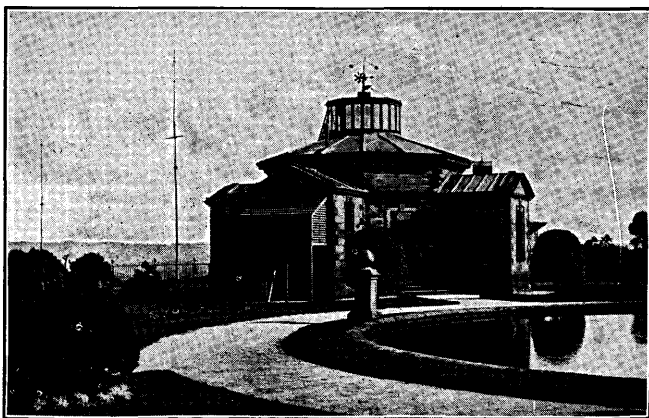


STONYHURST COLLEGE OBSERVATORY.

Lat. $53^{\circ} 50' 38.5''$ N. Long. $9^{\text{m}} 52^{\text{s}}.88$ W.
Height of the Barometer above the Sea, 381 feet.

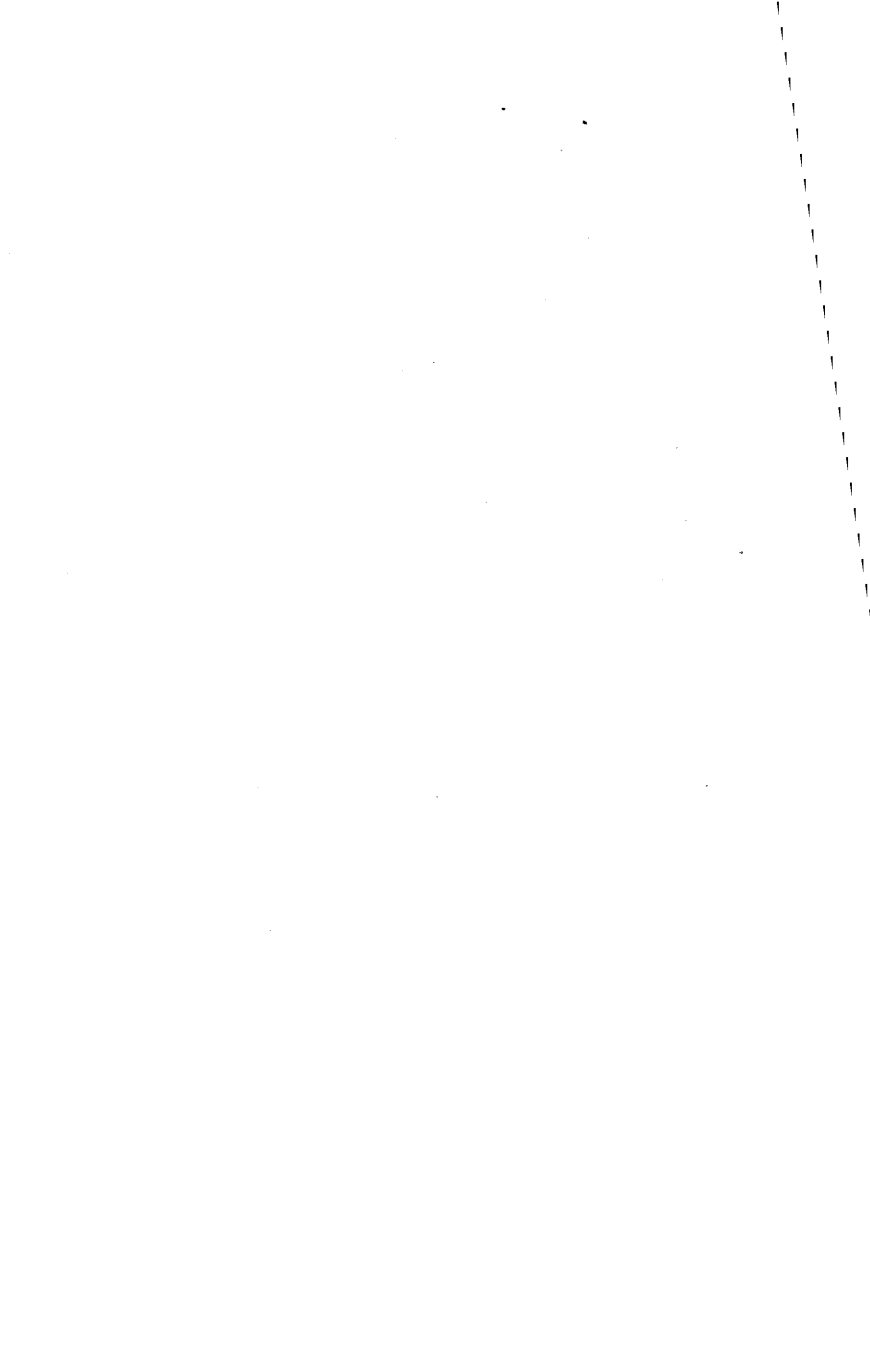


(FOUNDED 1838.)

Results of Geophysical and Solar Observations, 1932.

With Report and Notes of the Director,
Rev. J. P. ROWLAND, S.J., B.Sc., F.R.A.S., F.R.Met.Soc.

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REPORT AND NOTES.

GENERAL.—The Observatory has lost the services of Father O'Connor, who was withdrawn at the beginning of March to assume the office of Vice-Rector of the College, owing to the illness of the Rector. On his formal appointment for a second term of office as Rector, early in June, the present Director of the Observatory was appointed to succeed him. Father J. F. Fleming, S.J., joined the Staff in September. Father H. Macklin, S.J., B.Sc. (Oxon.), and the Rev. T. Corbishley, S.J., B.A. (Oxon.), who are on the teaching staff of the College, continue to give part-time assistance, and Mr. Wilfred Brown, as full-time assistant, is responsible for the routine meteorological work, and the changing of the recording instruments and development of the photographic records. We have lost the services of Sergt. Wilkins, whose duties with the O.T.C. made attendance at the Observatory difficult, and in his place we have obtained the part-time service of Mr. J. Johnson, one of the College laboratory assistants.

Owing to changes of staff, and absence at one time or another of members through sickness, the routine work has been maintained with some difficulty, but the only notable interruption was that the Absolute Measures of Magnetic Horizontal Force and Inclination could not be made in October.

The Director gave lectures on Earthquakes to several scientific societies, early in the year, and attended

the meeting of the British Association at York in September. Various parties of visitors were shown over the Observatory during the summer.

Extensive repair work to the roof of the underground magnetic chamber and adjacent dark room was carried out in June. The wooden roof of the dark room, which had become unsafe owing to decayed timber, was replaced by a concrete span, and the whole roof of the underground premises was covered with rock asphalt. The progress of this work caused a good deal of disturbance of the magnets, but it was found possible for the most part to allow for this in measuring the curves, and it is thought that the records are not seriously vitiated from this cause.

Concurrently with the above work, the Sunshine Recorder was removed from its old site over the dark room, to a position on the gable of the South room of the Observatory, where it has an unrestricted exposure from sunrise to sunset throughout the year. In its former position the sun was cut off from it by the building, for about an hour before sunset during the month about the summer solstice, and minor interruptions from trees and bushes were liable to occur near sunrise and sunset at other times of the year. Access to the instrument and to the Solar Radiation Thermometer, which is mounted on the same base, is obtained by means of an external staircase and platform erected for the purpose.

In July the Observatory received a very valuable donation from Mr. E. T. Whitlow, F.R.A.S., of Birkdale, who presented to us the whole of his astronomical equipment. The principal items in this gift comprised a wooden observatory, with 14-ft. dome, housing an

equatorial mount with driving clock by Cooke, which carried a telescope with O.G. of $7\frac{1}{3}$ -in. clear aperture, by Alvan Clark, two subsidiary telescopes of 5-in. and $3\frac{1}{2}$ -in. aperture respectively, by Cooke, and a 2-in. finder. Accessories to this equipment include a diffraction spectroscopy, with grating by Brashear and photographic attachment, a projection lens for photographing sunspots on a large scale, and sundry eyepieces and micrometers. Amongst subsidiary pieces of apparatus are a portable transit instrument, sundry cameras, including one with 4-in. Dallmeyer lens, and one with $3\frac{1}{2}$ -in. Ross lens, a telephoto lens, and two chronometers.

It may be mentioned that the $7\frac{1}{3}$ -in. objective was formerly in the possession of the Rev. W. R. Dawes, and is said to be of exceptional excellence. (*cf.* Loomis—Treatise on Practical Astronomy, 7th Ed., p. 497, No. 10).

It is with deep regret that we record the death of Mr. Whitelow, which occurred on 1932, Nov. 4.

METEOROLOGICAL.—The meteorological continuous records have been uninterrupted during the year, the results being forwarded, as usual, to the Meteorological Office, London, at the end of each week and of each month.

The most notable features of the year's weather were the exceptionally low rainfall of February, June and August, the heavy falls of September and October, the excess of sunshine in January, June and December, and the prevalence of cloud in May and July.

The rainfall for February, 0·123 inches on six days, is the smallest amount recorded in any one month for the last 85 years. The previous record, 0·249 inches, occurred

in May, 1859. June was also exceedingly dry. The first three weeks had little more than a trace of rain, but a rather heavy fall of 0·600 inch occurred on the 27th, approximately 60% of the total amount for the month, 0·993 inch. Although rain was registered on five days, only two of these were really wet. August, another notably dry month, had only 32% of the average, on 11 days. September and October, with respectively 182% and 160% of the average, were the wettest months of the year. During the first fortnight of September, 5·717 inches of rain were recorded out of a total of 7·841 inches, whilst the greatest daily fall ever recorded for the month, 2·800 inches, occurred on the 2nd. 7·909 inches, on 27 days, fell in October, and was fairly evenly distributed.

Heavy falls of Rain of one inch or more occurred as follows :—

January 2nd, 5th and 6th ; September 2nd and 10th ; and October 25th. The total fall for the year, 46·613 inches, was below the average by exactly one inch, and was precipitated on 206 days.

The year was notable for the very slight amount of snow recorded—only a few slight showers in the earlier months and one in October, with none in November or December. January, June and December were the sunniest months of the year, in respect to the average. A total of 50·3 hours of bright sunshine in January was above the average by 52% ; June, with 232·8 hours, was above the average by 26%, and sunshine was registered on every day of the month. An exceptionally sunny period occurred from the 13th to the 18th inclusive, over 12 hours of bright sunshine being registered each day, and a total of 82·4 for the six days, three of

which had 15 hours or more each. May and July were the dullest months. May, with 109·9 hours, being 40%, and July, with 116·2%, being 31% below the average. The total amount recorded during these two months was well distributed over 25 days in May and 30 days in July.

Rainless periods of five days or more occurred as follows :—

Feb. 2—8	Feb. 13—24	Feb. 26-Mar. 3
Mar. 12—20	Apl. 14—18	June 1—11
June 13—23	July 6—10	Aug. 6—10
Aug. 22—28	Sept. 19—23	

A total of 11 periods, with an average of 7·7 days each.

Bright Sunshine for 10 hours or more was recorded on :—

March 12th ; April 8th, 12th ; May 10th, 14th ; June 1st, 2nd, 3rd, 9th, 10th, 13th, 14th, 15th, 16th, 17th, 18th, 22nd ; July 2nd, 15th ; August 11th, 24th, 31st. A total of 22 days, with an average of 12·1 hours each day.

Days on which notable continuous Sunshine occurred were :

January 8th, 24th, 25th ; February 19th, 27th, 28th ; March 1st, 12th ; May 10th, 14th ; June 2nd, 10th, 13th, 14th, 15th, 16th, 17th, 18th ; July 15th ; August 24th, 31st ; September 21st ; October 28th ; November 5th ; December 4th, 19th.

The adopted mean temperature is 47°·5, 0°·5 above the average. The highest shade temperature, 77°·8 on July 10th, 3°·3 below the average ; the lowest, 21°·9 on March 12th, 5°·3 above the average. July and August had the greatest excess of temperature above the average. The three winter months, January, February and December, were milder than usual, being

respectively $4^{\circ}\cdot 8$, $1^{\circ}\cdot 7$ and $3^{\circ}\cdot 4$ above the average, while the mean temperatures for February, March, April and May were somewhat below the average.

Six gales of 37 miles per hour mean hourly velocity or over were recorded :—Four in January, one in April, and one in October. The greatest mean hourly velocity of the wind, 44 miles per hour, in direction S. by W., was on January 15th. The highest gust, 66 miles per hour, occurred on April 10th. The months with the greatest excess of wind above the average were January, April, October and December, whilst February, May, June and August showed a deficiency. February was an exceptionally mild month, the recorded mileage being below normal by 43%. The total mileage for the year—83,082—was approximately normal.

A Table showing the maximum gusts for each day, as recorded by the Dines Tube Anemograph, will be found at the end of these Notes. The maximum for each month is printed in heavy type.

SYNOPTIC METEOROLOGY.—The service has been continued throughout the year. A daily chart—for 0700 G.M.T.—was posted up in the College, and a daily forecast of local weather supplied to the *Lancashire Daily Post*. Occasional forecasts have been supplied to other newspapers, on request.

MAGNETICAL.—Absolute measures of Horizontal Magnetic Force have been made once each month, except in October, 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 each week, and usually at about 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. The scale values of the instruments are as follows, the sensibility of the Bifilar having been re-adjusted on January 10th :—

For the Unifilar	...	11'.28	per Cm. of Ordinate.
„ Bifilar	...	.000500	C.G.S. „ „

Owing to the cumulative effect of secular variation in Declination, it has become impossible to maintain the Vertical Force Balance in the Magnetic Meridian, and accordingly the instrument was dismantled on June 11th, 1930, and has since remained out of action.

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

It has, however, been felt for some time (*cf.* Report 1925, p. xxiv) that the ranges assigned for the higher character letters were too low, and accordingly a change was made in 1928 and the following scale adopted : (c) 0-2, (s) 3-7, (m) 8-20, (g) 21-65, (v.g.) over 65.

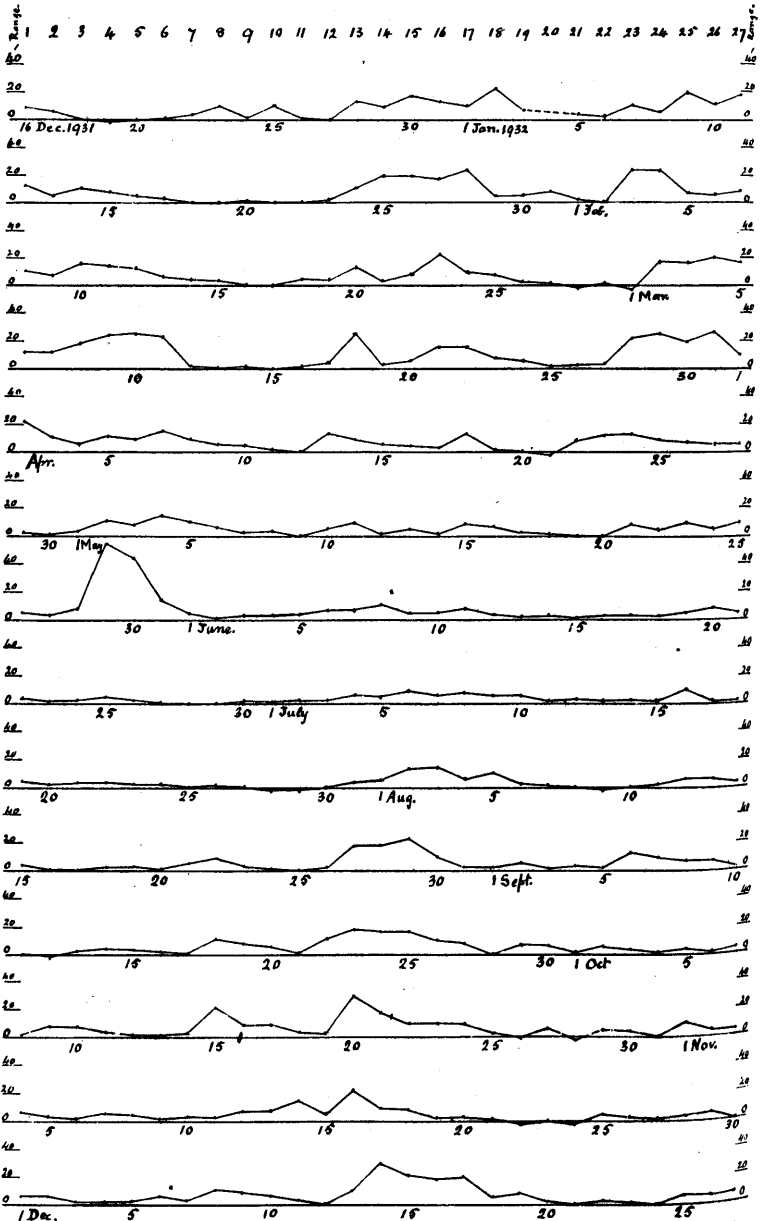
It follows from the nature of the process that these indications are not absolute, but relative to the mean amount of disturbance on the quiet days.

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 civil day is used for both the international figures and for our own characteristic letters.

Whilst solar activity shows a progressive decline with the approach to the minimum of the 11 years cycle, magnetic activity shows a slight increase on last year, the variations in both for the past three years being as shown in the following table:—

	Solar			Magnetic Mean Daily Range	
	Spotless Days	Mean Area (1/5000 of Disc)		Decln.	H.F.
1930	4	2.44		16.9	88.7
1931	46	1.26		13.8	59.5
1932	118	0.81		14.4	62.8

There were again no disturbances classed as "very great," but there were 22 classed as "greater," as compared with nine last year. The number of days of "moderate" disturbance fell from 108 to 104, of "small" from 140 to 122, whilst "calms" increased from 98 to 117.



1932. DAILY MAGNETIC CHARACTER IN 27-DAY PERIODS.

The chart on p. xiv 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. xii-xiii. Again a number of sequences of disturbances are seen at approximately 27 days interval, and a comparison of the current chart with those of the two previous years shows that some of these sequences have been maintained, with fluctuations of intensity, over very long periods. In particular the sequence of disturbances exhibited near the middle of the chart has been in evidence for the whole of the three years since we introduced this feature into the Report. The greatest disturbance of the year, May 29—30, brought to an end a sequence which had persisted with varying intensity through eleven periods, from August 9th, 1931.

On only two occasions were movements noted which can be definitely classed as "Sudden Commencements," *viz.*, April 22nd, 5 h. 30 m., and October 14th, 17 h. 48 m. On three other occasions movements were noted which may doubtfully be so classed, *viz.*, Feb. 1st, 23 h. 23 m., Feb. 2nd, 20 h. 22 m., and May 10th, 0 h. 6 m. All were followed by disturbed conditions, falling in one or other of the sequences noted above.

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**.

ASTRONOMICAL.—Sixteen Lunar Occultations were observed during the year, including nine of the Pleiades between 1 a.m. and 4 a.m. on August 24th, and the results sent to the Nautical Almanac Office. Observation on many other occasions was prevented by bad weather, which also prevented any observation of the Lunar Eclipse on September 14th, and of the Leonids in November.

A few experimental plates were exposed on the Nebula in Orion, with the 6-in. Dallmeyer Camera, and on one of these exposed on February 24th, an excellent photograph of a meteor trail passing near the Nebula was obtained. From the reports of correspondents it was deduced that the meteor had an almost due S. to N. course, passing slightly East of Blackpool and West of Fleetwood, at a height of probably about 25 miles over Blackpool; but the data were insufficient to enable an accurate line of flight to be determined.

SOLAR OBSERVATIONS.—Observations of the Solar Surface were made on 272 days, with the results shown in the table on pp. 39–40. Of the 272 days of observation 270 yielded drawings, of which 253 are complete and show all spots and faculæ, and of the remaining 17, 14 are complete for spots. Professor Brünner, of Zurich, supplied 83 drawings used for measurement, and 15 observations of spotless days, to fill gaps in our own observations, and six of the Catania drawings, kindly put at our disposal by Professor Favaro, were used to further complete the record, and others were used for comparison purposes.

The work of Solar drawing is in the hands of Father Fleming, and Father Macklin is responsible for the measurements and reductions.

Owing to the difficulties mentioned in the general notes, it has not been possible to carry out any systematic spectroscopic observations of the Sun, or to complete the spectrohelioscope.

Sun-spot statistics have been sent regularly to Professor Brünner, 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, 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.

There were no spots on 118 days, including the Zurich and Catania observations, as against 46 in 1931.

The Sun-Spot Statistics are given on pp. 41—46. The groups are numbered in the order of their appearance in the Stonyhurst drawings. Spots special to the Zurich or Catania drawings receive the same number with an accent (') as the Stonyhurst group which is nearest to them. Thus Group 9 has co-ordinates, latitude $-5^{\circ} \cdot 7$, longitude $288^{\circ} \cdot 4$. The spotlet 9', which was on the Zurich drawings for January 26—27, has co-ordinates, latitude $+7^{\circ} \cdot 8$, longitude $270^{\circ} \cdot 7$. It will be observed that all the spots not found on the Stonyhurst drawings were quite small, area 0.15 or less, and generally were on the disc for one day only.

Finally, a few of the values of maximum area were obtained from the Zurich drawings. These have been duly indicated.

The following Table shows the distribution of spot groups in the Northern and Southern Hemispheres for the four quarters of the year, with their maximum projected areas. The last column but one gives the sum of the maximum projected areas of all the groups on the sun during the period in question.

Quarter	Northern Hemisphere		Southern Hemisphere		Sum. of Max'm Areas	Daily Mean Areas
	No. of Groups	Max'm Areas	No. of Groups	Max'm Areas		
Jan.—March ...	14	8.63	11	3.02	11.65	0.67
April—June ...	11	18.57	7	4.41	22.98	1.47
July—Sept. ...	4	0.39	8	4.15	4.54	0.29
Oct.—Dec. ...	12	13.85	2	0.39	14.24	0.82
TOTALS	41	41.44	28	11.97	53.41	0.81

SEISMOLOGICAL.—The total number of earthquakes recorded during the year was 82, as against 87 last year, distributed as follows :—

Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
6	5	8	3	8	8	6	9	9	7	5	8	82

Two slight tremors of British origin were reported during the year, the first of which, apparently centred in the Hope Valley, South Yorkshire, was recorded as a very slight movement at the Observatory, whilst the other, near Shrewsbury, on July 7th, yielded no trace on the record.

Of the recorded earthquakes, the greatest, as measured by amplitude of displacement on our records, was on June 3rd, having its origin in Mexico. This was the greatest earthquake so far recorded since the installation of the Milne-Shaw seismograph, in September, 1923, with a range of oscillation of the recording light spot beyond the limits of registration, but estimated to be 11 inches.

Others of note were :—

May	14	...	Dutch East Indies.
„	26	...	New Hebrides.
June	18	...	Mexico.
Sept.	26	...	Greece.
Dec.	21	...	Nevada State, U.S.A.
„	25	...	Kan Sou Province, China.

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.

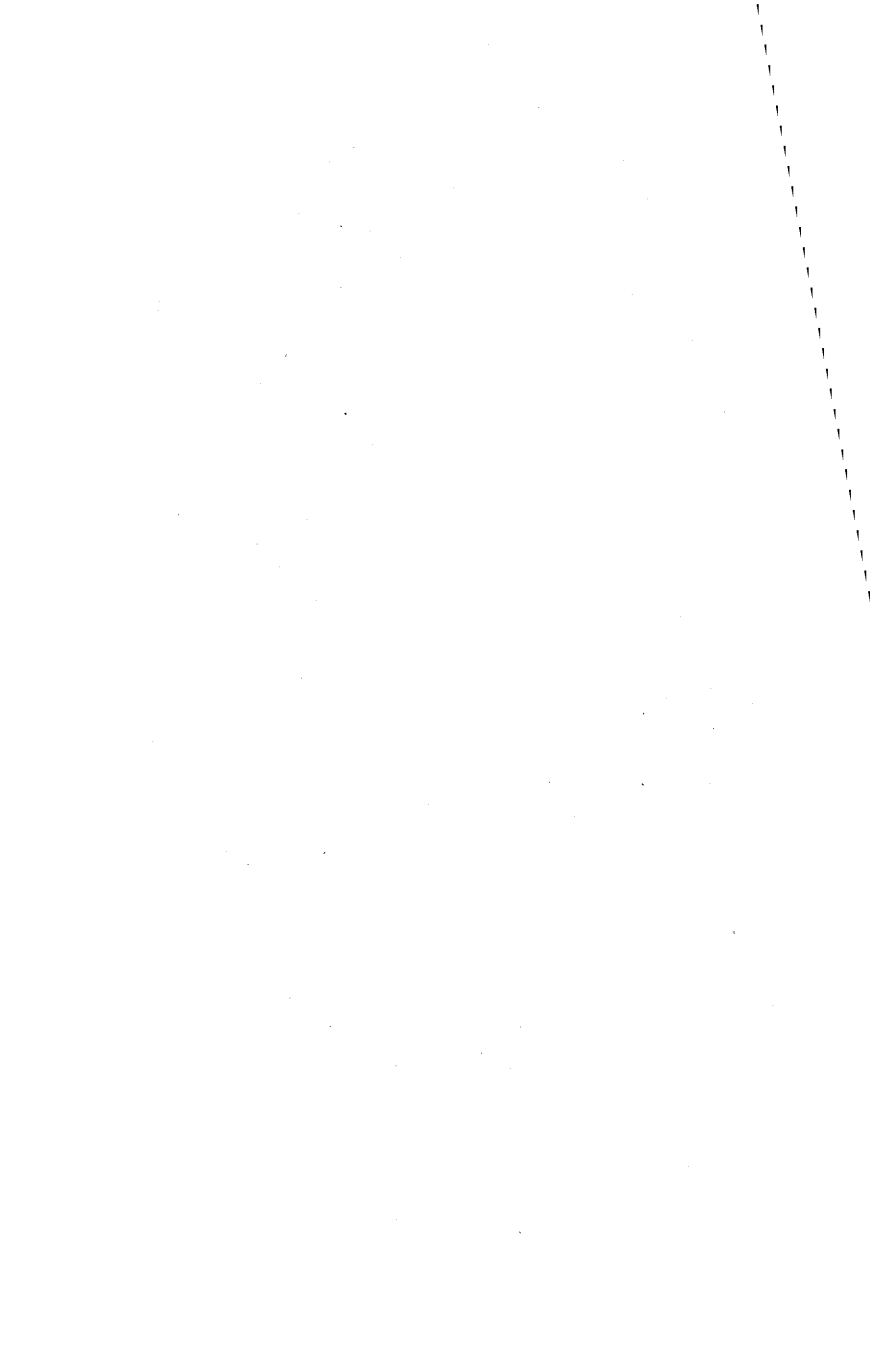
Our grateful thanks are tendered to the Governments, Institutions, Observatories and individuals who have kindly contributed presentations to the Library during the year.

J. P. ROWLAND, S.J.,
Director.

MAXIMUM GUSTS FOR EACH DAY OF THE YEAR, 1932.

RECORDED BY THE DINES TUBE ANEMOGRAPH.

1932	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1932
DAY													DAY
1	45	17	46	30	36	29	46	24	34	39	33	22	1
2	49	17	36	34	44	28	35	24	40	27	41	44	2
3	56	8	15	33	41	31	37	25	49	41	38	44	3
4	46	6	17	33	35	26	49	27	43	16	33	18	4
5	43	16	50	34	36	23	18	21	27	22	16	24	5
6	42	12	45	51	30	25	30	45	22	34	17	23	6
7	30	6	49	55	26	26	19	22	30	52	27	23	7
8	22	24	33	45	17	27	27	20	31	46	11	30	8
9	54	32	20	55	26	23	30	29	19	13	11	30	9
10	52	44	32	66	32	24	27	27	38	23	15	39	10
11	26	28	38	45	15	17	35	21	51	21	35	46	11
12	51	26	24	39	35	25	23	24	40	31	34	38	12
13	61	34	20	34	28	36	47	28	38	50	46	20	13
14	50	21	25	41	25	25	40	27	34	34	30	27	14
15	57	20	16	40	26	26	18	27	14	31	32	30	15
16	63	12	26	42	22	20	24	19	11	41	24	43	16
17	46	12	22	42	18	15	38	25	24	41	20	50	17
18	38	11	22	30	38	26	38	19	25	54	17	44	18
19	28	16	21	31	35	23	27	24	21	29	5	43	19
20	19	33	16	38	28	29	27	28	20	34	21	20	20
21	25	28	12	22	18	17	24	41	9	21	27	37	21
22	12	22	34	33	31	25	25	32	16	40	45	41	22
23	10	28	12	51	20	18	20	22	9	22	49	44	23
24	24	41	25	31	32	28	20	18	30	20	46	24	24
25	12	28	36	24	33	38	24	19	42	26	34	16	25
26	12	23	30	25	24	26	33	21	26	42	53	9	26
27	8	38	40	27	23	20	42	23	28	26	55	18	27
28	11	47	32	25	27	25	39	23	8	31	29	24	28
29	31	46	37	28	13	21	36	25	39	46	40	38	29
30	23		43	30	22	41	28	29	29	48	32	35	30
31	15		28		20		22	22		31		42	31



METEOROLOGICAL REPORT.

JANUARY, 1932.

Results of Observations taken during the Month.		Mean for the last 85 years.						
Mean Reading of the Barometer	inches	29·626	29·482					
Highest " " on the 26th	"	30·547	30·127					
Lowest " " on the 6th	"	28·582	28·596					
Range of Barometer Readings	"	1·965	1·531					
Highest Reading of a Max. Therm. on the 18th...		54·8	51·4					
Lowest Reading of a Min. Therm. on the 1st ...		22·2	22·0					
Range of Thermometer Readings		32·6	29·4					
Mean of Highest Daily Readings		47·1	42·6					
Mean of Lowest Daily Readings		37·9	33·4					
Mean Daily Range		9·2	9·2					
Deduced Mean Temp. (from mean of Max. and Min.)		42·3	37·7					
Mean Temperature from Dry Bulb		43·1	38·1					
Adopted Mean Temperature		42·7	37·9					
Mean Temperature of Evaporation		41·5	36·7					
Mean Temperature of Dew Point		39·6	34·6					
Mean elastic force of Vapour	inches	0·244	0·202					
Mean weight of Vapour in a cub. ft. of air, grains		2·8	2·4					
Mean additional weight required for saturation ..		0·4	0·4					
Mean degree of Humidity (saturation 100)		87	87					
Mean weight of a cubic foot of air	grains	545·8	549·1					
Mean amount of Cloud (0—10)		7·4	7·8					
Fall of Rain	inches	5·607	4·461					
Greatest Rainfall in one day (6th)	"	1·227	0·831					
No. of days on which ·005 in. or more Rain fell...		22	19·8					
Wind:—Direction.....	N	NE	E	SE	S	SW	W	NW
No. of days.....	0	0	1	3	7	11	6	3
Mean Velocity in miles per hr.	0	0	2·5	3·7	17·8	16·0	12·2	2·5
Total No. of miles.....	0	0	61	269	2888	4203	1782	182
Total No. of miles registered					9385		Mean* 8308·1	
Greatest hourly velocity (15th, at 0100 G.M.T., Dir. S.W.)					44		41·2	

* For the last 85 years.

JANUARY, 1932.

DIFFERENCES.

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

Mean barometric pressure	...	...	...	+	0.144 in.
Monthly range	..	..	..	+	0.434 in.
Mean of highest daily temperatures	...	...	...	+	4.5°
Mean of lowest	..	..	..	+	4.5°
Mean daily range	...	...	...		0.0°
Adopted mean temperature	...	...	...	+	4.8°
Total rainfall	...	...	...	+	1.146 in.

Ground Frost on the 1st, 8th, 9th, 24th—29th, and 31st.
 Hoar Frost on the 26th—28th. Snow on the 9th. Hail on the 7th.
 Heavy Rain on the 2nd, 5th and 6th. Gales of Wind on the 9th,
 12th, 14th, 15th and 16th. Fog on the 8th, 11th, 12th, 22nd and
 25th—27th. Solar Halo on the 14th.

EXTREME READINGS FOR JANUARY.

During 85 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	..	†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, 1932.

Results of Observations taken during the Month.			Mean for the last 85 years.
Mean Reading of the Barometer	inches	30·082	29·498
Highest " " on the 20th...	" "	30·423	30·108
Lowest " " on the 24th...	" "	29·739	28·661
Range of Barometer Readings	" "	0·684	1·447
Highest Reading of a Max. Therm. on the 22nd ...		50·8	52·1
Lowest Reading of a Min. Therm. on the 19th.....		23·0	22·8
Range of Thermometer Readings		27·8	29·3
Mean of Highest Daily Readings		43·1	43·8
Mean of Lowest Daily Readings		32·5	33·6
Mean Daily Range		10·6	10·2
Deduced Mean Temp. (from mean of Max. and Min.)		37·4	38·2
Mean Temperature from Dry Bulb		38·2	38·5
Adopted Mean Temperature		37·8	38·4
Mean Temperature of Evaporation		36·0	36·8
Mean Temperature of Dew Point		33·0	34·6
Mean elastic force of Vapour	inches	0·188	0·196
Mean weight of Vapour in a cub. ft. of air, grains		2·2	2·4
Mean additional weight required for saturation ..		0·5	0·4
Mean degree of Humidity (saturation 100)		79	86
Mean weight of a cubic foot of air	grains	560·0	548·7
Mean amount of Cloud (0—10)		7·3	7·5
Fall of Rain	inches	0·123	3·507
Greatest Rainfall in one day (11th)	" "	0·056	0·751
No. of days on which ·005 in. or more Rain fell...		6	16·7

Wind:—Direction.....	N	NE	E	SE	S	SW	W	NW
No. of days.....	6	12	2	1	0	1	2	5
Mean Velocity in miles per hr.	3·8	7·5	12·0	1·0	0	1·3	4·4	5·5
Total No. of miles.....	551	2170	577	24	0	30	200	656

Total No. of miles registered	4208	Mean*
Greatest hourly velocity (28th, at 0900 G.M.T., Dir. E.)	26	7338·8
		39·8

* For the last 65 years.

FEBRUARY, 1932.

DIFFERENCES.

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

Mean barometric pressure	...	...	...	+	0.584 in.
Monthly range	"	"	"	—	0.763 in.
Mean of highest daily temperatures	...	...	...	—	0.7°
Mean of lowest	"	"	"	—	1.1°
Mean daily range	...	...	...	+	0.4°
Adopted mean temperature	...	...	...	—	0.6°
Total rainfall	...	...	...	—	3.384 in.

Ground Frost on the 1st—3rd, 8th—13th, 15th, 16th—21st, 24th—26th, and 28th—29th. Hoar Frost on the 8th, 15th, 16th, and 18th—21st. Snow on the 10th—12th and 28th. Fog on the 1st—4th, 8th, 16th and 19th.

EXTREME READINGS FOR FEBRUARY,

During 85 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	"	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 1867 only.

MARCH, 1932.

Results of Observations taken during the Month.	Mean for the last 85 years.	
Mean Reading of the Barometer inches	29·500	29·456
Highest " " on the 15th ... "	29·917	30·046
Lowest " " on the 30th ... "	28·715	28·659
Range of Barometer Readings	1·202	1·385
Highest Reading of a Max. Therm. on the 23rd...	51·0	56·8
Lowest Reading of a Min. Therm. on the 12th...	21·9	23·4
Range of Thermometer Readings	29·1	33·4
Mean of Highest Daily Readings	45·7	46·9
Mean of Lowest Daily Readings	34·3	34·4
Mean Daily Range	11·4	12·5
Deduced Mean Temp. (from mean of Max. and Min.)	39·0	39·7
Mean Temperature from Dry Bulb	40·3	40·4
Adopted Mean Temperature	39·7	40·0
Mean Temperature of Evaporation	37·8	38·2
Mean Temperature of Dew Point	34·6	35·8
Mean elastic force of Vapour inches	0·200	0·210
Mean weight of Vapour in a cub. ft. of air, grains	2·3	2·4
Mean additional weight required for saturation ..	0·6	0·5
Mean degree of Humidity (saturation 100)	78	85
Mean weight of a cubic foot of air grains	546·8	546·1
Mean amount of Cloud (0—10)	7·5	7·5
Fall of Rain inches	3·070	3·284
Greatest Rainfall in one day (7th) "	0·900	0·752
No. of days on which ·005 in. or more Rain fell...	11	16·5

Wind:—Direction.....	N	NE	E	SE	S	SW	W	NW
No. of Days	3	8	2	1	3	5	9	0
Mean Velocity in miles per hr.	4·1	6·9	7·7	10·7	12·5	10·1	8·4	0
Total No. of miles.....	292	3301	368	257	901	1210	1814	0

	Mean*
Total No. of miles registered	8143
Greatest hourly velocity (7th, at 2100 G.M.T., Dir. W. by S.; 29th, at 2400 G.M.T., Dir. S.)	31
	8271·2
	39·3

* For the last 85 years.

MARCH, 1932.

DIFFERENCES.

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

Mean barometric pressure	...	...	...	+	0.044 in.
Monthly range	..	..	..	—	0.183 in.
Mean of highest daily temperatures	...	...	...	—	1.2°
Mean of lowest	..	..	..	—	0.1°
Mean daily range	...	...	...	—	1.1°
Adopted mean temperature	...	...	...	—	0.4°
Total rainfall	...	...	...	—	0.214 in.

Ground Frost on the 1st, 3rd—15th, 18th—19th, 21st and 23rd. Hoar Frost on the 3rd, 4th and 9th—12th. Snow on the 6th—7th, 11th and 31st. Hail on the 6th, 11th, 28th and 30th. Heavy Rain on the 7th and 29th. Fog on the 13th, 14th, 21st and 22nd. Solar Halo on the 8th and 24th.

EXTREME READINGS FOR MARCH,

During 85 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	1929	4437

* Since 1867 only.

† And 1914.

APRIL, 1932.

Results of Observations taken during the Month.		Mean for the last 85 years.
Mean Reading of the Barometer	inches 29·284	29·479
Highest " " on the 13th ...	" 29·998	29·954
Lowest " " on the 2nd ...	" 28·649	28·798
Range of Barometer Readings	" 1·349	1·156
Highest Reading of a Max. Therm. on the 30th...	59·8	64·2
Lowest Reading of a Min. Therm. on the 3rd ...	28·8	28·2
Range of Thermometer Readings	31·0	36·0
Mean of Highest Daily Readings	48·4	54·0
Mean of Lowest Daily Readings	36·8	37·9
Mean Daily Range	11·6	16·1
Deduced Mean Temp. (from mean of Max. and Min.)	41·1	43·8
Mean Temperature from Dry Bulb	44·1	44·7
Adopted Mean Temperature	42·6	44·3
Mean Temperature of Evaporation	40·9	41·6
Mean Temperature of Dew Point	37·2	38·2
Mean elastic force of Vapour	inches 0·221	0·234
Mean weight of Vapour in a cub. ft. of air, grains	2·6	2·7
Mean additional weight required for saturation "	0·7	0·7
Mean degree of Humidity (saturation 100)	74	80
Mean weight of a cubic foot of air	grains 538·5	542·0
Mean amount of Cloud (0—10)	7·2	6·8
Fall of Rain	inches 3·803	2·580
Greatest Rainfall in one day (6th)	" 0·592	0·597
No. of days on which ·005 in. or more Rain fell...	19	15·0
Wind:—Direction.....	N NE E SE S SW W NW	
No. of days.....	1 5 2 2 0 7 12 1	
Mean Velocity in miles per hr.	5·8 11·0 8·1 9·0 0 13·5 14·5 15·0	
Total No. of miles.....	140 1315 391 431 0 2262 4187 359	
Total No. of miles registered	9085	Mean* 7476·1
Greatest hourly velocity (10th, at 1300 G.M.T., Dir. S.W. by W.)	39	35·9

* For the last 65 years.

APRIL, 1932.

DIFFERENCES.

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

Mean barometric pressure	...	...	...	—	0·195 in.
Monthly range	..	...	...	+	0·193 in.
Mean of highest daily temperatures	...	...	...	—	5·6°
Mean of lowest	..	..	...	—	1·1°
Mean daily range	...	...	...	—	4·5°
Adopted mean temperature	...	...	...	—	1·7°
Total rainfall	...	...	...	+	1·223 in.

Ground Frost on the 1st—5th, 9th, 12th, 13th, 16th, 18th, 19th, 22nd and 27th. Hoar Frost on the 1st and 3rd. Snow on the 11th and 26th. Hail on the 7th, 11th, and 20th—23rd. Heavy Rain on the 6th. Gale on the 10th. Fog on the 27th. Lightning on the 14th. Solar Halo on the 2nd. Lunar Halo on the 18th.

EXTREME READINGS FOR APRIL,

During 85 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, 1932.

Results of Observations taken during the Month.		Mean for the last 85 years.						
Mean Reading of the Barometer	inches 29.440	29.535						
Highest " " on the 3rd ...	" 29.715	29.979						
Lowest " " on the 9th ...	" 29.205	28.948						
Range of Barometer Readings	" 0.510	1.031						
Highest Reading of a Max. Therm. on the 31st ...	65.6	71.7						
Lowest Reading of a Min. Therm. on the 8th ...	31.3	32.1						
Range of Thermometer Readings	34.3	39.6						
Mean of Highest Daily Readings	55.0	59.2						
Mean of Lowest Daily Readings	43.8	42.6						
Mean Daily Range	11.2	16.6						
Deduced Mean Temp. (from mean of Max. and Min.)	47.7	49.2						
Mean Temperature from Dry Bulb	49.3	50.1						
Adopted Mean Temperature	48.5	49.7						
Mean Temperature of Evaporation	46.6	46.5						
Mean Temperature of Dew Point	43.7	43.0						
Mean elastic force of Vapour	inches 0.286	0.280						
Mean weight of Vapour in a cub. ft. of air, grains	3.3	3.2						
Mean additional weight required for saturation "	0.8	0.8						
Mean degree of Humidity (saturation 100)	80	77						
Mean weight of a cubic foot of air	grains 535.4	536.8						
Mean amount of Cloud (0—10)	7.6	7.0						
Fall of Rain	inches 5.136	2.483						
Greatest Rainfall in one day (11th).....	" 0.906	0.650						
No. of days on which .005 in. or more Rain fell...	21	14.8						
Wind:—Direction	N	NE	E	SE	S	SW	W	NW
No. of days.....	12	6	2	0	2	4	5	0
Mean Velocity in miles per hr.	7.6	8.2	6.5	0	11.0	9.0	7.7	0
Total No. of miles.....	1972	1183	310	0	530	865	919	0
Total No of miles registered	5779	Mean*						
Greatest hourly velocity (18th, at 1200 G.M.T., Dir. S.)	27	6846.5	32.1					

* For the last 65 years.

MAY, 1932.

DIFFERENCES.

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

Mean barometric pressure	..	...	...	—	0.095 in.
Monthly range	..	...	...	—	0.521 in.
Mean of highest daily temperatures	...	...	...	—	4.2°
Mean of lowest	..	..	...	+	1.2°
Mean daily range	...	...	...	—	5.4°
Adopted mean temperature	...	...	...	—	1.2°
Total rainfall	...	...	...	+	2.653 in.

Ground Frost on the 4th—8th. Hoar Frost on the 8th. Hail on the 5th, 6th and 7th. Heavy Rain on the 11th, 12th, 15th and 30th. Fog on the 8th and 16th. Solar Halo on the 8th.

EXTREME READINGS FOR MAY,

During 85 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, 1932.

Results of Observations taken during the Month.		Mean for the last 85 years.						
Mean Reading of the Barometer	inches	29·649	29·561					
Highest „ „ on the 15th ...	„	29·912	29·937					
Lowest „ „ on the 30th ...	„	29·019	29·047					
Range of Barometer Readings	„	0·893	0·890					
Highest Reading of a Max. Therm. on the 17th .		74·5	76·4					
Lowest Reading of a Min. Therm. on the 5th...		38·5	39·2					
Range of Thermometer Readings		36·0	37·2					
Mean of Highest Daily Readings		64·8	64·9					
Mean of Lowest Daily Readings		48·6	48·2					
Mean Daily Range		16·2	16·7					
Deduced Mean Temp. (from mean of Max. and Min.)		54·9	54·7					
Mean Temperature from Dry Bulb		56·7	55·3					
Adopted Mean Temperature		55·8	55·0					
Mean Temperature of Evaporation		51·7	51·7					
Mean Temperature of Dew Point		47·1	48·2					
Mean elastic force of Vapour	inches	0·324	0·345					
Mean weight of Vapour in a cub. ft. of air, grains		3·6	3·8					
Mean additional weight required for saturation „		1·5	1·0					
Mean degree of Humidity (saturation 100)		69	78					
Mean weight of a cubic foot of air	grains	531·3	531·4					
Mean amount of Cloud (0—10)		6·0	7·2					
Fall of Rain	inches	0·993	3·304					
Greatest Rainfall in one day (27th)	„	0·600	0·801					
No. of days on which ·005 in. or more Rain fell...		5	15·1					
Wind:—Direction	N	NE	E	SE	S	SW	W	NW
No. of days.....	2	11	2	0	3	0	10	2
Mean Velocity in miles per hr.	4·4	7·2	7·2	0	11·4	0	7·3	8·7
Total No. of miles.....	213	1902	346	0	823	0	1740	398
Total No. of miles registered	5422						Mean*	
Greatest hourly velocity (30th, at 2400 G.M.T., Dir., S.S.E.)	31						6186·1	
							29·2	

* For the last 65 years.

JUNE, 1932.

DIFFERENCES.

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

Mean barometric pressure	...	...	...	...	+	0.088 in.
Monthly range	..	..	..	..	+	0.003 in.
Mean of highest daily temperatures	...	...	...	...	—	0.1°
Mean of lowest	..	..	..	..	+	0.4°
Mean daily range	...	...	...	...	—	0.5°
Adopted mean temperature	...	...	...	...	+	0.8°
Total rainfall	...	...	...	...	—	2.311 in.

Heavy Rain on the 27th. Fog on the 12th. Thunder on the 27th and 28th. Lightning on the 27th.

EXTREME READINGS FOR JUNE,

During 85 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	...	†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, 1932.

Results of Observations taken during the Month.		Mean for the last 85 years.
Mean Reading of the Barometer	inches 29.431	29.522
Highest " " on the 9th ...	" 29.799	29.900
Lowest " " on the 1st ...	" 28.929	29.001
Range of Barometer Readings	" 0.870	0.899
Highest Reading of a Max. Therm. on the 10th ...	77.8	78.1
Lowest Reading of a Min. Therm. on the 23rd...	45.6	43.0
Range of Thermometer Readings	32.2	35.1
Mean of Highest Daily Readings	65.1	67.1
Mean of Lowest Daily Readings	54.2	51.4
Mean Daily Range	10.9	15.7
Deduced Mean Temp. (from mean of Max. and Min.)	57.8	57.6
Mean Temperature from Dry Bulb	58.4	58.0
Adopted Mean Temperature	58.1	57.9
Mean Temperature of Evaporation	55.3	54.8
Mean Temperature of Dew Point	52.5	52.0
Mean elastic force of Vapour	inches 0.396	0.388
Mean weight of Vapour in a cub. ft. of air, grains	4.4	4.4
Mean additional weight required for saturation "	1.1	1.1
Mean degree of Humidity (saturation 100)	81	81
Mean weight of a cubic foot of air	grains 525.1	527.4
Mean amount of Cloud (0—10)	8.6	7.5
Fall of Rain	inches 4.889	4.063
Greatest Rainfall in one day (26th)	" 0.639	0.883
No. of days on which .005 in. or more Rain fell...	25	16.8
Wind:—Direction.....	N NE E SE S SW W NW	
No. of days.....	3 6 0 0 3 2 16 1	
Mean Velocity in miles per hr.	8.4 6.2 0 0 13.5 15.6 7.9 9.5	
Total No. of Miles.....	603 896 0 0 975 748 3042 228	
Total No. of miles registered	6492	Mean* 6310.6
Greatest hourly velocity (1st, at 0100 G.M.T., Dir. S.S.E.)	32	28.1

* For the last 65 years.

JULY, 1932.

DIFFERENCES.

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

Mean barometric pressure	... ..	—	0.091 in.
Monthly range	... ..	—	0.029 in.
Mean of highest daily temperatures	... ..	—	2.0°
Mean of lowest	... ..	+	2.8°
Mean daily range	... ..	—	4.8°
Adopted mean temperature	... ..	+	0.2°
Total rainfall	... ..	+	0.826 in.

Heavy Rain on the 26th. Thunder on the 11th, 13th and 22nd. Lightning on the 11th, 13th, 22nd and 25th.

EXTREME READINGS FOR JULY,

During 85 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.

AUGUST, 1932.

Results of Observations taken during the Month.		Mean for the last 85 years.						
Mean Reading of the Barometer	inches 29·672	29·493						
Highest ,, ,, on the 22nd ...	,, 30·208	29·896						
Lowest ,, ,, on the 30th ...	,, 29·343	28·947						
Range of Barometer Readings	,, 0·865	0·949						
Highest Reading of a Max. Therm. on the 19th ...	76·4	75·9						
Lowest Reading of a Min. Therm. on the 28th ...	44·3	42·0						
Range of Thermometer Readings	32·1	33·9						
Mean of Highest Daily Readings	66·7	66·1						
Mean of Lowest Daily Readings	54·4	50·9						
Mean Daily Range	12·3	15·2						
Deduced Mean Temp. (from mean of Max. and Min.)	58·9	56·9						
Mean Temperature from Dry Bulb	60·2	57·7						
Adopted Mean Temperature	59·6	57·3						
Mean Temperature of Evaporation	57·0	54·5						
Mean Temperature of Dew Point	54·2	51·8						
Mean elastic force of Vapour	inches 0·419	0·387						
Mean weight of Vapour in a cub. ft. of air, grains	4·7	4·3						
Mean additional weight required for saturation ,,	1·2	0·9						
Mean degree of Humidity (saturation 100)	81	82						
Mean weight of a cubic foot of air	grains 527·5	527·2						
Mean amount of Cloud (0—10)	7·4	7·3						
Fall of Rain	inches 1·653	5·142						
Greatest Rainfall in one day (20th)	,, 0·450	1·078						
No. of days on which ·005 in. or more Rain fell...	11	18·7						
Wind :—Direction	N	NE	E	SE	S	SW	W	NW
No. of days.....	0	10	3	0	1	3	12	2
Mean Velocity in miles per hr.	0	6·6	5·8	0	6·4	8·9	6·0	7·0
Total No. of miles.....	0	1603	419	0	153	639	1730	338
Total No. of miles registered	4882	Mean*						
Greatest hourly velocity (6th, at 1530 G.M.T., Dir., W.S.W.	25	6300·1	30·2					

* For the last 65 years.

AUGUST, 1932.

DIFFERENCES.

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

Mean barometric pressure	...	...	...	+	0.179 in.
Monthly range	"	"	"	—	0.084 in.
Mean of highest daily temperatures	...	...	...	+	0.6°
Mean of lowest	"	"	"	+	3.5°
Mean daily range	...	...	...	—	2.9°
Adopted mean temperature	...	...	...	+	2.3°
Total rainfall	...	...	...	—	3.489 in.

Fog on the 4th, 17th, 18th, 20th and 21st. Thunder on the 11th, 29th and 30th. Lightning on the 6th, 11th, 20th, 29th and 30th. Solar Halo on the 28th.

EXTREME READINGS FOR AUGUST,

During 85 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	"	1932	1.653 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, 1932.

Results of Observations taken during the Month.								Mean for the last 85 years.
Mean Reading of the Barometer	inches	29·437						29·544
Highest	on the 28th ...	30·032						30·007
Lowest	on the 11th ...	28·945						28·890
Range of Barometer Readings		1·087						1·117
Highest Reading of a Max. Therm. on the 16th ...		73·6						71·7
Lowest Reading of a Min. Therm. on the 21st ..		32·3						36·7
Range of Thermometer Readings		41·3						35·0
Mean of Highest Daily Readings		59·5						61·7
Mean of Lowest Daily Readings		47·7						47·4
Mean Daily Range		11·8						14·3
Deduced Mean Temp. (from mean of Max. and Min.)		52·3						53·3
Mean Temperature from Dry Bulb		53·9						54·2
Adopted Mean Temperature		53·1						53·8
Mean Temperature of Evaporation		51·0						51·0
Mean Temperature of Dew Point		48·2						48·3
Mean elastic force of Vapour	inches	0·335						0·339
Mean weight of Vapour in a cub. ft. of air, grains		3·8						3·9
Mean additional weight required for saturation ..		0·9						0·8
Mean degree of Humidity (saturation 100)		81						82
Mean weight of a cubic foot of air	grains	530·3						532·5
Mean amount of Cloud (0—10)		6·4						6·7
Fall of Rain	inches	7·841						4·355
Greatest Rainfall in one day (2nd)		2·800						0·984
No. of days on which ·005 in. or more Rain fell...		21						16·5
Wind :—Direction	N	NE	E	SE	S	SW	W	NW
No. of days.....	2	4	2	0	4	6	10	2
Mean Velocity in miles per hr.	4·6	5·4	3·6	0	7·6	13·3	9·0	5·2
Total No. of miles	221	520	175	0	733	1955	2163	250
Total No. of miles registered						6017		
Greatest hourly velocity (3rd, at 1400 G.M.T., Dir., W.S.W.; 11th, at 1200 G.M.T., Dir., W.N.W.)						27		
								Mean* 6005·6
								31·4

* For the last 85 years.

SEPTEMBER, 1932.

DIFFERENCES.

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

Mean barometric pressure	...	...	...	—	0.107 in.
Monthly range	..	..	..	—	0.030 in.
Mean of highest daily temperatures	...	...	...	—	2.2°
Mean of lowest	..	..	..	+	0.3°
Mean daily range	...	...	...	—	2.5°
Adopted mean temperature	...	...	...	—	0.7°
Total rainfall	...	...	...	+	3.486 in.

Ground Frost on the 21st, 22nd, 28th and 29th. Fog on the 13th and 17th. Thunder on the 7th and 8th. Lightning on the 8th.

EXTREME READINGS FOR SEPTEMBER,

During 85 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	†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, 1932.

Results of Observations taken during the Month.		Mean for the last 85 years.
Mean Reading of the Barometer	inches 29.213	29.445
Highest " " on the 4th ...	" 29.752	30.020
Lowest " " on the 8th ...	" 28.634	28.687
Range of Barometer Readings	" 1.118	1.333
Highest Reading of a Max. Therm. on the 7th ...	59.0	63.9
Lowest Reading of a Min. Therm. on the 29th...	29.1	29.8
Range of Thermometer Readings	29.9	34.1
Mean of Highest Daily Readings	52.1	54.4
Mean of Lowest Daily Readings	40.4	42.1
Mean Daily Range	11.7	12.3
Deduced Mean Temp. (from mean of Max. and Min.)	45.3	47.3
Mean Temperature from Dry Bulb	46.6	48.0
Adopted Mean Temperature	46.0	47.7
Mean Temperature of Evaporation	44.0	45.5
Mean Temperature of Dew Point	41.0	43.0
Mean elastic force of Vapour	inches 0.258	0.279
Mean weight of Vapour in a cub. ft. of air, grains	3.0	3.2
Mean additional weight required for saturation ..	0.7	0.6
Mean degree of Humidity (saturation 100)	80	84
Mean weight of a cubic foot of air	grains 534.3	537.4
Mean amount of Cloud (0—10)	6.7	7.2
Fall of Rain	inches 7.909	4.969
Greatest Rainfall in one day (25th).....	" 1.197	0.980
No. of days on which .005 in. or more Rain fell...	27	18.9
Wind :—Direction.....	N NE E SE S SW W NW	
No. of days.....	3 2 0 0 5 4 7 10	
Mean Velocity in miles per hr.	6.4 3.2 0 0 11.1 7.5 12.6 11.4	
Total No. of miles.....	462 155 0 0 1335 720 2111 2732	
Total No. of miles registered,	7515	Mean* 6788.9
Greatest hourly velocity (7th, at 2200 G.M.T., Dir., S.)	39	36.7

* For the last 65 years.

OCTOBER, 1932.

DIFFERENCES.

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

Mean barometric pressure	...	...	...	—	0.232 in.
Monthly range	„	...	...	—	0.215 in.
Mean of highest daily temperatures	...	...	...	—	2.3°
Mean of lowest	„	„	...	—	1.7°
Mean daily range	...	...	...	—	0.6°
Adopted mean temperature	...	...	...	—	1.7°
Total rainfall	...	...	...	+	2.940 in.

Ground Frost on the 4th, 12th, 25th, 28th and 29th. Hoar Frost on the 29th. Snow on the 29th. Hail on the 13th. Heavy Rain on the 7th, 10th, 17th, 21st, 25th, 26th and 29th. Gale on the 7th. Fog on the 9th, 24th, 25th and 31st. Thunder on the 13th. Lightning on the 22nd and 30th.

EXTREME READINGS FOR OCTOBER,
During 85 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, 1932.

Results of Observations taken during the Month.								Mean for the last 85 years.
Mean Reading of the Barometer	inches	29.592						29.458
Highest " " on the 13th ...	"	30.193						30.067
Lowest " " on the 23rd ...	"	28.990						28.570
Range of Barometer Readings	"	1.203						1.497
Highest Reading of a Max. Therm. on the 2nd ...		56.2						55.8
Lowest Reading of a Min. Therm. on the 6th ...		29.8						25.6
Range of Thermometer Readings		26.4						30.2
Mean of Highest Daily Readings		47.0						47.1
Mean of Lowest Daily Readings		39.4						36.8
Mean Daily Range		7.6						10.3
Deduced Mean Temp. (from mean of Max. and Min.)		42.8						41.6
Mean Temperature from Dry Bulb		44.2						42.1
Adopted Mean Temperature		43.5						41.9
Mean Temperature of Evaporation		42.1						39.9
Mean Temperature of Dew Point		39.6						38.2
Mean elastic force of Vapour	inches	0.244						0.231
Mean weight of Vapour in a cub. ft. of air, grains		2.8						2.8
Mean additional weight required for saturation "		0.5						0.4
Mean degree of Humidity (saturation 100)		83						87
Mean weight of a cubic foot of air	grains	544.0						544.3
Mean amount of Cloud (0—10)		8.3						7.4
Fall of Rain	inches	3.320						4.506
Greatest Rainfall in one day (22nd).....	"	0.861						1.008
No. of days on which .005 in. or more Rain fell ...		16						18.2
Wind :—Direction	N	NE	E	SE	S	SW	W	NW
No. of days.....	1	6	6	0	0	7	9	1
Mean Velocity in miles per hr.	2.1	5.6	9.8	0	0	11.8	13.9	2.5
Total No. of miles.....	51	811	1406	0	0	1990	3001	60
Total No. of miles registered						7319		Mean* 7130.7
Greatest hourly velocity (27th, at 0500 G.M.T., Dir., W.)						36		40.9

* For the last 65 years.

NOVEMBER, 1932.

DIFFERENCES.

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

Mean barometric pressure	+ 0.134 in.
Monthly range	— 0.294 in.
Mean of highest daily temperatures	— 0.1°
Mean of lowest	+ 2.6°
Mean daily range	— 2.7°
Adopted mean temperature	+ 1.6°
Total rainfall	— 1.186 in.

Ground Frost on the 1st, 5th, 6th, 11th, 21st and 28th. Hoar Frost on the 6th. Hail on the 20th and 23rd. Heavy Rain on the 22nd and 30th. Fog on the 1st, 10th, 18th, 25th and 30th.

EXTREME READINGS FOR NOVEMBER,

During 85 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, 1932.

Results of Observations taken during the Month		Mean for the last 85 years.						
Mean Reading of the Barometer	inches 29.570	29.437						
Highest „ „ on the 25th ...	„ 30.299	30.073						
Lowest „ „ on the 3rd ...	„ 28.821	28.543						
Range of Barometer Readings	„ 1.478	1.530						
Highest Reading of a Max. Therm. on the 7th ...	54.2	52.7						
Lowest Reading of a Min. Therm. on the 26th.....	28.9	21.8						
Range of Thermometer Readings	25.3	30.9						
Mean of Highest Daily Readings	45.9	43.4						
Mean of Lowest Daily Readings	38.2	34.0						
Mean Daily Range	7.7	9.4						
Deduced Mean Temp. (from mean of Max. and Min.)	42.1	38.7						
Mean Temperature from Dry Bulb	42.6	39.3						
Adopted Mean Temperature	42.4	39.0						
Mean Temperature of Evaporation	40.8	37.4						
Mean Temperature of Dew Point	38.7	35.5						
Mean elastic force of Vapour	inches 0.235	0.209						
Mean weight of Vapour in a cub. ft. of air, grains	2.7	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 545.3	546.9						
Mean amount of Cloud (0—10)	7.6	7.7						
Fall of Rain	inches 2.269	4.646						
Greatest Rainfall in one day (2nd)	„ 0.430	0.829						
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	5	3	0	11	5	5	1
Mean Velocity in miles per hr.	1.8	7.6	11.0	0	15.4	14.6	8.5	6.8
Total No. of miles.....	42	906	794	0	4159	1757	1015	162
Total No. of miles registered	8835							*Mean
Greatest hourly velocity (23rd, at 1100 G.M.T., Dir. S.)	36							7820.4
								41.8

* For the last 85 years.

DECEMBER, 1932.

DIFFERENCES.

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

Mean barometric pressure	...	...	...	+	0·133 in.
Monthly range	"	"	"	—	0·052 in.
Mean of highest daily temperature	...	...	...	+	2·5°
Mean of lowest	"	"	"	+	4·2°
Mean daily range	...	...	...	—	1·7°
Adopted mean temperature	...	...	...	+	3·4°
Total rainfall	...	...	...	—	1·386 in.

Ground Frost on the 2nd, 4th—10th, 13th and 26th. Hoar Frost on the 4th, 6th, 7th and 26th. Hail on the 3rd. Fog on the 13th, 26th and 30th.

EXTREME READINGS FOR DECEMBER, During 85 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	.....	10·597 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	"	"	...	†1853 8
*Greatest hourly velocity of wind...	...	1894 (22nd)	.....	72 mls.
*Greatest No. of miles registered	...	1929	.....	11493
*Least	"	"	...	1916 4517

* Since 1867 only.

† And in other years.

Summary of Observations, 1932.

Results of Observations taken during the Year.	Mean for the last 85 Years.	
<i>Readings of Barometer in inches.</i>		
Mean of the Year	29·541	29·493
Highest Monthly Mean (February)	30·082	29·749
Lowest " " (October)	29·213	29·225
Highest Reading (January 26th)	30·547	30·297
Lowest " (January 6th)	28·582	28·213
Range	1·965	2·084
<i>Thermometer, Fahrenheit.</i>		
Highest Monthly Mean Temperature (August).....	59·6	58·6
Lowest " " " (February)...	37·8	35·8
Highest Reading of a Max. Therm. (July 10th) ...	77·8	81·1
Lowest " Min. " (March 12th)...	21·9	16·7
Range of Thermometer Readings	55·9	64·4
Mean of Highest Daily "	53·4	54·3
Mean of Lowest Daily "	42·4	41·1
Mean Daily Range	11·0	13·2
Deduced Mean Temp. (from Mean of Max. and Min.)	46·8	46·7
Mean Temperature from Dry Bulb.....	48·1	47·2
Adopted Mean Temperature of the Year	47·5	47·0
Mean Temperature of Evaporation	45·4	44·6
Mean Temperature of Dew Point	42·5	42·1
Mean elastic force of Vapour inches	0·279	0·274
Mean weight of Vapour in a cub. ft. of air...grns.	3·2	3·2
Mean additional weight required for saturation ,,	0·8	0·7
Mean degree of Humidity (saturation 100).....	81	84
Mean weight of a cubic foot of air grns.	538·7	539·0
Mean amount of Cloud (0—10)	7·4	7·3
Total fall of Rain	46·613	47·601
Greatest Monthly Rainfall (October).....	7·909	7·634
Least " " (February)	0·123	1·225
Greatest Rainfall in one day (September 2nd).....	2·800	1·672
No. of days per Month on which ·005 inch or more Rain fell	17·2	17·2

SUMMARY OF WIND, 1932.

Prevailing Direction	N	NE	E	SE	S	SW	W	NW
No. of days for each	34	75	25	7	39	55	103	28
Mean Velocity in miles per hour...	5.6	8.2	8.1	5.8	13.4	12.4	9.6	8.0
Total No. of miles for each Direction	4547	14762	4847	981	12497	16379	23704	5368

		Mean for the last 65 years.
Total No. of miles registered	83082	84899.7
Greatest Monthly Total (January)	9385	9906.0
Least " " (February)	4208	4892.1
Greatest recorded hourly velocity (January 15)...	44	50.3
Prevailing Direction of Wind	W.	W.

DIFFERENCES, 1932.

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

Mean barometric pressure	+	0.048 in.
Yearly range " " " " " "	—	0.119 in.
Mean of highest daily temperatures	—	0.9°
Mean of lowest " " " " " "	+	1.3°
Mean daily range	—	2.2°
Adopted mean temperature	+	0.5°
Total rainfall	—	0.988 in.

ABSOLUTE EXTREMES
FOR THE LAST 85 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 " "	†1855 (Feb.).....	1·4

† And on other dates.

ABSOLUTE EXTREMES
FOR THE LAST 85 YEARS—Continued.

Rainfall, in inches.

Greatest Rainfall in one day	1866 (Nov. 16) ..	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.)	} 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. " "	January	8308
Least " " "	September	6006
Greatest No. " " year..	1868	102395
Least " " " "	1915	70623

* Record dates from 1867 only.

DATES OF OCCASIONAL PHENOMENA.

1832	Frost	Hoar Frost	Snow	Hail	Heavy Rain
January	1, 8, 9, 24-29, 31	26, 27, 28	9	7	2, 5, 6
February	1-3, 8-13, 15, 16-21, 24-26, 28, 29	8, 15, 16, 18-21	10, 11, 12, 28	...	...
March	1, 3-15, 18-19, 21, 23	3, 4, 9-12	6, 7, 11, 31	6, 11, 28, 30	7, 29
April	1-5, 9, 12, 13, 16, 18, 19, 22, 27	1, 3	11, 26	7, 11, 20-23	6
May	4-8	8	...	5, 6, 7	11, 12, 15, 30
June	...	...	...	...	27
July	...	...	...	...	26
August	...	...	...	...	...
September	...	...	...	...	1, 2, 7, 10
October	4, 12, 25, 28, 29	29	29	13	7, 10, 17, 21, 25, 26, 29
November	1, 5, 6, 11, 21, 28	6	...	20, 23	22, 30
December	2, 4-10, 13, 26	4, 6-7, 26	...	3	...

1832	Gales of Wind	Fog	Thunder	Lightning	Lunar Halo	Solar Halo	Aurora Borealis
January	9, 12, 14, 15, 16	8, 11, 12, 22, 25-27	...	...	...	14	...
February	...	1-4, 8, 16, 19	...	...	...	...	...
March	...	13, 14, 21, 22	...	...	...	8, 24	...
April	10	27	...	14	...	2	...
May	...	8, 16	...	...	...	8	...
June	...	12	27, 28	27	...	...	...
July	...	...	11, 13, 22	11, 13, 22, 25	...	...	...
August	...	4, 17, 18, 20, 21	11, 20, 30	6, 11, 20, 29, 30	...	28	...
September	...	13, 17	7, 8	8	...	...	...
October	7	9, 24, 25, 31	13	22, 30	...	...	...
November	...	1, 10, 18, 25, 30	...	...	...	...	...
December	...	13, 26, 30	...	...	...	...	...

MONTHLY TOTALS FOR EACH HOUR OF RECORDED SUNSHINE.

1932. 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 ...	...	...	...	...	1.3	4.3	7.5	9.1	11.2	9.3	6.5	1.1	...	...	...	...	...
February ...	...	...	...	0.8	4.1	8.3	8.4	9.3	10.6	9.0	8.3	7.3	2.4	...	...	...	...
March ...	...	...	0.6	4.0	7.5	9.1	9.7	10.5	12.2	11.8	11.5	10.2	7.3	0.2	...	...	...
April ...	...	0.7	4.6	9.0	10.8	10.1	12.6	9.9	10.3	12.0	12.0	11.5	11.8	10.0	2.5	...	...
May ...	1.1	6.3	9.3	7.7	8.6	9.5	8.9	7.0	5.7	6.6	8.7	9.0	9.9	6.0	4.9	0.7	...
June ...	5.2	11.3	13.6	14.1	15.4	15.0	16.0	16.9	18.8	19.6	19.4	17.3	17.3	14.9	12.6	5.4	...
July ...	1.0	2.1	4.3	5.1	6.5	7.7	8.1	8.7	9.4	10.0	11.0	11.8	11.8	9.3	7.1	2.3	...
August ...	...	1.1	6.6	10.0	14.2	12.2	11.4	11.8	15.0	15.2	13.3	12.3	11.7	8.5	2.9	...	...
September ...	...	0.1	1.6	5.7	8.5	12.6	14.5	13.5	14.4	12.9	13.2	11.9	10.0	3.3	...	...	...
October ...	...	...	...	3.1	9.1	10.0	10.7	12.7	12.2	11.7	10.3	8.2	4.0	0.9	...	...	...
November ...	...	...	...	0.3	1.4	4.0	5.2	3.7	3.9	4.2	2.3	1.4	...	...	...	...	...
December ...	...	...	...	...	0.4	5.0	9.1	9.2	9.3	11.3	6.6	0.9	...	...	...	...	...
Sums ...	7.3	21.6	40.6	59.8	87.8	107.8	122.1	122.3	133.0	133.6	123.1	102.9	86.2	53.1	30.0	8.4	...

TOTAL AMOUNT OF SUNSHINE RECORDED ON EACH DAY.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1932																	
January ..	...	...	...	0.1	...	...	4.0	5.1	1.5	...	2.3	2.5	4.8	...	4.8	0.1	2.0
February ..	0.1	3.9	...	...	...	...	...	0.9	0.3	6.5	0.1	0.4	0.4	0.1	6.6	4.4	2.6
March ..	9.4	6.1	7.7	2.1	0.4	4.8	...	5.0	5.7	6.0	4.5	10.1	3.2	0.7	...	4.8	0.7
April ...	2.9	7.1	...	1.2	6.7	...	4.8	10.7	0.1	4.7	6.2	11.1	2.0	6.3	1.7	0.1	4.1
May ..	0.5	...	3.3	4.5	9.9	1.2	9.2	7.9	5.1	11.4	0.1	...	0.6	11.5	0.9	0.2	8.0
June ..	11.5	13.5	11.1	4.9	3.9	6.1	2.8	5.9	11.3	13.4	3.7	8.6	12.5	12.2	15.5	12.1	16.0
July ..	5.8	10.6	0.3	2.6	3.3	8.1	4.8	0.6	2.6	8.6	4.2	2.7	0.1	...	12.7	0.1	7.9
August ...	5.0	1.8	8.5	6.5	0.9	5.9	9.6	2.2	5.8	5.8	10.4	2.7	5.9	2.8	4.1	6.0	...
September ..	...	...	5.6	1.6	0.1	...	8.2	0.7	4.7	5.3	6.8	6.2	...	1.7	0.9	6.2	6.3
October ...	2.7	7.0	5.6	1.6	4.1	1.0	1.5	...	6.0	0.1	0.1	1.8	3.2	4.6	6.0	...	4.8
November ...	...	0.6	2.0	...	8.2	0.9	...	0.2	0.2	...	1.4	...	2.4	...	...	0.1	...
December ...	4.8	1.9	...	6.0	4.1	5.9	5.3	2.9	0.3	0.9	2.5	0.5	...	3.1	0.1	...	...

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

1932	18	19	20	21	22	23	24	25	26	27	28	29	30	31	MONTHLY	
															Total	Per cent.
January ...	0.7	0.2	...	0.4	...	1.5	6.3	2.3	...	...	...	1.2	3.6	6.9	50.3	20.3
February ...	5.0	7.6	3.7	1.8	2.6	...	2.9	...	...	7.5	8.3	2.8	...	...	68.5	24.3
March ..	9.0	0.2	...	...	3.5	4.7	...	1.5	...	0.1	0.7	0.1	3.6	...	94.6	25.8
April ...	2.3	1.0	8.6	2.3	5.5	7.5	8.8	4.4	5.0	5.5	...	1.1	6.1	...	127.8	30.5
May ...	0.6	1.0	2.4	...	1.5	...	6.9	5.7	1.9	...	1.4	...	4.8	9.4	109.9	22.3
June ...	15.1	1.1	7.5	9.0	11.0	4.7	1.3	7.8	1.6	0.5	1.9	3.9	3.4	...	232.8	45.8
July ...	2.4	0.9	3.3	0.4	3.2	6.2	2.3	9.2	2.2	3.4	4.2	0.1	0.1	3.3	116.2	22.8
August ...	4.4	5.4	0.5	...	5.8	4.2	11.4	...	4.4	5.7	4.1	...	4.6	11.8	146.2	32.0
September...	0.3	8.4	2.9	9.9	4.3	3.3	5.7	7.4	2.1	6.2	7.9	6.8	2.7	...	122.2	32.2
October ...	8.8	1.8	...	...	0.3	0.3	3.7	...	2.0	6.0	8.4	...	4.1	7.5	93.0	28.6
November...	...	...	0.1	3.7	...	3.5	0.6	...	0.3	0.2	1.7	0.3	...	...	26.4	10.3
December ..	...	4.8	...	1.8	3.7	...	...	3.1	...	...	...	0.1	...	...	51.8	22.4

SUMMARY OF SUNSHINE.

	BRIGHT SUNSHINE RECORDED					
	1932			Mean for the last 52 years		
	Number of		Percentage of Possible Sunshine	Number of		Percentage of Possible Sunshine
	Days	Hours		Days	Hours	
January ..	19	50.3	20.3	14.7	33.5	13.5
February ..	21	68.5	24.3	17.7	56.0	20.4
March ..	24	94.6	25.8	24.4	103.8	29.4
April ..	27	127.8	30.5	26.5	144.9	34.6
May ...	25	109.9	22.3	27.8	182.4	37.0
June ...	30	232.8	45.8	28.1	186.3	36.8
July ...	30	116.2	22.8	28.4	166.6	32.8
August ...	27	146.2	32.0	27.6	147.2	32.2
September ..	26	122.2	32.2	25.6	123.5	32.5
October ...	25	93.0	28.6	23.8	87.3	26.8
November .	17	26.4	10.3	18.0	47.0	18.4
December ..	18	51.8	22.4	13.9	27.5	11.9
Year ...	289	1239.7	27.7	276.2	1307.8	29.3

SUMMARY OF SUNSHINE—*Continued.*
EXTREMES FOR THE LAST 52 YEARS.

MONTH	Number of Days				Number of Hours				Percentage of Possible Sunshine			
	on which Sunshine was recorded								Greatest		Least	
	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	20.6	1882	32.8	1887	10.9	1882
Mar.	30	1929	17	1904	178.9	1929	56.8	1912	48.9	1929	15.5	1912
April	30	*1909	22	1920	223.7	1893	80.7	1920	53.4	1893	19.3	1920
May	31	1929	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.	24	1925	9	1897	89.9	1925	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).

1882.	MEANS OF *					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	Mean for the month *				
	13° +								
January ...	37.0	31.2	33.6	35.4	34.3	15.4	46.8	7.8	39.0
February ...	36.4	30.0	32.0	33.8	33.1	15.3	50.8	-1.2	52.0
March ...	35.4	26.6	30.0	33.2	31.3	21.1	47.8	-2.2	50.0
April ...	35.8	23.6	28.4	30.8	29.2	17.3	41.8	2.8	39.0
May ...	32.6	22.4	26.6	29.4	27.8	16.8	47.8	-3.2	51.0
June ...	32.6	24.2	27.0	30.8	28.7	11.5	40.6	19.6	21.0
July ...	31.8	22.8	25.4	30.2	27.5	11.4	37.6	18.6	19.0
August ...	32.6	22.4	25.6	29.0	27.4	15.3	43.6	1.6	42.0
September ...	31.0	22.6	23.8	27.6	26.3	15.0	38.6	4.6	34.0
October ...	29.6	21.8	24.0	26.6	25.5	14.2	41.6	1.6	40.0
November ...	25.4	20.8	23.4	23.2	23.2	9.9	35.6	2.6	33.0
December ...	23.6	19.0	21.2	21.0	21.2	12.6	34.6	-0.4	35.0
Means ...	32.0	24.0	26.7	29.3	28.0	14.7	42.3	4.4	37.9

Mean for the year 13° 28'.0 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.

1832	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 +								
January ...	191	173	180	182	182	55.4	243	77	166
February ...	196	173	186	188	186	52.4	239	116	123
March ...	195	169	184	183	183	75.7	257	85	172
April ...	187	157	169	174	169	81.8	248	94	154
May ...	183	140	163	169	164	91.1	332	-104	436
June ...	156	112	143	142	138	59.0	226	90	136
July ...	205	161	187	185	185	62.9	267	99	168
August ...	195	152	155	156	178	69.5	249	55	194
September ...	196	163	177	178	179	60.3	227	117	110
October ...	201	165	185	186	184	59.4	227	55	172
November ...	195	174	189	185	186	41.4	223	121	102
December ...	194	175	187	187	186	44.4	223	86	137
Means... ..	191	160	175	176	176	62.8	247	74	173

Mean for the year 17176 C. G. S. Units.

* For the 5 quietest days.

† Includes all days.

ABSOLUTE MEASURES—SUMMARY.

DIRECTION			FORCE.		
1932	Declination Corrected	Inclination	Horizontal	Vertical	Total
	° /	° /	C. G. S. UNITS.		
	13 +	68 +	0·17000+	0·44000+	0·47000+
January ...	33·6	47·3	167	232	447
February ...	32·0	46·9	183	259	478
March ...	30·3	47·8	163	241	453
April ...	29·6	47·3	177	259	476
May ...	30·1	48·9	179	325	538
June ...	28·6	48·2	152	228	437
July ...	27·6	48·9	191	356	571
August ..	26·6	48·6	173	277	488
September ...	25·5	47·2	181	265	482
October* ...	25·5	47·9	184	299	515
November ...	23·2	48·5	165	273	473
December ...	22·1	49·1	205	397	613
Means ...	° / 13 27·9 W.	° / 68 48·0	0·17177	0·44284	0·47498

* No observation of Inclination or Horizontal Force was obtained in October. The value adopted for inclination is the mean of the values for September and November, and that for Horizontal Force is derived from the continuous curves. The values of the Vertical and Total Force are deduced from these.

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.

1932	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1932
D.													D.
1	m	c	c	m	s	s	c	s	s	c	m	s	1
2	g	c	m	g	m	c	c	m	s	s	s	s	2
3	s	g	m	m	m	c	s	m	c	s	s	c	3
4	—	g	m	s	m	c	s	s	s	c	s	c	4
5	s	s	m	u	m	s	s	m	s	s	s	c	5
6	c	s	m	m	s	s	m	c	m	c	c	s	6
7	m	m	m	m	s	s	s	c	m	s	s	s	7
8	s	m	m	m	s	m	m	c	s	c	s	m	8
9	m	m	g	s	c	s	s	c	s	m	c	m	9
10	m	m	g	s	s	s	s	c	c	m	s	m	10
11	m	m	g	c	m	m	c	c	c	s	c	s	11
12	m	m	c	c	c	s	s	s	c	c	s	c	12
13	s	m	c	m	(s)	c	c	s	c	c	s	m	13
14	m	s	c	m	(c)	c	c	s	s	c	m	g	14
15	m	s	c	s	m	c	c	s	s	g	m	g	15
16	s	c	c	s	m	c	m	c	s	m	g	m	16
17	s	c	s	s	s	c	c	c	c	m	m	m	17
18	c	s	g	m	c	c	c	c	m	s	m	s	18
19	c	s	s	c	c	s	s	s	m	c	c	m	19
20	c	m	s	c	c	m	c	c	s	g	s	c	20
21	c	s	m	c	m	s	s	s	c	m	c	c	21
22	c	m	m	m	s	s	s	m	m	m	c	c	22
23	c	g	m	m	m	c	c	s	m	m	c	c	23
24	m	m	s	m	s	s	c	c	m	m	c	s	24
25	m	s	c	m	m	s	c	c	m	s	s	s	25
26	m	s	s	m	s	s	c	c	m	c	c	s	26
27	m	c	s	s	s	c	c	m	m	s	c	s	27
28	g	c	g	s	m	c	c	(g)	c	c	s	m	28
29	s	c	g	c	g	c	c	(g)	s	s	s	c	29
30	s		m	c	g	s	c	m	s	s	s	s	30
31	m		g		(m)	s	s	s		c		m	31
TOTAL	c	7	7	7	7	6	13	17	13	8	11	10	117
	s	8	8	6	8	11	14	11	10	12	14	10	122
	m	13	11	11	14	12	3	3	6	10	4	9	104
	g	2	3	7	1	2	—	—	2	—	2	1	22
vg	—	—	—	—	—	—	—	—	—	—	—	—	
													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.

n—Note without a complete drawing at Stonyhurst.

1932	Jan.	Feb.	March	April	May	June
DAY						
1	Z 1.40	Z 0.91	3.50	0.22	nZ 0.20	0.34
2	Z 1.06	0.82	3.39	0.14	Z NS	NS
3	C 0.56	Z 0.55	2.85	Z 0.21	NS	0.13
4	Z 0.41	Z 0.45	2.64	NS	NS	0.27
5	Z 0.41	0.40	2.20	NS	NS	nZ 0.55
6	C 0.08	Z 0.22	2.07	Z NS	NS	1.10
7	0.12	nZ 0.12	Z 1.41	NS	0.13	1.35
8	0.02	NS	0.65	NS	0.25	2.30
9	0.02	NS	0.53	Z NS	0.22	2.11
10	Z 0.05	0.21	0.18	NS	0.48	1.79
11	0.02	nZ 0.11	NS	NS	Z 0.88	1.01
12	NS	NS	NS	NS	Z 1.35	0.99
13	0.05	NS	NS	NS	Z 1.17	0.60
14	NS	NS	NS	NS	0.89	0.36
15	0.18	NS	NS	0.19	1.72	0.14
16	0.70	NS	NS	Z 0.13	2.61	0.24
17	0.51	NS		0.15	2.90	1.07
18	0.16	NS	0.19	0.03	Z 2.72	1.98
19	nZ 0.10	NS	Z 0.11	NS	Z 2.60	Z 2.59
20	Z NS	0.07	Z 0.07	NS	2.85	2.84
21	0.45	NS	Z 0.07	0.51	Z 3.63	3.80
22	Z 0.53	NS	0.07	2.66	3.10	4.05
23	0.86	Z 0.20	NS	3.33	Z 4.10	3.83
24	0.99	0.60	Z 0.05	3.50	3.12	3.45
25	1.07	Z 1.43	NS	5.33	2.84	2.52
26	Z 1.31	Z 2.88	Z 0.55	6.47	nZ 3.32	1.60
27	Z 1.45	3.71	Z 0.28	5.22	Z 3.34	1.53
28	Z 1.29	3.53	Z 0.35	Z 5.20	1.77	1.35
29	1.65	3.28	Z 0.39	2.69	C 1.48	1.82
30	1.59		0.25	0.97	1.11	1.23
31	1.33		Z 0.33		0.82	
Mean	0.59	0.67	0.74	1.23	1.60	1.56

AND DISC AREAS OF SPOTS.

Z—Area from copy of Zurich drawing.

C—Area from Catania drawing.

July	August	Sept.	October	Nov.	Dec.	1932
						DAY
0.96	1.31	Z 0.09	NS	Z 0.09	0.92	1
0.67	1.69	Z 0.07	NS	Z 0.19	0.62	2
Z 0.97	1.34	NS	0.15	1.26	Z 0.58	3
Z 1.01	1.23	NS	NS	Z 0.30	nC 0.18	4
0.50	0.99	Z NS	NS	NS	0.36	5
0.77	0.86	Z NS	0.15	NS	NS	6
0.84	0.58	NS	NS	Z NS	1.54	7
	0.24	NS	Z NS	NS	2.39	8
0.88	NS	NS	NS	NS	3.48	9
0.83	0.04	NS	Z NS	Z 0.07	3.87	10
0.56	0.02	NS	NS	0.08	4.43	11
0.21	NS	0.02	0.09	Z 0.09	5.11	12
Z 0.11	NS	Z 0.08	0.11	0.24	Z 4.55	13
Z NS	NS	NS	0.15	Z 0.18	5.07	14
NS	NS	NS	0.21	Z 0.12	3.55	15
Z NS	NS	NS	nZ 0.11	NS	nZ 2.62	16
NS	Z NS	NS	0.23	Z 0.43	Z 1.59	17
NS	NS	NS	0.37	Z 2.00	Z 1.26	18
NS	NS	NS	1.27	Z 2.88	0.38	19
NS	NS	NS	Z 1.83	Z 4.06	Z 0.54	20
Z NS	Z NS	0.43	nZ 1.97	2.87	NS	21
0.03	NS	0.12	1.61	C 0.89	NS	22
NS	NS	0.03	1.57	NS	Z NS	23
Z NS	0.13	NS	1.88	NS	NS	24
NS	Z 0.69	NS	Z 0.62	NS	NS	25
NS	0.78	NS	1.26	NS	NS	26
0.38	1.00	NS	0.56	NS	Z 0.33	27
0.73	0.35	NS	0.27	NS	Z 0.31	28
Z 1.21	Z 0.45	0.12	Z 0.19	NS	0.13	29
Z 1.30	0.07	0.08	NS	Z 1.09	Z 0.15	30
1.36	0.09		0.05		Z 0.19	31
0.44	0.38	0.03	0.47	0.56	1.42	Mean

SUN-SPOT STATISTICS, 1932.

The points for which the co-ordinates were measured are indicated as follows :—s—centre of chief spot, g—centre of group, p—centre of preceding, f—centre of following spot. In the last column is entered the day and decimal thereof on which the centre of the spot or group actually passed the central meridian, or would have done so if on the Solar Surface on the day in question. The "Types are" :—

- I.—One or more small spots.
- II.—A double spot or group of some magnitude.
- III.—A train of spots of some magnitude.
- IV.—A single large spot with or without small companions.
- V.—Irregular group of larger spots.

Groups in *Italics* were not observed at Stonyhurst, but are taken from the Zurich drawings.

No. of Group	Date	Mean Latitude	Mean Longitude	Ref. Pt.	Max. Area	Mean Type	Central Meridian
		°	°				
1	Jan. 7	— 8.3	141.4	s	0.02	I	Jan. 7.4
<i>1'</i>	" 1—2	+ 4.7	186.8	<i>g</i>	<i>0.10</i>	<i>I</i>	" 4.0
<i>1'</i>	" 10	+ 2.9	168.7	<i>s</i>	<i>0.05</i>	<i>I</i>	" 5.4
2	" 7—8	+ 3.0	134.7	g	0.03	I	" 8.0
3	" 7	+12.3	120.4	s	0.07	I	" 9.1
4	" 9	+ 5.2	109.9	s	0.02	I	" 9.8
5	" 11, 15—19	— 9.1	48.1	g	0.70	I	" 14.5
6	" 13	— 9.4	75.2	s	0.05	I	" 12.5
7	" 21—Feb. 2	—13.4	240.5	s	0.90	I	" 27.3
8	" 22—24	+14.9	338.7	s	0.15	I	" 19.8
9	" 25—27	— 5.7	288.4	g	0.32	I	" 23.6
9'	" 26—27	+ 7.8	270.7	<i>g</i>	<i>0.13</i>	<i>I</i>	" 25.0
10	" 26—Feb. 7	+12.5	173.0	s	1.09	I	Feb. 1.4
<i>10'</i>	" 26	+ 0.4	214.7	<i>g</i>	<i>0.03</i>	<i>I</i>	<i>Jan. 29.2</i>
11	Feb. 10—11 ...	— 5.4	48.2	g	0.21	I	Feb. 10.9
13	" 20	— 7.0	265.5	g	0.07	I	" 21.7
14	" 23—25	—12.5	235.0	g	0.34	I	" 24.0
15	" 23—Mar. 3	+ 5.0	195.8	g	3.71	III, II	" 27.0
		+ 4.7	200.5	p			" 26.6
		+ 5.5	192.3	f			" 27.3
16	" 28—Mar. 10	+12.4	113.2	p	2.59	IV	Mar. 4.3
		+11.4	104.7	fg			" 4.9

SUN-SPOT STATISTICS, 1932—Contd.

No. of Group	Date	Mean Latitude	Mean Longitude	Ref. Pt.	Max. Area	Mean Type	Central Meridian
17	Mar. 1—2 ...	— 4.7	130.6	g	0.17	I	Mar. 2.9
18	„ 2, 4, 6 ...	+ 7.7	70.0	g	0.06	I	„ 7.5
19	„ 18—22 ...	— 6.9	253.3	g	0.19	I	„ 21.0
19	„ 24 ...	+ 1.6	201.6	g	0.05	I	„ 24.9
20	„ 26—Apl. 3	+12.6	114.6	s	0.55	I	„ 31.5
20'	„ 27—28 ...	— 5.4	135.2	g	0.05	I	„ 29.9
20''	Apl. 3 ...	—10.2	128.6	g	0.14	I	Mar.30.4
21	„ 15—18 ...	—13.7	276.5	s	0.19	I	Apl. 15.5
22	„ 21—23 ...	— 8.2	256.7	p	0.48	I, II	„ 17.0
		— 8.6	251.3	f			„ 17.4
23	„ 21 ...	+ 6.0	222.3	s	0.02	I	„ 19.6
24	„ 21—May 1	+ 9.5	149.0	p	6.47	II	„ 25.1
		+10.9	140.8	f			„ 25.8
25	May 7—18 ...	— 7.3	263.1	s	1.35	IV	May 13.7
26	„ 15 ...	+13.5	213.9	s	0.13	I	„ 17.5
27	„ 15—24 ...	+ 5.3	197.8	s	1.04	IV	„ 18.7
28	„ 16—27 ...	+10.3	151.9	p	1.65	II	„ 22.1
		+10.6	149.3	f			„ 22.3
29	„ 17—18 ...	— 4.6	156.4	s	0.15	I	„ 21.8
30	„ 20—June 1	+ 3.7	95.1	s	3.05	IV	„ 26.4
31	June 3—14 ...	— 6.0	279.7	p	2.07	IV	June 8.7
32	„ 6—11 ...	+13.3	238.7	s	0.20	I	„ 11.8
33	„ 8 ...	+11.5	333.7	g	0.03	I	„ 4.6
34	„ 15 ...	+ 1.0	217.2	g	0.14	I	„ 13.4
35	„ 16—28 ...	+ 0.8	101.2	p	4.05	II	„ 22.2
		+ 4.2	92.8	f			„ 22.8
36	„ 24—July 2	+11.3	348.6	g	1.79	III	„ 30.7
37	„ 28—29 ...	— 0.3	307.2	s	0.03	I	July 3.8
38	„ 30—July 12	— 6.7	282.0	p	1.01	III	„ 5.7
		— 8.1	271.4	f			„ 6.5
		— 6.1	263.5	f'			„ 7.1
38'	July 13 ...	— 8.6	138.6	s	0.11	I	„ 16.6
39	„ 22 ...	— 0.9	30.3	s	0.03	I	„ 24.7
40	„ 27—Aug. 8	— 8.1	274.7	s	1.69	IV	Aug. 2.5
41	Aug. 10—11 ...	+ 0.3	230.1	g	0.04	I	„ 5.9
42	„ 24—Sep. 2	— 7.9	276.4	s	0.39	IV	„ 29.6

SUN-SPOT STATISTICS, 1932—Contd.

No. of Group	Date.	Mean Latitude	Mean Longitude	Ref. Pt.	Max. Area	Mean Type	Central Meridian
		°	°				
43	Aug. 25—29 ...	— 6.0	334.4	p	0.61	II, IV	Aug. 25.2
		— 6.3	329.2	f			„ 25.6
44	Sept. 12—13 ...	+ 9.7	30.0	s	0.08	I	Sept. 17.2
45	„ 21 ...	— 0.6	40.2	s	0.19	I	„ 16.5
46	„ 21—22 ...	+ 11.4	306.0	g	0.24	I	„ 23.6
47	„ 23 ...	+ 5.6	313.2	s	0.03	I	„ 23.1
48	„ 29—30 ...	— 5.6	271.9	g	0.12	I	„ 26.2
49	Oct. 3, 6 ...	+ 10.6	132.3	s	0.15	I	Oct. 6.8
50	„ 12—14 ...	+ 10.2	356.4	s	0.11	I	„ 17.1
51	„ 14—17, 20, 22	+ 8.2	314.6	s	0.23	I	„ 20.2
51'	„ 20—21 ...	+ 6.7	10.6	s	0.06	I	„ 16.0
52	„ 18—29 ...	+ 10.4	261.0	s	1.91	IV	„ 24.3
53	Oct. 31—Nov. 1	— 4.4	114.9	s	0.09	I	Nov. 4.4
54	Nov. 2—4 ...	— 8.4	137.3	g	0.30	I	„ 2.7
55	„ 10—15 ...	+ 0.4	344.7	g	0.24	I	„ 14.3
56	„ 17—21 ...	+ 8.9	316.0	g	4.06	IV, V	„ 16.4
		+ 9.3	323.9	p			„ 15.8
57	„ 30—Dec. 5	+ 5.1	70.4	g	1.09	I	Dec. 5.1
58	Dec. 7—18 ...	+ 10.0	327.6	s	5.11	IV	„ 12.9
59	„ 17—20 ...	+ 8.5	313.4	g	0.41	I	„ 13.9
59'	„ 13, 20 ...	+ 12.2	306.2	g	0.15	I	„ 14.5
60	„ 27—31 ...	+ 7.2	153.0	g	0.33	I	„ 26.1

