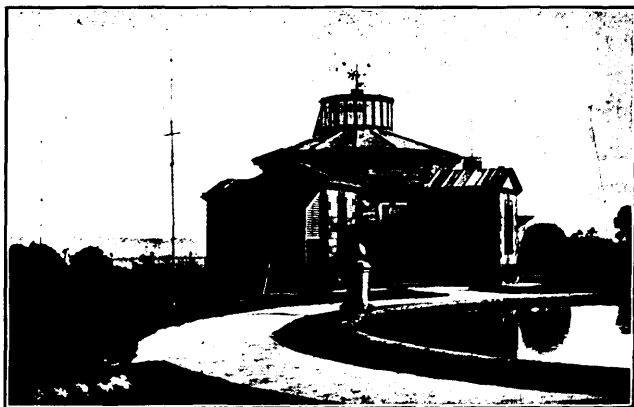


# STONYHURST COLLEGE OBSERVATORY.

Lat.  $53^{\circ} 50' 40''$  N. Long.  $9^{\text{m}} 52^{\text{s}} 68$  W.  
Height of the Barometer above the Sea, 381 feet.



(FOUNDED 1838.)

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## Results of Geophysical and Solar Observations, 1924.

With Report and Notes of the Director,  
Rev. A. L. CORTIE, S.J., D.Sc., F.R.A.S., F.Inst.P., F.R.Met.S.

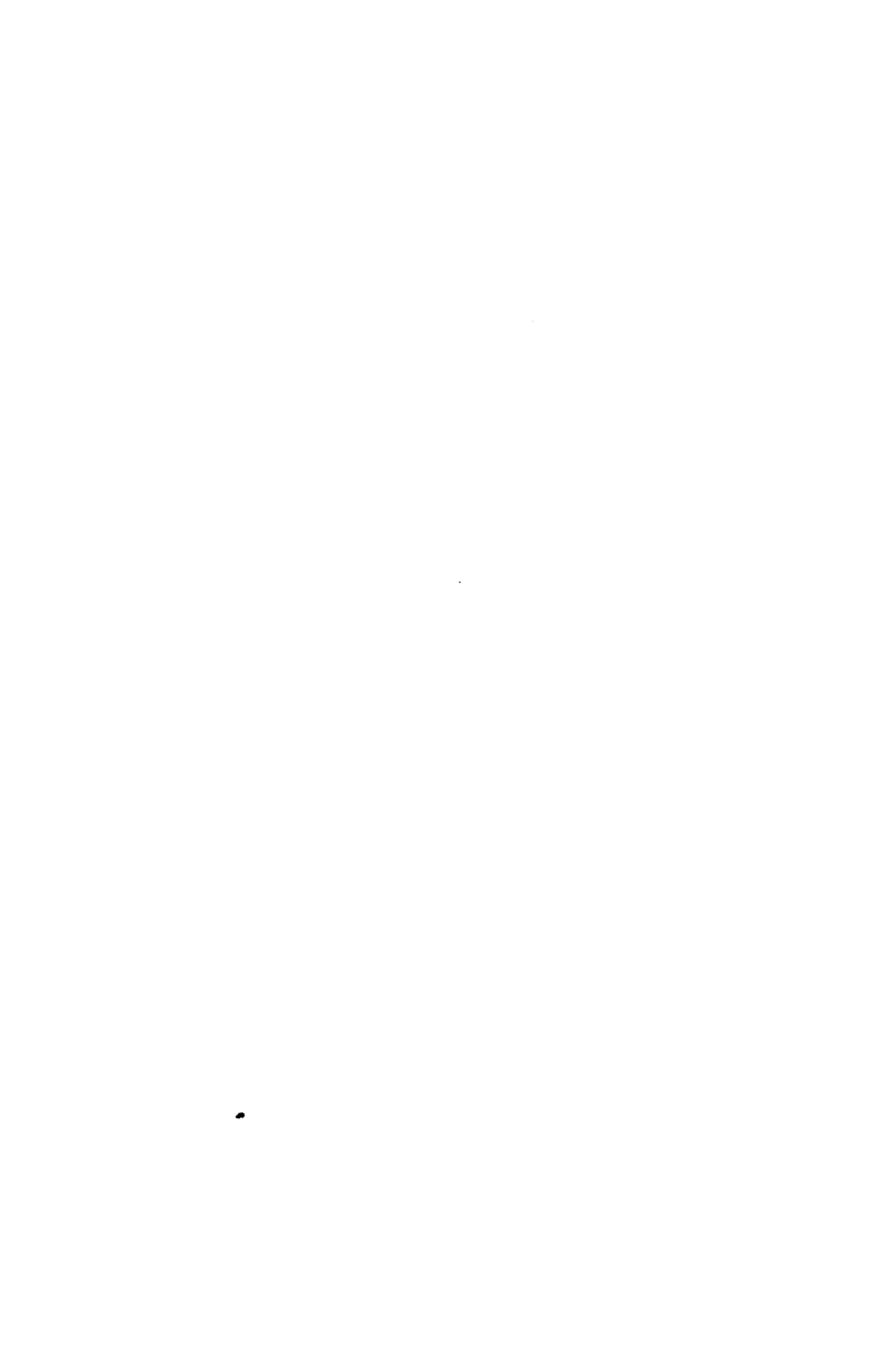
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REPORT AND NOTES.

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**GENERAL.**—In addition to the Director, the staff consists of Father J. P. Rowland, s.J., B.Sc., F.R.A.S., and Father B. G. Swindells, s.J., B.Sc., A.R.C.Sc., F.R.A.S., the greater part of whose time is taken up with teaching physics and mathematics in the College. The Rev. H. Macklin temporarily retires as assistant to pursue his theological studies. Mr. Joseph Burns performs the duties of Meteorological Clerk. The Director attended the meetings of the British Association in Toronto, August 6—13, 1924, and read a paper in Section "A" on "The Relation between Solar Activity and Terrestrial Magnetic Disturbance." He has delivered many public lectures on astronomical subjects during the year. He also acts as President of the Manchester Astronomical Society.

All the instruments, which are under the care of Father Rowland, continue to be in good working order. The dome over the 15-inch equatorial has been repainted. The underground magnetic chamber has also been freed from an inflow of water, by pointing the stonework of the round pond in front of the observatory. Mr. E. T. Whitelow, F.R.A.S., has increased his list of benefactions to the observatory, by the presentation of a 4-inch Wray refractor telescope and a Thorp solar rotator.

As a matter of historical interest it may be well to give the dates at which different classes of routine observations were undertaken at the observatory. They are: Meteorology, 1848; Terrestrial Magnetism, 1865; Solar observations, 1881; Seismology, 1909.

**METEOROLOGICAL.**—The Meteorological continuous records have been uninterrupted during the year. For a description of the instruments and for the values of their constants reference may be made to our Report for 1920, pp. v.—vii. But the standard barometer was restored to its original position, 381 feet above sea-level, on 1921, November 10th.

The dominating character of the weather during the year was its dullness and wetness, and the cool and cloudy summer months. Not only much cloud prevailed, but there was a deficiency in sunshine in each month, except March, October, and November. The rainfall exceeded the average for the last 77 years by 2.4 inches, and precipitation occurred on 202 days. The month of May was very abnormal, with a rainfall of 6.765 inches, on 26 days. The greatest fall of rain in one day was during the harvest month of August, and reached nearly two inches. May, July, and August were the wettest months of the year, and February, March, and April were the driest.

The adopted mean temperature for the year is exactly the normal, 47.0°F. The highest shade temperature was 80.4°, on July 12th, and the lowest 21.1°, on March 3rd. February and March were both absolutely and relatively to their normals, the coldest months; June, July, August and September were the warmest months

absolutely, but June, July and August all had mean temperatures below their normals. Fine day periods, of five days or more, were recorded : March 6—20, 25—31 ; April 1—6, 15—22 ; November 5—10, 12—20 ; that is a total of six periods, with an average duration of 8·5 days. The lack of such fine dry periods between April and November is noticeable. Bright sunshine for 10 hours or more was registered on two days in April, three in May, two in June, three in July, and three in August, a total of 13 days. The days of the year on which the actual duration of sunshine was the greatest were : March 6—14, 17, 18, 20 ; April 2, 6—9, 16 ; May 5, 11, 15, 16 ; June 3, 18, 20, 22, 24 ; July 19 ; August 8, 15, 18, 19 ; September 3, 18, 27. Relatively to the mean percentages of possible duration of sunshine for the last 44 years, March, October and November were the sunniest months, having had sunshine beyond the average. All the rest were deficient.

Gales of wind, 37 miles per hour and over, occurred : two in February, three in September, and four in December. In fact the end of the year was very stormy. The greatest velocity of the wind was on December 27th, which was registered at 47 miles per hour, in the direction S.S.W. The prevailing direction of the wind during the year was from the West quarter.

**MAGNETICAL.**—Absolute measures of Horizontal Magnetic Force have been made once each month by the method of Vibration and Deflection. The constants of the magnetometer needles were described in our 1921 Annual Report (p. vii). The Inclination is also measured, once each month, by two needles, with Dover's Circle, No. 159. The Declination is observed



VIII.

four times each month, at nearly equal intervals, and usually at 16 hours. The Differential Instruments, or Photo-Magnetographs, which have been in practically continuous action since the year 1866, are of the Kew Observatory pattern, except that the radial distances between the centres of the magnets and the surfaces of the respective cylinders are somewhat shorter, being 152·4 Cms. The time-scale is provided by cutting off the light every two hours, by means of an electro-magnet actuated from the Synchronome Clock. Times are controlled by the wireless signals from Paris. The scale values of the instruments are as follows :—

For the Unifilar	...	11·28'	per Cm. of Ordinate.
„ Bifilar	...	·000484	C.G.S. „ „
„ Balance	...	·001420	„ „ „

Four daily readings are measured on the curves, the highest, the lowest, and those at the hours 4 and 16.

The absolute measures of Horizontal Direction and Force are 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 ; and the month means are taken from the readings on the five quietest days of the month.

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

In the Table of Magnetic Disturbances (page 38) the intention 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; *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 (quiet), 1 (moderately disturbed), and 2 (highly disturbed). The character figures are assigned according to the scheme detailed in the *Annuaire* for 1918 of the Royal Dutch Meteorological Institute. From a comparison of these character letters with the figures published for each day from the central international station at De Bilt for the years 1921, 1922, the mean values of the figures corresponding to each letter are c—0·2, s—0·6, m—0·9, g—1·3, and v.g.—1·5. The civil day is used for both the international figures and for our own characteristic letters. The rule followed in assigning these letters to denote the magnetic character of a day is as follows :—

From the measured ranges of D and H in minutes of arc on the five quietest days of a month a mean value is obtained of D and H combined. Similarly for each day of the month a mean value in minutes of arc of the range of D and H combined is set down. The excess of this mean daily range over the mean for the five quietest days gives the magnetic character of the day. The following values of the excess are adopted for the table of magnetic disturbances :—0 to 2 calm, 2 to 7 small, 7 to 15 moderate, 15 to 20 great, above 20 very great.

Further, an inspection of the curves helps to settle the magnetic character of the day in doubtful cases.

The mean daily ranges of the Declination magnet, for the quiet days, 5·5', and for all days, 9·5', were almost identical with those for 1922, with values 5·5' and 9·7' respectively. Similarly for Horizontal Force the mean ranges for quiet and all days were 26 and 43 units, as compared with 24 and 44 units in 1922. The percentage of magnetically quiet days for the year was 48, the figure for 1922 being 45. Also the magnetic character figure for the year was 0·19, the same as in 1922. These numbers all indicate a lag in magnetic general disturbance, although solar activity has greatly increased.

The mean magnetic characters for the various months, derived from numerical values corresponding to the Stonyhurst letters m, g, v.g., point to June as the most magnetically active month. January comes next in order. There is no great difference between March, November, July and September. The quietest month was April, succeeded in order by December and August. The greatest magnetic storms of the year occurred on June 10th, the extreme ranges in D and H being 36' and 288γ, and on January 29—30, with ranges D 46' and H 172γ.

Comparison of Mean Daily Sun-Spot Areas, and Mean Daily Magnetic Character (1) including calms and small disturbances ; (2) excluding calms and small disturbances ; were : (c = 0·2, s = 0·6, m = 0·9, g = 1·3, and v.g. = 1·5 in international notation).

<i>Month.</i>	<i>Sun-Spot Area.</i>	<i>Mean Daily</i>	
		<i>Magnetic Character.</i>	
		(1)	(2)
January.....	0·0	0·57	0·28
February .....	0·6	0·48	0·18
March .....	0·1	0·57	0·25
April .....	1·0	0·03	0·06
May .....	1·2	0·40	0·14
June .....	2·1	0·54	0·29
July .....	2·1	0·60	0·23
August .....	2·1	0·44	0·11
September.....	2·0	0·55	0·23
October .....	2·2	0·42	0·15
November ...	1·6	0·52	0·24
December .....	1·0	0·40	0·09

Sudden commencements of disturbance were noted on February 16, 4 h. 36 m. ; April 6, 8 h. 8 m. ; May 21, 6 h. 0 m. ; June 9, 14 h. 20 m. ; July 9, 5 h. 24 m. ; 20, 16 h. 40 m. ; 26, 8 h. 24 m. ; September 4, 5 h. 53 m. ; October 15, 10 h. 36 m. ; November 6, 21 h. 5 m. ; December 11, 22 h. 54 m., several of these being small disturbances.

#### COMPARISON OF MAGNETOMETERS, KEW AND STONYHURST.

In the year 1915 a comparison was made at Stonyhurst between the I.M.S. (International Magnetic Standard) instruments and the Stonyhurst instruments. The observers were Father E. O'Connor, and for the Carnegie Institution, Washington, Mr. E. Kidson. The results were published in the Land Magnetic Observations, 1914—1920, and Special Reports iv, pp. 457—459 of the Carnegie Institution. They were as follows :—

*Declination.* I.M.S.—Stonyhurst— $0\cdot0'$ .

*Inclination.* I.M.S.—Stonyhurst (Dover Dip Circle No. 159. Needles 1 and 2). =  $-1\cdot4'$ .

*Horizontal Intensity.* I.M.S.—Stonyhurst (Jones Magnetometer) =  $+1\cdot8\gamma = +0\cdot00010$  H.

The report has the following remark: "The magnetometer (Stonyhurst) is one of the oldest of the Kew pattern manufactured by Jones, and observation with it is somewhat difficult." It has been in constant use since the year 1865.

For the recent comparisons the Dover Circle, 159, was sent to Kew, and ten simultaneous observations were made there with the Kew and Stonyhurst instruments, in the week April 14—19, by Dr. Chree and Mr. Watson. The result was:

*Inclination.* Kew Barrow Circle, Stonyhurst Dover Circle 159. Kew—Stonyhurst =  $-1\cdot2' \pm 0\cdot33'$ .

This is in remarkably good agreement with the determination in 1915, when I.M.S.—Kew =  $-0\cdot1'$ . For the comparison of Declination and Horizontal Intensity, Dr. Chree brought the Kew magnetometer to Stonyhurst, and observed with it, July 24—26, in the interval of corresponding series of observations made by Father Rowland, July 17th to August 1st. The result was:

*Declination.* Kew—Stonyhurst =  $+0\cdot4'$ .

With regard to Horizontal Force, a new collimator magnet had been obtained in March, 1919, replacing the magnet which had been used in the comparisons in 1915, and which had accidentally been broken. Its moment of inertia had been determined at Kew by an indirect method, as the inertia bar supplied by the makers had been rejected at the National Physical Laboratory, on account of want of homogeneity. Since Dr. Chree's visit to Stonyhurst, on account of the large discrepancy in the value of the Horizontal Force which was the result of the observations, its moment of inertia was redetermined at Kew in November by means of one of the inertia bars of that observatory. A better value of the distribution constant  $P$  has also been found, from a longer series of observations, a temperature correction has been found necessary for the thermometer used in the vibration experiments, and the more recent value of the metre expressed in inches has also been employed. These factors have reduced the original large discrepancy, emerging from the observations, by 34 units. At present (March, 1925), as a provisional value, in view of further experiments that are still to be made, the result stands : *Horizontal Intensity* Kew—Stonyhurst =  $-0.00024 H$ .

ASTRONOMICAL TIME SERVICE.—The time service of the Observatory is under the charge of Father Rowland. His report is as follows :—

The radio time signals from the Eiffel Tower have been taken regularly throughout the year and the errors and rates of the sidereal and mean time clocks and chronometers determined from them. Time marks are made by the Synchronome Clock every minute on the Milne-Shaw Seismograph, and every two hours on the

Magnetographs. During the first half of the year some uncertainty was occasionally introduced into the timing on the Seismograph owing to irregularities in the operation of the seconds switch in this clock, but on the defect being notified to the makers they very courteously supplied a complete new movement, which was installed in August, since when the operation has been perfectly reliable. In November the Frodsham Chronometer, which had been giving indications of irregularity owing to wear, was returned to the makers for repairs, and after a thorough overhaul is again in quite satisfactory condition.

The measurements of the areas and of the positions of the spots on the drawings were made for the first half of the year by the Rev. H. Macklin, and subsequently by Father Swindells. The results are exhibited in the Tables on pp. 39 *et seq.* Father Swindells reports as follows :—

“ Observations of the solar surface were made on 262 days, and include 257 drawings. Of these drawings, 224 are complete, and show all spots and faculæ ; of the remaining 33, 32 are complete for the spots, but not for the faculæ, one is complete for the main groups of spots only.

The mean daily disc-area of the spots (in units of 1/5000th of the visible surface) stands at 1·36. A comparison of the mean disc-area of the spots, with the mean daily range of magnetic Declination in minutes of arc, and of Horizontal Force in units  $10^{-5}$  C.G.S., is set forth as follows :—

Year ... ..	1919	1920	1921	1922	1923	1924
Spot-Area ... ..	8.40	4.05	3.14	1.73	0.37	1.36
Declination Range	12.7	11.2	11.4	13.5	9.7	9.5
Horizontal Force Range ... ..	66	57	54	60	44	43

The distribution of the spots in latitude is shown in the following table :—

**JANUARY—MARCH.**

In positive latitude, 3 groups with an area of 4.0 units  
In negative latitude, none.

**APRIL—JUNE.**

In positive latitude, 16 groups with an area of 18.8 units  
In negative latitude, 6 groups with an area of 11.7 units.

**JULY—SEPTEMBER.**

In positive latitude, 26 groups with an area of 32.5 units  
In negative latitude, 5 groups with an area of 2.1 units

**OCTOBER—DECEMBER.**

In positive latitude, 15 groups with an area of 17.9 units  
In negative latitude, 4 groups with an area of 6.4 units

In the whole year there were in N. latitude 60 spot-groups with an area of 73.2 units; and in S. latitude 15 spot-groups with an area of 20.2 units.

Although there were only two spot-groups with areas greater than 10 units (*viz.* Nos. 208 and 232 of 10.1 and 11.6 units respectively), yet the sun-spot activity has shown a marked increase on last year. There were 80 spotless days in 1924, mainly in the months of January to April and in November, as against



122 in 1923 and 93 in 1922. The relative proportions of spotless days to all days of observation in these years were 30·4 per cent. for 1924, 49·6 per cent. for 1923, and 36·3 per cent. for 1922. The period of minimum activity seems now to have been definitely passed, and the new cycle to have begun."

The research, on the 27-day period (interval) in terrestrial magnetic disturbances, and their relations with definite long-disturbed areas of intermittent sun-spot activity, was completed, and the results were published in the *Proceedings Royal Society*. A 106, 19-32. The abnormal cloudy weather has considerably hampered all spectroscopic work. With the large grating spectrograph several photographs of portions of the solar spectrum have been taken. And several stellar spectra have been secured both with the Hilger direct vision spectroscope attached to the 15-inch equatorial, and with the 4-in. Thorp prismatic camera. Also a study of the red-end spectrum of Gamma Cassiopeiæ, with a table of wave-lengths, was completed, and was presented to the Royal Astronomical Society. (*Monthly Notices*, 84, 576-582). A note, too, on the spectroscopic parallaxes of stars, is ready for press.

SEISMOLOGICAL.—Father Rowland reports:—The Milne-Shaw Seismograph has been in service throughout the year, but for a considerable period trouble was experienced from irregularities in the running of the motor-clock, from causes which for a long time evaded detection. It was finally got right in July, since when it has given no further trouble. A few records were not measurable from this cause, and some others were lost

from light failure, whilst the timing of a few others was rendered uncertain by the defect in the Synchronome clock referred to above.

The most serious trouble which has been experienced with this instrument has been due to instability of the site causing notable changes of level with consequent irregular drifting of the light spot, and entanglement of the lines on the record. This instability was thought to be at least in part due to leakage from the round pond in front of the observatory causing the ground to become waterlogged. Accordingly in September the pond was emptied and the enclosing wall cement pointed. The pond was again filled towards the end of October, and since that time there has been a marked improvement in the stability of the instrument. There is still a slight amount of tilting, but on no occasion have the lines of the record crossed each other, or even approached to a degree to cause inconvenience in reading. As, however, tilting is usually worse in the summer months, it is premature to say that the trouble is quite ended.

The instrumental constants throughout the year have been: Magnification, 150; Boom Period, 12 sec.; Damping, 20 : 1; Sensitivity to tilt 26·2 m.m. to 1 sec. of arc.

The old Milne instrument was kept in service for about half the year, but as its motor-clock was continually giving trouble, owing to wear, and its records are now of comparatively little value, it has been put out of service for the present. It may be found possible after suitable modifications to make use of it solely as a recorder of changes of ground level.

XVIII.

The number of earthquakes recorded during the year was 106, distributed as follows :—

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
3	5	15	18	7*	2	15	12	8	10	5	6*	106

\* Incomplete Record.

The greatest of these was on April 4th, of which the origin has been located near the Marianne Isles, east of the Philippines, and about 8,000 miles distant from Stonyhurst. The maximum displacement of the light spot from the mean position on the Milne-Shaw Seismograph was on this occasion about  $1\frac{1}{2}$  inches, indicating an amplitude of ground oscillation here of about 0.75 mm.

Other notable earthquakes of distant origin were on Jan. 14 (Japan); March 4; June 26 (South Pacific); July 3, 11 (both Tibet), 12, 24; Aug. 14, 30; and Sept. 13. Small British earthquakes were recorded on April 4 (Nottingham); Oct. 24 (Birmingham); and Dec. 26, when a slight local shock was felt at Blackburn, Accrington, and other places in the vicinity.

The following papers have been published during the year :—

1. Sun-Spot Areas and Terrestrial Magnetic Horizontal Ranges and Disturbances, 1923. *The Observatory*, 47, No. 598, 86.

2. The Magnetic Disturbance, 1924, January 29—30. *Monthly Notices R.A.S.* 84, 531.

3. The 27-day Period (Interval) in Terrestrial Magnetic Disturbances. *Proceedings R.S.* A. 106, 19-32.

4. The Spectrum of Gamma Cassiopeiæ,  $H\beta$  to B. *Monthly Notices, R.A.S.* 84, 576.

5. Einstein and Gravitation. The Astronomical Tests. *Journal Manchester Astronomical Society.* 7, 45-55.

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Our grateful thanks are tendered to the Governments, Institutions, Observatories, and individuals who have kindly contributed presentations to the Library during the year.



# METEOROLOGICAL REPORT.

## JANUARY, 1924.

Results of Observations taken during the Month.		Mean for the last 77 years.						
Mean Reading of the Barometer .....	inches 29·465	29·484						
Highest " " on the 27th ...	" 30·110	30·125						
Lowest " " on the 10th ...	" 28·778	28·586						
Range of Barometer Readings .....	" 1·332	1·539						
Highest Reading of a Max. Therm. on the 13th...	49·3	51·3						
Lowest Reading of a Min Therm. on the 10th...	24·0	21·6						
Range of Thermometer Readings .....	25·3	29·7						
Mean of Highest Daily Readings .....	43·1	42·5						
Mean of Lowest Daily Readings .....	35·0	33·2						
Mean Daily Range .....	8·1	9·3						
Deduced Mean Temp. (from mean of Max. and Min.)	38·9	37·6						
Mean Temperature from Dry Bulb .....	39·9	37·9						
Adopted Mean Temperature .....	39·4	37·8						
Mean Temperature of Evaporation .....	38·4	36·5						
Mean Temperature of Dew Point .....	37·1	34·4						
Mean elastic force of Vapour .....	inches 0·222	0·201						
Mean weight of Vapour in a cub. ft. of air, grains	2·6	2·4						
Mean additional weight required for saturation ..	0·4	0·4						
Mean degree of Humidity (saturation 100) .....	92	87·4						
Mean weight of a cubic foot of air .....	grains 547·0	549·3						
Mean amount of Cloud (0—10) .....	8·7	7·8						
Fall of Rain .....	inches 3·848	4·316						
Greatest Rainfall in one day (21st) .....	inches 0·750	0·825						
No. of days on which ·005 in. or more Rain fell...	24	19·5						
Wind:—Direction.....	N	NE	E	SE	S	SW	W	NW
No. of days.....	1	1	5	2	9	5	7	1
Mean Velocity in miles per hr	2·2	8·5	10·3	6·0	9·4	11·3	13·6	12·4
Total No. of miles.....	52	203	1535	290	2023	1354	1335	299
Total No. of miles registered .....	7091						Mean* 8266·3	
Greatest hourly velocity (on the 11th, at 10 p.m., Dir. S. by E.) .....	35						41·0	

\* For the last 57 years.

## JANUARY, 1924.

### DIFFERENCES.

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

Mean barometric pressure	...	...	...	—	0·019 in.
Monthly range	„	...	...	—	0·207 in.
Mean of highest daily temperatures	...	...	...	+	0·6°
Mean of lowest	„	„	...	+	1·8°
Mean daily range	...	...	...	—	1·2°
Adopted mean temperature	...	...	...	+	1·6°
Total rainfall	...	...	...	—	0·468 in.

Ground Frost on the 4th—12th, 15th, 17th—19th, 21st, and 24th—26th. Hoar Frost on the 4th. Snow on the 8th, 9th, 10th and 17th. Heavy Rain on the 21st. Fog on the 1st, 2nd, 20th, 23rd, 29th and 30th. Lunar Halo on the 15th.

### EXTREME READINGS FOR JANUARY.

During 77 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	...	...	...	1916	.....	44·7°
Lowest	„	„	...	1881	.....	29·2°
Greatest fall of rain	...	...	...	1921	.....	8·589 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, 1924.

Results of Observations taken during the Month.		Mean for the last 77 years.
Mean Reading of the Barometer .....	inches 29·620	29·492
Highest „ „ on the 16th ...	„ 30·182	30·099
Lowest „ „ on the 9th ...	„ 28·640	28·651
Range of Barometer Readings .....	„ 1·542	1·448
Highest Reading of a Max. Therm. on the 4th.....	46·7	51·9
Lowest Reading of a Min. Therm. on the 27th.....	23·0	22·5
Range of Thermometer Readings .....	23·7	29·4
Mean of Highest Daily Readings .....	41·8	43·9
Mean of Lowest Daily Readings .....	33·4	33·6
Mean Daily Range .....	8·4	10·3
Deduced Mean Temp. (from mean of Max. and Min.)	37·2	38·2
Mean Temperature from Dry Bulb .....	37·8	38·5
Adopted Mean Temperature .....	37·5	38·4
Mean Temperature of Evaporation .....	36·0	36·8
Mean Temperature of Dew Point .....	34·0	34·6
Mean elastic force of Vapour .....	inches 0·195	0·196
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 552·1	548·6
Mean amount of Cloud (0—10) .....	8·1	7·5
Fall of Rain .....	inches 1·405	3·511
Greatest Rainfall in one day (17th) .....	„ 0·352	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.....	6	1	7	1	0	0	9	5
Mean Velocity in miles per hr.	9·3	2·5	9·1	14·1	0	0	14·6	9·7
Total No. of miles.....	1340	59	1536	338	0	0	3143	1164

Total No. of miles registered .....	7580	Mean*
Greatest hourly velocity (on the 29th, at 3 p.m., Dir. N.W. by W.).....	39	7503·4
		41·1

\* For the last 57 years.

## FEBRUARY, 1924.

### DIFFERENCES.

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

Mean barometric pressure	...	...	...	...	+	0·128 in.
Monthly range	„	...	...	...	+	0·094 in.
Mean of highest daily temperatures	...	...	...	...	—	2·1°
Mean of lowest	„	„	...	...	—	0·2°
Mean daily range	...	...	...	...	—	1·9°
Adopted mean temperature	...	...	...	...	—	0·9°
Total rainfall	...	...	...	...	—	2·106 in.

Ground Frost on the 1st, 10th, 12th—17th, 19th, 20th, 22nd, 23rd, and 25th—29th. Hoar Frost on the 1st and 16th. Snow on the 11th, 15th, 24th, 25th, 26th, 27th and 29th. Gales of Wind on the 5th and 29th. Lunar Halo on the 16th and 22nd. Solar Halo on the 10th.

### EXTREME READINGS FOR FEBRUARY,

During 77 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	„	„	„	.....	.....	4
*Greatest hourly velocity of wind	..	.....	.....	1903 (27th)	.....	60 mls.
*Greatest No. of miles registered	...	.....	.....	1868	.....	12577
*Least	„	„	„	.....	.....	3160

\* Since 1867 only.



## MARCH, 1924.

Results of Observations taken during the Month.		Mean for the last 77 years.						
Mean Reading of the Barometer .....	inches 29·447	29·448						
Highest " " on the 7th ... ..	29·987	30·043						
Lowest " " on the 2nd ... ..	28·630	28·641						
Range of Barometer Readings .....	1·357	1·402						
Highest Reading of a Max. Therm. on the 12th...	55·0	56·8						
Lowest Reading of a Min. Therm. on the 3rd.....	21·1	23·3						
Range of Thermometer Readings .....	33·9	33·5						
Mean of Highest Daily Readings .....	44·6	46·9						
Mean of Lowest Daily Readings .....	31·3	34·4						
Mean Daily Range .....	13·3	12·5						
Deduced Mean Temp. (from mean of Max. and Min.)	37·0	39·7						
Mean Temperature from Dry Bulb .....	37·9	40·3						
Adopted Mean Temperature .....	37·5	40·0						
Mean Temperature of Evaporation .....	35·1	38·2						
Mean Temperature of Dew Point .....	31·8	35·7						
Mean elastic force of Vapour .....	0·179	0·210						
Mean weight of Vapour in a cub. ft. of air, grains	2·1	2·4						
Mean additional weight required for saturation ..	0·5	0·5						
Mean degree of Humidity (saturation 100) .....	80	85						
Mean weight of a cubic foot of air .....	548·9	546·1						
Mean amount of Cloud (0—10) .....	5·9	7·5						
Fall of Rain .....	inches 1·663	3·371						
Greatest Rainfall in one day (23rd) .....	0·400	0·777						
No. of days on which ·005 in. or more Rain fell...	9	16·8						
Wind:—Direction.....	N	NE	E	SE	S	SW	W	NW
No. of Days .....	7	3	8	0	4	3	6	0
Mean Velocity in miles per hr.	3·4	3·8	8·0	0	5·1	4·3	6·3	0
Total No. of miles.....	563	277	1558	0	486	313	900	0
							Mean*	
Total No. of miles registered .....						4097	8371·2	
Greatest hourly velocity (on the 1st, at 7 a.m., Dir. W. by N.).....						30	40·3	

\* For the last 57 years.

## MARCH, 1924.

### DIFFERENCES.

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

Mean barometric pressure	...	...	...	—	0·001 in.
Monthly range	„	...	...	—	0·045 in.
Mean of highest daily temperatures	...	...	...	—	2·3°
Mean of lowest	„	„	...	—	3·1°
Mean daily range	...	...	...	+	0·8°
Adopted mean temperature	...	...	...	—	2·5°
Total rainfall	...	...	...	—	1·708 in

Ground Frost on the 1st—15th, 17th—21st, 27th, 28th, 30th and 31st. Hoar Frost on the 18th. Snow on the 1st, 2nd, 4th, 5th and 21st. Hail on the 1st. Fog on the 24th and 25th. Lunar Halo on the 13th, 14th and 18th. Solar Halo on the 9th, 17th and 18th.

### EXTREME READINGS FOR MARCH,

During 77 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	.....	1920	.....	44·2°		
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 1867 only.

† And 1914.

## APRIL, 1924.

Results of Observations taken during the Month.		Mean for the last 77 years.						
Mean Reading of the Barometer .....	inches 29.440	29.485						
Highest " " on the 19th ...	" 30.085	29.961						
Lowest " " on the 27th ...	" 28.831	28.790						
Range of Barometer Readings .....	" 1.254	1.171						
Highest Reading of a Max. Therm. on the 25th	58.9	64.6						
Lowest Reading of a Min. Therm. on the 13th...	27.7	28.1						
Range of Thermometer Readings .....	31.2	36.5						
Mean of Highest Daily Readings .....	49.2	54.3						
Mean of Lowest Daily Readings .....	36.0	36.2						
Mean Daily Range .....	13.2	18.1						
Deduced Mean Temp. (from mean of Max. and Min.)	41.1	43.9						
Mean Temperature from Dry Bulb .....	42.5	44.6						
Adopted Mean Temperature .....	41.8	44.3						
Mean Temperature of Evaporation .....	39.6	41.6						
Mean Temperature of Dew Point .....	36.9	38.2						
Mean elastic force of Vapour .....	inches 0.221	0.234						
Mean weight of Vapour in a cub. ft. of air, grains	2.5	2.7						
Mean additional weight required for saturation ..	0.5	0.7						
Mean degree of Humidity (saturation 100) .....	84	80						
Mean weight of a cubic foot of air .....	grains 544.0	542.2						
Mean amount of Cloud (0—10) .....	7.2	6.8						
Fall of Rain .....	inches 1.803	2.583						
Greatest Rainfall in one day (27th) .....	" 0.317	0.599						
No. of days on which .005 in. or more Rain fell...	18	14.9						
Wind:—Direction.....	N	NE	E	SE	S	SW	W	NW
No. of days.....	0	3	6	1	3	1	16	0
Mean Velocity in miles per hr.	0	5.7	6.5	17.1	10.2	5.6	9.7	0
Total No. of miles.....	0	413	935	410	736	134	3710	0
Total No of miles registered .....	6338						Mean*	
Greatest hourly velocity (on the 27th, at 9 p.m., Dir. W. ....	35						7480.2	
							36.1	

\* For the last 57 years.

## APRIL, 1924.

### DIFFERENCES.

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

Mean barometric pressure	...	...	...	—	0.045 in.
Monthly range	..	..	..	+	0.083 in.
Mean of highest daily temperatures	...	...	...	—	5.1°
Mean of lowest	..	..	..	—	0.2°
Mean daily range	...	...	...	—	4.9°
Adopted mean temperature	...	...	...	—	2.5°
Total rainfall	...	...	...	—	1.780 in.

Ground Frost on the 1st—6th, 9th—13th, 15th—18th, and 23rd.  
Hoar Frost on the 15th and 17th. Snow on the 9th, 10th, 11th, 12th and 13th. Hail on the 8th, 9th, 10th, 11th and 26th. Lunar Halo on the 9th. Solar Halo on the 18th.

### EXTREME READINGS FOR APRIL,

During 77 Years.

Highest reading of Barometer	...	1906 (8th)	.....	30.317 in.		
Lowest	..	..	...	1919 (14th)	.....	28.250 in.
Highest temperature	.....	1852 (14th)	.....	74.1°		
Lowest	..	.....	1917 (2nd)	.....	13.6°	
Highest adopted mean temperature	.....	1865	.....	48.5°		
Lowest	..	..	...	1917	.....	39.8°
Greatest fall of rain	.....	1867	.....	5.672 in.		
Least	..	.....	1852	.....	0.478 in.	
Greatest fall of rain in one day	...	1923 (12th)	.....	1.260 in.		
Greatest No. of days on which						
.005 in. or more rain fell	...	1920	.....	27		
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, 1924.

Results of Observations taken during the Month.		Mean for the last 77 years.						
Mean Reading of the Barometer .....	inches 29·389	29·541						
Highest " " on the 17th ...	" 29·832	29·989						
Lowest " " on the 24th ...	" 28·960	28·954						
Range of Barometer Readings .....	" 0·872	1·035						
Highest Reading of a Max. Therm. on the 29th.....	69·7	71·9						
Lowest Reading of a Min. Therm. on the 9th .....	34·5	32·1						
Range of Thermometer Readings .....	35·2	39·8						
Mean of Highest Daily Readings .....	56·9	59·4						
Mean of Lowest Daily Readings .....	45·1	42·6						
Mean Daily Range .....	11·8	16·8						
Deduced Mean Temp. (from mean of Max. and Min.)	49·3	49·2						
Mean Temperature from Dry Bulb .....	50·4	50·1						
Adopted Mean Temperature .....	49·9	49·7						
Mean Temperature of Evaporation .....	47·4	46·5						
Mean Temperature of Dew Point .....	44·7	43·0						
Mean elastic force of Vapour .....	inches 0·297	0·280						
Mean weight of Vapour in a cub. ft. of air, grains	3·4	3·2						
Mean additional weight required for saturation "	0·7	0·9						
Mean degree of Humidity (saturation 100) .....	83	77						
Mean weight of a cubic foot of air .....	grains 534·0	536·9						
Mean amount of Cloud (0—10) .....	8·7	7·0						
Fall of Rain .....	inches 6·765	2·772						
Greatest Rainfall in one day (31st) .....	" 1·217	0·647						
No. of days on which ·005 in. or more Rain fell...	26	14·6						
Wind:—Direction .....	N	NE	E	SE	S	SW	W	NW
No. of days.....	2	3	2	0	3	5	15	1
Mean Velocity in miles per hr.	6·5	4·0	8·8	0	10·0	9·1	7·9	10·1
Total No. of miles.....	312	286	424	0	721	1091	2839	270
Total No of miles registered .....	5943	Mean*		6904·0				
Greatest hourly velocity (on the 10th, at Noon, Dir. S. by W.).....	31			32·6				

\* For the last 57 years.

## MAY, 1924.

### DIFFERENCES.

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

Mean barometric pressure	..	...	...	—	0·152 in.
Monthly range	..	...	...	—	0·163 in.
Mean of highest daily temperatures	...	...	...	—	2·5°
Mean of lowest	..	..	...	+	2·5°
Mean daily range	...	...	...	—	5·0°
Adopted mean temperature	...	...	...	+	0·2°
Total rainfall	...	...	...	+	3·993 in.

Ground Frost on the 6th and 19th. Hail on the 4th, 5th, 7th and 25th. Heavy Rain on the 18th, 30th and 31st. Thunder on the 2nd, 7th, and 15th. Solar Halo on the 10th, 12th and 30th.

### EXTREME READINGS FOR MAY,

During 77 Years.

Highest reading of Barometer	...	1881 (10th)	.....	30·332 in.		
Lowest	..	..	...	1887 (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	.....	1924	.....	6·765 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	..	..	..	1918	.....	5113

\* Since 1867 only.

† And in other years.

## JUNE, 1924.

Results of Observations taken during the Month.								Mean for the last 77 years.
Mean Reading of the Barometer .....	inches	29.545						29.562
Highest " " on the 14th ...	"	29.866						29.936
Lowest " " on the 11th ...	"	28.968						29.048
Range of Barometer Readings .....	"	0.898						0.888
Highest Reading of a Max. Therm. on the 17th...		71.0						76.7
Lowest Reading of a Min. Therm. on the 3rd& 14th		37.9						39.1
Range of Thermometer Readings .....		33.1						37.6
Mean of Highest Daily Readings .....		61.2						65.1
Mean of Lowest Daily Readings .....		49.5						48.1
Mean Daily Range .....		11.7						17.0
Deduced Mean Temp. (from mean of Max. and Min.)		53.6						54.8
Mean Temperature from Dry Bulb .....		54.8						55.3
Adopted Mean Temperature .....		54.2						55.1
Mean Temperature of Evaporation .....		51.2						51.8
Mean Temperature of Dew Point .....		48.3						48.3
Mean elastic force of Vapour .....	inches	0.337						0.347
Mean weight of Vapour in a cub. ft. of air, grains		3.8						3.8
Mean additional weight required for saturation ,,		0.9						1.0
Mean degree of Humidity (saturation 100) .....		80						78
Mean weight of a cubic foot of air .....	grains	531.9						531.4
Mean amount of Cloud (0—10) .....		8.2						7.2
Fall of Rain .....	inches	2.898						3.299
Greatest Rainfall in one day (28th) .....	"	0.506						0.793
No. of days on which .005 in. or more Rain fell...		17						15.2
Wind :—Direction .....	N	NE	E	SE	S	SW	W	NW
No. of days.....	3	1	2	0	4	4	16	0
Mean Velocity in miles per hr.	6.5	8.0	7.0	0	7.4	10.9	6.8	0
Total No. of miles.....	466	193	335	0	709	1049	2622	0
Total No. of miles registered .....						5374		Mean* 6190.2
Greatest hourly velocity (on the 18th and 29th, Dir. S. by E. and W.S.W.).....						22		29.2

\* For the last 57 years

## JUNE, 1924.

### DIFFERENCES.

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

Mean barometric pressure	...	...	...	—	0·017 in.
Monthly range	„	...	...	+	0·010 in.
Mean of highest daily temperatures	...	...	...	—	3·9°
Mean of lowest	„	„	...	+	1·4°
Mean daily range	...	...	...	—	5·3°
Adopted mean temperature	...	...	...	—	0·9°
Total rainfall	...	...	...	—	0·401 in.

Heavy Rain on the 28th. Thunder on the 11th, 17th and 19th.  
Lightning on the 17th. Solar Halo on the 17th and 27th.

### EXTREME READINGS FOR JUNE,

During 77 Years.

Highest reading of 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 in.
Greatest fall of rain in one day	...	1857 (8th)	.....	2·093 in.
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, 1924.

Results of Observations taken during the Month.		Mean for the last 77 years.						
Mean Reading of the Barometer .....	inches 29·409	29·525						
Highest „ „ on the 14th.....	„ 29·843	29·902						
Lowest „ „ on the 3rd .....	„ 28·640	29·005						
Range of Barometer Readings .....	„ 1·203	0·897						
Highest Reading of a Max. Therm. on the 12th...	80·4	78·2						
Lowest Reading of a Min. Therm. on the 1st ...	46·7	42·7						
Range of Thermometer Readings .....	33·7	35·5						
Mean of Highest Daily Readings .....	63·9	67·3						
Mean of Lowest Daily Readings .....	52·0	51·2						
Mean Daily Range .....	11·9	16·1						
Deduced Mean Temp. (from mean of Max. and Min.)	56·1	57·6						
Mean Temperature from Dry Bulb .....	57·5	58·0						
Adopted Mean Temperature .....	56·8	57·9						
Mean Temperature of Evaporation .....	54·1	54·7						
Mean Temperature of Dew Point .....	51·6	51·9						
Mean elastic force of Vapour .....	inches 0·383	0·388						
Mean weight of Vapour in a cub. ft. of air, grains	4·3	4·4						
Mean additional weight required for saturation „	0·9	1·1						
Mean degree of Humidity (saturation 100) .....	83	81						
Mean weight of a cubic foot of air .....	grains 527·2	527·6						
Mean amount of Cloud (0—10) .....	8·0	7·4						
Fall of Rain .....	inches 5·279	4·056						
Greatest Rainfall in one day (20th) .....	„ 0·770	0·887						
No. of days on which ·005 in. or more Rain fell...	23	16·7						
Wind :—Direction.....	N	NE	E	SE	S	SW	W	NW
No. of days.....	0	3	1	1	0	9	17	0
Mean Velocity in miles per hr.	0	6·4	7·9	10·1	0	10·3	8·2	0
Total No. of Miles.....	0	458	190	243	0	223	3334	0
Total No. of miles registered .....	6458						Mean* 6380·4	
Greatest hourly velocity (on the 3rd, at 10 p.m., Dir. W.).....	29						28·2	

\* For the last 57 years.

## JULY, 1924.

### DIFFERENCES.

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

Mean barometric pressure	...	...	...	—	0·116 in.
Monthly range	„	...	...	+	0·306 in.
Mean of highest daily temperatures	...	...	...	—	3·4°
Mean of lowest	„	„	...	+	0·8°
Mean daily range	...	...	...	—	4·2°
Adopted mean temperature	...	...	...	—	1·1°
Total rainfall	...	...	...	+	1·223 in.

Heavy Rain on the 5th, 20th and 23rd. Thunder on the 3rd, 4th and 8th. Lightning on the 4th. Solar Halo on the 6th and 27th.

### EXTREME READINGS FOR JULY,

During 77 Years.

Highest reading of Barometer	...	1911 (10th)	.....	30·203 in		
Lowest	„	„	...	1922 (6th)	.....	28·493 in.
Highest temperature	.....	1901 (20th)	.....	89·0°		
Lowest	„	.....	1857 (1st)	.....	36·0°	
Highest adopted mean temperature	.....	1901	.....	63·2°		
Lowest	„	„	.....	1922	.....	54·0°
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	...	†1920	.....	28		
Least	„	„	.....	†1863	.....	8
*Greatest hourly velocity of wind	..	1892 (8th)	.....	44 mls.		
*Greatest No. of miles registered	...	1879	.....	8288		
*Least	„	„	.....	1913	.....	4577

\* Since 1867 only.

† And in other years. C

## AUGUST, 1924.

Results of Observations taken during the Month.		Mean for the last 77 years.						
Mean Reading of the Barometer .....	inches 29·351	29·492						
Highest " " on 8th.....	" 30·026	29·888						
Lowest " " on the 17th ...	" 28·662	28·941						
Range of Barometer Readings .....	" 1·364	0·947						
Highest Reading of a Max. Therm. on the 11th...	69·0	76·1						
Lowest Reading of a Min. Therm. on the 8th...	43·1	41·9						
Range of Thermometer Readings .....	25·9	34·2						
Mean of Highest Daily Readings .....	61·0	66·3						
Mean of Lowest Daily Readings .....	50·5	50·8						
Mean Daily Range .....	10·5	15·5						
Deduced Mean Temp. (from mean of Max. and Min.)	54·1	56·9						
Mean Temperature from Dry Bulb .....	55·9	57·7						
Adopted Mean Temperature .....	55·0	57·3						
Mean Temperature of Evaporation .....	53·0	54·4						
Mean Temperature of Dew Point .....	51·1	51·8						
Mean elastic force of Vapour .....	inches 0·375	0·386						
Mean weight of Vapour in a cub. ft. of air, grains	4·2	4·3						
Mean additional weight required for saturation ,,	0·7	0·9						
Mean degree of Humidity (saturation 100) .....	87	82						
Mean weight of a cubic foot of air .....	grains 521·0	527·4						
Mean amount of Cloud (0—10) .....	8·0	7·3						
Fall of Rain .....	inches 7·533	5·075						
Greatest Rainfall in one day (20th) .....	" 1·996	1·071						
No. of days on which ·005 in. or more Rain fell...	24	18·5						
Wind :—Direction .....	N	NE	E	SE	S	SW	W	NW
No. of days.....	1	0	0	0	4	7	15	4
Mean Velocity in miles per hr.	2·3	0	0	0	7·8	8·7	8·1	8·1
Total No. of miles.....	54	0	0	0	750	1467	2902	776
Total No. of miles registered .....	5949							<b>Mean*</b>
Greatest hourly velocity (on the 5th, Dir. W by S.).....	29							6344·8
								30·8

\* For the last 57 years.

## AUGUST, 1924.

### DIFFERENCES.

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

Mean barometric pressure	...	...	...	—	0.141 in.
Monthly range	„	„	„	+	0.417 in.
Mean of highest daily temperatures	...	...	...	—	5.3°
Mean of lowest	„	„	„	—	0.3°
Mean daily range	...	...	...	—	5.0°
Adopted mean temperature	...	...	...	—	2.3°
Total rainfall	...	...	...	+	2.458 in.

Heavy Rain on the 1st, 4th, 17th and 20th. Thunder on the 17th. Solar Halo on the 5th, 9th, 10th, 20th and 21st.

### EXTREME READINGS FOR AUGUST,

During 77 Years.

Highest reading of Barometer	...	1874 (21st)	.....	30.114 in.		
Lowest	„	„	...	1017 (28th)	.....	28.156 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, 1924.

Results of Observations taken during the Month.		Mean for the last 77 years.						
Mean Reading of the Barometer .....	inches 29.359	29.541						
Highest " " on the 3rd ...	" 29.889	30.007						
Lowest " " on the 20th ...	" 28.714	28.889						
Range of Barometer Readings .....	" 1.175	1.120						
Highest Reading of a Max. Therm. on the 6th ...	65.7	71.8						
Lowest Reading of a Min. Therm. on the 28th ...	41.1	36.7						
Range of Thermometer Readings .....	24.6	35.1						
Mean of Highest Daily Readings .....	59.6	61.9						
Mean of Lowest Daily Readings .....	49.9	47.3						
Mean Daily Range .....	9.7	14.6						
Deduced Mean Temp. (from mean of Max. and Min.)	53.5	53.3						
Mean Temperature from Dry Bulb .....	54.6	54.2						
Adopted Mean Temperature .....	54.1	53.8						
Mean Temperature of Evaporation .....	51.4	51.0						
Mean Temperature of Dew Point .....	48.8	48.3						
Mean elastic force of Vapour .....	inches 0.343	0.339						
Mean weight of Vapour in a cub. ft. of air, grains	3.9	3.9						
Mean additional weight required for saturation ..	0.8	0.8						
Mean degree of Humidity (saturation 100) .....	82	82						
Mean weight of a cubic foot of air .....	grains 528.7	532.6						
Mean amount of Cloud (0—10) .....	8.4	6.7						
Fall of Rain .....	inches 4.977	4.820						
Greatest Rainfall in one day (16th) .....	" 1.050	0.957						
No. of days on which .005 in. or more Rain fell...	24	16.5						
Wind :—Direction .....	N	NE	E	SE	S	SW	W	NW
No. of days.....	0	4	3	0	4	8	8	3
Mean Velocity in miles per hr.	0	7.5	6.0	0	14.3	13.2	11.4	7.8
Total No. of miles.....	0	723	429	0	1369	2531	2190	995
Total No. of miles registered .....	7801						Mean*	
Greatest hourly velocity (on the 20th, at Mid-night, Dir. S.W.).....	41						32.0	

\* For the last 57 years.

## SEPTEMBER, 1924.

### DIFFERENCES.

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

Mean barometric pressure	...	...	...	—	0.182 in.
Monthly range	"	"	"	+	0.055 in.
Mean of highest daily temperatures	...	...	...	—	2.3°
Mean of lowest	"	"	"	+	2.6°
Mean daily range	...	...	...	—	4.9°
Adopted mean temperature	...	...	...	+	0.3°
Total rainfall	...	...	...	+	0.157 in.

Heavy Rain on the 16th. Gales of Wind on the 20th, 21st, and 29th. Thunder on the 8th. Solar Halo on the 6th, 21st, 22nd and 25th.

### EXTREME READINGS FOR SEPTEMBER,

During 77 Years.

Highest reading of Barometer	...	1851 (15th)	.....	30.247 in.
Lowest	"	"	...	1918 (23rd) .....28.210 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	.....	1918	.....	12.620 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	...	1918	.....	29
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, 1924.

Results of Observations taken during the Month.		Mean for the last 77 years.						
Mean Reading of the Barometer .....	inches 29·438	29·447						
Highest „ „ on the 14th.....	„ 30·047	30·017						
Lowest „ „ on the 30th ...	„ 28·833	28·694						
Range of Barometer Readings .....	„ 1·214	1·328						
Highest Reading of a Max. Therm. on the 14th...	64·7	64·0						
Lowest Reading of a Min. Therm. on the 18th...	34·7	29·9						
Range of Thermometer Readings .....	30·0	34·1						
Mean of Highest Daily Readings .....	53·6	54·5						
Mean of Lowest Daily Readings .....	44·2	42·1						
Mean Daily Range .....	9·4	12·4						
Deduced Mean Temp. (from mean of Max. and Min.)	47·9	47·3						
Mean Temperature from Dry Bulb .....	49·3	48·0						
Adopted Mean Temperature .....	48·6	47·7						
Mean Temperature of Evaporation .....	46·9	45·5						
Mean Temperature of Dew Point .....	45·1	43·1						
Mean elastic force of Vapour .....	inches 0·301	0·279						
Mean weight of Vapour in a cub. ft. of air, grains	3·4	3·2						
Mean additional weight required for saturation „	0·5	0·6						
Mean degree of Humidity (saturation 100) .....	88	84						
Mean weight of a cubic foot of air .....	grains 536·3	537·5						
Mean amount of Cloud (0—10) .....	7·7	7·3						
Fall of Rain .....	inches 4·725	4·894						
Greatest Rainfall in one day (26th) .....	„ 0·698	0·959						
No. of days on which ·005 in. or more Rain fell...	19	18·7						
Wind :—Direction.....	N	NE	E	SE	S	SW	W	NW
No. of days.....	1	9	3	0	2	5	10	1
Mean Velocity in miles per hr.	3·0	4·8	5·9	0	4·5	11·4	10·0	3·7
Total No. of miles.....	73	1042	424	0	216	1367	2398	88
Total No. of miles registered .....	5608						Mea n*	
Greatest hourly velocity (on the 7th and 29th, Dir. W.S.W. and S. by W.).....	27						6835·6 36·7	

\* For the last 57 years.

## OCTOBER, 1924.

### DIFFERENCES.

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

Mean barometric pressure	...	...	...	—	0·009 in.
Monthly range	„	...	...	—	0·114 in.
Mean of highest daily temperatures	...	...	...	—	0·9°
Mean of lowest	„	„	...	+	2·1°
Mean daily range	...	...	...	—	3·0°
Adopted mean temperature	...	...	...	+	0·9°
Total rainfall	...	...	...	—	0·169 in.

Ground Frost on the 8th and 24th. Heavy Rain on the 10th,  
18th, 19th, and 26th. Fog on the 16th, 17th, 18th, 19th and 27th.  
Thunder on the 6th. Lightning on the 6th. Lunar Halo on the 8th.

### EXTREME READINGS FOR OCTOBER,

During 77 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	.....	1921	.....	53·8°
Lowest	„	1895	.....	42·8°
Greatest fall of rain	.....	1870	.....	13·437 in.
Least	„	1922	.....	0·918 in.
Greatest fall of rain in one day	...	1870 (8th)	.....	2·529 in.
Greatest No. of days on which ·005 ins or more rain fell	...	1903 and 1923	.....	29
Least	„	1920	.....	8
*Greatest hourly velocity of wind	...	1877 (15th)	.....	52 mls.
*Greatest No. of miles registered	...	1874	.....	9818
*Least	„	1915	.....	3965

\* Since 1867 only.



## NOVEMBER, 1924.

Results of Observations taken during the Month.							Mean for the last 77 years.		
Mean Reading of the Barometer .....	inches	29·584						29·468	
Highest " " on the 19th ...	"	30·156						30·069	
Lowest " " on the 27th ...	"	28·538						28·570	
Range of Barometer Readings .....	"	1·618						1·499	
Highest Reading of a Max. Therm. on the 23rd & 25th		53·0						55·6	
Lowest Reading of a Min. Therm. on the 19th...		28·7						25·4	
Range of Thermometer Readings .....		24·3						30·2	
Mean of Highest Daily Readings .....		48·6						47·1	
Mean of Lowest Daily Readings .....		39·2						36·8	
Mean Daily Range .....		9·4						10·3	
Deduced Mean Temp. (from mean of Max. and Min.)		43·5						41·6	
Mean Temperature from Dry Bulb .....		44·6						42·0	
Adopted Mean Temperature .....		44·1						41·8	
Mean Temperature of Evaporation .....		42·6						39·8	
Mean Temperature of Dew Point .....		40·8						38·2	
Mean elastic force of Vapour .....	inches	0·256						0·231	
Mean weight of Vapour in a cub. ft. of air, grains		2·9						2·7	
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	544·0						544·7	
Mean amount of Cloud (0—10) .....		7·2						7·6	
Fall of Rain .....	inches	3·914						4·399	
Greatest Rainfall in one day (22nd) .....	"	1·790						1·002	
No. of days on which ·005 in. or more Rain fell...		17						18·1	
Wind :—Direction .....	N	NE	E	SE	S	SW	W	NW	
No. of days.....	2	5	8	0	5	1	7	2	
Mean Velocity in miles per hr.	5·4	5·3	6·7	0	9·8	13·7	13·4	5·6	
Total No. of miles.....	260	633	1286	0	1172	329	2246	271	
Total No. of miles registered .....	6197							Mean* 7167·0	
Greatest hourly velocity (on the 2nd, at Noon, Dir. W.S.W.) .....	29							24·2	

\* For the last 57 years.

† And in other years.

## NOVEMBER, 1924.

### DIFFERENCES.

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

Mean barometric pressure	...	...	...	+	0·116 in.
Monthly range	„	...	...	+	0·119 in.
Mean of highest daily temperatures	...	...	...	+	1·5°
Mean of lowest	„	„	...	+	2·4°
Mean daily range	...	...	...	—	0·9°
Adopted mean temperature	...	...	...	+	2·3°
Total rainfall	...	...	...	—	0·485 in.

Ground Frost on the 4th, 6th, 13th, 16th—20th, 28th and 29th.  
Hoar Frost on the 15th, 16th, 17th, 18th and 19th. Heavy Rain on  
the 1st and 22nd. Fog on the 9th, 10th and 18th. Lightning on the  
1st. Lunar Halo on the 12th.

### EXTREME READINGS FOR NOVEMBER, During 77 Years.

Highest reading of Barometer	...	1922 (15th)	.....	30·375 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, 1924.

Results of Observations taken during the Month.		Mean for the last 77 years.						
Mean Reading of the Barometer .....	inches 29·397	29·429						
Highest " " on the 20th ... "	30·045	30·057						
Lowest " " on the 27th ... "	28·470	28·535						
Range of Barometer Readings .....	" 1·575	1·522						
Highest Reading of a Max. Therm. on the 18th...	53·4	52·8						
Lowest Reading of a Min. Therm. on the 31st ...	32·9	21·6						
Range of Thermometer Readings .....	20·5	31·2						
Mean of Highest Daily Readings .....	47·7	43·5						
Mean of Lowest Daily Readings .....	40·3	33·9						
Mean Daily Range .....	7·4	9·6						
Deduced Mean Temp. (from mean of Max. and Min.)	44·0	38·7						
Mean Temperature from Dry Bulb .....	44·7	39·3						
Adopted Mean Temperature .....	44·4	39·0						
Mean Temperature of Evaporation .....	43·0	37·4						
Mean Temperature of Dew Point .....	41·4	35·4						
Mean elastic force of Vapour .....	inches 0·260	0·209						
Mean weight of Vapour in a cub. ft. of air, grains	3·0	2·4						
Mean additional weight required for saturation ,,	0·4	0·4						
Mean degree of Humidity (saturation 100) .....	89	87						
Mean weight of a cubic foot of air .....	grains 537·9	546·8						
Mean amount of Cloud (0—10) .....	8·7	7·7						
Fall of Rain .....	inches 4·909	4·746						
Greatest Rainfall in one day (29th) .....	" 0·700	0·855						
No. of days on which ·005 in. or more Rain fell...	22	20·2						
Wind :—Direction.....	N	NE	E	SE	S	SW	W	NW
No. of days.....	1	1	0	1	15	8	5	0
Mean Velocity in miles per hr.	5·1	6·3	0	11·1	13·5	10·3	11·3	0
Total No. of miles.....	122	150	0	267	4871	1969	1351	0
Total No. of miles registered .....	8730						*Mean	
Greatest hourly velocity (on the 27th, at 4 a.m., Dir. S.S.W.).....	47						7863·5	
							42·1	

\* For the last 57 years.

## DECEMBER, 1924.

### DIFFERENCES.

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

Mean barometric pressure	...	...	...	—	0.032 in.
Monthly range	„	...	...	+	0.053 in.
Mean of highest daily temperature	...	...	...	+	4.2°
Mean of lowest	„	„	...	+	6.4°
Mean daily range	...	...	...	—	2.2°
Adopted mean temperature	...	...	...	+	5.4°
Total rainfall	...	...	...	+	0.163 in.

Ground Frost on the 12th, 14th and 31st. Snow on the 31st, Hail on the 28th and 31st. Heavy Rain on the 4th, 6th and 29th. Gales of Wind on the 4th, 23rd, 27th and 29th. Thunder on the 31st. Lightning on the 5th and 31st.

### EXTREME READINGS FOR DECEMBER,

During 77 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	.....	1918	.....	10.595 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	...	1918	.....	30		
Least	„	„	...	†1853	.....	8
*Greatest hourly velocity of wind...	...	1894 (22nd)	.....	72 mls.		
*Greatest No. of miles registered	...	1898	.....	11265		
*Least	„	„	...	1916	.....	4517

\* Since 1867 only.

† And in other years.

## Summary of Observations, 1924.

Results of Observations taken during the Year.	Mean for the last 77 Years.	
<i>Readings of Barometer in inches.</i>		
Mean of the Year .....	29·454	29·493
Highest Monthly Mean (February) .....	29·620	29·742
Lowest " " (August) .....	29·351	29·226
Highest Reading (February 16th).....	30·182	30·290
Lowest " (December 27th) .....	28·470	28·209
Range .....	1·712	2·081
<i>Thermometer, Fahrenheit.</i>		
Highest Monthly Mean Temperature (July) .....	56·8	58·6
Lowest " " " (Feb. & Mar.) .....	37·5	35·7
Highest Reading of a Max. Therm. (July 12th) ...	80·4	81·3
Lowest " Min. " (March 3rd)...	21·1	15·1
Range of Thermometer Readings .....	59·3	66·2
Mean of Highest Daily " .....	52·6	54·4
Mean of Lowest Daily " .....	42·2	41·0
Mean Daily Range .....	10·4	13·4
Deduced Mean Temp. (from Mean of Max. and Min;) .....	46·4	46·7
Mean Temperature from Dry Bulb.....	47·5	47·1
Adopted Mean Temperature of the Year .....	47·0	47·0
Mean Temperature of Evaporation .....	44·9	44·6
Mean Temperature of Dew Point .....	42·6	42·1
Mean elastic force of Vapour .....	0·281	0·274
Mean weight of Vapour in a cub. ft. of air...grns.	3·2	3·2
Mean additional weight required for saturation ,,	0·6	0·7
Mean degree of Humidity (saturation 100).....	85	83
Mean weight of a cubic foot of air .....	537·8	539·1
Mean amount of Cloud (0—10) .....	7·9	7·3
Total fall of Rain .....	49·739	47·317
Greatest Monthly Rainfall (August) .....	7·533	7·591
Least " " (February) .....	1·405	1·245
Greatest Rainfall in one day (August 20th).....	1·996	1·634
No. of days per Month on which ·005 inch or more Rain fell .....	20·2	17·2

## SUMMARY OF WIND, 1924.

Prevailing Direction	N	NE	E	SE	S	SW	W	NW
No. of days for each	24	34	45	6	53	56	131	17
Mean Velocity in miles per hour...	5.6	5.4	8.0	10.1	10.3	10.3	9.2	8.4
Total No. of miles for each Direction	3242	4437	5652	1548	13053	13837	28970	3427

		Mean for the last 57 years.
Total No. of miles registered .....	77166	85373.7
Greatest Monthly Total (December) .....	8730	9940.9
Least " " (March).....	4097	4945.8
Greatest hourly velocity (December 27th) .....	47	50.4
Prevailing Direction of Wind .....	W.	

## DIFFERENCES, 1924.

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

Mean barometric pressure	...	...	...	-	0.039 in.
Yearly range	"	...	...	-	0.369 in.
Mean of highest daily temperatures	...	...	...	-	1.8°
Mean of lowest " "	"	"	...	+	1.2°
Mean daily range	...	...	...	-	3.0°
Adopted mean temperature	...	...	...		0.0°
Total rainfall	...	...	...	+	2.422 in.

**ABSOLUTE EXTREMES  
FOR THE LAST 77 YEARS.**

*Readings of Barometer, in inches.*

Highest monthly mean .....	1891 (Feb.) .....	29.997
Lowest " " .....	1868 (Dec.) .....	28.984
Highest yearly " .....	1921 .....	29.615
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 " " .....	1921 .....	49.4
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 77 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 .....	1923 .....	63.558
Least " " " .....	1887 .....	31.250

Days on which .005 in. or more Rain fell :

Greatest No. in one month .....	1890 (Jan.) .....	} 30
	and 1918 (Dec.) .....	
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 " " .....	1917 (Feb.) .....	3160
Greatest Mean No. " " .....	March .....	8448
Least " " " .....	September .....	6054
Greatest No. " " year..	1868 .....	102395
Least " " " " .....	1915 .....	70623

\* Record dates from 1867 only.



## DATES OF OCCASIONAL PHENOMENA.

1924		Frost	Hoar Frost	Snow	Hail	Heavy Rain		
January	...	4-12, 15, 17-19, 21, 24-26	4	8, 9, 10, 17	...	...		
February	...	1, 10, 12-17, 19, 20, 22, 23, 25-29	1, 16	11, 15, 24, 25, 26, 27, 29	24, 27, 29	21		
March	...	1-15, 17-21, 27, 28, 30, 31	18	1, 2, 4, 5, 21	1	...		
April	...	1-6, 9-13, 15-18, 23	15, 17	9, 10, 11, 12, 13	8, 9, 10, 11, 26	...		
May	...	6-19	...	...	4 5, 7, 25	18, 30, 31		
June	...	...	...	...	...	28		
July	...	...	...	...	...	5, 20, 23		
August	...	...	...	...	...	1, 4, 17, 20		
September	...	...	...	...	...	...		
October	...	18, 24	...	...	7	16		
November	...	4, 6, 13, 16-20, 23, 25, 28, 29	15, 16, 17, 18, 19	...	...	6, 10, 18, 19, 26		
December	...	12, 14, 31	...	31	28, 31	1, 22		
...	...	...	...	...	...	4, 26, 29		
1924		Gales of Wind	Fog	Thunder	Lightning	Lunar Halo	Solar Halo	Aurora Borealis
January	...	...	1, 2, 20, 23, 25, 29, 30	...	...	15	...	...
February	5, 29	...	...	...	...	16, 22	10	...
March	...	24, 25	...	...	...	13, 14, 18	9: 17, 18	...
April	...	...	26, 28, 30	26	26	9	18	...
May	...	...	2, 7, 15	...	...	...	10, 12, 30	...
June	...	...	11, 17, 19	17	17	...	17, 27	...
July	...	...	3, 4, 8	4	4	...	6, 27	...
August	...	...	3, 17	17	17	...	...	...
September	20, 21, 29	...	8	8	8	...	3, 9, 10, 20, 21	...
October	...	16, 17, 18, 19, 27	6	6	6	...	6, 21, 22, 25	...
November	...	10, 18	...	1	1	8	...	...
December	4, 23, 27, 29	9, 10, 11, 12, 19, 20	31	5, 31	...	12	...	...

## MONTHLY TOTALS FOR EACH HOUR OF RECORDED SUNSHINE.

1924. 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 ...	...	...	...	...	...	0.1	1.9	4.9	5.6	7.3	4.4	2.0	1.0	0.3	...	...	...
February ...	...	...	...	0.8	2.3	4.3	4.7	5.8	6.3	4.7	5.1	4.3	1.2	...	...	...	...
March ...	...	...	1.1	7.3	13.2	14.4	15.4	16.5	17.8	17.2	15.8	13.8	6.3	0.8	...	...	...
April ...	...	0.2	4.4	9.4	11.0	9.6	11.3	10.7	12.1	13.3	11.1	12.5	11.7	9.8	1.9	...	...
May ...	...	3.1	6.3	5.7	9.8	11.2	12.5	12.3	11.6	12.0	12.3	11.5	9.3	7.4	5.3	1.4	...
June ...	...	3.2	8.0	7.5	8.6	11.8	10.1	8.9	9.4	9.2	11.5	11.8	10.3	9.2	6.9	5.2	...
July ...	0.5	4.0	8.9	8.6	9.0	12.7	11.0	11.5	9.4	10.5	10.6	12.7	10.0	10.4	8.7	5.1	...
August ...	...	1.1	4.7	7.0	8.7	7.8	9.3	9.6	10.7	9.7	11.1	12.3	12.6	8.6	5.1	...	...
September ...	...	...	1.3	5.2	9.8	9.8	11.3	12.0	11.8	12.2	8.1	7.6	6.2	2.4	0.4	...	...
October ...	...	...	...	1.8	6.2	11.3	13.8	13.7	12.2	11.0	9.0	7.0	3.4	0.2	...	...	...
November ...	...	...	...	...	1.6	5.4	8.2	11.6	12.6	11.5	7.5	1.4	...	...	...	...	...
December ...	...	...	...	...	...	1.2	3.2	4.4	5.3	3.9	1.4	...	...	...	...	...	...
Sums ...	0.5	11.6	34.7	53.3	80.2	99.6	112.7	121.9	124.8	122.5	107.9	96.9	72.0	49.1	28.3	11.7	...

## TOTAL AMOUNT OF SUNSHINE RECORDED ON EACH DAY.

1924	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
January ...	...	...	3.5	...	...	2.2	...	0.4	3.0	1.5	1.1	...	...	...	...	0.2	...
February ...	5.1	...	0.5	...	...	0.1	0.4	0.2	...	0.2	...	...	2.6	1.7	4.0	2.4	...
March ...	5.4	1.0	5.3	5.5	...	7.5	4.4	6.8	5.8	9.0	8.0	7.7	9.2	7.7	1.6	5.8	7.7
April ...	7.2	9.6	6.5	6.1	1.2	8.8	8.0	9.3	8.9	...	3.6	3.0	0.1	3.4	10.9	9.2	11.5
May ...	0.1	2.1	5.0	0.2	7.7	3.8	5.0	0.4	6.4	1.3	9.3	2.4	5.4	0.1	9.2	9.5	12.7
June ...	0.6	1.9	9.3	...	3.5	0.1	1.6	0.2	1.7	0.1	1.3	4.5	14.2	13.2	4.0	3.0	3.8
July ...	3.8	6.1	2.6	7.8	2.3	4.8	...	2.5	12.8	4.3	5.9	7.6	6.2	13.0	13.1	3.1	...
August ...	0.1	7.7	1.5	0.1	5.4	...	10.3	8.0	11.6	2.1	5.6	3.1	10.5	...	9.6	4.1	1.0
September ...	...	2.3	9.6	4.0	...	2.5	...	5.0	0.2	7.7	1.2	0.5	...	7.2	1.2	1.5	1.6
October ...	7.4	1.6	4.6	2.4	...	3.4	6.0	6.7	2.3	...	3.1	6.6	4.5	5.6	6.3	...	8.0
November...	...	0.2	6.0	6.7	1.6	5.7	5.2	...	2.6	2.7	...	6.5	2.1	...	2.5	4.7	0.1
December ...	0.2	...	...	...	3.4	3.8	...	...	...	...	...	...	...	0.2	...	1.2	...

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

1924	18	19	20	21	22	23	24	25	26	27	28	29	30	31	MONTHLY	
															Total	Per cent.
January	...	2.1	5.4	...	...	...	...	2.1	1.3	3.2	1.0	...	...	0.5	27.5	11.1
February	4.1	0.1	...	...	0.6	3.7	1.8	1.6	2.0	...	7.3	1.1	...	...	39.5	14.0
March	6.3	2.3	8.2	...	0.2	...	...	...	0.1	5.9	5.1	4.4	3.3	7.4	141.6	38.1
April	2.9	0.5	2.4	2.5	...	0.4	...	0.6	0.8	5.0	1.6	5.0	...	...	129.0	30.8
May	10.6	...	2.2	0.1	4.2	2.6	5.9	3.2	6.0	...	3.6	10.2	2.4	...	131.7	26.7
June	8.0	6.3	8.2	5.9	9.7	1.7	9.3	1.8	3.5	5.5	0.2	0.4	8.1	...	131.6	25.9
July	5.8	8.2	1.8	0.1	0.2	1.5	6.5	0.7	8.7	3.7	...	1.2	3.9	5.4	143.6	28.2
August	8.3	9.6	...	4.6	4.7	0.8	3.0	0.1	1.3	3.9	...	0.2	0.5	0.6	118.3	25.9
September	8.4	0.5	2.3	6.0	2.9	4.7	7.4	2.8	2.6	9.7	5.3	0.2	0.8	...	98.1	25.9
October	...	...	2.6	...	6.8	2.6	7.0	...	...	...	...	0.7	0.3	1.1	89.6	27.5
November	...	5.0	...	...	...	...	2.1	...	...	0.4	2.8	2.5	0.4	...	59.8	23.4
December	0.3	0.5	0.1	...	1.4	...	2.1	0.8	2.5	0.5	1.3	0.8	...	0.3	19.4	8.4

## SUMMARY OF SUNSHINE.

	BRIGHT SUNSHINE RECORDED					
	1924			Mean for the last 44 years		
	Number of		Percentage of Possible Sunshine	Number of		Percentage of Possible Sunshine
	Days	Hours		Days	Hours	
January ...	14	27.5	11.1	14.2	32.4	13.1
February ...	19	39.5	14.0	17.7	57.1	20.8
March ...	26	139.6	38.1	24.3	102.8	28.1
April ...	26	129.0	30.8	26.3	147.1	35.1
May ...	28	131.7	26.7	27.7	184.8	37.5
June ...	29	131.6	25.9	28.0	184.2	36.3
July ...	28	143.6	28.2	28.3	171.6	33.7
August ...	27	118.3	25.9	27.6	146.9	32.1
September ..	26	98.1	25.9	25.7	123.6	32.6
October ...	21	89.6	27.5	23.6	86.0	26.4
November ..	19	59.8	23.4	17.7	46.8	18.3
December ...	16	19.4	8.4	13.6	25.9	11.2
Year ...	279	1127.7	25.2	274.4	1309.0	29.3

**SUMMARY OF SUNSHINE—Continued.**  
**EXTREMES FOR THE LAST 44 YEARS.**

MONTH	Number of Days				Number of Hours				Percentage of Possible Sunshine			
	on which Sunshine was recorded											
	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
April	30	*1909	22	1920	223.7	1893	80.7	1920	53.4	1893	19.3	1920
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	24	1920	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.	20	1917	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).

1924	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 a. m. readings	4 p. m. readings*					
	15° +								
January ...	15.0	12.4	13.4	13.4	13.6	8.6	29.0	17.0	46.0
February ...	15.0	11.2	12.2	13.0	12.9	7.1	20.0	8.0	28.0
March ...	14.8	9.6	10.8	11.6	11.7	10.7	21.0	10.0	31.0
April ...	13.6	6.4	8.2	10.6	9.7	8.6	19.0	2.0	17.0
May ...	11.0	5.6	7.2	9.6	8.4	8.9	19.0	10.0	29.0
June ...	10.7	3.4	5.4	8.8	6.1	10.9	37.0	7.0	44.0
July ...	6.4	0.4	2.6	5.4	3.7	10.0	14.0	12.0	21.0
August ...	6.4	0.8	0.8	4.2	2.7	10.7	10.0	12.0	22.0
September ...	4.6	3.4	1.8	0.6	0.0	12.6	11.0	17.0	28.0
October ...	2.0	4.6	2.0	0.4	1.2	10.5	10.0	22.0	32.0
November ...	0.0	3.6	2.8	1.2	1.9	8.9	12.0	15.0	27.0
December ...	1.2	4.4	3.2	2.4	2.8	6.3	3.0	17.0	20.0
Means ...	8.2	2.7	4.2	6.1	5.3	9.5	17.1	11.7	28.8
Mean for the year ...					15°				
...					5.3'				
W.									

\* For the 5 quietest days.

† 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<sup>-5</sup> C. G. S.

1924	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 a. m. readings	4 p. m. readings	17000 +					
	17000 +									
January ...	298	288	292	296		293	40.4	323	217	106
February ...	296	278	289	290		289	40.4	327	203	124
March ...	302	283	296	295		294	41.3	353	241	112
April ...	299	268	291	291		287	41.7	345	224	121
May ...	304	277	289	294		291	51.6	357	190	167
June ...	294	261	279	278		278	70.1	439	151	288
July ...	281	247	267	269		266	54.2	323	207	116
August ...	277	241	266	270		264	47.7	326	220	106
September ...	271	234	260	260		256	52.9	310	177	133
October ...	268	243	261	260		258	43.0	310	164	146
November ...	277	259	270	268		269	34.0	314	185	129
December ...	277	265	273	272		272	25.8	314	233	81
Means ...	287	261	278	281		276	45.3	337	201	136

Mean for the year ... .. 17276 C. G. S. Units.

\* For the 5 quietest days.

† Includes all days.



## ABSOLUTE MEASURES—SUMMARY.

DIRECTION			FORCE.		
1924	Declination Corrected	Inclination	Horizontal	Vertical	Total
	°   '   ''	°   '   ''	C. G. S. UNITS.		
	15 +	68 +	0·17000 +	0·44000 +	0·47000 +
January ...	11·0	41·3	286	312	564
February ...	11·6	40·9	275	266	517
March ...	10·3	44·4	256	349	587
April ... ..	9·3	43·6	268	351	594
May ... ..	7·6	41·3	289	316	569
June ... ..	5·7	41·7	274	293	542
July ... ..	2·9	41·1	294	322	576
August ...	5·2	41·9	270	289	537
September ...	3·4	40·8	256	213	461
October ...	1·3	42·0	269	293	541
November ...	14 + 59·8	39·7	287	252	508
December ...	+ 56·2	41·3	287	313	565
Means ...	°   '   '' 15   5·4	w68   41·7	0·17276	0·44281	0·47547·

## 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 *v.g.* The days are civil days.

1924	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1924
D.													D.
1	c	c	c	c	c	s	c	c	m	c	m	c	1
2	c	c	s	c	c	c	s	s	c	c	m	c	2
3	m	c	s	s	c	c	s	s	c	c	s	c	3
4	c	c	c	c	c	c	s	s	s	s	c	c	4
5	c	g	s	c	c	c	s	s	s	s	c	c	5
6	c	s	s	s	c	c	m	s	m	c	m	c	6
7	s	s	g	s	c	c	s	s	g	s	s	s	7
8	s	c	s	c	c	c	s	s	g	c	c	s	8
9	c	c	s	c	c	m	m	c	s	c	s	c	9
10	g	s	s	c	c	v.g.	s	c	c	c	s	c	10
11	s	s	s	c	c	m	s	c	c	c	s	s	11
12	c	c	c	c	c	c	c	c	m	c	c	m	12
13	c	c	c	c	c	c	s	s	c	c	m	s	13
14	c	c	c	c	c	c	c	c	s	c	m	s	14
15	s	c	c	c	c	c	m	c	s	s	s	s	15
16	s	s	s	c	s	m	s	s	c	s	c	c	16
17	s	s	c	c	c	s	s	m	c	c	c	s	17
18	s	c	s	c	c	m	m	m	c	m	c	s	18
19	s	s	s	*	c	g	s	c	s	c	g	s	19
20	c	g	m	s	c	g	m	c	c	c	c	m	20
21	c	m	m	s	g	m	m	c	c	c	c	s	21
22	m	s	m	s	v.g.	s	c	s	c	c	c	c	22
23	g	m	m	c	v.g.	s	c	c	m	g	c	s	23
24	m	m	s	c	s	c	c	c	v.g.	v.g.	v.g.	c	24
25	s	s	s	m	s	s	c	c	s	m	s	c	25
26	s	s	s	m	c	c	m	s	c	c	s	c	26
27	s	c	c	c	c	c	m	c	m	s	c	c	27
28	c	c	c	c	s	c	c	c	s	c	c	c	28
29	v.g.	c	s	c	s	s	s	m	c	c	c	c	29
30	v.g.		g	c	c	s	s	s	c	c	c	c	30
31	c		m		s		s	s		s		c	31
TOTAL	{ c s m g vg	13 11 3 2	14 10 3 2 ...	8 15 5 2 ...	20 7 2 ... 1 2	22 6 ... 1 2	13 9 5 2 1	7 16 8 ... ... ...	15 12 4 ... ... ...	11 12 5 2 ...	19 8 2 1 1	14 9 5 1 1	18 10 3 ... ... ...

\* No record.

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

The unit is  $\frac{1}{10000}$ th of the visible surface.

n = note without a complete drawing.

1924	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1924
D.													D.
1		0.0	1.6	0.0		4.7	1.8			1.8		0.0	1
2			1.2	0.0	0.0	5.4	2.0	2.2	10.3		0.0		2
3	0.0	0.1	0.8	0.0	0.0	7.5	2.2	2.1	8.2	2.6	0.0		3
4	0.0		0.1	0.0			1.7	n	5.8	2.1	0.0		4
5					0.0	10.1	1.3	3.0	n		0.0	0.1	5
6	0.0		0.0	0.2	0.0		1.8		1.2	3.2	0.0	0.0	6
7			0.0	0.0	0.4	7.3		1.9		3.2	0.0	0.5	7
8	0.0	0.0	0.0	0.0			2.3	1.8	0.5	3.0			8
9	0.0		0.0	0.0	1.1		3.4	1.6		1.7	0.0		9
10	0.0	0.0	0.0		0.6	2.1	4.5	1.4	0.2		0.0	0.8	10
11	0.0		0.0	0.0	0.5	1.0	5.6	0.1		1.0			11
12			0.0	0.0	2.1	0.2	6.2	0.6		0.8	0.0	1.7	12
13		0.0	0.0	0.0	3.2	0.5	4.3	0.4		0.7	0.0	n	13
14	0.0	0.0	0.0	0.0		1.7	4.9		1.8	1.1		1.5	14
15	0.0	0.1	0.0	0.0	3.6	1.7	3.8	0.4	1.1	2.4	1.1		15
16	0.0	0.0	0.0	0.1	5.5	1.5	2.4		0.4		2.6	1.4	16
17		0.0	0.0	0.4	4.8	1.1				3.8			17
18		0.0	0.0	3.9	3.1	0.5	0.4	2.1	0.5				18
19	0.0		0.0	2.8		0.4	0.0	1.9	0.3		6.0	1.8	19
20	0.0		0.0	5.0	0.6	0.5	0.0		0.4	4.4			20
21				5.7	0.4	0.7		1.3	0.8				21
22		0.0			0.7	0.9		1.4	1.5	3.3		5.1	22
23	0.0	0.0		3.2	0.6	0.7	0.3	1.3	1.2	2.9			23
24		0.0			0.5	0.5	0.5	1.3	1.4	2.2	8.9	2.4	24
25	0.0	1.1	n	2.6	0.1	0.5	0.3		1.7			1.8	25
26	0.0	2.5	0.0	0.7	0.1	0.4	0.2	0.3	0.8			0.5	26
27	0.0		0.0	0.1		0.7	0.7	0.1	0.7		5.2	0.0	27
28	0.0	3.8	0.0	0.0	0.4	0.9			1.5		2.1	0.0	28
29		2.8	0.0	0.0	0.1		0.9	6.5	1.1		1.3	0.0	29
30			0.0		2.0	1.3	1.1	12.9	1.8	0.6	1.0		30
31	0.0		0.0				1.0	n		0.3		0.0	31
Daily Means	0.0	0.6	0.1	1.0	1.2	2.1	2.1	2.1	2.0	2.2	1.6	1.0	

## SUN-SPOT STATISTICS, 1924.

The numbering of the groups is in continuation of that in the annual Report for 1923. Any area less than  $\frac{1}{10}$  unit is entered as 0.0.

No. of Group	Date	Mean Latitude	Mean Longitude	Max. Area	Where Measured
192	Feb. 3 ... ..	-25°·6	245°·6	0·1	Centre of group.
193	Feb. 15 ... ..	+22°·4	41°·8	0·1	Centre of group.
194	Feb. 25—Mar. 4	+26°·4	235°·5	3·8	Chief spot.
195	April 6 ... ..	+20°·3	79°·5	0·2	Centre of group.
196	April 14 ... ..	+29°·0	32°·1	0·0	
197	April 16—21 ...	+21°·0	257°·7	2·1	Centre of group.
198	April 18—27 ...	-28°·3	247°·3	5·4	Centre of group.
199	April 28 ... ..	+28°·1	184°·4	0·0	Centre of group.
200	May 6 ... ..	+26°·8	64°·3	0·0	
201	May 7—15 ... ..	+31°·7	1°·6	1·1	Centre of group.
202	May 11—20 ... ..	-21°·1	290°·2	5·4	Centre of group.
203	May 12—18 ... ..	-28°·8	247°·2	0·2	
204	May 15—18 ... ..	-26°·7	230°·6	0·0	
205	May 18—26 ... ..	-22°·3	175°·7	0·3	Chief spot.
206	May 18—28 ... ..	+36°·5	175°·3	0·4	Centre of group.
207	May 28—29 ... ..	+18°·4	125°·6	0·2	Centre of group.
208	May 30—June 11	+29°·3	15°·1	10·1	Chief (pre'g) spot
209	June 1 ... ..	+1°·8	45°·8	0·1	Centre of group.
210	June 2 ... ..	+3°·7	81°·4	0·1	
211	June 11—18 ... ..	+22°·0	270°·8	1·5	Chief spot.
212	June 13—19 ... ..	-25°·0	246°·4	0·4	Centre of group.
213	June 19—28 ... ..	+36°·7	139°·7	0·7	
214	June 21—26 ... ..	+27°·0	170°·8	0·1	Centre of group.
215	June 27—July 6	+31°·5	355°·8	1·8	Chief (pre'g) spt
216	June 30—July 5	+25°·6	327°·9	0·4	Centre of group.
217	July 1—11 ... ..	+19°·2	332°·4	0·9	Chief spot.
218	July 5—8 ... ..	-22°·2	280°·5	0·1	Chief spot.
219	July 6—18 ... ..	+21°·1	237°·5	3·2	Chief spot.
220	July 9—12 ... ..	-27°·4	243°·0	0·1	Chief spot.
221	July 9—16 ... ..	+5°·1	255°·9	4·1	Chief spot.
222	July 20—24 ... ..	+19°·6	70°·7	0·0	
223	July 23 ... ..	+26°·9	168°·0	0·1	
224	July 23—30 ... ..	+27°·0	93°·0	0·5	Chief spot.
225	July 25—Aug. 5	+34°·3	358°·0	1·1	Chief spot.

SUN-SPOT STATISTICS, 1924—*Contd.*

No. of Group	Date	Mean Latitude	Mean Longitude	Max. Area	Where Measured
226	July 31—Aug. 2	+37°·9	280°·1	0·1	
227	Aug. 2—13 ...	+ 5°·7	261°·7	1·7	
228	Aug. 3—10 ...	+23°·7	230°·3	0·3	Chief spot.
229	Aug. 7—10 ...	—19°·1	274°·4	0·1	Centre of group.
230	Aug. 12—13 ...	—25°·4	228°·8	0·3	Following spot.
231	Aug. 15—27 ...	+14°·7	74°·7	1·9	Chief (prec'g) spt
232	Aug. 29—Sept. 4	+21°·2	312°·5	4·8	Preceding spot.
232	Aug. 29—Sept. 6	+20°·9	301°·3	6·8	Following spot.
233	Aug. 29—Sept. 8	+ 4°·5	264°·0	1·4	
234	Aug. 30 ...	—24°·1	334°·5	0·0	
235	Sept. 10—19 ...	+21°·9	117°·4	1·8	Preceding spot.
236	Sept. 18—27 ...	—24°·6	355°·8	1·5	Centre of group.
237	Sept. 21 ...	+24°·0	19°·9	0·1	
237a	Sept. 24 ...	+24°·2	14°·8	0·1	
238 {	Sept. 24—29 ...	+ 6°·2	265°·4	0·8	{ Chief spot. (Centre of group.)
	Sept. 30—Oct. 4	+ 6°·8	264°·8		
239	Sept. 25—30 ...	+19°·7	337°·9	1·0	Chief spot.
239a	Sept. 25 ...	+27°·8	313°·6	0·0	
240	Sept. 28 ...	+18°·2	301°·6	0·0	
241	Sept. 28 ...	+10°·3	289°·8	0·1	Preceding spot.
242	Sept. 28—Oct. 9	+22°·8	211°·7	1·7	
243	Sept. 29—30 ...	+21°·3	281°·1	0·0	Centre of group.
244	Sept. 30 ...	+ 9°·9	193°·0	0·0	
245	Oct. 1— 7 ...	+26°·0	175°·2	0·4	Chief spot.
246	Oct. 3—15 ...	—26°·3	144°·2	2·2	Preceding spot.
247	Oct. 13—24 ...	+22°·8	6°·2	4·4	Chief spot.
248	Oct. 23—24 ...	+22°·9	247°·3	0·0	
249	Oct. 30—31 ...	+21°·0	269°·2	0·4	
250	Oct. 30 ...	+20°·2	208°·6	0·2	
251	Nov. 12—19 ...	+23°·8	7°·3	0·9	
252	Nov. 15—28 ...	+18°·1	298°·6	4·0	Chief spot.
253	Nov. 19—30 ...	+24°·0	250°·3	4·8	Chief spot.
254	Nov. 24 ...	—22°·6	228°·4	0·1	
255	Dec. 5 ...	+18°·1	157°·1	0·1	
256	Dec. 7—16 ...	+19°·8	14°·8	0·5	Centre of group.
257	Dec. 10—14 ...	+25°·8	359°·4	0·9	Centre of group.

### SUN-SPOT STATISTICS, 1924—*Contd.*

No. of Group	Date.	Mean Latitude	Mean Longitude	Max. Area	Where Measured
258	Dec. 12—22 ...	+21°·3	304°·0	0·5	Preceding spot.
258a	Dec. 24 ... ..	+11°·7	283°·5	0·1	
259	Dec. 22—24 ...	+17°·8	259°·1	0·6	Centre of group.
260	Dec. 22—26 ...	-25°·9	274°·1	4·1	Preceding spot.
261	Dec. 26 ... ..	+28°·5	181°·5	0·1	Centre of group.
262	Dec. 31 ... ..	-24°·0	198°·0	0·0	Centre of group.



## DISTURBED SUN-SPOT AREAS, 1924.

The numbering of the areas is in continuation of that in the annual Report for 1923.

No. of Area	No. of Group	Date	Mean Latitude	Mean Longitude	Max. Area	Mean Types
49	201	May 7—15 ...	+31°·7	1°·6	1·1	I.
	208	May 30—June 11	+29°·3	15°·1	10·1	IIIa.
	215	June 27—July 6	+31°·5	355°·8	1·8	V.
	225	July 25—Aug. 5	+34°·3	358°·0	1·1	IVd, IVb.
	237	Sept. 21 ...	+24°·0	19°·9	0·1	I.
	237a	Sept. 24 ...	+24°·2	14°·8	0·1	I.
	247	Oct. 13—24 ...	+22°·8	6°·2	4·4	IIa.
	251	Nov. 12—19 ...	+23°·8	7°·3	0·9	I.
	256	Dec. 7—16 ...	+19°·8	14°·8	0·5	IIc.
	257	Dec. 10—14 ...	+25°·8	359°·4	0·9	V.
50	195	April 6 ...	+20°·3	79°·5	0·2	I.
	222	July 20—24 ...	+19°·6	70°·7	0·0	I.
	231	Aug. 15—27 ...	+14°·7	74°·7	1·9	IIa, IVb.
51	207	May 28—29 ...	+18°·4	125°·6	0·2	I.
	235	Sept. 10—19 ...	+21°·9	117°·4	1·8	I.
52	206	May 18—28 ...	+36°·5	175°·3	0·4	I.
	214	June 21—26 ...	+27°·0	170°·8	0·1	I.
	223	July 23 ...	+26°·9	168°·0	0·0	I.
	245	Oct. 1—7 ...	+26°·0	175°·2	0·4	IVb.
53	199	April 28 ...	+28°·1	184°·4	0·0	I.
	261	Dec. 26 ...	+28°·5	181°·5	0·1	I.
54	242	Sept. 28—Oct. 9	+22°·8	211°·7	1·7	IVa.
	250	Oct. 30 ...	+20°·2	208°·6	0·2	IVc.
55	194	Feb. 25—Mar. 4	+26°·4	235°·5	3·8	IIa.
	219	July 6—18 ...	+21°·1	237°·5	3·2	IIIa.
	228	Aug. 3—10 ...	+23°·7	230°·3	0·3	I.

## DISTURBED SUN-SPOT AREAS, 1924.—Cont.

No. of Area	No. of Group	Date	Mean Latitude	Mean Longitude	Max. Area	Mean Types
56	192	Feb. 3 ... ..	-25°·6	245°·6	0·1	I.
	198	April 18-27 ...	-28°·3	247°·3	5·4	IIIb.
	203	May 12-18 ...	-28°·8	247°·2	0·2	I.
	204	May 15-18 ...	-26°·7	230°·6	0·0	I.
	212	June 13-19 ...	-25°·0	246°·4	0·4	I.
	220	July 9-12 ...	-27°·4	243°·0	0·1	I.
	230	Aug. 12-13 ...	-25°·4	228°·8	0·3	I.
	254	Nov. 24 ... ..	-22°·6	228°·4	0·1	I.
57	197	April 16-21 ...	+21°·0	257°·7	2·1	IIIb.
	248	Oct. 23-24 ...	+22°·9	247°·3	0·0	I.
	253	Nov. 19-30 ...	+24°·0	250°·3	4·8	IVb.
	259	Dec. 22-24 ...	+17°·8	259°·1	0·6	IIc.
58	221	July 9-16 ...	+ 5°·1	255°·9	4·1	V.
	227	Aug. 2-13 ...	+ 5°·7	261°·7	1·7	IVa.
	233	Aug. 29-Sept. 8	+ 4°·5	264°·0	1·4	IVa.
	238	Sept. 24-Oct. 4	+ 6°·8	264°·8	0·8	IVa.
59	211	June 11-18 ...	+22°·0	270°·8	1·5	IVb.
	249	Oct. 30-31 ...	+21°·0	269°·2	0·4	IVc.
60	202	May 11-20 ...	-21°·1	290°·2	5·4	IIc.
	218	July 5- 8 ...	-22°·2	280°·5	0·1	I.
	229	Aug. 7-10 ...	-19°·1	274°·4	0·1	I.
	260	Dec. 22-26 ...	-25°·9	274°·1	4·1	IIIa.
61	241	Sept. 28 ... ..	+10°·3	289°·8	0·1	I.
	258a	Dec. 24 ... ..	+11°·7	283°·5	0·1	I.
62	232i	Aug. 29-Sept. 4	+21°·2	312°·5	4·8	IIIa.
	232ii	Aug. 29-Sept. 6	+20°·9	301°·3	6·8	IIIa.
	240	Sept. 28 ... ..	+18°·2	301°·6	0·0	I.
	252	Nov. 15-28 ...	+18°·1	298°·6	4·0	IIa.
	258	Dec. 12-22 ...	+21°·3	304°·0	0·5	IIIa.
63	216	June 30-July 5	+25°·6	327°·9	0·4	I.
	217	July 1-11 ...	+19°·2	332°·4	0·9	I.
	239	Sept. 25-30 ...	+19°·7	337°·9	1·0	I.



