOLUTE MEASURE; BASE VALUES ADOPTED FOR THE CURVES, AND DETERMINATIONS OF SCALE VALUES OF CURVE ORDINATES.

Eskdalemuir.   June, 1911.

Day.	Hour. h m	Absolute observations with unifilar magnetometer and dip circle — H. γ	D. (West) ° ' "	I. (North) ° '	Measurements of curve ordinates — N. mm.	W. mm.	V. mm.	Deduced values of base lines — N. γ	W. γ	V. γ
6th	11 18		18 16 41		31.4	29.3		15989*	5234	
,,	11 49	16808			31.4	30.0				
,,	14 42			69 38.1	36.0	31.1	41.1			45312
9th	11 24		18 14 38		36.1	30.6		15991*	5227	
,,	12 3	16850			36.1	31.3				
13th	11 53		18 14 28		34.0	29.8		15989	5226	
,,	12 9	16833			34.6	30.6				
,,	14 35			69 37.7	37.0	31.6	42.1			45316
16th	11 34	16847	18 15 5		35.6	31.0		15989	5223	
,,	12 6				36.1	31.7				
20th	11 12		18 13 25		35.1	30.2		15995*	5222	
,,	11 50	16841			34.8	30.4				
,,	12 40			69 36.5	36.5	32.8	40.9			45287
23rd	11 48		18 18 57		35.0	33.2		15988	5222	
,,	12 24	16845			35.2	34.3				
27th	11 19		18 12 38		34.9	30.5		15998	5215	
,,	11 37	16839			34.6	31.1				
,,	12 12			69 37.4	34.3	31.6	40.0			45264
30th	11 30		18 12 14		35.2	29.9		15992	5218	
,,	12 2	16841			35.4	30.7				

Day.	Base values adopted N. γ	W. γ	V. γ	Temp. in covers of recording magnets at 9h. N.°C.	W.°C.	V.°C.	magnet-house At 9h. °C.	Range °C.	Scale values N. γ/mm.	W. γ/mm.	V. γ/mm.	Character of the day (0-2).
1	15984	5229	45302	9.5	9.4	9.5	9.42	.02	8.73	8.64	9.48	1
2		5228	45302				9.48	.02	,,	,,	,,	0
3			45301	9.6	9.5	9.6	9.54	.04†	,,	,,	,,	0
4	15985		45300	9.7	9.6	9.7	9.58	.00	,,	,,	,,	1
5		5227	45300	9.75	9.65	9.75	9.62	.00	,,	,,	,,	2
6			45299	9.75	9.6	9.7	9.68	.02	,,	,,	,,	1
7			45298	9.8	9.7	9.75	9.68	.02	,,	,,	,,	0
8	15986		45297	9.8	9.7	9.8	9.68	.04	[8.74]	[8.64]	[9.63]	0
9		5226	45297	9.8	9.8	9.8	9.68	.08†	8.73	8.64	9.63	1
10			45296	9.8	9.8	9.8	9.72	.02	,,	,,	,,	2
11			45295	9.9	9.8	9.9	9.74	.04†	,,	,,	,,	2
12	15987	5225	45294	9.9	9.8	9.8	9.74	.00	[8.74]	[8.64]	[9.73]	1
13			45294	10.0	9.9	9.9	9.86	.02†	8.73	8.64	9.73	1
14			45293	10.0	9.9	10.0	9.82	.00	,,	,,	,,	2
15			45292	10.0	9.9	10.0	9.88	.02	,,	,,	,,	1
16	15988	5224	45292	10.0	10.0	10.0	9.90	.02	,,	,,	,,	1
17			45291	10.0	10.0	10.0	9.94	.02	,,	,,	,,	0
18			45290	10.0	10.0	10.0	9.98	.02	,,	,,	,,	0
19	15989	5223	45290	10.1	10.0	10.0	10.00	.00	[8.73]	[8.63]	[9.80]	0
20			45289	10.2	10.1	10.1	10.06	.36†	8.73	8.64	9.80	1
21			45288	10.2	10.1	10.2	10.08	.00	,,	,,	,,	1
22	15990	5222	45288	10.2	10.1	10.2	10.10	.02	,,	,,	,,	1
23			45287	10.25	10.2	10.2	10.20	.02	,,	,,	,,	1
24			45286	10.3	10.2	10.3	10.20	.40†	,,	,,	,,	0
25	15991	5221	45285	10.3	10.2	10.3	10.18	.02	,,	,,	,,	0
26			45284	10.4	10.4	10.4	10.20	.00	[8.76]	[8.63]	[9.80]	0
27			45284	10.4	10.3	10.4	10.32	.06†	8.73	8.64	9.80	0
28	15992	5220	45283	10.4	10.4	10.4	10.28	.00	,,	,,	,,	1
29			45282	10.4	10.3	10.4	10.32	.02	,,	,,	,,	0
30		5219	45281	10.5	10.4	10.5	10.32	.00	,,	,,	,,	0

* Recomputed April 1912.   † Natural conditions disturbed by presence of Observer for Scale Value experiments and other duties.

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

Eskdalemuir. (X.) July, 1911.

15000 γ (·15 C.G.S. unit) +

Hour G.M.T. Day.	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.
1	1028	1053	1038	1048	1038	1038	1032	1042	1035	1006	1000	1074	995	967	995	1103	997	1010	1029	1034	1028	1017	1017	1016	1003	1026
2	1003	1017	968	1022	1021	1012	1000	1003	986	976	982	993	993	994	988	997	1010	1011	1003	1028	1019	1017	1018	1032	1025	1004
3	1025	1009	999	1002	1011	1006	1003	1006	1002	1012	1005	994	990	990	995	993	1033	1005	1022	1047	1017	1017	1012	1012	1010	1008
4	1011	1012	1009	1009	1015	1012	1011	1003	995	989	985	986	994	998	1018	1021	1004	1013	1038	1011	1016	1016	1038	1011	1011	1009
5	1011	1008	998	1010	1010	1004	997	994	991	995	997	1001	1002	1008	1011	1005	1018	1012	1037	1018	1014	1012	1009	1008	1008	1007
6	1008	1005	1011	1010	1011	1011	1005	1005	1003	996	990	984	1002	1006	1018	993	996	1018	1030	1028	1037	1020	1033	1017	1019	1011
7	1020	1013	1024	1015	1017	1022	1012	1004	995	974	963	977	985	1007	999	1023	1022	1023	1019	1024	1033	1039	1018	1016	1030	1010
8	1030	1008	1016	1005	1006	1000	1005	990	972	942	960	978	992	989	1013	1010	1033	1027	1016	1020	1031	1012	1014	1013	1021	1003
9	1021	1004	1005	1011	1007	1003	1003	994	990	985	978	978	979	987	1004	1012	1015	1019	1017	1030	1017	1018	1012	1012	1005	1004
10	1005	1005	1004	1005	1012	1013	1005	1005	1004	985	972	966	975	989	1002	1009	1028	1021	1027	1023	1028	1029	1033	1039	1023	1008
11	1024	1012	1010	1013	1015	1016	1017	988	1005	996	987	986	978	986	996	1009	1021	1034	1030	1030	1022	1023	1014	1013	1017	1009
12	1017	1016	1002	1008	1011	1002	1006	1004	975	986	981	979	980	987	997	1008	1013	1016	1030	1025	1030	1025	1023	1006	1011	1005
13	1011	1024	1010	1009	1008	1008	1006	1006	1003	996	984	979	979	989	999	1003	1006	1013	1015	1023	1021	1021	1017	1015	1015	1006
14	1016	1015	1014	1014	1014	1001	1007	1006	1007	1000	992	987	989	991	998	1003	1000	1017	1017	1025	1023	1021	1019	1015	1014	1008
15	1014	1014	1014	1007	1016	1021	1016	1015	1007	991	980	978	973	973	985	997	1006	1017	1024	1023	1031	1022	1024	1018	1016	1007
16	1016	1015	1015	1015	1016	1015	1014	1016	1014	1005	997	987	988	997	1001	1006	1023	1030	1035	1027	1026	1027	1024	1024	1024	1014
17	1025	1025	1023	1025	1023	1030	1017	1022	1012	1002	997	990	999	988	1000	1034	1043	1022	1038	1024	1024	1027	1042	994	1018	1018
18	1018	1015	1018	1016	1021	1024	1015	991	990	996	981	968	971	978	995	974	1019	1041	1050	1041	1043	1023	1030	1022	1016	1010
19	1016	1022	1009	1033	998	974	1000	1015	1000	975	977	984	993	989	971	1029	1015	1019	1032	1025	1024	1039	1018	1001	1000	1006
20	1001	1005	1014	1005	1009	1009	1008	988	993	998	1002	989	982	982	999	1001	1012	1020	1026	1038	1017	1019	1017	1014	1017	1007
21	1017	1010	1009	1002	1009	1016	1012	1010	1001	996	988	982	989	996	1006	1013	1002	1019	1013	1014	1021	1039	1015	1023	1013	1008
22	1013	1008	1009	1003	1009	1016	1009	1000	1007	998	976	998	997	989	994	1004	1004	1003	1010	1017	1017	1023	1013	1014	1013	1006
23	1014	1012	1012	1022	1017	1010	1011	1010	1000	992	990	994	992	999	1003	1000	1006	1010	1021	1017	1017	1019	1021	1022	1020	1009
24	1018	1018	1017	1013	1015	1017	1012	1009	1010	1010	1009	1010	1017	989	1013	1013	1030	1033	1013	1016	1017	1011	1017	1013	1019	1014
25	1019	1017	1012	1010	1015	1015	1012	1007	994	983	979	985	992	1003	1008	1014	1010	1017	1017	1016	1019	1024	1019	1011	1015	1008
26	1015	1015	1011	1013	1016	1018	1017	1009	1001	991	983	991	994	998	1001	1013	1016	1027	1023	1017	1017	1018	1017	1017	1017	1010
27	1018	1011	1017	1012	1018	1019	1019	1018	1010	998	987	991	992	1000	1002	1011	1023	1044	1023	1036	1019	1027	1025	1027	1064	1015
28	1064	1046	1054	1043	1043	1031	1030	1021	1018	1001	978	931	966	989	979	1018	982	1035	1084	1088	1055	1001	1018	1023	989	1019
29	989	1020	1016	1020	992	1000	1019	1010	977	976	967	968	968	949	990	1002	992	1019	1017	1025	1027	1022	1014	1019	1018	1001
30	1019	1021	994	1005	1004	1012	1010	999	992	968	980	977	985	985	1024	1018	1036	1011	1020	1051	1028	1012	1013	1015	1010	1007
31	1010	1010	1003	996	1001	1012	1013	1003	995	963	961	968	978	985	987	994	1010	1005	1014	1012	1021	1022	1019	1025	1012	1000
Mean	1016	1016	1012	1014	1014	1013	1011	1006	1000	990	984	986	987	990	1000	1011	1014	1020	1025	1028	1025	1022	1020	1016	1016	1009

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

Eskdalemuir. (−Y.) July, 1911.

5000 γ (·05 C.G.S. unit) +

Hour G.M.T. Day.	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.
1	242	250	257	265	262	258	279	272	253	259	262	277	284	290	305	352	271	300	297	285	278	252	253	265	271	272
2	271	271	273	247	245	249	248	240	249	249	257	258	268	277	291	284	290	287	280	278	266	268	260	261	252	265
3	252	250	244	258	257	259	259	272	263	255	252	254	272	272	278	285	295	283	271	272	272	278	272	269	264	267
4	263	261	262	261	252	247	243	237	243	240	246	261	271	281	286	280	271	272	262	271	276	273	272	257	261	262
5	261	278	263	264	253	249	245	240	244	250	252	262	270	278	287	287	281	279	278	278	278	278	271	269	268	267
6	267	261	268	263	262	253	250	250	244	247	244	245	270	282	285	276	272	278	282	278	284	276	277	265	260	266
7	260	258	259	270	244	245	243	239	244	234	256	275	278	307	303	288	307	303	281	278	263	256	250	264	251	268
8	264	268	261	251	235	235	235	229	243	233	257	263	283	302	302	296	312	276	287	282	278	276	269	262	251	266
9	250	251	253	256	251	244	242	233	237	247	251	261	277	279	287	285	281	275	260	268	266	262	262	265	274	261
10	274	260	259	254	249	235	234	236	237	242	258	270	288	300	303	303	297	283	277	272	272	270	280	251	243	266
11	243	242	243	239	252	244	243	256	255	249	255	269	275	283	285	285	278	276	275	278	269	250	267	259	276	262
12	275	257	248	242	240	248	241	232	233	242	249	257	275	286	293	294	287	280	276	275	267	249	249	250	275	260
13	275	248	250	256	255	251	243	237	235	231	234	247	266	282	292	293	292	285	276	268	267	266	263	259	259	261
14	259	260	259	255	260	258	255	251	244	248	253	268	280	292	299	294	283	281	270	270	268	266	264	261	258	267
15	257	256	258	260	254	247	240	239	235	239	242	258	276	288	292	292	283	280	273	267	266	267	259	265	262	262
16	262	260	260	260	254	247	244	241	241	246	252	262	277	292	296	292	292	283	273	273	273	273	267	267	267	266
17	266	265	259	259	256	243	243	240	242	251	253	264	291	293	291	300	300	287	291	278	265	269	272	213	241	266
18	241	250	257	253	248	250	245	256	253	246	246	264	269	279	285	281	281	287	288	280	272	274	253	248	236	262
19	236	240	272	241	241	242	272	255	242	241	245	262	266	278	282	285	289	282	291	284	273	252	259	257	274	263
20	273	255	258	246	258	255	247	245	255	248	248	258	272	280	284	280	275	275	271	271	270	271	264	258	257	263
21	257	258	258	271	256	248	242	243	245	241	246	251	264	276	282	279	273	277	272	271	269	277	254	257	247	261
22	246	251	261	264	257	248	244	239	241	247	246	254	270	274	277	287	275	271	272	270	270	257	264	264	263	261
23	263	262	265	251	245	245	244	247	248	254	258	270	271	277	280	275	268	268	271	269	267	270	268	265	261	263
24	261	262	256	252	252	245	238	237	237	241	250	259	272	267	281	276	280	273	271	267	264	263	264	263	258	260
25	257	262	257	253	253	252	250	246	247	250	258	278	291	292	287	280	270	263	266	269	270	270	261	258	262	264
26	262	263	262	257	256	243	244	245	238	243	256	269	281	288	288	290	281	270	256	261	263	266	265	263	263	263
27	263	261	256	256	252	248	244	244	244	245	256	270	288	295	286	280	279	287	276	288	272	273	269	266	267	267
28	266	243	239	245	236	240	237	223	229	235	250	268	295	306	323	315	283	288	269	245	213	202	255	232	272	256
29	272	236	228	267	253	245	242	236	243	236	244	251	269	281	295	289	281	279	277	261	268	270	258	261	262	260
30	261	259	245	245	243	245	253	242	250	252	250	262	280	279	283	272	260	261	267	265	269	262	262	262	259	260
31	259	268	261	255	253	247	244	241	241	237	254	267	265	273	278	277	269	259	263	267	264	267	261	253	251	259
Mean	260	257	257	255	251	247	246	243	243	245	251	262	276	285	287	289	283	279	275	272	269	265	264	258	261	263

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

Eskdalemuir. (Z.) July, 1911.

45000 γ (·45 C.G.S. unit) +

Hour G.M.T. / Day	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.
1	349	341	340	340	340	338	330	328	326	330	326	321	319	331	337	340	384	376	371	365	360	359	357	352	351	344
2	351	340	317	319	332	338	340	341	347	350	349	349	343	340	348	350	354	356	359	360	360	358	358	349	344	346
3	343	344	340	343	346	349	348	344	345	343	340	339	340	340	345	344	346	357	369	369	367	360	356	355	355	349
4	354	351	350	353	353	355	354	353	349	344	339	338	339	344	344	345	349	356	364	364	359	357	348	348	349	350
5	348	346	345	346	351	352	353	353	353	349	340	336	337	339	344	346	349	355	357	356	357	355	354	354	354	349
6	353	353	352	352	352	353	354	355	354	352	347	346	342	343	347	355	360	355	354	354	354	354	351	355	355	352
7	354	353	353	345	329	337	337	340	340	339	346	346	345	342	345	352	354	362	366	364	357	355	352	352	343	348
8	342	315	285	277	313	332	338	338	338	336	336	335	328	336	347	355	356	367	363	360	357	356	353	350	339	338
9	338	344	347	350	352	352	352	353	352	350	346	344	344	350	349	352	357	356	359	355	355	356	355	353	353	351
10	352	351	351	352	352	351	352	350	348	351	351	342	340	336	343	344	352	354	354	353	352	352	350	333	333	348
11	332	334	341	345	349	351	350	351	347	350	348	341	348	349	346	346	353	363	365	361	361	361	357	357	348	351
12	347	341	342	346	350	353	351	351	351	343	343	347	342	342	346	347	351	357	361	360	362	361	360	359	350	351
13	349	339	342	348	350	351	351	355	355	355	351	346	343	338	338	345	351	355	358	360	358	357	354	354	355	350
14	355	356	357	358	358	358	355	353	352	351	357	349	341	340	341	347	352	356	360	360	358	358	357	354	352	353
15	351	351	352	352	353	355	357	357	357	353	349	347	347	349	351	357	359	359	360	359	358	357	356	354	354	354
16	353	352	354	355	356	357	356	350	350	348	348	347	346	346	349	356	357	358	361	357	356	353	352	353	353	353
17	352	352	354	353	355	355	355	349	348	347	343	338	337	338	339	346	353	360	366	374	376	367	355	337	335	352
18	334	336	342	347	350	347	347	348	347	346	345	345	337	336	344	356	358	358	362	365	365	364	356	345	337	350
19	336	336	321	290	315	327	317	331	337	342	344	336	336	336	344	351	357	365	367	365	364	361	356	353	339	341
20	338	344	345	350	351	352	349	353	347	345	344	343	341	344	343	352	356	359	362	361	361	357	356	354	354	351
21	353	352	352	349	348	348	348	349	352	352	352	345	343	342	342	342	346	350	352	352	353	350	343	345	345	347
22	344	346	343	342	340	344	346	348	347	348	346	345	341	341	342	350	354	358	361	361	359	355	352	351	352	349
23	351	350	348	342	341	342	341	342	341	340	337	339	338	342	348	344	350	350	349	350	351	352	351	351	351	346
24	351	350	351	351	352	351	351	350	351	350	346	333	330	332	335	337	348	357	359	351	350	350	350	350	350	347
25	348	348	348	349	349	348	347	347	347	340	334	329	328	336	340	348	354	353	357	356	352	352	353	351	351	347
26	350	351	352	352	351	355	350	350	348	347	341	338	338	342	347	348	357	360	360	355	349	348	347	348	348	350
27	347	348	347	347	349	349	348	348	346	345	345	340	338	344	347	349	354	355	357	358	361	357	355	353	342	349
28	341	340	339	345	346	347	345	346	344	335	329	336	330	337	350	356	376	378	379	366	366	360	346	331	288	348
29	287	294	308	320	307	330	336	342	343	341	337	337	336	344	351	355	363	364	360	359	355	353	352	343	336	339
30	334	327	324	333	341	346	350	351	347	348	352	352	351	344	347	361	369	365	363	362	358	357	355	353	353	350
31	352	351	347	344	347	351	352	352	352	358	352	345	342	343	351	353	354	357	361	360	359	357	354	352	350	352
Mean	345	343	342	342	345	348	347	348	347	346	344	341	339	341	345	349	356	359	361	360	358	356	353	350	346	349

XXVIII.—AUXILIARY OBSERVATIONS IN ABSOLUTE MEASURE; BASE VALUES ADOPTED FOR THE CURVES, AND DETERMINATIONS OF SCALE VALUES OF CURVE ORDINATES.

Eskdalemuir. July, 1911.

Day.	Hour. (h m)	Absolute observations H. γ	D.(West) ° ' "	I.(North) ° '	Curve ord. N. mm.	W. mm.	V. mm.	Deduced base N. γ	W. γ	V. γ
4th	11 15	16845	18 13 9		34·2	30·0		15996*	5220	
,,	11 43				35·3	31·1				
,,	12 23			69 36·6	35·8	32·1	41·2			45277
7th	11 28	16840	18 17 58		33·7	32·8		15996	5219	
,,	12 7				34·3	32·6				
11th	11 10	16841	18 14 47		33·6	31·1		16007	5220	
,,	11 28				33·3	31·5				
,,	12 27			69 37·5	34·2	32·9	42·9			45264
14th	11 24	16842	18 14 17		34·1	31·7		16002	5212	
,,	11 58				34·1	32·3				
18th	11 48	16818	18 15 47		31·7	31·6		15994	5212	
,,	12 16				32·2	32·1				
,,	12 42			69 36·9	32·9	32·9	42·2			45219
25th	11 22	16844	18 17 48		33·9	33·6		16002	5214	
,,	11 43				33·9	34·1				
,,	12 10			69 37·3	34·2	34·6	42·0			45278

Day.	Base values N. γ	W. γ	V. γ	Temp. covers N. °C	W. °C	V. °C	magnet-house At 9h. °C	Range. °C	Scale N. γ/mm.	W. γ/mm.	V. γ/mm.	Char. (0-2)
1	15993	5219	45280	10·5	10·4	10·5	10·40	·02†	8·73	8·64	9·80	2
2			45280	10·5	10·4	10·5	10·40	·02	,,	,,	,,	2
3‡			45279	10·6	10·5	10·5	10·42	·00	[ ]	[8·64]	[9·82]	1
4	15994	5218	45278	10·6	10·5	10·5	10·58	·04†	8·73	8·64	9·82	1
5			45277	10·7	10·6	10·6	10·58	·00	,,	,,	,,	1
6		5217	45276	10·7	10·6	10·7	10·60	·02	,,	,,	,,	1
7	15995		45276	10·7	10·6	10·7	10·58	·02	,,	,,	,,	1
8			45275	10·75	10·7	10·75	10·60	·02	,,	,,	,,	2
9		5216	45274	10·75	10·7	10·75	10·62	·02	,,	,,	,,	1
10			45273	10·8	10·7	10·8	10·62	·00	[8·68]	[8·63]	[9·98]	1
11	15996		45272	10·8	10·7	10·8	10·68	·08†	8·73	8·64	9·98	1
12		5215	45271	10·8	10·8	10·8	10·68	·00	,,	,,	,,	0
13			45270	10·8	10·8	10·8	10·68	·02	,,	,,	,,	0
14	15997		45270	10·8	10·8	10·8	10·66	·02	,,	,,	,,	0
15		5214	45269	10·9	10·8	10·8	10·68	·02	,,	,,	,,	0
16			45268	10·8	10·8	10·9	10·7	·02	,,	,,	,,	0
17	15998	5213	45267	10·9	10·8	10·9	10·7	·02	,,	,,	,,	1
18			45266	10·9	10·9	10·9	10·82	·20†	,,	,,	,,	2
19			45265	10·9	10·9	10·9	10·80	·02	,,	,,	,,	2
20	15999	5212	45264	11·0	10·9	10·9	10·86	·02	,,	,,	,,	1
21			45263	11·0	10·9	11·0	10·86	·02	,,	,,	,,	1
22§		5211	45262	11·0	11·0	11·1	10·94	·08†	,,	,,	,,	1
23	16000		45261	11·1	11·1	11·1	11·00	·44†	,,	,,	,,	0
24			45260	11·1	11·1	11·1	10·98	·00	,,	,,	,,	1
25		5210	45258	11·2	11·1	11·1	Trace	failed.	8·73	8·64	9·91	0
26			45257	11·2	11·1	11·2	11·08	·02	,,	,,	,,	0
27	16001		45256	11·2	11·2	11·25	11·12	·04	,,	,,	,,	1
28		5209	45255	11·3	11·2	11·3	11·10	·00	,,	,,	,,	2
29			45254	11·3	11·2	11·3	11·18	·02†	,,	,,	,,	2
30	16002	5208	45252	11·3	11·2	11·4	11·20	·00	[8·82]	[8·66]	[9·98]	2
31			45251	11·4	11·3	11·4	11·22	·00				1

* Recomputed April 1912.
‡ Magnetic conditions on the 3rd were disturbed.
† Natural conditions disturbed by presence of Observer for Scale Value experiments and other duties.
§ Visit of the International Seismological Association.

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

Eskdalemuir. (X.)   August, 1911.

15000 γ (·15 C.G.S. unit) +

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	1012	1009	1006	998	1009	1012	1008	1003	994	985	976	968	972	987	1000	1003	1003	999	1006	1022	1020	1017	1013	1013	1011	1001
2	1011	1009	1006	1009	1010	1012	1011	1009	1001	998	997	992	987	988	994	1006	1007	1015	1011	1020	1028	1032	1022	1023	1024	1008
3	1025	1027	1022	1026	1021	1014	1013	1009	1001	988	985	987	994	1011	1021	985	1011	1021	1015	1016	1028	1014	1014	1016	1011	1011
4	1011	1019	1014	1023	1012	1002	1020	1000	999	978	962	989	985	1000	995	1005	1004	1014	1020	1021	1032	1023	1036	1014	1013	1008
5	1013	1028	1003	1007	1021	1014	1007	999	994	993	994	1001	1007	1010	1013	1012	1023	1015	1028	1029	1017	1014	1032	1020	1030	1013
6	1031	1019	1015	996	1015	1020	1012	1001	994	996	988	992	989	1005	1003	1008	1012	1015	1020	1016	1021	1016	1030	1022	1015	1009
7	1015	1015	1014	1006	1007	1012	1006	1015	1008	997	980	979	982	987	1000	1012	1008	1020	1021	1024	1022	1018	1013	1013	1014	1007
8	1014	1014	1015	1013	1014	1012	1011	1007	1005	997	994	986	987	993	1004	1014	1022	1021	1022	1031	1017	1024	1029	1018	1015	1011
9	1015	1023	1022	1018	1021	1017	1021	1011	1000	988	971	970	969	978	990	1002	1012	1021	1022	1030	1028	1022	1020	1022	1023	1008
10	1024	1023	1023	1018	1021	1020	1016	1016	1007	994	980	976	980	986	995	994	1004	1012	1015	1024	1024	1019	1017	1016	1015	1008
11	1015	1016	1014	1016	1015	1015	1015	1007	998	984	978	974	979	993	1001	1009	1007	1013	1015	1022	1023	1020	1012	1015	1015	1007
12	1015	1014	1014	1015	1014	1015	1013	1008	999	992	987	986	987	993	1003	1005	1014	1022	1025	1025	1028	1022	1020	1024	1023	1010
13	1024	1024	1032	1021	1020	1024	1016	1026	1010	973	980	974	979	988	996	1015	1006	1013	1007	1019	1024	1023	1020	1018	1017	1010
14	1017	1016	1016	1014	1009	1014	1011	1010	997	996	983	980	982	995	995	991	1001	1007	1013	1017	1020	1020	1016	1016	1015	1006
15	1015	1010	1011	1013	1016	1015	1018	1011	1012	1001	988	980	979	979	998	1010	1022	1023	1011	1024	1023	1017	1014	1015	1008	1008
16	1008	1008	1015	1016	1016	1031	1039	1023	1005	1008	1005	992	980	980	988	1001	1016	1016	1015	1037	1024	1019	1017	1016	1015	1012
17	1016	1015	1019	1024	1016	1011	1010	1007	1002	994	990	985	981	987	991	1000	1008	1013	1011	1017	1019	1020	1024	1021	1025	1008
18	1025	1004	1021	1020	1017	1015	1016	1016	1009	1005	995	996	996	992	1009	1007	1011	1011	1019	1020	1022	1018	1017	1014	1011	1011
19	1011	1011	1009	1008	1009	1008	1009	1008	1001	990	982	985	986	987	992	1015	1018	1024	1025	1025	1029	1032	1019	1004	1006	1008
20	1006	1018	1017	1016	999	1016	1015	1006	998	998	991	989	991	989	984	987	989	1009	1025	1023	1024	1017	1015	1016	1016	1006
21	1017	1010	1012	1011	1012	1011	1006	1004	993	987	974	974	990	996	1010	1011	1017	1019	1017	1015	1017	1017	1013	1014	1011	1006
22	1011	1011	1012	1011	1012	1009	1007	1000	995	990	993	997	1002	1000	1008	1011	1015	1012	1022	1026	1027	1025	1018	1021	1021	1010
23	1021	1022	1019	1019	1026	1018	1017	1017	1009	990	971	997	999	999	975	1106	1005	1004	1020	1019	999	1043	995	984	997	1007
24	997	1004	1011	972	969	973	978	986	975	931	957	965	956	975	996	1034	1019	1020	1052	1009	1048	1002	1002	1008	990	993
25	991	1010	991	994	999	1001	999	975	969	980	968	955	962	969	991	1006	998	1027	1020	1009	1009	1018	1015	1013	1005	995
26	1005	1017	1018	1015	1010	1019	1012	1004	998	983	968	975	975	987	1003	1000	1006	1009	1036	1004	1011	1013	1057	1013	1005	1006
27	1005	1001	993	993	1012	1011	1000	1002	1000	985	966	951	961	975	992	992	1018	1009	1035	1010	1010	1010	1014	1027	1003	999
28	1003	1008	1006	1001	999	1005	1007	985	984	983	979	969	968	983	993	1003	985	1012	1025	1023	1035	1013	1005	1008	1003	999
29	1004	1002	1010	1009	1011	1011	1010	1006	1000	992	984	982	983	984	993	995	1002	1011	1013	1013	1016	1011	1007	1009	1019	1003
30	1019	1010	1012	1009	1010	1005	1006	996	1001	987	974	966	974	982	986	992	1008	1014	1020	1011	1006	1013	1010	1013	1009	1001
31	1009	1005	1008	1008	1006	1005	1006	1018	1004	983	984	969	984	1013	995	986	1034	1005	1010	1019	1022	1008	1021	1014	1002	1005
Mean	1013	1014	1013	1010	1011	1012	1011	1006	999	989	981	980	982	989	997	1004	1010	1014	1020	1020	1022	1019	1018	1015	1013	1006

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

Eskdalemuir. (− Y.)   August, 1911.

5000 γ (·05 C.G.S. unit) +

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	251	254	254	256	254	251	250	241	235	239	241	251	268	281	286	279	263	261	261	266	261	262	261	261	261	258
2	260	259	257	256	251	252	245	245	242	238	242	252	264	272	277	278	276	272	267	272	276	274	266	263	261	261
3	261	263	257	257	259	253	247	243	238	242	259	270	279	294	301	269	271	271	260	264	253	259	253	244	251	261
4	250	276	260	239	245	251	259	255	252	248	253	261	267	277	276	275	268	275	276	276	276	262	246	253	252	262
5	252	253	285	249	248	234	237	239	241	248	257	267	275	280	291	284	284	277	269	266	261	266	268	259	223	261
6	223	222	241	241	253	241	233	238	240	247	250	262	275	280	275	271	265	265	266	265	265	255	264	260	252	256
7	251	255	256	250	250	240	244	239	237	246	253	252	262	268	276	273	265	260	258	259	262	263	259	258	258	256
8	258	257	256	252	249	247	239	238	237	239	248	258	267	280	286	283	275	263	264	267	252	261	259	261	258	258
9	257	257	258	254	247	248	244	232	238	242	247	258	280	291	291	291	285	280	273	268	264	265	263	263	258	262
10	258	258	257	252	255	244	238	233	229	231	248	266	276	288	289	280	274	266	263	263	260	257	258		264	258
11	264	267	257	252	250	248	245	237	232	237	247	258	275	288	287	282	273	269	265	265	265	256	255	257	258	260
12	257	256	255	256	255	249	246	241	245	249	256	268	282	293	297	285	281	274	270	266	265	265	263	264	262	262
13	261	257	258	251	246	262	242	230	228	253	250	264	273	283	280	280	263	261	248	255	261	261	260	260	260	258
14	260	258	261	248	249	248	240	241	246	251	262	268	276	272	269	265	267	263	261	260	261	261	262	263	257	259
15	257	256	255	254	255	255	254	246	249	248	248	254	270	271	280	285	274	275	267	268	267	263	262	261	255	261
16	254	237	228	229	227	234	257	276	273	266	258	261	262	267	268	270	271	270	268	272	270	267	262	260	254	257
17	254	259	261	241	236	237	241	241	244	241	246	251	261	278	270	266	264	267	262	263	261	261	260	254	240	255
18	239	253	252	244	246	249	246	246	244	244	246	260	269	270	279	277	270	266	263	254	261	262	262	261	260	257
19	260	258	257	255	254	250	246	244	239	241	246	260	275	288	286	287	280	270	272	269	269	267	235	224	221	259
20	220	244	243	245	253	242	233	233	242	249	252	258	277	284	276	270	259	243	253	256	258	258	258	258	257	253
21	257	261	259	252	250	248	243	234	234	240	252	266	277	284	285	277	268	262	258	259	259	259	258	256	257	258
22	256	257	255	251	251	243	241	241	243	251	259	271	279	276	273	267	261	254	257	263	265	259	261	261	262	258
23	262	250	254	251	249	242	242	241	233	245	277	283	318	318	312	293	285	283	255	268	252	244	244	256	271	265
24	271	244	265	252	244	243	240	244	248	242	260	270	282	283	292	274	252	263	243	257	250	257	251	252	268	257
25	267	265	260	265	239	231	232	225	237	241	252	258	275	289	276	276	268	250	261	258	252	258	250	257	283	256
26	282	258	255	241	249	248	239	245	239	248	254	268	280	283	283	249	272	265	239	249	263	264	265	256	244	257
27	244	258	294	252	248	242	249	254	241	240	242	248	273	282	293	279	267	259	251	259	263	261	256	260	252	259
28	251	257	241	255	249	247	241	240	235	233	241	257	267	286	286	282	269	260	263	262	232	235	254	256	255	254
29	255	254	256	254	254	255	244	239	235	239	247	260	268	273	281	275	261	261	256	255	256	256	256	255	272	254
30	271	254	254	258	253	246	242	237	238	238	243	252	266	278	280	272	266	261	250	255	256	259	259	259	255	256
31	255	256	253	254	247	244	246	236	238	257	260	268	272	302	293	273	289	264	259	264	259	240	245	253	237	259
Mean	255	255	257	251	249	246	243	235	240	244	252	261	274	280	284	277	271	266	261	263	261	259	257	257	255	258

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

Eskdalemuir. (Z.)　　　　　　　　　　　　　　　　　　　　August, 1911.

45000 γ (·45 C.G.S. unit) +

Hour. G.M.T. Day.	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.
1	348	343	346	349	350	351	351	352	354	352	351	347	341	348	354	358	359	360	360	359	360	358	357	353	352	353
2	351	351	350	350	352	352	352	356	357	352	347	341	340	346	348	349	351	352	354	351	350	351	353	352	350	350
3	348	347	347	347	347	347	347	347	348	346	339	336	326	326	336	346	346	351	358	357	359	357	353	352	350	346
4	349	340	336	337	342	337	333	338	342	344	341	335	334	337	339	345	351	354	356	355	354	355	355	348	347	344
5	346	344	342	326	338	345	345	345	345	347	344	335	331	334	335	343	345	351	355	357	354	354	350	327	335	343
6	333	333	333	337	334	342	343	343	342	341	340	337	335	336	343	350	352	352	353	353	354	353	352	349	349	344
7	346	347	347	349	348	349	350	348	345	343	337	334	337	336	338	341	349	350	351	349	348	348	349	349	349	345
8	347	347	346	347	347	348	347	346	339	338	337	329	332	336	338	347	347	348	348	346	349	348	346	347	347	344
9	345	345	345	346	346	346	345	346	346	344	333	326	319	327	336	343	346	348	351	349	347	344	345	345	345	342
10	344	344	345	345	345	346	346	347	346	345	343	340	337	336	339	346	351	351	351	347	348	347	348	348	346	345
11	344	343	342	343	345	346	346	349	351	345	334	332	327	330	334	342	344	345	347	343	344	348	349	348	348	343
12	347	347	347	347	348	349	346	344	345	346	343	340	334	332	338	341	343	345	345	344	343	343	344	343	344	343
13	342	342	341	344	344	340	343	342	343	339	338	337	337	339	342	348	351	354	352	351	349	348	348	348	349	345
14	348	348	347	347	348	349	349	348	347	340	337	337	335	334	338	345	347	350	351	350	349	348	347	347	346	345
15	344	345	346	347	348	348	346	347	346	345	338	337	336	341	346	353	357	362	364	359	357	355	354	351	352	349
16	349	350	344	343	343	336	326	319	315	314	323	325	331	333	338	344	350	349	351	350	353	352	350	348	349	339
17	346	345	340	331	337	341	341	341	340	340	340	338	338	340	340	341	342	344	345	346	350	349	346	347	346	342
18	344	340	332	338	339	340	342	343	347	346	338	331	329	332	338	339	344	349	349	351	349	347	348	347	347	342
19	345	345	345	345	346	347	347	347	348	346	337	329	329	328	334	335	342	353	349	347	346	348	350	339	339	343
20	336	337	340	342	342	340	339	338	339	337	335	333	329	331	334	341	345	352	353	348	346	346	346	345	345	341
21	341	339	337	338	339	341	342	346	344	340	333	329	323	328	332	338	339	341	340	339	339	340	340	340	340	337
22	337	338	339	339	339	340	339	338	338	335	329	326	326	326	331	333	337	338	337	336	336	337	338	337	337	335
23	333	332	333	333	332	334	332	331	331	324	315	307	312	316	340	390	408	407	409	381	378	360	313	333	227	343
24	224	278	300	310	301	301	312	322	326	331	329	328	339	349	349	350	365	364	368	358	347	338	339	339	338	330
25	335	327	324	313	319	334	337	336	335	328	326	327	328	329	337	345	345	350	346	347	345	339	336	336	323	334
26	319	318	323	326	330	329	332	331	333	332	336	333	331	331	339	359	360	360	363	360	347	342	334	323	331	337
27	329	330	319	319	329	331	335	333	334	338	338	336	331	334	339	350	358	360	364	352	345	343	341	328	328	338
28	324	325	326	326	331	335	336	337	336	336	327	320	322	325	328	336	346	347	345	344	345	341	336	335	336	334
29	332	332	333	333	334	335	340	340	338	337	333	332	331	331	334	342	350	347	343	341	340	339	339	339	333	337
30	329	330	328	327	328	332	335	335	332	330	329	327	322	321	327	328	336	339	347	347	344	339	338	337	338	333
31	334	334	333	334	334	334	331	326	324	323	317	318	316	317	331	337	338	341	339	338	335	341	339	335	334	331
Mean	337	338	337	337	339	340	341	341	341	339	335	332	330	333	338	345	350	352	353	350	349	347	345	343	339	341

XXXII.—AUXILIARY OBSERVATIONS IN ABSOLUTE MEASURE; BASE VALUES ADOPTED FOR THE CURVES, AND DETERMINATIONS OF SCALE VALUES OF CURVE ORDINATES.

Eskdalemuir.　　　　　　　　　　　　　　　　　　　　August, 1911.

Day.	Hour.	Absolute observations with unifilar magnetometer and dip circle. H.	D.(West)	I.(North)	Measurements of curve ordinates. N. mm.	W. mm.	V. mm.	Deduced values of base lines. N. γ	W. γ	V. γ
1st	11 35		18 14 25	° ′	32·1	31·5		16005	5210	
,,	12 7	16824			31·8	32·3				
,,	12 41			69 37·3	32·9	33·2	44·3			45233
4th	11 27		18 13 57		33·1	31·8		16006	5208	
,,	12 1	16835			33·1	32·1				
8th	11 36	16824	18 12 57		33·0	31·7		15997	5201	
,,	11 56				33·1	32·1				
,,	12 18			69 38·0	33·1	32·7	44·9			45245
11th	11 50	16836	18 15 41		32·2	33·0		16006	5204	
,,	12 24				32·8	34·0				
15th	11 43	16821	18 14 40		32·1	32·4		16002	5203	
,,	11 59				31·9	32·8				
,,	12 22			69 38·7	31·8	33·1	46·1			45240
22nd	11 53	16847	18 16 18		34·4	34·4		16002	5200	
,,	12 9				34·4	34·7				
,,	12 30			69 36·8	34·0	34·5	46·9			45230
25th	11 24	16811	18 15 41		29·8	33·0		16006	5198	
,,	12 1				29·8	34·2				
29th	11 43	16830	18 15 43		32·0	33·4		16010	5202	
,,	11 56				31·8	33·4				
,,	12 17			69 38·0	31·8	33·9	49·9			45192

Day.	Base values adopted. N. γ	W. γ	V. γ	Temperature in the covers of the recording magnets at 9h. N. °C	W. °C	V. °C	in the magnet-house (by thermograph). At 9h. °C	Range. °C	Scale values of magnetograms. N. γ/mm	W. γ/mm	V. γ/mm	Character of the day (0-2)
1	16002	5208	45249	11·4	11·3	11·4	11·28	·08*	8·80	8·64	9·98	1
2		5207	45248	11·4	11·4	11·5	11·28	·00	,,	,,	,,	0
3	16003		45246	11·4	11·4	11·4	11·36	·02	,,	,,	,,	1
4		5206	45245	11·5	11·4	11·5	11·32	·00	,,	,,	,,	1
5			45244	11·5	11·4	11·4	11·40	·00	,,	,,	,,	1
6	16004		45242	11·6	11·5	11·6	11·42	·00	[8·80]	[8·64]	[9·84]	0
7		5205	45241	11·6	11·6	11·7	11·42	·00	8·80	8·64	9·84	0
8			45239	11·7	11·6	11·7	11·60	·08*				
9		5204	45237	11·7	11·7	11·8	11·60	·00	,,	,,	,,	0
10	16005		45236	11·8	11·8	11·8	11·64	·02	,,	,,	,,	0
11			45234	11·8	11·9	11·9	11·64	·02	,,	,,	,,	0
12		5203	45233	11·9	11·9	11·9	11·68	·02	,,	,,	,,	1
13	16006	5202	45231	11·9	11·9	11·8	11·70	·02	,,	,,	,,	1
14			45229	12·0	11·9	12·0	11·74	·00	[8·82]	[8·64]	[9·89]	0
15			45227	11·9	11·9	11·8	11·84	·04*	8·80	8·64	9·89	1
16		5201	45224	12·0	11·9	12·0	11·84	·00	,,	,,	,,	1
17	16007		45221	12·0	11·9	12·0	11·88	·02	,,	,,	,,	1
18		5200	45219	12·0	12·0	12·0	11·86	·02	,,	,,	,,	0
19			45217	12·0	12·0	12·0	11·88	·04	,,	,,	,,	2
20		5199	45214	12·0	12·0	12·0	11·92	·02	[8·80]	[8·64]	[9·82]	2
21	16008		45211	12·1	12·1	12·1	11·90	·00	8·80	8·64	9·82	0
22		5198	45208	12·1	12·1	12·1	12·08	·02	,,	,,	,,	2
23			45204	12·2	12·1	12·2	12·08	·00	,,	,,	,,	2
24			45201	12·2	12·1	12·2	12·12	·04	,,	,,	,,	2
25	16009	5197	45198	12·2	12·2	12·3	12·08	·00	,,	,,	,,	2
26		5196	45194	12·3	12·2	12·3	12·18	·00	,,	,,	,,	2
27			45192	12·3	12·2	12·3	12·18	·00	[8·80]	[8·64]	[9·80]	1
28		5195	45188	12·4	12·3	12·4	12·18	·00	8·80	8·64	9·80	1
29	16010		45184	12·5	12·4	12·5	12·30	·08*	,,	,,	,,	0
30		5194	45180	12·5	12·4	12·5	12·28	·00	,,	,,	,,	0
31			45176	12·5	12·4	12·5	12·38	·02	,,	,,	,,	1

* Natural conditions disturbed by presence of Observer for Scale Value experiments and other duties.

XXXIII.—READINGS OF THE NORTH COMPONENT OF TERRESTRIAL MAGNETIC FORCE
Eskdalemuir. (X.)　　　　AT EACH HOUR OF GREENWICH MEAN TIME.　　　　September, 1911.

15000 γ (·15 C.G.S. unit) +

Hour G.M.T. Day.	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.
1	1002	1004	1013	1010	1009	1006	1011	1009	995	984	976	974	979	988	1005	1011	1014	1014	1010	1012	1011	1010	1021	1018	1012	1004
2	1013	1020	1010	1012	1012	1011	1007	1003	1002	997	993	985	982	994	1000	1008	1018	1006	1014	1014	1015	1015	1015	1013	1012	1007
3	1012	1012	1013	1011	1009	1011	1014	1001	1000	989	978	978	985	996	1005	1009	1012	1010	1012	1014	1014	1015	1014	1015	1014	1005
4	1014	1014	1013	1013	1012	1011	1010	1005	1002	994	983	979	994	1003	1002	1005	1006	1014	1019	1017	1020	1020	1018	1018	1020	1008
5	1020	1020	1020	1021	1018	1016	1019	1012	1005	986	994	1000	994	1002	996	986	1002	1013	1021	1022	1019	1021	1007	1009	1013	1009
6	1013	1011	1011	1010	1012	1011	1009	1001	995	994	985	987	994	1000	1006	1011	1014	1019	1012	1016	1013	1012	1015	1020	1017	1007
7	1017	1015	1015	1016	1013	1008	1021	1017	1007	993	983	969	985	991	998	999	1007	1007	1008	1012	1012	1013	1012	1015	1014	1006
8	1014	1012	1015	1015	1013	1013	1012	1011	1007	1000	985	985	992	1000	1003	1005	1010	996	1005	1014	1019	1018	1017	1017	1015	1007
9	1016	1016	1017	1014	1014	1015	1013	1008	1002	988	980	978	984	997	1005	1010	1012	1006	1008	1011	1018	1011	1017	1030	1020	1007
10	1020	1022	1023	1029	1027	1015	1014	1009	1002	1002	982	972	973	985	1010	1001	1008	995	1001	1020	1020	1020	1017	1015	1016	1008
11	1016	1014	1008	1009	1012	1008	1011	1020	1006	992	980	972	986	956	986	984	997	1003	1008	1005	1010	989	1006	1007	1004	999
12	1004	1005	1004	1002	1007	1031	1012	1004	997	986	973	968	963	953	987	1004	981	994	1018	1012	1004	1020	1015	1021	1005	999
13	1005	1008	1006	1008	1010	1006	1003	1004	1003	987	951	967	972	980	986	994	1005	1009	1010	1013	1014	1013	1014	1007	1011	999
14	1011	1012	1008	1007	1012	1008	1014	1009	1006	988	982	978	982	987	997	991	1006	1010	1013	1015	1017	1014	1013	1014	1014	1004
15	1014	1014	1018	1023	1020	1000	1012	1016	1013	1001	989	987	986	997	994	1008	1002	1014	1015	1012	1012	1021	1038	1015	1022	1009
16	1022	1015	1012	1013	1012	1014	991	986	972	988	964	976	973	951	976	987	994	1004	1011	1013	1004	1006	1011	1011	1022	996
17	1022	1006	1011	1001	1001	1003	1003	1001	998	991	985	986	986	986	992	995	1001	1004	1008	1023	1030	1021	1015	1014	1003	1003
18	1003	1008	1006	1004	1006	1004	1004	1003	1000	995	994	994	995	1002	1008	1011	1007	1007	1017	1016	1002	1011	1013	1012	1012	1005
19	1012	1013	1011	1010	1006	1015	1011	1006	1005	997	989	988	991	994	1003	1012	1022	1030	1030	1030	1021	1055	1030	1039	1022	1014
20	1022	1021	1013	969	1051	1033	995	944	941	922	907	946	972	1003	1023	988	986	1030	1008	1015	1008	988	1007	1001	1013	992
21	1001	998	985	1001	1003	1004	1011	972	953	938	943	954	985	990	986	979	1001	994	1023	1002	988	1016	1020	1012	1013	990
22	1013	1004	975	1004	1023	978	1002	995	997	977	939	942	974	981	994	994	987	959	1005	1017	1006	997	1008	1011	1027	990
23	1027	1009	1011	986	1001	994	1001	999	983	986	979	979	986	988	971	991	986	1003	1002	1012	1003	1012	1005	1008	1007	996
24	1007	1002	1001	1008	1008	1007	1005	1002	994	979	971	971	976	990	998	1001	1002	1005	1007	1011	1012	1012	1009	1008	1009	1000
25	1009	1008	1008	1006	1009	1008	1006	1004	994	984	971	967	976	980	994	999	1004	1008	1010	1011	1012	1012	1012	1013	1012	1000
26	1012	1011	1011	1012	1011	1012	1010	1000	996	981	972	970	972	979	987	995	1000	1011	1009	1012	1018	1015	1018	1022	1013	1002
27	1013	1022	1021	1009	1012	1012	1008	1011	1013	1003	991	992	977	979	988	997	1010	1003	1008	1007	1011	1012	1012	1008	1010	1005
28	1010	1012	1011	1009	1008	1011	1010	1015	1010	1002	986	983	979	986	986	997	1009	1008	1015	1014	1021	1010	1014	1013	1012	1005
29	1012	1012	1016	1017	1012	1015	1008	1011	1006	1003	991	983	983	986	994	1002	1004	1012	1013	1013	1013	1014	1014	1012	1016	1006
30	1016	1011	1013	1014	1012	1012	1012	1010	1007	999	990	986	984	982	986	998	1004	1008	1009	1012	1015	1013	1012	1012	1011	1005
Mean	1013	1012	1010	1009	1013	1009	1010	1005	998	988	977	975	980	986	995	1000	1004	1005	1012	1014	1013	1014	1014	1015	1013	1003

XXXIV.—READINGS OF THE WEST COMPONENT OF TERRESTRIAL MAGNETIC FORCE
Eskdalemuir. (−Y.)　　　　AT EACH HOUR OF GREENWICH MEAN TIME.　　　　September, 1911.

5000 γ (·05 C.G.S. unit) +

Hour G.M.T. Day.	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
1	237	261	240	244	237	245	240	234	234	232	245	254	268	281	289	282	272	265	262	263	263	258	257	257	260	254
2	260	255	246	250	248	247	243	237	240	240	248	260	272	289	282	276	272	264	265	263	261	262	259	255	257	258
3	256	256	255	253	259	250	245	244	244	245	253	265	278	285	281	271	259	253	255	262	261	261	260	257	256	260
4	255	255	255	254	252	252	245	244	245	248	252	261	279	286	279	270	260	260	261	264	263	262	261	260	263	260
5	263	258	261	255	255	252	245	242	238	244	260	270	280	296	295	272	263	260	258	260	255	263	252	252	258	260
6	257	257	256	255	253	251	244	244	243	243	251	272	286	294	289	278	271	263	259	261	262	261	260	260	260	261
7	260	258	256	253	248	252	247	237	238	242	254	267	279	286	283	272	266	261	257	260	261	260	258	258	260	259
8	259	257	257	253	251	253	250	247	245	243	248	260	271	279	279	271	266	256	258	259	259	259	259	260	259	258
9	258	260	259	256	253	249	246	241	243	243	260	261	273	283	279	270	263	259	259	261	261	258	259	263	259	259
10	259	259	259	259	240	251	249	240	237	242	243	267	283	290	293	279	277	263	255	262	259	258	258	257	247	260
11	246	252	249	249	244	245	242	234	242	234	248	262	289	283	290	277	281	279	265	256	240	209	225	234	248	253
12	248	243	245	258	257	248	239	239	236	243	252	265	280	286	288	291	254	257	259	259	248	241	258	269	259	258
13	258	256	254	251	248	252	256	244	242	250	251	274	285	297	288	275	265	259	260	260	259	254	255	256	257	260
14	256	255	256	253	255	256	255	246	246	246	247	254	262	271	274	266	265	262	263	264	260	260	258	257	259	258
15	259	256	255	253	247	246	255	251	249	252	255	264	274	285	274	278	267	273	271	263	264	248	256	246	246	260
16	245	245	262	240	255	254	262	267	264	257	246	246	276	280	278	288	289	250	260	264	258	258	255	254	237	260
17	236	237	227	247	251	252	250	247	244	251	253	267	273	280	275	270	264	260	258	244	237	227	238	237	245	251
18	245	253	246	253	253	249	247	245	244	245	249	261	270	276	276	276	271	264	262	256	256	261	258	257	258	258
19	257	258	256	254	254	255	252	246	245	245	247	256	271	279	280	282	280	287	283	288	271	226	242	242	252	261
20	251	244	256	305	252	262	252	247	251	264	261	283	274	272	274	217	263	263	221	254	235	234	267	260	243	257
21	242	254	254	252	253	251	257	256	278	250	263	270	272	277	286	253	239	252	235	244	245	231	250	275	251	256
22	251	243	262	257	255	247	276	243	241	250	246	267	273	276	279	270	254	226	251	231	241	247	247	244	257	253
23	256	252	231	242	250	244	249	248	242	243	249	259	272	280	270	268	256	261	259	255	223	226	249	253	251	251
24	250	253	258	253	250	249	248	242	240	237	247	256	274	277	276	269	259	258	257	256	256	250	256	256	256	255
25	256	256	255	254	249	250	249	242	235	235	241	250	271	273	275	266	260	257	256	251	257	255	256	256	256	254
26	255	255	255	255	250	254	247	244	241	238	240	255	267	276	275	273	266	264	258	255	258	257	254	255	246	256
27	245	271	231	247	249	247	248	246	239	239	234	255	263	268	271	276	276	271	264	263	262	256	254	248	254	255
28	254	259	254	250	257	255	254	249	236	232	230	244	256	271	270	271	271	264	264	263	260	258	248	250	254	255
29	253	248	249	254	254	252	253	248	238	238	244	253	264	266	271	273	268	264	263	257	257	257	255	253	253	256
30	252	248	252	245	248	247	247	244	237	237	239	248	261	267	271	272	271	265	260	257	256	256	255	252	252	254
Mean	253	254	252	254	251	251	250	245	243	244	248	261	273	280	280	272	266	261	259	259	255	250	253	255	254	257

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

Eskdalemuir. (Z.) September, 1911.

45000 γ (·45 C.G.S. unit) +

Hour G.M.T. Day.	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.
1	330	326	322	328	329	330	332	332	332	329	323	319	318	320	322	326	329	331	330	331	331	331	330	329	328	328
2	324	319	323	324	325	326	327	328	326	324	321	318	315	316	317	322	327	334	328	327	327	328	328	328	328	324
3	324	323	323	324	324	325	326	328	329	327	325	321	314	316	320	322	324	330	326	326	328	329	329	329	329	325
4	326	326	326	327	327	328	328	328	326	324	320	317	310	312	318	321	323	324	321	320	323	324	325	327	326	323
5	322	320	320	320	321	322	322	322	320	318	315	311	307	308	315	315	321	324	325	325	326	326	332	331	328	321
6	325	326	324	324	324	325	326	326	326	324	318	309	303	306	313	321	323	326	324	322	321	322	323	322	323	321
7	319	319	319	319	320	321	319	322	322	319	317	312	310	317	324	327	327	326	325	322	322	322	323	323	324	321
8	320	321	318	318	318	318	320	321	321	322	320	314	312	315	322	323	327	328	324	322	321	321	321	321	322	320
9	318	318	318	318	318	317	317	317	318	317	310	308	308	309	311	316	320	321	321	320	319	319	318	317	317	316
10	313	312	311	308	305	306	308	313	312	308	306	304	306	309	314	322	327	330	328	324	323	322	321	322	319	315
11	315	314	315	315	316	317	319	319	315	314	311	309	308	313	320	328	340	343	342	343	334	321	311	311	311	321
12	307	306	310	311	309	307	314	315	315	312	309	307	309	311	313	323	337	336	327	326	327	325	318	316	315	316
13	312	314	315	316	317	314	314	315	315	314	315	311	306	312	314	322	323	322	321	321	321	320	320	320	319	317
14	316	316	315	316	316	316	313	315	312	313	313	311	310	310	312	319	318	319	319	320	320	320	320	320	320	316
15	316	315	313	312	313	315	312	312	311	312	313	310	305	306	307	309	311	314	317	320	320	320	313	316	314	313
16	310	305	303	299	303	304	305	302	303	303	305	306	303	314	320	316	323	333	331	331	330	326	323	321	310	313
17	306	304	302	307	308	309	311	314	315	315	312	308	300	298	298	306	310	315	317	317	314	312	308	292	303	308
18	300	306	309	312	312	313	314	314	315	312	307	305	305	305	304	303	306	308	309	316	317	316	314	314	313	310
19	309	310	310	310	310	307	309	310	311	310	309	304	301	301	301	303	305	304	305	306	312	321	308	300	301	307
20	297	298	297	262	209	230	245	270	286	296	304	307	308	317	319	343	332	331	331	326	317	312	302	297	287	297
21	283	286	297	301	305	306	306	311	311	314	316	316	314	314	326	348	369	362	345	334	331	324	311	289	284	318
22	280	282	288	293	298	299	297	301	310	310	313	312	309	310	312	316	321	327	321	320	317	316	312	309	293	308
23	290	292	289	289	292	298	305	307	309	309	308	307	305	307	317	323	325	323	318	318	323	317	314	314	310	309
24	307	311	312	313	313	314	314	315	315	315	313	309	308	312	312	315	316	317	316	317	316	314	314	315	316	314
25	312	312	313	313	312	312	312	314	315	314	309	308	305	306	309	313	317	312	312	313	311	311	310	310	311	311
26	307	309	311	310	312	311	312	313	312	312	312	307	304	308	308	313	314	315	316	315	314	314	314	313	312	312
27	308	298	295	301	305	308	309	309	309	306	304	304	303	303	302	308	311	312	313	317	314	314	313	315	315	308
28	311	309	308	308	308	307	308	307	308	308	309	307	305	305	307	309	312	314	312	312	309	314	316	315	315	310
29	311	310	309	305	305	305	307	308	311	311	309	304	303	303	304	304	307	311	311	311	312	312	312	312	312	308
30	309	310	310	310	310	310	311	311	312	310	310	310	309	310	309	310	312	312	312	312	312	312	313	312	311	
Mean	311	311	311	310	310	311	312	314	315	314	313	310	307	310	313	318	322	323	322	321	320	320	317	315	314	315

XXXVI.—AUXILIARY OBSERVATIONS IN ABSOLUTE MEASURE; BASE VALUES ADOPTED FOR THE CURVES, AND DETERMINATIONS OF SCALE VALUES OF CURVE ORDINATES.

Eskdalemuir. September, 1911.

Day.	Hour.	Absolute observations with unifilar magnetometer and dip circle. H. γ	D.(West) ° ′ ″	I.(North) ° ′	Measurements of curve ordinates. N. mm.	W. mm.	V. mm.	Deduced values of base lines. N. γ	W. γ	V. γ
	h m									
5th	11 16		18 14 25		33·1	34·3		16011	5190	
,,	11 38	16841			33·0	35·0				
,,	12 11			69 36·8	33·0	35·3	50·2			45170
8th	11 7		18 12 36		32·1	33·2		16014	5189	
,,	11 40	16835			32·3	33·9				
12th	11 21		18 15 39		29·9	34·3		16013	5188	
,,	11 49	16812			29·3	35·2				
,,	12 17			69 37·4	29·2	36·3	53·3			45085
15th	10 45		18 11 32		32·2	33·2		16014	5183	
,,	11 22	16840			32·8	35·2				
19th	11 31		18 14 10		32·4	34·4		16009	5185	
,,	11 58	16837			32·8	35·2				
,,	12 28			69 36·9	33·0	35·9	54·9			45134
26th	11 7		18 12 59		30·2	34·0		16011	5178	
,,	11 51	16816			30·3	35·1				
,,	12 26			69 37·7	30·8	35·9	58·2			45078
29th	11 14		18 11 50		31·4	34·1		16010	5173	
,,	11 57	16823			31·7	35·0				

Day.	Base values adopted. N. γ	W. γ	V. γ	Temperature — in the covers of the recording magnets at 9ʰ. N. °C.	W. °C.	V. °C.	in the magnet-house (by thermograph). At 9ʰ. °C.	Range. °C.	Scale values of magnetograms. N. γ/mm.	W. γ/mm.	V. γ/mm.	Character of the day (0–2).
1	16010	5193	45172	12·6	12·5	12·5	12·36	·02	8·80	8·73	9·80	0
2	16011		45168	12·6	12·5	12·6	12·40	·02	,,	,,	,,	0
3		5192	45164	12·6	12·6	12·7	12·40	·02	[8·74]	[8·73]	[9·80]	0
4		5191	45161	12·6	12·6	12·7	12·42	·02	8·80	8·73	9·80	1
5			45157	12·7	12·6	12·7	12·48	·06*	,,	,,	,,	0
6		5190	45154	12·7	12·7	12·75	12·46	·00	,,	,,	,,	1
7			45150	12·7	12·6	12·7	12·50	·02	,,	,,	,,	1
8		5189	45146	12·75	12·7	12·75	12·46	·00	,,	,,	,,	1
9	16012	5188	45142	12·8	12·7	12·8	12·48	·00	,,	,,	,,	0
10			45138	12·8	12·8	12·8	12·50	·02	[8·78]	[8·73]	[9·82]	1
11		5187	45134	12·8	12·7	12·8	12·48	·00	8·80	8·73	9·82	2
12			45130	12·8	12·7	12·8	12·62	·02*	8·80	8·73	9·82	1
13		5186	45127	12·8	12·8	12·8	12·60	·02	,,	,,	,,	1
14		5185	45124	12·8	12·8	12·8	12·62	·00	,,	,,	,,	0
15			45120	12·8	12·8	12·9	12·60	·00	,,	,,	,,	1
16		5184	45116	12·9	12·8	12·8	12·60	·00	,,	,,	,,	2
17		5183	45112	12·9	12·8	12·9	12·62	·00	,,	,,	,,	1
18			45108	12·9	12·8	12·9	12·60	·00	[8·80]	[8·83]	[9·84]	0
19		5182	45104	12·9	12·8	12·9	12·64	·14*	8·80	8·82	9·84	1
20		5181	45100	12·9	12·8	12·9	12·62	·00	,,	,,	,,	2
21		5180	45096	12·8	12·8	12·9	12·60	·04	,,	,,	,,	2
22			45092	12·9	12·8	12·9	12·60	·02	,,	,,	,,	2
23		5179	45089	12·9	12·8	12·9	12·60	·02	,,	,,	,,	1
24		5178	45086	12·9	12·8	12·9	12·58	·02	,,	,,	,,	1
25			45082	12·9	12·9	12·9	12·56	·00	[8·73]	[8·82]	[9·80]	0
26		5177	45078	12·9	12·9	12·9	12·66	·16*	8·80	8·82	9·80	0
27		5176	45074	12·9	12·8	12·9	12·62	·02	,,	,,	,,	1
28			45070	12·9	12·8	12·9	12·62	·02	,,	,,	,,	1
29		5175	45066	12·9	12·8	12·9	12·60	·02	,,	,,	,,	0
30		5174	45063	12·8	12·8	12·8	12·58	·02	,,	,,	,,	0

* Natural conditions disturbed by presence of observer for Scale Value experiments and other duties.

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

Eskdalemuir. (X.)　　　　　　　　　　　　　　　　　　　　　　　　　　October, 1911.

15000 γ (·15 C.G.S. unit) +

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	1011	1009	1010	1010	1011	1014	1015	1016	1010	1002	993	980	982	988	995	1002	1007	1012	1015	1017	1016	1017	1015	1019	1019	1007
2	1019	1014	1013	1014	1017	1024	1031	1027	1019	994	968	966	972	983	977	982	985	1003	1011	1011	1013	1011	1016	1012	1011	1003
3	1011	1011	1012	1009	1011	1012	1012	1009	1003	993	984	977	980	985	996	1004	1009	1014	1009	1012	1026	1009	1009	1002	1010	1004
4	1009	1007	1011	1012	1014	1017	1013	1014	1005	996	992	987	997	1000	1006	1009	1010	1004	1008	1013	1014	1014	1009	1020	1014	1008
5	1014	1009	1010	1011	1013	1013	1011	1006	1007	997	987	984	983	989	994	995	1001	1004	1011	1013	1011	1019	1019	1018	1015	1005
6	1015	1012	1011	1013	1012	1012	1013	1014	1010	1001	993	975	977	985	988	994	998	1002	1010	1011	1013	1014	1011	1014	1013	1004
7	1013	1021	1011	1013	1015	1011	1016	1013	1010	999	988	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1007
8	...	...	..	..	...	...	...	...	...	...	...	974	986	973	986	992	1010	1013	1015	1018	1019	1016	1021	1033	1015	1007
9	1014	1013	1002	1034	1027	1013	1011	1027	1017	995	973	965	974	978	992	982	1007	995	1006	1010	1010	1018	1010	1042	1014	1005
10	1014	1010	1008	1009	1013	1004	1013	1019	1018	1007	993	994	989	977	984	1000	986	993	1013	963	939	915	942	967	972	990
11	972	988	996	1028	1023	896	938	958	957	964	966	979	979	986	989	1000	1000	1006	1007	1007	1010	1007	1007	1004	1011	987
12	1011	1003	1003	1008	1006	1009	1010	1008	1006	998	984	980	984	990	998	1004	1009	1009	1010	1008	1015	1015	1012	1031	1012	1004
13	1011	1007	1000	1004	1005	1009	1003	1007	1001	993	989	986	991	997	1007	1008	1013	1009	1009	1006	1011	1009	1007	1012	1012	1004
14	1012	1009	1004	1008	1007	1007	1006	1006	1000	995	992	991	986	992	996	999	1006	997	992	1008	1009	1006	1009	1009	1007	1001
15	1007	1012	1018	1009	1010	1018	1006	1005	1008	991	987	987	989	995	999	1006	1007	1007	1008	1012	1010	1009	1009	1009	1010	1005
16	1010	1009	1010	1012	1015	1016	1018	1016	1009	1005	999	990	989	969	981	992	999	994	999	1006	1003	1005	1009	1009	1001	1003
17	1000	1002	999	1003	1012	1020	999	1019	1007	998	951	956	959	969	973	962	975	966	967	993	1003	1017	1006	1005	1007	990
18	1007	1009	999	1007	1008	1008	1007	1016	1017	979	936	952	970	979	973	966	1002	992	1023	989	980	993	1022	1013	1005	994
19	1005	1000	999	1000	1006	1007	1001	1004	989	973	972	966	946	974	975	990	991	997	1005	1010	1000	1032	1000	1003	1006	994
20	1005	1001	1004	1001	1003	1004	1010	1013	990	995	978	980	984	986	969	1001	996	990	1006	1008	1006	1010	1007	1007	1016	998
21	1016	1016	1015	1000	1008	1004	1001	1006	1003	995	989	997	995	999	990	996	990	998	1006	1007	1004	1010	1015	1007	1005	1003
22	1005	1011	1007	1005	1006	1003	1007	1006	999	997	990	989	997	997	990	997	998	1004	1001	1007	1000	1008	1022	1008	1008	1002
23	1007	1006	1006	1009	1012	1015	1017	1007	1014	1005	1006	987	988	990	998	1003	1004	1002	1006	1000	1007	1010	1010	1009	1008	1005
24	1008	1008	1009	1007	1011	1012	1018	1011	1006	1004	998	985	996	1003	998	997	988	1004	1007	1013	1010	1012	1010	1015	1006	1005
25	1006	1023	1009	1004	1009	1009	1011	1013	1009	999	989	989	989	990	998	1005	1008	1016	1017	1012	997	982	996	1006	1005	1004
26	1004	1005	1005	1003	1004	1006	1007	1009	1008	1004	996	995	995	1000	998	1002	1006	1009	1012	1013	1013	1014	1012	1009	1014	1006
27	1014	1008	1013	1013	1013	1014	1013	1008	1013	1005	995	995	996	1000	1005	1006	1011	1014	1016	1014	1010	1005	1003	1014	1014	1008
28	1014	1007	1008	1006	1008	1011	1012	1008	1007	1002	995	994	995	996	1001	1003	1005	1009	1011	1012	1013	1012	1011	1008	1007	1006
29	1007	1007	1011	1010	1014	1018	1015	1017	1015	1010	1006	1003	1007	1007	1015	1004	1005	1015	1013	1006	997	1019	1010	1011	1012	1010
30	1011	1010	1008	1009	1010	1011	1012	1011	1007	1002	994	992	994	997	1001	1005	1006	1002	1007	1011	1012	1013	1014	1011	1013	1006
31	1013	1008	1013	1012	1013	1016	1019	1015	1013	1004	996	997	995	995	1009	1010	1012	1010	1012	1013	1008	1007	1030	1014	1013	1010
Mean*	1009	1008	1007	1009	1011	1008	1009	1010	1006	997	986	983	985	990	993	997	1001	1003	1008	1007	1009	1007	1009	1011	1009	1003

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

Eskdalemuir. (−Y.)　　　　　　　　　　　　　　　　　　　　　　　　　October, 1911.

5000 γ (·05 C.G.S. unit) +

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	250	251	250	250	250	251	252	246	238	233	236	241	251	262	267	268	203	258	255	254	254	252	252	253	252	252
2	251	249	250	249	251	251	246	239	232	231	240	253	265	283	285	278	268	259	260	256	252	250	250	258	254	255
3	254	253	251	249	253	251	249	243	237	232	235	249	267	272	275	270	262	259	235	253	234	249	236	249	250	251
4	249	251	251	248	252	250	248	241	236	232	241	252	267	272	274	270	263	261	260	260	255	250	242	246	242	253
5	242	233	248	252	248	250	249	248	240	241	247	258	266	269	268	264	258	254	254	250	251	252	252	250	249	252
6	248	251	249	249	249	248	247	247	232	232	242	249	273	279	278	274	266	261	260	255	254	249	251	249	249	254
7	248	240	247	250	249	250	267	256	257	244	246	...	...	...	...	...	...	...	...	...	...	...	...	...	...	255
8	...	...	...	...	...	...	...	...	...	...	...	263	281	275	276	266	258	253	254	253	252	248	249	253	246	256
9	245	239	262	246	237	235	271	253	242	239	254	263	271	272	288	276	263	263	250	257	255	242	247	261	248	256
10	248	246	251	254	250	252	248	247	248	250	255	265	280	283	274	288	272	277	245	257	204	194	150	55	140	239
11	139	81	175	262	323	294	332	289	277	272	270	262	262	271	271	267	257	256	251	253	253	250	245	236	243	254
12	242	235	257	251	246	247	247	245	238	236	239	251	259	264	264	260	255	250	256	254	251	251	250	253	246	250
13	246	242	240	244	245	244	249	245	237	232	239	252	263	263	266	261	261	253	253	244	250	236	242	236	236	247
14	235	238	258	246	246	246	247	243	240	238	243	254	258	261	262	260	256	251	251	254	252	246	239	244	261	249
15	260	252	242	228	241	245	243	248	242	240	241	248	255	259	256	253	247	246	248	248	248	246	247	247	246	251
16	246	248	248	248	249	249	250	248	242	242	250	257	270	278	263	261	252	256	256	252	242	239	249	235	251	251
17	250	247	253	254	252	249	257	257	246	247	238	260	267	285	289	279	248	250	240	241	244	251	241	242	249	254
18	249	252	251	250	250	257	250	259	259	243	241	254	265	266	275	269	264	252	217	226	179	234	226	237	247	247
19	247	248	249	249	253	247	244	253	240	242	240	253	258	268	268	267	265	252	255	250	241	220	227	242	249	249
20	248	248	249	249	250	249	248	248	241	241	243	259	266	270	265	253	249	253	249	246	240	246	249	248	266	251
21	266	246	241	240	241	238	247	248	246	249	249	261	266	268	265	264	253	258	252	242	241	240	243	243	248	250
22	247	248	247	246	248	246	243	243	242	242	242	250	260	265	261	255	243	245	240	233	248	240	245	238	247	247
23	247	247	248	248	249	249	248	248	248	242	248	257	264	265	266	263	258	252	255	256	248	251	251	251	251	253
24	250	250	252	251	250	251	249	244	242	238	252	255	263	265	266	266	256	254	251	251	244	241	232	213	219	249
25	219	237	232	237	244	247	248	247	240	237	241	250	256	263	269	264	260	258	263	263	248	240	241	247	246	249
26	245	246	246	247	249	250	250	250	248	247	253	257	262	265	257	255	256	256	255	254	251	246	246	246	252	252
27	252	248	251	251	253	249	250	249	246	244	246	261	264	268	268	262	258	257	262	260	254	254	249	246	246	254
28	245	245	246	246	249	248	250	248	244	245	254	265	268	267	263	255	252	254	254	253	253	252	248	242	243	252
29	243	248	250	251	250	252	251	251	250	245	248	256	267	270	279	268	255	258	263	259	251	253	242	249	248	255
30	247	249	250	247	250	249	248	247	245	242	245	254	260	261	259	253	252	251	245	252	252	253	253	252	247	251
31	247	247	249	247	251	247	246	245	244	244	247	259	261	254	255	250	251	253	253	247	253	252	256	251	250	250
Mean*	243	241	246	248	251	250	252	249	244	241	246	255	264	269	269	265	257	255	252	251	245	244	241	239	244	251

* Omitting October 7th and 8th.

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

Eskdalemuir. (Z.)   **October, 1911.**

45000 γ (·45 C.G.S. unit) +   (all values in γ)

Hour G.M.T. / Day	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
1	309	308	309	309	309	309	308	310	313	314	313	309	307	306	304	306	311	314	314	314	315	315	316	315	315	311
2	311	311	311	311	310	308	308	309	310	312	309	302	300	302	310	318	321	321	317	316	316	316	315	314	314	312
3	311	312	311	311	311	310	311	315	316	312	309	307	307	309	311	316	319	319	321	318	319	317	319	319	319	315
4	315	315	316	314	313	312	312	316	316	316	309	305	303	304	305	307	314	315	315	316	317	317	319	314	307	313
5	303	306	309	309	310	310	310	310	311	311	310	310	311	312	313	317	321	320	318	320	320	318	318	317	317	314
6	313	313	309	309	309	310	310	311	312	313	312	308	308	314	316	319	322	323	320	319	318	317	317	316	317	314
7	313	307	310	312	312	313	307	306	307	308	303	...	...	...	...	...	...	...	...	...	...	...	...	...	...	*313*
8	...	...	...	...	...	...	...	...	...	...	...	328	327	334	339	341	342	338	334	331	329	329	328	325	325	*329*
9	321	322	315	299	304	305	303	304	309	311	307	305	306	312	315	324	335	328	324	322	318	317	318	310	308	315
10	304	309	311	312	312	313	313	312	312	314	310	309	310	314	326	331	343	350	361	370	360	324	320	289	219	321
11	215	178	148	152	144	166	189	244	277	294	302	304	307	313	316	322	324	323	322	320	320	321	323	322	321	297
12	317	319	315	313	318	319	317	320	320	320	320	319	319	321	322	327	330	329	327	326	325	324	325	322	320	322
13	317	319	322	322	322	322	323	324	326	326	319	316	313	317	319	324	331	331	328	331	328	327	326	323	326	323
14	322	323	317	321	323	324	325	326	327	324	317	316	318	319	322	326	331	336	337	333	332	333	333	332	325	326
15	321	318	314	319	321	318	320	321	323	325	325	326	324	327	329	331	332	331	331	331	332	333	333	333	333	326
16	329	329	329	327	327	326	326	326	329	329	324	321	324	330	333	333	349	346	342	340	341	344	338	336	334	333
17	330	330	331	331	329	326	327	325	331	332	338	337	336	339	349	371	382	382	380	382	350	345	343	343	342	345
18	339	338	338	337	338	337	338	336	333	340	341	347	342	342	348	358	360	359	361	358	360	347	318	327	330	343
19	326	333	335	336	335	334	336	334	336	336	336	337	343	345	346	347	349	350	345	345	345	343	342	343	343	340
20	339	340	340	340	339	339	339	338	339	338	336	334	335	341	348	353	354	351	347	344	343	341	341	341	340	342
21	336	324	325	329	332	334	335	333	331	328	327	326	327	330	336	342	343	338	338	341	343	333	335	336	335	333
22	332	328	331	333	333	332	333	333	333	333	331	331	330	332	336	342	343	341	342	343	343	332	334	335	335	335
23	331	332	334	333	332	332	332	332	333	333	334	333	334	335	337	340	343	342	342	343	342	341	340	340	339	336
24	335	336	335	335	334	335	333	334	336	335	334	335	337	338	343	346	348	344	343	342	343	344	345	345	344	339
25	340	326	326	330	332	334	335	336	338	340	339	337	338	339	340	341	341	341	340	340	345	351	347	346	345	339
26	342	341	341	340	339	339	338	337	338	339	338	337	338	341	347	348	347	348	347	346	347	346	346	344	344	338
27	341	342	342	342	342	343	342	342	342	341	338	336	335	337	343	345	344	344	344	345	345	345	345	344	343	342
28	339	341	341	341	341	341	341	341	341	341	341	342	343	344	347	349	348	346	347	346	346	347	346	348	348	344
29	344	344	343	341	340	339	339	337	339	342	341	341	338	338	344	346	346	345	346	348	355	351	351	348	348	343
30	344	343	343	342	342	343	343	344	345	343	341	342	343	344	346	348	348	348	351	350	351	352	352	346	345	346
31	341	342	341	342	342	342	341	341	341	342	344	342	343	347	348	349	349	349	350	350	350	350	350	350	349	345
Mean*	323	322	320	320	320	321	322	324	326	327	326	325	325	328	331	335	339	338	338	338	337	335	333	331	328	329

XL.—AUXILIARY OBSERVATIONS IN ABSOLUTE MEASURE; BASE VALUES ADOPTED FOR THE CURVES, AND DETERMINATIONS OF SCALE VALUES OF CURVE ORDINATES.

Eskdalemuir.   **October, 1911.**

Day.	Hour. (h m)	Absolute observations with unifilar magnetometer and dip circle H. (γ)	D. (West) (° ′ ″)	I. (North) (° ′)	Meas. of curve ordinates N. (mm.)	W. (mm.)	V. (mm.)	Deduced values of base lines N. (γ)	W. (γ)	V. (γ)
3rd	10 59		18 10 34		30·9	33·8		16012	5169	
,,	11 31	16818			31·0	34·6				
,,	11 47			69 37·8	31·2	35·2	60·8			45046
10th	11 15		18 14 3		32·8	36·1		16009	5172	
,,	11 44	16847			33·6	38·1				
,,	12 14			69 37·2	33·1	38·2	64·0			45058
17th	11 33		18 14 53		28·9	35·9		16010	5167	
,,	11 49	16804			28·9	36·8				
,,	12 12			69 39·4	28·8	36·8	69·4			44970
24th	11 2		18 11 31		32·5	35·9		16006	5159	
,,	11 32	16822			32·0	36·2				
,,	12 8			69 36·1	34·1	36·8	72·1			44918
31st	10 53		18 11 20		34·1	36·4		16002	5157	
,,	11 16	16836			34·1	36·7				
,,	11 48			69 37·7	34·1	37·1	75·3			44951

Day.	Base values adopted N. (γ)	W. (γ)	V. (γ)	Temperature in covers at 9h N. (°C.)	W. (°C.)	V. (°C.)	Magnet-house At 9h (°C.)	Range. (°C.)	Scale values N. (γ/mm.)	W. (γ/mm.)	V. (γ/mm.)	Character of the day (0-2).
1	16012	5174	45059	12·8	12·8	12·8	12·58	·02	8·73	8·64	9·86	0
2		5173	45055	12·8	12·8	12·8	12·58	·00	[8·74]	[8·76]	[9·80]	1
3	16011	5172	45052	12·8	12·7	12·8	12·60	·02†	8·73	8·64	9·86	0
4			45048	12·8	12·7	12·8	12·52	·02	,,	,,	,,	0
5			45044	12·8	12·7	12·8	12·48	·02	,,	,,	,,	0
6		5171	45040	12·8	12·7	12·8	12·46	·00	,,	,,	,,	1
7		5170	45036	12·8	12·7	12·8	12·48	·00	,,	,,	,,	...
8‡			45032	...	...	...	11·86	·34†	[8·64]	[8·74]	[9·75]	...
9§	16010	5169	45028	11·9	12·0	11·8	12·14	·14†	8·73	8·64	9·86	1
10			45024	12·4	12·5	12·5	12·36	·02†	,,	,,	,,	1
11		5168	45020	12·5	12·5	12·5	12·30	·02	,,	,,	,,	2
12		5167	45016	12·5	12·4	12·5	12·28	·02	,,	,,	,,	0
13	16009		45013	12·5	12·5	12·5	12·26	·00	,,	,,	,,	1
14		5166	45009	12·5	12·4	12·5	12·28	·02	,,	,,	,,	1
15		5165	45005	12·5	12·4	12·5	12·26	·02	[8·82]	[8·64]	[9·96]	0
16	16008		45001	12·5	12·4	12·5	12·24	·00	,,	,,	,,	1
17		5164	44997	12·5	12·4	12·5	12·30	·06†	8·73	8·64	9·86	1
18			44994	12·5	12·4	12·4	12·24	·04	,,	,,	,,	2
19			44990	12·4	12·3	12·4	12·24	·02	,,	,,	,,	1
20	16007	5163	44986	12·4	12·3	12·4	12·20	·02	,,	,,	,,	1
21			44982	12·4	12·3	12·4	12·22	·02	,,	,,	,,	1
22		5162	44978	12·3	12·2	12·3	12·20	·00	,,	,,	,,	1
23	16006		44974	12·4	12·3	12·3	12·20	·02	[8·80]	[8·64]	[9·98]	0
24		5161	44970	12·3	12·3	12·3	12·24	·06†	8·73	8·64	9·86	1
25			44966	12·3	12·3	12·3	12·22	·02	,,	,,	,,	0
26	16005	5160	44963	12·3	12·2	12·3	12·20	·04	,,	,,	,,	1
27			44960	12·3	12·2	12·3	12·12	·00	,,	,,	,,	0
28		5159	44956	12·25	12·2	12·25	12·10	·04	,,	,,	,,	0
29	16004		44952	12·2	12·2	12·2	12·08	·02	[8·76]	[8·64]	[9·84]	1
30		5158	44948	12·2	12·1	12·2	12·02	·00	8·73	8·64	9·86	1
31			44944	12·2	12·1	12·2	12·08	·02	,,	,,	,,	0

* Omitting October 7th and 8th.   † Natural conditions disturbed by presence of observer for Scale Value experiments and other duties.

‡ Record lost due to failure of gas.   § Magnetic conditions were disturbed on 9th.

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

Eskdalemuir. (X.)   AT EACH HOUR OF GREENWICH MEAN TIME.   November, 1911.

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. 1	1013	1010	1008	1012	1014	1015	1014	1015	1005	1003	996	995	996	997	1007	1008	1007	1007	1007	1010	1013	1012	1011	1010	1009	1007
2	1008	1008	1010	1011	1012	1013	1013	1014	1006	996	986	986	988	990	1000	1001	999	1008	1012	1013	1013	1013	1013	1013	1011	1005
3	1011	1013	1017	1005	1003	1016	1020	1020	1006	998	988	983	980	990	977	995	980	980	986	996	986	995	1004	1013	1003	998
4	1003	1005	997	1006	995	1003	1013	1011	988	990	986	969	988	994	1001	1004	1001	997	1002	1004	1007	1005	1006	1008	1008	999
5	1007	1001	1002	1003	1003	1005	1005	1005	998	992	985	988	996	992	992	978	982	987	996	1004	1002	1008	1005	1005	1007	997
6	1007	1003	1012	1005	1013	1012	1003	1007	1005	993	1002	1001	994	1002	1001	1001	1000	999	1004	1005	1007	1020	1006	1007	1010	1005
7	1010	1005	1003	1005	1012	1008	1012	1016	1009	1002	999	994	993	999	1001	1001	1003	1005	1006	1010	1010	1013	1012	1012	1011	1005
8	1011	1010	1009	1011	1012	1013	1013	1015	1012	1005	1002	1002	1002	1002	1013	1009	1002	1012	1015	1019	1018	1015	986	960	1005	1007
9	1004	999	998	998	1011	1021	1016	1011	1006	998	992	990	987	997	1000	1001	1011	990	1004	1012	1018	991	1055	984	995	1004
10	995	1001	992	989	1003	1005	1011	1009	1001	997	994	992	992	995	1004	1004	1008	1004	997	988	1004	1018	1002	1002	1001	1001
11	1000	1000	1001	1002	1003	1006	1008	1003	1003	999	996	992	994	995	1000	1003	1003	1006	1003	1012	1009	1014	1011	1000	1004	1003
12	1004	997	998	1003	1006	1008	1009	1009	1003	1001	1000	1000	1000	1003	1005	1008	1014	1017	1015	1003	1005	1009	1004	1030	1036	1007
13	1036	997	997	1000	998	1005	1017	990	1003	994	962	990	962	950	965	963	970	963	985	1029	992	993	994	1000	997	989
14	997	995	986	988	1001	1009	1009	1003	1005	1000	983	971	930	947	978	1019	1005	987	1003	1000	1003	1002	1002	991	1000	992
15	999	1011	994	984	1000	1006	999	997	1008	1000	993	990	994	991	977	985	999	1004	1001	1002	1002	990	989	1009	1014	997
16	1014	999	995	999	1002	1004	1006	1002	1007	998	990	991	990	989	999	998	1000	999	1006	1007	1007	1009	1021	1016	1003	1002
17	1003	1001	1002	1006	1006	1007	1006	1015	1004	1000	978	993	997	995	999	1000	1000	999	995	1002	1002	1007	1002	1011	1011	1001
18	1010	1002	1001	1001	1003	1007	1007	1007	1006	1006	1002	999	997	998	989	1003	1005	1006	1008	1007	1011	1008	1008	1007	1007	1004
19	1007	1006	1006	1007	1007	1009	1014	1010	1009	1005	995	993	995	1003	1007	1007	1002	1010	1017	1027	1010	1018	1008	1008	1008	1008
20	1008	1009	1008	1008	1009	1006	1015	1018	1015	1009	1001	990	990	990	999	1002	1002	1009	1009	1009	1010	1009	1009	1008	1007	1006
21	1006	1007	1005	1004	1005	1008	1014	1016	1020	1007	973	990	1006	1007	1006	1006	1006	1007	1005	1007	1016	1009	1007	1007	1007	1006
22	1007	1007	1007	1010	1013	1014	1014	1010	1008	1009	1002	1003	1005	1005	1006	1007	1006	1008	1007	1008	1013	1013	1010	1010	1007	1008
23	1007	1008	1008	1012	1014	1014	1014	1014	1012	1011	1006	1004	1005	1007	1007	1007	1008	1013	1015	1014	1014	1014	1010	1014	1007	1011
24	1006	1006	1007	1007	1012	1012	1013	1013	1007	1002	995	992	996	1001	1009	1013	1013	1011	1013	1013	1010	1011	1009	1007	1013	1008
25	1013	1010	1009	1012	1013	1013	1013	1014	1013	1007	1001	1003	1007	1014	1018	1023	1017	1021	1020	1022	1023	1023	1020	1013	1010	1014
26	1010	1007	1023	1012	1020	1014	1023	1017	1011	1006	1002	1002	1005	1005	1009	1013	1014	1014	1014	1014	1014	1013	1014	1019	1014	1012
27	1013	1005	1005	1006	1010	1013	1013	1012	1013	1012	1004	1002	1005	1006	1007	1005	1005	1006	1007	1012	1012	1012	1006	1006	1016	1008
28	1016	1009	1006	1006	1005	1009	1017	1013	1012	1005	1004	1003	998	999	1006	1008	1008	1010	1010	1012	1011	1010	1011	1011	1012	1008
29	1012	1013	1005	1005	1006	1012	1012	1012	1012	1004	1005	1005	1005	1006	995	988	995	1002	1005	1006	1003	1006	1007	1007	1007	1005
30	1006	1006	1006	1005	1009	1014	1014	1014	1013	1011	1005	1004	1002	1006	1008	1001	1003	1009	1007	1007	1011	1011	1006	1005	1011	1008
Mean	1008	1005	1004	1004	1007	1010	1012	1010	1007	1002	994	994	993	996	1000	1002	1002	1002	1006	1009	1009	1009	1008	1006	1008	1004

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

Eskdalemuir. (−Y.)   AT EACH HOUR OF GREENWICH MEAN TIME.   November, 1911.

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. 1	249	252	246	247	247	246	245	245	246	248	257	260	261	262	256	250	248	250	251	248	247	250	251	250	249	251
2	249	247	250	248	254	248	248	248	247	249	252	265	272	269	262	253	252	252	252	251	249	249	248	248	248	253
3	247	246	245	243	220	247	243	249	247	247	253	266	260	269	268	253	260	269	245	193	233	238	243	233	242	247
4	242	231	251	235	236	243	245	244	234	233	245	247	258	262	262	254	249	241	243	243	243	242	243	244	244	245
5	244	265	245	241	239	237	245	252	243	252	252	260	262	267	277	262	252	259	253	254	233	224	235	242	241	250
6	241	252	244	248	243	241	244	242	243	241	249	254	258	264	258	251	250	251	251	245	246	227	239	245	251	247
7	250	244	246	249	246	246	247	244	244	242	247	253	259	261	259	247	251	251	249	245	244	244	244	245	245	247
8	245	249	250	251	251	250	248	244	242	241	248	255	261	262	276	265	266	261	255	251	250	238	192	217	222	248
9	221	224	232	239	242	236	249	243	243	244	245	263	257	258	258	258	267	268	263	254	240	230	174	188	223	242
10	223	243	234	251	243	243	243	243	242	235	249	248	252	260	257	258	251	250	246	230	239	234	240	243	244	245
11	244	245	245	246	249	247	247	244	243	241	246	251	261	257	258	251	250	250	242	249	248	238	234	231	239	246
12	238	237	248	248	249	249	248	248	242	242	246	253	253	252	249	249	254	257	257	254	233	242	243	227	221	246
13	221	201	227	237	241	249	242	250	255	255	256	257	271	274	271	242	240	217	240	199	193	238	228	216	223	238
14	222	230	250	255	237	243	248	246	250	252	243	260	237	264	259	247	229	238	239	245	246	239	219	221	260	243
15	260	212	228	236	237	239	238	246	253	248	254	258	255	264	249	256	248	248	246	194	206	214	226	233	243	239
16	243	228	237	240	239	246	248	248	247	245	242	258	255	247	248	248	246	236	247	244	245	244	229	226	228	242
17	227	231	234	240	237	242	240	246	245	252	250	259	258	262	254	246	242	245	238	239	244	242	240	234	246	244
18	246	246	245	246	246	243	245	245	244	245	245	248	253	256	246	247	247	246	246	245	240	240	241	245	247	246
19	247	247	247	247	247	247	246	244	244	240	239	245	247	254	257	253	254	247	246	232	238	242	231	237	239	245
20	238	246	246	245	245	246	238	239	237	237	246	246	256	257	258	250	251	249	246	244	241	239	239	238	240	245
21	240	241	240	246	246	249	246	244	245	244	245	264	256	256	254	252	248	247	244	243	228	237	238	238	239	245
22	239	243	243	239	239	242	244	243	244	244	246	252	255	259	255	253	252	252	250	239	246	245	245	244	244	247
23	243	245	245	246	248	247	248	246	245	245	245	247	253	254	251	246	248	248	247	245	244	242	240	240	239	246
24	239	244	245	245	245	244	244	243	243	242	244	253	259	257	252	251	248	248	245	245	244	242	241	242	245	246
25	245	246	248	249	249	247	248	247	245	244	246	253	257	260	256	254	253	254	253	251	251	251	246	245	244	250
26	244	243	241	245	235	245	245	246	247	245	250	253	257	255	253	251	247	247	245	245	244	245	244	238	238	246
27	237	239	239	243	244	246	244	243	243	244	249	252	259	257	253	251	250	248	244	247	244	244	241	239	243	246
28	243	241	243	244	247	244	246	242	244	244	250	254	255	252	251	250	248	246	244	244	243	243	243	244	242	246
29	242	242	236	239	244	244	244	244	244	244	251	256	261	260	252	263	260	248	248	244	242	242	243	244	244	247
30	244	244	244	247	247	245	245	244	245	244	246	248	252	253	259	260	254	256	246	238	244	245	246	244	238	247
Mean	240	240	243	245	243	245	245	245	245	244	248	255	257	260	257	252	251	249	247	240	240	240	235	236	240	246

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

Eskdalemuir. (Z.)   November, 1911.

45000 γ (·45 C.G.S. unit) +

Hour G.M.T. Day.	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.
1	343	344	345	345	345	344	345	345	346	345	344	345	346	347	349	350	350	350	352	353	353	354	354	355	355	348
2	351	351	351	351	350	350	350	351	352	351	351	351	352	354	354	356	355	355	353	354	354	355	356	357	357	353
3	354	353	349	348	349	347	348	351	355	356	353	352	354	355	359	366	367	366	369	377	375	367	364	358	357	358
4	353	354	348	348	353	353	354	354	361	361	356	359	358	359	361	362	360	361	360	359	357	357	357	354	354	357
5	350	349	348	350	350	350	350	349	350	350	352	354	354	357	360	362	363	367	366	366	367	366	361	359	358	356
6	354	352	347	350	351	350	350	349	350	353	350	350	353	355	358	359	357	356	355	355	355	355	353	353	353	353
7	346	346	347	348	347	348	347	346	347	348	348	348	348	349	351	356	357	354	352	352	352	351	351	351	351	350
8	348	348	348	348	347	347	346	346	347	347	345	346	347	348	351	350	349	350	352	353	353	354	365	373	366	351
9	302	359	360	355	349	349	349	350	350	349	348	345	349	349	351	356	359	360	361	360	362	361	355	358	345	354
10	341	324	338	346	347	349	349	349	349	350	347	348	348	348	350	353	355	356	359	364	364	357	355	356	357	350
11	353	353	354	354	354	353	353	352	352	353	351	348	349	347	349	350	351	354	356	354	354	353	350	349	348	352
12	344	345	345	347	348	349	350	349	348	345	342	342	344	344	348	347	346	347	348	352	354	355	352	349	332	347
13	328	331	335	337	338	339	340	342	343	345	346	345	348	355	361	386	393	385	374	375	366	348	323	338	338	351
14	334	335	333	315	319	332	335	339	340	341	344	344	355	357	363	382	370	368	360	358	356	354	358	356	332	348
15	329	333	339	341	341	342	343	342	341	342	342	344	347	348	354	358	358	352	351	358	351	349	349	342	325	346
16	321	328	333	335	337	340	342	343	343	345	344	343	345	350	352	352	350	351	348	348	348	349	348	345	344	344
17	340	340	339	339	341	341	341	340	341	341	341	340	341	343	345	346	348	348	350	350	348	348	349	346	341	344
18	337	341	342	342	342	342	341	341	340	341	344	345	346	346	348	347	346	346	346	346	346	346	346	346	345	344
19	342	342	342	342	341	341	340	340	339	340	341	341	342	342	344	347	347	347	346	345	345	345	349	348	346	343
20	342	341	340	340	341	341	339	338	340	340	339	339	340	341	345	343	345	345	343	342	342	341	341	341	344	341
21	340	337	337	337	337	337	337	337	336	335	336	337	334	335	338	344	345	346	346	345	345	344	344	344	345	340
22	341	340	340	339	339	338	339	339	338	338	334	333	335	338	340	342	343	344	343	345	342	341	341	341	342	340
23	338	338	338	338	338	337	338	338	337	338	336	338	340	342	343	344	344	344	344	344	344	344	341	343	345	341
24	341	341	340	340	340	340	340	340	340	340	342	340	340	345	346	345	344	344	343	342	341	340	340	341	344	344
25	337	338	338	340	341	341	341	341	341	341	339	338	340	341	340	341	341	340	340	341	340	340	340	342	343	340
26	339	340	333	337	337	337	336	336	337	337	337	337	339	341	342	342	344	344	344	343	344	343	343	342	343	340
27	339	338	339	338	338	339	340	339	338	338	336	338	337	336	338	338	339	340	341	341	340	340	341	341	338	339
28	334	335	336	336	336	337	337	338	337	337	337	337	342	343	344	343	344	344	344	344	344	344	343	343	343	340
29	340	338	340	340	340	340	340	340	341	341	338	338	340	340	347	347	347	348	348	347	347	347	347	346	345	343
30	341	338	339	339	339	338	338	338	337	337	339	339	339	340	344	344	344	346	347	347	344	344	345	345	344	341
Mean	343	342	342	342	343	343	343	344	344	344	343	343	345	347	349	352	352	352	351	352	352	350	350	349	346	347

XLIV.—AUXILIARY OBSERVATIONS IN ABSOLUTE MEASURE; BASE VALUES ADOPTED FOR THE CURVES, AND DETERMINATIONS OF SCALE VALUES OF CURVE ORDINATES.

Eskdalemuir.   November, 1911.

Day.	Hour. h m	Absolute observations with unifilar magnetometer and dip circle. H γ	D. (West) ° ' "	I. (North) ° '	Measurements of curve ordinates. N mm.	W mm.	V mm.	Deduced values of base lines. N γ	W γ	V γ
7th	11 20		18 11 38		33.7	36.6		15990	5152	
,,	11 49	16824			34.0	37.0				
,,	12 24			69 37.4	34.2	37.3	79.1			44927
10th	11 17		18 10 56		34.1	36.3		16000	5155	
,,	12 9	16835			34.2	37.0				
14th	11 28		18 13 26		29.7	36.6		15994	5151	
,,	11 43	16771			27.7	35.7				
,,	12 6			69 40.6	28.0	35.6	12.6			44856
17th	11 10		18 13 11		34.0	37.9		16001	5153	
,,	11 58	16841			34.7	37.6				
21st	10 50		18 14 25		34.1	38.2		15999	5156	
,,	11 15	16843			34.7	38.4				
,,	11 48			69 35.9	35.7	37.7	13.1			44825
24th	11 27		18 12 20		34.6	37.5		15997	5152	
,,	12 4	16841			35.0	37.8				
28th	11 41		18 11 41		35.6	37.5		16002	5152	
,,	11 58	16848			35.5	37.5				
,,	12 20			69 39.3	35.6	37.4	17.1			44913

Day.	Base values adopted. N γ	W γ	V γ	Temperature in the covers of the recording magnets at 9h. N °C.	W °C.	V °C.	in the magnet-house (by thermograph). At 9h.	Range. °C.	Scale values of magnetograms. N γ/mm.	W γ/mm.	V γ/mm.	Character of the day (0–2).
1	16004	5157	44940	12.1	12.1	12.1	12.02	.02	8.73	8.64	9.84	0
2	16003		44936	12.1	12.1	12.1	12.02	.00	,,	,,	,,	0
3		5156	44933	12.1	12.1	12.1	12.00	.00	,,	,,	,,	1
4	16002		44929	12.0	12.0	12.0	11.94	.06	,,	,,	,,	1
5			44925	12.0	12.0	12.0	11.90	.04	,,	,,	,,	1
6			44921	12.0	12.0	12.0	11.84	.00	,,	,,	,,	1
7		5155	44917	12.0	11.9	12.0	11.90	.04	[8.76]	[8.66]	[9.78]	0
8			44914	12.0	11.9	12.0	11.84	.04*	8.73	8.64	9.78	1
9	16001	5154	44910	12.0	11.9	12.0	11.82	.02	,,	,,	,,	1
10			44906	12.0	11.9	11.9	11.80	.00	,,	,,	,,	1
11†	16000		44902	11.9	11.9	11.9	11.78	.02	,,	,,	8.66	1
12		5153	44898	11.9	11.9	11.9	11.70	.10*	,,	,,	,,	1
13‡			44894	11.9	11.9	11.9	11.68	.00	[ ]	[ ]	[8.66]	2
14		5152	44890	11.9	11.9	11.9	11.78	.04*	8.73	8.64	8.66	2
15	15999		44887	11.8	11.8	11.8	11.68	.06*	,,	,,	,,	1
16			44883	11.8	11.8	11.8	11.64	.02	,,	,,	,,	1
17		5151	44879	11.8	11.7	11.8	11.60	.00	,,	,,	,,	1
18	15998		44875	11.7	11.7	11.7	11.58	.00	,,	,,	,,	0
19			44872	11.7	11.6	11.7	11.50	.04	,,	,,	,,	0
20		5150	44868	11.6	11.5	11.7	11.48	.00	[8.76]	[8.66]	[8.66]	0
21	15997		44864	11.5	11.5	11.5	11.46	.16*	8.73	8.64	8.66	0
22			44860	11.4	11.4	11.5	11.40	.02	,,	,,	,,	0
23		5149	44856	11.5	11.4	11.5	11.36	.04	,,	,,	,,	0
24	15996		44852	11.4	11.4	11.4	11.28	.02	,,	,,	,,	0
25			44849	11.4	11.4	11.5	11.28	.18*	,,	,,	,,	0
26			44845	11.4	11.3	11.4	11.26	.02	,,	,,	,,	1
27	15995	5148	44841	11.4	11.3	11.4	11.26	.00	[8.74]	[8.64]	[8.69]	0
28			44837	11.3	11.3	11.4	11.26	.06*	8.73	8.64	8.69	1
29			44834	11.3	11.2	11.3	11.24	.00	,,	,,	,,	1
30	15994		44830	11.25	11.2	11.3	11.22	.02	,,	,,	,,	1

* Natural conditions disturbed by presence of observer for Scale Value experiments and other duties.   † On the 11th the Vertical Force Recorder was readjusted.
‡ On the 13th the traces of the North and West Components were too disturbed to admit of Scale Values being assigned.

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

Eskdalemuir. (X.)　　　　　　　December, 1911.

$15000\,\gamma$ (·15 C.G.S. unit) +

Hour G.M.T. Day.	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.
1	1011	999	1004	1007	1011	1012	1012	1012	1011	1007	1005	997	1004	1009	1011	993	994	1007	1004	1001	1002	1003	1009	1005	1004	1005
2	1003	1004	1005	1004	1007	1003	1010	1011	1009	1003	997	996	996	999	1005	1010	1010	1010	1010	1011	1007	1004	1003	997	1005	1005
3	1005	1003	1005	1010	1008	1010	1017	1010	1003	1003	1002	1003	1010	1011	1001	998	997	1001	1007	1010	1011	1010	1006	1010	1003	1006
4	1003	1003	1003	1010	1011	1010	1011	1011	1011	1010	1003	1011	1014	1012	1011	1010	1009	1009	1010	1009	1009	1010	1010	1007	1004	1009
5	1004	1005	1008	1010	1010	1011	1010	1010	1011	1007	1007	1008	1004	1010	1010	1011	1010	1007	1009	1010	1010	1009	1010	1012	1008	1009
6	1007	1007	1008	1007	1009	1011	1012	1017	1014	1013	1011	1027	1027	1025	1023	1013	1015	1003	937	941	1000	1000	1000	1013	997	1006
7	997	987	991	993	994	995	995	995	994	994	995	999	1002	1009	1002	995	997	999	1002	1007	1009	1007	1002	1002	1002	999
8	1002	1001	1002	1002	1009	1009	1004	1004	1002	1001	1000	1004	1002	1003	1005	1003	1002	1002	1007	1010	1010	1009	1005	1005	1005	1005
9	1004	1002	1002	1006	1008	1008	1009	1008	1004	1002	1003	1006	1008	1010	1011	1009	1008	1010	1011	1012	1013	1012	1010	1009	1009	1008
10	1009	1008	1008	1008	1009	1009	1009	1008	1008	1008	1003	1008	1009	1013	1015	1013	1018	1022	1022	1023	1025	1025	1026	1020	1002	1013
11	1002	1059	995	1007	1050	983	1000	954	927	937	968	989	982	913	956	960	939	951	978	974	964	1078	969	999	1016	981
12	1016	977	982	984	990	986	988	985	985	989	985	981	986	987	991	990	991	992	999	1002	1004	1001	1001	998	995	991
13	994	993	992	994	998	1000	1000	1000	1000	1000	999	998	992	1002	1000	999	998	998	1000	999	1000	1000	1000	1000	999	998
14	999	998	999	1000	1007	1008	1010	1010	1016	1009	1001	1001	991	989	993	985	986	991	994	998	1001	1002	1007	1001	1000	1000
15	1000	1001	1001	1004	1007	1008	1010	1005	1003	1003	1005	1006	1007	1007	1007	1003	1002	1001	1007	1007	1007	1007	1006	1005	1005	1005
16	1004	1002	1001	1004	1006	1006	1008	1007	1006	1005	1000	999	999	1003	1006	1005	1006	1007	1008	1009	1008	1008	1008	1007	1007	1005
17	1007	1006	1006	1007	1008	1009	1012	1014	1014	1009	976	983	1006	1008	1018	998	1006	1006	1004	1027	1006	1006	1002	1001	1002	1006
18	1002	1002	988	999	1003	1005	1006	1006	1006	1006	1001	1005	1009	1010	1006	1009	999	1012	1008	1003	1004	1005	999	1000	1003	1004
19	1000	1005	1006	1008	1008	1008	1009	1008	1007	1001	1005	1010	1015	1016	1012	1008	1008	1011	1016	1011	1010	1005	1006	1005	1003	1008
20	1003	1011	1005	1007	1008	1009	1009	1006	1009	1010	1013	1014	1015	1015	1012	1008	1010	1013	1010	1014	1012	1009	1011	1006	1008	1010
21	1008	1007	1007	1010	1007	1008	1008	1007	1005	1003	998	998	1005	1011	1011	1010	1013	1009	1005	1012	1012	1015	1013	1012	1011	1008
22	1010	1009	1008	1008	1009	1010	1011	1011	1009	1006	1004	1005	1011	1016	1017	1011	1013	1011	1012	1015	1007	999	1004	1004	1006	1009
23	1006	1005	1008	1008	1009	1013	1021	1021	1013	1008	1006	1006	1012	1015	1017	1012	1011	1013	1015	1015	1014	1011	1005	999	998	1011
24	998	1004	1005	1007	1008	1007	1011	1012	1011	1008	1004	1007	1008	1013	1017	1017	1014	1017	1019	1016	1012	1018	1011	1015	1012	1011
25	1011	1011	1011	1012	1013	1013	1014	1014	1013	1009	1006	1009	1013	1014	1010	995	987	994	1005	1012	1011	1008	1003	1011	1007	1008
26	1007	1004	1005	1009	1009	1018	1017	1017	1012	1002	1003	1003	1003	1005	1001	988	948	986	982	988	999	972	993	993	1003	999
27	1003	996	993	992	996	1001	1003	1005	1003	999	993	989	996	1001	1004	1003	1000	989	1003	1004	1011	1010	1007	1003	1006	1000
28	1005	995	1014	990	998	1003	1002	1003	1002	996	993	991	994	1002	1003	1002	1004	1003	1004	1005	1007	1006	1006	1004	1003	1002
29	1003	1004	1004	1005	1009	1009	1009	1007	1007	1003	996	995	998	1004	1006	1004	1005	1007	1009	1010	1012	1010	1008	1007	1006	1006
30	1005	1006	1006	1006	1009	1011	1013	1014	1011	1007	1003	1005	1004	1007	1010	1009	1011	1012	1011	1012	1014	1010	1011	1008	1022	1009
31	1022	1014	1001	1014	1018	1027	1000	1009	1010	1002	1010	1006	1004	994	994	995	961	1002	1001	987	966	1006	1002	1002	1001	1002
Mean	1005	1004	1002	1003	1007	1007	1008	1007	1004	1002	1000	1002	1004	1006	1002	999	1003	1004	1005	1006	1009	1005	1005	1005	1005	1004

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

Eskdalemuir. (−Y.)　　　　　　　December, 1911.

$5000\,\gamma$ (·05 C.G.S. unit) +

Hour G.M.T. Day.	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.
1	238	237	241	243	244	244	244	244	244	244	252	250	255	256	259	250	252	245	244	228	242	244	244	243	247	246
2	246	241	243	243	244	244	243	244	245	244	246	250	251	252	250	246	244	243	244	245	246	243	234	236	233	244
3	233	243	244	243	243	242	242	244	243	243	251	252	258	255	242	245	249	246	247	245	244	244	242	244	243	245
4	243	242	243	243	243	243	243	243	243	250	250	254	256	253	250	244	244	244	243	243	243	243	242	242	243	245
5	243	244	245	245	244	243	243	243	244	246	250	253	258	253	249	244	243	243	243	243	243	242	242	238	243	245
6	242	242	242	242	235	237	242	242	245	250	255	258	273	259	258	258	261	280	190	242	241	232	227	240	222	245
7	222	224	235	236	242	241	240	241	240	243	247	250	251	250	242	242	243	242	242	242	240	242	241	236	235	241
8	235	239	240	241	244	242	242	242	241	242	247	252	250	249	243	243	247	245	246	225	242	240	241	242	241	243
9	241	240	242	243	244	246	245	244	243	245	249	252	253	250	248	247	248	248	247	246	243	242	241	241	242	245
10	242	242	242	243	243	247	247	247	245	248	249	254	254	252	249	245	250	250	250	249	248	244	242	232	247	247
11	232	228	222	215	257	277	301	303	275	273	284	254	263	269	281	276	308	211	189	209	227	154	205	211	242	247
12	241	218	234	239	234	241	239	238	239	241	239	239	247	247	242	240	239	241	241	236	241	241	236	239	235	239
13	235	234	237	241	241	242	244	244	246	246	247	248	245	249	244	242	241	241	241	241	241	240	239	237	239	242
14	239	238	239	240	241	242	242	243	245	251	256	256	258	257	250	241	249	240	239	236	238	236	240	241	241	244
15	241	241	240	242	247	244	243	241	241	243	251	253	254	251	251	248	247	248	247	243	242	241	241	241	242	245
16	242	243	242	241	242	242	242	241	241	244	248	249	245	246	249	247	247	246	242	243	244	243	243	245	247	244
17	247	243	245	246	246	246	244	245	246	247	251	295	301	266	259	259	244	250	252	191	240	240	236	232	237	249
18	237	232	241	244	238	239	240	241	240	246	249	237	257	251	248	243	241	245	243	240	241	241	237	246	241	243
19	241	240	243	248	248	248	245	242	245	247	252	255	256	259	248	247	245	245	248	240	243	242	241	240	240	246
20	240	250	241	241	242	240	239	241	241	247	253	254	256	251	249	248	249	247	247	244	245	241	241	241	242	246
21	242	244	247	247	241	239	241	241	242	246	249	254	256	252	250	247	248	249	247	242	247	240	242	245	244	246
22	243	243	241	246	246	246	241	241	241	244	247	249	250	251	248	246	247	246	246	246	242	239	240	240	241	245
23	241	240	246	246	247	248	247	247	247	248	247	249	252	252	247	243	245	246	245	245	244	244	240	240	247	246
24	247	243	240	241	243	245	241	245	247	250	250	251	252	255	252	248	250	250	249	248	246	236	241	240	240	246
25	240	246	246	246	247	247	247	247	247	249	257	264	265	265	258	249	265	257	250	247	247	247	246	246	245	251
26	245	245	242	246	251	246	248	248	248	254	268	291	273	269	269	266	252	234	227	198	232	197	214	234	234	245
27	234	262	238	225	241	240	243	246	246	245	248	249	253	259	250	247	244	233	235	246	246	245	244	241	240	244
28	240	275	228	233	224	233	238	240	240	243	248	251	256	257	252	247	246	244	243	242	241	241	240	243	242	244
29	242	243	246	246	245	244	244	242	242	243	248	250	255	252	250	246	248	248	247	246	245	243	243	244	243	246
30	243	246	246	246	247	247	247	248	248	250	252	259	259	259	258	252	251	250	250	249	249	247	246	240	205	249
31	205	206	222	220	229	254	282	264	252	252	253	259	261	259	256	253	240	255	250	254	246	250	245	242	239	247
Mean	239	241	240	241	243	245	246	246	245	247	252	255	257	255	252	248	249	246	241	239	242	238	239	240	239	245

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

Eskdalemuir. (Z.)   December, 1911.

45000 γ ('45 C.G.S. unit) +

Hour G.M.T. Day.	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.
1	340	340	331	335	339	340	340	340	340	341	339	340	340	340	340	344	344	344	346	349	348	346	344	344	343	342
2	339	338	338	338	338	339	339	340	340	340	341	340	339	341	344	344	343	343	343	343	343	343	344	345	345	341
3	341	339	338	339	339	339	339	340	341	341	341	342	341	345	349	349	349	349	348	347	346	345	346	345	346	343
4	343	342	342	342	341	342	342	342	341	342	340	339	340	343	344	345	345	343	342	341	341	341	342	343	343	342
5	339	339	338	338	337	336	336	336	335	335	339	342	343	343	343	343	343	343	344	343	343	344	344	342	343	340
6	339	340	340	341	341	340	338	338	338	338	338	338	337	339	338	339	338	342	400	426	374	362	358	344	348	349
7	345	346	351	347	347	346	345	344	344	344	345	345	346	350	350	352	352	352	352	351	350	349	348	349	350	348
8	346	347	347	346	345	345	344	344	344	343	341	341	343	346	348	347	347	347	347	347	342	342	342	343	342	345
9	339	339	339	339	343	344	344	343	343	342	342	341	345	346	346	345	346	347	346	346	345	346	345	345	345	344
10	341	342	342	342	342	341	341	342	342	342	342	343	345	344	346	347	346	345	345	346	345	344	344	344	350	344
11	346	332	339	338	296	301	295	305	321	329	331	351	356	368	374	390	428	442	419	404	393	347	344	347	313	353
12	309	329	342	345	345	349	351	352	354	354	359	360	360	360	361	360	359	359	360	359	358	358	356	357	357	353
13	353	353	353	352	352	352	352	352	350	349	347	348	349	349	352	352	351	351	351	352	352	352	352	352	351	351
14	347	348	348	348	347	346	346	345	344	344	346	347	351	352	354	301	360	360	360	358	356	356	354	353	353	351
15	349	350	349	349	349	348	349	349	349	350	349	349	348	348	349	349	350	350	351	351	352	352	352	351	350	350
16	348	347	348	347	346	346	347	347	348	349	349	350	353	354	352	349	349	349	350	350	350	350	349	349	349	349
17	345	345	345	345	345	345	345	345	345	344	349	344	346	350	350	352	352	352	354	370	359	357	357	355	354	350
18	350	350	350	344	346	347	348	348	349	348	347	347	347	348	348	348	350	347	347	347	347	348	349	348	348	348
19	344	345	345	345	345	344	345	345	345	344	344	346	346	346	347	347	349	349	349	350	349	351	352	352	352	347
20	348	345	348	347	347	346	346	346	345	342	342	342	346	348	349	349	349	348	348	349	349	349	349	349	349	347
21	346	346	346	346	346	346	345	345	346	346	349	349	348	348	349	351	352	352	353	352	352	351	351	350	351	349
22	347	348	348	348	348	347	347	347	347	348	349	350	349	349	349	349	349	349	349	348	348	349	349	349	350	349
23	346	346	346	346	346	345	344	344	344	344	345	346	344	344	345	346	346	347	347	347	346	346	347	349	349	346
24	345	346	346	346	344	344	344	344	343	343	345	346	347	348	349	350	350	349	349	349	350	350	349	349	349	347
25	347	348	348	348	348	348	348	348	348	348	345	344	345	347	350	356	359	360	359	357	356	356	353	352	350	351
26	346	347	348	348	347	347	348	348	348	350	349	346	348	353	357	363	379	395	387	382	370	373	362	357	349	358
27	345	335	340	346	351	353	355	355	356	358	357	355	353	355	358	358	360	362	363	361	358	357	356	357	357	355
28	353	351	339	343	348	351	354	355	356	356	356	356	356	357	360	360	360	360	360	360	360	359	357	356	356	355
29	353	354	354	354	354	354	355	356	357	357	357	358	358	360	360	360	359	359	359	358	358	357	356	356	356	357
30	352	351	351	351	351	351	352	353	353	356	357	356	356	357	357	357	357	358	358	358	358	358	358	359	360	355
31	357	352	351	347	346	336	336	336	343	346	348	349	353	355	358	361	374	366	368	371	370	366	366	365	365	355
Mean	344	345	345	345	344	344	344	344	345	346	346	347	348	349	351	352	354	355	357	357	354	352	351	350	349	349

XLVIII.—AUXILIARY OBSERVATIONS IN ABSOLUTE MEASURE; BASE VALUES ADOPTED FOR THE CURVES, AND DETERMINATIONS OF SCALE VALUES OF CURVE ORDINATES.

Eskdalemuir.   December, 1911.

Day.	Hour. h m	Absolute observations H. γ	D.(West)	I.(North)	Meas. of curve ord. N. mm.	W. mm.	V. mm.	Deduced base lines N. γ	W. γ	V. γ
1st	11 14		18 10 4		35·9	37·3		15993	5145	
,,	11 53	16843			36·1	37·5				
5th	11 12		18 10 40		36·6	37·4		15990	5148	
,,	11 49	16851			37·3	37·6				
,,	12 37			69 37·0	37·7	37·4	20·0			44835
8th	11 10		18 10 23		36·2	37·3		15993	5147	
,,	11 44	16842			36·2	37·0				
12th	11 1		18 9 27		33·9	35·9		15998	5150	
,,	11 18	16825			33·7	36·2				
,,	11 37			69 38·4	34·0	36·6	25·0			44753
15th	11 15		18 10 34		36·9	37·8		15985	5144	
,,	12 0	16843			37·0	37·7				
19th	11 1		18 10 23		37·5	37·7		15987	5146	
,,	11 33	16852			37·8	37·8				
,,	12 5			69 36·7	38·1	37·9	26·5			44763
22nd	11 9		18 9 36		36·9	37·2		15987	5144	
,,	11 53	16847			37·4	37·3				
29th	11 11		18 10 20		36·2	37·4		15984	5143	
,,	11 51	16840			36·5	37·9				

Day.	Base values adopted N. γ	W. γ	V. γ	Temp. covers N.°C	W.°C	V.°C	Magnet-house At 9h °C	Range °C	Scale values N. γ/mm	W. γ/mm	V. γ/mm	Character of the day (0-2).
1	15994	5148	44826	11·2	11·2	11·3	11·18	·02	8·73	8·64	8·69	1
2	15993	5147	44822	11·1	11·1	11·2	11·10	·08	,,	,,	,,	0
3			44818	11·1	11·1	11·2	11·06	·02	[8·76]	[8·64]	[8·80]	1
4			44814	11·1	11·0	11·1	11·04	·02	8·73	8·64	8·80	0
5			44810	11·0	11·0	11·1	11·08	·00*	8·73	8·64	8·80	0
6	15992	5146	44806	11·0	11·0	11·1	10·92	·00	,,	,,	,,	2
7			44803	11·0	10·9	11·0	11·00	·00	,,	,,	,,	1
8			44799	10·9	10·9	10·9	10·88	·00	,,	,,	,,	1
9	15991		44796	10·9	10·9	10·9	Trace	failed.	,,	,,	,,	0
10			44792	10·8	10·8	10·9	10·82	·02	,,	,,	,,	1
11†			44788	10·8	10·8	10·9	10·74	·00	[ ]	[8·64]	[8·82]	2
12		5145	44784	10·8	10·8	10·9	10·80	·04*	8·73	8·64	8·80	1
13	15990		44780	10·8	10·8	10·8	10·78	·02	,,	,,	,,	1
14			44776	10·8	10·8	10·8	10·68	·06	,,	,,	,,	1
15			44772	10·7	10·7	10·75	10·62	·04	,,	,,	,,	1
16	15989		44769	10·75	10·7	10·8	10·62	·00	,,	,,	,,	0
17			44765	10·7	10·6	10·6	10·60	·00	,,	,,	,,	2
18			44761	10·55	10·5	10·5	10·50	·02	[8·73]	[8·64]	[8·83]	1
19	15988		44757	10·5	10·45	10·5	10·52	·20*	8·73	8·64	8·83	0
20			44753	10·5	10·45	10·5	10·44	·04	,,	,,	,,	0
21			44750	10·5	10·4	10·5	10·40	·04	,,	,,	,,	0
22	15987	5144	44746	10·5	10·4	10·5	10·40	·00	,,	,,	,,	0
23			44742	10·5	10·45	10·6	10·38	·06*	,,	,,	,,	0
24			44738	10·5	10·35	10·45	10·32	·06	,,	,,	,,	1
25†	15986		44734	10·5	10·4	10·45	10·28	·02	[8·82]	[8·66]	[9·00]	1
26			44730	10·4	10·3	10·3	10·30	·18*	8·73	8·64	9·00	1
27			44726	10·4	10·3	10·35	10·28	·00	,,	,,	,,	1
28	15985		44722	10·4	10·3	10·4	10·26	·02	,,	,,	,,	1
29			44719	10·4	10·3	10·4	10·22	·02	,,	,,	,,	0
30	15984		44715	10·4	10·3	10·3	10·20	·02	,,	,,	,,	0
31			44712	10·4	10·3	10·4	10·20	·02	,,	,,	,,	1

* Natural conditions disturbed by presence of Observer for Scale Value experiments and other duties.
† On the 11th and 25th the magnetic conditions were disturbed and unsuitable for assigning Scale Values.

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

Eskdalemuir. *Mean Hourly Values, Greenwich Mean Time, for the Months, Year, and Seasons.* **1911.**

ΔX (or ΔN). XLIX.—NORTH COMPONENT (all days except those noted below).

(Values in γ)

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.
J.	+1.5	-0.5	+0.0	+1.9	+5.0	+4.8	x+6.4	+3.9	-0.9	-3.4	-8.5	n-13.9	-9.9	-4.9	-2.8	-1.6	-2.2	+2.2	+2.4	+4.4	+4.9	+5.0	+1.4	+4.3
F.	+3.3	+3.2	+2.6	+3.3	+4.8	+7.6	+9.6	+5.6	+0.2	-11.8	-15.7	n-15.8	-14.6	-11.3	-6.8	-4.2	+2.5	+2.1	+3.7	x+11.4	+5.4	+2.4	+6.2	+6.6
M.	+9.8	-0.2	+3.6	+4.1	+3.9	+6.3	+7.1	+4.0	-2.5	-16.0	-23.9	n-25.9	-21.9	-15.4	-7.7	+2.6	+2.9	+8.6	+12.7	x+14.3	+10.5	+7.6	+7.9	+8.1
A.	+4.6	+3.5	+3.3	+5.2	+2.0	+6.2	+2.4	-5.8	-11.6	-20.7	n-30.5	-27.9	-19.0	-11.9	-5.4	+1.2	+10.0	+13.4	+15.2	+13.6	x+18.1	+12.7	+11.0	+10.9
M.	+5.8	+4.8	+4.0	+5.6	+4.4	-1.1	-1.9	-8.9	-17.2	-26.2	n-29.1	-26.2	-20.8	-12.6	-2.6	+0.9	+13.6	x+21.3	+21.0	+17.0	+13.9	+14.1	+14.4	+6.5
J.	+4.0	+5.1	+6.4	+3.9	-0.4	-0.5	-6.5	-10.4	-16.5	-21.3	n-23.8	-21.2	-15.3	-8.4	0.0	+3.4	+14.4	+15.6	+17.5	x+19.9	+10.8	+8.3	+8.6	+6.0
J.	+6.5	+2.4	+4.4	+4.4	+3.5	+2.1	-2.8	-9.5	-19.3	n-24.8	-23.3	-21.5	-19.3	-9.2	+1.9	+4.9	+10.9	+15.7	x+19.3	+16.0	+12.8	+11.2	+7.6	+7.2
A.	+7.1	+6.4	+3.9	+4.8	+5.4	+4.5	-0.3	-7.5	-17.7	-24.9	n-26.2	-24.1	-17.5	-8.9	-2.3	+3.7	+8.3	+13.9	+14.0	x+15.7	+12.7	+12.1	+8.9	+6.6
S.	+8.9	+7.2	+6.0	+9.7	+6.6	+7.1	+1.7	-5.1	-14.7	-26.2	n-27.7	-23.1	-17.1	-8.1	-2.7	+0.8	+2.1	+9.4	+10.7	+10.0	+11.2	+11.0	x+11.5	+10.3
O.*	+5.2	+4.8	+6.8	x+8.6	+5.1	+6.1	+7.7	+3.0	-5.7	-16.7	n-19.2	-17.2	-13.1	-9.7	-5.2	-1.4	0.0	+4.8	+4.4	+6.3	+4.6	+6.0	+7.9	+6.3
N.	+0.4	+0.1	0.0	+3.3	+5.9	x+7.8	+6.3	+3.3	-2.2	-10.0	-10.3	n-10.9	-8.4	-4.7	-2.2	-1.9	-1.9	+1.5	+4.8	+4.2	+5.0	+3.9	+2.1	+4.1
D.	-0.2	-1.9	-1.7	+2.7	+2.8	+3.8	+2.2	+0.1	-2.4	n-4.4	-2.2	-0.3	0.0	+1.8	-2.3	n-4.4	-1.3	-0.8	+0.6	+1.4	x+4.6	+0.8	+1.0	+0.5
Y.	+4.7	+2.9	+3.3	+4.8	+4.1	+4.6	+2.7	-2.3	-9.2	-17.2	n-20.0	-19.0	-14.7	-8.6	-3.2	0.3	4.9	9.0	10.5	x 11.2	9.5	7.9	7.4	6.5
W.	+1.3	+0.2	+0.2	+2.8	+4.6	x+6.0	+6.1	+3.2	-1.3	-7.4	-9.2	n-10.2	-8.2	-4.8	-3.5	-3.0	-0.7	+1.3	+2.9	+5.4	+5.0	+3.0	+2.7	+3.9
Eq.	+7.1	+3.8	+4.9	+6.9	+4.4	+6.4	+4.7	-1.0	-8.6	-19.9	n-25.3	-23.5	-17.8	-11.3	-5.3	+0.8	+3.8	+9.1	+10.8	x+11.1	x+11.1	+9.3	+9.6	+8.9
S.	+5.9	+4.7	+4.7	+4.7	+3.2	+1.3	-2.9	-9.1	-17.7	-24.3	n-25.6	-23.3	-18.2	-9.8	-0.8	+3.2	+11.8	+16.6	x+18.0	+17.2	+12.6	+11.4	+9.9	+6.6

-ΔY (or ΔW). L.—WEST COMPONENT (all days except those noted below).

(Values in γ)

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.
J.	-7.2	-4.2	-2.1	-0.5	+1.1	+2.7	+2.6	+4.1	+1.5	+1.7	+7.5	+9.5	x+14.7	+13.4	+11.3	+3.4	+0.3	-5.3	-6.8	-8.5	n-13.3	-10.9	-8.3	-9.9
F.	-5.6	+0.8	-1.0	-2.6	+2.5	+1.2	+2.1	+0.9	-1.9	-1.6	+5.6	+11.8	+16.7	+18.1	x+18.6	+10.3	-4.3	-12.1	-5.3	-12.4	n-15.9	-10.2	-8.9	-10.1
M.	-7.3	-2.2	-3.8	-3.3	-0.1	+2.8	+0.5	-4.2	n-10.8	-10.7	-3.5	+9.9	+18.3	x+23.0	+20.1	+11.8	+2.6	+0.7	-4.8	-7.7	-9.8	-10.0	-5.8	-4.4
A.	-6.7	-8.5	-3.2	-3.4	-7.1	-4.0	-9.7	n-15.3	-14.9	-11.0	-1.1	+13.9	x+25.8	+25.5	+20.7	+13.3	+10.3	+3.4	+0.5	+0.9	-3.9	-9.0	-7.5	-8.2
M.	-2.8	-2.6	-5.1	-5.8	-13.9	-13.7	-19.2	n-22.5	-19.7	-10.7	+1.3	+14.6	+20.3	x+20.8	+18.1	+13.7	+11.9	+9.9	+6.1	+2.9	+1.5	+2.2	-0.3	-7.5
J.	-2.9	-5.5	-7.1	-10.7	-13.7	-19.0	n-21.1	-20.4	-19.4	-12.6	-2.0	+9.1	+17.2	x+23.6	x+23.6	+20.2	+16.3	+13.5	+10.8	+4.3	+1.8	+3.9	-4.0	-5.2
J.	-6.4	-6.4	-7.6	-11.7	-15.8	-16.9	n-19.9	-19.8	-18.7	-12.2	-0.9	+12.6	+21.5	+23.2	x+25.4	+19.1	+15.6	+11.5	+8.9	+5.1	+1.2	0.0	-5.7	-3.0
A.	-2.9	-1.3	-7.7	-9.3	-12.3	-15.2	n-23.6	-18.0	-13.9	-6.7	+3.1	+15.3	+21.8	x+25.5	+18.8	+12.3	+7.3	+2.4	+4.5	+2.4	+1.2	-1.0	-1.3	-2.8
S.	-2.6	-4.8	-3.0	-5.7	-6.0	-7.0	-12.1	n-13.6	-13.2	-8.7	+4.0	+16.2	x+23.2	+22.6	+14.5	+9.1	+4.0	+1.3	+1.1	-2.5	-7.1	-4.2	-3.1	-3.8
O.*	-9.9	-4.0	-2.5	+0.5	-0.8	+1.5	-1.7	-7.1	-9.3	-5.1	+4.6	+13.2	x+18.0	x+18.0	+13.8	+6.5	+4.6	+0.6	+0.1	-6.0	-6.9	-9.6	n-12.5	-7.0
N.	-5.3	-3.1	-1.4	-2.8	-1.2	-0.9	-0.8	-1.4	-1.5	+2.0	+8.9	+11.1	x+13.8	+11.4	+6.3	+4.7	+3.1	+1.2	-5.7	-6.2	-6.2	n-10.5	-10.1	-5.5
D.	-4.5	-4.9	-4.3	-2.3	-0.6	+1.0	+0.8	-0.2	+2.1	+6.9	+9.4	x+12.1	+9.8	+6.4	+3.1	+4.0	+0.2	-4.4	-6.5	-3.2	n-7.6	-6.6	-5.7	-6.1
Y.	-5.4	-3.9	-3.6	-4.8	-5.7	-5.6	-8.5	-9.8	n-10.0	-5.7	+3.1	+12.4	+18.4	x+19.3	+16.2	+10.7	+6.0	+1.9	+0.2	-2.6	-5.4	-5.5	-6.1	-6.1
W.	-5.8	-2.9	-0.7	-2.1	+0.5	+1.0	+1.2	+0.9	+0.1	+2.3	+7.9	+11.1	x+12.8	+12.3	+9.8	+5.6	-0.2	-5.2	-6.1	-7.6	n-10.8	-9.6	-8.3	-7.9
Eq.	-6.6	-4.9	-3.1	-3.0	-3.5	-1.7	-5.8	-10.1	n-12.1	-8.9	+1.0	+13.3	+21.3	x+22.3	+17.3	+10.2	+5.4	+1.5	-0.8	-3.8	-6.9	-8.2	-7.2	-5.9
S.	-3.8	-4.0	-6.9	-9.4	-13.9	-16.2	n-21.0	-20.2	-17.9	-10.6	+0.4	+12.9	+20.2	x+23.3	+21.5	+16.3	+12.8	+9.3	+7.6	+3.7	+1.4	+1.3	-2.8	-4.6

ΔZ (or ΔV). LI.—VERTICAL COMPONENT (all days except those noted below).

(Values in γ)

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.
J.	-7.4	-8.1	n-9.1	-6.9	-5.9	-5.3	-6.4	-3.7	-3.3	-3.6	-3.6	-1.6	-0.8	+3.0	+5.6	+8.1	+10.5	x+14.0	+10.0	+9.4	+5.6	+1.9	+1.0	-2.2
F.	-7.9	-11.1	n-13.0	-11.2	-7.4	-5.6	-4.8	-4.2	-3.1	-2.3	-2.7	-1.7	+0.2	+3.4	+9.5	+15.7	x+18.7	+16.7	+13.3	+9.1	+3.8	-1.4	-5.6	-8.4
M.	n-10.9	-10.4	-9.2	-6.9	-6.1	-7.7	-6.6	-4.2	-4.4	-2.6	-2.3	-2.5	-0.1	+4.1	+7.5	+13.2	x+16.0	+15.3	+12.4	+9.3	+4.9	+2.8	-2.9	-9.6
A.	-5.9	n-11.0	-8.4	-9.5	-7.4	-7.7	-4.9	-3.2	-3.1	-3.3	-4.9	-5.8	-3.6	+1.7	+7.8	+10.9	+13.1	x+15.4	+14.7	+12.1	+7.2	+4.1	-2.6	-5.0
M.	-3.4	-7.5	-7.6	-7.3	-3.1	-2.6	-0.9	-0.3	-2.9	-6.5	-8.7	n-9.6	-5.8	-0.6	+3.2	+8.1	+11.5	+12.7	x+13.1	+11.9	+8.5	+5.1	-1.8	-5.3
J.	-3.3	-6.0	-3.6	-2.6	-1.1	-1.0	-1.3	-1.6	-3.5	-5.5	-7.7	n-9.3	-6.5	-3.4	-0.9	+3.7	+7.9	+10.5	+10.7	x+11.3	+8.6	+5.3	-0.5	0.0
J.	-5.1	-6.6	-6.5	-3.8	-0.8	-1.3	-0.7	-1.4	-2.4	-4.5	-7.5	n-9.6	-7.4	-3.9	+0.6	+7.2	+10.2	x+12.4	+10.9	+9.5	+7.5	+4.3	+1.0	-3.3
A.	-2.8	-3.2	-3.1	-1.7	-0.5	+0.4	-0.3	-0.5	-2.2	-6.1	-9.6	n-11.0	-8.5	-3.6	+3.7	+8.2	+10.4	x+11.2	+8.3	+6.7	+5.0	+2.5	+0.3	-3.6
S.	-2.6	-2.5	-3.1	-4.1	-2.9	-1.7	0.0	+0.7	-0.1	-1.8	-4.7	n-7.2	-4.9	-1.9	+3.2	+6.8	x+7.9	+6.2	+5.6	+4.8	+3.8	+1.4	-0.6	-2.2
O.*	-4.5	-6.5	-6.7	n-6.8	-6.3	-5.6	-3.6	-1.6	-1.0	-2.5	-3.7	-3.7	-0.7	+2.1	+6.3	x+9.6	+8.9	+8.3	+8.3	+6.8	+4.3	+2.4	+0.2	-3.1
N.	n-3.6	-3.3	-3.3	-3.2	-2.8	-2.6	-2.3	-2.0	-1.9	-3.0	-3.2	-1.5	-0.1	+2.6	x+5.0	x+5.0	+4.7	+4.0	+4.6	+4.2	+2.0	+1.7	+0.9	-2.1
D.	-2.1	-2.0	-2.2	-3.4	-3.3	n-3.7	-3.5	-2.8	-2.7	-2.7	-1.8	-1.1	+0.4	+1.6	+3.0	+4.8	+5.6	+6.6	x+7.0	+3.4	+1.1	0.0	-0.8	-2.0
Y.	-5.0	n-6.5	-6.3	-5.6	-4.0	-3.7	-2.9	-2.1	-2.6	-3.7	-5.0	-5.4	-3.2	+0.4	+4.5	+8.4	+10.5	x+11.1	+9.9	+8.2	+5.2	+2.5	-1.1	-3.9
W.	-5.3	n-6.1	-6.9	-6.2	-4.9	-4.3	-4.3	-3.3	-2.8	-2.9	-2.8	-1.5	-0.1	+2.7	+5.8	+8.4	+9.9	x+10.3	+8.7	+6.5	+3.1	+0.6	-1.1	-3.7
Eq.	-6.0	n-7.6	-6.9	-6.8	-5.7	-5.7	-3.8	-2.4	-2.2	-2.6	-3.9	-4.8	-2.3	+1.5	+6.2	+10.1	x+11.5	+11.3	+10.3	+8.3	+5.1	+2.7	-1.5	-5.0
S.	-3.7	-5.8	-5.2	-3.9	-1.4	-1.3	-0.8	-1.0	-2.8	-5.7	-8.4	n-9.9	-7.1	-2.9	+1.7	+6.8	+10.0	x+11.7	+10.8	+9.9	+7.4	+4.3	-0.3	-3.1

* Values for October 7 and 8 are omitted in computing the printed means.
x and n mark respectively the mean maximum and minimum values in each month or season.

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.*   **1911.**

ΔD. — LII.—DECLINATION (all days except those noted below).

Month	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.	-1.49	-0.78	+0.41	-0.22	-0.11	+0.21	+0.10	+0.54	+0.35	+0.58	+2.00	+2.74	x+3.49	+2.91	+2.37	+0.76	+0.19	-1.16	-1.47	-1.94	n-2.89	-2.43	-1.70	-2.19
F.	-1.30	-0.05	+0.03	-0.72	+0.19	-0.21	-0.21	-0.18	-0.38	+0.45	+2.08	+3.30	+4.17	x+4.27	+4.04	+2.27	-0.99	-2.48	-1.26	-3.14	n-3.43	-2.13	-2.11	-2.39
M.	-2.04	-0.41	-0.97	-0.90	-0.27	+0.14	-0.36	-1.07	-1.94	-1.05	+0.85	+3.57	+4.95	x+5.45	+4.38	+2.12	+0.32	-0.41	-1.75	-2.41	n-2.57	-2.43	-1.63	-1.38
A.	-1.59	-1.88	-0.83	-0.99	-1.51	-1.16	-2.04	n-2.60	-2.15	-0.81	+1.73	+4.48	x+6.23	+5.70	+4.37	+2.50	+1.36	-0.19	-0.87	-0.70	-1.92	-2.56	-2.15	-2.29
M.	-0.91	-0.81	-1.24	-1.48	-2.99	-2.59	-3.61	n-3.83	-2.72	-0.41	+2.11	+4.51	x+5.27	+4.83	+3.68	+2.60	+1.44	+0.56	-0.16	-0.52	-0.60	-0.44	-0.94	-1.87
J.	-0.81	-1.40	-1.78	-2.33	-2.64	-3.65	n-3.69	-3.30	-2.74	-1.11	+1.13	+3.12	+4.31	x+5.12	+4.58	+3.71	+2.25	+1.65	+1.00	-0.43	-0.35	+0.23	-1.32	-1.40
J.	-1.65	-1.38	-1.75	-2.54	-3.30	-3.41	n-3.69	-3.24	-2.41	-0.78	+1.29	+3.82	x+5.39	+5.08	+4.81	+3.40	+2.33	+1.22	+0.50	-0.04	-0.58	-0.72	-1.59	-1.05
A.	-1.01	-0.66	-1.75	-2.11	-2.74	-3.24	n-4.56	-3.01	-1.57	+0.29	+2.27	+4.50	+5.34	x+5.51	+3.80	+2.15	+0.89	-0.43	-0.02	-0.52	-0.58	-0.97	-0.81	-0.97
S.	-1.07	-1.40	-0.97	-1.73	-1.59	-1.80	n-2.46	-2.31	-1.63	-0.02	+2.54	+4.62	x+5.59	+4.91	+2.99	+1.71	+0.64	-0.35	-0.47	-1.13	-2.10	-1.51	-1.34	-1.39
O.*	-2.26	-1.08	-0.92	-0.44	-0.48	-0.09	-0.82	-1.57	-1.45	+0.06	+2.11	+3.66	x+4.34	+4.12	+3.02	+1.36	+0.90	-0.18	-0.26	-1.57	-1.63	-2.25	n-2.93	-1.76
N.	-1.16	-0.61	-0.27	-0.75	-0.61	-0.67	-0.55	-0.48	-0.15	+1.02	+2.38	+2.85	x+3.22	+2.52	+1.37	+1.04	+0.73	+0.14	-1.41	-1.47	-1.52	n-2.29	-2.10	-1.33
D.	-0.85	-0.82	-0.72	-0.61	-0.28	-0.03	+0.03	-0.03	+0.57	+1.63	+1.98	x+2.39	+1.92	+1.15	+0.76	+1.07	+0.13	-0.80	-1.30	-0.70	n-1.76	-1.33	-1.16	-1.21
Y.	-1.35	-0.94	-0.90	-1.24	-1.36	-1.38	n-1.82	-1.76	-1.35	-0.01	+1.87	+3.63	x+4.52	+4.30	+3.35	+2.06	+0.85	-0.20	-0.62	-1.21	-1.66	-1.57	-1.65	-1.60

ΔI. — LIII.—INCLINATION (all days except those noted below).

Month	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.	-0.12	-0.08	-0.27	-0.28	-0.49	-0.49	n-0.62	-0.42	-0.06	+0.09	+0.29	x+0.65	+0.30	+0.12	+0.08	+0.23	+0.39	+0.32	+0.23	+0.13	+0.10	-0.04	+0.11	-0.12
F.	-0.29	-0.49	-0.51	-0.43	-0.54	-0.64	n-0.77	-0.48	-0.05	+0.72	x+0.81	+0.71	+0.57	+0.50	+0.27	+0.44	+0.39	+0.53	+0.20	-0.23	+0.09	+0.02	-0.35	-0.41
M.	n-0.74	-0.20	-0.37	-0.36	-0.40	-0.65	-0.62	-0.20	+0.28	+1.18	x+1.53	+1.34	+1.00	+0.59	+0.25	-0.09	+0.16	-0.18	-0.40	-0.52	-0.34	-0.20	-0.45	-0.66
A.	-0.30	-0.32	-0.35	-0.48	-0.16	-0.50	-0.04	+0.61	+0.97	+1.46	x+1.83	+1.34	+0.58	+0.26	+0.10	-0.08	-0.52	-0.54	-0.61	-0.58	n-0.89	-0.51	-0.60	-0.64
M.	-0.39	-0.43	-0.33	-0.41	-0.06	+0.28	+0.50	+1.03	+1.43	x+1.72	+1.60	+1.12	+0.75	+0.32	-0.13	-0.14	-0.82	n-1.30	-1.14	-0.85	-0.70	-0.81	-0.95	-0.38
J.	-0.27	-0.36	-0.35	-0.09	+0.29	+0.40	+0.82	+1.04	+1.37	x+1.48	+1.36	+0.92	+0.45	-0.04	-0.52	-0.54	-1.06	-1.01	n-1.07	-1.07	-0.88	-0.51	-0.48	-0.47
J.	-0.41	-0.18	-0.28	-0.13	+0.09	+0.19	+0.58	+0.98	+1.55	x+1.71	+1.31	+0.86	+0.59	0.00	-0.63	-0.53	-0.76	-0.93	n-1.14	-0.88	-0.65	-0.60	-0.33	-0.47
A.	-0.46	-0.46	-0.16	-0.16	-0.10	+0.04	+0.50	+0.83	+1.36	x+1.56	+1.36	+0.93	+0.44	-0.06	-0.16	-0.29	-0.42	-0.66	-0.77	n-0.88	-0.70	-0.69	-0.53	-0.45
S.	-0.57	-0.42	-0.46	-0.59	-0.35	-0.35	+0.15	+0.59	+1.20	x+1.79	+1.56	+0.95	+0.48	+0.06	-0.05	-0.07	-0.02	-0.47	-0.56	-0.46	-0.47	-0.57	n-0.68	-0.63
O.*	-0.23	-0.38	-0.55	n-0.72	-0.46	-0.56	-0.54	-0.08	+0.53	x+1.10	+1.03	+0.72	+0.37	+0.29	+0.20	+0.19	+0.13	-0.11	-0.08	-0.11	-0.04	-0.12	-0.24	-0.33
N.	0.00	-0.02	-0.06	-0.23	-0.42	n-0.54	-0.44	-0.24	+0.13	x+0.52	+0.39	+0.42	+0.24	+0.12	+0.13	+0.14	+0.17	-0.02	-0.07	-0.04	-0.14	+0.01	+0.10	-0.20
D.	+0.06	+0.17	+0.15	-0.20	-0.25	n-0.35	-0.24	-0.17	+0.04	+0.07	-0.10	-0.26	-0.20	-0.21	+0.15	x+0.31	+0.22	+0.30	+0.27	+0.06	-0.11	+0.09	+0.03	+0.04
Y.	-0.31	-0.26	-0.30	-0.34	-0.24	-0.26	-0.06	+0.29	+0.73	x+1.12	+1.08	+0.81	+0.46	+0.16	-0.03	-0.04	-0.18	-0.34	-0.43	n-0.45	-0.36	-0.33	-0.36	-0.38

ΔH. — LIV.—HORIZONTAL FORCE (all days except those noted below).

Month	1. γ	2. γ	3. γ	4. γ	5. γ	6. γ	7. γ	8. γ	9. γ	10. γ	11. γ	Noon. γ	13. γ	14. γ	15. γ	16. γ	17. γ	18. γ	19. γ	20. γ	21. γ	22. γ	23. γ	Midt. γ
J.	-0.9	-1.8	+0.7	+1.7	+5.1	+5.4	x+6.9	+5.0	-0.4	-2.7	-5.7	n-10.3	-4.8	-0.5	+0.9	-0.5	-2.0	+0.4	+0.2	+1.5	+0.5	+1.3	-1.3	+1.0
F.	+1.4	+3.3	+2.8	+2.3	+5.3	+7.6	x+9.8	+5.6	-0.4	-11.7	n-13.2	-11.3	-8.5	-6.2	-0.6	-0.8	+1.0	-1.8	+1.9	+6.9	+0.1	-0.9	+3.1	+3.0
M.	+7.0	-0.9	+2.2	+2.9	+3.7	+6.9	+6.9	+2.5	-5.8	-18.6	n-23.8	-21.0	-15.1	-7.4	-1.0	+6.2	+3.6	+8.4	+10.6	x+11.2	+6.9	+4.1	+5.7	+6.3
A.	+2.3	+0.7	+2.1	+3.9	-0.3	+4.6	-1.2	-10.3	-15.7	-23.1	n-29.3	-22.2	-10.0	-3.3	+1.4	+5.3	+12.7	+13.8	+14.6	+13.2	x+16.0	+9.2	+8.1	+7.8
M	+4.6	+3.7	+2.2	+3.5	-0.2	-5.3	-7.8	-15.5	-22.5	n-28.2	-27.2	-20.3	-13.4	-5.5	+3.2	+5.1	+16.7	x+23.3	+21.9	+17.1	+13.7	+14.1	+13.6	+3.8
J.	+2.9	+3.1	+3.9	+0.4	-4.7	-6.4	-12.8	-16.2	-21.8	n-24.2	-23.2	-17.3	-9.2	-0.6	+7.4	+9.5	+18.8	+19.1	+20.0	x+20.2	+10.8	+9.1	+6.9	+4.1
J.	+4.3	+0.3	+1.8	+0.5	-1.6	-3.3	-8.9	-15.2	-24.2	n-27.4	-22.4	-16.5	-11.6	-1.5	+9.7	+10.7	+15.2	+18.5	x+21.1	+16.8	+12.5	+10.6	+5.4	+5.9
A.	+5.8	+5.7	+1.3	+1.7	+1.3	-0.5	-7.6	-12.7	-21.2	n-25.7	-23.9	-18.1	-9.8	-0.5	+3.7	+7.4	+10.2	+14.0	+14.7	x+15.7	+12.4	+11.2	+8.0	+5.4
S.	+7.6	+5.3	+5.8	+7.4	+4.4	+4.6	-2.2	-9.1	-18.1	n-27.6	-25.1	-16.9	-9.0	-1.6	+2.0	+3.6	+3.2	+9.3	x+10.5	+8.7	+8.4	+9.1	+10.0	+8.6
O.*	+1.8	+3.3	+5.7	x+8.3	+4.6	+6.3	+6.8	+0.6	-8.3	n-17.5	-16.8	-12.2	-5.8	-3.6	-0.6	+1.4	+4.7	+4.2	+4.1	+2.2	+2.7	+3.6	+3.8	
N.	-1.4	-0.9	+0.4	+2.3	+5.2	x+7.1	+5.7	+2.7	-2.6	n-8.9	-7.0	-6.9	-3.7	-0.9	-0.1	-0.3	-0.8	+1.8	+2.8	+2.1	+2.8	+0.4	-1.2	+2.2
D.	-1.6	n-3.3	-3.0	+1.8	+2.5	x+3.9	+2.3	0.0	-1.6	-2.0	+0.8	+3.5	+3.1	+3.7	-1.2	-2.9	-1.2	-2.1	-1.5	+0.3	+2.0	-1.3	-0.8	-1.4
Y.	+2.8	+1.5	+2.1	+3.1	+2.1	+2.6	-0.2	-5.2	-11.9	n-18.1	-18.1	-14.1	-8.2	-2.3	+2.1	+3.7	+6.6	+9.1	x+10.1	+9.8	+7.4	+5.8	+5.1	+4.2

* Values for October 7 and 8 are omitted in computing the printed means.

x and 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,

ΔD.   LV.—DECLINATION (measured positive towards the west).

Month and Season.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Mdt.
J.	−0·51	−0·42	−0·46	−0·18	+0·14	+0·42	−0·46	−0·64	−0·65	−0·26	+0·04	+0·73	x+1·42	+1·12	+0·78	+0·37	+0·57	+0·69	+0·20	−0·10	−0·48	−0·66	n−0·83	−0·81
F.	−0·40	−0·22	−0·45	−0·46	−0·15	−0·25	−0·04	−0·71	−1·08	−1·20	+0·03	+1·34	x+2·47	+2·30	+1·82	+1·27	+0·92	+0·19	−0·01	−0·18	−1·01	−1·36	n−1·56	−1·29
M.	+0·08	−0·13	−0·49	−0·56	−0·50	−0·71	−1·31	−2·65	n−3·14	−2·32	−0·85	+1·19	+3·13	x+3·54	+3·14	+2·05	+1·07	+0·43	+0·08	−0·10	−0·47	−0·41	−0·62	−0·42
A.	−0·04	−0·18	−0·29	−0·26	−0·57	−0·87	−2·40	−3·67	n−3·88	−1·98	+0·83	+3·54	x+4·53	+4·04	+2·34	+0·99	+0·34	−0·25	−0·17	−0·14	−0·27	−0·52	−0·52	−0·51
M.	−0·67	−0·67	−1·14	−1·09	−1·51	−1·96	−3·09	−3·65	−2·68	−0·71	+1·41	+3·32	x+4·31	+3·91	+3·06	+1·91	+1·07	+0·60	+0·19	−0·13	−0·28	−0·61	−0·77	−0·73
J.	−0·51	−1·00	−1·40	−1·82	−2·84	n−3·58	−3·51	−3·45	−2·31	−0·74	+1·42	+2·90	+3·62	x+4·00	+3·73	+2·69	+1·75	+1·28	+0·84	+0·36	+0·28	−0·08	−0·69	−0·85
J.	−1·17	−1·19	−1·36	−1·41	−2·22	−2·98	−3·97	n−4·66	−3·31	−1·33	+1·44	+4·11	+5·58	x+6·35	+5·43	+3·56	+1·79	+0·02	−0·50	−0·53	−0·48	−0·91	−1·11	−1·18
A.	−0·21	−0·78	−1·25	−1·22	−1·99	−2·46	−4·07	n−4·16	−2·91	−0·18	+2·09	+3·84	+5·29	x+5·44	+4·05	+1·92	+0·53	−0·06	−0·23	−0·64	−0·69	−0·82	−0·75	−0·66
S.	−0·48	−0·89	−1·16	−1·31	−1·02	−1·39	−2·59	−3·06	−2·49	−0·68	+1·67	+3·60	x+4·79	+4·04	+2·41	+0·88	+0·11	+0·07	−0·10	−0·35	−0·34	−0·47	−0·64	−0·51
O.	−0·62	−0·53	−0·62	−0·47	−0·52	−0·44	−0·84	n−1·90	−1·83	−0·40	+1·25	+2·60	x+3·01	+2·58	+1·81	+0·70	+0·26	+0·02	−0·22	−0·51	−0·68	−0·79	−0·92	−0·85
N.	+0·21	−0·09	−0·15	+0·02	+0·02	+0·04	−0·42	−0·52	−0·42	+0·41	+0·81	+1·27	x+1·51	+0·91	+0·20	+0·02	+0·14	−0·32	−0·70	−0·66	n−0·71	n−0·71	−0·59	−0·35
D.	n−0·81	−0·43	−0·22	+0·20	+0·33	+0·08	−0·28	−0·35	−0·15	+0·56	+0·42	+0·93	x+1·02	+0·44	+0·03	+0·11	+0·04	−0·04	−0·11	−0·12	−0·14	−0·43	−0·45	−0·52
Y.	−0·43	−0·54	−0·75	−0·71	−0·90	−1·18	−1·92	n−2·45	−2·07	−0·74	+0·88	+2·45	x+3·39	+3·22	+2·40	+1·37	+0·72	+0·22	−0·06	−0·26	−0·44	−0·65	−0·79	−0·73
W.	−0·38	−0·29	−0·32	−0·11	+0·08	+0·07	−0·30	−0·55	−0·57	−0·12	+0·33	+1·07	x+1·60	+1·19	+0·71	+0·44	+0·42	+0·13	−0·16	−0·27	−0·58	−0·79	n−0·86	−0·74
Eq.	−0·27	−0·43	−0·64	−0·65	−0·65	−0·85	−1·79	−2·82	n−2·84	−1·35	+0·72	+2·73	x+3·86	+3·55	+2·42	+1·15	+0·44	+0·07	−0·10	−0·28	−0·44	−0·55	−0·68	−0·57
S.	−0·64	−0·91	−1·29	−1·39	−2·14	−2·75	−3·66	n−3·98	−2·80	−0·74	+1·59	+3·54	+4·70	x+4·92	+4·07	+2·52	+1·28	+0·46	+0·07	−0·24	−0·29	−0·61	−0·83	−0·88

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

Falmouth.

Mean Hourly Values, Greenwich Mean Time,

ΔD.   LVII.—DECLINATION (measured positive towards the west).

Month and Season.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Mdt.
J.	−0·54	−0·83	−0·31	−0·04	−0·14	−0·15	−0·27	−0·47	−0·80	−0·36	+0·23	+1·33	x+2·17	+1·96	+1·30	+0·51	+0·45	+0·37	+0·02	−0·42	−0·81	−0·79	n−1·34	−1·14
F.	−0·74	−0·55	−0·73	−0·52	−0·50	−0·18	−0·08	−0·52	−1·08	−1·47	−0·73	+0·83	+2·39	x+2·89	+2·34	+1·62	+1·16	+0·50	−0·06	−0·22	−0·55	−0·97	−1·36	n−1·59
M.	−0·30	−0·09	−0·51	−0·37	−0·48	−0·54	−0·84	−2·01	n−3·35	−3·25	−1·70	+0·70	+3·24	x+4·25	+3·83	+2·63	+1·12	+0·30	−0·38	−0·47	−0·59	−0·39	−0·52	−0·22
A.	−0·13	+0·09	+0·10	−0·22	−0·80	−0·98	−2·23	−3·23	n−4·17	−2·53	+0·26	+3·10	x+4·86	+4·71	+2·97	+1·31	+0·35	−0·32	−0·52	−0·32	−0·26	−0·93	−0·71	−0·33
M.	−0·67	−0·63	−0·68	−0·80	−1·43	−2·02	−2·94	n−3·69	−2·91	−1·24	+0·90	+2·99	+3·90	x+4·00	+3·29	+2·23	+1·24	+0·72	+0·39	−0·04	−0·34	−0·39	−0·93	−1·04
J.	−0·56	−0·40	−1·16	−1·08	−2·48	n−3·64	−3·34	−3·52	−3·00	−1·20	+0·38	+2·34	+3·18	x+4·00	+3·74	+2·92	+2·06	+1·56	+0·88	+0·44	+0·12	−0·02	−0·50	−0·80
J.*	−1·18	−1·50	−1·44	−1·56	−2·15	−2·92	−3·57	n−4·31	−4·02	−2·17	+0·56	+2·88	+4·96	x+6·24	+5·92	+4·38	+2·79	+0·72	−0·32	−0·34	−0·43	−0·57	−0·82	−1·04
A.	−0·20	−0·42	−0·93	−1·14	−1·92	−2·73	−3·90	n−4·22	−3·11	−0·76	+1·22	+3·21	+4·68	x+5·28	+4·51	+2·56	+1·04	+0·05	−0·40	−0·52	−0·81	−0·66	−0·58	−0·35
S.	−0·92	−1·08	−1·08	−1·18	−1·38	−1·94	−2·48	n−3·26	−2·96	−0·88	+1·22	+3·68	x+5·20	+4·70	+3·00	+1·58	+0·36	−0·08	−0·06	−0·30	−0·48	−0·42	−0·64	−0·72
O.	−0·92	−0·52	−0·40	−0·59	−0·63	−0·79	−0·69	−1·87	n−2·23	−0·96	+1·20	+2·90	x+3·60	+3·36	+2·43	+1·01	+0·07	−0·17	−0·31	−0·61	−0·92	−0·96	−1·00	−1·04
N.	−0·37	−0·29	−0·26	−0·40	−0·48	−0·46	−0·83	−0·77	−0·77	+0·29	+1·44	+2·38	x+2·56	+1·83	+0·71	+0·33	+0·29	−0·10	−0·80	−0·80	−0·92	n−0·95	−0·87	−0·65
D.	−0·57	−0·20	−0·06	−0·10	−0·16	−0·51	−0·67	−0·69	−0·19	+0·92	+1·46	x+1·68	+1·54	+0·80	−0·27	+0·09	+0·19	−0·03	−0·28	−0·56	−0·58	n−0·74	−0·61	−0·43
Y.	−0·59	−0·53	−0·62	−0·67	−1·05	−1·40	−1·82	n−2·38	n−2·38	−1·13	+0·54	+2·34	+3·52	x+3·67	+2·81	+1·76	+0·93	+0·29	−0·15	−0·35	−0·55	−0·65	−0·82	−0·78
W.	−0·56	−0·47	−0·34	−0·26	−0·32	−0·33	−0·46	−0·61	−0·71	−0·15	+0·60	+1·56	x+2·17	+1·87	+1·02	+0·64	+0·52	+0·18	−0·28	−0·50	−0·72	−0·86	n−1·04	−0·95
Eq.	−0·57	−0·40	−0·47	−0·59	−0·82	−1·06	−1·56	−2·59	n−3·18	−1·90	+0·25	+2·59	+4·23	x+4·25	+3·06	+1·63	+0·48	−0·07	−0·32	−0·43	−0·56	−0·67	−0·72	−0·58
S.	−0·65	−0·74	−1·05	−1·15	−1·99	−2·83	−3·44	n−3·93	−3·26	−1·34	+0·77	+2·85	+4·18	x+4·88	+4·37	+3·02	+1·78	+0·76	+0·14	−0·11	−0·36	−0·41	−0·71	−0·81

ΔI.   LIX.—INCLINATION.

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.
J.	+0·01	+0·07	+0·06	+0·02	−0·11	−0·11	n−0·28	−0·16	−0·14	−0·09	+0·27	x+0·56	+0·29	−0·05	+0·01	+0·11	+0·11	0·00	−0·03	−0·13	−0·27	−0·08	−0·08	+0·01
F.	−0·17	−0·35	−0·29	−0·13	−0·27	−0·35	−0·57	n−0·63	−0·38	−0·14	+0·10	+0·29	+0·26	+0·33	+0·43	x+0·55	+0·52	+0·40	+0·26	+0·23	+0·07	+0·07	+0·03	−0·24
M.	−0·35	−0·24	−0·20	−0·20	−0·24	−0·34	−0·48	n−0·49	−0·13	+0·42	+0·89	x+1·10	+0·77	+0·48	+0·46	+0·19	+0·20	+0·01	−0·24	−0·34	−0·29	−0·33	−0·34	−0·26
A.	n−0·54	−0·34	−0·39	−0·27	−0·27	−0·29	−0·02	+0·20	+0·71	+1·22	x+1·31	+0·80	+0·31	−0·14	+0·08	+0·01	−0·07	−0·07	−0·26	−0·31	−0·36	−0·44	−0·46	−0·43
M.	−0·21	−0·42	−0·19	−0·30	−0·13	+0·07	+0·17	+0·39	+0·51	x+0·58	+0·55	+0·37	+0·45	+0·41	+0·33	+0·11	−0·14	−0·30	−0·33	n−0·47	−0·43	−0·37	−0·34	−0·27
J.	−0·31	−0·26	−0·09	+0·02	−0·09	+0·14	+0·39	+0·60	x+0·74	+0·67	+0·52	+0·24	+0·15	+0·01	−0·19	−0·19	−0·24	n−0·30	−0·27	−0·37	−0·32	−0·36	−0·23	−0·22
J.	−0·36	−0·06	−0·11	+0·09	+0·25	+0·36	+0·41	+0·74	+0·96	x+1·10	+0·77	+0·44	−0·16	−0·42	−0·29	−0·39	−0·30	−0·11	−0·27	−0·64	n−0·67	−0·59	−0·45	−0·35
A.	−0·28	−0·37	−0·23	−0·20	−0·18	+0·02	+0·30	+0·59	x+0·75	+0·66	+0·55	+0·42	+0·07	−0·24	−0·09	−0·09	−0·05	−0·13	−0·37	n−0·52	−0·30	−0·19	−0·23	−0·33
S.	−0·46	−0·24	−0·12	−0·11	−0·08	+0·02	+0·35	+0·52	+1·00	x+1·27	+1·12	+0·44	+0·06	−0·22	−0·13	−0·22	−0·10	−0·25	−0·43	n−0·51	−0·50	−0·49	−0·53	−0·42
O.	−0·18	−0·20	−0·29	−0·26	n−0·47	−0·46	−0·32	−0·12	+0·42	+0·77	x+0·81	+0·72	+0·46	+0·21	+0·08	+0·15	+0·14	−0·06	−0·15	−0·19	−0·25	−0·31	−0·28	−0·23
N.	−0·01	+0·14	+0·04	−0·09	−0·23	−0·32	n−0·37	−0·26	−0·06	+0·10	+0·06	+0·11	+0·05	+0·04	+0·23	+0·22	x+0·29	+0·13	+0·02	−0·02	−0·07	−0·07	0·00	+0·01
D.	+0·13	+0·08	0·00	−0·09	−0·11	−0·15	−0·20	−0·03	+0·25	x+0·43	+0·33	+0·17	−0·17	−0·17	+0·05	+0·11	+0·11	−0·10	n−0·35	−0·26	−0·13	−0·04	+0·10	+0·03
Y.	−0·23	−0·18	−0·15	−0·13	−0·16	−0·12	−0·05	+0·11	+0·39	+0·58	x+0·61	+0·47	+0·21	+0·02	+0·10	+0·07	+0·04	−0·07	−0·20	n−0·29	n−0·29	−0·27	−0·23	−0·23
W.	−0·01	−0·02	−0·05	−0·07	−0·18	−0·23	n−0·35	−0·27	−0·08	+0·08	+0·19	x+0·28	+0·11	+0·04	+0·18	+0·25	+0·26	+0·11	−0·02	−0·04	−0·10	−0·03	+0·01	−0·05
Eq.	−0·38	−0·26	−0·25	−0·21	−0·26	−0·28	−0·12	+0·03	+0·50	+0·92	x+1·03	+0·76	+0·40	+0·08	+0·12	+0·03	+0·04	−0·09	−0·27	−0·34	−0·35	−0·39	n−0·40	−0·34
S.	−0·29	−0·28	−0·15	−0·10	−0·04	+0·15	+0·32	+0·58	+0·74	x+0·75	+0·60	+0·37	+0·13	−0·06	−0·02	−0·07	−0·18	−0·23	−0·31	n−0·50	−0·43	−0·38	−0·31	−0·29

* The Declination record for July 15th was not available.

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

OF DECLINATION AND HORIZONTAL FORCE.

for the Months, Year, and Seasons.　　　　　**1911.**

ΔH　　LVI.—HORIZONTAL FORCE.

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.	−2·2	−5·4	−5·1	−2·7	+0·3	+1·2	+3·8	+3·0	+0·2	−1·0	−3·5	n−5·9	−3·1	−0·5	+1·0	+0·3	+0·3	+3·2	+2·8	+3·5	x+3·9	+3·5	+2·1	+0·6
F.	−1·8	−2·2	−3·3	−3·0	0·0	+2·9	+5·8	x+7·0	+6·0	+0·6	−4·2	n−4·5	−3·9	−3·4	−1·9	−3·5	−2·3	+0·2	+3·5	+0·8	+2·1	+1·7	+1·1	+1·9
M.	+4·1	+0·5	−1·7	−0·4	+1·7	+3·9	x+7·7	+7·5	+0·2	−8·2	−16·1	n−18·3	−13·5	−7·8	−3·2	+0·5	+2·2	+4·0	+6·0	+7·2	+6·4	+6·4	+6·9	+4·7
A.	+2·3	+0·6	−0·1	+0·1	+0·9	+1·6	+0·2	−3·5	−10·3	−18·2	n−20·4	−13·3	−5·2	+0·8	+1·6	+3·6	+5·0	+5·6	+8·7	+9·0	x+9·4	+8·7	+7·9	+5·7
M.	+2·0	+1·8	+0·6	−0·3	−0·6	−4·1	−3·8	−7·8	−10·4	−11·6	n−12·7	−9·1	−7·7	−4·4	−0·6	+1·8	+5·5	+9·6	+9·5	x+11·4	+10·4	+8·3	+6·3	+5·5
J.	+1·6	−0·7	−3·6	−4·7	−3·4	−4·8	−6·6	−11·0	n−14·2	−11·3	−9·3	−5·3	−2·8	+0·8	+4·6	+7·2	+7·2	+9·7	+8·6	x+10·0	+7·7	+8·6	+5·9	+5·6
J.	+3·3	+0·1	−2·6	−1·0	−1·2	−2·3	−2·4	−8·5	−14·4	−19·6	n−19·7	−14·9	−6·8	−1·9	+3·3	+7·3	+8·8	+9·6	+10·9	x+12·7	+12·1	+11·1	+8·7	+7·1
A.	+2·3	+0·6	−1·3	−1·9	−0·1	−2·7	−3·3	−9·6	−14·6	n−17·2	−15·4	−11·7	−3·7	+0·7	+2·7	+2·8	+5·5	+8·3	x+13·3	+12·2	+10·2	+8·1	+7·2	+7·3
S.	+4·0	−0·8	−1·4	−1·0	−0·3	−0·2	−4·4	−8·5	−16·0	n−20·4	−20·3	−10·5	−3·1	+3·7	+5·5	+7·1	+5·3	+7·3	+10·0	+9·5	x+10·1	+9·1	+8·0	+6·8
O.	+0·7	−0·4	+1·0	+1·2	+3·5	+3·4	+2·5	−0·9	−6·7	−12·3	n−14·1	−11·1	−6·8	−2·0	−0·5	+0·5	+2·1	+5·1	+5·0	+5·8	+6·0	x+6·6	+6·3	+4·8
N.	−2·0	−3·7	−3·9	+0·2	+2·4	+2·8	x+5·0	+0·9	−3·2	n−6·2	−5·8	−3·4	−0·7	+0·9	+0·6	+0·6	+2·5	+3·0	+2·8	+2·5	+2·7	+1·1	+0·5	−0·1
D.	−4·7	n−7·0	n−7·0	−4·0	−1·7	+1·8	+2·0	+1·1	−2·5	−4·3	−2·9	+2·0	+7·3	x+8·0	+4·2	+3·0	+3·3	+3·4	+3·6	+1·7	−0·6	−1·0	−3·4	−1·9
Y.	+0·8	−1·4	−2·4	−1·4	+0·1	+0·3	+0·5	−2·5	−7·2	−10·8	n−12·0	−8·8	−4·2	−0·4	+1·4	+2·6	+3·8	+5·8	+7·1	x+7·2	+6·7	+6·0	+4·8	+4·0
W.	−2·7	−4·6	n−4·8	−2·4	+0·3	+2·2	x+4·1	+3·0	+0·2	−2·7	−4·1	−2·9	−0·1	+1·2	+1·0	+0·1	+1·0	+2·5	+3·2	+2·1	+2·0	+1·3	+0·1	+0·2
Eq.	+2·8	−0·1	−0·5	0·0	+1·4	+2·1	+1·5	−1·3	−8·2	−14·8	n−17·7	−13·3	−7·2	−1·3	+0·8	+2·9	+3·7	+5·5	+7·4	+7·9	x+8·0	+7·7	+7·3	+5·5
S.	+2·3	+0·5	−1·7	−2·0	−1·3	−3·5	−4·0	−9·2	−13·4	n−14·9	−14·3	−10·2	−5·2	−1·2	+2·5	+4·8	+6·7	+9·3	+10·6	x+11·6	+10·1	+9·0	+7·0	+6·4

HORIZONTAL FORCE, INCLINATION, AND VERTICAL FORCE.

for the Months, Year, and Seasons.　　　　　**1911.**

ΔH.　　LVIII.—HORIZONTAL FORCE.

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

ΔZ (or ΔV).　　LX.—VERTICAL FORCE.

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

* The Horizontal Force Record for July 15th–16th was not available.　　　† The Vertical Force Record for July 15th was not available.

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.*　　　**1911.**

ΔX (or ΔN)　　LXI.—NORTH COMPONENT.

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

−ΔY (or ΔW)　　LXII.—WEST COMPONENT.

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

ΔZ (or ΔV)　　LXIII.—VERTICAL COMPONENT.

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.	−1·5	−1·1	−2·1	−1·7	−0·3	−2·2	−1·0	+1·6	−0·2	−2·0	n−2·8	−2·4	−2·2	−0·4	+2·6	+3·4	x+3·6	+2·6	+2·7	+1·7	+1·3	+0·9	+0·1	−0·1
F.	−2·7	−4·1	n−5·1	−2·3	−1·9	−1·9	−1·6	−2·6	−2·2	−3·4	−4·6	−3·8	−2·8	−0·4	+3·2	x+7·2	+6·8	+6·9	+4·7	+4·5	+3·7	+3·7	+1·1	−3·3
M.	+0·5	−0·4	−0·1	−1·4	−0·9	−2·1	−2·2	−0·7	+0·2	−1·7	−2·0	−3·5	n−5·4	−2·9	−3·0	+3·8	x+3·9	+2·9	+2·4	+3·3	+1·2	+1·1	+1·4	
A.	−0·4	0·0	−1·0	+0·2	−0·2	−0·2	+0·9	+0·5	−1·3	−2·7	−5·5	n−8·5	−7·3	−2·5	+1·1	+3·9	+4·7	x+4·8	x+4·8	+4·2	+3·2	+1·2	0·0	0·0
M.	+2·5	+3·4	+4·4	+4·7	+5·4	x+6·7	+6·1	+4·2	−1·3	−6·8	−8·8	n−10·7	−8·4	−5·0	−2·7	+0·8	+0·9	+2·3	+2·4	+1·5	+0·6	−0·4	−1·1	−1·4
J.	+0·8	+0·9	+1·9	+3·4	+3·8	+2·3	+0·9	+0·2	−3·2	−7·1	−9·5	n−12·8	−11·5	−6·9	−3·8	−0·9	+4·7	+6·7	+7·2	x+7·4	+6·1	+3·5	+2·4	+2·2
J.	−1·3	−0·3	+1·3	+1·9	+3·4	+2·0	+1·2	+0·5	−1·1	−2·7	−6·6	n−9·0	n−9·0	−6·9	−1·5	+3·1	+5·4	x+7·6	+6·0	+3·5	+2·3	+0·9	+0·2	0·0
A.	+0·7	+0·6	+1·4	+1·7	+2·6	+3·7	+3·4	+1·1	−1·3	−6·4	−9·7	n−10·0	−9·1	−6·4	+0·5	x+5·1	+5·0	+4·7	+1·8	+2·3	+2·4	+2·6	+2·5	+0·8
S.	−0·2	+0·8	+1·1	+1·3	+1·4	+1·3	+2·7	+1·8	+0·8	−1·3	−4·5	n−8·0	−6·5	−4·7	−0·2	+1·8	x+3·7	+1·7	+1·6	+1·3	+1·5	+1·2	+0·8	+0·7
O.	−0·6	−0·6	−0·2	−0·2	−1·2	−1·5	−1·1	+0·3	−0·3	−0·7	−1·7	n−2·3	−1·7	−0·9	+1·3	x+3·3	+2·5	+1·9	+1·8	+1·6	+1·4	+0·4	0·0	−0·6
N.	+0·1	+0·1	−0·1	−0·5	−1·1	−0·9	−1·3	−1·5	−1·1	n−3·1	n−3·1	−2·1	+0·1	+1·5	x+2·9	x+2·9	+2·3	+1·7	+1·9	+0·9	+0·3	+0·1	+0·1	+0·3
D.	0·0	−0·2	−0·4	−0·2	0·0	−0·5	−0·7	−0·7	n−0·9	+0·1	−0·1	−0·5	−0·1	+0·7	+0·9	+0·9	x+1·1	+0·9	+0·4	−0·2	−0·2	−0·2	+0·2	+0·2
Y.	−0·2	−0·1	+0·1	+0·6	+0·9	+0·6	+0·6	+0·3	−1·0	−3·2	−4·9	n−6·1	−5·3	−2·9	+0·4	+2·9	+3·7	x+3·8	+3·2	+2·6	+2·2	+1·3	+0·6	0·0
W.	−1·0	−1·3	−1·9	−1·1	−0·8	−1·4	−1·2	−0·8	−1·1	−2·1	n−2·7	−2·2	−1·3	+0·3	+2·4	x+3·6	+3·4	+3·0	+2·4	+1·7	+1·3	+1·1	+0·4	−0·7
Eq.	−0·2	−0·1	−0·1	0·0	−0·2	−0·6	+0·1	+0·3	−0·2	−1·6	−3·4	n−5·6	−5·2	−2·8	+0·7	+2·9	x+3·7	+3·1	+2·8	+2·4	+2·3	+1·0	+0·5	+0·4
S.	+0·6	+1·2	+2·3	+2·9	+3·8	+3·7	+2·9	+1·5	−1·7	−5·8	−8·7	n−10·6	−9·5	−6·3	−1·9	+2·3	+4·0	x+5·3	+4·4	+3·7	+2·9	+1·7	+1·0	+0·4

LXIV.—RANGE AND NON-CYCLIC (24ʰ−0ʰ) CHANGE OF THE MEAN DIURNAL INEQUALITIES OF MAGNETIC FORCE FOR THE MONTHS, YEAR AND SEASONS OF 1911, AT THREE OBSERVATORIES.

	ESKDALEMUIR — All days except October 7 and 8									ESKDALEMUIR — Selected quiet Days						KEW — Selected quiet Days				FALMOUTH — Selected quiet Days					
Refer to Table	XLIX X		L −Y		LI Z		LII D	LIII I	LIV H	LXI X		LXII −Y		LXIII Z		LV D		LVI H		LVII D		LVIII H	LIX I	LX 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
J.	20·3	−0·1	28·0	−1·4	23·1	+2·5	6·38	1·27	17·2	18·0	+3·6	14·1	−2·8	6·4	+4·6	2·25	−0·42	9·8	+3·3	3·51	−0·10	16·0	0·84	9·5	−7·7
F.	27·2	+0·7	34·5	+1·3	31·7	+1·4	7·70	1·58	23·0	19·8	+6·6	22·0	−4·8	12·3	−0·2	4·03	−0·78	11·5	+2·9	4·48	−0·92	17·1	1·18	16·7	−2·9
M.	40·2	0·0	33·8	+0·5	26·9	+6·5	8·02	2·27	35·0	31·0	−3·0	36·4	−2·8	9·3	+7·4	6·68	−0·38	26·0	−0·7	7·60	−0·40	27·1	1·59	14·0	−4·9
A.	48·6	−0·1	41·1	−1·0	26·4	+3·2	8·83	2·72	45·3	39·5	+7·6	43·2	+2·6	13·3	+5·0	8·41	−0·30	29·8	+5·1	9·03	+0·06	32·4	1·85	20·6	−6·5
M.	50·4	−0·6	43·3	+0·2	22·7	+1·5	9·10	3·02	51·5	37·9	+5·8	34·7	+11·4	17·4	+6·6	7·96	+0·80	24·1	+11·1	7·69	+0·62	24·2	1·05	22·0	+6·9
J.	43·7	+0·9	44·7	+0·7	20·6	+0·7	8·81	2·55	44·4	32·4	+4·8	41·7	+2·2	20·2	+1·2	7·58	+0·54	24·2	+4·6	7·64	0·00	21·9	1·11	20·4	−1·5
J.	44·1	−0·5	45·3	+0·7	22·0	+0·9	9·08	2·85	48·5	38·2	+2·8	55·1	−1·2	16·6	+0·8	11·01	+2·0	32·4	+1·8	10·55	+0·18	32·7	1·77	28·6	+1·5
A.	41·9	−0·6	49·1	0·0	22·2	+2·0	10·07	2·44	41·4	42·9	+1·2	48·6	+4·8	15·1	+2·0	9·60	+0·24	30·5	−1·5	9·50	+0·32	23·4	1·27	23·2	+1·6
S.	39·2	+0·3	36·8	+1·2	15·1	+3·0	8·05	2·47	38·1	39·0	+1·6	38·3	−1·8	11·7	+3·4	7·85	−0·70	30·5	+1·1	8·46	−0·48	29·6	1·78	20·5	−4·8
O.	27·8	+0·3	30·5	+0·7	16·4	+5·0	7·27	1·82	25·8	27·9	+1·2	24·3	−0·6	5·6	+9·8	4·91	+0·18	20·7	+2·6	5·83	+0·52	22·5	1·28	13·0	+6·3
N.	18·7	+0·3	24·3	0·0	8·6	+2·8	5·51	1·06	16·0	16·2	+0·8	14·6	+0·4	6·0	+4·8	2·22	+0·52	11·2	+1·5	3·51	+0·06	11·5	0·66	15·9	+7·3
D.	9·0	0·0	19·7	+0·5	10·7	+4·8	4·15	0·66	7·2	11·5	−0·4	11·9	−1·2	2·0	+4·6	1·83	−0·14	15·0	+0·2	2·42	−0·42	11·5	0·78	8·5	+8·3
Y.	31·2	+0·1	29·3	+0·3	17·6	+2·9	6·34	1·57	28·2	26·4	...	28·8	...	9·9	...	5·84	...	19·2	...	6·05	...	19·3	0·90	16·0	...
W.	16·2	+0·3	23·6	+0·1	17·2	+2·9	...	...	...	14·1	...	14·2	...	6·3	...	2·46	...	8·9	...	3·21	...	12·2	0·63	10·1	...
Eq.	36·4	+0·1	34·4	+0·4	19·1	+4·4	...	...	...	32·5	...	34·9	...	9·3	...	6·70	...	25·7	...	7·43	...	25·9	1·43	15·5	...
S.	43·6	−0·2	44·3	+0·4	21·6	+1·3	...	...	...	36·9	...	44·5	...	15·9	...	8·90	...	26·5	...	8·81	...	25·0	1·25	22·8	...

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

The formula used is—Inequality $= a_1 \sin 15t° + b_1 \cos 15t° + a_2 \sin 30t° + b_2 \cos 30t° + \ldots$
$$= c_1 \sin(15t + a_1) + c_2 \sin(30t + a_2) + \ldots$$
t being time of day measured in hours from midnight G.M.T.

Eskdalemuir. 1911.

Month and Year	North Component ΔX. (or ΔN.)								West Component −ΔY. (or ΔW.)								Vertical Component ΔZ. or (ΔV.)							
	a_1	b_1	a_2	b_2	c_1	a_1	c_2	a_2	a_1	b_1	a_2	b_2	c_1	a_1	c_2	a_2	a_1	b_1	a_2	b_2	c_1	a_1	c_2	a_2
J.	+4·9	+1·0	−3·9	−2·0	5·0	78·2	4·3	243·1	−9·1	+2·1	+0·9	+4·5	9·4	283·0	4·6	11·6	−1·0	−8·6	−3·0	−1·2	8·7	186·9	3·2	247·4
F.	+8·5	+1·4	−6·0	−2·4	8·6	80·5	6·4	248·5	−9·6	+1·5	+2·4	+7·4	9·7	279·1	7·8	18·2	−4·1	−10·8	−5·2	−0·5	11·5	200·7	5·2	264·2
M.	+12·8	−1·6	−8·7	−2·7	12·9	97·3	9·1	252·5	−7·5	+3·5	+0·6	+8·7	8·3	245·0	8·7	3·7	−2·9	−10·2	−4·7	−0·6	10·6	196·1	4·7	262·2
A.	+15·3	−5·8	−8·9	−0·9	16·4	110·6	8·9	264·4	−8·2	−9·3	+1·8	+9·1	12·4	221·4	9·3	11·0	−0·9	−10·2	−4·7	−1·9	10·3	185·0	5·0	247·7
M.	+16·3	−8·7	−9·6	+0·5	18·5	118·2	9·6	273·2	−4·5	−13·9	+4·2	+7·1	14·6	197·8	8·8	28·9	+1·3	−7·7	−5·9	−2·2	7·9	170·2	6·3	249·6
J.	+13·0	−8·8	−7·6	+1·8	15·7	124·1	7·8	283·6	−4·7	−17·1	+2·6	+8·0	17·7	195·3	8·4	18·0	+3·1	−5·6	−4·9	−2·3	6·4	150·8	5·4	245·2
J.	+13·8	−8·3	−8·5	+1·8	16·1	120·9	8·7	282·0	−6·3	−16·6	+3·2	+8·0	17·7	200·7	8·6	21·6	+2·0	−6·2	−5·7	−2·3	6·5	161·9	6·2	248·2
A.	+14·6	−6·3	−8·3	+1·6	15·9	113·5	8·5	280·9	−5·9	−12·6	+6·6	+6·9	13·9	205·2	9·5	43·4	+2·4	−5·0	−5·9	−0·4	5·5	154·3	5·9	266·2
S.	+15·2	−3·2	−7·0	+2·2	15·5	102·0	7·4	287·2	−6·7	−7·6	+4·7	+7·5	10·1	221·7	8·8	32·3	+0·6	−3·9	−3·4	−0·9	3·9	171·4	3·5	255·0
O.	+10·2	+0·8	−5·8	+0·3	10·2	85·3	5·8	273·4	−8·3	−3·1	+0·4	+6·7	8·9	249·7	6·7	3·6	−1·1	−6·9	−2·5	−0·9	7·0	188·7	2·6	248·9
N.	+5·3	+0·8	−4·4	−1·0	5·3	81·0	4·5	256·8	−7·9	−0·6	+1·5	+3·7	7·9	265·7	4·0	22·1	−0·4	−4·1	−1·4	+0·1	4·1	186·0	1·4	273·9
D.	+1·3	+0·4	−0·8	−0·5	1·3	70·9	0·9	237·3	−7·2	+1·0	+2·0	+1·1	7·3	277·7	2·3	61·4	−0·4	−4·3	−1·4	+0·4	4·3	185·2	1·5	285·9
Y.	+10·9	−3·2	−6·6	−0·1	11·4	106·2	6·6	269·2	−7·2	−6·6	+2·6	+6·6	9·8	227·2	7·1	21·3	−0·1	−7·0	−4·1	−1·1	7·0	181·0	4·2	255·3

Kew and Eskdalemuir. LXVI.—QUICK RUNS OF THE RECORDING MAGNETOGRAPHS. 1911.

Date	Time G.M.T.	KEW — Character of Trace	KEW Approx. Range D	KEW Approx. Range H	ESKDALEMUIR — Character of Trace	ESK. Approx. Range N	W	V
1911.	hours.			γ		γ	γ	γ
May 22	17 to 19	Quiet.	1′	8	N slightly disturbed; W and V quiet.	15	5	6
26	17 ,, 19	Moderately disturbed, especially H.	2½	30	Moderately disturbed.	34	29	8
29	8 ,, 10	Quiet.	3	8	Slightly disturbed.	19	11	13
June 2	8 ,, 10	Very quiet.	1¾	5	Trace lost owing to stoppage of clock.	...	...	...
19	17 ,, 19	Quiet.	1	8	...	...	...	...
23	17 ,, 19	D quiet; H moderately disturbed.	1¼	25	N moderately disturbed''; W slightly ''; V quiet.	39	16	4
26	8 ,, 10	Quiet.	2	5	N and W quiet; V slightly disturbed.	10	9	14
30	8 ,, 10	Quiet.	2	7	Quiet.	13	4	11
July 17	17 ,, 19	Moderately disturbed, especially H.	3½	33	Disturbed.	54	37	11
21	17 ,, 19	Quiet.	1½	8	N and W slightly disturbed; V quiet.	21	10	3
24	8 ,, 10	D slightly disturbed; H quiet.	3¾	5	Slightly disturbed.	11	17	7
28	8 ,, 10	Moderately disturbed, especially D.	7¾	18	Disturbed.	46	33	18
November 20	18 ,, 20	Very quiet.	¾	3	Very quiet.	3	5	3
24	18 ,, 20	Very quiet.	1	8	Very quiet.	4	4	3
December 18	18 ,, 20	Very quiet.	1	7	Very quiet.	5	9	2
22	18 ,, 20	Very quiet.	1	8	Very quiet.	9	4	3

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

1911.	KEW (quiet days D and H, absolute observations I. See p. 63).				ESKDALEMUIR (all days).				FALMOUTH (quiet days only).				VALENCIA (2 absolute observations per month).			
	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	·17789	·05093	·43515	·47286	·15999	·05279	·45362	·48389	·17914	·05690	·43190	·47103	·16741	·06324	·44773	·48217
February	·17795	·05100	·43543	·47314	·15998	·05277	·45321	·48351	·17925	·05688	·43187	·47106	·16724	·06310	·44747	·48185
March	·17789	·05090	·43515	·47285	·15998	·05277	·45331	·48360	·17909	·05680	·43177	·47086	·16731	·06305	·44726	·48167
April	·17784	·05084	·43482	·47253	·16000	·05272	·45380	·48406	·17919	·05676	·43150	·47065	·16734	·06290	·44771	·48208
May	·17790	·05081	·43494	·47265	·16002	·05270	·45355	·48383	·17920	·05677	·43159	·47076	·16731	·06307	·44737	·48178
June	·17793	·05077	·43470	·47244	·16007	·05266	·45349	·48378	·17947	·05675	·43208	·47129	·16730	·06293	·44669	·48113
July	·17805	·05070	·43494	·47270	·16009	·05263	·45349	·48379	·17914	·05664	·43161	·47073	·16747	·06302	·44702	·48150
August	·17793	·05072	·43474	·47247	·16006	·05258	·45341	·48370	·17927	·05668	·43136	·47056	·16753	·06308	·44752	·48199
September	·17787	·05066	·43461	·47233	·16003	·05257	·45315	·48344	·17905	·05651	·43144	·47053	·16735	·06316	·44717	·48162
October	·17793	·05061	·43476	·47248	·16003	·05251	·45329	·48357	·17901	·05648	·43140	·47047	·16747	·06292	·44713	·48159
November	·17793	·05064	·43487	·47258	·16004	·05246	·45347	·48374	·17933	·05651	·43164	·47080	·16765	·06307	·44727	·48180
December	·17798	·05052	·43474	·47247	·16004	·05245	·45349	·48375	·17966	·05655	·43251	·47172	·16756	·06300	·44726	·48175
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	The values for 1910 are for 2 to 5 absolute observations per month. See M. O. publication, *Summaries of Results* for 1910.				·17817	·05837	·43328	·47212	·16640	·06447	·44893	·48313
Year 1900	·17634	·05350	·43831	·47548					·17725	·05925	·43507	·47351	...	...	...	...

1911.	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 58·6	66 57·8	·18504	18 15·6	69 37·5	·16847	17 37·2	66 28·9	·18796	20 41·6	68 12·8	·17896
February	15 59·5	66 58·1	·18511	18 15·3	69 36·6	·16846	17 36·3	66 28·1	·18806	20 40·2	68 13·5	·17875
March	15 58·1	66 57·9	·18503	18 15·3	69 36·8	·16846	17 35·8	66 29·0	·18788	20 38·9	68 12·6	·17880
April	15 57·3	66 57·3	·18497	18 14·2	69 38·0	·16846	17 34·5	66 27·7	·18796	20 36·0	68 14·0	·17877
May	15 56·4	66 57·4	·18501	18 14·1	69 37·3	·16848	17 34·6	66 27·9	·18798	20 39·2	68 12·9	·17880
June	15 55·5	66 56·6	·18503	18 12·6	69 36·9	·16851	17 32·8	66 27·6	·18823	20 36·8	68 11·5	·17874
July	15 53·6	66 56·6	·18513	18 11·9	69 36·9	·16852	17 32·8	66 28·6	·18788	20 37·3	68 11·1	·17893
August	15 54·7	66 56·8	·18502	18 11·1	69 36·9	·16848	17 32·7	66 27·0	·18801	20 37·9	68 11·9	·17901
September	15 53·8	66 56·9	·18494	18 11·1	69 36·6	·16844	17 31·0	66 28·9	·18776	20 40·6	68 11·9	·17887
October	15 52·6	66 57·0	·18499	18 10·0	69 37·0	·16843	17 30·7	66 29·1	·18771	20 35·5	68 11·6	·17890
November	15 53·2	66 57·3	·18500	18 8·9	69 37·5	·16842	17 29·4	66 27·7	·18802	20 37·0	68 10·5	·17912
December	15 50·8	66 56·8	·18501	18 8·7	69 37·5	·16842	17 28·3	66 28·0	·18835	20 36·3	68 11·2	·17901
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	The values for 1910 are for 2 to 5 absolute observations per month. See M. O. publication, *Summaries of Results* for 1910.			18 8·4	66 36·1	·18749	21 10·4	68 19·2	·17848
Year 1900	16 52·7	67 11·8	·18428				18 29·1	66 45·2	·18689	...	...	...

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

Place.	Latitude.	Longitude.	1911. Declination.	1911. Inclination N.	1911. Horizontal Force, C.G.S.	1911. Vertical Force, C.G.S.	1910. Declination.	1910. Inclination N.	1910. Horizontal Force, C.G.S.	1910. Vertical Force, C.G.S.	1909. Declination.	1909. Inclination N.	1909. Horizontal Force, C.G.S.	1909. Vertical Force, C.G.S.
	N.		° ′	° ′			° ′	° ′			° ′	° ′		
Rude Skov	55 51	12 27 E.	...	...	...	...	9 28·7 W.	68 45·0	·17375	·44680	9 36·1 W.	68 44·0	·17394	·44690
Eskdalemuir	55 19	3 12 W.	18 12·4 W.	69 37·1	·16846	·45344	18 23·3 W.	69 37·8	·16836	·45343	18 30·1 W.	69 38·9	·16835	·45385
Stonyhurst	53 51	2 28 W.	17 13·3 W.	68 41·4	·17412	·44637	17 20·0 W.	68 42·2	·17407	·44655	17 28·6 W.	68 42·8	·17424	·44722
Wilhelmshaven	53 32	8 9 E.	...	...	...	...	11 37·0 W.	...	·18124	...	11 46·8 W.	67 30·0	·18129	·43767
Potsdam	52 23	13 4 E.	8 54·5 W.	66 20·0	·18816	·42930	9 2·9 W.	66 19·6	·18828	·42945	9 10·6 W.	66 20·0	·18834	·42971
Seddin	52 17	13 1 E.	8 55·8 W.	66 17·0	·18854	·42915	9 4·4 W.	66 16·6	·18866	·42932	9 12·1 W.	66 17·0	·18872	·42958
De Bilt (Utrecht)	52 5	5 11 E.	...	...	...	...	...	...	...	...	13 6·5 W.	66 47·8	·18544	·43260
Valencia (Ireland)	51 56	10 15 W.	20 38·1 W.	68 12·1	·17889	·44730	20 44·6 W.	68 13·0	·17892	·44771	20 50·3 W.	68 15·1	·17877	·44812
Kew	51 28	0 19 W.	15 55·3 W.	66 57·2	·18502	·43490	16 3·2 W.	66 58·7	·18503	·43546	16 10·8 W.	66 59·7	·18506	·43588
Greenwich	51 28	0 0	15 33·0 W.	66 52·1	·18529	·43374	15 41·2 W.	66 52·6	·18532	·43399	15 47·6 W.	66 53·9	·18526	·43432
Uccle (Brussels)	50 48	4 21 E.	...	...	...	...	13 22·2 W.	...	·19028	...	13 29·7 W.	...	·19030	...
Falmouth	50 9	5 5 W.	17 33·0 W.	66 28·2	·18798	·43172	17 41·6 W.	66 29·0	·18802	·43208	17 48·4 W.	66 30·6	·18802	·43266
Prague	50 5	14 25 E.	...	...	...	...	8 9·6 W.	...	...	...	8 15·1 W.	...	...	...
Cracow	50 4	19 58 E.	5 18·1 W.	64 15·5	...	...	5 27·4 W.	...	...	...	5 35·1 W.	64 18·0	...	...
Val Joyeux (near Paris)	48 49	2 1 E.	14 17·6 W.	64 41·6	·19744	·41757	14 25·7 W.	64 43·0	·19738	·41788	14 32·9 W.	64 43·9	·19727	·41792
Munich	48 9	11 37 E.	....	...	...	...	9 31·5 W.	63 8·4	·20639	·40751	9 39·9 W.	63 6·6	·20631	·40684
O'Gyalla (Pesth)	47 53	18 12 E.	6 25·6 W.	...	·21067	...	6 34·5 W.	...	·21076	...	6 43·9 W.	...	·21094	...
Pola	44 52	15 51 E.	...	...	...	...	8 28·0 W.	60 4·7	·22194	·38562	8 36·2 W.	60 6·1	·22194	·38599
Agincourt (Toronto)	43 47	79 10 W.	...	...	...	...	6 3·9 W.	74 38·5	·16268	·59228	5 59·4 W.	74 37·5	·16299	·59273
Perpignan	42 42	2 53 E.	...	...	...	...	12 44·8 W.	...	...	...	12 52·0 W.	...	...	...
Capodimonte (Naples)	40 52	14 15 E.	...	...	...	...	...	...	...	...	...	56 14·4	...	...
Tortosa	40 49	0 30 E.	...	...	...	...	13 25·9 W.	57 57·3	·23251	·37145	...	...	...	...
Baldwin (Kansas)	38 47	95 10 W.	...	...	...	...	...	...	...	...	8 34·0 E.	68 50·2	·21666	·55964
Cheltenham (Maryland)	38 44	76 50 W.	...	...	...	...	5 41·4 W.	70 35·4	·19826	·56265	5 36·4 W.	70 32·8	·19883	·56294
San Fernando	36 28	6 12 W.	...	...	...	...	15 13·6 W.	54 43·4	·24879	·35053	15 19·5 W.	54 43·4	·24849	·35126
Tokio	35 41	139 45 E.	...	...	...	...	...	...	...	...	4 55·7 W.	49 1·8	·30005	·34554
Dehra Dun	30 19	78 3 E.	...	...	...	...	...	...	...	...	2 34·8 E	43 48·0	·33276	·31909
Helwan	29 52	31 21 E.	2 33·2 W.	40 41·9	·30030	·25828	2 41·5 W.	40 40·5	·30029	·25806	2 49·2 W.	40 40·4	·30031	·25804
Barrackpore	22 46	88 22 E.	...	...	...	...	...	...	...	...	1 0·7 E.	30 38·7	·37300	·22099
Hong Kong	22 18	114 10 E.	...	...	...	...	0 0·4 E.	30 58·8	·37108	·22279	0 2·2 E.	31 0·5	·37091	·22293
Honolulu (Hawaii)	21 19	158 4 W.	...	...	...	...	9 29·7 E.	39 47·2	·29161	·24284	9 27·3 E.	39 51·4	·29167	·24350
Toungoo	18 56	96 27 E.	...	...	...	...	...	...	...	...	0 30·0 E.	23 1·5	·38766	·16475
Alibag (Bombay)	18 39	72 52 E.	0 54·7 E.	23 45·9	·36856	·16228	0 57·7 E.	26 36·3	·36845	·16101	...	...	...	...
Antipolo	14 36	121 10 E.	0 40·9 E.	16 18·2	·38205	·11174	...	...	...	...	...	...	...	...
Kodai-Kanal	10 14 S.	77 28 E.	...	...	...	...	...	...	...	...	0 50·1 W.	3 39·1 S.	·37459	·02391
Mauritius	20 6	57 33 E.	...	...	...	...	9 18·1 W.	53 34·7 S.	·23327	·31615	9 16·3 W.	53 39·8	·23377	·31781
Rio de Janeiro	22 55	43 11 W.	...	...	...	...	9 40·0 W.	...	...	...	9 28·0 W.	...	...	...
Santiago (Chili)	33 27	70 42 W.	...	...	...	...	...	...	...	...	13 57·9 E.	29 57·2	...	...

ADDITIONAL VALUES FOR EARLIER YEARS.

Place.	Latitude.	Longitude.	1908. Declination.	1908. Inclination N.	1908. C.G.S.	1908. C.G.S.	1907. Declination.	1907. Inclination N.	1907. C.G.S.	1907. C.G.S.	1906. Declination.	1906. Inclination N.	1906. C.G.S.	1906. C.G.S.
	N.		° ′	° ′ N.			° ′	° ′ N.			° ′	° ′ N.		
Pawlowsk	59 41	30 29 E.	...	...	...	...	1 9·9 E.	70 37·7	·16503	·46937	...	...	...	...
Sitka (Alaska)	57 3	135 20 W.	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	...	...	...	...	...	...
Munich	48 9	11 37 E.	9 47·3 W.	63 8·1	·20636	·40739	9 53·7 W.	63 9·6	·20644	·40799	9 59·5 W.	63 10·0	·20655	·40830
Coimbra	40 12	8 25 W.	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 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 (Hawaii)	21 19	158 4 W.	9 25·7 E.	39 55·3	·29188	·24424	9 24·3 E.	39 59·1	·29201	·24489				
Vieques (Porto Rico)	18 9 S.	65 26 W.	2 2·5 W.	49 36·3 S.	·29050	·34140	1 53·7 W.	49 29·3 S.	·29135	·34100				
Batavia	6 11	106 49 E.	...	...	...	...	0 52·3 E.	30 55·3	·36710	·21988				
Apia	13 48	171 46 W.	9 41·9 E.	29 21·7	·35613	·20036	...	...	...	...				
Rio de Janeiro	22 55	43 11 W.	...	...	...	...	8 59·0 W.	...	...	...				

1905.

Place	Declination	Inclination N.	C.G.S.	C.G.S.
Irkutsk, Lat. 52° 16′ N. Long. 104° 16′ E.	1 58·1 E.	70 25·0	·20011	·56250
Toulouse, Lat. 43° 37′ N. Long. 1° 28′ E.	13 56·3 W.	60 49·1	·22025	·39439
Tiflis, Lat. 41° 43′ N. Long. 44° 48′ E.	2 41·6 E.	56 2·8	·25451	·37799
Havana, Lat. 23° 8′ N. Long. 82° 25′ W.	2 58·0 E.	52 57·4	·30531	·40452

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

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

LXIX.—PRESSURE IN MILLIBARS.

Hour, G.M.T.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.
	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.
JANUARY.												
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 1911	+10·21	+10·45	+10·51	+10·50	+10·61	+10·59	+10·68	+10·60	+10·62	+10·54	+10·42	+10·47
Eskdale, 1911. 990+	4·64	4·71	4·64	4·64	4·54	4·71	4·74	4·95	5·15	5·39	5·46	5·35
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 1911	+11·95	+11·89	+11·85	+11·88	+11·92	+11·94	+12·00	+12·00	+12·03	+11·94	+11·86	+11·77
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 1911	+ 9·78	+ 9·72	+ 9·63	+ 9·55	+ 9·57	+ 9·73	+ 9·78	+ 9·79	+ 9·77	+ 9·78	+ 9·74	+ 9·83
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 1911	+11·14	+11·07	+10·99	+10·89	+10·95	+11·01	+10·94	+10·88	+10·82	+10·77	+10·69	+10·72
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 1911	+ 2·50	+ 2·22	+ 2·16	+ 2·16	+ 2·10	+ 2·29	+ 2·18	+ 2·21	+ 2·03	+ 1·96	+ 2·06	+ 2·01
Eskdale, 1911. 980+	8·60	8·38	7·90	7·81	7·65	7·72	7·67	7·87	7·93	7·94	8·04	8·07
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 1911	+ 7·34	+ 7·26	+ 7·32	+ 7·25	+ 7·31	+ 7·29	+ 7·38	+ 7·18	+ 7·29	+ 7·27	+ 7·26	+ 7·24
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 1911	+ 7·68	+ 7·58	+ 7·30	+ 7·09	+ 6·97	+ 7·00	+ 6·96	+ 6·95	+ 6·88	+ 6·87	+ 6·83	+ 6·83
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 1911	+ 9·21	+ 9·06	+ 8·95	+ 8·85	+ 8·87	+ 8·94	+ 8·86	+ 8·80	+ 8·78	+ 8·83	+ 8·69	+ 8·79
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 1911	+ 4·62	+ 4·68	+ 4·69	+ 4·74	+ 4·82	+ 5·02	+ 5·11	+ 5·19	+ 5·27	+ 5·37	+ 5·28	+ 5·36
Eskdale, 1911. 980+	5·74	5·69	5·45	5·41	5·41	5·60	5·84	6·16	6·26	6·42	6·43	6·57
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 1911	+ 1·70	+ 1·64	+ 1·63	+ 1·62	+ 1·57	+ 1·54	+ 1·52	+ 1·36	+ 1·38	+ 1·29	+ 1·27	+ 1·23
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 1911	− 1·07	− 1·06	− 1·09	− 1·07	− 0·99	− 0·95	− 0·92	− 0·86	− 0·90	− 0·88	− 0·82	− 0·75
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 1911	− 0·61	− 0·50	− 0·44	− 0·40	− 0·34	− 0·35	− 0·43	− 0·41	− 0·40	− 0·31	− 0·41	− 0·39
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 1911	+ 1·16	+ 1·20	+ 1·28	+ 1·32	+ 1·29	+ 1·25	+ 1·22	+ 1·28	+ 1·08	+ 0·98	+ 0·87	+ 0·70
Eskdale, 1911. 980+	5·88	5·78	5·56	5·43	5·33	5·50	5·68	5·81	5·89	5·98	5·86	5·82
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 1911	+ 3·29	+ 3·36	+ 3·51	+ 3·53	+ 3·55	+ 3·53	+ 3·64	+ 3·56	+ 3·67	+ 3·58	+ 3·51	+ 3·46
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 1911	+ 3·56	+ 3·58	+ 3·59	+ 3·60	+ 3·59	+ 3·61	+ 3·71	+ 3·66	+ 3·70	+ 3·79	+ 3·70	+ 3·65
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 1911	+ 4·14	+ 4·15	+ 4·10	+ 4·46	+ 4·53	+ 4·59	+ 4·71	+ 4·79	+ 4·79	+ 4·77	+ 4·66	+ 4·62
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 1911	+ 0·74	+ 0·79	+ 0·78	+ 0·82	+ 0·81	+ 0·89	+ 0·87	+ 0·90	+ 0·87	+ 0·78	+ 0·74	+ 0·72
Eskdale, 1911. 980+	7·40	7·31	7·14	7·13	7·15	7·32	7·43	7·49	7·36	7·29	7·15	6·93
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 1911	+ 0·08	− 0·09	− 0·02	− 0·09	− 0·11	− 0·26	− 0·24	− 0·26	− 0·22	− 0·22	− 0·13	− 0·13
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 1911	− 0·05	0·00	+ 0·01	+ 0·17	+ 0·19	+ 0·26	+ 0·29	+ 0·35	+ 0·28	+ 0·33	+ 0·19	+ 0·06
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 1911	+ 0·49	+ 0·48	+ 0·47	+ 0·52	+ 0·49	+ 0·47	+ 0·40	+ 0·36	+ 0·28	+ 0·24	+ 0·16	+ 0·13
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 1911	− 0·77	− 0·77	− 0·84	− 0·86	− 0·94	− 0·95	− 1·03	− 1·13	− 1·19	− 1·24	− 1·34	− 1·32
Eskdale, 1911. 980+	6·71	6·57	6·33	6·27	6·23	6·31	6·41	6·44	6·32	6·24	6·14	6·13
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 1911	+ 0·73	+ 0·69	+ 0·74	+ 0·74	+ 0·77	+ 0·72	+ 0·81	+ 0·80	+ 0·84	+ 0·74	+ 0·84	+ 0·76
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 1911	+ 0·14	+ 0·09	+ 0·03	+ 0·01	− 0·02	− 0·08	− 0·11	− 0·09	− 0·08	− 0·02	− 0·02	− 0·01
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 1911	+ 0·25	+ 0·21	+ 0·20	+ 0·28	+ 0·29	+ 0·29	+ 0·30	+ 0·34	+ 0·28	+ 0·32	+ 0·24	+ 0·19

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

	G.M.T. of Local 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

OF THE METEOROLOGICAL ELEMENTS AT THE FIVE OBSERVATORIES
AND THE VALUES FOR 1911.

JANUARY TO JUNE.

13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.	Hour, G.M.T.
mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	JANUARY.
7·38	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.
+10·51	+10·45	+10·41	+10·39	+10·50	+10·65	+10·61	+10·74	+10·85	+10·97	+11·09	+11·22	+10·608	Diff. for 1911. ,,
5·08	4·81	4·78	4·91	4·95	5·19	5·29	5·46	5·46	5·56	5·59	5·66	5·069	1911. 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.
+11·88	+11·79	+11·76	+11·70	+11·93	+11·96	+12·02	+12·08	+12·18	+12·11	+12·16	+12·13	+11·947	Diff. for 1911. ,,
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.
+ 9·87	+ 9·90	+ 9·80	+ 9·85	+ 9·91	+10·03	+10·02	+10·14	+10·12	+10·16	+10·17	+10·20	+ 9·868	Diff. for 1911. ,,
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.
+10·85	+10·86	+10·83	+ 10·82	+11·00	+11·12	+11·16	+11·18	+11·16	+11·18	+11·23	+11·31	+10·982	Diff. for 1911. ,,
													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.
+ 2·07	+ 2·13	+ 2·18	+ 2·25	+ 2·17	+ 2·10	+ 1·99	+ 1·83	+ 1·62	+ 1·41	+ 1·15	+ 0·89	+ 1·990	Diff. for 1911. ,,
7·83	7·60	7·53	7·52	7·49	7·79	7·91	7·89	7·76	7·75	7·58	7·46	7·820	1911. 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.
+ 7·27	+ 7·14	+ 7·03	+ 6·92	+ 6·83	+ 6·61	+ 6·47	+ 6·48	+ 6·60	+ 6·57	+ 6·70	+ 6·53	+ 7·023	Diff. for 1911. ,,
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.
+ 6·66	+ 6·66	+ 6·67	+ 6·69	+ 6·69	+ 6·72	+ 6·79	+ 6·79	+ 6·76	+ 6·69	+ 6·52	+ 6·49	+ 6·878	Diff. for 1911. ,,
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.
+ 8·85	+ 8·90	+ 8·94	+ 8·99	+ 8·89	+ 8·84	+ 8·80	+ 8·71	+ 8·56	+ 8·49	+ 8·42	+ 8·36	+ 8·808	Diff. for 1911. ,,
													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.
+ 5·44	+ 5·48	+ 5·53	+ 5·52	+ 5·57	+ 5·57	+ 5·54	+ 5·53	+ 5·52	+ 5·54	+ 5·50	+ 5·46	+ 5·265	Diff. for 1911. ,,
6·44	6·30	6·24	6·30	6·33	6·63	6·77	6·88	6·79	6·81	6·68	6·54	6·237	1911. 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.
+ 1·25	+ 1·24	+ 1·27	+ 1·29	+ 1·35	+ 1·34	+ 1·39	+ 1·31	+ 1·46	+ 1·35	+ 1·41	+ 1·34	+ 1·406	Diff. for 1911. ,,
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.
- 0·71	- 0·63	- 0·57	- 0·50	- 0·52	- 0·45	- 0·45	- 0·42	- 0·40	- 0·42	- 0·54	- 0·66	- 0·735	Diff. for 1911. ,,
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.
- 0·43	- 0·53	- 0·65	- 0·71	- 0·87	- 0·91	- 0·91	- 0·88	- 0·85	- 0·82	- 0·79	- 0·70	- 0·585	Diff. for 1911. ,,
													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.
+ 0·62	+ 0·55	+ 0·53	+ 0·52	+ 0·44	+ 0·45	+ 0·37	+ 0·50	+ 0·50	+ 0·54	+ 0·57	+ 0·72	+ 0·831	Diff. for 1911. ,,
5·69	5·59	5·39	5·36	5·29	5·43	5·58	5·84	5·87	5·90	5·83	5·87	5·673	1911. 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.
+ 3·38	+ 3·40	+ 3·48	+ 3·53	+ 3·58	+ 3·52	+ 3·50	+ 3·46	+ 3·61	+ 3·40	+ 3·34	+ 3·40	+ 3·491	Diff. for 1911. ,,
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.
+ 3·67	+ 3·69	+ 3·62	+ 3·66	+ 3·56	+ 3·57	+ 3·50	+ 3·57	+ 3·54	+ 3·48	+ 3·50	+ 3·52	+ 3·609	Diff. for 1911. ,,
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.
+ 4·52	+ 4·49	+ 4·31	+ 4·23	+ 4·30	+ 4·33	+ 4·30	+ 4·32	+ 4·35	+ 4·35	+ 4·35	+ 4·36	+ 4·438	Diff. for 1911. ,,
													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.
+ 0·59	+ 0·49	+ 0·36	+ 0·38	+ 0·42	+ 0·53	+ 0·58	+ 0·65	+ 0·78	+ 0·83	+ 0·90	+ 0·99	+ 0·717	Diff. for 1911. ,,
6·80	6·76	6·62	6·60	6·61	6·75	7·01	7·38	7·67	7·81	7·85	7·84	7·200	1911. 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.
- 0·07	- 0·09	+ 0·05	- 0·03	+ 0·07	+ 0·09	+ 0·11	+ 0·14	+ 0·20	+ 0·20	+ 0·21	+ 0·16	- 0·027	Diff. for 1911. ,,
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.
0·00	- 0·10	- 0·18	- 0·21	- 0·24	- 0·24	- 0·27	- 0·22	- 0·27	- 0·07	- 0·07	0·00	+ 0·009	Diff. for 1911. ,,
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.
+ 0·12	+ 0·15	+ 0·13	+ 0·11	+ 0·13	+ 0·20	+ 0·24	+ 0·33	+ 0·35	+ 0·44	+ 0·42	+ 0·51	+ 0·318	Diff. for 1911. ,,
													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.
- 1·36	- 1·39	- 1·37	- 1·28	- 1·33	- 1·28	- 1·22	- 1·21	- 1·27	- 1·26	- 1·29	- 1·36	- 1·170	Diff. for 1911. ,,
6·06	5·99	5·88	5·81	5·70	5·78	5·93	6·13	6·38	6·40	6·41	6·34	6·205	1911. 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.
+ 0·78	+ 0·66	+ 0·72	+ 0·65	+ 0·68	+ 0·60	+ 0·60	+ 0·46	+ 0·46	+ 0·35	+ 0·37	+ 0·32	+ 0·660	Diff. for 1911. ,,
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.
- 0·03	+ 0·04	+ 0·01	+ 0·06	+ 0·05	+ 0·10	+ 0·07	+ 0·14	+ 0·06	+ 0·03	- 0·08	- 0·11	+ 0·008	Diff. for 1911. ,,
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.
+ 0·18	+ 0·13	+ 0·07	+ 0·04	+ 0·02	·0·00	+ 0·02	+ 0·04	- 0·05	+ 0·03	+ 0·03	+ 0·04	+ 0·156	Diff. for 1911. ,,

The values for 1911 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 only published for the current year.

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

LXIX.—*continued*—PRESSURE IN MILLIBARS.

Hour, G.M.T.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.
	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.
JULY.												
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 1911	+ 6·36	+ 6·36	+ 6·33	+ 6·33	+ 6·34	+ 6·38	+ 6·35	+ 6·34	+ 6·37	+ 6·36	+ 6·37	+ 6·41
Eskdale, 1911. 990+	2·02	1·91	1·77	1·74	1·70	1·88	1·93	2·07	2·08	2·07	2·01	2·05
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 1911	+ 5·41	+ 5·44	+ 5·44	+ 5·50	+ 5·59	+ 5·56	+ 5·63	+ 5·62	+ 5·67	+ 5·61	+ 5·60	+ 5·50
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 1911	+ 6·22	+ 6·31	+ 6·44	+ 6·49	+ 6·46	+ 6·45	+ 6·35	+ 6·38	+ 6·28	+ 6·25	+ 6·19	+ 6·18
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 1911	+ 5·26	+ 5·35	+ 5·42	+ 5·50	+ 5·45	+ 5·51	+ 5·49	+ 5·53	+ 5·49	+ 5·52	+ 5·46	+ 5·42
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 1911	+ 2·97	+ 3·01	+ 2·98	+ 3·04	+ 3·08	+ 3·08	+ 3·05	+ 2·99	+ 2·98	+ 2·98	+ 2·92	+ 2·92
Eskdale, 1911. 980+	7·09	7·01	6·84	6·79	6·87	6·98	7·08	7·20	7·22	7·22	7·14	7·07
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 1911	− 0·15	− 0·18	− 0·11	− 0·14	− 0·07	− 0·14	− 0·20	− 0·17	− 0·12	− 0·30	− 0·28	− 0·36
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 1911	+ 1·74	+ 1·83	+ 1·83	+ 1·91	+ 1·95	+ 1·97	+ 1·95	+ 1·99	+ 1·90	+ 1·81	+ 1·75	+ 1·67
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 1911	+ 0·41	+ 0·43	+ 0·44	+ 0·44	+ 0·44	+ 0·44	+ 0·42	+ 0·45	+ 0·48	+ 0·50	+ 0·47	+ 0·49
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 1911	+ 0·54	+ 0·58	+ 0·58	+ 0·66	+ 0·67	+ 0·77	+ 0·77	+ 0·89	+ 0·95	+ 0·98	+ 1·14	+ 1·17
Eskdale, 1911. 980+	7·93	7·74	7·51	7·42	7·46	7·71	7·96	8·17	8·35	8·45	8·42	8·37
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 1911	+ 3·06	+ 3·14	+ 3·19	+ 3·17	+ 3·16	+ 3·10	+ 3·07	+ 3·10	+ 3·14	+ 3·14	+ 3·10	+ 3·01
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 1911	+ 1·98	+ 1·91	+ 1·88	+ 1·89	+ 1·91	+ 1·95	+ 1·90	+ 1·97	+ 1·90	+ 1·99	+ 2·00	+ 2·06
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 1911	+ 2·17	+ 2·27	+ 2·32	+ 2·28	+ 2·19	+ 2·25	+ 2·24	+ 2·19	+ 2·19	+ 2·20	+ 2·19	+ 2·19
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 1911	+ 4·10	+ 4·10	+ 4·15	+ 4·10	+ 4·10	+ 4·07	+ 4·09	+ 4·07	+ 3·98	+ 3·89	+ 3·75	+ 3·59
Eskdale, 1911. 980+	5·35	5·27	5·10	5·02	4·95	5·06	5·24	5·42	5·49	5·37	5·32	5·08
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 1911	− 0·45	− 0·62	− 0·78	− 0·85	− 0·91	− 0·83	− 0·54	− 0·48	− 0·65	− 0·30	− 0·23	− 0·25
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 1911	+ 0·11	+ 0·14	+ 0·16	+ 0·16	+ 0·18	+ 0·13	+ 0·09	− 0·01	− 0·14	− 0·26	− 0·34	− 0·48
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 1911	− 0·69	− 0·82	− 0·89	− 1·02	− 1·20	− 1·36	− 1·39	− 1·35	− 1·40	− 1·40	− 1·38	− 1·35
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 1911	− 8·53	− 8·44	− 8·28	− 8·18	− 8·13	− 8·27	− 8·22	− 8·26	− 8·29	− 8·15	− 8·11	− 8·18
Eskdale, 1911. 970+	4·54	4·68	4·64	4·54	4·49	4·44	4·62	4·87	4·94	5·06	5·00	4·82
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 1911	− 7·70	− 7·75	− 7·77	− 7·61	− 7·62	− 7·57	− 7·53	− 7·43	− 7·28	− 7·27	− 7·23	− 7·26
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 1911	− 6·89	− 6·93	− 6·94	− 7·01	− 7·04	− 7·05	− 6·87	− 6·85	− 6·87	− 6·85	− 6·85	− 6·75
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 1911	− 6·28	− 6·25	− 6·08	− 6·29	− 6·20	− 6·23	− 6·24	− 6·28	− 6·28	− 6·27	− 6·19	− 5·95
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 1911	− 8·48	− 8·33	− 8·35	− 8·38	− 8·39	− 8·47	− 8·47	− 8·34	− 8·40	− 8·44	− 8·53	− 8·59
Eskdale, 1911. 970+	2·42	2·44	2·35	2·24	2·04	2·07	2·03	2·27	2·52	2·54	2·44	2·15
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 1911	− 1·16	− 1·12	− 1·14	− 1·28	− 1·43	− 1·57	− 1·64	− 1·72	− 1·82	− 1·90	− 1·98	− 2·10
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 1911	− 6·13	− 6·13	− 6·22	− 6·32	− 6·43	− 6·52	− 6·64	− 6·75	− 6·93	− 7·02	− 7·10	− 6·99
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 1911	− 7·92	− 7·97	− 8·05	− 8·18	− 8·33	− 8·39	− 8·36	− 8·09	− 7·91	− 7·62	− 7·51	− 7·32
YEAR.												
Aberdeen, Normal. 1000+	8·50	8·40	8·23	8·14	8·09	8·18	8·28	8·46	8·55	8·63	8·64	8·57
Difference for 1911	+ 1·33	+ 1·36	+ 1·37	+ 1·39	+ 1·41	+ 1·44	+ 1·43	+ 1·43	+ 1·39	+ 1·38	+ 1·34	+ 1·32
Eskdale, 1911. 980+	5·69	5·62	5·44	5·37	5·32	5·44	5·55	5·73	5·79	5·83	5·78	5·70
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 1911	+ 1·16	+ 1·13	+ 1·15	+ 1·15	+ 1·14	+ 1·09	+ 1·15	+ 1·13	+ 1·16	+ 1·13	+ 1·13	+ 1·07
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 1911	+ 1·43	+ 1·43	+ 1·39	+ 1·38	+ 1·37	+ 1·37	+ 1·37	+ 1·37	+ 1·32	+ 1·32	+ 1·29	+ 1·28
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 1911	+ 1·46	+ 1·46	+ 1·45	+ 1·46	+ 1·43	+ 1·43	+ 1·41	+ 1·43	+ 1·42	+ 1·45	+ 1·42	+ 1·45

OF THE METEOROLOGICAL ELEMENTS AT THE FIVE OBSERVATORIES
AND THE VALUES FOR 1911.

JULY TO DECEMBER AND YEAR.

13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.	Hour, G.M.T.
mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	JULY.
9·43	9·43	9·35	9·28	9·22	9·27	9·37	9·53	9·68	9·76	9·70	9·64	9·416	Normal. Aberdeen.
+6·39	+6·39	+6·40	+6·40	+6·43	+6·48	+6·49	+6·60	+6·66	+6·77	+6·83	+6·87	+6·459	Diff. for 1911. ,,
1·98	1·95	1·88	1·78	1·73	1·83	1·89	2·09	2·35	2·48	2·56	2·56	2·013	1911. 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.
+5·51	+5·44	+5·39	+5·31	+5·25	+5·05	+4·99	+4·88	+4·96	+4·95	+4·98	+5·03	+5·346	Diff. for 1911. ,,
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.
+6·06	+6·02	+5·96	+5·96	+5·89	+5·95	+5·99	+6·21	+6·30	+6·33	+6·38	+6·48	+6·230	Diff. for 1911. ,,
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.
+5·43	+5·41	+5·42	+5·34	+5·27	+5·15	+5·12	+5·08	+5·03	+5·09	+5·16	+5·22	+5·338	Diff. for 1911. ,,
													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.
+2·92	+2·84	+2·76	+2·66	+2·64	+2·54	+2·48	+2·42	+2·46	+2·48	+2·55	+2·56	+2·805	Diff. for 1911. ,,
7·05	6·94	6·72	6·53	6·48	6·53	6·65	6·95	7·11	7·25	7·22	7·17	6·963	1911. 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.
−0·33	−0·38	−0·31	−0·25	−0·14	−0·11	−0·01	+0·05	+0·27	+0·32	+0·38	+0·41	−0·097	Diff. for 1911. ,,
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.
+1·55	+1·47	+1·42	+1·40	+1·43	+1·49	+1·50	+1·66	+1·70	+1·79	+1·86	+1·93	+1·729	Normal. Falmouth.
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.
+0·54	+0·55	+0·51	+0·48	+0·47	+0·48	+0·49	+0·51	+0·56	+0·59	+0·64	+0·76	+0·500	Diff. for 1911. ,,
													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.
+1·17	+1·20	+1·22	+1·28	+1·39	+1·35	+1·32	+1·30	+1·38	+1·30	+1·27	+1·25	+1·047	Diff. for 1911. ,,
8·38	8·28	8·15	8·09	8·08	8·25	8·44	8·64	8·64	8·69	8·61	8·46	8·175	1911. 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.
+3·14	+3·18	+3·22	+3·20	+3·26	+3·34	+3·40	+3·42	+3·51	+3·51	+3·57	+3·62	+3·240	Diff. for 1911. ,,
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.
+2·01	+1·94	+1·90	+1·90	+1·86	+1·85	+1·86	+1·95	+1·95	+1·96	+1·94	+1·95	+1·934	Diff. for 1911. ,,
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.
+2·18	+2·12	+2·19	+2·13	+2·10	+2·05	+2·03	+2·18	+2·18	+2·24	+2·26	+2·39	+2·197	Diff. for 1911. ,,
													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.
+3·45	+3·32	+3·16	+3·03	+2·99	+3·02	+2·96	+3·03	+3·11	+3·18	+3·29	+3·36	+3·579	Diff. for 1911. ,,
4·77	4·52	4·23	4·24	4·35	4·58	4·71	4·79	4·85	4·89	4·93	4·95	4·937	1911. 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.
−0·37	−0·28	−0·34	−0·45	−0·39	−0·42	−0·39	−0·40	−0·35	−0·41	−0·57	−0·72	−0·499	Diff. for 1911. ,,
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.
−0·53	−0·68	−0·67	−0·60	−0·52	−0·42	−0·38	−0·28	−0·25	−0·14	−0·14	−0·05	−0·205	Diff. for 1911. ,,
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.
−1·27	−1·18	−1·16	−1·10	−1·00	−0·95	−0·93	−0·79	−0·77	−0·72	−0·76	−0·79	−1·070	Diff. for 1911. ,,
													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.
−8·16	−8·12	−8·07	−8·04	−8·08	−7·98	−7·90	−7·77	−7·78	−7·87	−7·84	−8·08	−8·114	Diff. for 1911. ,,
4·62	4·50	4·50	4·58	4·76	4·94	5·06	5·19	5·15	5·20	5·10	5·01	4·802	1911. 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.
−7·33	−7·43	−7·51	−7·49	−7·50	−7·47	−7·49	−7·60	−7·55	−7·73	−7·74	−7·95	−7·534	Diff. for 1911. ,,
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.
−6·66	−6·57	−6·56	−6·48	−6·42	−6·25	−6·23	−6·30	−6·38	−6·45	−6·48	−6·59	−6·678	Diff. for 1911. ,,
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.
−5·81	−5·70	−5·73	−5·70	−5·79	−5·85	−5·95	−6·01	−6·08	−6·21	−6·33	−6·35	−6·085	Diff. for 1911. ,,
													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.
−8·57	−8·67	−8·58	−8·79	−8·79	−8·84	−8·81	−8·87	−8·77	−8·71	−8·55	−8·41	−8·564	Diff. for 1911. ,,
1·85	1·77	1·84	1·99	2·04	2·25	2·42	2·66	2·79	2·89	2·87	2·83	2·321	1911. 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.
−2·26	−2·23	−2·12	−1·94	−1·86	−1·66	−1·48	−1·26	−1·00	−0·97	−0·88	−0·76	−1·553	Diff. for 1911. ,,
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.
−6·70	−6·25	−6·08	−5·95	−5·94	−5·98	−6·06	−6·14	−6·12	−5·97	−5·98	−5·99	−6·348	Diff. for 1911. ,,
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.
−7·12	−6·83	−6·75	−6·73	−6·90	−7·03	−7·10	−7·18	−7·34	−7·44	−7·55	−7·58	−7·550	Diff. for 1911. ,,
													YEAR.
8·43	8·37	8·27	8·29	8·31	8·46	8·56	8·70	8·75	8·77	8·71	8·66	8·456	Normal. Aberdeen.
+1·31	+1·26	+1·26	+1·24	+1·24	+1·28	+1·24	+1·23	+1·29	+1·31	+1·33	+1·33	+1·330	Diff. for 1911. ,,
5·55	5·42	5·31	5·31	5·32	5·50	5·64	5·83	5·90	5·97	5·94	5·89	5·618	1911. 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.
+1·07	+1·03	+1·05	+1·04	+1·04	+1·07	+1·09	+1·08	+1·20	+1·13	+1·15	+1·12	+1·113	Diff. for 1911. ,,
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.
+1·27	+1·28	+1·27	+1·31	+1·31	+1·36	+1·36	+1·43	+1·42	+1·45	+1·43	+1·43	+1·360	Diff. for 1911. ,,
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.
+1·50	+1·52	+1·51	+1·49	+1·47	+1·44	+1·43	+1·45	+1·42	+1·43	+1·42	+1·46	+1·450	Diff. for 1911. ,,

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

LXX.—TEMPERATURE (in degrees absolute).

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 1911		+ 0·99	+ 0·75	+ 0·71	+ 0·53	+ 0·52	+ 0·45	+ 0·42	+ 0·54	+ 0·66	+ 0·73	+ 0·76	+ 0·72
Eskdale, 1911.	200+	75·93	75·99	75·99	75·90	75·75	75·92	75·80	75·78	75·60	76·19	76·49	76·96
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 1911		+ 0·28	+ 0·24	+ 0·20	+ 0·07	− 0·05	− 0·14	− 0·22	− 0·40	− 0·48	− 0·37	− 0·09	+ 0·16
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 1911		+ 0·05	+ 0·04	− 0·09	− 0·05	+ 0·01	+ 0·13	+ 0·17	+ 0·16	+ 0·08	− 0·05	− 0·04	− 0·08
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 1911		− 0·79	− 0·82	− 0·70	− 0·73	− 0·66	− 0·64	− 0·56	− 0·58	− 0·53	− 0·51	− 0·38	− 0·31
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 1911		+ 0·85	+ 0·98	+ 1·17	+ 1·31	+ 1·26	+ 1·16	+ 1·29	+ 1·11	+ 1·21	+ 1·18	+ 1·17	+ 1·18
Eskdale, 1911.	200+	75·10	74·78	75·01	74·88	74·72	74·60	74·60	74·81	75·25	75·72	76·56	77·26
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 1911		+ 0·35	+ 0·13	+ 0·07	+ 0·11	+ 0·12	+ 0·02	− 0·12	− 0·17	− 0·12	− 0·15	+ 0·02	+ 0·17
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 1911		+ 0·79	+ 0·76	+ 0·75	+ 0·77	+ 0·82	+ 0·75	+ 0·82	+ 0·80	+ 0·86	+ 1·02	+ 0·99	+ 0·83
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 1911		+ 0·24	+ 0·26	+ 0·29	+ 0·22	+ 0·33	+ 0·41	+ 0·34	+ 0·31	+ 0·43	+ 0·21	+ 0·40	+ 0·44
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 1911		+ 0·66	+ 0·58	+ 0·55	+ 0·65	+ 0·77	+ 0·79	+ 0·81	+ 0·61	+ 0·43	+ 0·35	+ 0·17	+ 0·06
Eskdale, 1911,	200+	74·92	74·95	74·92	74·86	74·66	74·69	74·76	75·17	75·89	76·63	77·12	77·45
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 1911		− 0·39	− 0·34	− 0·36	− 0·42	− 0·40	− 0·50	− 0·51	− 0·53	− 0·43	− 0·62	− 0·43	− 0·38
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 1911		+ 0·55	+ 0·59	+ 0·67	+ 0·65	+ 0·72	+ 0·69	+ 0·63	+ 0·25	+ 0·03	− 0·05	− 0·15	− 0·07
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 1911		− 0·14	− 0·13	− 0·15	− 0·09	− 0·10	− 0·05	− 0·07	− 0·10	− 0·15	− 0·24	− 0·49	− 0·51
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 1911		+ 0·80	+ 0·74	+ 0·80	+ 0·91	+ 1·07	+ 1·02	+ 0·89	+ 0·76	+ 0·61	+ 0·50	+ 0·55	+ 0·80
Eskdale, 1911.	200+	76·65	76·54	76·35	76·30	76·18	76·39	76·80	77·57	78·45	79·15	79·28	79·91
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 1911		− 0·83	− 0·92	− 0·88	− 0·88	− 0·61	− 0·54	− 0·65	− 0·45	− 0·39	− 0·49	− 0·41	− 0·54
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 1911		+ 0·11	+ 0·06	+ 0·10	+ 0·13	+ 0·25	+ 0·18	+ 0·11	− 0·12	− 0·50	− 0·83	− 0·84	− 0·81
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 1911		− 0·90	− 0·86	− 0·89	− 0·96	− 1·03	− 1·02	− 1·05	− 0·97	− 0·79	− 0·75	− 0·73	− 0·61
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 1911		+ 1·50	+ 1·56	+ 1·60	+ 1·57	+ 1·50	+ 1·60	+ 2·12	+ 1·97	+ 2·00	+ 1·79	+ 1·43	+ 1·24
Eskdale, 1911.	200+	79·73	79·58	79·35	79·35	79·74	80·62	81·66	83·06	84·18	84·95	85·75	86·82
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 1911		+ 0·55	+ 0·45	+ 0·63	+ 0·71	+ 0·73	+ 0·82	+ 1·16	+ 1·18	+ 1·20	+ 1·27	+ 1·14	+ 1·19
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 1911		+ 2·14	+ 1·95	+ 1·74	+ 1·68	+ 1·59	+ 1·56	+ 1·41	+ 1·35	+ 1·57	+ 1·79	+ 2·07	+ 2·36
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 1911		+ 1·35	+ 1·16	+ 1·25	+ 1·22	+ 1·18	+ 1·40	+ 1·40	+ 1·84	+ 2·00	+ 2·21	+ 2·17	+ 2·37
JUNE.													
Aberdeen, Normal.	200+	82·59	82·35	82·22	82·17	82·76	83·62	84·41	84·87	85·33	85·66	86·00	86·09
Difference for 1911		+ 0·31	+ 0·24	+ 0·15	+ 0·09	+ 0·24	+ 0·42	+ 0·58	+ 0·59	+ 0·58	+ 0·59	+ 0·88	+ 0·73
Eskdale, 1911.	200+	81·22	80·89	80·47	80·53	81·17	82·53	83·75	85·23	86·15	87·03	87·57	88·10
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 1911		+ 0·51	+ 0·44	+ 0·26	+ 0·21	+ 0·03	+ 0·30	+ 0·50	+ 0·52	+ 0·46	+ 0·58	+ 0·43	+ 0·34
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 1911		+ 0·95	+ 0·81	+ 0·92	+ 0·94	+ 0·83	+ 0·83	+ 0·87	+ 0·83	+ 0·72	+ 0·82	+ 0·82	+ 0·92
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 1911		+ 0·72	+ 0·66	+ 0·57	+ 0·52	+ 0·51	+ 0·54	+ 0·56	+ 0·68	+ 0·82	+ 0·86	+ 0·95	+ 0·91

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.

OF THE METEOROLOGICAL ELEMENTS AT THE FIVE OBSERVATORIES
AND THE VALUES FOR 1911.

JANUARY TO JUNE.

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.
+ 0·81	+ 0·92	+ 0·94	+ 0·96	+ 0·87	+ 0·79	+ 0·94	+ 1·05	+ 0·99	+ 0·95	+ 0·99	+ 0·81	+ 0·78	Diff. for 1911. ,,
77·01	77·15	77·06	76·51	76·21	76·09	75·94	75·79	75·42	75·94	75·92	75·87	76·13	1911. 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.
+ 0·22	+ 0·23	+ 0·23	+ 0·23	+ 0·17	+ 0·18	+ 0·20	+ 0·16	+ 0·18	+ 0·18	+ 0·18	+ 0·12	+ 0·06	Diff. for 1911. ,,
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.
− 0·06	− 0·16	− 0·05	− 0·03	− 0·10	− 0·06	+ 0·02	+ 0·06	− 0·01	− 0·16	− 0·08	− 0·11	− 0·02	Diff. for 1911. ,,
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.
− 0·32	− 0·21	− 0·25	− 0·26	− 0·55	− 0·56	− 0·73	− 0·83	− 0·73	− 0·88	− 0·91	− 0·93	− 0·60	Diff. for 1911. ,,
													FEBRUARY.
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	Normal. Aberdeen.
+ 1·27	+ 1·36	+ 1·45	+ 1·37	+ 1·34	+ 1·11	+ 1·10	+ 1·10	+ 1·15	+ 1·12	+ 1·08	+ 1·05	+ 1·18	Diff. for 1911. ,,
77·49	77·57	77·22	77·02	76·40	76·01	75·60	75·48	75·33	75·59	75·23	75·16	75·72	1911. 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.
+ 0·44	+ 0·48	+ 0·56	+ 0·51	+ 0·43	+ 0·44	+ 0·58	+ 0·59	+ 0·36	+ 0·28	+ 0·34	+ 0·38	+ 0·24	Diff. for 1911. ,,
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.
+ 0·89	+ 0·94	+ 0·91	+ 1·06	+ 1·12	+ 1·20	+ 1·33	+ 1·45	+ 1·39	+ 1·34	+ 1·26	+ 1·24	+ 1·01	Diff. for 1911. ,,
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.
+ 0·49	+ 0·54	+ 0·44	+ 0·52	+ 0·45	+ 0·45	+ 0·37	+ 0·34	+ 0·28	+ 0·28	+ 0·28	+ 0·37	+ 0·36	Diff. for 1911. ,,
													MARCH.
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	Normal. Aberdeen.
0·00	− 0·09	− 0·13	− 0·07	+ 0·02	+ 0·04	+ 0·13	+ 0·15	+ 0·30	+ 0·27	+ 0·42	+ 0·44	+ 0·33	Diff. for 1911. ,,
77·71	77·83	77·64	77·24	76·64	76·08	75·52	75·31	75·12	75·03	74·93	74·91	75·83	1911. 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.
− 0·27	− 0·24	− 0·12	− 0·22	− 0·19	− 0·03	− 0·08	− 0·11	− 0·19	− 0·16	− 0·22	− 0·32	− 0·31	Diff. for 1911. ,,
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.
− 0·18	− 0·27	− 0·57	− 0·51	− 0·49	− 0·26	− 0·03	− 0·04	+ 0·12	+ 0·15	+ 0·31	+ 0·43	+ 0·13	Diff. for 1911. ,,
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.
− 0·52	− 0·50	− 0·42	− 0·43	− 0·44	− 0·11	+ 0·18	+ 0·13	+ 0·12	+ 0·03	− 0·05	− 0·10	− 0·18	Diff. for 1911. ,,
													APRIL.
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	Normal. Aberdeen.
+ 0·96	+ 0·79	+ 0·96	+ 0·68	+ 0·88	+ 0·90	+ 0·86	+ 0·83	+ 0·77	+ 0·69	+ 0·78	+ 0·72	+ 0·80	Diff. for 1911. ,,
79·99	80·32	80·40	80·08	79·73	79·30	78·53	78·11	77·79	77·48	77·26	76·82	78·14	1911. 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.
− 0·56	− 0·34	− 0·41	− 0·59	− 0·69	− 0·71	− 0·63	− 0·80	− 0·72	− 0·78	− 0·74	− 0·91	− 0·64	Diff. for 1911. ,,
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.
− 0·75	− 0·65	− 0·52	− 0·58	− 0·41	− 0·29	− 0·12	− 0·06	+ 0·10	+ 0·02	+ 0·01	− 0·05	− 0·23	Diff. for 1911. ,,
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.
− 0·52	− 0·48	− 0·53	− 0·67	− 0·80	− 0·68	− 0·88	− 0·72	− 0·86	− 0·89	− 0·94	− 0·98	− 0·81	Diff. for 1911. ,,
													MAY.
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	Normal. Aberdeen.
+ 1·35	+ 1·54	+ 1·81	+ 1·70	+ 1·66	+ 1·62	+ 1·66	+ 1·75	+ 1·70	+ 1·76	+ 1·76	+ 1·75	+ 1·66	Diff. for 1911. ,,
87·07	87·31	87·17	87·02	86·52	85·73	84·49	83·16	82·05	81·24	80·65	80·47	83·24	1911. 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.
+ 1·12	+ 0·83	+ 0·66	+ 0·85	+ 1·12	+ 0·77	+ 0·78	+ 0·86	+ 0·80	+ 0·82	+ 0·72	+ 0·63	+ 0·87	Diff. for 1911. ,,
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.
+ 2·56	+ 2·64	+ 2·56	+ 2·48	+ 2·56	+ 2·51	+ 2·59	+ 2·52	+ 2·59	+ 2·50	+ 2·36	+ 2·33	+ 2·14	Diff. for 1911. ,,
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.
+ 2·13	+ 2·26	+ 2·11	+ 2·23	+ 2·32	+ 2·29	+ 2·12	+ 1·88	+ 1·69	+ 1·67	+ 1·58	+ 1·43	+ 1·80	Diff. for 1911. ,,
													JUNE.
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	Normal. Aberdeen.
+ 0·99	+ 0·98	+ 1·04	+ 0·58	+ 0·57	+ 0·57	+ 0·57	+ 0·58	+ 0·46	+ 0·13	+ 0·01	+ 0·11	+ 0·50	Diff. for 1911. ,,
88·17	88·52	88·25	88·01	87·70	87·12	86·25	85·02	83·46	82·70	81·97	81·54	84·72	1911. 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.
+ 0·20	+ 0·27	+ 0·30	+ 0·25	+ 0·38	+ 0·02	+ 0·05	+ 0·05	+ 0·36	+ 0·41	+ 0·32	+ 0·35	+ 0·31	Diff. for 1911. ,,
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.
+ 0·89	+ 0·66	+ 0·67	+ 0·62	+ 0·66	+ 0·60	+ 0·47	+ 0·50	+ 0·70	+ 0·66	+ 0·76	+ 0·79	+ 0·76	Diff. for 1911. ,,
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.
+ 0·91	+ 0·92	+ 0·93	+ 1·04	+ 1·10	+ 1·07	+ 1·00	+ 0·69	+ 0·77	+ 0·82	+ 0·71	+ 0·69	+ 0·79	Diff. for 1911. ,,

The heights of the thermometers above the ground are :—

At Aberdeen	12·5	metres.
,, Eskdalemuir	0·8	,,
,, Valencia	1·2	,,
,, Kew	3·0	,,
,, Falmouth	1·2	,,

The normals for temperature are for the 40 years, 1871–1910.
The values for 1911 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

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

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 1911		+ 0·48	+ 0·42	+ 0·26	+ 0·28	+ 0·45	+ 0·87	+ 1·18	+ 1·15	+ 1·55	+ 1·70	+ 1·64	+ 1·32
Eskdale, 1911.	200+	84·15	84·08	83·95	83·76	84·10	85·04	86·29	87·31	88·18	88·95	89·42	89·90
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 1911		+ 0·93	+ 0·86	+ 0·89	+ 0·78	+ 0·57	+ 0·68	+ 0·98	+ 1·42	+ 1·58	+ 1·80	+ 2·13	+ 2·31
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 1911		+ 1·62	+ 1·51	+ 1·45	+ 1·21	+ 1·40	+ 1·49	+ 1·92	+ 2·30	+ 2·60	+ 2·85	+ 3·16	+ 3·48
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 1911		+ 1·87	+ 1·94	+ 1·84	+ 1·75	+ 1·68	+ 1·75	+ 1·77	+ 2·15	+ 2·35	+ 2·65	+ 2·70	+ 2·98
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 1911		+ 1·52	+ 1·47	+ 1·42	+ 1·32	+ 1·38	+ 1·41	+ 1·46	+ 1·36	+ 1·68	+ 1·58	+ 1·56	+ 1·80
Eskdale, 1911.	200+	84·27	84·28	84·10	83·92	83·82	84·36	85·38	86·75	87·84	88·38	88·90	89·55
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 1911		+ 1·06	+ 1·12	+ 1·11	+ 1·08	+ 1·14	+ 1·20	+ 1·20	+ 1·59	+ 1·45	+ 1·37	+ 1·52	+ 1·57
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 1911		+ 2·84	+ 2·74	+ 2·56	+ 2·42	+ 2·39	+ 2·39	+ 2·52	+ 2·56	+ 2·95	+ 3·26	+ 3·54	+ 3·92
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 1911		+ 2·11	+ 2·10	+ 2·02	+ 2·02	+ 1·98	+ 1·93	+ 1·90	+ 2·02	+ 2·36	+ 2·39	+ 2·68	+ 2·74
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 1911		+ 0·62	+ 0·40	+ 0·46	+ 0·67	+ 0·47	+ 0·20	+ 0·41	+ 0·61	+ 0·90	+ 0·95	+ 1·11	+ 1·33
Eskdale, 1911.	200+	80·37	80·24	79·99	80·02	79·85	79·94	80·63	82·28	83·69	84·84	85·42	85·96
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 1911		− 0·02	− 0·26	− 0·44	− 0·29	− 0·27	− 0·27	− 0·33	− 0·27	− 0·05	0·00	+ 0·17	+ 0·27
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 1911		+ 0·67	+ 0·56	+ 0·54	+ 0·53	+ 0·34	+ 0·19	+ 0·57	+ 0·95	+ 1·66	+ 1·97	+ 2·29	+ 2·37
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 1911		+ 0·98	+ 0·82	+ 0·70	+ 0·69	+ 0·68	+ 0·63	+ 0·81	+ 0·75	+ 1·15	+ 1·13	+ 1·24	+ 1·26
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 1911		− 1·05	− 0·98	− 0·90	− 0·92	− 1·00	− 1·04	− 1·06	− 1·01	− 0·79	− 0·59	− 0·56	− 0·69
Eskdale, 1911.	200+	78·23	78·26	78·11	77·98	77·62	77·67	77·70	78·44	79·66	80·82	81·63	81·93
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 1911		+ 0·79	+ 0·85	+ 0·80	+ 0·81	+ 0·80	+ 0·76	+ 0·63	+ 0·46	+ 0·50	+ 0·50	+ 0·40	+ 0·43
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 1911		+ 0·89	+ 0·84	+ 0·72	+ 0·55	+ 0·45	+ 0·40	+ 0·33	+ 0·38	+ 0·40	+ 0·37	+ 0·39	+ 0·33
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 1911		+ 0·57	+ 0·60	+ 0·59	+ 0·54	+ 0·48	+ 0·47	+ 0·33	+ 0·27	+ 0·07	+ 0·13	+ 0·11	+ 0·30
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 1911		− 0·03	+ 0·10	− 0·22	− 0·20	− 0·32	+ 0·01	− 0·14	− 0·28	− 0·20	− 0·35	− 0·30	− 0·41
Eskdale, 1911.	200+	76·56	76·44	76·24	76·34	76·25	76·32	76·36	76·48	76·83	77·50	77·96	78·27
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 1911		− 0·75	− 0·72	− 0·79	− 0·83	− 0·77	− 0·62	− 0·69	− 0·95	− 0·95	− 1·06	− 0·92	− 0·75
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 1911		+ 0·51	+ 0·48	+ 0·48	+ 0·50	+ 0·61	+ 0·64	+ 0·50	+ 0·40	+ 0·60	+ 0·62	+ 0·61	+ 0·38
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 1911		− 0·87	− 0·94	− 0·91	− 0·91	− 0·95	− 0·84	− 0·87	− 0·86	− 0·69	− 0·84	− 0·72	− 0·81
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 1911		+ 1·61	+ 2·16	+ 2·35	+ 2·46	+ 2·38	+ 2·35	+ 2·21	+ 2·11	+ 2·04	+ 1·85	+ 1·79	+ 1·81
Eskdale, Normal.	200+	77·07	77·08	77·07	77·01	76·85	76·80	76·85	77·09	77·05	77·33	77·72	78·13
Valencia, Normal.	200+	80·35	80·28	80·28	80·28	80·20	80·12	80·12	80·10	80·16	80·33	80·78	81·03
Difference for 1911		+ 0·06	+ 0·16	+ 0·09	+ 0·21	+ 0·39	+ 0·58	+ 0·53	+ 0·55	+ 0·53	+ 0·43	+ 0·45	+ 0·45
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 1911		+ 3·03	+ 3·05	+ 3·08	+ 3·12	+ 3·02	+ 2·93	+ 2·82	+ 2·83	+ 2·76	+ 2·80	+ 2·89	+ 2·78
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 1911		+ 1·78	+ 1·76	+ 1·58	+ 1·59	+ 1·52	+ 1·40	+ 1·33	+ 1·31	+ 1·31	+ 1·39	+ 1·19	+ 1·36
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 1911		+ 0·66	+ 0·68	+ 0·68	+ 0·71	+ 0·72	+ 0·74	+ 0·84	+ 0·81	+ 0·88	+ 0·86	+ 0·84	+ 0·83
Eskdale 1911	200+	78·68	78·59	78·46	78·40	78·39	78·74	79·22	80·00	80·73	81·46	81·99	82·52
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 1911		+ 0·25	+ 0·21	+ 0·17	+ 0·16	+ 0·16	+ 0·22	+ 0·23	+ 0·25	+ 0·24	+ 0·26	+ 0·35	+ 0·41
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 1911		+ 1·17	+ 1·10	+ 1·07	+ 1·05	+ 1·05	+ 1·02	+ 1·05	+ 1·06	+ 1·18	+ 1·18	+ 1·32	+ 1·34
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	
Difference for 1911		+ 0·61	+ 0·58	+ 0·55	+ 0·52	+ 0·50	+ 0·54	+ 0·52	+ 0·47	+ 0·67	+ 0·73	+ 0·74	+ 0·84

OF THE METEOROLOGICAL ELEMENTS AT THE FIVE OBSERVATORIES
AND THE VALUES FOR 1911.

JULY TO DECEMBER AND YEAR.

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.
+ 1·42	+ 1·52	+ 1·70	+ 1·76	+ 1·88	+ 1·85	+ 1·77	+ 1·58	+ 1·38	+ 1·17	+ 0·98	+ 0·80	+ 1·21	Diff. for 1911. ,,
90·24	90·47	90·33	90·34	90·03	89·26	88·40	87·35	86·16	85·45	85·04	84·75	87·21	1911. 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.
+ 2·25	+ 2·00	+ 2·04	+ 2·06	+ 2·34	+ 2·15	+ 2·00	+ 1·85	+ 1·67	+ 1·31	+ 1·17	+ 1·15	+ 1·54	Diff. for 1911. ,,
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.
+ 3·68	+ 3·97	+ 4·39	+ 4·33	+ 4·49	+ 4·42	+ 4·19	+ 3·37	+ 2·72	+ 2·37	+ 2·05	+ 1·90	+ 2·79	Diff. for 1911. ,,
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.
+ 2·79	+ 2·67	+ 2·65	+ 2·99	+ 3·16	+ 3·69	+ 2·73	+ 2·28	+ 2·09	+ 1·96	+ 1·89	+ 1·97	+ 2·35	Diff. for 1911. ,,
													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.
+ 1·73	+ 1·74	+ 1·61	+ 1·65	+ 1·60	+ 1·63	+ 1·67	+ 1·73	+ 1·77	+ 1·84	+ 1·79	+ 1·69	+ 1·60	Diff. for 1911. ,,
89·84	90·10	90·07	90·04	89·60	88·95	87·80	86·60	85·76	85·32	84·95	84·49	86·88	1911. 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.
+ 1·57	+ 1·58	+ 1·72	+ 1·70	+ 1·68	+ 1·53	+ 1·64	+ 1·52	+ 1·46	+ 1·26	+ 1·27	+ 1·12	+ 1·39	Diff. for 1911. ,,
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.
+ 4·11	+ 4·46	+ 4·40	+ 4·52	+ 4·31	+ 4·06	+ 3·83	+ 3·52	+ 3·35	+ 3·07	+ 2·89	+ 2·74	+ 3·31	Diff. for 1911. ,,
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.
+ 2·60	+ 2·59	+ 2·56	+ 2·59	+ 2·61	+ 2·46	+ 2·30	+ 1·98	+ 2·07	+ 2·01	+ 1·96	+ 1·97	+ 2·25	Diff. for 1911. ,,
													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.
+ 1·39	+ 1·40	+ 1·54	+ 1·31	+ 1·08	+ 0·98	+ 0·83	+ 0·70	+ 0·60	+ 0·43	+ 0·38	+ 0·38	+ 0·80	Diff. for 1911. ,,
86·31	86·72	86·56	86·18	85·40	84·41	83·18	82·56	81·76	81·32	80·91	80·70	82·89	1911. 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.
+ 0·31	+ 0·27	+ 0·42	+ 0·41	+ 0·43	+ 0·54	+ 0·46	+ 0·43	+ 0·34	+ 0·27	+ 0·03	- 0·14	+ 0·08	Diff. for 1911. ,,
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.
+ 2·65	+ 2·84	+ 2·95	+ 2·97	+ 3·03	+ 2·82	+ 2·28	+ 1·76	+ 1·44	+ 1·12	+ 0·98	+ 0·90	+ 1·60	Diff. for 1911. ,,
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.
+ 1·40	+ 1·41	+ 1·40	+ 1·47	+ 1·53	+ 1·50	+ 1·34	+ 1·24	+ 1·09	+ 1·05	+ 0·95	+ 1·03	+ 1·09	Diff. for 1911. ,,
													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.
- 0·50	- 0·59	- 0·60	- 0·49	- 0·40	- 0·40	- 0·41	- 0·72	- 0·80	- 0·72	- 0·78	- 0·79	- 0·74	Diff. for 1911. ,,
82·21	82·43	82·02	81·66	80·78	79·87	79·55	79·28	78·82	78·76	78·70	78·57	79·61	1911. 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.
+ 0·65	+ 0·51	+ 0·54	+ 0·54	+ 0·60	+ 0·66	+ 0·77	+ 0·78	+ 0·81	+ 0·88	+ 1·00	+ 1·00	+ 0·68	Diff. for 1911. ,,
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.
+ 0·35	+ 0·51	+ 0·57	+ 0·68	+ 0·78	+ 0·81	+ 0·84	+ 0·83	+ 0·80	+ 0·91	+ 0·94	+ 1·11	+ 0·63	Diff. for 1911. .,
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.
+ 0·22	+ 0·36	+ 0·28	+ 0·44	+ 0·50	+ 0·66	+ 0·66	+ 0·61	+ 0·63	+ 0·61	+ 0·66	+ 0·58	+ 0·44	Diff. for 1911. ,,
													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.
- 0·18	- 0·29	- 0·22	- 0·19	0·00	+ 0·02	+ 0·13	+ 0·13	+ 0·19	+ 0·08	+ 0·19	+ 0·14	- 0·10	Diff. for 1911. ,,
78·41	78·41	77·95	77·75	77·41	77·30	77·19	77·02	76·79	76·74	76·44	76·58	77·06	1911. 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.
- 0·93	- 0·97	- 0·90	- 0·98	- 0·83	- 0·88	- 0·85	- 0·78	- 0·87	- 0·82	- 0·84	- 0·75	- 0·84	Diff. for 1911. ,,
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.
+ 0·34	+ 0·22	+ 0·18	+ 0·08	+ 0·07	- 0·02	+ 0·02	+ 0·22	+ 0·24	+ 0·40	+ 0·57	+ 0·67	+ 0·39	Diff. for 1911. ,,
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.
- 0·79	- 0·61	- 0·67	- 0·54	- 0·67	- 0·59	- 0·67	- 0·73	- 0·67	- 0·88	- 0·78	- 0·79	- 0·78	Diff. for 1911. ,,
													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.
+ 1·92	+ 1·94	+ 2·06	+ 1·99	+ 1·84	+ 1·94	+ 1·93	+ 1·98	+ 1·80	+ 1·83	+ 1·79	+ 1·95	+ 2·00	Diff. for 1911. ,,
78·24	78·20	78·06	77·83	77·65	77·55	77·41	77·36	77·21	77·37	77·38	77·24	77·40	1911. 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.
+ 0·17	+ 0·22	+ 0·19	+ 0·07	+ 0·26	+ 0·43	+ 0·55	+ 0·40	+ 0·41	+ 0·29	+ 0·25	+ 0·27	+ 0·33	Diff. for 1911. ,,
78·76	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.
+ 2·70	+ 2·63	+ 2·63	+ 2·56	+ 2·48	+ 2·53	+ 2·68	+ 2·76	+ 2·90	+ 2·88	+ 2·98	+ 3·07	+ 2·83	Diff. for 1911. ,,
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.
+ 1·44	+ 1·65	+ 1·48	+ 1·49	+ 1·63	+ 1·61	+ 1·65	+ 1·65	+ 1·75	+ 1·77	+ 1·80	+ 1·81	+ 1·55	Diff. for 1911. ,,
													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.
+ 0·97	+ 0·96	+ 1·04	+ 0·94	+ 0·94	+ 0·95	+ 0·93	+ 0·89	+ 0·87	+ 0·83	+ 0·77	+ 0·73	+ 0·85	Diff. for 1911. ,,
82·72	82·92	82·73	82·47	82·01	81·47	80·82	80·25	79·64	79·50	79·11	78·93	80·41	1911. 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.
+ 0·44	+ 0·40	+ 0·44	+ 0·40	+ 0·47	+ 0·42	+ 0·44	+ 0·38	+ 0·36	+ 0·33	+ 0·31	+ 0·27	+ 0·32	Diff. for 1911. ,,
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.
+ 1·44	+ 1·48	+ 1·51	+ 1·53	+ 1·53	+ 1·54	+ 1·45	+ 1·43	+ 1·39	+ 1·26	+ 1·26	+ 1·25	+ 1·28	Diff. for 1911. ,,
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.
+ 0·84	+ 0·90	+ 0·84	+ 0·89	+ 0·90	+ 0·97	+ 0·79	+ 0·70	+ 0·70	+ 0·64	+ 0·62	+ 0·62	+ 0·70	Diff. for 1911. ,,

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

LXXI.—RELATIVE HUMIDITY.

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 1911	− 0·2	+ 0·4	− 0·9	+ 0·1	+ 0·8	− 0·2	+ 0·3	+ 0·7	+ 1·7	+ 1·7	+ 1·3	+ 2·8
Eskdale, 1911.	89·6	90·1	91·3	91·2	91·5	90·3	92·3	92·3	90·2	88·2	87·5	85·2
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 1911	+ 0·5	+ 0·8	0·0	+ 0·9	+ 0·2	+ 0·4	− 0·3	+ 1·3	+ 0·8	+ 1·0	+ 0·5	− 0·3
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 1911	− 3·3	− 2·7	− 2·9	− 2·9	− 2·9	− 3·5	− 3·9	− 3·5	− 3·7	− 3·4	− 2·0	− 1·0
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 1911	− 0·5	+ 0·1	− 0·9	− 0·3	+ 0·5	+ 1·1	+ 1·1	+ 1·0	− 0·6	− 0·1	− 0·5	− 1·2
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 1911	− 1·1	− 1·0	− 0·6	− 2·6	− 1·7	− 0·9	− 0·9	+ 1·3	+ 0·2	+ 0·6	+ 1·2	+ 1·1
Eskdale, 1911.	87·2	85·9	85·7	85·8	86·0	85·8	85·5	84·6	86·1	83·3	83·4	81·9
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 1911	− 3·4	− 1·4	− 1·9	− 1·9	− 2·6	− 1·2	− 1·5	− 1·9	− 2·1	− 1·9	− 2·0	− 1·8
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 1911	− 1·6	− 1·4	− 1·2	− 1·4	− 3·2	− 3·8	− 4·9	− 4·1	− 5·5	− 4·4	− 4·2	− 3·3
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 1911	0·0	+ 0·9	+ 0·7	+ 0·3	+ 0·4	− 2·4	− 1·6	− 0·9	− 0·4	+ 0·6	+ 1·4	+ 1·3
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 1911	− 2·9	− 1·4	− 1·7	− 1·2	− 2·1	− 2·2	− 0·7	+ 0·4	− 2·1	− 0·9	− 0·9	− 0·4
Eskdale, 1911.	85·2	85·3	86·2	85·4	87·3	85·9	85·9	85·3	83·2	80·2	80·1	78·8
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 1911	− 4·1	− 3·8	− 4·2	− 2·8	− 3·0	− 2·9	− 3·1	− 3·0	− 3·1	− 1·8	− 2·5	− 2·3
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 1911	− 0·3	− 1·4	− 1·7	− 1·4	− 1·7	− 1·5	− 1·5	− 0·7	+ 1·4	+ 2·1	+ 3·0	+ 2·4
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 1911	− 0·4	− 0·9	0·0	+ 0·4	+ 0·1	+ 0·6	− 0·3	− 0·4	− 0·2	− 0·1	+ 1·9	+ 2·5
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 1911	− 2·5	− 2·8	− 2·5	− 2·7	− 4·1	− 2·9	− 3·0	− 3·1	− 2·3	− 0·2	− 0·9	− 1·2
Eskdale, 1911.	89·8	89·1	88·6	89·3	90·4	90·1	89·8	87·7	83·5	81·5	82·0	78·7
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 1911	− 0·2	+ 0·2	− 0·1	+ 0·6	− 0·8	− 0·7	− 0·4	+ 0·4	+ 0·2	+ 1·2	+ 1·5	+ 1·6
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 1911	− 2·6	− 1·9	− 1·5	− 2·2	− 2·8	− 3·0	− 2·8	− 3·0	− 1·4	− 0·3	+ 0·6	− 0·3
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 1911	− 1·2	− 1·1	− 1·2	− 1·3	+ 0·2	− 0·6	− 0·7	+ 0·1	+ 0·1	+ 1·8	+ 1·0	− 0·1
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 1911	+ 2·0	+ 2·5	+ 2·3	+ 2·0	+ 1·4	+ 1·3	+ 1·1	+ 0·5	+ 0·1	+ 0·6	+ 2·4	+ 3·4
Eskdale, 1911.	91·8	90·3	91·0	92·0	91·8	90·1	88·4	84·4	79·7	77·7	75·1	73·2
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 1911	+ 3·7	+ 4·5	+ 3·6	+ 3·2	+ 3·2	+ 3·2	+ 3·3	+ 4·5	+ 4·0	+ 4·4	+ 4·6	+ 4·2
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 1911	+ 0·5	+ 0·6	+ 0·6	+ 1·0	+ 1·7	+ 1·5	+ 2·5	+ 3·3	+ 3·9	+ 3·1	+ 2·7	+ 1·4
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 1911	+ 0·7	+ 2·3	+ 1·2	+ 1·2	+ 1·8	+ 1·7	+ 2·2	+ 0·8	− 1·4	+ 0·1	+ 0·4	+ 0·1
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 1911	− 2·0	− 0·8	− 0·5	− 0·4	− 1·2	− 2·8	− 3·4	− 2·8	− 0·5	− 1·8	− 3·3	− 3·5
Eskdale, 1911.	89·4	90·3	91·3	91·6	90·2	88·5	85·2	78·9	74·5	72·1	69·2	70·3
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 1911	− 1·1	− 1·7	− 1·5	− 2·4	0·0	0·0	− 0·2	− 1·3	− 0·8	− 0·5	− 0·6	+ 0·9
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 1911	− 1·3	− 0·8	− 2·0	− 1·7	− 1·7	− 2·0	− 2·8	− 3·0	− 1·9	− 2·5	− 2·0	− 2·9
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 1911	− 1·3	− 2·8	− 2·4	− 1·6	− 0·9	− 0·3	− 2·0	− 1·7	− 2·2	− 2·0	− 2·2	− 2·3

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.

OF THE METEOROLOGICAL ELEMENTS AT THE FIVE OBSERVATORIES
AND THE VALUES FOR 1911.

JANUARY TO JUNE.

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.
+1·7	+1·4	+0·3	+0·6	+1·1	+1·4	−0·8	−1·1	−0·4	−1·8	−1·8	+0·4	+0·4	Diff. for 1911. ,,
88·3	87·2	84·4	86·8	87·6	88·7	89·5	90·7	88·1	88·3	88·2	88·6	89·0	1911. 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.
+0·1	−0·4	+0·2	+1·4	0·0	−0·1	−0·1	−0·4	−0·9	−0·1	−0·5	−0·2	+0·2	Diff. for 1911. ,,
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.
0·0	−0·3	−0·9	−0·2	−0·6	−0·5	−1·4	−2·4	−2·7	−2·9	−3·3	−3·2	−2·3	Diff. for 1911. ,,
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.
−2·1	−1·3	−1·9	−2·1	−1·3	−0·5	−0·3	−0·8	+0·1	−0·2	−0·8	−0·8	−0·5	Diff. for 1911. ,,
													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.
−1·8	−3·1	−4·6	−4·8	−3·2	−4·4	−4·5	−3·5	−2·6	−2·4	−2·2	−1·9	−1·8	Diff. for 1911. ,,
81·3	82·1	84·3	84·3	84·6	83·7	83·6	84·6	87·0	85·5	84·4	84·4	84·6	1911. 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.
−2·1	−0·2	−0·2	+0·5	+0·1	−0·4	0·0	−1·0	−0·2	−0·5	−2·3	−2·1	−1·3	Diff. for 1911. ,,
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.
−3·1	−2·8	−2·8	−3·6	−3·8	−4·1	−4·4	−5·1	−4·4	−3·7	−2·1	−2·6	−3·4	Diff. for 1911. ,,
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.
−0·4	+0·9	+0·6	−0·1	+0·3	−0·2	−1·0	−0·1	−0·3	−1·7	−1·3	−0·3	−0·1	Diff. for 1911. ,,
													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.
−1·8	−0·8	−0·8	+0·5	−0·6	−2·4	−3·1	−2·5	−3·2	−1·8	−1·9	−1·9	−1·1	Diff. for 1911. ,,
77·8	76·5	77·9	78·4	79·9	80·6	82·9	83·9	84·5	84·4	85·5	85·2	82·8	1911. 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.
−3·6	−3·1	−3·9	−3·9	−5·4	−5·6	−4·3	−4·9	−4·3	−4·1	−4·8	−4·2	−3·7	Diff. for 1911. ,,
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.
+3·0	+3·6	+4·4	+5·1	+4·5	+3·8	+3·2	+2·8	+1·8	+1·4	+0·9	0·0	+1·4	Diff. for 1911. ,,
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.
+2·3	+2·5	+2·7	+2·8	+3·4	+2·9	+0·2	−0·4	−0·9	−0·7	+0·1	+0·7	+0·8	Diff. for 1911. ,,
													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.
−1·9	−0·9	−1·0	0·0	−0·2	−0·6	−1·1	−1·1	−1·0	−1·5	−1·0	−2·1	−1·7	Diff. for 1911. ,,
80·7	79·3	76·5	78·0	79·7	82·1	85·6	86·6	87·9	90·4	89·9	90·1	85·3	1911. 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	+0·8	+0·1	+0·9	+0·3	+0·8	+0·8	+1·0	−0·4	−0·9	−1·0	+0·4	+0·3	Diff. for 1911. ,,
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.
−1·8	−0·8	−1·4	−1·7	−1·4	−1·2	−2·2	−2·2	−3·7	−3·5	−3·3	−2·8	−2·0	Diff. for 1911. ,,
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.
+0·1	−0·6	−0·4	+1·0	+0·9	+1·0	+1·1	−0·3	+0·3	+0·5	−0·9	−0·6	0·0	Diff. for 1911. ,,
													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.
+1·7	+0·2	−1·1	+0·9	+1·2	+1·4	+1·9	+2·5	+1·3	+0·5	+0·4	+1·9	+1·4	Diff. for 1911. ,,
72·1	72·3	71·0	71·3	71·6	75·3	79·5	84·3	86·9	90·2	90·9	91·6	82·6	1911. 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.
+3·2	+4·2	+4·4	+4·9	+3·2	+4·8	+3·7	+3·1	+2·9	+2·5	+3·0	+3·2	+3·7	Diff. for 1911r. ,,
60·9	60·0	59·5	59·6	60·7	62·6	66·6	71·9	75·0	79·0	81·1	83·3	73·4	Normal. Kew.
+1·9	+0·7	−0·1	+0·4	+0·5	+2·4	+2·1	+1·5	+1·2	+0·7	+0·7	−0·3	+1·4	Diff. for 1911. ,,
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.
−0·2	+0·6	+1·3	+0·9	+0·3	+1·0	0·0	+0·2	−0·3	−0·7	−0·3	+0·2	+0·6	Diff. for 1911. ,,
													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.
−4·3	−4·8	−4·7	−1·7	−1·3	−1·5	−1·2	−4·3	−2·6	−2·7	−1·7	−2·0	−2·3	Diff. for 1911. ,,
69·5	69·4	69·7	72·2	72·3	75·4	77·2	81·0	85·0	86·7	86·9	89·0	80·2	1911. 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.
+0·4	+1·1	+0·2	+1·0	+0·6	+1·2	+0·8	+0·9	−0·4	−1·1	−0·9	−1·2	−0·2	Diff. for 1911. ,,
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.
−1·9	−1·2	−1·6	−0·5	−0·1	−1·1	−0·2	−0·8	−1·6	−0·9	−0·6	−0·6	−1·5	Diff. for 1911. ,,
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.
−1·7	−1·9	−1·4	−1·9	−1·7	−1·3	−1·7	−1·9	−0·4	−1·9	−1·6	−1·8	−1·7	Diff. for 1911. ,,

The values for 1911 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

LXXI.—*continued*—RELATIVE HUMIDITY.

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 1911	− 1·7	− 1·4	− 1·7	− 2·3	− 2·0	− 2·6	− 2·6	− 3·3	− 4·9	− 6·4	− 4·7	− 3·2
Eskdale, 1911.		93·2	93·9	94·8	94·0	92·8	91·5	87·8	84·1	79·6	76·9	76·5	76·4
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 1911	− 0·7	+ 0·1	− 0·7	− 0·1	− 0·3	+ 1·7	+ 0·4	− 0·5	− 1·2	− 1·6	− 3·3	− 4·2
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 1911	− 4·8	− 3·8	− 2·9	− 2·0	− 3·0	− 3·3	− 5·1	− 6·6	− 8·0	− 9·0	− 8·5	− 9·7
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 1911	− 5·6	− 4·2	− 4·5	− 4·1	− 4·2	− 4·4	− 5·0	− 6·7	− 8·0	− 9·8	− 8·6	−10·2
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 1911	+ 0·4	− 1·3	0·0	− 1·5	− 0·4	− 0·7	+ 0·4	+ 1·0	− 0·3	0·0	+ 0·1	− 1·8
Eskdale, 1911.		94·8	94·8	95·1	95·7	95·0	94·6	93·1	88·0	82·5	80·6	78·8	77·1
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 1911	+ 2·0	+ 2·0	+ 1·4	+ 1·7	+ 1·2	+ 1·4	+ 1·8	+ 1·5	+ 1·1	+ 1·1	− 0·1	+ 0·7
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 1911	− 2·4	− 1·2	− 0·6	+ 0·1	0·0	0·0	− 0·9	− 1·1	− 2·8	− 4·1	− 4·6	− 6·5
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 1911	+ 0·5	− 0·5	− 0·1	+ 0·1	− 0·1	+ 0·8	+ 1·2	+ 0·3	− 0·2	− 1·6	− 4·1	− 2·3
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 1911	− 4·6	− 3·7	− 5·7	− 4·3	− 5·4	− 5·1	− 5·4	− 7·1	− 6·6	− 6·8	− 7·7	− 8·7
Eskdale, 1911.		92·1	92·5	92·9	91·9	91·3	92·0	91·9	89·1	83·9	79·3	77·1	74·9
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 1911	+ 0·1	+ 0·4	− 0·2	+ 0·2	− 0·3	− 0·4	+ 0·2	+ 0·1	− 0·9	− 0·9	− 2·1	− 3·0
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 1911	− 0·6	− 0·7	− 1·0	− 0·9	− 0·2	0·0	− 0·9	− 2·7	− 7·4	− 9·2	−11·1	−11·4
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 1911	− 1·8	− 1·8	− 2·2	− 2·0	− 1·8	− 1·2	− 1·1	− 1·2	− 3·4	− 3·6	− 4·0	− 4·5
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 1911	+ 1·7	+ 2·4	+ 1·3	+ 2·0	+ 2·5	+ 2·9	+ 3·0	+ 1·4	+ 0·7	+ 0·6	0·0	+ 1·1
Eskdale, 1911		91·1	90·8	90·5	90·9	91·2	90·1	90·6	89·4	86·5	84·5	81·4	80·1
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 1911	− 2·0	− 2·5	− 1·7	− 0·6	− 0·8	− 1·6	− 1·0	− 0·8	− 1·8	− 3·0	− 2·9	− 2·5
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 1911	− 2·5	− 2·2	− 2·7	− 2·4	− 1·8	− 2·0	− 2·0	− 1·8	− 1·8	− 2·0	− 2·3	− 0·9
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 1911	− 4·2	− 3·4	− 3·5	− 3·0	− 3·3	− 1·0	− 2·9	− 2·8	− 1·1	− 1·4	+ 0·4	+ 3·9
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 1911	+ 0·2	+ 0·3	+ 0·8	− 0·4	− 0·1	− 2·6	− 1·4	− 0·3	+ 0·4	+ 1·9	+ 0·6	− 0·6
Eskdale, 1911.		85·6	86·0	86·1	86·1	86·1	86·6	86·2	85·8	85·8	85·1	84·1	83·9
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 1911	− 2·7	− 2·4	− 2·2	− 2·5	− 2·7	− 4·3	− 3·9	− 2·8	− 3·2	− 2·4	− 3·3	− 4·0
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 1911	− 5·8	− 4·8	− 5·0	− 4·6	− 4·8	− 5·7	− 5·7	− 4·9	− 5·6	− 6·1	− 6·1	− 4·3
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 1911	− 1·7	− 0·8	− 1·2	− 2·9	− 4·4	− 2·7	− 2·5	− 3·0	− 3·2	− 2·5	− 4·3	− 3·5
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 1911	+ 2·4	+ 3·7	+ 3·1	+ 2·5	+ 3·4	+ 4·6	+ 4·7	+ 5·2	+ 3·9	+ 5·4	+ 4·7	+ 2·5
Eskdale, 1911.		90·3	89·7	90·1	90·3	90·5	91·3	91·2	90·8	90·5	88·5	88·1	89·3
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 1911	+ 0·3	+ 0·7	+ 0·4	+ 1·0	+ 0·9	+ 0·8	+ 0·9	+ 1·2	+ 1·2	+ 1·3	+ 1·3	+ 1·6
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 1911	− 0·9	− 1·1	− 1·0	− 0·5	− 0·7	− 0·4	+ 1·1	+ 0·7	+ 0·5	+ 0·2	+ 0·2	− 0·1
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 1911	+ 1·4	+ 2·0	+ 2·2	+ 2·9	+ 1·5	+ 2·3	+ 2·2	+ 1·3	+ 1·4	+ 2·2	+ 2·1	+ 1·5
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 1911	− 0·7	− 0·3	− 0·5	− 0·7	− 0·7	− 0·9	− 0·6	− 0·5	− 0·8	− 0·5	− 0·6	− 0·7
Eskdale, 1911.		90·0	89·9	90·3	90·4	90·4	89·8	89·0	86·7	83·8	81·5	80·2	79·1
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 1911	− 0·6	− 0·2	− 0·6	0·0	− 0·4	− 0·2	− 0·3	− 0·1	− 0·5	− 0·2	− 0·7	− 0·8
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 1911	− 2·1	− 1·8	− 1·9	− 1·6	− 1·7	− 2·0	− 2·2	− 2·2	− 2·7	− 3·1	− 2·9	− 3·1
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 1911	− 1·2	− 0·9	− 1·1	− 0·9	− 0·9	− 0·5	− 0·8	− 1·1	− 1·5	− 1·3	− 1·4	− 1·2

OF THE METEOROLOGICAL ELEMENTS AT THE FIVE OBSERVATORIES
AND THE VALUES FOR 1911.

JULY TO DECEMBER AND YEAR.

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.
−3·0	−5·2	−5·1	−5·0	−4·8	−4·0	−3·9	−1·9	−1·4	−2·5	−1·9	−0·6	−3·2	Diff. for 1911. ,,
75·4	75·9	75·8	78·1	79·0	80·4	83·7	85·5	88·5	90·6	91·5	92·4	84·9	1911. 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.
−4·0	−1·6	−2·6	−1·7	−3·3	−2·8	−2·6	−2·3	−1·8	−1·4	−2·2	−1·7	−1·6	Diff. for 1911. ,,
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.
−9·0	−10·4	−12·1	−12·7	−13·5	−13·9	−13·4	−12·1	−10·6	−9·9	−6·8	−6·3	−8·2	Diff. for 1911. ,,
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.
−9·7	−8·0	−8·8	−10·0	−10·4	−9·5	−8·6	−6·5	−4·1	−3·8	−4·3	−5·1	−6·8	Diff. for 1911. ,,
													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.
−0·9	−1·6	+0·6	+0·2	0·0	+0·1	+0·8	−1·2	−1·4	−1·5	+0·1	−0·7	−0·4	Diff. for 1911. ,,
75·7	75·0	75·4	75·8	77·9	81·6	87·2	89·4	92·6	93·8	93·8	95·1	86·8	1911. 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.
+0·5	+1·5	−0·5	−0·1	−0·9	+0·1	−0·3	+1·1	+0·9	+1·5	+1·4	+2·3	+1·0	Diff. for 1911. ,,
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.
−7·2	−7·9	−7·2	−8·3	−7·2	−6·0	−7·0	−7·4	−6·1	−5·5	−3·3	−3·0	−4·2	Diff. for 1911. ,,
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.
−2·0	−2·4	−1·9	−0·9	−1·2	−0·6	+0·5	+1·3	+1·0	+1·1	+1·2	+1·9	−0·3	Diff. for 1911. ,,
													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.
−8·1	−9·8	−9·4	−9·6	−8·5	−6·0	−7·6	−6·9	−7·7	−6·0	−5·5	−5·6	−6·7	Diff. for 1911. ,,
73·4	72·5	72·4	75·4	79·3	82·8	85·5	86·9	89·4	90·2	91·1	90·1	84·9	1911. 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.
−4·0	−3·4	−3·7	−2·6	−3·3	−3·4	−2·5	−2·5	−1·3	−0·7	−0·8	−0·4	−1·5	Diff. for 1911. ,,
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.
−12·0	−12·2	−13·0	−12·7	−13·2	−12·5	−9·6	−7·8	−5·0	−3·5	−2·0	−2·6	−6·3	Diff. for 1911. ,,
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.
−5·5	−4·8	−5·5	−4·8	−4·7	−5·0	−4·6	−4·1	−3·7	−3·3	−3·2	−2·1	−3·3	Diff. for 1911. ,,
													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.
+0·2	+1·0	+0·2	+1·7	+0·7	+0·6	+1·0	+0·4	+1·0	+0·1	+0·3	−0·3	+1·1	Diff. for 1911. ,,
79·4	79·6	82·3	83·7	86·5	88·5	89·2	89·7	90·3	90·6	90·7	90·2	87·4	1911. 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.
−3·7	−3·3	−2·2	−3·0	−2·1	−3·2	−3·8	−3·1	−2·0	−2·5	−2·1	−1·3	−2·2	Diff. for 1911. ,,
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.
−1·1	−1·1	−1·3	−2·3	−2·7	−3·2	−3·1	−2·8	−1·3	−1·4	−2·3	−2·6	−2·1	Diff. for 1911. ,,
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.
+5·4	+4·1	+5·6	+4·4	+1·2	−0·7	−1·3	−2·7	−3·3	−2·9	−4·4	−3·5	−0·9	Diff. for 1911. ,,
													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.
−1·0	−0·6	−2·3	−1·2	−1·9	−0·5	−1·0	+0·1	−1·3	−0·7	+0·2	+0·1	−0·5	Diff. for 1911. ,,
83·3	83·7	85·8	85·6	85·4	86·5	86·9	87·3	86·4	86·7	86·5	85·8	85·7	1911. 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.
−2·1	−2·2	−1·2	−1·2	−1·6	−1·5	−1·2	−2·2	−3·2	−2·6	−3·9	−3·2	−2·6	Diff. for 1911. ,,
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.
−5·3	−4·9	−4·7	−3·7	−4·7	−4·9	−5·4	−6·4	−5·6	−5·3	−5·6	−6·2	−5·3	Diff. for 1911. ,,
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.
−5·4	−4·0	−4·4	−3·7	−4·0	−4·1	−2·2	+0·6	−0·2	+0·1	0·0	−0·2	−2·5	Diff. for 1911. ,,
													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.
+2·6	+2·8	+3·4	+4·4	+4·9	+3·6	+2·9	+3·8	+3·8	+3·4	+3·0	+1·7	+3·6	Diff. for 1911. ,,
88·7	89·3	89·5	89·5	89·6	90·2	89·9	89·3	89·5	89·2	90·1	89·7	89·8	1911. 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.
+3·0	+2·5	+2·7	+2·7	+1·5	+1·3	+0·4	+1·1	0·0	+0·7	+0·8	+1·0	+1·2	Diff. for 1911. ,,
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.
−0·6	−0·7	−1·9	−1·7	−1·5	−1·1	−0·8	−0·8	−1·7	−1·2	−1·8	−1·4	−0·7	Diff. for 1911. ,,
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.
+2·4	+1·3	+1·4	+0·4	+0·6	+0·5	+0·8	+1·7	+3·0	+2·8	+2·0	+1·6	+1·7	Diff. for 1911. ,,
													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.
−1·4	−1·8	−2·0	−1·1	−1·1	−1·0	−1·4	−1·3	−1·3	−1·4	−1·0	−1·0	−1·0	Diff. for 1911. ,,
78·7	78·5	78·7	79·9	81·1	82·9	85·1	86·6	88·0	88·9	89·2	89·4	85·3	1911. 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.
−1·0	−0·3	−0·6	−0·1	−0·9	−0·8	−0·8	−0·8	−0·8	−0·8	−1·1	−0·6	−0·6	Diff. for 1911. ,,
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.
−3·1	−3·1	−3·5	−3·5	−3·7	−3·6	−3·5	−3·7	−3·4	−2·9	−2·4	−2·7	−2·8	Diff. for 1911. ,,
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.
−1·4	−1·2	−1·1	−1·2	−1·4	−1·4	−1·4	−1·1	−0·7	−0·9	−1·1	−0·9	−1·1	Diff. for 1911. ,,

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.
	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.												
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 1911	− 0·56	− 0·58	− 0·60	− 0·56	− 0·39	− 0·64	− 0·94	− 0·81	− 0·88	− 0·96	− 0·65	− 1·27
Eskdale, 1911.	7·80	7·73	7·14	7·34	6·95	6·17	6·19	6·10	6·31	70·5	71·2	7·41
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 1911	− 1·75	− 1·80	− 1·49	− 1·60	− 1·72	− 1·90	− 2·10	− 2·11	− 2·18	− 2·04	− 1·66	− 1·73
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 1911	− 0·66	− 0·60	− 0·73	− 0·57	− 0·45	− 0·15	− 0·01	− 0·13	− 0·10	− 0·34	− 0·80	− 0·38
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 1911	− 1·93	− 2·02	− 1·78	− 2·18	− 1·67	− 1·59	− 1·60	− 1·52	− 1·53	− 1·38	− 1·72	− 1·75
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 1911	− 0·85	− 0·20	− 0·11	+ 0·42	+ 0·56	+ 0·56	+ 0·69	+ 0·69	+ 0·51	+ 0·61	+ 0·25	+ 0·19
Eskdale, 1911.	6·01	5·84	6·59	6·58	6·74	6·48	6·48	7·12	6·93	6·99	7·14	7·53
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 1911	+ 0·35	+ 0·46	+ 0·48	+ 0·50	+ 0·60	+ 0·29	+ 0·25	+ 0·35	+ 0·32	− 0·04	+ 0·11	− 0·46
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 1911	+ 0·28	+ 0·23	+ 0·13	+ 0·24	+ 0·38	+ 0·25	+ 0·33	+ 0·34	+ 0·42	+ 0·45	+ 0·36	+ 0·56
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 1911	− 0·09	− 0·13	+ 0·01	+ 0·14	+ 0·27	+ 0·20	+ 0·07	0·00	+ 0·04	+ 0·08	− 0·20	− 0·33
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 1911	+ 0·18	+ 0·30	+ 0·26	+ 0·29	+ 0·26	+ 0·14	+ 0·16	+ 0·39	+ 0·39	+ 0·33	+ 0·58	+ 0·71
Eskdale, 1911.	6·42	6·62	6·76	6·65	5·93	6·40	6·98	7·04	7·97	8·76	9·34	9·04
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 1911	0·00	+ 0·05	+ 0·17	+ 0·33	+ 0·58	+ 0·21	+ 0·55	+ 0·42	+ 0·35	− 0·02	+ 0·02	− 0·20
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 1911	+ 0·85	+ 1·12	+ 1·34	+ 1·12	+ 0·99	+ 1·07	+ 0·97	+ 0·85	+ 0·52	+ 0·66	+ 0·38	+ 0·56
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 1911	− 0·47	− 0·96	− 0·67	− 0·84	− 0·71	− 0·65	− 0·38	− 0·73	− 0·65	− 0·51	− 0·74	− 0·82
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 1911	+ 0·45	+ 0·35	+ 0·23	+ 0·06	+ 0·23	+ 0·12	+ 0·23	0·00	− 0·07	− 0·20	− 0·21	− 0·08
Eskdale, 1911.	6·04	5·89	5·76	5·83	5·72	5·89	5·94	6·90	7·41	8·04	8·07	8·43
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 1911	+ 0·36	+ 0·34	+ 0·26	+ 0·43	+ 0·35	+ 0·11	− 0·03	− 0·04	+ 0·06	− 0·05	+ 0·22	+ 0·05
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 1911	+ 0·99	+ 0·88	+ 0·98	+ 1·14	+ 1·20	+ 1·28	+ 1·43	+ 1·38	+ 1·41	+ 1·37	+ 0·84	+ 1·35
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 1911	+ 0·41	+ 0·71	+ 0·53	+ 0·51	+ 0·31	+ 0·22	+ 0·33	+ 0·06	+ 0·09	+ 0·49	− 0·32	+ 0·17
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 1911	− 0·39	− 0·27	− 0·33	− 0·51	− 0·55	− 0·56	− 0·74	− 0·76	− 1·00	− 0·68	− 0·58	− 0·61
Eskdale, 1911.	3·79	3·74	4·05	4·07	4·32	4·45	4·66	5·24	6·28	6·84	6·76	7·11
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 1911	− 1·44	− 1·27	− 0·96	− 1·29	− 1·14	− 0·82	− 1·14	− 0·91	− 1·09	− 1·03	− 1·07	− 1·11
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 1911	− 0·28	− 0·17	− 0·07	− 0·35	− 0·40	− 0·56	− 0·73	− 1·23	− 0·17	− 0·95	− 1·42	− 0·93
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 1911	− 1·27	− 1·40	− 1·31	− 1·29	− 1·41	− 1·20	− 1·52	− 1·45	− 1·49	− 1·28	− 1·85	− 1·60
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 1911	+ 0·33	+ 0·24	+ 0·22	+ 0·08	+ 0·15	+ 0·35	+ 0·54	+ 0·40	+ 0·54	+ 0·41	+ 0·10	+ 0·45
Eskdale, 1911.	3·28	3·50	3·33	3·92	4·08	4·29	5·06	5·25	5·77	6·57	6·76	6·62
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 1911	+ 0·42	+ 0·48	+ 0·35	+ 0·28	+ 0·41	+ 0·13	+ 0·07	+ 0·12	+ 0·18	+ 0·10	− 0·19	− 0·14
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 1911	+ 0·72	+ 0·48	+ 0·64	+ 0·44	+ 0·43	+ 0·44	+ 0·58	+ 0·60	+ 0·48	+ 0·65	+ 0·35	+ 0·75
Falmouth, Normal.	3·13	3·09	3·09	3·00	2·95	3·17	3·89	4·25	4·47	4·78	4·74	
Difference for 1911	− 0·19	− 0·05	− 0·05	− 0·15	− 0·12	− 0·28	− 0·41	− 0·39	− 0·32	+ 0·24	− 0·44	− 0·27

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.

OF THE METEOROLOGICAL ELEMENTS AT THE FIVE OBSERVATORIES
AND THE VALUES FOR 1911.

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.
− 1·33	− 1·53	− 1·29	− 1·35	− 0·95	− 0·97	− 0·78	− 0·82	− 0·81	− 0·89	− 0·87	− 0·43	− 0·87	Diff. for 1911. ,,
6·62	7·73	7·38	6·88	6·85	6·95	7·02	6·82	7·11	7·15	7·29	6·95	7·00	1911. 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.
− 1·74	− 1·41	− 1·51	− 1·37	− 1·47	− 1·44	− 1·46	− 1·40	− 1·61	− 1·68	− 1·92	− 1·68	− 1·70	Diff. for 1911. ,,
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.
− 0·40	− 0·50	− 0·53	− 0·34	− 0·51	− 0·57	− 0·64	− 0·54	− 0·57	− 0·63	− 0·55	− 0·89	− 0·48	Diff. for 1911. ,,
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.
− 1·78	− 1·85	− 1·92	− 1·88	− 2·05	− 2·00	− 2·07	− 1·93	− 2·08	− 1·90	− 1·70	− 1·81	− 1·82	Diff. for 1911 ,,
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	FEBRUARY. Normal. Aberdeen.
+ 0·60	+ 0·29	+ 0·25	+ 0·29	+ 0·16	− 0·36	− 0·45	− 0·60	− 0·75	− 0·72	− 0·68	− 0·79	+ 0·03	Diff. for 1911. ,,
7·85	8·17	7·09	6·30	5·38	5·39	5·25	5·17	5·62	6·06	6·39	5·83	6·46	1911. 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.
− 0·42	− 0·52	− 0·52	− 0·50	− 0·31	− 0·17	+ 0·19	+ 0·52	+ 0·64	+ 0·69	+ 1·02	+ 0·82	+ 0·19	Diff. for 1911. ,,
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.
+ 0·71	+ 0·67	+ 0·18	+ 0·04	+ 0·10	+ 0·34	+ 0·10	+ 0·26	+ 0·23	+ 0·41	+ 0·14	+ 0·49	+ 0·32	Diff. for 1911. ,,
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.
− 0·13	− 0·07	− 0·04	− 0·11	+ 0·08	+ 0·02	− 0·25	− 0·60	− 0·40	− 0·11	− 0·11	− 0·10	− 0·07	Diff. for 1911. ,,
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	MARCH. Normal. Aberdeen.
+ 0·57	+ 0·64	+ 0·56	+ 0·33	+ 0·37	+ 0·34	+ 0·38	+ 0·39	+ 0·50	+ 0·22	+ 0·30	+ 0·12	+ 0·36	Diff. for 1911. ,,
8·82	9·05	9·15	8·51	7·89	6·65	6·47	6·05	6·49	6·14	6·36	6·27	7·32	1911. 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.
− 0·04	− 0·15	− 0·09	+ 0·39	+ 0·53	+ 0·42	+ 0·08	− 0·07	+ 0·15	+ 0·31	+ 0·10	0·00	+ 0·17	Diff. for 1911. ,,
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.
+ 0·47	+ 0·55	+ 0·57	+ 0·37	+ 0·43	+ 0·50	+ 0·54	+ 0·68	+ 0·72	+ 0·78	+ 0·57	+ 0·69	+ 0·72	Diff. for 1911. ,,
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.
− 0·86	− 0·84	− 0·71	− 0·73	− 0·74	− 0·52	− 0·51	− 0·32	− 0·31	− 0·32	− 0·50	− 0·36	− 0·62	Diff. for 1911. ,,
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	APRIL. Normal. Aberdeen.
+ 0·36	+ 0·18	+ 0·14	− 0·01	− 0·09	− 0·21	− 0·11	− 0·15	− 0·09	+ 0·22	+ 0·24	+ 0·42	+ 0·08	Diff. for 1911. ,,
8·56	8·73	8·53	8·11	7·78	6·83	6·33	6·33	6·13	5·94	6·11	6·37	6·90	1911. 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.
+ 0·07	− 0·21	− 0·27	− 0·25	+ 0·05	+ 0·34	+ 0·61	+ 0·54	+ 0·70	+ 0·61	+ 0·47	+ 0·34	+ 0·21	Diff. for 1911. ,,
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.
+ 1·21	+ 1·35	+ 1·44	+ 1·25	+ 1·27	+ 1·29	+ 1·30	+ 1·24	+ 1·17	+ 1·17	+ 0·70	+ 0·94	+ 1·19	Diff. for 1911. ,,
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.
+ 0·16	+ 0·08	− 0·03	+ 0·11	+ 0·15	− 0·26	+ 0·06	+ 0·06	+ 0·12	+ 0·11	+ 0·32	+ 0·26	+ 0·19	Diff. for 1911. ,,
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	MAY. Normal. Aberdeen.
− 0·99	− 0·91	− 0·97	− 1·01	− 0·88	− 0·83	− 0·63	− 0·80	− 0·87	− 0·71	− 0·43	− 0·47	− 0·69	Diff. for 1911. ,,
7·32	7·12	6·95	6·95	6·84	6·36	4·91	3·92	3·57	3·75	3·35	3·74	5·25	1911. 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.
− 0·83	− 0·78	− 1·06	− 1·34	− 1·25	− 1·09	− 1·02	− 1·24	− 1·23	− 1·31	− 1·35	− 1·41	− 1·13	Diff. for 1911. ,,
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.
− 0·87	− 0·78	− 0·63	− 0·37	− 0·35	− 0·30	− 0·27	− 0·38	− 0·16	− 0·38	− 0·32	− 0·11	− 0·50	Diff. for 1911. ,,
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.
− 1·97	− 1·77	− 1·69	− 1·73	− 1·77	− 1·95	− 1·97	− 1·49	− 1·48	− 1·35	− 1·13	− 1·27	− 1·53	Diff. for 1911. ,,
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	JUNE. Normal. Aberdeen.
+ 0·26	+ 0·64	+ 0·77	+ 0·71	+ 0·39	+ 0·35	+ 0·31	+ 0·31	+ 0·35	+ 0·31	+ 0·60	+ 0·37	+ 0·38	Diff. for 1911. ,,
6·52	6·63	6·81	6·63	6·80	6·42	5·50	4·21	3·39	3·76	3·31	3·29	5·07	1911. 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.
+ 0·27	+ 0·36	+ 0·29	+ 0·15	− 0·01	+ 0·32	+ 0·31	+ 0·41	+ 0·31	+ 0·53	+ 0·49	+ 0·74	+ 0·27	Diff. for 1911. ,,
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.
+ 0·99	+ 0·84	+ 0·78	+ 0·94	+ 0·63	+ 0·81	+ 0·92	+ 1·01	+ 0·76	+ 0·58	+ 0·53	+ 0·53	+ 0·66	Diff. for 1911. ,,
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.
− 0·57	− 0·40	− 0·35	− 0·45	− 0·56	− 0·26	− 0·13	0·00	+ 0·05	+ 0·04	− 0·17	− 0·26	− 0·23	Diff. for 1911. ,,

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

The heights of the anemometers above the general surface of the ground are:—Aberdeen, 22·9 metres; Eskdalemuir, 15·2 metres; Valencia, 13·7 metres; Kew, 21·3 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 1911 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.
	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.												
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 1911	− 0·37	− 0·35	− 0·13	− 0·23	− 0·02	− 0·29	− 0·41	− 0·51	− 0·72	− 0·53	− 0·45	− 0·60
Eskdale, 1911.	3·11	3·44	3·55	3·27	3·70	3·63	4·26	4·94	5·52	5·96	6·29	6·52
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 1911	− 1·12	− 1·26	− 0·83	− 0·99	− 1·22	− 1·23	− 1·18	− 1·08	− 1·47	− 1·40	− 1·09	− 0·93
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 1911	− 0·07	− 0·02	− 0·13	− 0·17	− 0·17	− 0·29	− 0·16	+ 0·01	+ 0·10	+ 0·35	+ 0·22	+ 0·30
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 1911	− 1·01	− 1·11	− 1·12	− 0·85	− 0·73	− 0·74	− 1·02	− 1·03	− 1·11	− 1·13	− 1·42	− 1·59
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 1911	− 0·46	− 0·38	− 0·47	− 0·12	− 0·18	− 0·20	− 0·12	− 0·07	+ 0·04	+ 0·07	+ 0·20	+ 0·18
Eskdale, 1911.	3·14	3·46	3·51	3·83	3·66	3·84	4·52	5·53	5·97	6·45	6·65	6·70
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 1911	− 1·12	− 0·91	− 0·79	− 0·71	− 0·68	− 0·52	− 0·50	− 0·67	− 0·55	− 0·41	− 0·18	− 0·44
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 1911	− 0·09	− 0·17	− 0·03	− 0·07	− 0·07	− 0·10	− 0·09	+ 0·02	+ 0·12	+ 0·31	− 0·12	+ 0·01
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 1911	− 0·91	− 1·07	− 0·88	− 1·05	− 0·95	− 0·95	− 1·06	− 0·97	− 1·29	− 1·32	− 1·05	− 1·36
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 1911	− 0·17	− 0·16	− 0·19	− 0·08	− 0·12	− 0·26	− 0·05	− 0·10	− 0·10	− 0·06	− 0·09	− 0·30
Eskdale, 1911.	3·24	3·33	3·68	3·67	3·97	3·78	4·00	4·34	4·77	5·45	6·06	6·31
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 1911	− 0·90	− 0·83	− 0·85	− 0·96	− 0·94	− 0·91	− 0·89	− 0·85	− 1·21	− 1·77	− 1·26	− 0·72
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 1911	− 0·23	− 0·14	− 0·07	− 0·14	− 0·08	− 0·29	− 0·11	− 0·15	+ 0·15	+ 0·14	− 0·23	− 0·10
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 1911	− 0·75	− 0·77	− 0·72	− 0·70	− 0·81	− 0·95	− 0·95	− 1·15	− 1·20	− 1·43	− 1·35	− 1·52
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 1911	− 0·38	− 0·58	− 0·50	− 0·45	− 0·40	− 0·65	− 0·72	− 0·78	− 0·98	− 0·76	− 0·94	− 0·76
Eskdale, 1911.	4·05	4·14	4·16	4·38	4·28	4·04	3·89	4·00	4·17	5·17	5·30	5·33
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 1911	− 0·09	− 0·01	− 0·14	− 0·21	− 0·05	+ 0·07	+ 0·20	+ 0·15	− 0·29	− 0·13	− 0·45	− 0·20
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 1911	+ 0·28	+ 0·11	+ 0·24	+ 0·16	+ 0·19	+ 0·34	+ 0·40	+ 0·55	+ 0·61	+ 1·02	+ 0·45	+ 0·80
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 1911	− 0·38	− 0·33	− 0·22	+ 0·08	+ 0·20	+ 0·44	+ 0·28	+ 0·31	+ 0·27	+ 0·22	− 0·06	+ 0·03
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 1911	+ 0·40	+ 0·32	+ 0·09	+ 0·27	+ 0·50	+ 0·89	+ 0·66	+ 0·73	+ 0·61	+ 0·43	+ 0·55	+ 0·58
Eskdale, 1911.	7·26	6·56	6·34	6·50	6·25	6·40	6·29	6·36	6·31	7·44	7·71	8·13
Valencia, Normal.	5·81	5·63	5·72	5·63	5·68	5·59	5·68	5·63	5·72	5·68	5·63	6·12
Difference for 1911	+ 1·09	+ 1·08	+ 1·17	+ 1·20	+ 1·30	+ 1·23	+ 0·77	+ 0·91	+ 1·32	+ 1·07	+ 1·60	+ 1·38
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 1911	+ 1·43	+ 1·45	+ 1·30	+ 1·31	+ 1·17	+ 1·28	+ 1·06	+ 1·06	+ 1·06	+ 1·48	+ 1·10	+ 1·25
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 1911	+ 0·04	− 0·41	0·00	+ 0·21	+ 0·21	+ 0·44	+ 0·35	+ 0·16	+ 0·30	+ 0·17	+ 1·19	+ 0·54
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 1911	− 0·45	− 0·64	− 0·36	− 0·01	+ 0·12	+ 0·16	− 0·17	− 0·47	− 0·58	− 0·59	− 0·83	− 0·84
Eskdale, 1911.	5·73	5·53	5·29	5·22	4·80	4·80	5·11	5·12	5·55	5·29	5·77	6·55
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 1911	− 0·12	− 0·17	− 0·44	+ 0·10	+ 0·35	+ 0·36	+ 0·35	+ 0·71	+ 0·55	+ 0·75	+ 0·38	+ 0·77
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 1911	+ 1·05	+ 1·01	+ 1·11	+ 0·84	+ 0·90	+ 0·76	+ 0·67	+ 0·54	+ 0·48	+ 0·78	+ 0·16	+ 0·42
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 1911	+ 0·40	+ 0·32	+ 0·10	+ 0·18	+ 0·20	− 0·03	+ 0·07	+ 0·03	+ 0·26	+ 0·54	+ 0·74	+ 0·79
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 1911	− 0·19	− 0·17	− 0·15	− 0·07	+ 0·03	− 0·02	− 0·08	− 0·09	− 0·21	− 0·15	− 0·17	− 0·20
Eskdale, 1911.	5·00	4·99	5·01	5·10	5·02	5·01	5·28	5·66	6·08	6·66	6·91	7·13
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 1911	− 0·39	− 0·33	− 0·28	− 0·26	− 0·19	− 0·25	− 0·33	− 0·24	− 0·33	− 0·39	− 0·30	− 0·33
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 1911	+ 0·35	+ 0·33	+ 0·39	+ 0·33	+ 0·35	+ 0·31	+ 0·36	+ 0·31	+ 0·34	+ 0·51	+ 0·10	+ 0·39
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 1911	− 0·51	− 0·57	− 0·52	− 0·45	− 0·44	− 0·40	− 0·49	− 0·57	− 0·53	− 0·42	− 0·58	− 0·60

OF THE METEOROLOGICAL ELEMENTS AT THE FIVE OBSERVATORIES
AND THE VALUES FOR 1911.

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.
− 0·78	− 0·65	− 0·68	− 0·73	− 0·72	− 0·86	− 0·64	− 0·52	− 0·41	− 0·30	− 0·32	− 0·29	− 0·48	Diff. for 1911. ,,
6·63	6·65	6·73	6·58	6·68	5·96	5·12	4·03	3·28	2·96	3·09	2·97	4·79	1911. 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.
− 0·99	− 0·92	− 0·82	− 0·80	− 0·89	− 0·74	− 0·82	− 1·05	− 1·12	− 1·27	− 1·08	− 1·15	− 1·06	Diff. for 1911. ,,
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.
+ 0·45	+ 0·56	+ 0·70	+ 0·62	+ 0·51	+ 0·63	+ 0·93	+ 0·24	+ 0·22	+ 0·17	− 0·17	− 0·12	+ 0·20	Diff. for 1911. ,,
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.
− 1·46	− 1·62	− 1·66	− 1·58	− 1·53	− 1·36	− 1·01	− 0·80	− 0·77	− 0·78	− 0·93	− 1·04	− 1·14	Diff. for 1911. ,,
													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.
+ 0·08	+ 0·20	+ 0·36	+ 0·35	+ 0·26	+ 0·11	+ 0·01	− 0·03	− 0·06	− 0·05	+ 0·08	− 0·24	− 0·02	Diff. for 1911. ,,
6·87	6·97	6·89	7·00	6·56	5·83	5·09	4·13	3·87	3·56	3·76	3·48	5·05	1911. 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.
− 0·14	− 0·09	− 0·15	− 0·42	− 0·27	− 0·37	− 0·32	− 0·69	− 0·90	− 1·09	− 0·70	− 0·81	− 0·56	Diff. for 1911. ,,
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.
+ 0·02	+ 0·47	+ 0·50	+ 0·73	+ 0·73	+ 0·78	+ 0·78	+ 0·57	+ 0·36	+ 0·27	− 0·01	− 0·19	+ 0·20	Diff. for 1911. ,,
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.
− 1·38	− 1·23	− 1·29	− 0·97	− 1·21	− 1·17	− 1·09	− 0·93	− 1·00	− 0·97	− 0·96	− 0·91	− 1·08	Diff. for 1911. ,,
													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.
− 0·23	− 0·03	+ 0·26	+ 0·31	+ 0·23	+ 0·24	+ 0·23	+ 0·03	+ 0·04	− 0·08	− 0·25	− 0·01	− 0·04	Diff. for 1911. ,,
6·48	6·19	6·03	5·72	5·28	4·30	3·77	3·39	3·18	2·73	2·90	3·18	4·41	1911. 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.
− 0·67	− 0·61	− 0·54	− 0·47	− 0·28	− 0·45	− 0·65	− 0·64	− 0·56	− 0·30	− 0·94	− 1·07	− 0·80	Diff. for 1911. ,,
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.
− 0·11	− 0·15	+ 0·07	+ 0·14	− 0·05	− 0·08	+ 0·06	+ 0·25	+ 0·11	− 0·08	+ 0·03	+ 0·09	− 0·04	Diff. for 1911. ,,
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.
− 1·21	− 1·03	− 0·89	− 0·79	− 0·59	− 0·51	− 0·23	− 0·56	− 0·62	− 0·54	− 0·67	− 0·54	− 0·85	Diff. for 1911. ,,
													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.
− 0·69	− 0·76	− 0·54	− 0·33	− 0·44	− 0·34	− 0·13	− 0·47	− 0·41	− 0·35	− 0·20	− 0·47	− 0·54	Diff. for 1911. ,,
5·34	5·55	5·42	4·91	4·41	4·05	3·76	3·89	3·68	4·30	4·16	4·23	4·44	1911. 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	5·55	Normal. Valencia.
+ 0·35	+ 0·11	− 0·05	+ 0·02	+ 0·25	+ 0·11	+ 0·78	+ 0·40	+ 0·47	+ 0·53	+ 0·15	+ 0·14	+ 0·09	Diff. for 1911. ,,
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.
+ 0·97	+ 1·01	+ 1·23	+ 1·12	+ 0·86	+ 0·77	+ 0·56	+ 0·50	+ 0·54	+ 0·64	+ 0·66	+ 0·50	+ 0·60	Diff. for 1911. ,,
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.
− 0·11	− 0·02	− 0·28	− 0·19	− 0·03	− 0·26	− 0·22	− 0·20	− 0·25	− 0·16	− 0·33	− 0·40	− 0·07	Diff. for 1911. ,,
													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.
+ 0·47	+ 0·34	+ 0·14	+ 0·35	+ 0·33	+ 0·55	+ 0·62	+ 0·30	+ 0·24	+ 0·04	+ 0·20	+ 0·35	+ 0·42	Diff. for 1911. ,,
8·48	8·46	7·67	7·62	7·44	7·20	7·22	6·73	6·82	6·67	6·49	6·78	7·05	1911. 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.
+ 0·98	+ 1·09	+ 1·28	+ 1·12	+ 0·82	+ 1·12	+ 1·31	+ 1·16	+ 1·25	+ 1·21	+ 1·16	+ 0·96	+ 1·15	Diff. for 1911. ,,
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.
+ 1·51	+ 1·19	+ 1·39	+ 1·33	+ 1·47	+ 0·85	+ 0·92	+ 1·11	+ 1·35	+ 1·64	+ 1·71	+ 1·81	+ 1·30	Diff. for 1911. ,,
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.
+ 0·45	+ 0·26	+ 0·18	+ 0·35	+ 0·22	+ 0·69	+ 0·63	+ 0·48	+ 0·33	+ 0·37	+ 0·35	0·00	+ 0·31	Diff. for 1911. ,,
													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.
− 1·20	− 0·70	− 0·64	− 0·43	− 0·14	+ 0·38	+ 0·23	− 0·13	− 0·27	− 0·29	− 0·36	− 0·37	− 0·36	Diff. for 1911. ,,
6·82	7·02	6·51	6·46	6·17	6·29	6·25	6·43	6·22	6·26	6·14	6·36	5·90	1911. 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.
+ 0·72	+ 0·99	+ 0·85	+ 0·93	+ 1·25	+ 1·08	+ 0·52	+ 0·69	+ 0·16	− 0·18	− 0·30	+ 0·15	+ 0·44	Diff. for 1911. ,,
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.
+ 0·52	+ 0·68	+ 0·68	+ 0·80	+ 0·58	+ 0·62	+ 0·32	+ 0·30	+ 0·37	+ 0·51	+ 0·48	+ 0·59	+ 0·63	Diff. for 1911. ,,
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.
+ 0·98	+ 0·63	+ 0·57	+ 0·74	+ 0·94	+ 0·69	+ 0·58	+ 0·53	+ 0·79	+ 0·60	+ 0·65	+ 0·67	+ 0·50	Diff. for 1911. ,,
													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.
− 0·22	− 0·18	− 0·15	− 0·12	− 0·12	− 0·11	− 0·07	− 0·22	− 0·22	− 0·22	− 0·13	− 0·13	− 0·14	Diff. for 1911. ,,
7·18	7·35	7·10	6·81	6·52	6·04	5·57	5·10	4·95	4·95	4·95	4·96	5·81	1911. 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.
− 0·19	− 0·19	− 0·25	− 0·21	− 0·14	− 0·07	− 0·05	− 0·12	− 0·18	− 0·16	− 0·27	− 0·27	− 0·24	Diff. for 1911. ,,
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.
+ 0·43	+ 0·49	+ 0·54	+ 0·55	+ 0·46	+ 0·47	+ 0·46	+ 0·41	+ 0·43	+ 0·40	+ 0·31	+ 0·36	+ 0·39	Diff. for 1911. ,,
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	− 0·69	− 0·59	− 0·59	− 0·67	− 0·50	− 0·47	− 0·43	− 0·40	− 0·40	− 0·47	− 0·52	Diff. for 1911. ,,

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.
	mm.	mm.	mm.	mm.	mm.	mm.	r m.	mm.	mm.	mm.	mm.	mm.
JANUARY.												
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 1911	+0·02	−0·04	0·00	−0·06	−0·03	−0·01	−0·04	+0·01	−0·02	0·00	−0·03	0·00
Eskdale, 1911.	0·16	0·19	0·10	0·12	0·15	0·16	0·23	0·25	0·26	0·27	0·17	0·12
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 1911	−0·15	−0·05	−0·04	−0·03	−0·06	−0·02	−0·13	−0·13	−0·18	−0·13	−0·12	−0·03
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 1911	+0·06	0·00	0·00	0·00	−0·03	−0·02	−0·04	−0·01	−0·02	−0·07	−0·03	−0·03
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 1911	−0·14	−0·15	−0·15	−0·11	−0·05	−0·04	−0·03	−0·02	+0·01	−0·04	−0·11	−0·12
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 1911	−0·03	−0·05	−0·07	−0·08	−0·08	−0·06	−0·07	−0·02	+0·01	+0·01	+0·05	+0·01
Eskdale, 1911.	0·34	0·31	0·28	0·26	0·39	0·49	0·59	0·44	0·37	0·28	0·23	0·15
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 1911	+0·07	+0·04	+0·04	−0·12	−0·01	+0·04	+0·03	0·00	−0·05	−0·07	−0·14	−0·14
Kew, Normal.	0·06	0·07	0·07	0·06	0·07	0·06	0·06	0·06	0·06	0·07	0·05	0·05
Difference for 1911	+0·02	0·00	−0·03	−0·03	−0·03	−0·05	+0·03	−0·05	−0·03	−0·03	−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 1911	+0·02	+0·09	−0·03	+0·05	0·00	+0·01	−0·01	0·00	+0·06	+0·01	−0·03	0·00
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 1911	−0·03	+0·06	−0·01	−0·05	−0·02	−0·03	−0·02	−0·03	−0·08	−0·11	−0·04	−0·03
Eskdale, 1911.	0·13	0·11	0·12	0·13	0·16	0·24	0·13	0·20	0·08	0·02	0·02	0·02
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 1911	−0·09	−0·07	−0·06	+0·01	+0·02	+0·02	+0·07	+0·15	+0·15	−0·05	−0·05	−0·13
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 1911	+0·03	0·00	+0·02	+0·02	−0·03	−0·03	−0·04	+0·10	−0·02	−0·05	−0·02	−0·04
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 1911	−0·09	−0·06	−0·06	−0·09	+0·02	−0·02	−0·01	+0·03	−0·08	−0·07	−0·07	+0·01
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 1911	−0·07	−0·07	−0·06	−0·06	−0·06	+0·02	+0·04	−0·07	−0·04	−0·01	−0·02	−0·04
Eskdale, 1911.	0·28	0·25	0·28	0·36	0·36	0·26	0·26	0·21	0·15	0·15	0·09	0·28
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 1911	−0·08	0·00	−0·01	−0·08	−0·07	−0·03	−0·06	−0·10	−0·11	−0·11	−0·10	−0·08
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 1911	−0·04	+0·08	+0·10	+0·05	+0·03	+0·01	−0·02	+0·06	+0·05	−0·01	+0·02	+0·02
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 1911	+0·04	+0·03	−0·05	−0·10	−0·09	−0·08	−0·05	−0·06	−0·06	−0·02	−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 1911	−0·01	−0·05	−0·04	+0·11	+0·09	+0·04	+0·18	+0·10	0·00	+0·02	+0·01	+0·03
Eskdale, 1911.	0·12	0·16	0·18	0·07	0·07	0·07	0·04	0·07	0·15	0·11	0·20	0·19
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 1911	+0·04	+0·07	+0·04	+0·02	−0·03	+0·06	−0·03	+0·02	+0·04	−0·02	−0·05	−0·05
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 1911	−0·04	−0·04	−0·06	−0·05	−0·07	−0·06	+0·03	+0·27	−0·04	−0·01	−0·03	−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 1911	−0·08	−0·09	−0·10	−0·09	−0·08	−0·05	0·00	+0·01	−0·06	−0·03	+0·01	+0·01
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 1911	+0·14	+0·02	−0·05	−0·02	−0·07	−0·04	−0·06	−0·03	−0·03	−0·06	+0·05	−0·07
Eskdale, 1911.	0·12	0·09	0·16	0·11	0·15	0·05	0·07	0·07	0·06	0·02	0·07	0·11
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 1911	−0·11	−0·10	−0·09	−0·04	−0·07	−0·13	−0·15	−0·07	−0·07	−0·10	−0·09	−0·08
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 1911	+0·13	0·00	−0·03	−0·02	+0·11	−0·07	−0·07	−0·05	0·00	−0·01	−0·03	−0·02
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 1911	+0·04	+0·16	−0·04	0·00	−0·01	−0·04	−0·05	−0·06	−0·08	−0·02	−0·01	+0·26

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 ,,	243·8 ,,
Valencia	0·6 ,,	9·8 ,,
Kew	0·5 ,,	6·1 ,,
Falmouth	0·6 ,,	51·4 ,,

OF THE METEOROLOGICAL ELEMENTS AT THE FIVE OBSERVATORIES
AND THE VALUES FOR 1911.

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.
+ 0·01	− 0·04	− 0·03	− 0·06	− 0·03	0·00	− 0·05	− 0·06	− 0·08	− 0·07	− 0·07	− 0·02	− 0·70*	Diff. for 1911. ,,
0·13	0·21	0·12	0·08	0·03	0·07	0·06	0·11	0·09	0·09	0·08	0·08	3·33	1911. 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.
− 0·10	− 0·14	− 0·05	− 0·07	− 0·05	− 0·10	− 0·06	− 0·04	− 0·16	− 0·20	− 0·17	− 0·11	− 2·32	Diff. for 1911 ,,
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.
− 0·01	− 0·01	− 0·03	+ 0·02	− 0·01	− 0·04	− 0·05	− 0·04	− 0·06	− 0·05	+ 0·01	− 0·02	− 0·48	Diff. for 1911. ,,
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.
− 0·12	− 0·09	− 0·11	− 0·15	− 0·14	− 0·14	− 0·12	− 0·12	− 0·13	− 0·15	− 0·10	− 0·17	− 2·49	Diff. for 1911. ,,
													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.
− 0·06	− 0·08	− 0·09	− 0·08	− 0·03	− 0·04	− 0·03	− 0·02	− 0·03	− 0·02	− 0·02	− 0·08	− 0·96	Diff. for 1911. ,,
0·26	0·29	0·35	0·35	0·47	0·43	0·19	0·20	0·25	0·28	0·40	0·22	7·82	1911. 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.
− 0·13	− 0·11	− 0·10	− 0·12	− 0·14	− 0·09	− 0·09	− 0·09	− 0·05	− 0·03	+ 0·05	+ 0·13	− 1·08	Diff. for 1911. ,,
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.
+ 0·07	− 0·01	− 0·05	− 0·04	− 0·03	0·00	+ 0·01	+ 0·03	+ 0·03	0·00	0·00	+ 0·03	− 0·15	Diff. for 1911. ,,
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.
− 0·10	− 0·08	− 0·07	− 0·12	− 0·10	− 0·06	− 0·07	− 0·12	+ 0·03	+ 0·13	+ 0·08	− 0·03	− 0·34	Diff. for 1911. ,,
													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	+ 0·03	0·00	− 0·06	− 0·05	− 0·01	0·00	− 0·03	− 0·02	+ 0·01	0·00	+ 0·01	− 0·53	Diff. for 1911. ,,
0·02	0·08	0·07	0·03	0·09	0·07	0·06	0·13	0·10	0·07	0·07	0·08	2·23	1911. 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.
− 0·13	− 0·13	− 0·10	− 0·04	− 0·07	0·00	+ 0·02	− 0·06	+ 0·07	− 0·06	+ 0·27	+ 0·02	− 0·24	Diff. for 1911. ,,
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.
− 0·04	− 0·03	− 0·03	+ 0·01	+ 0·05	− 0·03	+ 0·02	+ 0·02	− 0·01	− 0·03	− 0·06	0·00	− 0·19	Diff. for 1911. ,,
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.
+ 0·08	+ 0·15	+ 0·04	+ 0·09	+ 0·11	+ 0·19	+ 0·07	+ 0·03	+ 0·03	+ 0·11	+ 0·02	+ 0·06	+ 0·49	Diff. for 1911. ,,
													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.
− 0·03	− 0·01	− 0·06	+ 0·14	− 0·04	0·00	0·00	− 0·01	− 0·03	− 0·04	− 0·06	− 0·08	− 0·66	Diff. for 1911. ,,
0·17	0·29	0·19	0·23	0·21	0·47	0·28	0·12	0·08	0·08	0·24	0·23	5·56*	1911. 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.
− 0·03	− 0·10	− 0·07	− 0·10	+ 0·11	+ 0·12	+ 0·07	+ 0·13	+ 0·11	+ 0·19	+ 0·05	+ 0·08	− 0·27	Diff. for 1911. ,,
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.
+ 0·02	0·00	− 0·04	+ 0·02	− 0·03	− 0·05	− 0·04	− 0·04	+ 0·08	+ 0·03	− 0·02	− 0·03	+ 0·25	Diff. for 1911. ,,
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.
− 0·04	− 0·03	− 0·05	+ 0·14	+ 0·06	+ 0·04	+ 0·05	+ 0·07	+ 0·16	+ 0·08	+ 0·03	+ 0·05	− 0·03	Diff. for 1911. ,,
													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.
+ 0·08	+ 0·15	− 0·04	0·00	− 0·05	− 0·04	− 0·04	0·00	− 0·05	− 0·08	− 0·06	+ 0·05	+ 0·40	Diff. for 1911. ,,
0·25	0·17	0·08	0·02	0·11	0·04	0·17	0·01	0·03	0·14	0·05	0·06	2·56	1911. 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.
+ 0·02	+ 0·03	+ 0·14	− 0·03	− 0·05	− 0·05	+ 0·09	− 0·03	− 0·04	− 0·03	− 0·03	0·0	+ 0·13	Diff. for 1911. ,,
0·05	0·06	0·08	0·09	0·08	0·08	0·06	0·04	0·04	0·03	0·04	0·05	1·37	Normal. Kew.
− 0·03	0·00	− 0·06	− 0·07	+ 0·17	+ 0·16	+ 0·03	0·00	− 0·02	− 0·03	− 0·04	− 0·05	− 0·09	Diff. for 1911. ,,
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.
− 0·03	+ 0·01	+ 0·01	+ 0·01	+ 0·01	+ 0·01	− 0·08	− 0·08	− 0·07	− 0·06	− 0·07	− 0·09	− 0·98	Diff. for 1911. ,,
													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.
− 0·04	− 0·06	0·00	+ 0·15	+ 0·07	+ 0·05	+ 0·10	+ 0·05	+ 0·04	+ 0·21	+ 0·07	− 0·04	+ 0·38	Diff. for 1911. ,,
0·14	0·09	0·16	0·32	0·22	0·19	0·11	0·12	0·07	0·08	0·16	0·08	2·82	1911. Eskdale.
0·09	0·09	0·11	0·11	0·12	0·13	0·11	0·12	0·11	0·11	0·14	0·15	3·00	Normal. Valencia.
− 0·04	− 0·06	+ 0·08	+ 0·08	+ 0·14	+ 0·06	− 0·03	− 0·04	− 0·08	− 0·03	− 0·03	− 0·07	− 1·12	Diff. for 1911. ,,
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.
− 0·05	− 0·07	− 0·08	− 0·02	− 0·09	− 0·05	− 0·06	+ 0·02	− 0·01	− 0·02	+ 0·04	+ 0·19	− 0·26	Diff. for 1911. ,,
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.
+ 0·08	− 0·02	+ 0·03	− 0·06	− 0·08	− 0·06	− 0·02	− 0·03	+ 0·03	+ 0·05	− 0·02	− 0·01	+ 0·04	Diff. for 1911. ,,

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

The values for 1911 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, but are included in the daily mean. 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.
	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
JULY.												
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 1911	−0·03	−0·04	+0·03	−0·06	−0·07	−0·06	0·00	0·00	−0·05	−0·06	−0·04	−0·01
Eskdale, 1911.	0·03	0·02	0·16	0·11	0·10	0·11	0·07	0·10	0·06	0·05	0·09	0·09
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 1911	−0·07	−0·14	−0·08	+0·05	+0·33	+0·21	+0·14	+0·09	−0·09	−0·02	−0·06	−0·11
Kew, Normal.	0·07	0·07	0·07	0·06	0·06	0·06	0·06	0·08	0·06	0·06	0·08	0·09
Difference for 1911	−0·07	−0·07	−0·01	−0·06	−0·06	−0·06	−0·08	−0·06	−0·05	−0·06	−0·03	−0·09
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 1911	−0·11	−0·12	−0·11	−0·12	+0·04	−0·13	−0·11	−0·10	−0·11	−0·10	−0·06	−0·09
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 1911	+0·06	−0·09	−0·11	−0·10	−0·09	−0·08	−0·09	−0·09	−0·06	−0·04	−0·06	−0·07
Eskdale, 1911.	0·07	0·12	0·21	0·05	0·02	0·10	0·11	0·03	0·03	0·03	0·07	0·17
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 1911	0·00	0·00	−0·06	−0·06	−0·18	−0·10	−0·14	+0·26	−0·01	−0·06	0·00	+0·05
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 1911	−0·06	−0·05	−0·07	−0·05	−0·06	−0·04	−0·06	−0·05	−0·05	−0·06	−0·05	−0·09
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 1911	−0·06	−0·01	−0·10	−0·08	−0·10	−0·10	+0·22	+0·27	+0·30	−0·04	−0·11	−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 1911	−0·07	−0·04	−0·04	−0·08	−0·08	−0·03	−0·06	−0·08	−0·10	−0·09	−0·05	−0·02
Eskdale, 1911.	0·13	0·12	0·14	0·08	0·13	0·06	0·04	0·07	0·04	0·07	0·04	0·12
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 1911	+0·23	−0·03	−0·09	−0·03	−0·01	−0·05	−0·04	+0·10	+0·05	+0·07	+0·11	−0·11
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 1911	+0·05	0·00	+0·05	−0·06	−0·08	−0·03	−0·05	−0·06	−0·07	−0·04	−0·06	−0·04
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 1911	−0·12	−0·11	−0·10	−0·06	−0·01	+0·09	+0·22	−0·04	−0·08	+0·04	+0·35	−0·07
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 1911	+0·03	0·00	−0·05	−0·06	−0·11	−0·10	−0·05	−0·09	−0·06	−0·11	−0·08	−0·04
Eskdale, 1911.	0·08	0·11	0·12	0·11	0·09	0·16	0·22	0·14	0·13	0·20	0·16	0·32
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 1911	+0·20	+0·28	+0·08	+0·25	+0·20	+0·04	−0·02	−0·01	−0·11	−0·12	−0·01	−0·11
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 1911	+0·06	−0·08	+0·08	−0·09	−0·07	−0·10	−0·02	+0·01	−0·06	−0·03	−0·04	−0·04
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 1911	−0·18	−0·13	−0·07	+0·02	+0·23	+0·02	+0·06	+0·13	−0·10	−0·08	+0·05	+0·08
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 1911	+0·12	+0·24	+0·08	−0·03	−0·05	+0·01	+0·03	0·00	+0·05	+0·07	+0·03	+0·05
Eskdale, 1911.	0·30	0·14	0·09	0·14	0·12	0·08	0·09	0·17	0·20	0·26	0·27	0·30
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 1911	+0·10	+0·25	+0·05	+0·23	−0·02	+0·11	+0·26	+0·05	+0·07	−0·03	−0·13	−0·06
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 1911	+0·10	+0·20	+0·11	+0·10	+0·20	+0·01	+0·06	+0·02	+0·01	−0·06	+0·04	+0·07
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 1911	−0·07	0·00	−0·01	−0·11	−0·03	−0·03	0·00	−0·02	+0·05	+0·01	+0·05	−0·09
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 1911	+0·01	+0·09	+0·03	0·00	−0·02	+0·06	+0·11	+0·07	+0·10	+0·16	+0·09	+0·14
Eskdale, 1911.	0·35	0·30	0·16	0·25	0·30	0·34	0·40	0·23	0·37	0·22	0·38	0·32
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 1911	+0·08	+0·10	+0·14	+0·13	+0·16	+0·17	+0·17	+0·21	+0·03	+0·15	+0·09	+0·19
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 1911	+0·04	−0·03	+0·05	+0·11	+0·12	+0·14	+0·14	+0·17	+0·13	+0·16	+0·14	+0·05
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 1911	+0·28	+0·19	+0·15	+0·23	+0·10	+0·25	+0·08	−0·01	+0·15	+0·13	+0·18	+0·17
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 1911	+0·01	+0·01	−0·02	−0·05	−0·05	−0·03	−0·01	−0·01	−0·02	−0·02	0·00	0·00
Eskdale, 1911.	0·17	0·16	0·17	0·15	0·16	0·17	0·19	0·16	0·16	0·14	0·15	0·18
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 1911	+0·02	+0·03	−0·01	+0·03	+0·03	+0·02	+0·01	+0·05	−0·02	−0·04	−0·05	−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 1911	+0·02	0·00	+0·02	−0·01	0·00	−0·03	0·00	+0·03	−0·01	−0·03	−0·01	−0·02
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 1911	−0·04	−0·01	−0·05	−0·04	0·00	0·00	+0·02	+0·02	0·00	−0·02	+0·01	0·00

OF THE METEOROLOGICAL ELEMENTS AT THE FIVE OBSERVATORIES
AND THE VALUES FOR 1911.

JULY TO DECEMBER AND YEAR.

13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Day.	Hour, G.M.T.
mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	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.
− 0·10	+ 0·02	− 0·08	− 0·09	− 0·01	− 0·08	− 0·08	− 0·05	− 0·07	− 0·09	− 0·07	− 0·07	− 1·16	Diff. for 1911. „
0·08	0·08	0·02	0·08	0·08	0·05	0·04	0·03	0·14	0·12	0·07	0·04	1·82	1911. 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	− 0·11	− 0·09	− 0·07	+ 0·08	+ 0·26	+ 0·31	0·00	− 0·10	− 0·10	− 0·10	− 0·04	+ 0·32	Diff. for 1911. „
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.
− 0·14	− 0·11	− 0·13	− 0·12	− 0·08	− 0·09	− 0·08	− 0·03	− 0·06	− 0·05	− 0·07	− 0·07	− 1·27*	Diff. for 1911. „
0·10	0·11	0·11	0·09	0·08	0·08	0·10	0·11	0·08	0·09	0·10	0·09	2·48	Normal. Falmouth.
− 0·10	+ 0·22	+ 0·14	− 0·09	− 0·08	− 0·08	− 0·10	− 0·10	− 0·06	− 0·09	− 0·10	− 0·03	− 1·59	Diff. for 1911. „
													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.
− 0·09	− 0·08	− 0·07	− 0·09	− 0·07	− 0·09	− 0·10	− 0·08	− 0·10	− 0·05	+ 0·06	− 0·02	− 1·60	Diff. for 1911. „
0·02	0·07	0·11	0·20	0·34	0·21	0·11	0·11	0·05	0·05	0·12	0·06	2·46	1911. 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.
− 0·08	− 0·06	− 0·13	− 0·14	− 0·14	− 0·08	− 0·15	− 0·14	− 0·14	− 0·10	0·00	− 0·03	− 1·49	Diff. for 1911. „
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.
− 0·08	− 0·06	− 0·10	− 0·03	0·00	− 0·03	+ 0·10	0·00	− 0·06	− 0·07	− 0·05	− 0·05	− 1·12	Diff. for 1911. „
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.
− 0·11	− 0·06	− 0·08	− 0·03	− 0·06	− 0·06	− 0·10	− 0·08	− 0·07	− 0·01	− 0·08	− 0·05	− 0·71	Diff. for 1911. „
													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.
+ 0·01	+ 0·01	− 0·07	− 0·08	− 0·05	− 0·05	− 0·06	− 0·06	− 0·09	− 0·09	− 0·04	0·00	− 1·31	Diff. for 1911. „
0·04	0·17	0·14	0·13	0·08	0·14	0·14	0·24	0·08	0·11	0·05	0·08	2·44	1911. 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.
− 0·09	− 0·10	− 0·07	− 0·14	− 0·10	+ 0·03	+ 0·08	+ 0·05	+ 0·10	+ 0·06	− 0·11	+ 0·04	− 0·05	Diff. for 1911. „
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.
− 0·08	− 0·06	+ 0·01	− 0·04	− 0·01	+ 0·05	+ 0·03	+ 0·01	− 0·03	− 0·03	− 0·07	+ 0·04	− 0·57	Diff. for 1911. „
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.
− 0·07	− 0·07	+ 0·02	+ 0·05	+ 0·06	− 0·04	+ 0·06	− 0·04	− 0·04	− 0·04	− 0·07	− 0·03	− 0·10	Diff. for 1911. „
													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.
− 0·08	− 0·08	− 0·01	− 0·01	+ 0·10	+ 0·09	+ 0·30	+ 0·41	+ 0·11	+ 0·02	0·00	− 0·04	+ 0·09	Diff. for 1911. „
0·15	0·16	0·24	0·37	0·23	0·16	0·11	0·19	0·19	0·30	0·18	0·08	4·20	1911. 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.
− 0·11	− 0·10	− 0·08	− 0·13	+ 0·01	− 0·04	− 0·07	+ 0·05	+ 0·12	+ 0·13	− 0·10	+ 0·18	+ 0·53	Diff. for 1911. „
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.
+ 0·05	+ 0·07	+ 0·16	+ 0·04	+ 0·10	− 0·07	+ 0·11	+ 0·06	+ 0·09	+ 0·05	− 0·04	− 0·05	+ 0·19	Diff. for 1911. „
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.
+ 0·01	− 0·04	+ 0·17·	− 0·02	− 0·06	− 0·12	− 0·11	− 0·14	− 0·11	− 0·16	− 0·13	− 0·19	− 0·87	Diff. for 1911. „
													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	− 0·01	− 0·02	− 0·07	− 0·05	− 0·09	− 0·01	+ 0·04	+ 0·11	+ 0·20	+ 0·20	+ 0·06	+ 1·05*	Diff. for 1911. „
0·19	0·36	0·32	0·29	0·36	0·32	0·29	0·30	0·43	0·38	0·40	0·43	6·23	1911. 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.
− 0·04	+ 0·07	− 0·02	+ 0·14	+ 0·08	+ 0·05	0·00	+ 0·10	+ 0·03	+ 0·07	+ 0·24	+ 0·16	+ 1·76	Diff. for 1911. „
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.
+ 0·06	+ 0·06	− 0·04	+ 0·05	+ 0·04	+ 0·06	− 0·05	− 0·08	− 0·02	+ 0·05	+ 0·03	+ 0·02	+ 1·04	Diff. for 1911. „
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.
− 0·13	− 0·06	− 0·08	− 0·14	− 0·07	− 0·13	− 0·06	+ 0·41	+ 0·23	+ 0·13	− 0·06	− 0·02	− 0·23	Diff. for 1911. „
													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.
+ 0·23	+ 0·22	+ 0·39	+ 0·11	+ 0·09	+ 0·06	+ 0·04	− 0·01	+ 0·05	− 0·07	− 0·02	− 0·07	+ 1·86	Diff. for 1911. „
0·52	0·43	0·45	0·26	0·27	0·17	0·15	0·23	0·21	0·19	0·29	0·34	7·13	1911. 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.
+ 0·23	+ 0·18	+ 0·18	+ 0·41	+ 0·19	+ 0·24	+ 0·31	+ 0·06	− 0·02	− 0·04	+ 0·04	− 0·05	+ 3·35	Diff. for 1911. „
0·06	0·06	0·08	0·08	0·06	0·07	0·07	0·07	0·07	0·06	0·07	0·07	1·65	Normal. Kew.
+ 0·13	+ 0·10	+ 0·10	+ 0·14	+ 0·06	+ 0·04	+ 0·04	− 0·04	+ 0·01	− 0·05	− 0·03	+ 0·11	+ 1·87	Diff. for 1911. „
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.
+ 0·02	+ 0·03	− 0·01	+ 0·01	+ 0·01	+ 0·04	+ 0·06	+ 0·06	− 0·02	+ 0·14	+ 0·12	+0·43	+ 2·79	Diff. for 1911. „
													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.
0·00	0·00	0·00	− 0·01	− 0·01	− 0·02	0·00	+ 0·02	− 0·01	− 0·01	0·00	− 0·02	− 0·25	Diff. for 1911. „
0·17	0·20	0·19	0·19	0·21	0·19	0·14	0·15	0·14	0·16	0·17	0·15	4·04*	1911. 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.
− 0·04	− 0·05	− 0·03	− 0·02	0·00	+ 0·03	+ 0·04	0·00	− 0·02	− 0·01	0·00	+ 0·02	− 0·06*	Diff. for 1911. „
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.
− 0·01	− 0·01	− 0·02	0·00	+ 0·02	0·00	+ 0·01	− 0·01	− 0·01	− 0·01	− 0·02	+ 0·01	− 0·10*	Diff. for 1911. „
0·12	0 12	0·12	0·12	0·12	0·12	0·13	0·13	0·13	0·13	0·13	0·14	3·14	Normal. Falmouth.
− 0·04	0·00	0·00	− 0·03	− 0·02	− 0·04	− 0·03	− 0·02	− 0·01	+ 0·01	− 0·04	− 0·01	− 0·34	Diff. for 1911. „

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 1911.

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.
	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	
JANUARY.																		
Aberdeen, Normal.	...	...	...	...	...	0·06	0·22	0·31	0·32	0·31	0·25	0·09	...	...	...	...	...	1·56
Difference for 1911	...	...	...	...	...	−0·01	+0·06	+0·06	0·00	−0·04	−0·06	−0·05	...	...	...	...	...	−0·04
Eskdale, 1911.	...	...	...	...	...	0·13	0·15	0·15	0·15	0·20	0·23	0·15	0·02	...	...	...	...	1·18
Valencia, Normal.	...	...	...	...	0·01	0·12	0·23	0·28	0·28	0·27	0·22	0·14	0·03	...	...	...	...	1·58
Difference for 1911	...	...	...	...	−0·01	−0·02	+0·07	+0·04	−0·01	+0·02	+0·09	+0·09	+0·02	...	...	...	...	+0·29
Kew, Normal.	...	...	...	...	...	0·08	0·19	0·23	0·26	0·26	0·24	0·13	0·01	...	...	...	...	1·40
Difference for 1911	...	...	...	...	...	0·00	−0·02	+0·04	+0·05	+0·05	+0·04	−0·01	0·00	...	...	...	...	+0·15
Falmouth, Normal.	...	...	...	...	0·02	0·19	0·29	0·31	0·29	0·28	0·25	0·17	0·02	...	...	...	...	1·82
Difference for 1911	...	...	...	...	+0·01	0·00	+0·07	+0·08	+0·09	+0·11	+0·11	+0·08	+0·02	...	...	...	...	+0·57
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 1911	...	...	...	...	+0·08	+0·01	−0·01	−0·02	+0·01	+0·10	+0·06	+0·10	+0·06	+0·03	...	...	...	+0·42
Eskdale, 1911.	...	...	...	0·03	0·13	0·24	0·23	0·24	0·29	0·29	0·24	0·22	0·13	0·01	...	...	...	2·05
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 1911	...	...	...	...	−0·06	0·00	0·00	0·00	−0·01	−0·04	−0·02	+0·01	−0·02	−0·01	...	...	...	−0·15
Kew, Normal.	...	...	...	...	0·06	0·19	0·26	0·30	0·31	0·33	0·30	0·24	0·10	0·00	...	...	...	2·09
Difference for 1911	...	...	...	...	+0·04	+0·05	+0·05	+0·01	+0·04	0·00	+0·04	+0·02	+0·01	...	...	...	...	+0·32
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 1911	...	...	...	0·00	+0·04	−0·05	0·00	−0·07	−0·05	+0·01	−0·08	−0·09	−0·08	−0·01	...	...	...	−0·38
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 1911	...	...	−0·01	−0·02	+0·04	+0·01	0·00	+0·01	+0·02	+0·02	−0·08	−0·05	−0·07	−0·05	−0·01	...	...	−0·19
Eskdale, 1911.	...	...	0·01	0·17	0·29	0·37	0·39	0·38	0·39	0·39	0·35	0·31	0·24	0·14	0·02	...	...	3·45
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 1911	...	...	...	−0·03	−0·08	−0·02	0·00	+0·02	+0·03	+0·02	+0·06	+0·07	+0·07	+0·12	+0·01	...	...	+0·27
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 1911	...	...	...	−0·06	−0·09	−0·11	−0·09	−0·15	−0·12	−0·15	−0·12	−0·14	−0·04	−0·08	−0·01	...	...	−1·16
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 1911	...	...	−0·01	−0·01	−0·03	−0·05	−0·06	−0·10	−0·08	−0·11	−0·13	−0·09	−0·12	−0·02	0·00	...	...	−0·81
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 1911	...	+0·02	+0·07	−0·03	−0·11	−0·15	−0·14	−0·11	−0·08	−0·06	−0·02	−0·07	−0·06	−0·03	−0·03	0·00	...	−0·80
Eskdale, 1911.	...	...	0·05	0·10	0·23	0·26	0·28	0·20	0·24	0·30	0·33	0·33	0·25	0·24	0·11	...	...	2·92
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 1911	...	−0·01	−0·01	+0·08	+0·09	−0·02	−0·04	−0·02	−0·02	+0·06	+0·03	+0·02	+0·05	+0·01	+0·04	0·00	...	+0·26
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 1911	...	0·00	−0·05	−0·04	−0·05	−0·03	−0·06	−0·01	0·00	+0·05	+0·02	−0·02	+0·02	0·00	+0·07	0·00	...	−0·10
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 1911	...	0·00	+0·13	+0·19	+0·15	−0·01	−0·04	−0·02	+0·03	−0·01	−0·11	−0·15	−0·04	−0·02	−0·01	+0·01	...	+0·10
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 1911	+0·01	+0·08	+0·09	+0·13	+0·16	+0·10	+0·12	+0·15	+0·08	+0·01	−0·01	−0·01	−0·08	−0·03	+0·05	+0·05	+0·02	+0·92
Eskdale, 1911.	0·02	0·11	0·24	0·32	0·40	0·51	0·53	0·58	0·64	0·59	0·58	0·58	0·56	0·56	0·44	0·24	0·03	6·93
Valencia, Normal.	...	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 1911	...	+0·05	+0·09	0·00	−0·01	0·00	−0·01	−0·02	−0·01	+0·02	−0·05	−0·05	+0·05	+0·04	+0·05	+0·15	0·00	+0·22
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	0·00	6·46
Difference for 1911	...	−0·02	+0·04	−0·02	−0·09	−0·01	0·00	+0·02	+0·05	−0·01	−0·03	−0·06	−0·07	−0·03	−0·02	−0·02	+0·01	−0·26
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 1911	...	+0·07	+0·20	+0·11	+0·07	+0·13	+0·10	+0·14	+0·04	−0·02	+0·01	+0·02	+0·16	+0·21	+0·24	+0·07	...	+1·55
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 1911	+0·06	+0·05	+0·13	+0·08	+0·08	+0·07	+0·08	−0·01	+0·08	+0·09	+0·08	+0·07	+0·06	+0·05	+0·03	+0·06	+0·06	+1·12
Eskdale, 1911.	0·09	0·34	0·44	0·52	0·52	0·44	0·55	0·51	0·50	0·51	0·44	0·44	0·39	0·46	0·44	0·35	0·08	7·02
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 1911	+0·01	+0·10	+0·09	0·00	0·00	+0·07	0·00	−0·03	0·00	−0·02	0·00	−0·03	0·00	0·00	−0·02	+0·04	+0·06	+0·27
Kew, Normal.	0·00	0·16	0·34	0·40	0·43	0·47	0·49	0·49	0·52	0·51	0·51	0·50	0·47	0·41	0·27	0·03	...	6·44
Difference for 1911	+0·01	−0·04	+0·04	+0·04	+0·08	+0·05	+0·06	+0·09	+0·08	+0·04	+0·01	+0·04	+0·10	+0·03	−0·03	−0·03	...	+0·62
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	0·55	0·50	0·30	0·01	...	7·38
Difference for 1911	0·00	−0·03	+0·02	+0·07	+0·14	+0·13	+0·08	+0·09	+0·09	+0·07	+0·08	+0·05	+0·07	+0·07	+0·08	+0·03	...	+1·04

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	22·9	metres.
Eskdalemuir	1·5	,,
Valencia	12·8	,,
Kew	14·3	,,
Falmouth	10·4	,,

The values for 1911 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 1911.

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.
	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.
JULY.																		
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 1911	+0·12	+0·23	+0·20	+0·10	+0·13	+0·24	+0·26	+0·14	+0·08	+0·26	+0·16	+0·15	+0·12	+0·12	+0·13	+0·18	+0·07	+2·69
Eskdale, 1911.	0·07	0·28	0·37	0·42	0·43	0·41	0·44	0·42	0·44	0·43	0·44	0·52	0·55	0·47	0·35	0·31	0·07	6·42
Valencia, Normal.	0·00	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 1911	+0·07	+0·20	+0·22	+0·21	+0·20	+0·16	+0·13	+0·18	+0·15	+0·15	+0·10	+0·09	+0·04	+0·06	+0·12	+0·22	+0·06	+2·36
Kew, Normal.	0·00	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 1911	+0·01	+0·15	+0·25	+0·29	+0·28	+0·27	+0·27	+0·21	+0·28	+0·32	+0·35	+0·31	+0·28	+0·25	+0·30	+0·31	+0·07	+4·20
Falmouth, Normal.	0·00	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	0·00	7·16
Difference for 1911	+0·01	+0·13	+0·17	+0·19	+0·28	+0·27	+0·28	+0·34	+0·27	+0·33	+0·30	+0·28	+0·27	+0·30	+0·32	+0·24	+0·02	+4·00
AUGUST.																		
Aberdeen, Normal.	0·00	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 1911	+0·01	+0·04	+0·13	+0·16	+0·09	+0·08	+0·05	+0·05	+0·05	+0·04	+0·05	+0·06	-0·05	+0·07	+0·07	+0·07	...	+1·07
Eskdale, 1911.	...	0·09	0·25	0·38	0·53	0·52	0·45	0·58	0·58	0·53	0·52	0·52	0·51	0·43	0·33	0·12	...	6·34
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 1911	...	+0·02	+0·05	+0·20	+0·08	+0·15	+0·16	+0·12	+0·12	+0·16	+0·21	+0·17	+0·10	+0·10	+0·16	+0·02	...	+1·82
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 1911	...	+0·01	+0·08	+0·10	+0·13	+0·18	+0·14	+0·16	+0·13	+0·07	+0·19	+0·08	+0·09	+0·10	+0·18	+0·06	...	+1·70
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 1911	...	+0·01	+0·06	+0·14	+0·09	+0·13	+0·17	+0·14	+0·08	+0·05	+0·05	+0·10	+0·10	+0·08	+0·12	+0·02	...	+1·34
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 1911	...	...	+0·05	+0·23	+0·10	+0·04	+0·06	+0·06	+0·07	0·00	+0·04	+0·01	+0·09	+0·07	+0·03	...	...	+0·85
Eskdale, 1911.	...	...	0·03	0·27	0·45	0·48	0·49	0·49	0·40	0·48	0·51	0·48	0·41	0·29	0·11	...	...	4·89
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 1911	...	...	+0·02	+0·12	+0·07	+0·06	+0·08	+0·05	+0·06	+0·10	+0·17	+0·23	+0·25	+0·22	+0·18	...	...	+1·61
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 1911	...	...	0·00	+0·27	+0·36	+0·33	+0·29	+0·22	+0·27	+0·21	+0·22	+0·15	+0·14	+0·19	+0·11	...	...	+2·76
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 1911	...	...	+0·04	+0·11	+0·12	+0·06	+0·07	+0·04	+0·09	+0·07	+0·09	+0·12	+0·20	+0·21	+0·08	...	...	+1·30
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 1911	...	...	...	-0·01	+0·04	-0·06	-0·03	-0·06	-0·10	-0·07	-0·07	-0·08	+0·01	0·00	...	...	...	-0·43
Eskdale, 1911.	...	...	...	0·07	0·24	0·37	0·34	0·35	0·35	0·38	0·33	0·30	0·24	0·07	...	...	...	3·04
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 1911	...	...	...	-0·02	-0·02	+0·02	+0·02	-0·02	+0·06	+0·05	-0·04	+0·01	-0·05	-0·01	...	...	...	0·00
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 1911	...	...	...	0·00	-0·05	-0·04	+0·01	-0·05	-0·05	-0·06	-0·02	-0·03	+0·01	-0·01	...	...	...	-0·29
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 1911	...	...	...	-0·02	-0·02	-0·05	+0·02	-0·06	-0·02	+0·04	+0·02	-0·03	0·00	-0·01	...	...	...	-0·13
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 1911	...	...	...	...	0·00	+0·01	-0·07	-0·05	-0·09	-0·06	-0·03	+0·11	+0·02	...	...	...	...	-0·16
Eskdale, 1911.	...	...	...	...	0·05	0·20	0·24	0·28	0·24	0·24	0·21	0·15	0·01	...	...	...	...	1·62
Valencia, Normal.	...	...	...	...	0·02	0·21	0·32	0·35	0·36	0·35	0·32	0·22	0·06	...	...	...	...	2·21
Difference for 1911	...	...	...	...	-0·02	-0·01	+0·05	+0·08	+0·07	+0·05	+0·03	+0·09	+0·05	...	...	...	...	+0·39
Kew, Normal.	...	...	...	...	0·01	0·10	0·21	0·27	0·30	0·30	0·28	0·20	0·03	...	...	...	...	1·70
Difference for 1911	...	...	...	...	+0·04	+0·08	+0·05	+0·04	-0·03	-0·04	-0·07	+0·01	+0·06	...	...	...	...	+0·14
Falmouth, Normal.	...	...	...	...	0·07	0·28	0·35	0·38	0·37	0·37	0·33	0·25	0·06	...	...	...	...	2·46
Difference for 1911	...	...	...	...	+0·06	+0·18	+0·11	+0·19	+0·14	+0·10	+0·07	+0·08	+0·02	...	...	...	...	+0·95
DECEMBER.																		
Aberdeen, Normal.	...	...	...	...	...	0·01	0·14	0·24	0·26	0·25	0·17	0·03	...	...	...	...	...	1·10
Difference for 1911	...	...	...	...	...	0·00	+0·06	+0·09	+0·04	0·00	-0·03	-0·03	...	...	...	...	...	+0·14
Eskdale, 1911.	...	...	...	...	...	0·05	0·11	0·12	0·13	0·08	0·03	...	...	...	...	...	...	0·52
Valencia, Normal.	...	...	...	...	...	0·07	0·21	0·26	0·25	0·24	0·19	0·10	...	...	...	...	...	1·32
Difference for 1911	...	...	...	...	...	-0·07	-0·09	+0·05	+0·02	-0·01	+0·01	-0·05	...	...	...	...	...	-0·14
Kew, Normal.	...	...	...	...	...	0·05	0·17	0·21	0·22	0·23	0·21	0·09	0·00	...	...	...	...	1·18
Difference for 1911	...	...	...	...	...	-0·02	+0·05	+0·06	+0·04	+0·02	0·00	+0·06	+0·01	...	...	...	...	+0·22
Falmouth, Normal.	...	...	...	...	0·01	0·15	0·27	0·31	0·32	0·30	0·24	0·13	...	...	...	...	...	1·73
Difference for 1911	...	...	...	...	0·00	+0·08	+0·11	+0·10	+0·11	+0·10	+0·04	-0·01	...	...	...	...	...	+0·53
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 1911	+0·02	+0·03	+0·05	+0·06	+0·05	+0·02	+0·04	+0·03	+0·01	+0·03	0·00	+0·02	+0·02	+0·02	+0·02	+0·03	+0·02	+0·47
Eskdale, 1911.	0·02	0·07	0·12	0·19	0·27	0·33	0·35	0·36	0·36	0·37	0·35	0·33	0·28	0·22	0·15	0·09	0·01	3·87
Valencia, Normal.	0·00	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 1911	+0·01	+0·03	+0·03	+0·05	+0·02	+0·03	+0·04	+0·04	+0·04	+0·05	+0·05	+0·04	+0·05	+0·04	+0·06	+0·04	+0·01	+0·60
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	0·00	4·05
Difference for 1911	...	0·00	+0·03	+0·05	+0·05	+0·06	+0·07	+0·05	+0·06	+0·04	+0·06	+0·03	+0·05	+0·04	+0·05	+0·02	+0·01	+0·67
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 1911	...	+0·02	+0·05	+0·06	+0·07	+0·07	+0·08	+0·08	+0·07	+0·06	+0·04	+0·03	+0·05	+0·07	+0·07	+0·03	...	+0·85

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.   1911.

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.
J.	−86	−107	−150	n−179	−135	−104	−40	+22	+70	+67	+61	+69	+66	+45	+49	+48	+56	x+80	+66	+65	+61	+50	−7	−67	+39	457
F.	−7	−34	−55	−58	−67	−57	−25	−4	+40	+64	+58	+2	−32	n−77	−44	−25	−17	+19	+68	+76	c+78	+62	+27	+11	+17	345
M.	−94	−137	n−179	−153	−127	−89	−77	+5	+67	+93	+76	+72	+76	+71	+79	+67	+78	+70	x+107	+35	+22	+1	−5	−60	+2	378
A.	−11	−55	−35	−40	−38	−20	+21	+61	+56	+25	−50	n−78	−73	−43	−53	−58	−41	−12	+58	+95	+93	x+97	+76	+23	+9	286
M.	−27	−49	−54	n−60	−40	−1	+18	+69	x+91	+48	+23	+17	−7	−34	−53	−48	−20	+8	+17	+49	+33	+32	+5	−18	+27	249
J.	−18	−51	−70	n−83	−66	−24	+23	+66	x+78	+72	+32	+20	−6	−6	−3	−1	+18	+30	+31	+19	+12	−25	−32	−17	+15	219
J.	−29	−54	n−63	n−63	−45	−38	+17	+51	x+72	+26	+7	−26	−33	−41	−25	−14	+6	+19	+34	+62	+42	+49	+42	+2	−13	209
A.	−40	−63	n−83	−69	−68	−42	+6	+22	+20	+13	−19	−13	−17	−9	−10	−22	+22	+49	+63	x+98	+72	+56	+42	−10	−35	217
S.	−21	−38	−45	n−63	−42	−26	+3	+55	x+67	+56	+12	−12	−28	−29	−26	−29	−11	+11	+48	+61	+39	+18	+8	−9	−1	250
O.	−102	−128	n−129	−101	−87	−67	−16	+54	+51	+55	+57	+53	+66	+63	+68	+56	x+75	+51	+51	+18	+12	+7	−34	−72	+27	373
N.	−70	−76	−97	n−118	−102	−70	−27	+49	+71	+65	+37	−9	−29	−16	+11	+36	+52	+67	x+84	+66	+47	+36	+9	−15	−34	366
D.	−80	−78	−78	n−88	−74	−60	−13	+54	x+89	+72	+56	+16	−3	−14	+18	+35	+48	+53	+60	+42	+15	−7	−15	−50	+7	269
Y.	−49	−72	−86	n−90	−74	−50	−9	+42	x+64	+55	+29	+9	−2	−7	+1	+4	+22	+37	+57	+57	+44	+31	+10	−23	...	301
W.	−61	−74	−95	n−111	−95	−73	−26	+30	+67	+67	+53	+20	0	−15	+8	+24	+35	+55	x+70	+62	+50	+35	+4	−30	...	359
Eq.	−57	−90	n−97	−89	−73	−50	−17	+44	+60	+57	+24	+9	+10	+16	+17	+9	+25	+30	x+66	+52	+42	+31	+11	−30	...	322
S.	−28	−54	−67	n−69	−55	−26	+16	+52	x+65	+40	+11	0	−16	−22	−23	−21	+6	+27	+36	+57	+40	+28	+14	−11	...	224

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

Eskdalemuir.   MEAN HOURLY VALUES, GREENWICH MEAN TIME, FOR THE MONTHS, YEAR, AND SEASONS.   1911.

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.
J.	−49	−66	−72	n−91	−71	−80	−60	−41	−46	−2	+6	−23	−5	−17	−13	+28	+84	+101	+119	x+122	+58	+33	−16	−16	+5	249
F.	−50	−48	−53	−63	−66	−62	n−86	−77	−61	−17	+8	+28	+5	−22	−23	+17	+45	+94	+114	+112	x+150	+65	+22	−31	−10	234
M.	−7	−19	−23	−32	−26	−57	−50	n−62	−14	−41	−30	−20	−5	+4	+7	+2	+25	+29	+56	x+92	+75	+44	+28	+14	−2	176
A.	−25	+6	−38	−92	−4	−91	n−93	−28	−17	−38	−1	+5	+5	+6	+39	+34	+36	+53	+43	x+78	+42	+50	+34	+4	+8	124
M.	+23	+11	+16	+14	−24	+2	+13	−16	−34	−35	−23	−52	−29	−33	n−89	−28	−18	+1	+33	+51	x+77	+56	+45	+30	−7	186
J.	+37	+33	+22	+34	+43	+40	−20	−27	−16	−8	−48	n−57	−14	−45	−21	−51	−47	−50	+23	+37	x+53	+37	+42	+11	−8	126
J.	+17	+16	−22	−9	−4	+6	−3	−17	−19	−35	−26	−33	n−47	−27	−21	−9	+7	+6	+18	+32	x+52	+51	+42	+22	0	158
A.	+1	+22	+30	+43	x+47	+42	+30	+18	−16	−41	−39	−40	−29	−31	−42	n−77	−26	−19	+2	+6	+46	+41	+13	+22	−13	176
S.	−10	−48	n−61	−23	−76	−20	+21	+14	−9	−31	−25	−44	−29	−20	−23	−4	+23	+19	+40	+62	+35	x+103	+81	+34	+15	193
O.	+4	+8	+14	+20	+7	+11	+32	+30	−37	−51	−41	−91	−87	n−109	−73	−13	−28	+64	+76	x+80	+79	+55	+39	+7	−2	236
N.	−31	−17	−57	n−65	−57	−35	−12	−12	−40	−25	−10	+35	+3	+20	+35	+15	+47	+55	x+135	+29	+18	−25	+45	−43	−1	182
D.	−136	−149	n−207	−109	+33	−16	−35	+68	+26	+30	+74	+47	0	+69	+111	x+130	+117	+108	+10	−25	−27	−33	−10	−65	+4	183
Y.	−19	−21	n−37	−31	−16	−22	−22	−13	−24	−25	−13	−21	−19	−17	−9	+4	+22	+38	x+56	x+56	+55	+40	+30	−1	...	185
W.	−67	−70	n−97	−82	−40	−48	−48	−16	−30	−4	+20	+22	+1	+13	+28	+48	+73	+90	x+95	+60	+50	+10	+10	−39	...	212
Eq.	−10	−13	−27	−32	−25	−39	−23	−12	−19	n−40	−24	−38	−29	−30	−13	−5	+14	+41	+54	x+78	+58	+63	+46	+15	...	182
S.	+20	+21	+12	+21	+16	+23	+5	−11	−21	−30	−34	n−46	−30	−34	−43	−41	−21	−16	+19	+32	x+57	+46	+36	+21	...	162

Plate I.

To face p. 60.

ESKDALEMUIR.

1911.

THE DIURNAL AND SEASONAL VARIATION OF ELECTRICAL POTENTIAL-GRADIENT.

IN THE OPEN IN VOLTS PER METRE.

Isopleths for the means of the days with no negative potential and range of less than 1000 Volts per metre in any hour   Prepared by G. DOBSON, B.A.

(The number of days observations used for the means of the several months are given in the left hand margin.)

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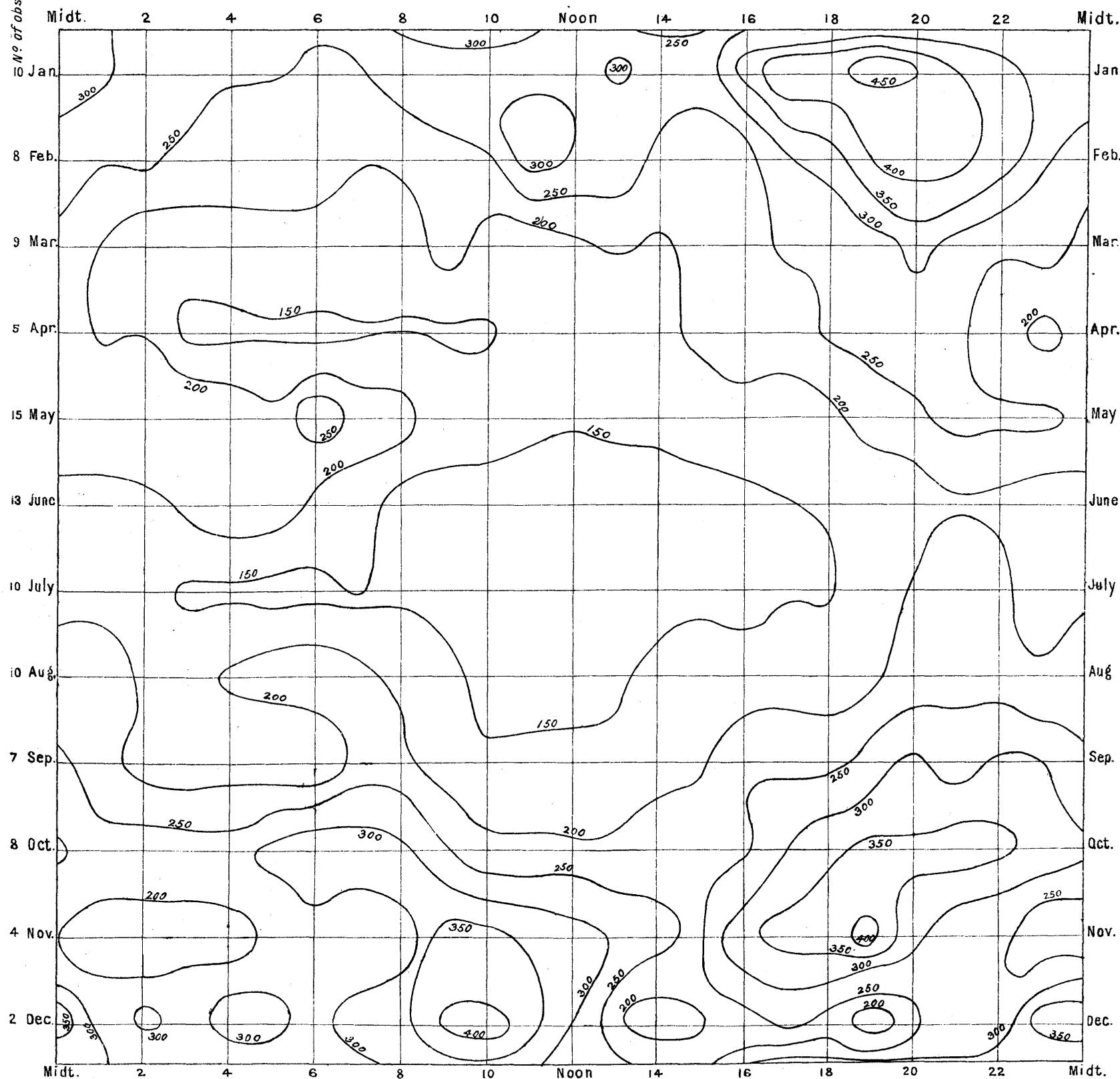
NOTES ON THE MANAGEMENT AND MANIPULATION OF THE INSTRUMENTS AT KEW OBSERVATORY AND THE CORRESPONDING TABLES. By Dr. C. CHREE, Sc.D., LL.D., F.R.S., Superintendent.

Terrestrial Magnetism.—Scale value determinations of the horizontal force magnetograph were made on February 1.

The value accepted for the year is

$$1 \text{ cm.} = 0 \cdot 000535 \text{ C.G.S.}$$

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

$$1 \text{ cm.} = 8' \cdot 7.$$

The base line 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 declinometer 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 1910 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 from the two years' observations were as follows :—

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

The horizontal force data published in the course of the year 1911 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 1910. 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 1911. The *Geophysical Journal* also contained the daily extremes of declination, but these 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 gives an abstract showing 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 numbers, 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. They show, and in this respect at least they certainly convey

the truth, that the year was quieter towards the end than in the earlier months. The later months, in fact, were altogether exceptionally quiet. There were no really large disturbances in the whole course of the year. The principal movements recorded were those of January 24–25, February 21–22, March 20–21, April 9, May 15, July 28, October 10–11, and December 11.

	Number of Days having Magnetic "Character."			Mean of Character Numbers.
	"0"	"1"	"2"	
January	8	19	4	0·87
February	7	17	4	0·89
March	11	18	2	0·71
April	13	15	2	0·63
May	9	19	3	0·81
June	15	12	3	0·60
July	16	13	2	0·55
August	18	11	2	0·48
September	19	9	2	0·43
October	18	10	3	0·52
November	21	7	2	0·37
December	25	4	2	0·26
Year (totals and means) . . .	180	154	31	0·59

List of Magnetic Quiet Days for 1911, *as issued by the International Commission of Terrestrial Magnetism.*

January	7, 12, 17, 20, 21	July	13, 14, 15, 16, 26
February	11, 12, 15, 19, 20	August	7, 8, 10, 11, 29
March	10, 11, 12, 17, 18	September	2, 3, 14, 25, 26
April	5, 13, 14, 15, 26·	October	1, 5, 15, 23, 28
May	1, 4, 13, 22, 24	November	1, 7, 22, 23, 24
June	3, 17, 18, 19, 25	December	2, 9, 21, 22, 23

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. A temperature correction has been applied as usual to the horizontal force curves, the value applied being $3\cdot2_4\gamma$ 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–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 1910 and earlier years are intended to show the nature of the secular change.

Table LXVIII. gives a list of values of the magnetic elements for 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 all subsequent to the most recent year dealt with in the corresponding list issued last year, they have been included.

Atmospheric Electricity.—The instruments in regular 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 curves from the electrograph 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 at 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 water-dropper, 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 electrograms into volts per metre in the open.

As a matter of fact, the assumption of a constant ratio cannot be safely made, 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 level of the discharge tube is some 14 feet above that of the ground at the site in the garden where the absolute observations are made.

In view of these several sources of uncertainty, the practice has been to take the absolute observations in the garden on all fine days shortly after 10^h when time permits. 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. Here, as in 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–August.

The inequalities and mean monthly and annual values in the table are based on the curves of ten " 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 the ten 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 remembered 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 only be obtained by combining the results of a number of years.

The Ebert apparatus has been used to determine the number 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 to give reliable results 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. There is, however, some uncertainty 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 204. A large proportion were mere broadenings of the trace, whose seismic nature 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, have been communicated to Professor Milne, as secretary of the British Association Seismological Committee, for inclusion in his half-yearly lists.

The principal earthquake movements recorded during the year were those of January 3–4 (Turkestan), February 18th and June 7th (Mexico). In each case the amplitude of the largest movement exceeded the limits of registration (17 mm.).

Meteorology.—Hourly readings of barometric pressure, temperature (wet and dry bulb), wind (direction and velocity), and rainfall will be found as usual in the " Hourly Readings."

This also contains particulars of the daily maxima and minima of barometric pressure and temperature, and of the incidence of bright sunshine.

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 likewise 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 1042·32 millibars (30·781 in.) on February 2nd to 969·59 millibars (28·633 in.) on November 18th. The highest and lowest readings actually recorded are respectively 1049·74 millibars (31·000 in.) on January 18th, 1882, and 959·29 millibars (28·329 in.) on December 9th, 1886.

Temperature.—On August 9th a temperature of 307°·4 A. (94°·0 F.) was recorded by the thermograph, the maximum thermometer in the thermograph screen showing no less than 308°·1 A. (95°·1 F.). This is the highest temperature ever recorded by the thermograph at Kew.

The solar radiation thermometer also gave the highest reading of the year, 334°·8 A. (143°·3 F.) on August 9th. This reading, however, is not so remarkable, falling a long way short of the 340° A. (153° F.) recorded by the same thermometer on July 16th, 1900. The highest reading obtained with the Ångström pyrheliometer during the year was 0·090 Watts (1·290 gramme calories) on May 4th.

The total hours of sunshine for the year, 1720·4, is unusually high, but falls short of the corresponding total, 1763·5, of the year 1899. In 1911 the hours of bright sunshine were 38·6 per cent. of the possible, as compared with 39·6 per cent. in 1899, and with 21·9 per cent. in 1879, the minimum yet recorded. In July there were 333·2 hours of bright sunshine, being 66·9 per cent. of the possible; this exceeds the largest monthly total previously recorded. The day of absolutely longest record was July 13th, when 15·4 hours were recorded.

The lowest temperature on the grass during the year was 261°·6 A. (11°·4 F.), on February 1st. In 1895 the grass minimum fell to 255° A. (0° F.) on February 8th, and the mean of its readings for the whole month was only 264° A. (16° F.).

The readings of the earth thermometer at 0·3 metres (1 foot) during the year varied from 274°·5 A. (34°·7 F.) on February 3rd to 293°·9 A. (69°·7 F.) on August 14th. The latter is the highest temperature recorded since observations began in 1903. The lowest temperature recorded was 273°·8 A. (33°·4 F.) on January 14th and 15th, 1908.

The earth thermometer at 1·2 metres (4 feet) had its extreme readings, 278°·3 A. (41°·6 F.), on February 13th–17th, and 289°·6 A. (61°·8 F.) on August 22nd. The latter is the highest temperature yet recorded at this depth, the lowest being 277°·4 A. (40°·0 F.) on March 4th–12th, 1909.

Wind.—The highest mean hourly velocity of the year was 13·4 metres per second (30 miles per hour) on December 10th. The hours centering at 11, 12, and 13ʰ (1 p.m.) on this day all had the same mean value. The highest mean hourly velocity hitherto recorded has been 19·0 metres per second (43 m.p.h.) on January 18th, 1881. The highest velocity attained in a gust during the year as recorded by the Dines pressure tube was 23·6 metres per second (53 m.p.h.) on March 25th. The highest hitherto

recorded has been 28·5 metres per second (64 m.p.h.) on February 20th, 1910.

Cloud.—The mean amount of cloud for the year—scale 0 to 10—was 6·3, the monthly means varying from 4·1 in September to 7·7 in March.

Rainfall.—The total rainfall for the year 586·0 mm. (23·07 inches) was in no way remarkable. The highest and lowest totals recorded since 1859 have been 969·6 mm. (38·175 inches) in 1903, and 422·4 mm. (16·63 inches) in 1870. December with 112·8 mm. (4·44 inches) and August with 20·6 mm. (0·81 inches) were respectively the months of greatest and least rainfall, while the greatest daily total was 28·7 mm. (1·13 inches) on October 24th.

Thunderstorms.—There were comparatively few thunderstorms during the year, but those of May 31st and October 22nd were severe. The former occurred unfortunately on the date selected for the meeting of the Gassiot Committee at the Observatory.

———————

Dr Chree adds the following comment on Table XLIV.—RANGE AND NON-CYCLIC CHANGE OF THE MEAN DIURNAL INEQUALITIES :—The non-cyclic changes include, and in some cases are mainly, instrumental drift. They are given largely with the object of allowing any one so desirous of reconstructing the monthly, seasonal, and hourly means on which the tables are based.

W. N. S.

NOTES ON THE MANAGEMENT AND MANIPULATION OF THE MAGNETIC INSTRUMENTS AT ESKDALEMUIR OBSERVATORY. By G. W. WALKER, M.A., A.R.C.Sc., SUPERINTENDENT.

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 being used 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 proper orientation of the magnets was a matter of difficulty, as unfortunately no geographical meridian had been laid down in the room before it was shut off from the open air. The piers and walls had, however, as I understand, been set off at what was the average magnetic meridian at the time, but with what accuracy I do not know. I had perforce to take this as a basis, and was much exercised to know how to get a proper determination made. It was not till January 1911 that I fortunately noticed that observation of the sun could for a limited time be made from the passage separating the two rooms. Observations were made and the meridian so obtained was transferred to the room. The result indicated that the provisional line was somewhat in error. As a consequence, the axis of the W magnet points 50' west of north and the N magnet 52' south of west.

The apparatus at my disposal was of a homely kind, and it was therefore considered undesirable to make any change until good theodolites could be obtained, and I hope that before long this matter will be settled once for all. Meanwhile it was thought best to assume that the true geographical components were being recorded, and not to introduce any correction which may finally prove to be incorrect.

The scale values of all three components have been determined weekly 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. My aim was to get the double deflexion exactly 50 mm. on the paper. This value was selected, as, without making profound changes in the apparatus, the W instrument could not be made much more sensitive. This accounts for the apparently rather odd value that comes out.

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 432·16γ. From time to time comparisons with the standard collimator magnet 60A are made to provide against any change of the auxiliary magnet.

The whole process of using an auxiliary magnet seems to me, however, to be too involved, and I hope that it may be possible soon to make direct determinations in terms of standard coils.

The scale values are given to three figures, but this is merely calculation.

I believe they are accurate to 1 per cent. absolutely, and relatively to say 1 in 400. But until simple and direct standards are available I must regard the matter as provisional.

The base values have been investigated as completely as has been possible and are dealt with in a separate section.

Instrumentally the V records must be regarded with great suspicion, and I should like to express my opinion that with such large magnets, I am not satisfied that the different components are as completely independent as they ought to be.

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*.

For 1911 the readings are for the exact hour from the unsmoothed curve. In future this will be discontinued, and the reading will be the estimated mean for an hour centering at exact hours G.M.T.

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

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.

INVESTIGATION OF BASE VALUES OF THE ADIE MAGNETOGRAPHS AT ESKDALEMUIR. By G. W. WALKER, M.A., A.R.C.Sc., Superintendent.

The instruments are arranged in such a way that they record directly the changes of the north, west, and vertical components of magnetic force, and the accuracy with which the curves can be read may be taken as 1γ.

In order to determine any instrumental change to this degree of accuracy, the ideal would be to have absolute instruments capable of measuring the components N, W and V by single readings at a definite instant of time, and it is vital that such readings should possess at least relative accuracy to 1γ, during the period for which they are to be used to test the magnetographs.

Such an apparatus is being prepared, mainly on the initiative of Dr Arthur Schuster; but for the present the instruments at our disposal are Dip Circle No. 74, by Dover, for measuring inclination, and Unifilar No. 60, by Elliott, for measuring declination and horizontal force. Theoretically the combination of these observations, duly corrected by the curves for change during the interval between the observations, gives the means of calculating the Geographical components. They are necessarily average values.

We may dismiss at once any question that single observations of V involving the use of a Dip needle can be relatively accurate to 1γ.

I should think 30γ about the best that could be expected. This is the more unfortunate inasmuch as the V recorder has been very troublesome.

There appeared to me some hope that the values of N and W determined from H and D might possess relative accuracy to a few γ's, provided the observations for H were made in a way which I shall describe.

The scheme of 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, 2 needles.

Every Friday when possible I proposed to make (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.

My original intention was to obtain the relative base values of the magnetographs from the assistant's observations only, using my own to obtain in course of time the magnetic moment m_0 of the magnet 60A at $0°$ C., and the distribution constants P and Q in the formula $(1 + P/r^2 + Q/r^4)$.

I found it desirable in March to supplement my own observations by a declination experiment.

The observations 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.

With a magnet so old and well seasoned as 60A, I do not think that any one would be inclined to accept the apparent differences in m_0 from day to day as other than due to experimental error. But this equally militates against the relative accuracy of H from day to day. If, however, we accumulate the values of m_0 and find that within experimental limits there is no true change of m_0 during the period, we may adopt a constant value of m_0, and so obtain relative values of H which depend on one type of operations only. The choice lies between the vibration and the deflexion experiments. My impression is that the vibration experiment is highly prejudiced by personal bias, and involves more things that vary from day to day than does the deflexion experiment. The deflexion angle for 25 cm. is 44°, and I should hope that the error did not exceed 20″. The weakness lies in the setting of the magnet carriage at the exact distance, but this source of error could be removed by having a fixed pin on which to place the magnet. I adopted the deflexion experiment provisionally, and on looking into a number of cases throughout the year, this course appears to be justified. In a few cases the vibration experiment appears better than the corresponding deflexion experiment, but in a considerable number of others it is distinctly inferior and more variable from day to day.

As far as the relative values are concerned, we do not need to know m_0, P and Q, provided they are constant. The above scheme provided for proof of this, and, by accumulation of a sufficient number of observations, for giving a final absolute value.

In August it was found necessary to make a special determination of the temperature coefficient of magnet 60A, as the assigned value was found to be unsatisfactory. In the course of these the moment of the magnet dropped perceptibly, so that the accumulation of values for m_0 could not be carried over. The distribution constants were, however, carried over. Thus up to August 15th the values are reduced by all observations up to that date, while from August 22nd to the end of the year they are reduced by values of P and Q for the whole year and by the value of m_0 from August 22nd. The new temperature coefficient ·00045 is used throughout. The observational results are set out in the adjoining tables.

I turn now to the computed base values for the magnetographs. The results are set out in graphical form. I have thought it desirable to present (1) observations by assistants represented by a dot · , (2) observations by myself shown thus ⊙, and (3) the average for the month shown by an x, without reference to person or vagaries. The mean curve necessarily represents my personal judgment of these observations.

Taking first the north component, I have set out for comparison the curve of temperature of the instrument as determined by daily eye readings of a thermometer inside the case.

The first portion of the curve is weak, as I found that the assistants were not making the observations in exactly the way I had intended. On the year as a whole their observations appear more fluctuating than my own. In March I was not very successful myself. Some of these abnormal values may be due to disturbed conditions at the time, but they cannot always be ascribed to this. They can readily be explained as due to personal differences in setting. In this connection it is important to

remember that abnormal values may not be entirely due to a false absolute observation, but may arise from vagaries in the photographic paper. I have certainly observed that measuring the same sheet on days of different humidity and temperature may occasionally give differences of order 1 or 2 γ.

It appears from the curve that the principal cause of change in the north component instrument is the change of temperature. Superposed on this is a general drift amounting to about 13γ for the year. It is impossible to say with certainty if this was linear, although there is some evidence that it is so. If any inference is made it is important to point out that there was an apparent fall in sensibility of the instrument of about 1 to 2% during August and September followed by a recovery to its former value. The apparent temperature coefficient is about 8γ per 1° C. By special experiments in 1910, soon after the instrument was set in its present position, I obtained a value 7·3γ per 1° C and estimated the accuracy not to exceed 1γ.

The temperature curve is interesting as showing how the temperatures on 1st January and 31st December were precisely the same, viz., 10°·4 C, and this was also the value on 27th June.

The maximum 12°·9 C occurred exactly at the autumnal equinox, while the minimum 8°·7 C was one month later than the vernal equinox.

Turning now to the west component instrument we may note that the individual observations are as a whole much more consistent than those for the north component. The obvious explanation is that the declination observations are more accurate than those of horizontal force. An error of 3γ in H leads to an error of only 1γ in W The effect of casual error in H could be removed by using the adopted base for N. The principal feature is a very regular drift up to August. There is then a more rapid fall, until in December the drift is considerably less than at the beginning of the year. This rapid change is apparently associated with a curious change that occurred in the instrument. On the 29th August, between 6^h and 8^h, the trace looked as if the instrument has been subject to mechanical jiggling, and then the effect stopped. By comparison with an instrument recording W in the west room, I was able to verify that something abnormal had occurred on the Adie instrument, and also that there appeared to be no discontinuity in the base value. The next weekly scale determination showed, however, a fall in sensitiveness of about 1%. This persisted for several weeks, and then the sensitiveness gradually recovered to its old value. It seemed impossible that a spider could have entered the case; nevertheless, I made certain by looking inside, but I could find no trace of one. The only explanation that occurs to me is that the wire suspension had been constrained to take up a new position.

From my experiments in 1910, I found the temperature coefficient of this instrument to be about 2γ per 1° C. Clearly from the curve no inference as to the temperature coefficient can be drawn except that it is small.

I would again note that the absolute observations for January and February are weak, more particularly the declination experiments.

The vertical component instrument has been more difficult to deal with, and reference must first be made to its history during the year. Up to April the trace showed an almost daily discontinuity at the time of changing papers and lights, the result apparently of mechanical shocks communicated to the pier in the process. Further, the sensitiveness gradually dropped. The instrument was readjusted on

1st February, and on 17th April the pier was cut clear of the connecting slab to the clockwork pier, with a view to stopping any mechanical shock. The result was completely successful. From 17th April to 11th November the instrument was not touched. During that time the trace gradually moved up the sheet and the sensitiveness fell, although from July onwards the changes of sensitiveness were comparatively small. On the 11th November the instrument was again adjusted.

In calculating V, I at first used the value of H as observed, but in order that the value of V should not be prejudiced by a poor value of H, I finally used the value of H as corrected by the adopted base value for N. Thus the values of V may be regarded as depending essentially on the accuracy of the observation of inclination.

The base values have been reduced to a common standard, allowance being made for all known discontinuities.

The individual observations of base value appear very poor. Some of these irregularities are partly due to disturbed conditions, but on the whole the weakness lies with the observation of inclination. Only the average for the month is shown on the chart.

For the year as a whole the progress of events appears fairly definite. January, February, and March seem, however, specially weak. Probably I have not been entirely successful in detecting all discontinuities, but that cannot account for such large differences. I have drawn the curve of base values straight as shown, not that I believe this really correct, but because it is a simple course and one which will enable the reader to introduce any correction if he so desires. As a matter of fact, my opinion is that the daily discontinuities up to April were produced by a temporary strain, which did not persist perhaps more than a few hours, and if this view is correct the results up to April are quite worthless. This view seems to me to be supported by the results obtained for the diurnal inequality. The curve as a whole indicates a general drift with a distinct temperature effect.

From experiments in 1910 I have reason to believe that a rise in temperature moves the trace down the sheet, and so far this agrees with the curve, but I am not prepared on such meagre evidence to assign a value to the temperature coefficient.

The drift is of sign that could be accounted for by an increase in the moment of the magnet, but one can hardly entertain that possibility. The alternative is an increase of the mass of the magnet or a shift of its centre of gravity. The whole amount for the year of order 1000 γ could be explained by the addition of 2 milligrams at the end of the magnet or zinc compensation bar, and it seems to me not unreasonable to suppose that a slow oxidation of material is in progress.

The whole position with regard to the vertical component is thus very unsatisfactory, and every endeavour is being made to provide something that will carry more conviction.

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 cms. deflexion experiment.*

Date 1911.	Log m_0 H.	Log m_0/H $(1+P/r^2+Q/r^4)$.					
		at 25 cms.	Difference. (25)—(30).	at 30 cms.	Difference. (30)—(35).	at 35 cms.	m_0.
Jan. 6	2·18573	3·73888	169	3·73719	102	3·73617	910·50
13	578	929	178	751	99	652	·98
27	553	901	151	750	120	630	·43
Feb. 10	537	938	164	774	122	652	·65
17	534	904	156	748	111	637	·26
24	568	910	164	746	112	634	·68
Mar. 3	523	974	176	798	113	685	·88
10	539	933	162	771	124	647	·62
17	541	938	162	776	97	679	·69
24	511	960	158	802	96	706	·61
31	503	952	162	790	107	683	·44
Apr. 7	544	920	167	753	89	664	·53
14	550	928	159	769	107	662	·68
21	534	952	172	780	100	680	·76
28	558	913	171	742	112	630	·60
May 5	521	948	170	778	111	667	·58
12	499	961	173	788	119	669	·49
19	494	972	164	808	101	707	·55
26	581	876	158	718	118	600	·52
June 9	566	877	160	717	108	609	·31
16	555	881	171	710	98	612	·28
23	583	888	185	703	95	608	·61
30	600	900	170	730	118	612	·91
July 7	551	903	166	737	120	617	·43
14	556	896	157	739	115	624	·41
Aug. 4	535	915	155	760	96	664	·38
11	559	911	162	749	104	645	·60
Aug. 25	2·18436	3·73916	167	3·73749	107	3·73642	909·33
Sept. 2	476	870	...	...	...	...	·26
8	482	853	159	694	114	580	·15
15	483	840	154	686	115	571	·02
29	480	885	169	716	109	607	·47
Nov. 10	496	854	180	674	100	574	·31
17	501	838	167	671	113	558	·19
24	512	839	168	671	114	557	·32
Dec. 1	497	833	167	666	111	555	·10
8	503	834	169	665	114	551	·17
15	523	831	172	659	106	553	·35
22	502	823	167	656	109	547	·04
29	492	840	160	680	101	579	·12

The distribution constants deduced from the values up to August 11th are

$$P = +10·05 \qquad Q = -799·2,$$

and the values of $\log (1 + P/r^2 + Q/r^4)$ are

for 25 cms.	for 30 cms.	for 35 cms.
·00605	·00440	·00332.

The mean for m_0 is 910·57.

Plate II.

Eskdalemuir

to face p.72.

Base Value West Component

Temperature North Component

Base Value North Component

Malby&Sons.Lith.
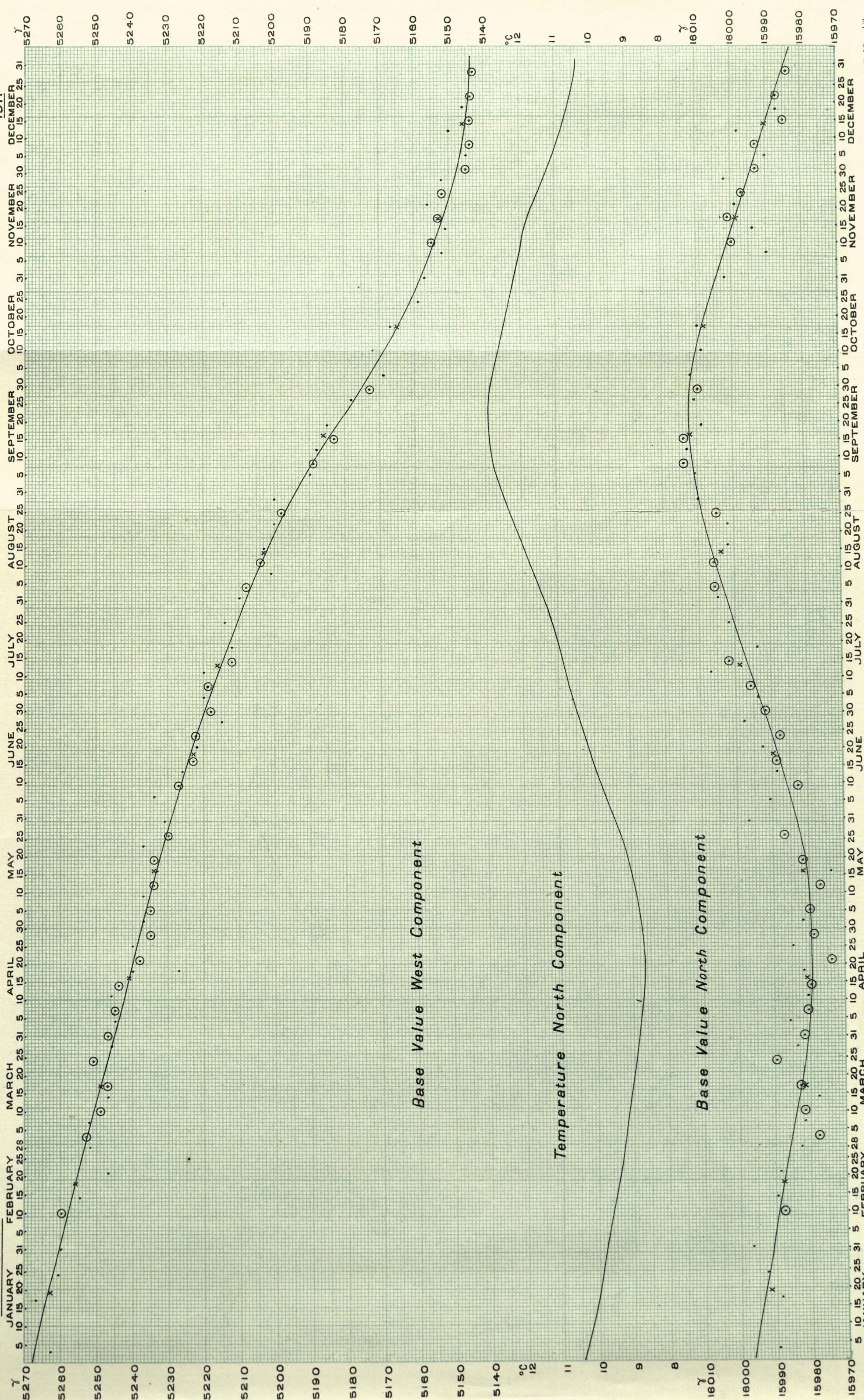
Using the values for the whole year, we get

$$P = 10\cdot12 \qquad Q = -819\cdot3,$$

and the values of log $(1 + P/r^2 + Q/r^4)$ are

for 25 cms.	for 30 cms.	for 35 cms.
·00608	·00442	·00334.

The mean for m_0 from 25th August is 909·22.

The following are the values of auxiliary quantities used for magnet 60A :—

			Authority.
Log moment of inertia at 0° C.	= 3·47565 .	.	Eskdalemuir Experiments.
Magnetic Temperature Coefficient	= ·00045 .	.	,,　　　　　,,
Log $\frac{1}{2}r^3$ at 0° C. for 25 cm.	= 3·89269 .	.	Kew Certificate.
for 30 cm.	= 4·13016 .	.	,,　　,,
for 35 cm.	= 4·33102 .	.	,,　　,,
Induction Coefficient	= 5·18	. .	,,　　,,

NOTES ON THE MAGNETIC OBSERVATIONS MADE AT THE VALENCIA OBSERVATORY, CAHIRCIVEEN, 1911. 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 observation, 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 1910. The value obtained for P from the observations of 1911 is somewhat different, necessitating the application of the correction -3γ ($-$ ·00003 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 1910 and 1905 to show the progress of the secular variation.

NOTES ON THE MANAGEMENT AND MANIPULATION OF THE INSTRUMENTS AT FALMOUTH OBSERVATORY, 1911. BY EDWARD KITTO, SUPERINTENDENT.

Photographic curves of magnetic declination and of horizontal and vertical force variations have been regularly taken during the year.

The scale values of the instruments were determined on the 30th December, 1910. The following values of the ordinates of the photographic curves were then found :—

$$\text{Declination, 1 cm.} = 0° \; 11'\text{·}7$$
$$\text{Bifilar, 1 cm. } \delta H = 0\text{·}00056$$
$$\text{Balance, 1 cm. } \delta V = 0\text{·}00050.$$

Deflections of the bifilar and vertical force magnets were also made on the 15th July, 1911, when the scale values were found to be :—

$$\text{Bifilar, 1 cm. } \delta H = 0\text{·}00057$$
$$\text{Balance, 1 cm. } \delta V = 0\text{·}00051.$$

Deflections of the bifilar were made on the 7th August, the result being,

$$\text{1 cm. } \delta H = 0\text{·}00050.$$

On 24th August the suspension was opened out to counteract drift in the magnet, which had a new suspension fitted on 15th July. Subsequent deflections gave

$$\text{1 cm. } \delta H = 0\text{·}00081.$$

The principal magnetic disturbances recorded took place on the following dates :—
January 24th; February 21st, 22nd; March 20th, 21st; April 9th; October 10th, 11th; December 11th.

Observations with the absolute instruments have been made about four times a month.

The results in Tables Nos. LVII., LVIII., LIX., LX. are deduced from the magnetograph curves. The values in Table LXVII. are also derived from the curves standardised 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.

Plate III.

Eskdalemuir

1911
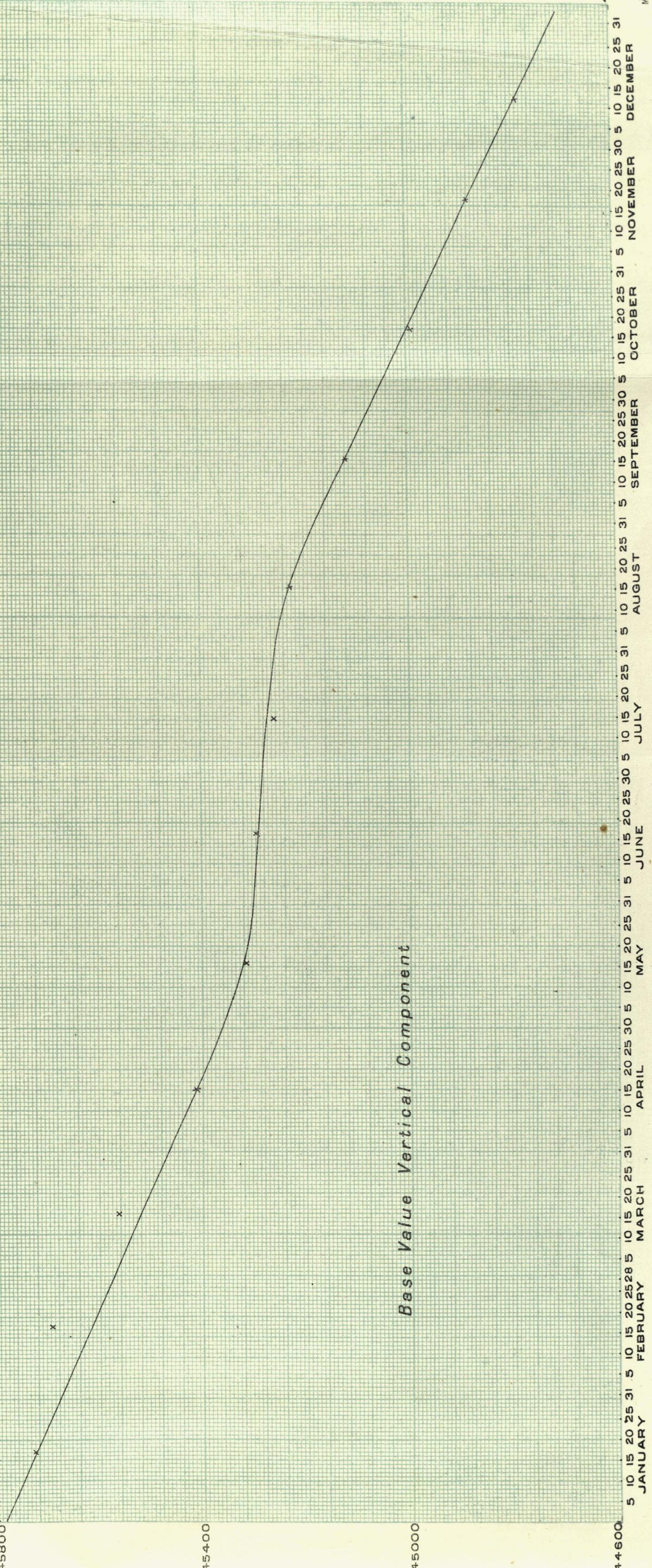
Base Value Vertical Component

Malby&Sons,Lith.

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—

<div style="text-align:center">

a. Barometric Pressure ;

b. Temperature of the Air ;

e. Rainfall ;

</div>

and the averages for the 30 years 1881–1910—

<div style="text-align:center">

d. Velocity of the Wind ;

f. Sunshine ;

</div>

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

<div style="text-align:center">

c. Relative Humidity.

</div>

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 1911*, 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 or to 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 previous publications the averages for long periods have been the "means at station level" without any correction on account of the change of height.

In forming the monthly means of the hourly values of pressure, and of the other elements too, no 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 usually made to eliminate this effect 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 may be obtained from the values published in Part IV. Section (1) of the *Year Book for 1911*. The values for pressure and temperature are given below in the table on p. 80.

Slight differences exist between the mean values of pressure published in the present volume and those given in Part IV. Section (1). These arise in the following ways :—

(a) In the present volume the first midnight has been excluded, and the means are obtained from the values at the hours 1 to 24 only.

(β) A small error existed in the tables of conversion from inches to millibars used in the preparation of Part IV. Section (1). The values published there are on that account about ·02 mb. too low.

(γ) The correction for gravity was applied to the tabulated values in inches, and was taken to ·001 in. only, and so went up by steps of ·03 mb. in Part IV. Section (1). In the present volume the correction has been applied to the means after conversion and taken to ·01 mb. throughout.

(δ) In the case of Falmouth and Valencia the corrections on account of the changes of position referred to above have been incorporated in the average for 1871–1910 in the present volume. The values at Valencia are decreased by about 0·44 mb., those at Falmouth increased by about 0·41 mb. on this account.

The normal daily variation of pressure is made up of a more or less regular semi-diurnal wave which 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 1911, we find that the principal feature at Kew, Valencia, and Aberdeen is a minimum in the early afternoon and a maximum about midnight or in the early morning. Thus pressure was relatively low in the day-time and high in the night-time, so that the abnormality of the year is more marked in the diurnal wave than in the semi-diurnal.

This is to be expected, inasmuch as the diurnal wave depends to a great extent upon local conditions, while the semi-diurnal wave is associated with añ oscillation of the whole atmosphere. At Falmouth the differences show an opposite tendency, but the variation is less regular.

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.

The principal feature in the diurnal variation of temperature for 1911 is the increase in the afternoon maximum. The mean temperature for the year was above the normal value at all observatories, but the excess is more marked during the day than the night; especially is this the case during the months of July and August. In December the difference tends to be in the opposite direction.

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 the same values for the mean velocity.

The normal daily variation of wind velocity 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 1911 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

The ratio is much larger at Kew than at the other observatories. It is smallest at Valencia. In 1911 it was practically normal at Aberdeen and Falmouth, although at the latter place the velocity itself was considerably below its normal value. At Valencia the ratio for 1911 was very much greater than the normal value, while at Kew it was rather less than the normal.

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.

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 comparisons of the tabulations with the corrected readings of similar standard thermometers shows that in the case of Valencia, Aberdeen, and Kew the errors are unimportant. But in the case of both thermometers at Eskdalemuir and of the dry-bulb at

Falmouth the mean monthly differences are considerable. They are given with the corresponding approximate mean effect on the published values of the relative humidity, of correcting for these differences, in the following table:—

Corrections to be applied to the published values of the Temperature (Degrees A), to the tabulated values of the Wet-Bulb Thermometers, and to the published values of Humidity, 1911.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year.
Eskdalemuir—													
Temperature °A .	−0·03	−0·08	−0·03	+0·07	+0·08	+0·03	+0·11	+0·08	+0·07	−0·02	−0·11	−0·11	+0·01
Wet Bulb °A .	−0·01	+0·01	−0·02	−0·07	−0·17	−0·32	−0·28	−0·24	−0·15	−0·29	−0·03	−0·07	−0·14
Relative Humidity per cent.	+0·4	+1·1	+0·2	−1·8	−2·9	−3·4	−3·9	−3·1	−2·4	−3·1	+1·2	+0·6	−1·4
Falmouth—													
Temperature °A .	−0·11	−0·12	−0·08	−0·08	+0·08	+0·15	+0·11	+0·13	+0·11	+0·13	−0·13	−0·15	0·00
Relative Humidity per cent.	+1·4	+1·5	+1·1	+0·9	−0·8	−1·5	−0·8	−1·2	−1·0	−1·5	+1·6	+1·8	+0·1

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 28 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 at all the four observatories for which normals exist simultaneously for four months of the year, and above it for only one month, December. The excess in that month appears to have been made up largely of rain during the morning and early afternoon, while at all the observatories there was a deficiency for some one or more of the hours from 7 p.m. to midnight.

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 above the normal, and the excess was numerically almost as great during the early morning and evening hours as during the middle of the day. The ratio of the excess to the normal shows a marked diurnal variation with the minimum near midday. This fact is owing to the sunny character of the four months June to September; the excess in the early and late hours accumulated during these months could not be diminished by deficiency during the winter months, since the sun is below the horizon at these hours.

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 (24ʰ–0ʰ) 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 1911.

		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
	1911	+1·15	−1·79	+0·98	−0·24	+0·38	−0·68	+0·48	−0·34	+0·65	−0·68	+0·40	+0·17	+0·06
Eskdale,	1911	+0·81	−1·54	+0·56	−0·16	+0·28	−0·54	+0·34	−0·06	+0·42	−0·51	+0·24	+0·31	+0·01
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
	1911	+0·30	−0·85	−0·16	+0·24	+0·04	−0·30	−0·18	+0·44	+0·57	−0·37	−0·25	+0·44	0·00
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
	1911	+0·39	−1·32	+0·32	−0·01	+0·07	−0·30	+0·32	+0·20	−0·11	−0·01	+0·21	+0·17	0·00
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
	1911	+0·18	−0·85	−0·06	+0·20	0·00	−0·23	+0·09	+0·33	+0·15	−0·12	−0·09	+0·37	0·00
						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
	1911	−0·24	+0·16	0·00	+0·04	−0·26	−0·09	+0·16	+0·05	+0·35	+0·09	+0·06	−0·16	0·00
Eskdale,	1911	−0·10	−0·01	+0·03	−0·03	+0·39	−0·19	+0·19	−0·04	−0·35	+1·16	+0·52	+0·14	+0·01
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
	1911	−0·13	+0·05	+0·11	−0·04	+0·14	−0·04	+0·12	0·00	−0·18	+0·01	−0·10	+0·05	0·00
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
	1911	−0·22	+0·35	−0·02	+0·02	+0·25	−0·05	+0·08	−0·09	−0·21	−0·03	+0·03	+0·02	+0·01
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
	1911	−0·13	+0·14	+0·05	−0·02	+0·19	−0·04	+0·11	−0·16	−0·06	−0·02	+0·06	−0·05	+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:—

$$g_{45} = 980\cdot61 \text{ cm/sec}^2.$$

density of mercury at normal freezing-point of water = 13·5956.

1 mercury-inch = 33·8626 millibars.

1 millibar = 0·0295311 mercury-inches.

= 0·75008 mercury-millimetres.

using 1 inch = 2·53995 cm.

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

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	0·4	0·7	1·0	1·4	1·7	2·1	2·4	2·7	3·1
0·1	3·4	3·7	4·1	4·4	4·8	5·1	5·4	5·8	6·1	6·5
0·2	6·8	7·1	7·5	7·8	8·2	8·5	8·8	9·2	9·5	9·8
0·3	10·2	10·5	10·9	11·2	11·5	11·9	12·2	12·6	12·9	13·2
0·4	13·6	13·9	14·2	14·6	14·9	15·3	15·6	15·9	16·3	16·6
0·5	17·0	17·3	17·6	18·0	18·3	18·6	19·0	19·3	19·7	20·0
0·6	20·3	20·7	21·0	21·4	21·7	22·0	22·4	22·7	23·1	23·4
0·7	23·7	24·1	24·4	24·7	25·1	25·4	25·8	26·1	26·4	26·8
0·8	27·1	27·5	27·8	28·1	28·5	28·8	29·1	29·5	29·8	30·2
0·9	30·5	30·8	31·2	31·5	31·9	32·2	32·5	32·9	33·2	33·5
1·0	33·9	34·2	34·6	34·9	35·2	35·6	35·9	36·3	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	0·5	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	8·1	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	15·7	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	23·3	23·7	24·1	24·6	25·0	25·5	26·0	26·4
60	26·8	27·3	27·7	28·2	28·6	29·1	29·5	30·0	30·4	30·9
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	55·0	51·4	51·9	52·3	52·8	53·2
120	53·6	54·1	54·5	55·0	55·4	55·9	60·4	60·8	61·2	57·7
130	58·1	58·6	59·1	59·5	59·9	64·8	65·3	65·7	61·7	62·1
140	62·5	63·0	63·5	63·9	64·4				66·2	66·6

NOTES ON THE ELECTROGRAPH AT ESKDALEMUIR.

By G. W. WALKER, M.A., A.R.C.Sc., SUPERINTENDENT.

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 water-sprayers break at about $\frac{1}{3}$ metre from the wall, and that the factor for the early part of the year was 5·2 and for the latter part 5·4, the change being required by a modification of the discharge tube.

The recording part of the electrograph is a Dolezalek electrometer used as a voltmeter. The scale aimed at was about 100 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 is 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 is performed usually every fortnight, or more frequently when the apparatus requires readjustment.

The Wulf electrometer in use at the beginning of 1911 had been used for some time ; but as a doubt had arisen as to its constancy a new electrometer had been ordered. It was not, however, delivered here with the National Physical Laboratory calibration until September. Comparison was made, and showed that the old instrument had become more sensitive (about 5 per cent.) since the former test at the Laboratory. The old instrument was sent there, tested, and returned, and again compared with the new instrument. The two comparisons were quite satisfactory.

Special temperature tests at the Laboratory showed that the Wulf electrometer had no perceptible temperature coefficient. As a consequence the tests of the Dolezalek instrument indicated that the electrogram scale became sensibly less open in the summer, and returned to nearly the original value in the winter.

Thus :

January	1911	. .	10·7 volts per mm.
August	1911	. .	13·1 ,, ,,
December	1911	. .	10·7 ,, ,,

Originally the electrograph was earthed at the beginning and end of a day, and any change of zero allowed for by linear interpolation. Gradually evidence appeared that the wall was shifting, partly by a general settlement and partly by varying temperature. As a consequence, experimental zeros during the day were found not to be collinear, but followed generally the changes of temperature of the wall. When this had been fully proved, a clockwork for automatically earthing the system every three hours was introduced. For 1911, however, it must be kept in mind that there is an unknown

temperature effect in the results that cannot be adequately allowed for. The general sense would be a reduction of the assigned values during the warmer part of the day.

The settlement of the wall revealed by the movement of the zeros was confirmed by a mason, who, in carrying out some work, found a crack in the wall extending right to the coping-stone.

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 table of hourly values, all values, whether + or −, that could reasonably be estimated, have been included. Naturally, all curves rendered spurious by presence of spiders are excluded.

It has been found fairly easy to adjust the Dolezalek electrometer to symmetry and uniformity of scale over a large range, but owing to the shifting of the wall symmetry is not maintained. In tabulating, the average scale value is used, and this is sufficiently accurate for purposes of diurnal variation ; but if the utility of the records is to be fully extended to the high potentials during precipitation, a proper pier will have to be made for the electrometer if it is to remain symmetrical for long periods.

ADDITIONAL NOTE ON THE RESULTS OF OBSERVATIONS OF ATMOSPHERIC ELECTRICITY.

Dr Chree's notes on the apparatus used for electrical measurements at Kew are given on pp. 63, 64.

When the tabulations for Eskdalemuir came up for consideration it was apparent that the mean monthly results for the several hours, read either horizontally for the diurnal variation of each month, or vertically for the seasonal variation of each hour, displayed notable irregularities, and that the process of arriving at an acceptable set of normal values must extend over a long series of years. In the preliminary publication of results for each day, which appears in the monthly issues of the *Geophysical Journal*, a characteristic has been assigned to each day. For Eskdalemuir a double characteristic has been adopted, viz. 0, 1, 2, and *a*, *b*, *c*. On this plan 0 means that no negative potential appears in the record, and *a* means that for no hour of the day was there a range of 1000 volts. In order to obtain a provisional conspectus of the diurnal and seasonal variation of potential at Eskdalemuir on days free from noteworthy disturbance, Mr G. Dobson was requested to prepare a diagram of isopleths for the potential gradient in the open, using the hourly values on " 0, *a* " days. The results are given in the diagram which faces p. 60. The number of days used for each month is given on the diagram.

W. N. S.

CONCLUDING NOTE, BY THE DIRECTOR OF THE METEOROLOGICAL OFFICE.

The division of labour which has produced the results given in the foregoing pages is indicated, for the most part, by the information which is given by the tables and notes, provided it is understood that so far as the meteorological work of the observatories at Aberdeen, Eskdalemuir, Falmouth, and Valencia is concerned the order of procedure is on the same lines as at Kew.

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.

But the task of editing the material for the press and of ordering the arrangement of the tables, the type, and all the other details that have to be settled when the material which it is desired to present has been agreed upon, has fallen upon the Meteorological Office. In the discharge of this duty the principle which has been kept in view has been that progress in the observational sciences depends upon the facility for the comparison of the results for different observatories which contribute to the common stock of knowledge.

No one who has experience of work in the observational sciences can lose sight of the fact that the chief ground for the *publication of data* is comparison, and anything which facilitates that object is a real contribution towards scientific progress. Consequently, no effort has been spared in the endeavour to present the results of all the observatories in connection with the Office as a whole.

In many respects the endeavour is a novel one, as a comparison of this publication with its predecessor " Summaries of Results of Geophysical and Meteorological Observations at Kew, Falmouth, Eskdalemuir, and Valencia, 1910 " will show, and naturally it has not been unattended with difficulties. It can scarcely be hoped that they have all 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.

In this connection some remarks upon details may be found useful.

Temperature Corrections for Magnetic Results at Eskdalemuir.—The continuous record of the magnetic elements requires correction for variation of temperature. In particular the instrument for determining the vertical component is more sensitive to changes of temperature than an ordinary thermometer, and changes of the order of $\cdot 01°$ C., which is beyond the range of ordinary thermometric measurements, must be taken into account if the magnetic results are to be given with an accuracy of 1γ.

Consequently the temperature of the Magnets and the Magnet House is a subject of grave concern. The Magnet House at Eskdalemuir is an underground chamber, and the temperature in the covers of the recording magnets only varied through a range of about 4° C. during the year 1911, which amounts to about ~~1·5°~~ per month. To test the variation during the day a thermograph by Richard stands in the Magnet House, and its scale is sufficiently open for readings to be taken to the fiftieth of a degree. The variation in temperature during the day, as will be seen from the monthly tables, is, generally speaking, about ·02° C., often less. The records of the thermograph indeed are for the most part lines in which the eye can detect no deviation from straightness, but the trace is disturbed by the observer, either mechanically by a time mark, or thermally by his presence in the neighbourhood. The disturbed trace is in fact useful, because it shows not only what the thermograph can do, but also what it cannot do, and, that is, indicate the temperature to the hundredth of a degree. It often takes some time for the displaced pointer to recover its proper position.

In order to give the reader an indication of the magnitude of the normal automatic changes of temperature, the range of the pen during the eighteen hours preceding 9 a.m. of each day has been given in the columns assigned for that purpose in the fourth table for each month. The remaining six hours of the twenty-four have been allowed for the thermograph to recover its position after the time (9 h.) of the observer's visit. These figures are perhaps of more importance to the authorities of the Office and the Observatory with whom rests the responsibility for taking the steps which are necessary for eliminating or correcting for temperature disturbance, than to the general reader, but for the first year of continuous records at the Observatory it is a matter of some interest to show how far the precautions for securing uniformity of temperature in the Magnet House have been successful. The result is certainly very satisfactory from that point of view.

Abbreviations for Months and Seasons.—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, and it is almost certain that as soon as any problem is mooted which depends on the seasonal variation, the combination of the months of the ascending and descending node will not be acceptable, but the practice has the sanction of the tradition of Kew Observatory.

Maximum and Minimum Values.—A tribute of acknowledgment is due to Messrs Neill and Co. of Edinburgh for the excellence of the type and execution of the tables, which include an enormous mass of figures. In all but the tables of diurnal inequalities the printing is clear and the result successful. For the diurnal inequalities the result is less satisfactory on account of the smaller type, which has been found necessary in order to get the information within the allotted space. This is at least

partly due to the method adopted for indicating the maximum and the minimum values, an x or n being inserted in the column for that purpose, not at the printer's wish but for other reasons.

Some method of identifying the maxima and minima is necessary. The former practice was to put them both in **thick type**, but this makes a very patchy page, and it is almost as important to distinguish between the maximum and the minimum as between these two and the rest. Von Hann, who has probably more experience of this kind of printing than anyone else in the world, uses thick type for the maxima and an asterisk for the minima, and it seemed that, if an additional sign like an asterisk was wanted at all, two might be used with advantage, leaving the printed figures with their appropriate uniformity. So x and n were chosen. But the result shows an unexpected difference between the added sign, like an asterisk, and the added letter. When the proof arrived and disclosed the fact, it was too late to change the plan, but in future issues, if possible, the tables of inequalities will be improved.

Units.—Passing from these details it is necessary finally to refer to one point of great importance, namely, the units employed for the representation of the various quantities.

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

"The question of the units employed in the international publication of meteorological observations was discussed, and it was unanimously resolved—

" (1) That in the opinion of the Gassiot Committee of the Royal Society it is essential that all meteorological returns compiled for international use should be expressed in terms of an international system of units founded on the metric system.

" (2) That a system in which the measure of barometric pressure is expressed in megadynes per square centimetre, and of temperature in absolute degrees Centigrade, would be a satisfactory one."

In furtherance of the views expressed in these resolutions, and therefore departing from the traditional practice of printing meteorological results in Inch-Fahrenheit units in the same volume which gave electrical and magnetic results in C.G.S. units, the meteorological data have been given in C.G.S. units with temperature in absolute degrees. 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) and the *Geophysical Journal* (Year Book, Part III. 2).

When these changes had been made it seemed illogical to leave the other section of Part III., *Daily Readings at Stations of the First and Second Orders*, in the old units, so that for the current year 1912 these also are given in C.G.S. units.

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 the decimal point as regards a particular quantity always has the same meaning.

In this respect it has been found possible to use a uniform system for all quantities except angular magnitudes. For these the practice is still rather chaotic. Sooner or later the numerical expression of an angle breaks down into a decimal fraction, but whether the breakdown shall take place at the degree, the minute, or the second, seems to be left to the discretion of the individual writer. It would seem that the process of rationalising the numerical expression of magnitudes in tables similar to those here presented can hardly stop at the present stage ; but in the present volume a certain number of curious anomalies must remain.

In presenting the results of the undertaking now completed mention should be made of the services of Mr R. Corless of the Meteorological Office in seeing the work through the press. To the reader the labour involved in such an undertaking is more conspicuous where it fails than where it succeeds. Whatever measure of success the endeavour has attained is owing largely to the work of the press-editor, which in the absence of any special organisation fell to the share of the central staff of the Office.

<div style="text-align:right">W. N. SHAW.</div>

METEOROLOGICAL OFFICE,
  29th October 1912.