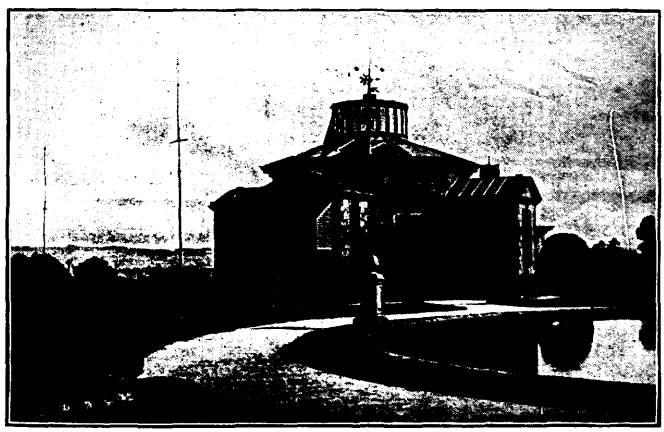
STONYHURST COLLEGE OBSERVATORY.

Lat. 53° 50′ 38·5″ N. Long. $9^{m.}$ $52^{s.}\cdot 88$ W.
Height of the Barometer above the Sea, 381 feet.



(ESTABLISHED 1838.)

Results of Geophysical and Solar Observations,

1937.

—

With Report and Notes of the Director,

Rev. J. P. ROWLAND, S.J., B.Sc, F.R.A.S., F.R.Met.Soc.

BLACKBURN:
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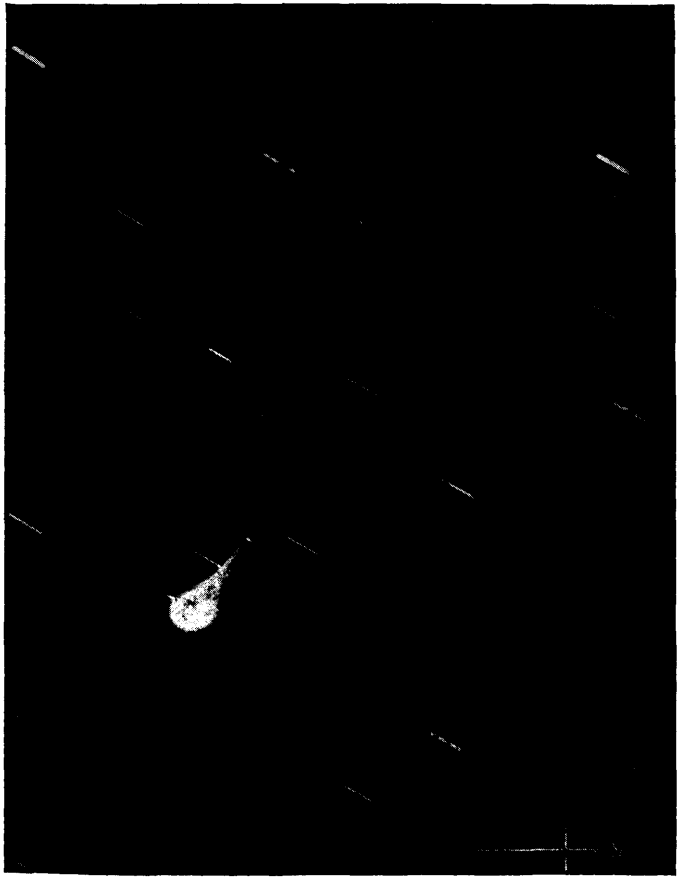


COMET FINSLER (1937f).
1937 Aug. 8. 22h. 25m. to 23h. 25m. G.M.T.

REPORT AND NOTES.

GENERAL.—The Staff of the Observatory remains as last year. Father H. Macklin, S.J., B.Sc. (Oxon)., and Father J. Lawrence, S.J., B.Sc., M.A. (Oxon.), who are on the teaching staff of the College, continue to give part time service, and Mr. W. Brown, the only full-time assistant, is responsible for the routine meteorological work, the changing of charts on the recording instruments and development of photographic records.

The Director attended the meeting of the British Association at Nottingham in September.

Whilst with the present limitations of Staff it is not possible to carry out systematic astronomical work other than the routine observation of the Sun, a few photographs of Comet Finsler (1937f) were obtained by the Director early in August, and one of these is reproduced as a frontispiece to this Report.

METEOROLOGICAL.—The Meteorological records have been continued without interruption throughout the year, and Weekly and Monthly Reports have been supplied as heretofore to the Meteorological Office, London.

A daily forecast of local weather has been supplied to the *Lancashire Daily Post*, for which purpose a synoptic chart has been prepared each morning from data received by wireless telegraphy, giving the conditions at 0700 G.M.T. at a large number of reporting stations in Western Europe, Iceland and the

Azores, and as reported by ships on the North Atlantic. Occasional forecasts have also been supplied to other newspapers, on request.

The most notable features of the year's weather were, the great deficiency in rainfall, the lack of sunshine in the late spring and early summer, the low wind mileage registered for every month, except January and February, and the dry, calm, and sunny winter months of November and December.

The rainfall for the year, 33·217 in., was 14·093 in. or 30% below the 90 years' average, and less than two inches above the record minimum fall, 31·250 in. of 1887. It is, however, the second least recorded in any year since then, and is the third lowest total in our ninety years' records. The last six months of the year were exceedingly dry. During this period only 13·197 inches were registered against an average of 27·501. March was also notably dry, the total, 1·786 inches, being little more than half the normal fall. February was the only wet month in the year, its total fall, 6·159 inches, was 73% above the average. The greatest rainfall in one day occurred on June 3rd, when 1·708 inches were recorded, 1·5 of which fell steadily during the 10 hours between 12 noon and 22 hours. Snow fell frequently during the winter months, and particularly so in March, but most of the amounts were small and none severe.

The amount of sunshine registered, 1229·6 hours, was below the average of 1313 hours by 6%. The amount recorded to the end of July was 19% below normal, but August, November and December, each of which had an excess, lessened the deficiency by the

end of the year. The spring and early summer months were very dull. The total for April, May, June and July was 522·5 hours, against the average of 680·9 hours. August, November and December were relatively the sunniest months of the year, being 31%, 52% and 71% respectively above the normal.

On the whole readings of temperature during the year were fairly normal. March was relatively the coldest month, the adopted mean temperature being 3°·2 below normal, whilst ground frost occurred on 24 nights. Two cold periods occurred from the 4th to the 12th, and the 22nd to the 31st. In spite of the shortage of sunshine the summer months, with the exception of June, had mean temperatures rather higher than the normal, the greatest excesses occurring in May and August, the adopted mean temperature for each being 2°·4 above the averages. The coldest period of the year occurred during December 3rd to 21st, with frost on each night, and with frequent falls of snow, mostly slight, whilst the lowest minimum shade temperature of the year, 21°·4, was registered on the 18th.

There was a very notable deficiency of wind during the year. It commenced with a great excess in January, which was partially maintained in February, but the totals for each of the following months were all below normal. The amount registered for the whole year, 73,905 miles, was in defect of the mean by 10,564 miles, or 12·5%. January was very stormy and its total, 11,290 miles, was 36% above the 70 years' average, and only 371 miles below the record highest mileage for the month, which occurred in 1890. Gales of 39 m.p.h. or more occurred on the 17th, 20th, 21st,

22nd and 28th, of which the greatest was that of the 20th, with a maximum mean hourly velocity of 48 m.p.h., and a maximum gust velocity of 62 m.p.h. A greater gust velocity, however, occurred during the gale of the 28th, when a gust of 72 m.p.h. was recorded, though on this occasion the maximum mean hourly velocity did not exceed 43 m.p.h. It is worthy of note that no other gales occurred during the year. August, November and December, the calmest months, were in defect of the normal by 54%, 57% and 56% respectively.

Heavy falls of rain of one inch or more occurred as follows :—January 5th, February 25th, June 3rd and August 12th. The greatest of these was the fall of June 3rd, on which day 1·708 inches were recorded.

Rainless periods of five days or more occurred as follows :—March 28th—April 1st, April 28th—May 2nd, May 12th—18th, May 27th—31st, June 21st—27th, July 25th—August 8th, August 20th—24th, October 7th—16th, November 1st—7th, November 9th—17th, and November 24th—28. A total of eleven periods, with an average of 7·2 days each. The dry spell of July 25th—August 8th constituted an absolute drought.

Bright sunshine for ten hours or more was recorded on :—March 25th ; April 25th, 26th ; May 2nd, 27th, 30th ; June 10th, 15th, 21st, 22nd, 27th ; July 14th, 16th, 20th, 31st ; August 1st, 3rd, 7th, 15th, 20th, 21st, 23rd, 24th, 27th. A total of 24 days, with an average of 11·7 hours each day.

Days on which notably continuous sunshine occurred were :—January 14th ; February 6th, 22nd,

23rd ; April 25th, 26th ; May 27th, 30th ; June 21st, 27th ; July 14th, 16th ; August 1st, 3rd, 7th, 15th, 27th ; October 12th, 18th, 19th ; November 12th, 20th ; December 12th, 17th.

Only seven thunderstorms were noted during the year, but thunder was heard without lightning being seen on four days, and distant lightning without thunder was seen on five other days.

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 magnets 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 each week. 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 a relay operated by the Synchronome Clock. The scale values of the instruments are as follows :—

For the Unifilar ..	11·28′	per Cm. of Ordinate
,, Bifilar	·000517 C.G.S.	,,

The Vertical Force Balance has been maintained in service throughout the year, but its performance is not sufficiently reliable for its record to be used for measurement, and it only serves to indicate increase or decrease in this element.

In Declination and Horizontal Force four daily readings are measured on the curves, the highest, the lowest, and those at the hours of 4 and 16. The Base-line values are determined from the measures of the curve ordinates at the times of the absolute observations, the adopted value for each month being, in the case of Declination, the mean of the four or five observations of the month, and in the case of the Horizontal Force, the single value obtained from the observation about the middle of the month.

In the Tabular Summary on p. 37 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 on the five quietest days of the month, according to the rule stated on page xii of our Report for 1908.

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.

The rule followed in assigning these letters to denote the magnetic character of the 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 daily mean range over the mean of the five quietest days gives the magnetic character of the day. Till the year 1927, inclusive, the following values of the excess were adopted for the table of magnetic disturbances :— 0 to 2 calm, 3 to 7 small, 8 to 15 moderate, 16 to 20 great, above 20 very great.

In 1928, in consideration of the low values of the ranges assigned to the higher character letters, the scale was revised and is as follows :—(c) 0–2, (s) 3–7, (m) 8–20, (g) 21–60, (v.g.) over 60.

It follows from the nature of the process that these indications are not absolute, but relative to the mean amount of disturbance on the quiet days.

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. The mean excess ranges according to which these character figures have been assigned are as follows :—0, 0—4 ; 1, 5—10 ; 2, over 10. The civil day is used for both the international figures and for our own characteristic letters.

With the approach to the maximum of the sun-spot cycle, magnetic activity as indicated by the mean daily ranges again shows an increase on last year. The

variations in solar and magnetic activity since 1930 are exhibited in the following table :—

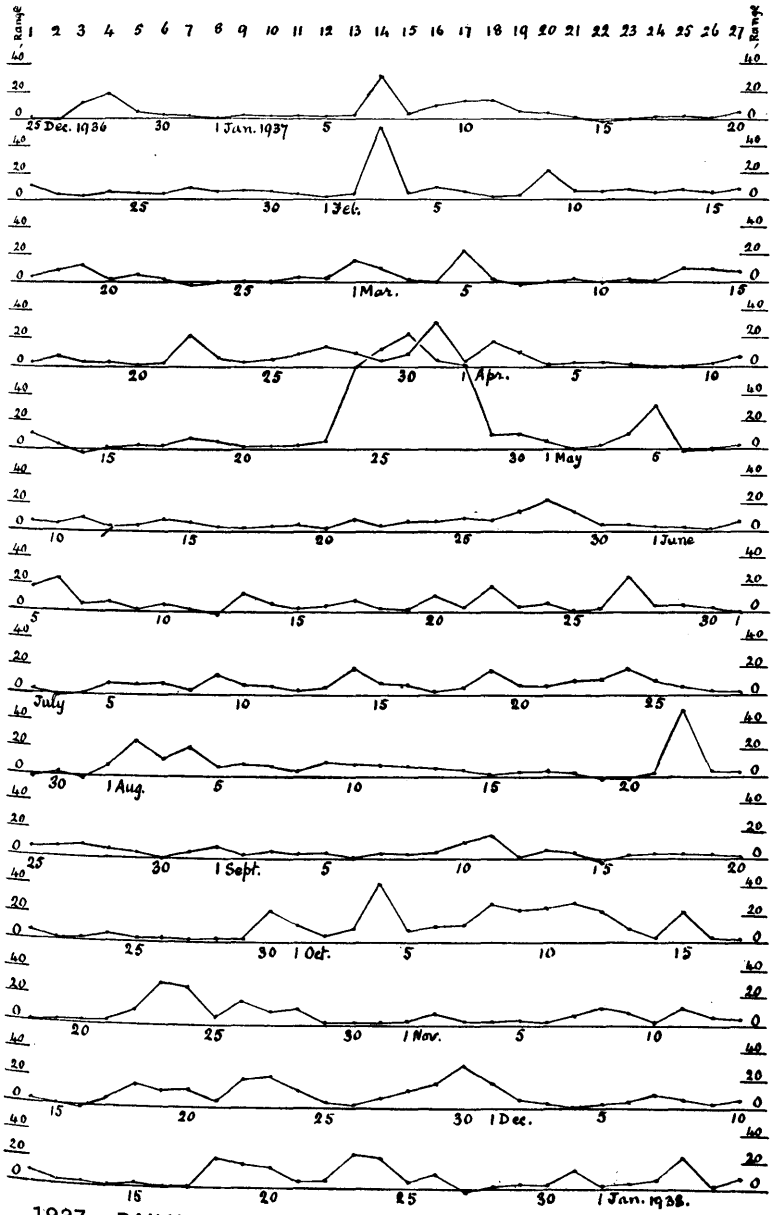
	Solar		Magnetic Mean Daily Range	
	Spotless Days	Mean Area (1/5000 of Disc)	Decln. $\prime$	H.F. γ
1930 ...	4	2·44	16·9	88·7
1931 ...	46	1·26	13·8	59·5
1932 ...	118	0·81	14·4	62·8
1933 ...	249	0·41	13·4	58·1
1934 ...	175	0·58	12·4	53·1
1935 ...	24	3·12	14·2	59·3
1936 ...	0	5·40	16·3	69·0
1937 ...	0	10·27*	17·4	84·6

* *From Stonyhurst drawings only.*

The increased magnetic activity shown by the mean ranges is this year reflected also in the numbers of days of different magnetic character given on p. 38. The number of days classed as "calm" decreased from 123 to 93, whilst those of "small" disturbance increased from 139 to 151. The days of "moderate" disturbance numbered 89, the same as in 1936, whilst days of "greater" disturbance increased from 14 to 28, and on four days the disturbance was classed as "very great" or true magnetic storms, the first of this character since 1929, March 12.

The chart on p. XIII shows the magnetic character of each day of the year, divided into 27-day periods, the ordinates representing the values of diurnal range from which our character letters are determined, as explained on pp. x–xi.

In recent years there has been a lack of obvious sequences of disturbed conditions at approximately



1937. DAILY MAGNETIC CHARACTER IN 27-DAY PERIODS.

27 days interval, but in the current year there appears to be one such sequence extending over five periods from January 7th to April 26th, with a mean period of 27¼ days. At the end of this sequence there occurred a series of great disturbances extending over five days, from April 24th to 28th inclusive, the last four of these days giving the disturbances classed as " very great " mentioned above.

" Sudden Commencements " were noted on the following dates at the times indicated :—Jan. 12, 12 h. 18 m. ; Jan. 30, 15 h. 10 m. ; Feb. 2, 23 h. 6 m. ; Feb. 18, 19 h. 6 m. ; Feb. 21, 3 h. 27 m. ; Mar. 5, 7 h. 27 m. ; Mar. 26, 20 h. 58 m. ; Mar. 30, 14 h. 12 m. ; Mar. 31, 3 h. 18 m. ; Apr. 24, 12 h. 2 m. ; Apr. 25, 15 h. 48 m. ; Apr. 26, 17 h. 55 m. ; May 3, 16 h. 6 m. ; May 4, 16 h. 55 m. ; May 21, 15 h. 58 m. ; May 28, 1 h. 55 m. ; June 10, 5 h. 6 m. ; June 13, 8 h. 42 m. ; June 27, 15 h. 18m. ; July 9, 11 h. 42 m. ; July 11, 14 h. 51 m. ; July 19, 12 h. 56 m. ; Aug. 1, 21 h. 51 m. ; Aug. 6, 23 h. 24 m. ; Aug. 21, 21 h. 12 m. ; Aug. 22, 3 h. 8 m. ; Sept. 1, 14 h. 51 m. ; Sept. 10, 17 h. 52 m. ; Sept. 30, 13 h. 46 m. ; Oct. 3, 11 h. 20 m. ; Oct. 7, 5 h. 18 m. ; Oct. 12, 19 h. 30 m. ; Nov. 29, 11 h. 6 m. ; Nov. 29, 19 h. 12 m.

Astronomical Time Service.—The rhythmic time signals from Rugby at 1000 G.M.T. have been regularly taken throughout the year, and the errors and rates of the sidereal and mean time clocks and chronometers determined from them. On occasion, supplementary time signals have also been received. Time marks are made by the Synchronome Clock every minute on the Milne-Shaw Seismograph, and every two hours on the Magnetographs.

Solar Observations.—Observation of the Solar Surface was made on 247 days, with the results shown in the table on pp. 39–40. All the 247 days of observation yielded drawings, of which 201 are complete, and show all spots and faculæ, and of the remaining 46, 40 are complete for spots. Professor Brunner, of Zurich, supplied 107 drawings to fill gaps in our own observations. There remain 17 days for which no statistics are available.

The routine work of solar drawing was normally carried out by the Director, and in his absence by Mr. Brown or Father Lawrence. Father Macklin is responsible for the measurements and reductions.

Sun-spot statistics have been sent regularly to Professor Brunner, of Zurich, for the preparation of the "Sun-Spot Numbers," published in the quarterly Bulletin, under the auspices of the I.A.U.

The observation days and daily projected areas in units 1/5000 of the disc for the Stonyhurst drawings are recorded on pages 39 and 40. The horizontal lines on these pages indicate the commencement of a new solar rotation in accordance with the Greenwich Convention.

With the approach to maximum of the sun spot cycle, solar activity again shows a marked increase on last year. There were no spotless days and the mean daily disc area of spots on the Stonyhurst drawings increased from 5·16 to 10·27, whilst the number of groups starting during the year increased from 354 to 422. The greatest spotted area was 39·62 on October 4th, and the least was 0·04 on December 1st. The

greatest individual groups with the dates of their Central Meridian passage were :—

NO.	AREA	C.M. PASSAGE
31	19·37	Jan. 30–31
140	18·83	Apr. 23
244	27·30	July 28–29
331	32·94	Oct. 4

Reference to the chart on p. XIII shows that each of these groups when near the Central Meridian was accompanied or followed by notable magnetic disturbance, that of April 23rd being associated with the greatest magnetic disturbance of the year.

SEISMOLOGICAL.—The Milne-Shaw seismograph has been in continuous service throughout the year, the total number of earthquakes recorded being 95, as against 90 last year. They were distributed as follows :

Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
9	3	2	4	1	3	12	14	16	6	11	14	95

Among the more notable were the following :—

Jan. 7—Tibet	July 31—South East China
Feb. 21—Sakhalin Island	Aug. 20—Philippine Is'ds.
Apr. 16—Tonga Islands	Sep. 27—Java
June 21—Off coast of Peru	Nov. 14—Chitral
July 22—Alaska	Dec. 13—Formosa
,, 26—Mexico	,, 23—Mexico.

A slight British tremor, having its origin near Birmingham, was recorded at about 1·44 a.m. G.M.T. on July 9th.

Preliminary measurements of the principal shocks have been sent to the Official Centres, and complete bulletins are in preparation.

A number of original records or photographic copies of particular earthquakes have been supplied on request for special investigations.

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

J. P. Rowland, s.j.,

Director.

Maximum Gusts for each Day of the Year, 1937

Recorded by the Dines Tube Anemograph.

1937	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1937
DAY													DAY
1	46	27	33	40	18	40	41	19	31	21	22	23	1
2	50	41	31	36	21	33	30	16	43	19	28	50	2
3	50	42	25	28	33	30	18	20	41	22	22	43	3
4	51	46	34	18	28	34	32	25	30	15	27	28	4
5	40	31	27	21	**48**	33	27	10	36	26	20	11	5
6	54	46	26	22	23	17	27	25	**44**	23	17	26	6
7	53	45	38	27	30	21	36	23	42	36	13	25	7
8	21	42	22	35	22	29	22	22	37	30	25	20	8
9	30	45	12	29	37	18	32	24	26	22	31	34	9
10	28	44	30	30	30	28	35	23	27	22	38	45	10
11	**33**	32	**60**	20	47	30	17	13	31	18	26	45	11
12	46	30	27	21	36	24	22	18	15	13	20	**54**	12
13	47	17	14	34	28	22	27	24	25	27	29	29	13
14	9	29	30	34	18	39	26	32	24	29	25	37	14
15	26	39	35	26	22	31	23	33	30	32	19	36	15
16	35	48	24	29	15	28	37	27	17	24	31	29	16
17	54	50	26	30	18	33	18	37	24	25	**48**	29	17
18	49	49	34	20	16	26	20	**40**	17	11	39	17	18
19	24	53	30	36	22	20	24	38	13	16	38	18	19
20	62	50	23	32	26	22	20	27	30	12	16	29	20
21	57	41	30	37	43	30	34	24	19	13	18	29	21
22	62	34	30	**41**	33	37	**43**	11	21	27	29	31	22
23	40	32	37	34	33	22	28	18	16	33	31	28	23
24	53	38	36	23	38	18	31	16	25	36	19	41	24
25	24	54	30	27	29	25	32	18	12	33	26	15	25
26	37	41	26	29	21	26	30	26	23	43	13	11	26
27	51	34	28	23	34	30	27	16	24	**44**	28	11	27
28	**72**	**74**	27	26	15	**44**	15	18	27	35	14	32	28
29	50		17	18	28	38	16	17	22	27	17	30	29
30	40		28	18	27	34	14	16	30	28	26	21	30
31	30		28		31		18	26		20		25	31

METEOROLOGICAL REPORT.

JANUARY, 1937.

Results of Observations taken during the Month.		Mean for the last 90 years.
Mean Reading of the Barometer ..... inches	29·274	29·481
Highest „ on the 8th ..... „	30·076	30·130
Lowest „ on the 24th ..... „	28·701	28·592
Range of Barometer Readings ..... „	1·375	1·538
Highest Reading of a Max. Therm. on the 22nd ..	55·2	51·5
Lowest Reading of a Min. Therm. on the 15th...	26·2	22·0
Range of Thermometer Readings.....	29·0	29·5
Mean of Highest Daily Readings	44·7	42·6
Mean of Lowest Daily Readings	36·1	33·4
Mean Daily Range	8·6	9·2
Deduced Mean Temp. (from mean of Max. and Min.)	40·2	37·8
Mean Temperature from Dry Bulb	41·2	38·1
Adopted Mean Temperature	40·7	38·0
Mean Temperature of Evaporation	39·4	36·7
Mean Temperature of Dew Point	37·1	34·6
Mean elastic force of Vapour ..... inches	0·221	0·202
Mean weight of Vapour in a cub. ft. of air, grains	2·6	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	541·4	549·0
Mean amount of Cloud (0—10)	8·3	7·8
Fall of Rain ..... inches	3·515	4·426
Greatest Rainfall in one day (5th) ..... „	1·207	0·828
No. of days on which ·005 in. or more Rain fell...	29	19·8

Wind:—Direction	N	NE	E	SE	S	SW	W	NW
No. of days.....	0	1	5	2	10	5	8	0
Mean Velocity in miles per hr.	0	11·6	18·2	18·0	14·9	12·0	15·4	0
Total No. of miles.....	0	279	2183	864	3576	1435	2953	0

		Mean*
Total No. of miles registered	11290	8310
Greatest hourly velocity (20th, at 2230 G.M.T., Dir. S.S.E.).....	48	42

* *For the last 70 years.*

JANUARY, 1937.

DIFFERENCES.

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

Mean barometric pressure	—	0·207 in.
Monthly range „	—	0·163 in.
Mean of highest daily temperatures	+	2·1°
Mean of lowest „ „	+	2·7°
Mean daily Range	—	0·6°
Adopted mean temperature	+	2·7°
Total rainfall	—	0·911 in.

Ground Frost on the 2nd, 8th, 14th—20th, 26th, 27th, and 29th—31st. Hoar Frost on the 14th, 15th and 19th. Snow on the 16th, 19th, 20th, 26th, 28th and 30th. Hail on the 1st, 4th and 16th. Heavy Rain on the 5th. Gales of Wind on the 17th, 20th, 21st, 22nd and 28th. Fog on the 8th, 19th and 25th. Thunder on the 5th. Solar Halo on the 20th. Aurora Borealis on the 7th.

EXTREME READINGS FOR JANUARY.

During 90 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	1928	...12·267 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 „ „ „ ...	†1879	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* 1850.

FEBRUARY, 1937.

Results of Observations taken during the Month.		Mean for the last 90 years.
Mean Reading of the Barometer ..... inches	29·080	29·493
Highest „ on the 8th ..... „	29·621	30·106
Lowest „ on the 24th ..... „	28·389	28·660
Range of Barometer Readings ..... „	1·232	1·446
Highest Reading of a Max. Therm. on the 22nd ..	52·0	52·0
Lowest Reading of a Min. Therm. on the 15th...	28·8	22·8
Range of Thermometer Readings.....	23·2	29·2
Mean of Highest Daily Readings	43·9	43·8
Mean of Lowest Daily Readings	35·4	33·6
Mean Daily Range	8·5	10·2
Deduced Mean Temp. (from mean of Max. and Min.)	39·7	38·2
Mean Temperature from Dry Bulb	40·0	38·5
Adopted Mean Temperature	39·9	38·4
Mean Temperature of Evaporation	38·3	36·8
Mean Temperature of Dew Point	36·1	34·6
Mean elastic force of Vapour ..... inches	0·213	0·197
Mean weight of Vapour in a cub. ft. of air, grains	2·5	2·4
Mean additional weight required for saturation „	0·4	0·4
Mean degree of Humidity (saturation 100)	85	86
Mean weight of a cubic foot of air ..... grains	539·3	548·6
Mean amount of Cloud (0—10)	7·6	7·5
Fall of Rain ..... inches	6·159	3·545
Greatest Rainfall in one day (25th) ..... „	1·009	0·756
No. of days on which ·005 in. or more Rain fell...	21	16·6

Wind :—Direction	N	NE	E	SE	S	SW	W	NW
No. of days.....	1	1	3	0	3	4	13	3
Mean Velocity in miles per hr.	21·3	12·7	13·3	0	11·7	13·7	14·0	9·0
Total No. of miles.....	512	305	956	0	840	1313	4370	647

		Mean*
Total No. of miles registered	8943	7364
Greatest hourly velocity (28th, at 0700 G.M.T., Dir. N. by E.).....	36	39

* *For the last 70 years.*

FEBRUARY, 1937.

DIFFERENCES.

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

Mean barometric pressure	—	0·413 in.
Monthly range „	—	0·214 in.
Mean of highest daily temperatures	+	0·1°
Mean of lowest „ „	+	1·8°
Mean daily range	—	1·7°
Adopted mean temperature	+	1·5°
Total rainfall	+	2·614 in.

Ground Frost on the 5th, 7th, 11th—13th, 17th, 18th, 21st, 24th and 28th. Hoar Frost on the 12th and 23rd. Snow on the 9th, 16th, 20th, 22nd, 27th and 28th. Hail on the 9th, 10th, 11th, 16th, 20th and 21st. Heavy Rain on the 16th, 18th and 25th. Fog on the 1st, 5th, 12th, 13th, 14th, 15th, 18th and 19th. Thunder on the 21st. Lightning on the 9th and 21st. Lunar Halo on the 17th and 23rd. Solar Halo on the 5th. Aurora Borealis on the 3rd.

EXTREME READINGS FOR FEBRUARY,

During 90 Years.

Highest reading of Barometer ...	1934 (15th) ...	...30·515 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 „	1932	0·123 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 „ „ „ ...	1917	3160

* *Since* 1837 *only.*

MARCH, 1937.

Results of Observations taken during the Month.		Mean for the last 90 years.
Mean Reading of the Barometer ..... inches	29·228	29·453
Highest „ on the 30th ..... „	29·960	30·044
Lowest „ on the 12th ..... „	28·528	28·665
Range of Barometer Readings ..... „	1·432	1·379
Highest Reading of a Max. Therm. on the 18th...	52·0	56·8
Lowest Reading of a Min. Therm. on the 16th...	26·3	23·7
Range of Thermometer Readings.....	25·7	33·1
Mean of Highest Daily Readings	42·0	46·9
Mean of Lowest Daily Readings	32·1	34·5
Mean Daily Range	9·9	12·4
Deduced Mean Temp. (from mean of Max. and Min.)	36·1	39·8
Mean Temperature from Dry Bulb	37·7	40·5
Adopted Mean Temperature	36·9	40·1
Mean Temperature of Evaporation	35·6	38·3
Mean Temperature of Dew Point	32·7	35·9
Mean elastic force of Vapour ..... inches	0·187	0·210
Mean weight of Vapour in a cub. ft. of air, grains	2·2	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 ..... grains	544·7	546·0
Mean amount of Cloud (0—10)	7·4	7·4
Fall of Rain ..... inches	1·786	3·222
Greatest Rainfall in one day (16th)..... „	0·300	0·738
No. of days on which ·005 in. or more Rain fell...	23	16·6

Wind :—Direction	N	NE	E	SE	S	SW	W	NW
No. of days.....	5	8	6	3	3	0	4	2
Mean Velocity in miles per hr.	6·9	7·3	8·7	9·3	10·5	0	10·7	9·1
Total No. of miles.....	831	1396	1253	667	757	0	1024	439

		Mean*
Total No. of miles registered	6367	8179
Greatest hourly velocity (11th and 16th, 1300 and 1600 G.M.T. Dir. E.N.E. and S.E. by E.)...	25	39

* *For the last 70 years.*

MARCH, 1937.

DIFFERENCES.

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

Mean barometric pressure	—	0·225 in.
Monthly range „	+	0·053 in.
Mean of highest daily temperatures	—	4·9°
Mean of lowest „ „	—	2·4°
Mean daily range	—	2·5°
Adopted mean temperature	—	3·2°
Total rainfall	—	1·436 in.

Ground Frost on the 1st, 2nd, 4th—12th, 14th—16th, and 22nd—31st. Hoar Frost on the 16th and 28th. Snow on the 1st, 2nd, 6th—12th, 14th—16th, and 21st—27th. Hail on the 8th, 9th, and 26th. Fog on the 10th and 24th. Solar Halo on the 22nd and 31st. Aurora Borealis on the 1st.

EXTREME READINGS FOR MARCH,

During 90 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 ...	†1914	28
Least „ „ „ ...	1852	3
*Greatest hourly velocity of wind...	1905 (15th)	57 mls.
*Greatest No. of miles registered ...	1903	12773
*Least „ „ „ ...	1929	4437

* *Since* 1867 *only.* †*And in* 1861.

APRIL, 1937.

Results of Observations taken during the Month.		Mean for the last 90 years.
Mean Reading of the Barometer ..... inches	29·402	29·478
Highest ,, on the 29th ..... ,,	30·017	29·954
Lowest ,, on the 16th ..... ,,	28·849	28·806
Range of Barometer Readings ..... ,,	1·168	1·148
Highest Reading of a Max. Therm. on 29th	59·6	64·0
Lowest Reading of a Min. Therm. on the 1st ...	32·2	28·4
Range of Thermometer Readings.....	27·4	35·6
Mean of Highest Daily Readings	52·8	53·9
Mean of Lowest Daily Readings	41·5	38·0
Mean Daily Range	11·3	15·9
Deduced Mean Temp. (from mean of Max. and Min.)	45·7	43·8
Mean Temperature from Dry Bulb	47·0	44·7
Adopted Mean Temperature	46·4	44·3
Mean Temperature of Evaporation	44·4	41·6
Mean Temperature of Dew Point	41·5	38·2
Mean elastic force of Vapour ..... inches	0·262	0·234
Mean weight of Vapour in a cub. ft. of air, grains	3·0	2·7
Mean additional weight required for saturation ,,	0·7	0·7
Mean degree of Humidity (saturation 100)	80	79
Mean weight of a cubic foot of air ..... grains	537·3	541·9
Mean amount of Cloud (0—10)	8·1	6·8
Fall of Rain ..... inches	2·780	2·564
Greatest Rainfall in one day (7th) ..... ,,	0·442	0·589
No. of days on which ·005 in. or more Rain fell...	18	15·0

Wind :—Direction	N	NE	E	SE	S	SW	W	NW
No. of days.....	1	7	4	2	2	3	10	1
Mean Velocity in miles per hr.	3·9	6·2	8·7	10·6	8·9	9·0	12·6	6·6
Total No. of miles.....	93	1035	834	507	426	651	3023	158

		Mean*
Total No. of miles registered	6727	7435
Greatest hourly velocity (2nd, at 0900 G.M.T., Dir. E.)	26	35

* *For the last 70 years.*

APRIL, 1937.

DIFFERENCES.

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

Mean barometric pressure	—	0·076 in.
Monthly range „	+	0·020 in.
Mean of highest daily temperatures	—	1·1°
Mean of lowest „ „	+	3·5°
Mean daily range	—	4·6°
Adopted mean temperature	+	2·1°
Total rainfall	+	0·216 in.

Ground Frost on the 1st, 12th and 26th. Hoar Frost on the 1st. Fog on the 27th. Solar Halo on the 1st and 19th. Aurora Borealis on the 12th.

EXTREME READINGS FOR APRIL,
During 90 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, 1937.

Results of Observations taken during the Month.			Mean for the last 90 years.
Mean Reading of the Barometer	inches	29·573	29·540
Highest „ on the 1st	„	29·947	29·978
Lowest „ on the 21st	„	29·067	28·958
Range of Barometer Readings	„	0·880	1·020
Highest Reading of a Max. Therm. on the 29th...		73·0	71·9
Lowest Reading of a Min. Therm. on the 6th ...		37·3	32·3
Range of Thermometer Readings.....		35·7	39·6
Mean of Highest Daily Readings		60·6	59·2
Mean of Lowest Daily Readings		45·7	42·7
Mean Daily Range		14·9	16·5
Deduced Mean Temp. (from mean of Max. and Min.)		51·5	49·2
Mean Temperature from Dry Bulb		52·6	50·2
Adopted Mean Temperature		52·1	49·7
Mean Temperature of Evaporation		49·3	46·5
Mean Temperature of Dew Point		46·0	43·1
Mean elastic force of Vapour	inches	0·311	0·280
Mean weight of Vapour in a cub. ft. of air, grains		3·5	3·2
Mean additional weight required for saturation „		1·0	0·8
Mean degree of Humidity (saturation 100)		78	77
Mean weight of a cubic foot of air	grains	534·3	536·8
Mean amount of Cloud (0—10)		6·7	7·0
Fall of Rain	inches	2·051	2·757
Greatest Rainfall in one day (23rd).....	„	0·520	0·652
No. of days on which ·005 in. or more Rain fell...		12	14·6

Wind :—Direction	N	NE	E	SE	S	SW	W	NW
No. of days.....	2	8	3	0	5	3	10	0
Mean Velocity in miles per hr.	4·7	6·5	8·1	0	9·8	5·9	8·2	0
Total No. of miles.....	227	1244	580	0	1178	427	1975	0

		Mean*
Total No. of miles registered	5631	6814
Greatest hourly velocity (5th at 1230 G.M.T., Dir. W.N.W.).....	28	32

* *For the last 70 years.*

MAY, 1937.

DIFFERENCES.

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

Mean barometric pressure	+	0·033 in
Monthly range „	—	0·140 in.
Mean of highest daily temperatures	+	1·4°
Mean of lowest „ „	+	3·0°
Mean daily range	—	1·6°
Adopted mean temperature	+	2·4°
Total rainfall	—	0·706 in.

Heavy Rain on the 23rd. Fog on the 1st, 7th, 17th and 18th. Thunder on the 3rd, 21st, 23rd and 24th. Lightning on the 3rd, 21st and 22nd. Solar Halo on the 19th, 23rd and 25th.

EXTREME READINGS FOR MAY,

During 90 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 ...	1924	... 26
Least „ „ „	†1859	... 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* 1848.

JUNE, 1937.

Results of Observations taken during the Month.		Mean for the last 90 years.
Mean Reading of the Barometer ..... inches	29·601	29·559
Highest ,, on the 15th ..... ,,	29·917	29·937
Lowest ,, on the 29th ..... ,,	29·224	29·048
Range of Barometer Readings ..... ,,	0·693	0·889
Highest Reading of a Max. Therm. on the 10th...	70·0	76·4
Lowest Reading of a Min. Therm. on the 3rd ...	42·3	39·3
Range of Thermometer Readings.....	27·7	37·1
Mean of Highest Daily Readings	61·5	64·9
Mean of Lowest Daily Readings	49·1	48·3
Mean Daily Range	12·4	16·6
Deduced Mean Temp. (from mean of Max. and Min.)	53·5	54·8
Mean Temperature from Dry Bulb	55·3	55·4
Adopted Mean Temperature	54·4	55·1
Mean Temperature of Evaporation	51·8	51·8
Mean Temperature of Dew Point	48·5	48·3
Mean elastic force of Vapour ..... inches	0·342	0·345
Mean weight of Vapour in a cub. ft. of air, grains	3·8	3·8
Mean additional weight required for saturation ,,	1·1	1·0
Mean degree of Humidity (saturation 100)	77	78
Mean weight of a cubic foot of air ..... grains	531·7	531·3
Mean amount of Cloud (0—10)	7·6	7·1
Fall of Rain ..... inches	3·729	3·301
Greatest Rainfall in one day (3rd)..... ,,	1·708	0·804
No. of days on which ·005 in. or more Rain fell...	16	15·1

Wind:—Direction	N	NE	E	SE	S	SW	W	NW
No. of days.....	1	3	0	0	2	4	16	4
Mean Velocity in miles per hr.	5·8	5·7	0	0	6·2	7·1	9·2	6·4
Total No. of miles.....	140	413	0	0	296	678	3538	616

		Mean*
Total No. of miles registered	5681	6149
Greatest hourly velocity (28th, at 1630 G.M.T., Dir. W.S.W.).....	22	29

* *For the last 70 years.*

JUNE, 1937.

DIFFERENCES.

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

Mean barometric pressure	+	0·042 in.
Monthly range „	—	0·196 in.
Mean of highest daily temperatures	—	3·4°
Mean of lowest „ „	+	0·8°
Mean daily range	—	4·2°
Adopted mean temperature	—	0·7°
Total rainfall	+	0·428 in.

Heavy Rain on the 3rd and 13th. Fog on the 13th, 14th, 22nd, 24th and 27th. Thunder on the 13th. Lightning on the 13th. Solar Halo on the 2nd.

EXTREME READINGS FOR JUNE,

During 90 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 „	1925	... 0·282 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 ...	†1912	... 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 in* 1907.

JULY, 1937.

Results of Observations taken during the Month.		Mean for the last 90 years.
Mean Reading of the Barometer ..... inches	29·539	29·523
Highest ,, on the 17th ..... ,,	29·795	29·901
Lowest ,, on the 23rd ..... ,,	29·253	29·006
Range of Barometer Readings ..... ,,	0·542	0·895
Highest Reading of a Max. Therm. on 31st	76·8	78·1
Lowest Reading of a Min. Therm. on the 8th ...	46·0	43·1
Range of Thermometer Readings.....	30·8	35·0
Mean of Highest Daily Readings	65·6	67·2
Mean of Lowest Daily Readings	53·4	51·5
Mean Daily Range	12·2	15·7
Deduced Mean Temp. (from mean of Max. and Min.)	57·6	57·7
Mean Temperature from Dry Bulb	59·2	58·2
Adopted Mean Temperature	58·4	58·0
Mean Temperature of Evaporation	55·9	54·9
Mean Temperature of Dew Point	53·0	52·1
Mean elastic force of Vapour ..... inches	0·402	0·390
Mean weight of Vapour in a cub. ft. of air, grains	4·5	4·4
Mean additional weight required for saturation ,,	1·1	1·1
Mean degree of Humidity (saturation 100)	80	81
Mean weight of a cubic foot of air ..... grains	526·2	527·3
Mean amount of Cloud (0—10)	8·2	7·4
Fall of Rain ..... inches	2·146	4·016
Greatest Rainfall in one day (15th)..... ,,	0·367	0·870
No. of days on which ·005 in. or more Rain fell...	18	16·9

Wind :—Direction	N	NE	E	SE	S	SW	W	NW
No. of days.....	2	1	0	0	4	5	18	1
Mean Velocity in miles per hr.	3·9	4·0	0	0	6·3	6·5	8·9	4·4
Total No. of miles.....	190	96	0	0	606	781	3830	105

		Mean*
Total No. of miles registered	5608	6310
Greatest hourly velocity (1st, at 1400 G.M.T., Dir. W.S.W.)	21	28

* *For the last 70 years.*

JULY, 1937.

DIFFERENCES.

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

Mean barometric pressure	+	0·016 in.
Monthly range „	—	0·353 in.
Mean of highest daily temperatures	—	1·6°
Mean of lowest „ „	+	1·9°
Mean daily range	—	3·5°
Adopted mean temperature	+	0·4°
Total rainfall	—	1·870 in.

Fog on the 4th, 20th and 28th. Solar Halo on the 20th.

EXTREME READINGS FOR JULY,

During 90 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 „ „ „ ...	†1917	... 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.*

AUGUST, 1937.

Results of Observations taken during the Month.		Mean for the last 90 years.
Mean Reading of the Barometer ..... inches	29·636	29·497
Highest ,, on the 26th ..... ,,	29·978	29·900
Lowest ,, on the 16th ..... ,,	29·093	28·952
Range of Barometer Readings ..... ,,	0·885	0·948
Highest Reading of a Max. Therm. on the 1st ...	78·1	76·0
Lowest Reading of a Min. Therm. on the 27th...	43·6	42·2
Range of Thermometer Readings.....	34·5	33·8
Mean of Highest Daily Readings	68·2	66·2
Mean of Lowest Daily Readings	52·9	51·0
Mean Daily Range	15·3	15·2
Deduced Mean Temp. (from mean of Max. and Min.)	58·9	56·9
Mean Temperature from Dry Bulb	60·7	57·9
Adopted Mean Temperature	59·8	57·4
Mean Temperature of Evaporation	56·9	54·6
Mean Temperature of Dew Point	53·7	51·9
Mean elastic force of Vapour ..... inches	0·412	0·388
Mean weight of Vapour in a cub. ft. of air, grains	4·6	4·3
Mean additional weight required for saturation ,,	1·3	1·0
Mean degree of Humidity (saturation 100)	78	81
Mean weight of a cubic foot of air ..... grains	526·4	527·2
Mean amount of Cloud (0—10)	6·0	7·3
Fall of Rain ..... inches	2·890	5·043
Greatest Rainfall in one day (12th)..... ,,	1·045	1·062
No. of days on which ·005 in. or more Rain fell...	11	18·5

Wind:—Direction	N	NE	E	SE	S	SW	W	NW
No. of days.....	0	8	2	0	1	4	16	0
Mean Velocity in miles per hr.	0	3·7	4·4	0	7·4	4·9	6·4	0
Total No. of miles.....	0	715	209	0	178	469	2459	0

		Mean*
Total No. of miles registered	4030	6211
Greatest hourly velocity (17th, at 0900 G.M.T., Dir. W.)	21	30

* *For the last 70 years.*

AUGUST, 1937.

DIFFERENCES.

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

Mean barometric pressure	+	0·139 in.
Monthly range ,, ...	—	0·063 in.
Mean of highest daily temperatures	+	2·0°
Mean of lowest ,, ,, ...	+	1·9°
Mean daily range	+	0·1°
Adopted mean temperature	+	2·4°
Total rainfall	—	2·153 in.

Heavy Rain on the 12th. Fog on the 6th and 28th. Thunder on the 6th, 12th, 13th and 30th. Lightning on the 6th, 7th, 12th, 13th and 30th. Solar Halo on the 4th, 6th, 11th, 12th, 16th and 22nd.

EXTREME READINGS FOR AUGUST,

During 90 Years.

Highest reading of Barometer ...	1932 (22nd) ...	...30·208 in.
Lowest ,, ,, ...	1917 (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 ,, ...	1935	1·637 in.
Greatest fall of rain in one day ...	1929 (23rd)	2·350 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, 1937.

Results of Observations taken during the Month.			Mean for the last 90 years.
Mean Reading of the Barometer	inches	29·464	29·542
Highest „ on the 8th	„	29·853	30·003
Lowest „ on the 15th	„	28·752	28·888
Range of Barometer Readings	„	1·101	1·115
Highest Reading of a Max. Therm. on the 27th...		70·6	71·6
Lowest Reading of a Min. Therm. on the 21st ...		39·2	36·8
Range of Thermometer Readings.....		31·4	34·8
Mean of Highest Daily Readings		60·5	61·7
Mean of Lowest Daily Readings		48·4	47·5
Mean Daily Range		12·1	14·2
Deduced Mean Temp. (from mean of Max. and Min.)		53·2	53·4
Mean Temperature from Dry Bulb		54·8	54·3
Adopted Mean Temperature		54·0	53·9
Mean Temperature of Evaporation		51·4	51·1
Mean Temperature of Dew Point		48·1	48·4
Mean elastic force of Vapour	inches	0·336	0·340
Mean weight of Vapour in a cub. ft. of air,	grains	3·8	3·9
Mean additional weight required for saturation	„	1·0	0·9
Mean degree of Humidity (saturation 100)		78	82
Mean weight of a cubic foot of air	grains	529·7	532·3
Mean amount of Cloud (0—10)		6·7	6·7
Fall of Rain	inches	2·643	4·359
Greatest Rainfall in one day (24th).....	„	0·474	0·986
No. of days on which ·005 in. or more Rain fell...		21	16·6

Wind :—Direction	N	NE	E	SE	S	SW	W	NW
No. of days.....	3	3	1	0	5	8	8	2
Mean Velocity in miles per hr.	7·2	4·2	3·7	0	5·8	9·0	8·3	2·7
Total No. of miles.....	519	301	89	0	697	1736	1601	131

		Mean*
Total No. of miles registered	5074	6001
Greatest hourly velocity (7th, at 2230 G.M.T., Dir. W. by S.).....	23	31

* *For the last 70 years.*

SEPTEMBER, 1937.

DIFFERENCES.

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

Mean barometric pressure	—	0·078 in.
Monthly range ,, ...	—	0·014 in
Mean of highest daily temperatures	—	1·2°
Mean of lowest ,, ,, ...	+	0·9°
Mean daily range	—	2·1°
Adopted mean temperature	+	0·1°
Total rainfall	—	1·716 in.

Fog on the 12th, 13th, 21st, 25th and 27th.

EXTREME READINGS FOR SEPTEMBER,

During 90 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 ...	1932 (2nd) ...	... 2·800 in.
Greatest No. of days on which ·005 in. or more rain fell ...	1918	... 29
Least ,, ,, ,,	†1915	... 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, 1937.

Results of Observations taken during the Month.		Meanfor the last 90 years.
Mean Reading of the Barometer ..... inches	29·545	29·446
Highest ,, on the 4th ..... ,,	30·181	30·019
Lowest ,, on the 23rd ..... ,,	28·408	28·680
Range of Barometer Readings ..... ,,	1·773	1·339
Highest Reading of a Max. Therm. on the 1st ...	64·1	63·8
Lowest Reading of a Min. Therm. on the 19th...	33·4	30·0
Range of Thermometer Readings.....	30·7	33·8
Mean of Highest Daily Readings	55·0	54·3
Mean of Lowest Daily Readings	43·9	42·2
Mean Daily Range	11·1	12·1
Deduced Mean Temp. (from mean of Max. and Min.)	48·5	47·3
Mean Temperature from Dry Bulb	49·5	48·1
Adopted Mean Temperature	49·0	47·8
Mean Temperature of Evaporation	47·0	45·6
Mean Temperature of Dew Point	44·3	43·1
Mean elastic force of Vapour ..... inches	0·292	0·279
Mean weight of Vapour in a cub. ft. of air, grains	3·4	3·2
Mean additional weight required for saturation ,,	0·7	0·6
Mean degree of Humidity (saturation 100)	82	84
Mean weight of a cubic foot of air ..... grains	537·2	537·3
Mean amount of Cloud (0—10)	6·9	7·3
Fall of Rain ..... inches	2·071	5·050
Greatest Rainfall in one day (23rd)..... ,,	0·410	0·988
No. of days on which ·005 in. or more Rain fell...	15	19·0

Wind :—Direction	N	NE	E	SE	S	SW	W	NW
No. of days.....	4	11	2	1	4	2	5	2
Mean Velocity in miles per hr.	3·1	6·5	2·9	13·3	8·7	9·3	8·0	8·7
Total No. of miles.....	294	1719	141	318	834	446	963	417

		Mean*
Total No. of miles registered	5132	6851
Greatest hourly velocity (26th, at 1000 G.M.T., Dir. S.)	29	37

* *For the last* 70 *years.*

OCTOBER, 1937.

DIFFERENCES.

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

Mean barometric pressure	+	0·099 in.
Monthly range „	+	0·434 in.
Mean of highest daily temperatures	+	0·7°
Mean of lowest „ „	+	1·7°
Mean daily range	—	1·0°
Adopted mean temperature	+	1·2°
Total rainfall	—	2·979 in.

Ground Frost on the 5th, 12th, 18th and 19th. Fog on the 3rd, 4th, 10th, 13th, 18th, 19th and 20th. Solar Halo on the 4th.

EXTREME READINGS FOR OCTOBER,
During 90 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 ...	†1934	... 29
Least „ „ „ ...	1920	... 8
*Greatest hourly velocity of wind...	1877 (15th) ...	... 52 mls.
*Greatest No. of miles registered ...	1934	... 9925
*Least „ „ „ ...	1915	... 3965

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

NOVEMBER, 1937.

Results of Observations taken during the Month.		Mean for the last 90 years.
Mean Reading of the Barometer ..... inches	29·614	29·458
Highest ,, on the 28th ..... ,,	30·091	30·063
Lowest ,, on the 19th ..... ,,	28·822	28·572
Range of Barometer Readings ..... ,,	1·269	1·491
Highest Reading of a Max. Therm. on the 1st ...	54·9	55·7
Lowest Reading of a Min. Therm. on the 13th...	24·9	25·6
Range of Thermometer Readings.....	30·0	30·1
Mean of Highest Daily Readings	45·7	47·1
Mean of Lowest Daily Readings	36·2	36·9
Mean Daily Range	9·5	10·2
Deduced Mean Temp. (from mean of Max. and Min.)	40·6	41·6
Mean Temperature from Dry Bulb	41·5	42·1
Adopted Mean Temperature	41·1	41·9
Mean Temperature of Evaporation	39·8	39·9
Mean Temperature of Dew Point	37·7	38·2
Mean elastic force of Vapour ..... inches	0·227	0·232
Mean weight of Vapour in a cub. ft. of air, grains	2·6	2·8
Mean additional weight required for saturation ,,	0·4	0·4
Mean degree of Humidity (saturation 100)	85	87
Mean weight of a cubic foot of air ..... grains	547·3	544·3
Mean amount of Cloud (0—10)	7·1	7·4
Fall of Rain ..... inches	1·562	4·438
Greatest Rainfall in one day (19th)..... ,,	0·553	0·986
No. of days on which ·005 in. or more Rain fell...	8	18·1

Wind :—Direction	N	NE	E	SE	S	SW	W	NW
No. of days.....	6	9	5	0	2	2	4	2
Mean Velocity in miles per hr.	6·2	4·8	9·9	0	6·8	5·6	4·3	7·0
Total No. of miles.....	896	1033	1183	0	326	269	415	335

		Mean*
Total No. of miles registered	4457	7012
Greatest hourly velocity (17th, at 1130 G.M.T., Dir. E. by S.).....	24	40

* *For the last* 70 *years.*

NOVEMBER, 1937.

DIFFERENCES.

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

Mean barometric pressure	+	0·156 in.
Monthly range „	—	0·222 in.
Mean of highest daily temperatures	—	1·4°
Mean of lowest „ „	—	0·7°
Mean daily range	—	0·7°
Adopted mean temperature	—	0·8°
Total rainfall	—	2·876 in.

Ground Frost on the 9th—16th, 20th—22nd, 24th, 25th and 28th. Hoar Frost on the 11th—16th, and 24th. Snow on the 19th. Heavy Rain on the 19th. Fog on the 5th, 15th, 16th, 22nd, 25th, 29th and 30th. Lightning on the 30th. Solar Halo on the 14th.

EXTREME READINGS FOR NOVEMBER,

During 90 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	†1899	... 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 „ „ „ ...	1934	... 4419

* *Since* 1867 *only.* † *And in* 1881.

DECEMBER, 1937.

Results of Observations taken during the Month		Mean for the last 90 years.
Mean Reading of the Barometer ..... inches	29·446	29·435
Highest ,, on the 27th ..... ,,	30·267	30·078
Lowest ,, on the 13th ..... ,,	28·491	28·536
Range of Barometer Readings ..... ,,	1·776	1·542
Highest Reading of a Max. Therm. on the 24th...	53·4	52·6
Lowest Reading of a Min. Therm. on the 18th...	21·4	22·0
Range of Thermometer Readings.....	32·0	30·6
Mean of Highest Daily Readings	40·7	43·4
Mean of Lowest Daily Readings	32·9	34·0
Mean Daily Range	7·8	9·4
Deduced Mean Temp. (from mean of Max. and Min.)	36·8	38·7
Mean Temperature from Dry Bulb	37·3	39·3
Adopted Mean Temperature	37·1	39·1
Mean Temperature of Evaporation	35·8	37·5
Mean Temperature of Dew Point	33·7	35·5
Mean elastic force of Vapour ..... inches	0·194	0·209
Mean weight of Vapour in a cub. ft. of air, grains	2·2	2·4
Mean additional weight required for saturation ,,	0·4	0·4
Mean degree of Humidity (saturation 100)	86	87
Mean weight of a cubic foot of air ..... grains	549·1	546·9
Mean amount of Cloud (0—10)	7·4	7·7
Fall of Rain ..... inches	1·885	4·595
Greatest Rainfall in one day (20th)..... ,,	0·393	0·822
No. of days on which ·005 in. or more Rain fell...	18	20·1

Wind :—Direction	N	NE	E	SE	S	SW	W	NW
No. of days.....	11	6	2	1	3	3	3	2
Mean Velocity in miles per hr.	7·0	4·7	6·5	7·3	10·6	6·1	3·9	9·8
Total No. of miles.....	1853	675	312	175	763	437	282	468

		Mean*
Total No. of miles registered	4965	7741
Greatest hourly velocity (10th, at 1700 G.M.T., Dir. S.)	31	42

* *For the last* 70 *years.*

DECEMBER, 1937.

DIFFERENCES.

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

Mean barometric pressure	+	0·011 in.
Monthly range „	+	0·234 in.
Mean of highest daily temperatures	—	2·7°
Mean of lowest „ „	—	1·1°
Mean daily range	—	1·6°
Adopted mean temperature	—	2·0°
Total rainfall	—	2·710 in.

Ground Frost on the 3rd—21st, 26th, 29th and 30th. Hoar Frost on the 8th, 18th, 19th and 20th. Snow on the 4th—7th, 9th, 10th and 12th—15th. Fog on the 1st, 4th, 5th, 10th, 14th, 23rd, 25th, 26th, 27th and 28th. Solar Halo on the 1st. Lunar Halo on the 15th and 18th.

EXTREME READINGS FOR DECEMBER,

During 90 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	1934	... 45·8°
Lowest „ „ ...	1878	... 30·3°
Greatest fall of rain	1918	...10·597 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 „ „ „ ...	†1890	8
*Greatest hourly velocity of wind...	1894 (22nd) ...	... 65 mls.
*Greatest No. of miles registered ...	1929	... 11493
*Least „ „ „ ...	1933	... 4477

* *Since* 1867 *only.* † *And in* 1853.

Summary of Observations, 1937.

Results of Observations taken during the Year.		Mean for the last 90 Years.
Readings of Barometer in inches.		
Mean of the Year	29·450	29·492
Highest Monthly Mean (August)	29·636	29·750
Lowest „ „ (February)	29·080	29·221
Highest Reading (December 27th)	30·267	30·299
Lowest „ (February 27th)	28·389	28·219
Range	1·878	2·080
Thermometer, Fahrenheit.		
Highest Monthly Mean Temperature (August)	59·8	58·7
Lowest „ „ „ (March)	36·9	35·8
Highest Reading of a Max. Therm. (August 1st)	78·1	81·1
Lowest „ Min. „ (December 18th)	21·4	16·9
Range of Thermometer Readings	56·7	64·2
Mean of Highest Daily „	53·4	54·3
Mean of Lowest Daily „	42·3	41·2
Mean Daily Range	11·1	13·1
Deduced Mean Temp. (from Mean of Max. and Min.)	46·9	46·8
Mean Temperature from Dry Bulb	48·1	47·3
Adopted Mean Temperature of the Year	47·5	47·1
Mean Temperature of Evaporation	45·5	44·7
Mean Temperature of Dew Point	42·7	42·2
Mean elastic force of Vapour ... inches	0·273	0·274
Mean weight of Vapour in a cub. ft. of air...grns.	3·1	3·2
Mean additional weight required for saturation „	0·7	0·7
Mean degree of Humidity (saturation 100)	80	84
Mean weight of a cubic foot of air ... grns.	537·0	538·9
Mean amount of Cloud (0—10)	7·3	7·3
Total fall of Rain ... inches	33·217	47·310
Greatest Monthly Rainfall (February)	6·159	7·619
Least „ „ (November)	1·562	1·214
Greatest Rainfall in one day (June 3rd)	1·708	1·664
No. of days on which ·005 inch or more Rain fell	210	207·0

SUMMARY OF WIND, 1937.

Prevailing Direction	N	NE	E	SE	S	SW	W	NW
No. of days for each	36	66	33	9	44	43	115	19
Mean Velocity in miles per hour ...	6·4	5·8	9·8	11·7	9·9	8·4	9·6	7·3
Total No. of miles for each Direction	5555	9211	7740	2531	10477	8642	26433	3316

		Mean for the last 70 years.
Total No. of miles registered	73905	84469
Greatest Monthly Total (January)	11290	9892
Least „ „ (August)	4030	4855
Greatest recorded hourly velocity (January 20th) ...	48	50
Prevailing Direction of Wind	W.	W.

DIFFERENCES, 1937.

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

Mean barometric pressure	—	0·042 in.
Yearly range	—	0·202 in.
Mean of highest daily temperatures	—	0·9°
Mean of lowest „ „	+	1·1°
Mean daily range	—	2·0°
Adopted mean temperature	+	0·4°
Total rainfall	—	14·093 in.

ABSOLUTE EXTREMES

FOR THE LAST 90 YEARS.

Readings of Barometer, in inches.

Highest monthly mean	1932 (Feb.)	30·082
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 and 1927 (July)	5·1
Least ,, ,, ...	†1895 (Feb.)	1·4

† *And in* 1855 (*Feb.*).

ABSOLUTE EXTREMES

FOR THE LAST 90 YEARS—*Continued.*

Rainfall, in inches.

Greatest Rainfall in one day	1866 (Nov. 16th)	...	3·700
Greatest „ „ month	1870 (Oct.)	...	13·437
Least „ „ „	1932 (Feb.)	...	0·123
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.) and 1918 (Dec.)	...	30
Least „ „	1852 (Mar.)	...	3
Greatest „ year	1872	...	281
Least „ „	1855	...	135

* *Wind.*

Greatest hourly velocity, in miles	1894 (Dec. 22)	...	65
Greatest No. of miles registered in a month	1888 (Nov.)	...	12813
Least „	1917 (Feb.)	...	3160
Greatest Mean No. „	January	...	8310
Least „ „	September	...	6001
Greatest No. „ year	1868	...	102395
Least „ „ „	1915	...	70623

* *Record dates from* 1867 *only.*

DATES OF OCCASIONAL PHENOMENA.

1937	Frost	Hoar Frost	Snow	Hail	Heavy Rain
January	2, 8, 14-20, 26, 27, 29-31	14, 15, 19	16, 19, 20, 26, 28, 30	1, 4, 16	5
February	5, 7, 11-13, 17, 18, 21-24, 28	12, 23	9, 16, 20, 22, 27, 28	9,10,11,16,20,21	16, 18, 25
March	1, 2, 4-12, 14-16, 22-21	16, 28	1, 2, 6-12, 14-16, 21-27	8, 9, 26	
April	1, 12, 26	1			
May					23
June					3, 13
July					
August					12
September					
October	5, 12, 18, 19				
November	9-16, 20-22, 24, 25, 28	11-16, 24	19		19
December	3-21, 26, 29, 30	8, 18, 19, 20	4-7, 9, 10, 12-15		

1937	Gales of Wind;	Fog	Thunder	Lightning	Lunar Halo	Solar Halo	Aurora Borealis
January	17, 20, 21, 22, 28	8, 19, 25	5			20	7
February		1, 5, 12, 13, 14, 15, 18, 19	21	9, 21	17, 23	5	3
March		10, 24				22, 31	1
April		27				1, 19	12
May		1, 7, 17, 18	3, 21, 23, 24	3, 21, 22		19, 23, 25	
June		13, 14, 22, 24, 27	13	13		2	
July		4, 20, 28				20	
August		6, 28	6, 12, 13, 20	6, 7, 12, 13, 30		4,6,11,12,16,22	
September		12, 13, 21, 25, 27					
October		3, 4, 10, 13, 18, 19, 20				4	
November		5, 15, 16, 22, 25, 29, 30		30		14	
December		1, 4, 5, 10, 14, 23, 25-28			15, 18	1	

MONTHLY TOTALS FOR EACH HOUR OF RECORDED SUNSHINE.

1937. 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 ...	...	...	...	...	0·4	3·4	5·0	7·2	6·1	4·7	2·8	0·4	...	...	...	...	...
February ...	...	...	...	1·3	4·0	7·9	8·6	8·5	7·2	6·9	8·4	4·9	1·3	...	...	...	...
March ...	...	...	2·8	7·2	11·5	10·9	10·7	9·2	8·6	8·3	6·7	8·6	6·4	2·4	...	...	...
April ...	...	2·1	4·6	7·1	8·0	7·0	6·6	8·6	7·4	6·8	9·1	7·2	5·7	3·7	1·2	...	...
May ...	0·5	2·8	7·4	9·3	10·7	15·1	17·6	15·8	12 8	13·3	16·0	16·0	15·7	11·9	7·9	0·7	...
June ...	1·8	6·7	11·5	11·7	8·6	9·1	9·8	9·4	10·4	8·9	10·2	8·9	7·9	7·0	7·5	4·3	...
July ...	0·8	3·9	7·8	6·7	10·4	9·7	10·5	9·1	10·7	11·6	11·0	10·6	10·1	9·0	6·8	1·5	...
August ...	...	2·9	9·7	14·1	14·8	15·7	16·2	17·4	17·5	16·4	16·9	17·2	15·4	16·0	8·4	0·6	...
September ..	...	...	2·9	7·9	13·3	13·6	13·2	11·6	11·7	10·1	11·6	9·8	8·9	3·7	...	...	...
October ...	...	...	...	2·4	9·0	12·2	10·1	9·4	10·4	11·0	11·1	7·5	3·7	0·1	...	...	...
November...	...	...	...	0·4	3·4	8·8	10·8	11·2	11·4	10·5	9·4	6·6	...	...	...	...	...
December ...	...	...	...	...	0·4	3·8	8·4	9·8	10·1	8·4	6·3	0·7	...	...	...	...	...
Sums...	3·1	18·4	46·7	68·1	94·5	117·2	127·5	127·2	124·3	116·9	119·5	98·4	75·1	53·8	31·8	7·1	...

TOTAL AMOUNT OF SUNSHINE RECORDED ON EACH DAY.

1937	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
January ..	...	...	...	...	1·2	...	0·4	1·8	...	0·3	1·9	...	0·9	6·3	1·5	1·5	...
February ..	...	...	...	5·1	3·8	6·7	...	...	1·8	4·6	5·4	...	...	0·3	...	4·3	3·7
March ..	2·9	0·1	1·0	3·5	1·9	...	1·7	1·0	0·3	2·4	...	...	...	...	5·9	...	1·1
April ..	7·5	...	2·3	...	1·6	0·1	2·2	0·9	0·8	0·1	1·4	2·4	0·6	3·3	0·3	0·1	...
May ..	8·3	10·4	9·4	3·8	9·8	5·7	0·8	2·3	2·9	5·8	2·7	0·4	4·1	5·9	4·1	7·8	9·0
June ..	3·2	9·3	...	0·1	...	0·1	0·1	3·9	1·3	10·3	2·6	1·7	1·4	4·3	11·2	5·7	6·2
July ..	2·2	3·1	1·2	...	1·4	2·9	0·2	6·1	5·6	4·4	3·7	3·9	6·3	11·6	0·1	13·9	1·3
August ...	12·5	9·9	13·1	1·7	3·0	8·3	13·9	8·4	0·6	9·0	4·1	1·2	3·0	0·1	11·7	3·9	1·7
September ..	0·5	8·6	8·6	9·2	...	2·7	5·7	7·6	5·0	7·2	8·6	...	...	4·7	2·9	2·9	1·7
October ...	0·1	0·2	5·3	8·6	6·6	0·1	1·6	5·8	2·5	6·0	0·9	9·3	...	...	4·2	...	2·4
November...	3·9	...	4·5	0·7	...	...	...	...	5·4	7·3	6·9	7·6	6·0	4·3	4·6	4·7	0·2
December ...	...	0·1	0·5	...	0·1	...	0·4	3·0	3·7	...	0·2	6·1	...	...	3·9	3·7	5·1

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

1937	18	19	20	21	22	23	24	25	26	27	28	29	30	31	MONTHLY Total	MONTHLY Percen.
January ...	...	2·1	2·9	2·2	...	...	...	4·0	...	1·1	...	...	...	1·9	30·0	13·8
February ...	...	0·4	1·6	3·6	8·0	9·0	...	...	0·4	...	0·3	...	...	...	59·0	20·5
March ...	3·0	1·6	3·1	1·3	6·6	9·2	...	10·2	8·4	7·9	6·0	9·1	1·3	3·8	93·3	28·1
April ...	0·7	5·1	0·1	7·2	0·3	3·6	0·5	11·9	13·6	...	7·9	3·0	7·6	...	85·1	34·4
May ...	3·8	6·6	2·6	5·0	5·8	3·4	7·2	3·8	0·7	11·6	2·2	8·9	10·3	8·4	173·5	37·2
June ...	6·4	2·5	4·8	14·6	11·7	1·6	2·0	0·8	5·6	12·0	1·0	9·3	...	...	133·7	36·6
July ...	1·4	7·6	10·8	1·5	1·5	...	1·8	2·1	0·4	2·3	4·6	9·0	8·8	10·5	130·0	35·1
August ...	0·5	2·6	11·1	10·2	8·1	11·1	10·5	6·7	4·7	12·0	8·6	2·6	0·5	3·9	199·2	32·8
September ..	1·0	6·1	6·9	2·1	3·3	...	...	6·3	0·9	8·2	4·5	1·9	1·2	...	118·3	32·8
October ...	7·7	7·2	...	0·9	...	...	6·0	2·1	5·8	...	1·8	...	...	1·8	86·9	26·6
November...	0·1	...	6·6	3·4	...	...	5·0	0·1	...	1·1	0·1	...	...	...	72·5	18·6
December ..	4·6	1·2	4·0	...	...	...	...	3·3	...	...	1·4	2·7	0·3	3·6	47·9	12·2

SUMMARY OF SUNSHINE.

	Bright Sunshine Recorded					
	1937			Mean for the last 57 years		
	Number of		Percentage of Possible Sunshine	Number of		Percentage of Possible Sunshine
	Days	Hours		Days	Hours	
January ...	15	30·0	12·1	15·0	34·2	13·8
February ...	16	59·0	21·7	17·7	56·3	20·5
March ...	24	93·3	25·5	24·5	102·7	28·1
April ...	26	85·1	20·3	26·6	143·9	34·4
May ...	31	173·5	35·2	27·9	183·5	37·2
June ...	27	133·7	26·3	28·0	185·3	36·6
July ...	29	130·2	25·6	28·5	168·2	33·1
August ...	31	199·2	43·6	27·8	151·8	32·8
September ..	25	118·3	41·2	25·6	124·7	32·8
October ...	22	86·9	26·7	23·8	86·7	26·6
November ..	19	72·5	28·3	18·1	47·5	18·6
December ...	19	47·9	20·7	14·2	28·2	12·2
Year ...	284	1229·6	27·5	277·7	1313·0	29·4

SUMMARY OF SUNSHINE—*Continued.*

EXTREMES FOR THE LAST 57 YEARS.

Month	Number of Days on which Sunshine was recorded				Number of Hours				Percentage of Possible Sunshine			
	Greatest		Least		Greatest		Least		Greatest		Least	
Jan.	23	*1933	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.	30	1929	17	1904	178·9	1929	51·3	1936	48·9	1929	14·0	1936
April	30	*1935	22	1920	223·7	1893	80·7	1920	53·4	1893	19·3	1920
May	31	*1937	22	1886	280·7	1935	79·7	1906	56·9	1935	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	*1937	23	1894	235·2	1899	74·1	1912	51·5	1899	16·2	1912
Sept.	30	1914	21	1897	204·1	1933	62·9	1896	53·9	1933	16·6	1896
Oct.	29	*1933	17	1889	134·9	1899	50·0	1889	41·4	1899	15·3	1889
Nov.	24	1925	9	1897	89·9	1925	18·5	1891	35·1	1925	7·2	1891
Dec	20	*1935	6	1882	60·1	1886	7·4	1912	26·0	1886	3·2	1912
Year	307	1933	251	1903	1613·7	1887	927·6	1912	36·1	1887	20·7	1912

* *And in other years.*

HORIZONTAL MAGNETIC DIRECTION.

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

1937.	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					
	12° +						12° +	12° +	
	′	′	′	′	′	′	′	′	′
January ...	36·1	30·5	32·3	34·7	33·4	10·5	43·9	11·9	32·0
February ...	37·1	26·9	29·9	33·5	31·9	17·1	62·9	– 7·1	70·0
March	36·5	26·7	29·3	33·1	31·4	17·4	55·0	10·9	45·0
April	35·5	23·9	27·1	32·5	29·8	21·2	53·9	– 8·1	62·0
May	33·3	21·5	25·9	30·5	27·8	16·3	39·9	6·9	33·0
June	33·7	20·5	22·3	30·9	26·9	18·7	39·9	6·9	33·0
July	33·1	18·7	21·5	29·7	25·8	18·7	39·9	4·9	35·0
August ...	30·4	18·6	22·0	27·2	24·6	18·5	46·8	1·8	45·0
September ...	31·8	18·2	21·4	26·2	24·4	17·6	35·8	– 0·2	36.0
October ...	29·0	18·6	21·4	26·6	23·9	23·5	49·8	–10·2	60·0
November ...	27·0	21·0	22·4	25·0	23·9	15·9	40·8	– 0·2	41·0
December ...	25·8	20·6	22·2	24·2	23·2	13·4	45·8	4·8	41·0
Means	32·4	22·1	24·8	29·5	27·3	17·4	46·3	1·9	44·4

Mean for the year ... ... 12° 27′·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^{-5} C.G.S.

1937	MEANS OF * Highest readings	Lowest readings	4 a.m. readings	4 p.m. readings	Mean for the month *	Mean daily range †	Highest reading of the month	Lowest reading of the month	Monthly range
	17000 +						17000 +		
January ...	158	140	150	148	149	46·9	214	34	180
February ...	164	129	146	138	145	66·7	264	− 2	266
March ...	163	126	152	152	148	71·8	246	16	230
April	160	115	141	148	141	>145·8	379	<−324	>703
May	174	124	147	158	151	91·5	243	− 5	248
June	180	115	151	158	151	102·1	322	9	313
July	184	111	145	161	151	108·6	303	27	276
August ...	168	113	146	144	143	95·2	216	−147	363
September ...	156	99	139	137	133	77·3	243	46	197
October ...	160	112	145	141	139	99·4	262	− 69	331
November ...	171	139	158	156	156	58·4	216	55	161
December ...	175	156	170	165	166	52·0	211	55	156
Means... ...	168	123	149	150	148	84·6	260	<− 25	>285

Mean for the year ... ... ·17148 C. G. S. Units.

* *For the 5 quietest days.* † *Includes all days.*

ABSOLUTE MEASURES—SUMMARY.

1937	DIRECTION		FORCE.		
	Declination Corrected	Inclination	Horizontal	Vertical	Total
			C. G. S. UNITS.		
	° ′	° ′			
	12 +	68 +	0·17000+	0·44000+	0·47000+
January ...	32·6	52·2	148	369	567
February ...	31·5	54·7	146	460	652
March ...	30·6	54·2	146	442	633
April	29·5	49·4	133	222	425
May	27·7	51·3	159	366	569
June	28·0	50·1	152	301	505
July	27·1	52·3	163	414	615
August ...	26·2	51·0	152	335	538
September ...	24·5	51·5	136	313	511
October ...	23·9	55·0	138	463	642
November ...	23·5	52·8	133	356	550
December ...	22·0	52·4	160	410	610
	° ′	° ′			
Means ...	12 27·3	68 52·2	0·17147	0·44370	0·47568

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.

1937	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1937
D.													D.
1	c	c	m	s	s	s	c	s	m	m	s	m	1
2	s	s	m	m	c	s	s	g	c	s	(m)	s	2
3	(s)	g	c	m	s	c	c	m	s	m	s	s	3
4	s	s	c	c	m	s	c	m	s	g	s	c	4
5	c	m	g	s	g	m	s	s	s	m	s	c	5
6	s	s	s	s	c	g	s	m	c	m	c	s	6
7	g	c	c	c	c	s	m	m	s	m	(s)	m	7
8	s	c	c	c	c	s	s	s	s	g	m	s	8
9	m	g	c	c	s	c	m	m	s	g	m	s	9
10	m	s	c	c	s	s	m	m	m	g	c	s	10
11	m	s	c	s	m	c	s	m	m	g	s	m	11
12	s	m	c	m	s	c	s	m	c	g	s	s	12
13	s	s	m	s	s	m	s	s	s	m	s	s	13
14	(c)	m	m	c	m	s	m	s	s	s	c	c	14
15	c	s	m	c	s	c	m	c	c	g	c	s	15
16	c	s	s	s	s	s	s	s	s	s	c	c	16
17	c	s	s	s	c	m	c	s	s	c	s	c	17
18	c	m	s	m	s	s	s	c	s	c	m	g	18
19	c	m	s	s	s	c	m	c	s	c	m	m	19
20	s	c	c	c	c	m	s	c	c	c	m	m	20
21	m	s	s	c	m	s	s	s	s	s	s	s	21
22	s	c	g	s	s	m	m	g	c	m	m	s	22
23	c	c	s	s	s	s	m	s	c	g	g	g	23
24	s	c	s	g	s	s	m	s	s	g	m	g	24
25	s	c	s	vg	m	c	m	s	c	s	s	s	25
26	s	c	m	vg	m	c	s	s	s	m	c	m	26
27	m	s	m	vg	m	g	s	m	c	m	s	c	27
28	s	s	m	vg	g	s	c	s	s	m	m	c	28
29	m		s	m	m	s	(c)	s	c	c	m	s	29
30	m		m	m	s	s	c	c	g	c	g	s	30
31	s		g		s		c	s		c		m	31
TOTAL c	9	9	9	9	6	8	8	5	10	7	6	7	93
TOTAL s	14	12	10	10	15	15	13	15	16	5	12	14	151
TOTAL m	7	5	9	6	8	5	10	9	3	10	10	7	89
TOTAL g	1	2	3	1	2	2	—	2	1	9	2	3	28
TOTAL vg	—	—	—	4	—	—	—	—	—	—	—	—	4

TOTALS

Note :—Character letters in brackets indicate incomplete records.

DATES OF SOLAR OBSERVATIONS

The Unit is $\frac{1}{5000}$th of the Disc.
NS—No Spots.

1937	Jan.	Feb.	Mar.	April	May	June
DAY						
1			10·91	6·98	8·71	7·86
2					6·65	9·12
3			8·86	8·17	5·85	
4		15·40	7·45		3·82	
5	5·85	8·58	6·80	7·36	4·66	
6		5·67			4·23	
7	3·46		7·32	5·60	3·67	
8	4·11		6·70	6·14	4·52	n
9		1·72		4·91	4·46	7·37
10	4·26	2·39	6·11		5·89	7·98
11	4·12	4·30			6·45	7·33
12				2·09		11·02
13	2·69			0·70	7·01	13·08
14	6·11			0·26	6·32	17·15
15	4·16		0·75	1·17	7·65	18·96
16		6·24			9·74	24·03
17		6·21	0·89		12·09	23·66
18			0·99	3·35	16·39	24·60
19	9·63	n	1·12	3·67	15·87	20·56
20	11·28	8·87	0·84	n	21·55	15·08
21	14·92	12·79		14·78	22·60	14·30
22		14·51	1·84		26·92	12·05
23		13·89	2·58	27·49	18·93	10·81
24				29·91	24·21	
25	15·29		6·45	31·51	15·31	n
26		12·32	8·56	30·45		6·68
27	18·70		9·63		10·16	7·34
28		11·93	7·60	20·96	9·61	4·68
29			10·20		9·39	3·83
30			7·44	12·55	9·33	
31	31·97		5·71		8·21	
Mean	9·75	8·92	5·65	11·48	10·70	12·74

AND DISC AREAS OF SPOTS.

n—Incomplete observation at Stonyhurst.

July	Aug.	Sept.	Oct.	Nov.	Dec.	1937
						DAY
2·54	23·86			4·05	0·04	1
4·22	19·06	4·67	n			2
	16·64	4·08	26·57	5·99	0·19	3
	8·86	4·41	39·62	3·38		4
4·43	10·68		35·98	1·21	0·40	5
6·24	10·96					6
	6·40	5·66	25·27		1·73	7
13·47	7·50	7·67	23·33		1·09	8
24·71		9·51	14·75	4·48	0·94	9
23·20	8·28	8·52	8·42	5·68		10
24·15	8·46	10·90		10·40		11
24·54	n		8·87	10·71	6·99	12
23·26	10·96			10·05		13
18·58		12·72		7·42		14
	16·29	10·42	9·02	5·43	10·12	15
14·27	13·35	4·93		4·58	10·39	16
14·22	8·12	3·41	7·83		10·97	17
13·25		3·01	6·77		10·82	18
12·62	5·32	3·89	5·34			19
12·52	7·21	5·38		1·87	8·83	20
10·68	8·00	4·08	2·68	2·35		21
	9·31	4·69				22
	11·38					23
14·91	14·08		6·78	2·02		24
19·50	14·36	4·34	8·39		6·20	25
26·60	10·63	2·69	8·47			26
29·80	11·96	3·16		2·22		27
31·15	10·91	4·81			8·08	28
31·83	8·61	7·53			6·59	29
26·77	7·15	11·61				30
25·59	6·46				5·24	31
18·12	10·92	6·18	14·88	5·13	5·54	Mean