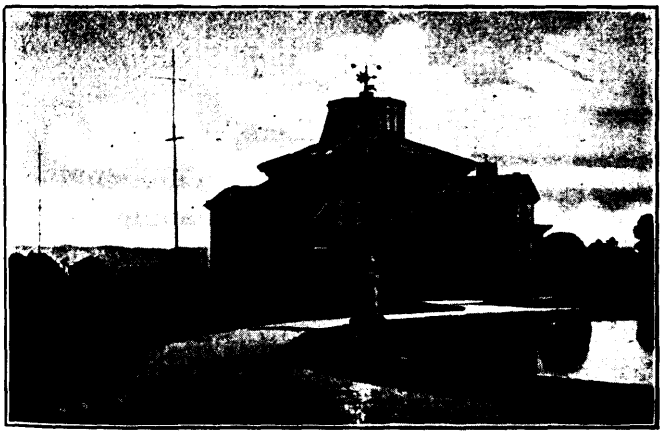
STONYHURST COLLEGE OBSERVATORY.

Lat. 53° 50′ 40″ N. Long. 9^{m} 52^{s} .68 W.
Height of the Barometer above the Sea, 381 feet.



(FOUNDED 1838.)

Results of Meteorological, Magnetical, AND Seismological Observations, 1915.

With Report and Notes of the Director,

REV. W. SIDGREAVES, S.J., F.R.A.S.

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1916.

CONTENTS.

REPORT AND NOTES.

Meteorological.—The meteorological continuous records have been uninterrupted during the year.

The wind is recorded by a Robinson's Anemograph at about 45 feet above the ground. A velocity of 37 miles per hour and over is called a gale.

Bright sunshine is recorded by a Campbell-Stokes Recorder.

The Rain Gauge is a Beckley Self Recorder. Its receiving surface is 22 inches above the ground, and 377 feet above sea-level. The daily measures are taken at 10 a.m. for the preceding 24 hours. *Heavy rain*, noted in the monthly tabulations, signifies a fall of ½ inch or more during the day.

The Barometer is a standard barometer of the pattern approved by the Meteorological Office. It is now mounted, with the photo-barograph, in the underground Magnetic chamber. Its cup is 363 feet above sea-level. Its readings in the monthly tables are quoted for the density of mercury at 32° Fahr., and for the original position of the barometer at 381 feet above sea-level; and the mean pressures are corrected for diurnal range.

The Thermometers are the property of the Meteorological Office. They are mounted at 7 feet above the

ground on the north side of the Observatory, enclosed in a Stevenson Screen. All the readings are corrected for index errors, as determined by the Office-standards.

The *monthly mean temperature* is derived in two ways: 1st, from the mean of the highest and lowest daily readings corrected by the average difference between this mean and the true mean of the hourly tabulations; and 2nd, from the mean of the readings at 9 a.m. and 9 p.m. corrected in the same manner. Both corrections have been furnished by the Greenwich records, and are taken from the well-known Glaisher's tables. The *Adopted mean temperature* is the mean of these two results.

The year, as a whole, has been an average one for Barometric pressure, Temperature, and Bright Sunshine. But the summer months were notable for their uniformly low temperatures. 73·5° in the shade, occurring in May, was the highest temperature of the year against an average of 82°. And, on 13 days only did the temperature in the shade rise to 70° or over, viz.: 4 in May, 6 in June, 1 in August, and 2 in September. The yearly range of temperature is thus 10° below the average.

August, though its mean temperature was below normal, was yet the warmest month of the year, and November was the coldest. November was further remarkable for being the coldest, the calmest, and the most sunny November on record.

The rainfall shows a deficit of 3·180 inches on the annual average. The wettest months were January and December, contributing 15 inches rainfall between them, or nearly one-third of the yearly total. The finest months were May, June, September, October, and November, each showing a remarkable deficit on its average rainfall, and, October excepted, a no less marked excess in the duration of bright sunshine. The October rainfall of 1·180 inches is the least on record for this month.

The prevailing wind for the year has been, as usual, from the West, but during the two months of October and November North winds prevailed in the proportion of 4 N. to 1 W. The average velocity of the wind has been the lowest on record, not only for the year as a whole, but also for each of the four months June, August, October, and November. The total run for the year, 70623 miles, is the lowest yearly value on record, being 15579 miles below the average, and 6542 miles less than our previous lowest record, which occurred in the year 1909. Three gales only are recorded for the year, viz.: one in January, at 39 miles per hour, and two in December, at 40 and 44 miles respectively.

Fine dry periods of the year may be noted as follows, but not excluding occasional interruptions by slight rains of short duration:—January 21—29; February 9—15, 21—25; March 6—16, 25—April 1; April 17—29; May 4—10, 12—June 3; June 5—24; July 27—31; August 17—27; September 1—23,

26—October 11; October 14—22, October 29—Nov. 7; November 16—December 3; December 15—19.—Total, 17 periods, average duration 11 days.

Heavy rains of 1 inch or more fell on January 15, April 3, and August 7.

Magnetical.—The Differential Photo-Magnetographs are of the same pattern as those at the Kew Observatory, except that the radial distances between the centres of the magnets and the surfaces of the respective cylinders are somewhat shorter. Time marks on the curves are now made at all the even numbered hours by automatic interruptions of the pencils of light. The interruptions are worked by a relay, which is controlled by a separate clock. This arrangement has the advantage of freeing the time-indications from the errors of any irregular running of the motor-clock.

The scale values of the instruments are as follows:

For the Unifilar ... 11·28′ per Cm. of Ordinate.
For the Bifilar ... ·00050 C.G.S. ,, ,,

In connection with these, absolute measures of Horizontal Direction and Force have been made regularly; of the former four times, and of the latter once in each month. These have been corrected by the difference between the curve ordinate at the time of observation and the monthly mean of the four daily readings, according to the rule stated on page xii. of our Report, 1908; but the month means are now taken from the readings on the ten quietest days of the month.

This change has been made in order to free the means from the chance-balancing of disturbed extremes.

The Inclination or Dip has been observed once each month by two needles with Dover's circle No. 159.

The Vertical and Total Forces are deduced from the measures of the Horizontal Force, and the Angle of Inclination or Dip.

On the table of magnetic disturbances (page 38) the following remarks may be of service. There is often some embarrassment in assigning the proper note of magnetic condition to the date. Overlapping of indications cannot be wholly avoided; and some allowance must be made for the subjective impressions of the Recorder. But the general intention of the table is that a *calm* (c) shall mean a smooth curve; *small* (s) a disturbance noteworthy only as opposed to a calm; *moderate* (m) a disturbance not to be neglected for any comparison with other phenomena, solar or terrestrial, and worth a reference to the original curve; *greater* (g) a marked disturbance; and *very great* (v.g.) a decided storm.

Corresponding tabulations are sent quarterly to the Meteorological Institute at De Bilt (Holland), for the International Committee on Terrestrial Magnetism. In these the significant notes are restricted to three—0, 1, 2. The general returns from the Bureau show considerable discordance between the interpretations of different authorities; and it may be well to state the rule followed at this Observatory. The two important notes are held to be 0 and 2: the former meaning a true calm,

and the latter a disturbance not less than our note (m) ; and the intervening note comprises all the rest.

On this list the notes are quoted for the civil day, and may therefore be found occasionally at variance with our own quotations, which are given for the Astronomical day (from noon to noon). It has not been thought well to make any change here ; because the convenience for tabulation is very great, when the curve, started at noon, stands for one day ; and the risk of clerical errors is notably less.

The magnetic conditions during the year have been remarkably quiet. The mean daily range of the Declination magnet appears at 11·7.

On the 5th of September Mr. Edward Kidson, representing the Magnetic Department of the Carnegie Institution, Washington, arrived at the Bailey Arms, to compare our magnetic instruments with the Washington standards.

The work was commenced on the following day by simultaneous observations : Fr. O'Connor and Mr. Kidson observing each with his own instrument, alternately, one in the Magnetic Hut, the other on the East-side lawn of the Observatory. A small wooden peg sunk just below the surface marks the position of the station. Its bearings, as determined by Mr. Kidson, are

(1) A distant church steeple 6°, 18′·4″, W. of S.
(2) N. E. corner of N room of Observatory, 39 feet, 48°, 1′.
(3) Left edge of Infirmary, 800 feet, 125°, 58·0′.
(4) West corner of Pier at edge of lawn, 87·4′, 319°, 34′.

The weather was favourable, and the work was completed on the 13th. The results of the comparisons are :

Mean Values.		*Washington—Stonyhurst.*
Declination ...		0′·0
Inclination ...	—	1·4
H. Force	+	4·0 y = ·00023 H.

Solar and Astro-Physical.—The Perry memorial 15″ O.G. equatorial, with the Whitelow 6″ O.G. camera attached, the Thorp prism equatorial, and the large grating spectrometer have been placed under the direction of Fr. Cortie, assisted by our Belgian guest, Mr. Henroteau.

The Solar Surface has been observed on 257 days, and 255 drawings have been added to our collection. Of these, 239 are complete, as showing both spots and faculæ, 10 are complete for all spots, but wanting the faculæ, 3 are duplicates, and 3 are incomplete pictures of the spots.

The mean disc area of the spots (in units of $\frac{1}{1000}$th of the visible surface) appears at 4·51 ; and the mean daily range of magnetic Declination (in minutes of arc) at 11·7. These are included in the following table for comparison with the corresponding *means* of the past five years :—

Year.....	1910	1911	1912	1913	1914	1915
Spot Area	1·8	0·33	0·22	0·04	0·82	4·51
Declination range	14·5	12·6	8·1	9·7	10·2	11·7

The spectra of some of the larger spots, in the region C — D, were photographed with the large grating

spectrograph, and on 2 days the spectra of spots were observed visually. There has been no substantial change in the spectra of sun-spots observed since the year 1882.

With the Whitelow camera a series of spectra of β Lyræ was secured, and a few exposures were made on the spectrum of the nebula in Andromeda. A direct photograph of Comet Mellish (1915 *a*) was obtained on October 4. With the Thorp prism, spectra of Sirius, Arcturus, γ Pegasi, α, β, γ Andromedæ, γ Orionis, and and β Arietis were photographed.

A good deal of work has been done on the efficiency of sun-spots in relation to terrestrial magnetic disturbances, and on the convection currents of the solar surface, as evidenced in the drift of the faculæ.

Astronomical. —In our last report we had to record the closing of our radio-telegraphic installation, and the consequent interruption of the work with the transit instrument for the correction of our longtitude. By favour of the Postmaster-General the use of the installation has been restored to us for the reception of time-signals only, and the instrument is kept under lock and key, so that no one can have access to it without the knowledge of the Director. But the work for the longitude has suffered, as many other works have suffered, by the stress of the great war, the observing assistants being employed in other ways.

The instrument has been furnished with an electric illumination of the field by a current from a small dry

cell battery supplied by the U.E.S. Co., Manchester. The illumination is controlled by a slide resistance, within easy reach of the observer. Other improvements which require the tools of an optician's factory are awaiting better times.

Seismological.—A short account of the Seismograph is given on page xiii. of our Annual, 1909. It is of the Milne photographic pattern, and is mounted with horizontal pendulum, or boom, in the astronomical meridian. A copy of its register is sent monthly to the Secretary of the Seismological Committee of the British Association for the Advancement of Science. This contains many small disturbances of uncertain origin, which do not appear in our occasional bulletins distributed amongst the Seismic stations at home and abroad; they have to await confirmation by other Observatories.

The following papers have been published during the year:—

1. Preliminary Report on the Total Solar Eclipse of 1914, August 21. Monthly Notices R.A.S. 75, pp. 105—117. Plates 9—12.
2. The Sun-Spot and the Solar Corona of 1914, August 21. Monthly Notices R. A.S., 75, pp. 496—501.
3. Total Solar Eclipse of 1914. Proceedings Royal Institution, 1914—15.
4. The efficiency of Sun-Spots in relation to terrestrial magnetic disturbances. Monthly Notices R.A.S. 76, pp. 15—18.
5. A simple geometrical construction for determining the heliographic co-ordinates of Sun-Spots. Monthly Notices R.A.S. 75, pp. 502—504.
6. On Convection Currents in high regions of the Solar Atmosphere. Monthly Notices R.A.S. 76, p.p. 18—22. Plates 1, 2.

METEOROLOGICAL REPORT.

JANUARY, 1915.

Results of Observations taken during the Month.		Mean for the last 68 years.
Mean Reading of the Barometer ..... inches	29·108	29·486
Highest ,, ,, on the 18th... ,,	30·027	30·129
Lowest ,, ,, on the 1st ... ,,	28·080	28·584
Range of Barometer Readings..... ,,	1·947	1·545
Highest Reading of a Max. Therm. on the 13th...	49·6	51·2
Lowest Reading of a Min. Therm. on the 26th	26·6	21·2
Range of Thermometer Readings	23·0	30·0
Mean of Highest Daily Readings	42·0	42·3
Mean of Lowest Daily Readings	34·2	32·9
Mean Daily Range	7·8	9·4
Deduced Mean Temp. (from mean of Max. and Min.)	37·9	37·3
Mean Temperature from Dry Bulb	39·0	37·5
Adopted Mean Temperature	38·5	37·4
Mean Temperature of Evaporation	37·0	36·2
Mean Temperature of Dew Point	35·0	34·0
Mean elastic force of Vapour.....inches	0·204	0·198
Mean weight of Vapour in a cub. ft. of air, grains	2·3	2·4
Mean additional weight required for saturation ,,	0·4	0·4
Mean degree of Humidity (saturation 100)	88	87
Mean weight of a cubic foot of air ..... grains	541·5	549·7
Mean amount of Cloud (0—10)	7·5	7·8
Fall of Rain ..... inches	7·425	4·224
Greatest Rainfall in one day (15th) ..... ,,	1·220	0·816
No. of days on which ·005 in. or more Rain fell...	18	19·1

Wind :—Direction.....	N	NE	E	SE	S	SW	W	NW
No. of days.....	5	2	1	1	0	9	8	5
Mean Velocity in miles per hr.	4·5	3·1	4·8	23·2	0	12·6	13·2	9·4
Total No. of miles	534	150	114	557	0	2710	2538	1131

		Mean*
Total No. of miles registered	7734	8151·1
Greatest hourly velocity (1st. 2 p.m. Dir. S.E.) ...	39	41·4

* *For the last* 48 *years.*

JANUARY, 1915.

DIFFERENCES.

The signs + and — mean respectively above and below the MONTHLY average.

Mean barometric pressure	—	0·378 in.
Monthly range ,, ...	+	0·402 in.
Mean of highest daily temperatures	—	0·3°
Mean of lowest ,, ,, ...	+	1·3°
Mean daily range	—	1·6°
Adopted mean temperature	+	1·1°
Total rainfall	+	3·201 in.

Ground frost on 1st—13th, 16th—19th, 21st—31st. Hoar frost on 25th. Snow on 3rd, 15th, and 27th. Hail on 2nd, 3rd, 5th, 11th—13th, 15th, 21st, 27th, 29th. Heavy rain on 7th, 8th, 9th, 12th, 15th, and 20th. Gale of wind on the 1st. Solar halo on the 12th.

EXTREME READINGS FOR JANUARY,
During 68 Years.

Highest reading of Barometer ...	1896	(9th)	30·597 in.
Lowest ,, ,, ...	1884	(26th)	27·803 in.
Highest temperature	1877	(7th)	59·9°
Lowest ,, ...	1881	(15th)	4·6°
Highest adopted mean temperature	1898	.....	43·7°
Lowest ,, ,,	1881	.....	29·2°
Greatest fall of rain	1910	.....	8·403 in.
Least ,, ...	1881	.....	0·472 in.
Greatest fall of rain in one day ...	1914	(8th)	2·074 in.
Greatest No. of days on which ·005 in. or more rain fell ...	1890	.....	30
Least ,, ,, ,,	†1850	.....	8
*Greatest hourly velocity of wind	1899	(12th)	63 mls.
*Greatest No. of miles registered ...	1890	.....	11661
*Least ,, ,, ,, ...	1881	.....	4352

* *Since 1867 only.* † *And in other years.*

FEBRUARY, 1915.

Results of Observations taken during the Month.		Mean for the last 68 years.
Mean Reading of the Barometer ..... inches	29·085	29·490
Highest ,, ,, on the 25th... ,,	30·002	30·095
Lowest ,, ,, on the 19th... ,,	28·431	28·641
Range of Barometer Readings..... ,,	1·571	1·454
Highest Reading of a Max. Therm. on the 3rd ...	50·8	52·0
Lowest Reading of a Min. Therm. on the 24th...	26·6	22·3
Range of Thermometer Readings	24·2	29·7
Mean of Highest Daily Readings	43·0	44·1
Mean of Lowest Daily Readings	34·0	33·5
Mean Daily Range	9·0	10·6
Deduced Mean Temp. (from mean of Max. & Min.)	38·1	38·2
Mean Temperature from Dry Bulb	39·1	38·4
Adopted Mean Temperature	38·6	38·3
Mean Temperature of Evaporation	37·0	36·8
Mean Temperature of Dew Point	34·8	34·5
Mean elastic force of Vapour ..... inches	0·203	0·195
Mean weight of Vapour in a cub. ft. of air, grains	2·3	2·4
Mean additional weight required for saturation ,,	0·4	0·4
Mean degree of Humidity (saturation 100).....	87	86
Mean weight of a cubic foot of air ..... grains	540·9	548·6
Mean amount of Cloud (0—10)	7·0	7·5
Fall of Rain ..... inches	4·855	3·517
Greatest Rainfall in one day (2nd) ..... ,,	0·670	0·759
No. of days on which ·005 in. or more Rain fell...	19	16·8

Wind :—Direction.....	N	NE	E	SE	S	SW	W	NW
No. of days.....	5	0	3	2	8	4	5	1
Mean Velocity in miles per hr.	7·5	0	14·3	11·5	16·8	14·4	9·6	9 2
Total No. of miles.....	902	0	1027	554	3217	1387	1148	220

		Mean*
Total No. of Miles registered	8455	7680·4
Greatest hourly velocity (2nd and 3rd, S. by E. and S.S.E.)	34	42·4

* *For the last* 48 *years.*

FEBRUARY, 1915.

DIFFERENCES.

The signs + and — mean respectively above and below the MONTHLY average.

Mean barometric pressure	—	0·405 in.
Monthly range ,, ...	+	0·117 in.
Mean of highest daily temperatures	—	1·1°
Mean of lowest ,, ,, ...	+	0·5°
Mean daily range	—	1·6°
Adopted mean temperature	+	0·3°
Total rainfall	+	1·338 in.

Ground frost on 1st—3rd, 7th—28th. Snow on 8th, 13th, 16th, 21st, and 28th. Hail on 8th, 13th, 21st, 27th, and 28th. Heavy rain on 1st, 2nd, and 7th. Lunar halo on 25th. Solar halo on 11th, 20th, and 21st.

EXTREME READINGS FOR FEBRUARY, During 68 Years.

Highest reading of Barometer ...	1902	(1st)	30·476 in.
Lowest ,, ,, ...	1900	(19th)	27·870 in.
Highest temperature	1877	(8th)	58·3°
Lowest ,, ...	1902	(11th)	5·0°
Highest adopted mean temperature	1869	.....	44·0°
Lowest ,, ,,	1855	.....	28·6°
Greatest fall of rain	1848	.....	8·882 in.
Least ,, ...	1858	.....	0·306 in.
Greatest fall of rain in one day ...	1909	(3rd)	2·000 in.
Greatest No. of days on which ·005 or more rain fell	1910	.....	27
Least ,, ,, ,,	1855	.....	4
*Greatest hourly velocity of wind ...	1903	(27th)	60 mls.
*Greatest No. of miles registered ...	1868	.....	12577
*Least ,, ,, ,, ...	1886	.....	4251

* *Since 1867 only.*

MARCH, 1915.

Results of Observations taken during the Month.		Mean for the last 68 years.
Mean Reading of the Barometer ..... inches	29·552	29·447
Highest ,, ,, on the 9th ... ,,	30·051	30·041
Lowest ,, ,, on the 1st ... ,,	28·909	28·639
Range of Barometer Readings ..... ,,	1·142	1·402
Highest Reading of a Max. Therm. on the 24th...	56·0	56·9
Lowest Reading of a Min. Therm. on the 30th...	23·9	23·2
Range of Thermometer Readings	32·1	33·7
Mean of Highest Daily Readings	46·5	47·1
Mean of Lowest Daily Readings	34·9	34·3
Mean Daily Range	11·6	12 8
Deduced Mean Temp. (from mean of Max. & Min.)	39·7	39·8
Mean Temperature from Dry Bulb	41·1	40·3
Adopted Mean Temperature	40·4	40·0
Mean Temperature of Evaporation	38·8	38·2
Mean Temperature of Dew Point	36·8	35·7
Mean elastic force of Vapour ..... inches	0·219	0·209
Mean weight of Vapour in a cub. ft. of air, grains	2·5	2·4
Mean additional weight required for saturation ,,	0·4	0·5
Mean degree of Humidity (saturation 100).....	88	85
Mean weight of a cubic foot of air ..... grains	547·5	546·1
Mean amount of Cloud (0—10)	7·0	7·5
Fall of Rain ..... inches	3·090	3·420
Greatest Rainfall in one day (5th) ..... ,,	0·735	0·779
No. of days on which ·005 or more Rain fell...	14	16·8

Wind :—Direction	N	NE	E	SE	S	SW	W	NW
No. of Days.....	8	2	2	0	0	2	16	1
Mean Velocity in miles per hr.	7·8	7·8	7·6	0	0	8.0	10·4	5·9
Total No. of miles.....	1500	374	364	0	0	384	4004	142

		Mean*
Total No. of Miles registered	6768	8563·7
Greatest hourly velocity (6th. 3 a.m. Dir. W.)	32	41·4

* *For the last* 48 *years.*

MARCH, 1915.

DIFFERENCES.

The signs + and — mean respectively above and below the MONTHLY average.

Mean barometric pressure	+	0·105 in.
Monthly range ,, ...	—	0·260 in.
Mean of highest daily temperatures	—	0·6°
Mean of lowest ,, ,, ...	+	0·6°
Mean daily range	—	1·2°
Adopted mean temperature	+	0·4°
Total rainfall	—	0·330 in.

Ground frost on 1st—3rd, 5th, 7th—10th, 12th, 17th—22nd, 24th—31st. Hoar frost on 16th and 17th. Snow on 1st, 18th, 19th, 26th, 29th. Hail on 1st, 18th, 28th, and 31st. Heavy rain on 2nd and 5th. Fog on 16th and 17th.

EXTREME READINGS FOR MARCH, During 68 Years.

Highest reading of Barometer ...	1854	(4th)	30·452 in.
Lowest ,, ,, ...	1876	(10th)	28·100 in.
Highest temperature	1871	(25th)	68·0°
Lowest ,, ...	1874	(10th)	11·1°
Highest adopted mean temperature	1871	.....	44·0°
Lowest ,, ,,	1883	.....	34·4°
Greatest fall of rain	1912	.....	7·205 in.
Least ,, ...	1852	.....	0·352 in.
Greatest fall of rain in one day ...	1898	(17th)	1·540 in.
Greatest No. of days on which ·005 in. or more rain fell ...	†1861	.....	28
Least ,, ,, ,,	1852	.....	3
*Greatest hourly velocity of wind ...	1905	(15th)	57 mls.
*Greatest No. of miles registered ...	1903	.....	12773
*Least ,, ,, ,, ...	1892	.....	5725

* *Since 1887 only.* † *And 1914.*

APRIL, 1915.

Results of Observations taken during the Month.		Mean for the last 68 years.
Mean Reading of the Barometer ..... inches	29·608	29·490
Highest ,, ,, on the 27th ... ,,	30·026	29·952
Lowest ,, ,, on the 7th ... ,,	28·595	28·806
Range of Barometer Readings ..... ,,	1·431	1·146
Highest Reading of a Max. Therm. on the 29th...	65·0	65·1
Lowest Reading of a Min. Therm. on the 23rd...	32·1	28·2
Range of Thermometer Readings	32·9	36·9
Mean of Highest Daily Readings	51·4	54·9
Mean of Lowest Daily Readings	38·3	37·8
Mean Daily Range	13·1	17·1
Deduced Mean Temp. (from mean of Max. & Min.)	43·4	44·1
Mean Temperature from Dry Bulb	45·2	44·7
Adopted Mean Temperature	44·3	44·4
Mean Temperature of Evaporation	41·9	41·7
Mean Temperature of Dew Point	39·1	38·3
Mean elastic force of Vapour ..... inches	0·239	0·235
Mean weight of Vapour in a cub. ft. of air, grains	2·8	2·7
Mean additional weight required for saturation ,,	0·6	0·7
Mean degree of Humidity (saturation 100).....	82	80
Mean weight of a cubic foot of air ..... grains	544·2	542·1
Mean amount of Cloud (0—10)	6·3	6·7
Fall of Rain ..... inches	3·820	2·539
Greatest Rainfall in one day (3rd) ..... ,,	1·000	0·588
No. of days on which ·005 in. or more Rain fell...	17	14·8

Wind :—Direction	N	NE	E	SE	S	SW	W	NW
No. of days.....	4	3	1	0	1	4	17	0
Mean Velocity in miles per hr.	5·9	7·7	10·9	0	13·6	9·8	11·5	0
Total No. of Miles.....	563	552	262	0	327	943	4711	0

		Mean*
Total No. of Miles registered	7358	7588·9
Greatest hourly velocity (8th. 2 p.m. Dir. W.)	35	37·2

** For the last 48 years.*

APRIL, 1915.

DIFFERENCES.

The signs + and — mean respectively above and below the MONTHLY average.

Mean barometric pressure	+	0·118 in.
Monthly range ,, ...	+	0·285 in.
Mean of highest daily temperatures	—	3·5°
Mean of lowest ,, ,, ...	+	0·5°
Mean daily range	—	4·0°
Adopted mean temperature	—	0·1°
Total rainfall	+	1·281 in.

Ground frost on 1st, 2nd, 5th, 6th, 8th—11th, 13th, 14th, 21st—24th, 26th—30th. Hail on 7th and 21st. Heavy rain on 3rd. Thunder on 7th and 8th. Lightning on 7th. Solar halo on 21st.

EXTREME READINGS FOR APRIL,

During 68 Years.

Highest reading of Barometer ...	1906	(8th)	30·317 in.
Lowest ,, ,, ...	1868	(20th)	28·358 in.
Highest temperature	1852	(14th)	74·1°
Lowest ,, ...	1892	(13th)	20·8°
Highest adopted mean temperature	1865	.....	48·5°
Lowest ,, ,, ...	1879	.....	40·7°
Greatest fall of rain	1867	.....	5·672 in.
Least ,, ...	1852	.....	0·478 in.
Greatest fall of rain in one day ...	1913	(26th)	1·180 in.
Greatest No. of days on which ·005 in. or more rain fell	1867	.....	24
Least ,, ,, ,,	1852	.....	4
*Greatest hourly velocity of wind ...	1911	(19th)	53 mls.
*Greatest No. of miles registered	1904	.....	11016
*Least ,, ,, ,, ...	1884	.....	5047

* *Since* 1867 *only.*

MAY, 1915.

Results of Observations taken during the Month.		Mean for the last 68 years.
Mean Reading of the Barometer ..... inches	29·647	29·540
Highest ,, ,, on the 9th ... ,,	30·111	29·991
Lowest ,, ,, on the 1st ... ,,	29·301	28·952
Range of Barometer Readings ..... ,,	0·810	1·039
Highest Reading of a Max. Therm. on the 25th...	73·5	71·7
Lowest Reading of a Min. Therm. on the 14th...	31·5	31·8
Range of Thermometer Readings	42·0	39·9
Mean of Highest Daily Readings	58·5	59·4
Mean of Lowest Daily Readings	41·1	42·3
Mean Daily Range	17·4	17·1
Deduced Mean Temp. (from mean of Max. & Min.)	48·1	49·1
Mean Temperature from Dry Bulb	50·4	49·8
Adopted Mean Temperature	49·3	49·5
Mean Temperature of Evaporation	46·0	46·3
Mean Temperature of Dew Point	42·5	42·7
Mean elastic force of Vapour ..... inches	0·273	0·278
Mean weight of Vapour in a cub. ft. of air, grains	3·1	3·1
Mean additional weigh required for saturation ,,	1·0	0·9
Mean degree of Humidity (saturation 100).....	77	77
Mean weight of a cubic foot of air ..... grains	539·2	537·1
Mean amount of Cloud (0—10).....	5·1	7·0
Fall of Rain ..... inches	1·845	2·678
Greatest Rainfall in one day (11th) ..... ,,	0·850	0·635
No. of days on which ·005 in. or more Rain fell...	9	14·6

Wind:—Direction	N	NE	E	SE	S	SW	W	NW
No. of days.....	4	9	7	0	2	1	8	0
Mean Velocity in miles per hr.	6·3	8·8	9·4	0	5·6	10·8	5·6	0
Total No. of miles.....	604	1908	1578	0	268	260	1077	0

		Mean*
Total No. of Miles registered	5695	7057·2
Greatest hourly velocity (1st. 2 & 3 p.m. Dir. W. S.W.)	18	33·3

* *For the last* **48** *years.*

MAY, 1915.

DIFFERENCES.

The signs + and — mean respectively above and below the MONTHLY average.

Mean barometric pressure	+	0·107 in.
Monthly range ,, ...	—	0·229 in.
Mean of highest daily temperatures	—	0·9°
Mean of lowest ,, ,, ...	—	1·2°
Mean daily range	+	0·3°
Adopted mean temperature	—	0·2°
Total rainfall	—	0·833 in.

Ground frost on 3rd, 4th, 7th, 10th, 11th, 13th—16th, 19th, 28th, 30th, and 31st. Snow and hail on the 12th. Heavy rain on 11th. Thunder on 6th. Lightning on 6th and 7th.

The weather in general was fine and dry, with bright sunshine 10% in excess of the average.

EXTREME READINGS FOR MAY,

During 68 Years.

Highest reading of Barometer ...	1881	(10th)	30·332 in.
Lowest ,, ,, ...	1877	(28th)	28·559 in.
Highest temperature	1864	(19th)	82·5°
Lowest ,, ...	1855	(4th)	23·5°
Highest adopted mean temperature	1848	.....	55·1°
Lowest ,, ,,	1855	.....	45·0°
Greatest fall of rain	1886	.....	6·178 in.
Least ,, ...	1859	.....	0·249 in.
Greatest fall of rain in one day ...	1881	(5th)	1·647 in.
Greatest No. of days on which ·005 in. or more rain fell	†1860	.....	22
Least ,, ,, ,,	†1848	.....	4
*Greatest hourly velocity of wind	1888	(2nd)	49 mls.
*Greatest No. of miles registered ...	1888	.....	9648
*Least ,, ,, ,, ...	1889	.....	5396

* *Since* 1867 *only.* † *And in other years.*

JUNE, 1915.

Results of Observations taken during the Month.		Mean for the last 68 years.
Mean Reading of the Barometer ..... inches	29·621	29·554
Highest ,, ,, on the 15th ... ,,	29·907	29·931
Lowest ,, ,, on the 28th ... ,,	29·251	29·035
Range of Barometer Readings ..... ,,	0·656	0·896
Highest Reading of a Max. Therm. on the 12th...	73·0	77·0
Lowest Reading of a Min. Therm. on the 19th...	39·1	39·1
Range of Thermometer Readings	33·9	37·9
Mean of Highest Daily Readings	65·7	65·5
Mean of Lowest Daily Readings	47·3	48·1
Mean Daily Range	18·4	17·4
Deduced Mean Temp. (from mean of Max. & Min.)	54·7	55·0
Mean Temperature from Dry Bulb	57·0	55·4
Adopted Mean Temperature	55·9	55·2
Mean Temperature of Evaporation	51·6	52·0
Mean Temperature of Dew Point	47·5	48·5
Mean elastic force of Vapour ..... inches	0·332	0·349
Mean weight of Vapour in a cub. ft. of air, grains	3·7	3·9
Mean additional weight required for saturation ,,	1·3	1·0
Mean degree of Humidity (saturation 100)	74	78
Mean weight of a cubic foot of air ..... grains	531·5	531·1
Mean Amount of Cloud (0—10).....	5·0	7·2
Fall of Rain ..... inches	1·035	3·422
Greatest Rainfall in one day (28th) ..... ,,	0·370	0·820
No. of days on which ·005 in. or more Rain fell...	8	15·3

Wind :—Direction	N	NE	E	SE	S	SW	W	NW
No. of days.....	4	8	5	0	2	2	9	0
Mean Velocity in miles per hr.	3·9	7·0	5·3	0	4·4	3·8	5·6	0
Total No. of miles.....	378	1352	635	0	211	182	1209	0

		Mean*
Total No. of Miles registered	3967	6171·9
Greatest hourly velocity (4th, 4 p.m.. Dir. W.) ...	15	29·6

* *For the last* 48 *years.*

JUNE, 1915.

DIFFERENCES.

The signs + and — mean respectively above and below the MONTHLY average.

Mean barometric pressure	+	0·067 in.
Monthly range ,, ...	—	0·240 in.
Mean of highest daily temperatures	+	0·2°
Mean of lowest ,, ,, ...	—	0·8°
Mean daily range	+	1·0°
Adopted mean temperature	+	0·7°
Total rainfall	—	2·387 in.

Hoar frost on 1st, 2nd, 18th, 19th, and 20th. Thunder on 4th, 11th, 12th, 27th, and 30th. Lightning on 27th and 30th. Solar halo on 2nd, 6th, and 9th.

Though not remarkably hot, June was a very fine, sunny month, with absolutely no rain from the 5th to the 25th.

EXTREME READINGS FOR JUNE,

During 68 Years.

Highest reading of the Barometer	1874 (15th)	30·219 in.
Lowest ,, ,,	1862 (12th)	28·632 in.
Highest temperature	1893 (18th)	88·7°
Lowest ,, ...	1902 (9th)	32·0°
Highest adopted mean temperature	1896	59·3°
Lowest ,, ,,	1907	51·5°
Greatest fall of rain	1907	8·705 in.
Least ,, ...	1887	0·525 ,,
Greatest fall of rain in one day ...	1857 (8th)	2·093 ,,
Greatest No. of days on which ·005 in. or more rain fell	†1907	27
Least ,, ,, ,,	1887	4
*Greatest hourly velocity of wind	1897 (16th)	45 mls.
*Greatest No. of miles registered...	1877	8384
*Least ,, ,, ,,	1915	3967

* *Since* 1867 *only.* † *And* 1912.

JULY, 1915.

Results of Observations taken during the Month.		Mean for the last 68 years.
Mean Reading of the Barometer ..... inches	29·429	29·524
Highest ,, ,, on the 1st ... ,,	29·816	29·902
Lowest ,, ,, on the 16th ... ,,	28·851	29·018
Range of Barometer Readings ..... ,,	0·965	0·884
Highest Reading of a Max. Therm. on the 6th...	69·1	78·6
Lowest Reading of a Min. Therm. on the 26th..	45·0	42·4
Range of Thermometer Readings	24·1	36·2
Mean of Highest Daily Readings	62·6	67·6
Mean of Lowest Daily Readings	51·0	51·0
Mean Daily Range	11·6	16·6
Deduced Mean Temp. (from mean of Max. & Min.)	54·9	57·7
Mean Temperature from Dry Bulb	56·8	57·9
Adopted Mean Temperature	55·9	57·8
Mean Temperature of Evaporation	52·8	54·8
Mean Temperature of Dew Point	49·9	52·0
Mean elastic force of Vapour ..... inches	0·362	0·389
Mean weight of Vapour in a cub. ft. of air, grains	4·1	4·4
Mean additional weight required for saturation ,,	0·9	1·1
Mean degree of Humidity (saturation 100)	81	81
Mean weight of a cubic foot of air ..... grains	527·9	527·5
Mean amount of Cloud (0—10)	7·9	7·4
Fall of Rain ..... inches	4·380	4·015
Greatest Rainfall in one day (6th) ..... ,,	0·550	0·868
No. of days on which ·005 in. or more Rain fell...	22	16·6

Wind :—Direction	N	NE	E	SE	S	SW	W	NW
No. of days.....	1	0	2	0	1	5	21	1
Mean Velocity in miles per hr.	13·8	0	7·8	0	4·4	10·2	8·0	10·8
Total No. of miles.....	332	0	372	0	106	1227	4001	260

		Mean*
Total No. of Miles registered	6298	6466·4
Greatest hourly velocity (11th, 9 a.m. Dir. W.)	21	28·8

* *For the last 49 years.*

JULY, 1915.

DIFFERENCES.

The signs + and — mean respectively above and below the MONTHLY average.

Mean barometric pressure	—	0·095 in.
Monthly range ,, ...	+	0·081 in.
Mean of highest daily temperatures	—	5·0°
Mean of lowest ,, ,, ...	—	0·0°
Mean daily range	—	5·0°
Adopted Mean temperature	—	1·9°
Total rainfall	+	0·365 in.

Heavy rain on 6th. Thunder on 3rd, 4th, 22nd, 26th, 27th, and 28th. Lightning on 26th. Solar halo on 18th.

Weather throughout cold, wet, and disappointing to hay-makers.

EXTREME READINGS FOR JULY,

During 68 Years.

Highest reading of Barometer ...	1911	(10th)	30·203 in.
Lowest ,, ,, ...	1877	(15th)	28·564 in.
Highest temperature	1901	(20th)	89·0°
Lowest ,, ...	1857	(1st)	36·0°
Highest adopted mean temperature	1901	.....	63·2°
Lowest ,, ,,	1862	.....	54·3°
Greatest fall of rain	1888	.....	8·475 in.
Least ,, ...	1868	.....	0·669 in.
Greatest fall of rain in one day ...	1888	(2nd)	2·482 in.
Greatest No. of days on which ·005 in. or more rain fell	†1861	.....	27
Least ,, ,, ,,	†1863	.....	8
*Greatest hourly velocity of wind	1892	(8th)	44 mls.
*Greatest No. of miles registered ...	1877	.....	8288
*Least ,, ,, ,,	1913	.....	4577

* *Since* 1867 *only.* † *And in other years.*

AUGUST, 1915.

Results of Observations taken during the Month.		Mean for the last 68 years.
Mean Reading of the Barometer ..... inches	29·560	29·495
Highest ,, ,, on the 23rd ... ,,	29·880	29·888
Lowest ,, ,, on the 2nd ... ,,	29·076	28·956
Range of Barometer Readings ..... ,,	0·804	0·932
Highest Reading of a Max. Therm. on the 10th...	70·5	76·5
Lowest Reading of a Min. Therm. on the 31st ...	42·1	41·7
Range of Thermometer Readings	28·4	34·8
Mean of Highest Daily Readings	63·8	66·6
Mean of Lowest Daily Readings	51·2	50·6
Mean Daily Range	12·6	16·0
Deduced Mean. Temp. (from Mean of Max. & Min.)	55·8	57·0
Mean Temperature from Dry Bulb	58·1	57·7
Adopted Mean Temperature	57·0	57·4
Mean Temperature of Evaporation	54·3	54·5
Mean Temperature of Dew Point	51·8	51·7
Mean elastic force of Vapour ..... inches	0·385	0·386
Mean weight of Vapour in a cub. ft. of air, grains	4·3	4·3
Mean additional weight required for saturation ,,	0·9	0·9
Mean degree of Humidity (saturation 100)	83	82
Mean weight of a cubic foot of air ..... grains	529·1	527·5
Mean amount of Cloud (0—10).....	6·9	7·3
Fall of Rain ..... inches	5·825	5·011
Greatest Rainfall in one day (7th) ..... ,,	1·100	1·061
No. of days on which ·005 in. or more Rain fell...	19	18·3

Wind :—Direction	N	NE	E	SE	S	SW	W	NW
No. of days.....	5	1	2	0	0	5	17	1
Mean Velocity in miles per hr.	5·4	6·4	5·0	0	0	3·6	5·3	11·0
Total No. of miles.....	650	154	243	0	0	434	2174	263

		Mean*
Total No. of Miles registered	3918	6399·4
Greatest hourly velocity (30th, 1 p.m. Dir. N.W.)	21	31·4

* *For the last* 48 *years.*

AUGUST, 1915.

DIFFERENCES.

The signs + and — mean respectively above and below the MONTHLY average.

Mean barometric pressure	+	0·065 in.
Monthly range ,, ...	—	0·128 in.
Mean of highest daily temperatures	—	2·8°
Mean of lowest ,, ,, ...	+	0·6°
Mean daily range	—	3·4°
Adopted mean temperature	—	0·4°
Total rainfall	+	0·814 in.

Hail on 12th and 15th. Heavy rain on 7th, 16th, and 31st. Thunder on 1st, 2nd, 3rd, 10th—15th. Lightning on 1st, 10th, 11th, 12th—15th.

The winds, largely from the West, were the lightest in force recorded for August.

EXTREME READINGS FOR AUGUST, During 68 Years.

Highest reading of Barometer ...	1874	(21st)	30·114 in.
Lowest ,, ,, ...	1903	(15th)	28·492 in.
Highest temperature	1868	(2nd)	88·0°
Lowest ,, ...	1887	(13th)	33·4°
Highest adopted mean temperature	1911	.....	62·1°
Lowest ,, ,,	1848	.....	52·5°
Greatest fall of rain	1891	.....	9·869 in.
Least ,, ...	1871	.....	2·085 in.
Greatest fall of rain in one day ...	1857	(7th)	2·333 in.
Greatest No. of days on which ·005 in. or more rain fell ...	1891	.....	27
Least ,, ,, ,,	1880	.....	6
*Greatest hourly velocity of wind	1903	(31st)	45 mls.
*Greatest No. of miles registered...	1903	.....	8486
*Least ,, ,, ,,	1915	.....	3918

* *Since* 1867 *only*.

SEPTEMBER, 1915.

Results of Observations taken during the Month.		Mean for the last 68 years.
Mean Reading of the Barometer ..... inches	29·566	29·546
Highest ,, ,, on the 10th ... ,,	29·947	30·014
Lowest ,, ,, on the 26th ... ,,	28·937	28·891
Range of Barometer Readings	1·010	1·123
Highest Reading of a Max. Therm. on the 9th...	70·6	72·1
Lowest Reading of a Min. Therm. on the 29th	35·6	36·4
Range of Thermometer Readings	35·0	35·7
Mean of Highest Daily Readings	61·8	62·1
Mean of Lowest Daily Readings	48·2	47·1
Mean Daily Range	13·6	15·0
Deduced Mean Temp. (from mean of Max. & Min.)	53·7	53·4
Mean Temperature from Dry Bulb	55·7	54·2
Adopted Mean Temperature	54·7	53·8
Mean Temperature of Evaporation	51·0	51·0
Mean Temperature of Dew Point	47·5	48·3
Mean elastic force of Vapour ..... inches	0·326	0·339
Mean weight of Vapour in a cub. ft. of air, grains	3·7	3·9
Mean additional weight required for saturation ,,	1·1	0·9
Mean degree of Humidity (saturation 100).....	76	81
Mean weight of a cubic foot of air.....grains	531·8	532·6
Mean amount of Cloud (0—10)	4·4	6·7
Fall of Rain ..... inches	0·777	4·234
Greatest Rainfall in one day (24th)..... ,,	0·372	0·951
No. of days on which ·005 in. or more Rain fell...	6	16·3

Wind :—Direction	N	NE	E	SE	S	SW	W	NW
No. of days.....	8	1	6	1	2	4	7	1
Mean Velocity in miles per hr.	4·9	5·2	8·0	6·5	4·2	4·3	7·5	8·8
Total No. of miles.....	935	124	1155	155	202	412	1265	212

		Mean*
Total No. of Miles registered	4460	6062·4
Greatest hourly velocity (9th and 20th, 1 p.m. Dir. S.E. by S. & E. by S. respectively)	16	32·6

* *For the last* 48 *years.*

SEPTEMBER, 1915.

DIFFERENCES.

The signs + and — mean respectively above and below the MONTHLY average.

Mean barometric pressure	+	0·020 in.
Monthly range ,, ...	—	0·113 in.
Mean of highest daily temperatures	—	0·3°
Mean of lowest ,, ,, ...	+	1·1°
Mean daily range	—	1·4°
Adopted mean temperature	+	0·9°
Total rainfall	—	3·457 in.

Ground frost on 3rd, 28th, and 29th. Thunder on 1st. Lightning on 2nd. Lunar halo on 23rd. Solar halo on 21st.

Fine, sunny weather prevailed throughout the month, with slight rain on only 6 days, and bright sunshine 8% above the average.

EXTREME READINGS FOR SEPTEMBER,

During 68 Years.

Highest reading of Barometer ...	1851	(15th)	30·247 in.
Lowest ,, ,, ...	1896	(25th)	28·314 in.
Highest temperature	1868	(6th)	85·0°
Lowest ,, ...	†1885	(25th)	29·8°
Highest adopted mean temperature	1865	.....	59·1°
Lowest ,, ,,	1863	.....	50·9°
Greatest fall of rain	1869	.....	9·539 in.
Least ,, ...	1910	.....	0·652 in.
Greatest fall of rain in one day ...	1889	(26th)	2·060 in.
Greatest No. of days on which ·005 in. or more rain fell ...	1866	.....	27
Least ,, ,, ,,	†1851	.....	6
*Greatest hourly velocity of wind	1875	(26th)	53 mls.
*Greatest No. of miles registered ...	1869	.....	9053
*Least ,, ,, ,, ...	1888	.....	3261

* *Since* 1867 *only.* † *And in other years.*

OCTOBER, 1915.

Results of Observations taken during the Month.		Mean for the last 68 years.
Mean Reading of the Barometer ..... inches	29·603	29·441
Highest ,, ,, on the 25th ,,	36·006	30·022
Lowest ,, ,, on the 28th ,,	28·925	28·677
Range of Barometer Readings..... ,,	1·081	1·345
Highest Reading of a Max. Therm. on the 13th...	60·9	64·0
Lowest Reading of a Min. Therm. on the 1st	32·2	29·5
Range of Thermometer Readings	28·7	34·5
Mean of Highest Daily Readings	53·3	54·6
Mean of Lowest Daily Readings	42·9	41·9
Mean Daily Range	10·4	12·7
Deduced Mean Temp. (from Mean. of Max. and Min.)	47·1	47·3
Mean Temperature from Dry Bulb	47·5	48·0
Adopted Mean Temperature	47·3	47·6
Mean Temperature of Evaporation	44·5	45·4
Mean Temperature of Dew Point	41·4	43·0
Mean elastic force of Vapour.....inches	0·261	0·279
Mean weight of vapour in a cub. ft. of air, grains	3·0	3·2
Mean additional weight required for saturation ,,	0·7	0·6
Mean degree of Humidity (saturation 100).....	81	84
Mean weight of a cubic foot of air .....grains	540·7	537·5
Mean amount of Cloud (0—10)	5·5	7·3
Fall of Rain ..... inches	1·180	4·883
Greatest Rainfall in one day (27th) ..... ,,	0·450	0·978
No. of days on which ·005 in. or more Rain fell...	12	18·7

Wind :—Direction.....	N	NE	E	SE	S	SW	W	NW
No. of days.....	10	3	8	4	3	1	0	2
Mean Velocity in miles per hr.	3·2	5·2	7·7	7·2	5·5	3·2	0	3.8
Total No. of miles.....	759	371	1487	692	396	76	0	184

		Mean*
Total No. of miles registered	3965	6900·1
Greatest hourly velocity (12th & 31st, 11 & 9 a.m. Dir. S. & E. respectively	20	37·7

* *For the last* 48 *years.*

OCTOBER, 1915.

DIFFERENCES.

The signs + and — mean respectively above and below the MONTHLY average.

Mean barometic pressure	+	0·162 in.
Monthly range ,, ...	—	0·264 in.
Mean of highest daily temperatures	—	1·3°
Mean of lowest ,, ,, ...	+	1·0°
Mean daily range ,, ...	—	2·3°
Adopted Mean temperature	—	0·3°
Total rainfall	—	3·703 in.

Ground frost on 1st, 26th, 27th, and 30th. Hoar frost on 30th. Fog on 29th. Thunder on 28th. Solar halo on 7th and 21st.

The total rainfall and the average wind force were the lowest on record for October.

EXTREME READINGS FOR OCTOBER,
During 68 Years.

Highest reading of Barometer ...	1884	(5th)	30·306 in.
Lowest ,, ,, ...	1862	(19th)	28·139 in.
Highest temperature	1890	(12th)	74·0°
Lowest ,, ...	1895	(28th)	17·8°
Highest adopted mean temperature	1908	.....	52·5°
Lowest ,, ,,	1895	.....	42·8°
Greatest fall of rain	1870	.....	13·437 in.
Least ,, ...	1915	.....	1·180 in.
Greatest fall of rain in one day ...	1870	(8th)	2·529 in.
Greatest No. of days on which ·005 in. or more rain fell ...	1903	.....	29
Least ,, ,, ,,	1864	.....	10
*Greatest hourly velocity of wind	1877	(15th)	52 mls.
*Greatest No. of miles registered...	1874	.....	9818
*Least ,, ,, ,, ...	1915	.....	3965

* *Since* 1867 *only.*

NOVEMBER, 1915.

Results of Observations taken during the Month.		Mean for the last 68 years.
Mean Reading of the Barometer ..... inches	29·514	29·462
Highest ,, ,, on the 20th ... ,,	30·366	30·064
Lowest ,, ,, on the 12th ... ,,	28·347	28·567
Range of Barometer Readings..... ,,	2·019	1·497
Highest Reading of a Max. Therm. on the 7th ...	51·0	55·8
Lowest Reading of a Min. Therm. on the 17th ...	18·0	25·3
Range of Thermometer Readings	33·0	30·5
Mean of Highest Daily Readings	41·4	47·2
Mean of Lowest Daily Readings	31·2	36·7
Mean Daily Range	10·2	10·5
Deduced Mean. Temp. (from Mean of Max. and Min.)	35·9	41·6
Mean Temperature from Dry Bulb.....	36·6	42·0
Adopted Mean Temperature	36·3	41·8
Mean Temperature of Evaporation	33·3	39·7
Mean Temperature of Dew Point	28·9	38·2
Mean elastic force of Vapour.....inches	0·160	0·231
Mean weight of Vapour in a cub. ft. of air, grains	1·8	2·7
Mean additional weight required for saturation ,,	0·7	0·4
Mean degree of Humidity (saturation 100)	75	87
Mean weight of a cubic foot of air ..... grains	551·8	544·6
Mean amount of Cloud (0—10)	5·4	7·4
Fall of Rain ..... inches	2·080	4·436
Greatest Rainfall in one day (8th) ..... ,,	0·640	0·972
No. of days on which ·005 in. or more Rain fell...	7	17·9

Wind.—Direction	N	NE	E	SE	S	SW	W	NW
No. of days.....	10	9	0	0	1	2	5	3
Mean Velocity in miles per hr.	3·7	5·7	0	0	6·9	9·6	12·2	9·3
Total No. of miles.....	898	1233	0	0	166	460	1469	667

		Mean*
Total No. of miles registered	4893	7274·0
Greatest hourly velocity (9th & 10th, 6 a.m. and Noon. Dir. W.S.W. & W.N.W.....	26	41·5

* *For the last* 48 *years.*

NOVEMBER, 1915.

DIFFERENCES.

The signs + and — mean respectively above and below the MONTHLY average.

Mean barometic pressure	+	0·052 in.
Monthly range ,, ...	+	0·522 in.
Mean of highest daily temperatures	—	5·8°
Mean of lowest ,, ,, ...	—	5·5°
Mean daily range ,, ...	—	0·3°
Adopted mean temperature	—	5·5°
Total rainfall	—	2·356 in.

Ground frost on 2nd—6th, 11th, 14th—30th. Hoar frost on 3rd, 22nd, 27th. Snow on 12th and 15th. Hail on 9th and 12th. Heavy rain on 8th. Fog on 2nd, 3rd, and 22nd. Solar halo on 11th and 28th. Aurora Borealis on the 5th.

Three records occurred for this month, viz.: the lowest mean temperature, the least wind force, and the longest duration of bright sunshine. Skating was possible each day from the 16th to the end of the month.

EXTREME READINGS FOR NOVEMBER, During 68 Years.

Highest reading of Barometer ...	1857	(12th)	30·350 in.
Lowest ,, ,, ...	1891	(11th)	27·938 in.
Highest temperature	1900	(1st)	62·4°
Lowest ,, ...	1901	(15th)	17·5°
Highest adopted mean temperature †	1881	.....	47·0°
Lowest ,, ,,	1915	.....	36·3°
Greatest fall of rain	1866	.....	9·026 in.
Least ,, ...	1855	.....	1·158 in.
Greatest fall of rain in one day ...	1866	(16th)	3·700 in.
Greatest No. of days on which ·005 in. or more rain fell ...	1913	.....	28
Least ,, ,, ,,	1848	.....	6
*Greatest hourly velocity of wind...	1887	(1st)	62 mls.
*Greatest No. of miles registered ...	1888	.....	12813
*Least ,, ,, ,, ...	1915	.....	4893

* *Since* 1867 *only.* † *And in other years.*

DECEMBER, 1915.

Results of Observations taken during the Month.		Mean for the last 68 years.
Mean Reading of the Barometer ..... inches	29·113	29·430
Highest ,, ,, on the 19th ,,	30·058	30·068
Lowest ,, ,, on the 3rd ,,	28·297	28·518
Range of Barometer Readings..... ,,	1·761	1·550
Highest Reading of a Max. Therm. on the 27th and 31st.....	53·0	53·0
Lowest Reading of a Min. Therm. on the 19th...	26·2	20·9
Range of Thermometer Readings.....	26·8	32·1
Mean of Highest Daily Readings	44·1	43·4
Mean of Lowest Daily Readings	35·9	33·6
Mean Daily Range	8·2	9·8
Deduced Mean Temp. (from Mean. of Max. and Min.)	40·0	38·5
Mean Temperature from Dry Bulb	40·7	39·1
Adopted Mean Temperature	40·4	38·8
Mean Temperature of Evaporation	38·4	37·2
Mean Temperature of Dew Point	35·8	35·3
Mean elastic force of Vapour ..... inches	0·211	0·207
Mean weight of Vapour in a cub. ft. of air, grains	2·4	2·4
Mean additional weight required for saturation ,,	0·5	0·4
Mean degree of Humidity (saturation 100)	84	87
Mean weight of a cubic foot of air ..... grains	539·5	547·1
Mean amount of Cloud (0—10)	8·0	7·6
Fall of Rain ..... inches	7·525	4·639
Greatest Rainfall in one day (5th) ..... ,,	0·790	0·850
No. of days on which ·005 in. or more Rain fell...	22	19·8

Wind :—Direction	N	NE	E	SE	S	SW	W	NW
No. of days.....	6	2	3	1	6	5	6	2
Mean Velocity in miles per hr.	4·9	5·2	9·1	29·0	12·4	9·3	12·1	3·7
Total No. of miles.....	700	251	654	697	1784	1111	1736	179

		*Mean
Total No. of miles registered	7112	7886·4
Greatest hourly velocity (31st, 9 a.m. Dir. S.S.E.	44	42·8

* *For the last* 48 *years.*

DECEMBER, 1915.

DIFFERENCES.

The signs + and — mean respectively above and below the MONTHLY average.

Mean barometric pressure	—	0·317 in.
Monthly range „	+	0·211 in.
Mean of highest daily temperatures	+	0·7°
Mean of lowest „ „	+	2·3°
Mean daily range „	—	1·6°
Adopted mean temperature	+	1·6°
Total rainfall	+	2·886 in.

Ground frost on 3rd, 8th—10th, 12th—14th, 17th—20th, 22nd, 28th, and 29th. Hoar frost on 19th. Snow on 9th and 11th. Hail on 9th. Heavy rain on 4th, 5th, 9th, 20th, and 24th. Gales of wind on 27th and 31st. Fog on 20th and 22nd.

The general character of the weather was wet and gloomy.

EXTREME READINGS FOR DECEMBER, During 68 Years.

Highest reading of Barometer ...	1905	(12th)	30·484 in.
Lowest „ „ ...	1886	(8th)	27·350 in.
Highest temperature	1876	(9th)	58·1°
Lowest „	1860	(24th)	6·7°
Highest adopted mean temperature	1857	.....	44·6°
Lowest „ „	1878	.....	30·3°
Greatest fall of rain	1880	.....	9·211 in.
Least „	1890	.....	0·550 in.
Greatest fall of rain in one day ...	1870	(19th)	1·962 in.
Greatest No. of days on which ·005 in. or more rain fell ...	1868	.....	28
Least „ „ „	†1853	.....	8
*Greatest hourly velocity of wind...	1894	(22nd)	72 mls.
*Greatest No. of miles registered ...	1898	.....	11265
*Least „ „ „ ...	1878	.....	4885

* *Since* **1867** *only.* † *And in other years.*

Summary of Observations, 1915.

Results of Observations taken during the Year.		Mean for the last 68 Years.
Readings of Barometer in inches.		
Mean of the Year	29·451	29·493
Highest Monthly Mean (May)	29·647	29·747
Lowest ,, ,, (February)	29·085	29·221
Highest Reading (November)	30·366	30·295
Lowest ,, (January)	28·080	28·204
Range	2·286	2·091
Thermometer, Fahrenheit.		
Highest Monthly Mean Temperature (August)	57·0	58·6
Lowest ,, ,, ,, (November)	36·3	35·5
Highest Reading of a Max. Therm. (May 25th)	73·5	81·6
Lowest ,, Min. ,, (Nov. 17th)	18·0	15·9
Range of Thermometer Readings	55·5	65·7
Mean of Highest Daily ,,	52·8	54·6
Mean of Lowest Daily ,,	40·9	40·9
Mean Daily Range	11·9	13·7
Deduced Mean Temp. (from mean of Max. and Min.)	45·8	46·8
Mean Temperature from Dry Bulb	47·3	47·1
Adopted Mean Temperature of the Year	46·6	47·0
Mean Temperature of Evaporation	43·9	44·6
Mean Temperature of Dew Point	40·9	42·1
Mean elastic force of Vapour ..... inches	0·265	0·274
Mean weight of Vapour in a cub. ft. of air...grns.	3·0	3·2
Mean additional weight required for saturation ,,	0·7	0·7
Mean degree of Humidity (saturation 100)	81	83
Mean weight of a cubic foot of air.....grns.	538·8	539·1
Mean amount of Cloud (0—10)	6·3	7·3
Total fall of Rain ..... inches	43·837	47·017
Greatest Monthly Rainfall (December)	7·525	7·488
Least ,, ,, (September)	0·777	1·218
Greatest Rainfall in one day (January 15th) ,,	1·220	1·624
No. of days per Month on which ·005 inch or more Rain fell	14·4	17·1

SUMMARY OF WIND, 1915.

Prevailing Direction	N	NE	E	SE	S	SW	W	NW
No. of days for each	70	40	40	9	26	44	119	17
Mean Velocity in miles per hour...	5·2	6·7	8·2	12·3	10·7	9·1	8·9	8·0
Total No. of miles for each Direction	8755	6469	7891	2655	6677	9586	25332	3258

		Mean for the last 48 years.
Total No. of miles registered	*70623	86201·7
Greatest Monthly Total (February)	8455	10016·9
Least ,, ,, (August)	3918	5041·2
Greatest hourly velocity (December 31st) ...	44	51·6
Prevailing Direction of Wind	W	W

DIFFERENCES, 1915.

The signs + and — mean respectively above and below the YEARLY average.

Mean barometric pressure...	—	0·042 in.
Yearly range ,, ...	+	0·195 in.
Mean of highest daily temperatures	—	1·8°
Mean of lowest ,, ,, ...	—	0·0°
Mean daily range	—	1·8°
Adopted mean temperature	—	0·4°
Total rainfall	—	3·180 in.

*This is the lowest yearly run on record, being 6542 miles below the previous record, which occurred in 1909.

ABSOLUTE EXTREMES

FOR THE LAST 68 YEARS.

Readings of Barometer, in inches.

Highest monthly mean	1891 (Feb.)	29·997
Lowest „ „	1868 (Dec.)	28·984
Highest yearly „	1896	29·584
Lowest „ „	1872	29·319
Greatest monthly range	1886 (Dec.)	2·795
Least „ „	1852 (July)	0·505
Highest reading	1896 (Jan. 9th)	30·597
Lowest „	1886 (Dec. 8th)	27·350
Extreme range		3·247

Thermometer, Fahrenheit.

Highest monthly mean temperature ...	1901 (July)	63·2
Lowest „ „ „ ...	1855 (Feb.)	28·6
Highest yearly „ „	1868	49·1
Lowest „ „ „	1879	44·1
Highest reading „	1901 (July 20th)	89·0
Lowest „ „	1881 (Jan. 15th.)	4·6

Weight of Vapour in a cubic foot of air (grains).

Greatest monthly mean	1852 (July)	5·1
Least „ „	†1855 (Feb.)	1·4

† *And on other dates.*

ABSOLUTE EXTREMES

FOR THE LAST 68 YEARS—*Continued.*

Rainfall, in inches.

Greatest Rainfall in one day	1866	(Nov. 16) ..	3·700
Greatest ,, ,, month	1870	(Oct.)	13·437
Least ,, ,, ,, ...	1859	(May)	0·249
Greatest ,, ,, year	1866	.....	62·093
Least ,, ,, ,, ...	1887	.....	31·250
Days on which ·005 in. or more Rain fell:			
Greatest No. in one month	1890	(Jan.)	30
Least ,, ,, ...	1852	(Mar.)	3
Greatest ,, year	1872	.....	281
Least ,, ,, ...	1855	.....	135

* *Wind.*

Greatest hourly velocity, in miles	1894	(Dec. 22)...	72
Greatest No. of miles registered in a month	1888	(Nov.)	12813
Least ,, ,, ...	1888	(Sep.) ...	3261
Greatest Mean No. ,, ,, ...	March	.....	8564
Least ,, ,, ,, ...	September	.....	6062
Greatest No. ,, ,, year .	1868	.....	102395
Least ,, ,, ,, ,, ...	1915	.....	70623

* *Record dates from 1867 only.*

DATES OF OCCASIONAL PHENOMENA.

1915	Frost	Hoar Frost	Snow	Hail	Heavy Rain
January	1-13, 16-19, 21-31	25	3, 15, 27	2, 3, 5, 11-13, 15, 21, 27, 29	7, 8, 9, 12, 15, 20
February	1-3, 7-28		8, 13, 16, 21, 26	8, 13, 21, 27, 28	1, 2, 7
March	1-3, 5, 7-10, 12, 17-22, 24-31	16, 17	1, 18, 19, 26-29	1, 18, 28, 31	2, 5
April	1, 2, 5, 6, 8-11, 13, 14, 21-24, 26-30			7, 21	3
May	3, 4, 7, 10, 11, 13-16, 19, 28, 30, 31		12	12	11
June	1, 2, 18, 19, 20				
July					6
August				12, 15	7, 16, 31
September	3, 28, 29				
October	1, 26, 27, 30	30			
November	2-6, 11, 14-30	3, 22, 27	12, 15	9, 12	8
December	3, 8-10, 12-14, 17-20, 22, 28, 29	19	9, 11	9	4, 5, 9, 20, 24

1915	Gales of Wind	Fog	Thunder	Lightning	*Lunar Halo	*Solar Halo	Aurora Borealis
January	1					12	
February					25	11, 20, 21	
March		16, 17					
April			7, 8	7		21	
May			6	6, 7			
June			4, 11, 12, 27, 30	27, 30		2, 6, 9	
July			3, 4, 22, 26, 27-28	26		18	
August			1, 2, 3, 10-15	1, 10, 11, 12-15			
September			1	2	23	21	
October		29	28			7, 21	
November		2, 3, 22				11, 28	5
December	27, 31	20, 22					

*22° *Radius.*

MONTHLY TOTALS FOR EACH HOUR OF RECORDED SUNSHINE.

1915. Local apparent time	4–5	5–6	6–7	7–8	8–9	9–10	10–11	11–12	12–1	1–2	2–3	3–4	4–5	5–6	6–7	7–8	8–9
January ...	...	...	...	...	0·5	2·4	5·2	6·6	6·7	5·2	3·2	0·2	...	...	...	...	...
February ...	...	...	...	0.8	4·8	7·7	8·7	10·2	8·4	8·9	7·3	4·6	1·6	...	...	...	...
March ...	...	...	0.8	3·6	7·6	10·3	12·0	12·8	11·1	9·4	9·4	10·6	7·0	2·2	...	...	...
April ...	...	2·8	6·5	9·9	10·4	10·9	12·8	15·9	13·4	14·6	14·9	13·2	13·0	9·5	4·0	0.1	...
May ...	1·6	9·6	14·5	15·0	18·0	18·6	16·9	17·5	17·3	18·0	17·2	17·3	17·0	16·3	13·5	5·3	...
June ...	1·6	6·4	12·4	14·2	15·3	14·9	12·9	12·5	11·1	12·2	14·8	14·9	16·8	15·5	13·8	6·3	...
July ...	0.1	2·1	5·6	7·7	8·3	9·5	8·6	8·3	9·8	11·6	12·2	12·3	14·5	14·7	9·9	4·9	...
August ...	...	0·1	3·0	5·8	9·1	11·4	9·6	9·2	9·5	8·9	9·4	10·8	10·4	10·3	6·0	0·9	...
September ..	...	...	2·5	10·6	12·4	14·8	13·6	17·0	18·1	16·2	16·9	17·3	14·0	3·5	...	...	...
October ...	...	...	...	0·5	3·0	5·9	9·7	8·8	7·4	7·4	6·8	4·3	1·4	...	...	...	...
November...	...	...	...	0·3	2·1	9·2	14·0	16·1	16·7	14·1	9·6	4·3	0·2	...	...	...	...
December ...	...	...	...	...	...	1·2	4·3	6·4	6·6	4·6	1·5	0.1	...	...	...	...	...
Sums ...	3·3	21·0	45·3	68·4	91·5	116·8	128·3	141·3	136·1	131·1	123·2	109·9	95·9	72·0	47·2	17·5	...

TOTAL AMOUNT OF SUNSHINE RECORDED ON EACH DAY.

1915	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
January ...	...	3·1	...	...	0·1	...	...	1·7	1·0	1·6	0·5	0·2	...	0·1	...	...	6·0
February ...	0·1	...	...	...	1·9	1·3	...	3·5	4·0	4·3	2·4	...	...	...	6·6	2·4	1·2
March ...	4·3	1·8	...	...	...	1·4	2·5	1·8	4·0	...	0·7	4·4	...	...	6·1	2·0	1·6
April ...	3·5	0·7	...	6·5	6·8	...	6·7	2·2	7·4	8·0	...	1·1	7·9	6·7	0·1	2·2	5·3
May ...	...	10·6	11·1	0·3	3·0	9·3	10·1	4·7	4·6	12·3	0·8	...	1·4	12·7	13·4	3·5	0·9
June ...	6·8	6·1	1·2	7·0	4·8	4·5	7·1	5·2	8·2	0·1	7·8	9·5	9·0	13·9	14·6	3·8	11·8
July ...	2·1	...	1·2	...	10·4	3·6	...	3·7	8·5	1·7	1·1	4·6	4·8	8·6	5·0	...	5·7
August ...	0·6	0·9	2·4	3·0	1·0	3·0	...	...	0·1	2·9	2·0	4·9	10·4	2·8	5·4	...	1·4
September ..	6·3	5·5	3·7	10·0	1·6	5·1	7·5	9·1	9·9	10·2	8·0	10·6	2·2	0·8	2·5	7·1	3·2
October ...	5·9	...	...	5·4	7·6	1·6	...	1·2	0·9	0·7	0·1	0·2	4·4	2·1	6·3	1·3	2·7
November...	2·1	7·3	5·7	5·8	4·0	2·0	0·6	...	3·0	4·0	4·7	...	5.4	5·0	...	6·9	3·2
December ...	...	3·3	...	...	...	0·2	0·2	3·3	...	0·3	...	2·5	2·6	...	...	0·1	...

TOTAL AMOUNT OF SUNSHINE RECORDED ON EACH DAY—*(continued).*

1915	18	19	20	21	22	23	24	25	26	27	28	29	30	31	MONTHLY Total	MONTHLY Percen.
January ...	3·0	...	...	2·7	3·8	0·3	...	0·4	2·1	0·7	...	2·7	...	...	30·0	12·1
February ...	0·1	0·6	6·2	3·4	2·9	5·7	9·0	4·7	...	2·3	0·4				63·0	23·2
March ...	...	9·7	1·4	7·7	6·8	0·1	3·0	5·3	2·4	10·3	4·8	4·7	5·6	4·4	96·8	26·4
April ...	6·6	...	6·8	3·5	2·3	8·1	...	4·4	10·4	12·0	13·7	13·0	6·0		151·9	36·3
May ...	13·1	5·5	5·6	5·6	8·1	14·8	14·9	14·5	11·4	14·7	6·6	0·1	11·6	8·4	233·6	47·4
June ...	15·2	10·8	12·3	13·1	6·6	...	1·0	5·0	0·8	4·5	3·5	0·8	0·6		195·6	38·5
July ...	7·3	...	1·0	2·0	3·2	6·9	8·6	12·0	5·9	5·1	8·7	7·8	8·0	2.6	140·1	27·5
August ...	11·9	5·5	3·1	5·6	1·0	8·9	6·3	5·3	7·5	4·1	...	4·4	6·5	3.5	114·4	25·0
September ..	0·6	...	9·9	5·7	1·3	...	2·3	2·2	4·7	3·1	8·4	8·7	6·7		156·9	41·4
October ...	2·3	...	0·2	0·6	...	...	...	3·5	0·1	0·4	0·2	2·7	4·8	...	55·2	16·9
November...	3·6	3·3	3·8	3·0	...	2·9	...	2·0	6·1	1·2	...	...	1·0		86·6	33·8
December ..	3·7	0·4	...	...	...	0·2	...	3·5	0·1	0·3	2·6	...	0.1	1.3	24·7	10·7

SUMMARY OF SUNSHINE.

	Bright Sunshine Recorded					
	1915			Mean for the last 35 years		
	Number of		Percentage of Possible Sunshine	Number of		Percentage of Possible Sunshine
	Days	Hours		Days	Hours	
January ...	17	30·0	12·1	13·9	32·8	13·2
February ...	20	63·0	23·2	17·8	59·1	21·6
March ...	24	96·8	26·4	24·2	104·7	28·6
April ...	25	151·9	36·3	26·3	150·1	35·8
May ...	29	233·6	47·4	27·5	186·7	37·9
June ...	29	195·6	38·5	27·9	185·4	36·5
July ...	26	140·1	27·5	28·4	175·2	34·4
August ...	27	114·4	25·0	27·5	151·0	33·0
September ..	28	156·9	41·4	25·8	126·3	33·3
October ...	23	55·2	16·9	23·3	84·1	25·8
November ..	23	86·6	33·8	17·6	47·0	18·4
December ...	17	24·7	10·7	13·1	25·0	10·8
Year ...	288	1348·8	30·2	273·3	1327·5	29·7

SUMMARY OF SUNSHINE—*Continued.*

EXTREMES FOR THE LAST 35 YEARS.

Month	Number of Days on which Sunshine was recorded		Number of Hours on which Sunshine was recorded		Percentage of Possible Sunshine	
	Greatest	Least	Greatest	Least	Greatest	Least
Jan.	21 1881	8 1898	64·2 1881	12·3 1913	25·9 1881	5·0 1913
Feb.	24 1895	11 1882	89·3 1887	29·6 1882	32·8 1887	10·9 1882
Mar.	28 *1894	17 1904	168·6 1907	56·8 1912	46·1 1907	15·5 1912
Aprl.	30 1909	22 1905	223·7 1893	94·0 1913	53·4 1893	22·3 1913
May	30 *1880	22 1886	266·6 1881	79·7 1906	54·1 1881	16·2 1906
June	30 *1896	24 *1888	272·5 1887	85·2 1912	53·6 1887	16·8 1912
July	31 *1882	25 1888	263·4 1911	98·0 1888	51·7 1911	19·3 1888
Aug.	31 *1886	23 1894	235·2 1899	74·1 1912	51·5 1899	16·2 1912
Sept.	30 1914	21 1897	176·5 1914	62·9 1896	46·6 1914	16·6 1896
Oct.	28 1891	17 1889	134·9 1899	50·0 1889	41·4 1899	15·3 1889
Nov.	23 *1883	9 1897	86·6 1915	18·5 1891	33·8 1915	7·2 1891
Dec.	18 *1886	6 1882	60·1 1886	7·4 1912	26·0 1886	3·2 1912
Year	300 1905	251 1903	1613·7 1887	927·6 1912	36·1 1887	20·7 1912

*And in other years.

HORIZONTAL MAGNETIC DIRECTION.

Horizontal Magnetic Direction, West of North (from daily measures of the continuous curves).

1915	MEANS OF †				Mean for the month	Mean daily range ‡	Highest reading of the month	Lowest reading of the month	Monthly range
	Highest readings	Lowest readings	4 p.m. readings	4 a.m. readings*					
	16° +						16° +	16° +	
	′	′	′	′	′	′	′	′	′
January ...	43·3	40·0	41·7	41·2	41·6	7·1	50·0	29·0	21·0
February ...	44·0	39·2	41·7	40·4	41·4	9·3	52·0	27·0	25·0
March	44·7	37·1	41·9	38·7	40·6	11·4	48·0	21·0	27·0
April	44·3	35·5	41·5	37·8	39·7	12·4	49·0	21·0	28·0
May	42·4	33·8	39·4	36·6	38·1	11·1	45·0	18·0	27·0
June	41·1	31·6	39·3	34·4	36·6	16·1	76·0	—15·0	91·0
July	41·9	31·1	39·4	34·1	36·6	12·5	45·0	24·0	21·0
August ...	41·5	31·7	38·0	33·8	36·3	12·9	44·0	15·0	29·0
September ...	41·3	32·3	37·0	34·2	36·2	12·5	46·0	21·0	25·0
October ...	40·1	32·9	37·0	34·8	36·2	14·5	52·0	5·0	47·0
November ...	39·1	34·7	37·1	35·5	36·6	13·1	55·0	7·0	48·0
December ...	38·2	34·5	36·3	35·2	36·1	7·7	53·0	5·0	48·0
Means	41·8	34·5	39·2	36·4	38·0	11·7	51·3	14·8	36·5

Mean for the year ... ... 16° 38·0 W.

† *For the 10 quietest days.* * *Of the following day.* ‡ *Includes all days.*

HORIZONTAL MAGNETIC FORCE.

Horizontal Magnetic Force in C. G. S. Units (from daily measures of the continuous curves).

The figures in the columns are entered to the unit 10^{-5} C.G.S.

1915	MEANS OF † Highest readings	Lowest readings	4 p.m. readings	4 a.m. readings*	Mean for the month	Mean daily range ‡	Highest reading of the month	Lowest reading of the month	Monthly range
	1700 +				0 +		17000 +		0 +
January ...	377	358	373	370	369	38	423	299	124
February ...	375	353	364	366	364	40	405	313	92
March ...	368	330	357	355	353	60	418	282	136
April	364	324	356	350	349	71	458	273	185
May	362	317	352	340	342	71	418	275	143
June	346	303	337	330	329	83	468	...	...
July	369	319	358	348	348	63	398	283	115
August ...	360	314	347	341	341	61	393	265	128
September ...	341	301	334	329	326	58	411	242	169
October ...	341	310	323	334	327	61	384	218	166
November ...	339	314	324	331	327	57	393	171	222
December ...	341	325	334	334	334	35	375	219	156
Means	357	322	347	344	342	58	412	258	154

Mean for the year ... ... 0·17342 C. G. S. Units.

† *For the* 10 *quietest days.* **Of the following days.* ‡ *Includes all days.*

ABSOLUTE MEASURES—SUMMARY.

DIRECTION				FORCE.		
1915	Declination Corrected		Inclination		Horizontal	Vertical	Total
	°	′	°	′	C. G. S. UNITS.		
January ...	16	41·8	68	40·8	0·17358	0·44476	0·47744
February ...	16	41·8	68	39·8	0·17365	0·44454	0·47726
March ...	16	41·6	68	42·4	0·17349	0·44513	0·47774
April	16	39·2	68	43·6	0·17344	0·44547	0·47804
May	16	38·2	68	38·8	0·17338	0·44348	0·47617
June	16	37·4	68	40·0	0·17352	0·44430	0·47698
July	16	36·4	68	44·0	0·17330	0·44526	0·47780
August ...	16	37·1	68	39·5	0·17322	0·44334	0·47598
September ...	16	34·7	68	41·4	0·17346	0·44468	0·47731
October ...	16	35·6	68	42·2	0·17329	0·44454	0·47713
November ...	16	32·3	68	42·1	0·17352	0·44510	0·47772
December ...	16	31·2	68	41·6	0·17324	0·44420	0·47679
Means ...	16	37·3	68	41·4	0·17342	0·44457	0·47720

DATES OF MAGNETIC DISTURBANCES.

The disturbances are divided generally into three classes, *small*, *moderate*, and *greater*; these are indicated by the initial letters of the classes, and the letter c denotes *calm*. Very great disturbances are marked vg. The days are reckoned astronomically from noon to noon.

1915	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1915
D.													D.
1	s	s	c	s	m	c	m	m	c	s	g	c	1
2	c	s	c	s	m	c	m	m	c	c	s	s	2
3	s	s	c	s	s	c	c	m	c	s	s	c	3
4	m	s	s	s	s	c	c	s	c	s	c	c	4
5	m	c	c	s	s	c	s	c	s	c	g	c	5
6	s	s	s	s	c	c	s	m	s	c	m	g	6
7	s	c	m	m	c	s	s	s	c	s	s	c	7
8	s	m	m	s	c	s	s	s	c	s	s	c	8
9	s	s	s	c	s	c	m	s	s	c	s	c	9
10	c	s	s	c	s	c	m	c	s	s	s	s	10
11	c	s	c	s	s	m	m	c	s	s	s	s	11
12	m	s	s	s	*	s	s	c	s	c	s	c	12
13	m	s	c	s	s	s	s	c	s	c	c	c	13
14	s	c	c	s	s	m	s	c	s	m	c	s	14
15	c	s	c	m	s	c	c	c	c	g	m	m	15
16	c	c	s	m	s	v.g.	c	s	s	s	m	s	16
17	c	s	c	m	s	v.g.	c	s	s	s	m	s	17
18	c	s	s	m	s	c	c	s	c	s	m	c	18
19	c	m	s	m	s	s	c	s	c	m	s	c	19
20	s	s	m	s	s	s	c	s	c	m	s	c	20
21	c	s	m	m	s	m	s	s	s	c	s	c	21
22	c	s	m	m	s	s	s	s	m	m	s	c	22
23	c	m	s	s	s	c	s	c	m	g	c	c	23
24	m	m	s	s	s	s	s	c	s	m	c	s	24
25	m	s	s	m	s	s	s	g	m	m	s	s	25
26	s	s	s	m	s	s	s	m	m	s	c	s	26
27	s	s	c	s	m	c	m	m	s	s	s	s	27
28	s	s	c	*	c	s	c	s	m	s	c	c	28
29	s		s	c	c	s	s	m	s	c	c	c	29
30	s		s	s	s	c	s	s	s	s	c	s	30
31	c		c		s		c	s		s		s	31
TOTAL c	12	4	12	3	5	13	10	9	10	8	9	17	
TOTAL s	13	20	14	16	22	12	15	14	15	15	14	12	
TOTAL m	6	4	5	10	3	3	6	7	5	6	5	1	
TOTAL g	...	...	...	...	...	...	...	1	...	2	2	1	
TOTAL vg	...	...	...	...	...	2	...	...	...	...	...	...	

* *No record.*

DATES OF SOLAR OBSERVATIONS, AND DISC AREAS OF SPOTS AS MEASURED FROM THE DRAWINGS.

The unit is $\frac{1}{5000}$th of the visible surface.
The letter "f" to a date means a record of faculæ but no spot.
Dots mean an absolutely clean disc.

1915	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1915
D.													D.
1			5·1	9·2		2·5	3·7		9·4	5·5	2·4	1·5	1
2	1·2				8·4	2·6		12·0	9·2		2·9	1·2	2
3					6·6	1·2	1·1	17·0	8·4		2·4		3
4				19·2		0·3			8·2	1·0	1·8		4
5				17·8	7·6	0·2	2·0		6·0	0·9	1·7		5
6					5·4	0·2	4·0	9·4	5·2	1·1	1·3	1·8	6
7			4·0	16·0	4·0	0·5				0·8	2·2	0·7	7
8	3·6	4·2	4·0	17·0	1·7	0·3	9·5		5·8	2·0		0·8	8
9		4·4	3·6	11·2	0·5	0·1	9·3		4·2	3·7	2·3		9
10		7·7		6·1	0·3		10·3	1·0	3·3	3·5	3·0		10
11		6·5	3·1			0·1	14·0	1·0	2·0		3·2		11
12	...		1·6	1·2		0·3	12·2	1·0	1·7	3·4		2·6	12
13				0·3		1·4	9·2	2·4	1·0	4·6	2·5	3·0	13
14				f	f	4·7	8·2	1·7		4·5	2·0		14
15		3·4	2·1		f	5·8	6·4	2·0	f	4·6			15
16	1·0		1·3	f	f	7·6			0·6	4·6	1·6	3·5	16
17	1·0		2·2	f		11·8	5·4	3·2	1·6	5·5	1·4		17
18	0·8			0·2	f	11·5	3·7	5·1		4·8	1·2	4·1	18
19			1·5		f	12·5		6·1			3·7	4·8	19
20		...		0·7	0·7	16·0		8·7	1·2	5·7	4·7		20
21	0·5	0·1	0·7	3·4	1·2	22·0	8·1	6·8	3·6	6·0	5·1		21
22	0·3	0·4	0·3	3·1	2·8	20·0	15·0	6·2	4·3	4·2			22
23		0·8		3·6	3·8		14·0	5·4			5·0	0·3	23
24		1·5	0·5		6.4		11·0	7·1	8·2	2·4	2·6		24
25	0·1		0·7	1·2	5·6	12·4	16·4	6·5	9·4	2·2	2·8	0·8	25
26	f		0·9	2·1	5·2	7·8	13·6	6·8	10·1	2·2	2·2	0·8	26
27			0·7	4·4	7·5	6·7		6·6	10·5	3·2	2·2	1·6	27
28			0·7	4·2	6·6	5·2	8·2		7·0		0·6	2·0	28
29			1·1	6·3		3·2		6·4	7·6	4·8			29
30			5·2	7·1	5·0	4·0	9·7	9·3	5·6	3·1	1·6	4·2	30
31			7·4		3·5		13·0	8·6				7·0	31
Daily Means	0·9	2·9	2·3	5·8	3·5	6·0	9·0	6·1	5·4	3·5	2·5	2·4	

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