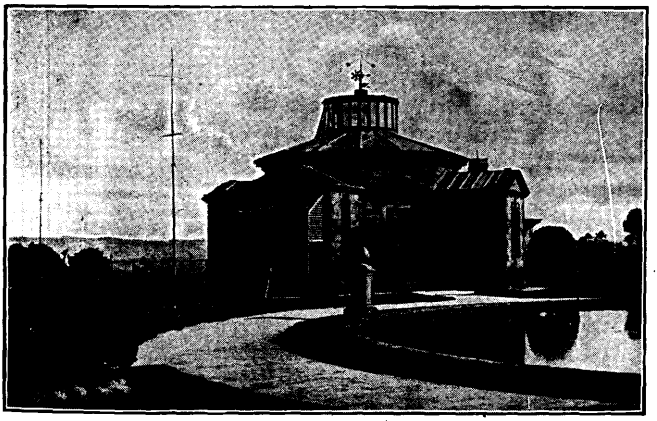
STONYHURST COLLEGE OBSERVATORY.

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



(FOUNDED 1838.)

Results of Geophysical and Solar Observations,

1927.

With Report and Notes of the Director,

Rev. E. D. O'CONNOR, S.J., M.A., F.R.A.S.

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CONTENTS.

ERRATUM. *1926, February, p. 3.*

Mean of the Mean readings of the Barometer for 79 years:—

For 29·511, read 29·486.

REPORT AND NOTES.

GENERAL.—We are glad to welcome the Rev. Dudley R. Ward, S.J., B.A., and Sergeant A. V. Wilkins, who joined the Observatory Staff in September.

It has been decided to issue our own Weather Forecasts. A new wireless set is being put together designed to receive all wave lengths up to 23,000 metres, so that the morning conditions at the various meterological stations can be picked up. Mr. Ward, through the courtesy of Dr. G. C. Simpson, spent some time during the Christmas Holidays at the Meterological Office, London, to perfect his previous experience of Weather Forecasting, and to observe the methods followed at that office. He will be responsible for this department of the work at the Observatory. He also assists in the Seismological work, in addition to his classes at the College.

Sergeant Wilkins, who is Bandmaster to the O.T.C., is Assistant Librarian, and also helps in the clerical work of the Observatory.

Mr. Wilfrid Brown is the Meteorological Clerk.

Father B. G. Swindells, S.J., B.Sc., A.R.C.Sc., most of whose time is taken up with his duties at the College, retains charge of the Library. He was able also to give very valuable help in the work connected with the Eclipse of June 29th.

Father J. P. Rowland, S.J., B.Sc., F.R.A.S., is in charge of the Magnetic and Seismological work, and in general of the various instruments and clocks at the Observatory.

In addition to the routine work which was carried on as usual during the year, considerable time was devoted to preparation for the Total Solar Eclipse of June 29th. Unfortunately a small cloud, which covered the sun during the critical seconds of totality, effectively precluded any possibility of results as far as photography was concerned. An account of the preparations carried out and work attempted was published in the Supplementary Number of the *Monthly Notices* R.A.S., Vol. LXXXVII, No. 9.

The Transit of Mercury on 1927, November 10th, was observed with the 15 inch equatorial, the image of the sun being projected on to the Sun-Spot Board. There was a certain amount of cloud in the region of the sun; but the Sun was clear at the time of the third and fourth contacts. Definition, however, was poor, and there was a considerable amount of " boiling."

Using the data given in the *Nautical Almanac*, p. 459, to compute the times of contact as visible at Stonyhurst, the result of the observation worked out at

O—C = —18s. for time of third contact,

O—C = —29s. for time of fourth contact,

O being the observed time, and C the computed time.

Preparations were also made to observe the times of occultation and reappearance of ι Tauri on occasion of the total Lunar eclipse on December 8th. An overcast sky rendered all observation impossible.

METEOROLOGICAL.—The pillar of the Campbell-Stokes Sun-shine Recorder was unfortunately blown down by a gale during the night of January 27th—28th, with the result that no sunshine was recorded between January 28th and February 5th, by which date a new pillar had been constructed and mounted. There was no sun on the last four days of January, nor on February 3rd and 5th. An estimate of 12 hours was made for the three days, February 1st, 2nd and 4th.

On October 19th the main spring of the motor clock of the Anemograph broke. The clock was sent to the Meteorological Office to be repaired, but it was not until November 12th that the daily wind record could be restarted.

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

With the exception of May and early June, it was a wet, dull year, and on the whole rather mild. There was a deficiency in sunshine in every month, except November and December; the total number of hours for the year falling short of the average for the last 47 years by 151·2 hours in 1304·5 hours. Bright sunshine, however, was recorded on 265 days.

The rainfall exceeded the average for the past 80 years by 4·610 inches, with precipitation on 222 days. The greatest fall of rain in one day was on the 20th of

September, when 2·240 inches were registered. January, August, September and November were the wettest months of the year; February, May, October and December the driest.

Fine day periods of five days or more were recorded as follows :—February 8th—13th, 14th—19th; March 8th—18th; April 15th—20th; May 5th—12th, 24th—31st; June 9th—16th; August 1st—6th; October 3rd—13th; November 7th—14th; November 29th—December 6th; December 15th—20th; December 27th—January 1st; a total of *thirteen* periods, with an average of 6·5 days each, as against a total of *nine* periods with an average of 5·7 days each in 1926.

Bright sunshine for 10 hours or more was registered as follows :—Two days in April, eight days in May, four days in June, one day in July, three days in August, and one day in September, a total of 23 days, with an average of 11·7 hours each day.

The days on which were recorded the greatest number of *continuous* hours of sunshine were :—January 19th; April 3rd, 6th, 15th, 26th, 29th, 30th; May 1st, 8th, 9th, 11th, 17th, 18th; June 2nd, 7th; July 10th; August 17th, 29th; September 4th, 17th; October 3rd, 4th, 5th; November 11th, 30th.

The adopted mean temperature for the year was 46°·8, 0°·1 below the normal. The highest shade temperature was 78°·0, on July 10th, 3°·3 below the normal. The lowest was 20°·0, on December 20th, 3°·5 above the normal. June, July and August were the warmest months; January, February and December the coldest.

Gales of wind, 37 miles per hour and over occurred : Two in January and two in October. The greatest *recorded* velocity of the wind was on January 26th, which was registered at 52 miles per hour, in direction S. The very severe and destructive gale of October 28th was unfortunately not recorded, owing to the dismantling of the anemograph motor clock, mentioned earlier on in these notes. The velocity was estimated to have been about 70 miles per hour.

Synopsis of the Monthly weather :—

January :—Wet and cloudy, with the rainfall distributed evenly during the month, the only dry period being from the 16th—19th. Eight and a half hours of sunshine was recorded on these four days. The adopted mean temperature was 1°·7 *above* the average ; but there was a cold spell from the 17th—23rd, the morning temperature on these seven days being below freezing point. Bright sunshine was recorded on 14 days, but the number of hours were 30·8 % less than the average. The dullest period was from the 7th—13th, each day being practically overcast. The total wind mileage was 14·1 % above the average, a strong gale of 52 miles per hour being recorded on the 26th, at 12 hours, in direction S., followed by one less violent on the 28th. The latter end of the month was wild and stormy, with snow on the ground for four days, from the 21st.

February :—Comparatively dry and calm, with a normal amount of cloud. Though the rainfall was 41·7 % *below* the average, bright sunshine also fell below the normal. The sunniest period of the month was from the 1st—13th. From the 19th to the end of

the month there was some rain each day. The adopted mean temperature was only 0°·1 below the normal, in spite of a cold period, 8th—13th, with frost each morning. The total wind mileage was 44·6 % below the normal.

March :—A dull month, with considerable rain from the 1st—7th, and again 18th—31st. No rain fell from the 8th—17th, and most of the sunshine recorded was registered on these days ; but the total number of hours of bright sunshine was 19 % less than the normal for the month. The adopted mean temperature was 2°·4 *above* the average ; the coldest period was from the 9th—17th. The total wind mileage was just normal, and the greatest velocity was below gale force.

April :—Rather wet and wild. With the exception of a dry period, 15th—19th, rain fell almost every day, with a heavy fall of 1·122 inches on the 13th. The rainfall was 25% *above* the normal, and bright sunshine 6·6% *below*. The total wind mileage was 19·3% *above* the average, although gale force was never reached.

May :—Dry and moderately sunny. The rainfall was much below the average, 55·4% less than the normal amount being registered. Most of it fell in the periods 2nd—4th and 12th—15th, the rest of the month, with the exception of one or two days, was quite dry. Bright sunshine was recorded on 27 days, and the total amount was only 4·0 hours below the average of 182·7 hours. The sunniest period was 6th—19th, 10 hours or more being recorded on eight days during this period. The adopted mean temperature was slightly below the normal. The highest readings in the shade were 71°·5

and 70°·0, on the 7th and 8th respectively. The total wind mileage was 11% below the average, no gales being registered.

June :—Fine and dry for the first fortnight, wet, dull, and rather wild afterwards. Except for a few days at the beginning of the month, most of the four inches of rain recorded fell from the 16th—27th. The first 15 days were mostly dry and sunny, 10 hours of sunshine or more was registered on each of nine days out of the 15. From the 16th onwards the weather became dull, wet and squally. The adopted mean temperature was 3°·5 below normal. The total wind mileage was 18·5% above the average.

July :—Dull, wet and mild. The rainfall was 22·5% above the average, and the number of hours of sunshine 33·2% below. The driest part of the month was the period 8th—19th, with about one inch of rain, mostly on the 11th and 15th. From the 20th onwards rain fell every day until the end of the month, and very little sunshine was recorded on these days. The adopted mean temperature was above the normal by 1°·3. The total wind mileage was 27·1% less than the average, and was only 34 miles in excess of the minimum record (4577 miles in 1913) for the past 60 years.

August :—Fine for the first week ; dull, wet and rather mild for the rest of the month. The rainfall which began on the 6th, was 40·1% above the average. On the 14th there was one inch of rain, on the 27th 1·320 ins. Hours of sunshine were 16·5% below the normal and were distributed fairly evenly during the month on 26 days. The adopted mean temperature was about 1°·0 above normal, and the total wind mileage 11·0% below.

September :—Fair and warm for the first half, the second half very wet. The rainfall was 105·1% *above* normal, and hours of sunshine 16·1% below. One inch out of the 9 inches of rain was registered during the first fortnight, while only half the number of hours of sunshine were recorded. Heavy falls of 2·240 inches, on the 20th, 1·178 on the 21st, and 1·130 on the 24th, added considerably to the monthly total. The adopted mean temperature was 1°·0 below the average, and the total wind mileage 8·1% above.

October :—Fine and sunny to the 12th, rather wet afterwards. The rainfall, however, was 29·7% below the average, and most of it fell in the latter half of the month. A fine and dry period was recorded between the 2nd and 13th. Bright sunshine was about normal, but very little was registered in the last ten days. The adopted mean temperature was 1°·5 above the average. Owing to the breakage in the motor clock of the Anemograph, wind was only recorded for the first 18 days.

November :—Very wet for the first week, four of the five and a half inches of rain falling during the first five days. The period 13th—23rd was very dull, but the rest of the month was bright. The rainfall was 24·7% above the normal, and the hours of sunshine 15·5% also above the normal. Temperature was normal.

December :—A dry, calm month, with three bright periods, 5th—6th, 16th—20th, and 26th—30th. The rest of the month was very cloudy. The rainfall was 74·0% below the normal, and the hours of sunshine 34·8% above. The month ended with a cold spell, thus reducing the adopted mean temperature to 3°·6 below the normal. The total wind mileage was 20·1% below the average.

MAGNETICAL.—Absolute measures of Horizontal Magnetic Force have been made once each month by the method of Vibration and Deflection. The constants of the magnetometer needles were described in our 1921 Annual Report (*p.* vii). The Inclination is also measured, once each month, by two needles, with Dover's Circle, No. 159. The Declination is observed four times each month, at nearly equal intervals. and usually at 16 hours. The Differential Instruments, or Photo-Magnetographs, which have been in practically continuous action since the year 1866, are of the Kew Observatory pattern, except that the radial distances between the centres of the magnets and the surfaces of the respective cylinders are somewhat shorter, being 152·4 Cms. The time-scale is provided by cutting off the light every two hours, by means of an electro-magnet actuated from the Synchronome Clock The scale values of the instruments are as follows :—

For the Unifilar ... 11·28′ per Cm. of Ordinate.
„ Bifilar ... ·000496 C.G.S. „ „

The Vertical Force Balance does not give sufficiently consistent readings to allow of numerical values being safely quoted, and the interpretation of its record is confined to estimates of greater or less disturbance.

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

The absolute measures of Horizontal Direction and Force are corrected by the difference between the curve ordinate at the time of observation and the monthly mean of the four daily readings, according to the rule

stated on page xii of our Report, 1908 ; and the month means are taken from the readings on the five quietest days of the month.

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

In the Table of Magnetic Disturbances (page 38) the intention is that a *calm* (c) shall mean a smooth curve ; *small* (s) a disturbance noteworthy only as opposed to a calm ; *moderate* (m) a disturbance not to be neglected for any comparison with other phenomena, solar or terrestrial ; *greater* (g) a marked disturbance ; and *very great* (v.g.) a decided storm.

Corresponding tabulations are sent quarterly to the Meteorological Institute at De Bilt (Holland), for the International Committee on Terrestrial Magnetism. In these the significant notes are restricted to three—0 (quiet), 1 (moderately disturbed), and 2 (highly disturbed). The character figures are assigned according to the scheme detailed in the Annuaire for 1918 of the Royal Dutch Meteorological Institute. From a comparison of these character letters with the figures published for each day from the central international station at De Bilt for the years 1921, 1922, the mean values of the figures corresponding to each letter are c—0·2, s—0·6, m—0·9, g—1·3, and v.g.—1·5. The civil day is used for both the international figures and for our own characteristic letters. The rule followed in assigning these letters to denote the magnetic character of a day is as follows :—

From the measured ranges of D and H in minutes of arc on the five quietest days of a month a mean value

is obtained of D and H combined. Similarly for each day of the month a mean value in minutes of arc of the range of D and H combined is set down. The excess of this mean daily range over the mean for the five quietest days gives the magnetic character of the day. The following values of the excess are adopted for the table of magnetic disturbances :—0 to 2 calm, 3 to 7 small, 8 to 15 moderate, 16 to 20 great, above 20 very great.

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.

The mean daily ranges of Declination, $6'\cdot9$ for the quiet days, and $12'\cdot2$ for all days, and of Horizontal Force 38_γ for the quiet days, and 70_γ for all days, shew a slight decrease on the corresponding values for 1926. The percentage of magnetically quiet days (c) was 32, as against 31 in the preceding year. These figures all shew a general decrease in magnetic disturbance corresponding to the decreased solar activity.

The mean magnetic characters of the various months, derived from the numerical values on the international scale referred to above, of the Stonyhurst letters m, g, v.g., point to October and December as the most magnetically active months, and to November and June as the quietest. The following table exhibits a comparison of the Mean Daily Sunspot Areas with the Mean Daily Magnetic Character (1) including calms and small disturbances; (2) excluding calms and small disturbances (c—$0\cdot2$, s—$0\cdot6$, m—$0\cdot9$, g—$1\cdot3$, and v.g.—$1\cdot5$ international scale).

MONTH	MEAN DAILY MAGNETIC CHARACTER. (1)	(2)	MEAN DAILY SUN SPOT AREA.
January...	0·62	0·33	11·0
February	0·58	0·35	6·6
March	0·66	0·39	3·9
April	0·53	0·24	6·1
May	0·62	0·33	4·6
June	0·49	0·12	4·6
July	0·55	0·18	4·1
August	0·65	0·28	4·5
September	0·66	0·38	5·9
October...	0·78	0·51	3·6
November	0·45	0·08	6·1
December	0·67	0·42	2·6

It will be seen that there is a striking *lack* of correspondence this year between the Sun Spot Areas and the Magnetic Character Numbers for the different months. March, October and December, with the smallest Sun-Spot Areas, have the highest magnetic character numbers, whilst November, with a comparatively large spot area, has an extremely low character number, and the same applies in a less marked degree to June. The same lack of correspondence is apparent if comparison be made between the sun-spot areas and the mean daily ranges in Declination and Horizontal Force, as given in the tables on pp. 35—36.

The greatest magnetic disturbances of the year occurred on the dates and with the ranges shewn in the accompanying table :—

DATE	RANGE D. ′	RANGE H. γ
July 21—22	59	365
Aug. 20—21	37	458
Oct. 12	55	502
,, 22	43	277
,, 23	43	202

" Sudden Commencements " were noted on January 24th, 23 h. 42 m. ; February 9th, 16 h. 58 m. ; April 12th, 23 h. 48 m. ; May 27th, 4 h. 32 m. ; July 4th, 0 h. 51 m. ; 21st, 21 h. 4 m. ; August 29th, 0 h. 2 m. ' October 9th, 20 h. 32 m. ; 12th, 10 h. 25 m. ; 22nd; 6h. 38 m. ; November 8th, 5 h. 24 m. ; 18th, 4 h. 32 m. ; December 8th, 18 h. 28 m. ; 31st, 5 h. 20 m.

Correction to 1926 Report.

Owing to a clerical error in the table on p. 37 of the 1926 Report, in the columns for Vertical and Total Force, the figures 224 and 468 should read 250 and 495 respectively.

A more serious systematic error has, however, been detected, which affects the whole of the measures of force. The value of the Bifilar Sensibility, ·000496 C.G.S. Units per cm. of ordinate given on p. vii. of the introductory notes is correct, but unfortunately in the reductions of observations this factor was not used,

but an incorrect one due to a faulty sensibility determination made near the end of the year, and this error was not detected until after the Report had been distributed.

Although the mean values of Horizontal Force on p. 36, and the Absolute values of Force on p. 37 are only very slightly affected, the extreme readings for the months are more seriously in error, and the ranges are 10 per cent. too low.

To avoid confusion in giving individual corrections, the tables of force on pp. 36 and 37 have been re-calculated and printed on a loose sheet, which recipients are requested to substitute for the corresponding sheet in the 1926 Report.

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

Solar Observations.—Observations of the Solar Surface were made on 230 days, and include 236 drawings. Of these drawings 211 are complete, and show all spots and faculæ; of the remaining 25, 12 are complete for the spots. The observation days and daily areas are recorded on p. 39. The horizontal lines on that page indicate the commencement of a new Solar revolution.

The mean daily disc area of the spots in units 1/5000th of the disc, stands at 5·15, as compared with 5·33 in 1926 and 3·53 in 1925.

HORIZONTAL MAGNETIC FORCE.

REVISED.

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.

1926	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 +					0 +	17000 +		0 +
January ...	255	225	239	234	239	89·8	567	− 84	651
February ...	253	220	245	242	240	79·6	> 543 ‡	101	> 442 ‡
March ...	264	213	242	248	242	91·1	434	68	366
April	264	218	248	250	245	104·8	478	−107	585
May	268	224	250	253	249	89·3	358	134	224
June	280	228	260	265	258	86·7	436	102	334
July	274	223	244	246	244	67·3	326	157	169
August ...	259	211	244	250	241	66·0	299	145	154
September ...	242	206	233	229	227	86·6	365	− 4	369
October ...	252	222	242	238	238	92·9	> 628 ‡	<- 90 ‡	> 718 ‡
November ...	251	228	243	244	241	43·0	289	151	138
December ...	247	227	241	240	239	42·7	279	151	128
Means	259	220	244	245	242	78·3	417	60	357

Mean for the year ... ... ·17242 C. G. S. Units.

* *For the 5 quietest days.* † *Includes all days.* ‡ *Beyond the limits of registration.*

REVISED.

ABSOLUTE MEASURES—SUMMARY.

1926	DIRECTION		FORCE.		
	Declination Corrected	Inclination	Horizontal	Vertical	Total
			C. G. S. UNITS.		
	° ′ 14 +	° ′ 68 +	0·17000+	0·44000+	0·47000+
January ...	46·2	41·3	239	185	430
February ...	44·8	47·4	240	434	651
March ...	45·8	44·1	242	301	538
April	41·7	44·3	245	318	555
May	41·2	43·3	249	289	530
June	37·0	41·7	259	257	506
July	38·3	44·2	244	311	547
August ...	39·0	43·9	241	292	530
September ...	38·0	51·6	228	553	768
October ...	36·2	46·0	239	367	598
November ...	35·0	43·4	242	360	516
December ...	33·5	44·3	240	307	543
Means ...	° ′ 14 39·7 W.	° ′ 68 44·6	0·17242	0·44331	0·47559

The following table shows the distribution of spot-groups in the hemispheres at each revolution, with their maximum projected areas. The first revolution, starting on 1926, December 20·91, corresponds to Greenwich No. 980. The thirteenth (No. 992) ended on December 10·47. The last column gives the sum of the Maximum Areas of all the spots on the Sun during the revolution in question.

Revolution	Northern Hemisphere		Southern Hemisphere		Sum. of Max'm Areas
	No. of Groups	Max'm Areas	No. of Groups	Max'm Areas	
1. Dec. 20·91	9	11·5	10	15·4	26·9
2. Jan. 17·24	13	19·9	13	26·0	45·9
3. Feb. 13·59	12	3·3	16	7·4	10·7
4. March 12·92	13	15·9	14	7·8	23·7
5. April 9·22	10	6·2	13	15·9	22·1
6. May 6·47	10	11·3	16	14·3	25·6
7. June 2·68	4	13·2	9	4·0	17·2
8. June 29·88	7	7·8	14	9·5	17·3
9. July 27·09	4	3·5	9	18·4	21·9
10. Aug. 23·31	5	1·8	10	33·5	35·3
11. Sep. 19·58	10	4·5	13	11·7	16·2
12. Oct. 16·86	7	3·0	11	18·7	21·7
13. Nov. 13·16	4	2·6	11	12·6	15·2
TOTAL	108	104·5	159	195·2	299·7

Sun-spot activity which had passed from the Southern to the Northern Solar Hemisphere during 1921 has quite clearly returned to the Southern Hemisphere this year.

The subjoined table shows the annual distribution of spots in the two Hemispheres from 1921, and the

total spotted area as obtained by the sum of the maximum areas of each spot.

Year	Northern Hemisphere		Southern Hemisphere		Sum. of Max'm Areas
	No. of Groups	Max'm Areas	No. of Groups	Max'm Areas	
1921 ...	53	105·7	42	73·2	178·9
1922 ...	33	72·6	26	38·6	111·2
1923 ...	23	26·9	21	12·3	39·2
1924 ...	60	73·2	15	20·2	93·4
1925 ...	124	161·6	84	105·4	267·0
1926 ...	142	153·1	142	151·9	307·0
1927 ..	108	104·5	159	195·2	299·7

It would appear that the maximum Northern Hemisphere predominence was in 1924.

March 25th was the only day on which no spots were seen. But visibility on that day was poor; and small spots might easily have escaped detection.

The Sun-spot Statistics, as derived from our drawings are given on pp. 40—48. In the last column is given 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. It is hoped that no confusion will be caused by entering merely a number. By referring to column 2 it should be quite clear what date is meant. Thus, for instance, Group 2 was only seen on January 2nd. It's central meridian passage is entered as 28·9. This obviously means Dec. 28·9, 1926. The dates entered in column 2 are the first and last dates on which the group in question was *actually* seen.

SEISMOLOGY.—The Milne-Shaw Seismograph has been in constant use throughout the year, and records have been obtained on most days. A mechanical defect in the motor-clock has been the cause of a number of lost records. Early in November, at Mr. Shaw's suggestion, this was sent to West Bromwich and thoroughly overhauled. Since then the working has been entirely satisfactory. Tilting of the pier caused by sunshine on the outside of the walls of the wing of the Observatory in which the seismograph is situated is still a source of trouble, and on a number of days the entanglement of the lines of the record from this cause has rendered all reading impossible.

From the records obtained, there is evidence of 91 earthquakes during the year, distributed as follows :

Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
3	4	5	2	4	3	11	10	21	8	16	4	91

Of these, perhaps the most notable are the following :—

(j) May 22nd. Epicentre—Kan-Sou (China).

The record shows well-defined longitudinal waves, together with two reflected phases. The beginning of the transverse waves is ill-defined, but a reflected phase is here also discernible. The record indicates the distance of the epicentre to be 7,800 km.

(ij) August 5th. Epicentre-east of Sendai, Fukushima (Japan).

The longitudinal waves, together with three reflected phases are discernible, as also the transverse waves and one reflected phase. There is evidence of surface waves that have traversed the longer arc of the geodesic. The epicentre was estimated to lie at a distance of 9,000 km.

(iij) September 11th and 12th. Epicentre—the Crimea.

There are at least four of these, of which the first was of the greatest intensity. The maximum ground movement in the first was 302μ. The second was much feebler, and the record was obscured by its proximity to the first. The third shows a ground movement of 25μ, the fourth 28μ.

The distance of the epicentres was estimated to be on the average 2,880 km.

(jv) October 24th. Epicentre—Alaska.

The maximum ground movement was 214μ; the distance of the epicentre was estimated to be 6,920 km.

(v) November 4th. Epicentre—California.

This shows a maximum ground movement of 114μ, and is of interest since there is evidence on the record of 'core-phases.' The epicentre was estimated to lie at a distance of 8,220 km.

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

METEOROLOGICAL REPORT.

JANUARY, 1927.

Results of Observations taken during the Month.		Mean for the last 80 years.
Mean Reading of the Barometer ..... inches	29·258	29·482
Highest ,, ,, on the 10th ... ,,	30·019	30·126
Lowest ,, ,, on the 29th ... ,,	28·553	28·587
Range of Barometer Readings ..... ,,	1·466	1·539
Highest Reading of a Max. Therm. on the 9th	50·1	51·3
Lowest Reading of a Min. Therm. on the 20th	24·2	21·8
Range of Thermometer Readings	25·9	29·5
Mean of Highest Daily Readings	43·0	42·5
Mean of Lowest Daily Readings	35·3	33·3
Mean Daily Range	7·7	9·2
Deduced Mean Temp. (from mean of Max. and Min.)	39·0	37·7
Mean Temperature from Dry Bulb	40·0	38·0
Adopted Mean Temperature	39·5	37·8
Mean Temperature of Evaporation	38·4	36·6
Mean Temperature of Dew Point	36·3	34·5
Mean elastic force of Vapour ..... inches	0·214	0·201
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)	87	88
Mean weight of a cubic foot of air ..... grains	542·6	549·2
Mean amount of Cloud (0—10)	7·9	7·8
Fall of Rain ..... inches	5·428	4·330
Greatest Rainfall in one day (8th) ..... inches	0·570	0·822
No. of days on which ·005 in. or more Rain fell...	26	19·6

Wind:—Direction.....	N	NE	E	SE	S	SW	W	NW
No. of days.....	2	1	0	0	2	4	19	3
Mean Velocity in miles per hr	3·9	4·2	0	0	14·7	22·5	1·3	8·6
Total No. of miles.....	189	100	0	0	707	2164	5701	622

		Mean*
Total No. of miles registered	9483	8312·7
Greatest hourly velocity (26th, at 12 p.m., Dir. S.)	52	41·3

* *For the last* 60 *years.*

JANUARY, 1927.

DIFFERENCES.

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

Mean barometric pressure	—	0·224 in.
Monthly range ,, ...	—	0·053 in.
Mean of highest daily temperatures	+	0·5°
Mean of lowest ,, ,, ...	+	2·0°
Mean daily range	—	1·5°
Adopted mean temperature	+	1·7°
Total rainfall	+	1·098 in.

Ground Frost on the 5th, 8th, 17th—23rd. Hoar Frost on the 17th, 19th and 20th. Snow on the 5th, 13th, 20th and 22nd. Hail on the 3rd, 13th, 27th and 31st. Heavy Rain on the 8th, 20th and 24th. Gales of Wind on the 13th, 16th and 28th.

EXTREME READINGS FOR JANUARY.

During 80 Years.

Highest reading of Barometer ...	1896	(9th)	30·597 in.
Lowest ,, ,, ...	1884	(26th)	27·803 in.
Highest temperature	1877	(7th)	59·9°
Lowest ,, ...	1881	(15th)	4·6°
Highest adopted mean temperature	1916	.....	44·7°
Lowest ,, ,,	1881	.....	29·2°
Greatest fall of rain	1921	.....	8·589 in.
Least ,, ...	1881	.....	0·472 in.
Greatest fall of rain in one day ...	1914	(8th)	2·074 in.
Greatest No. of days on which ·005 in. or more rain fell ...	1890	.....	30
Least ,, ,, ,,	†1850	.....	8
*Greatest hourly velocity of wind .	1899	(12th)	63 mls.
*Greatest No. of miles registered ...	1890	.....	11661
*Least ,, ,, ,, ...	1881	.....	4352

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

FEBRUARY, 1927.

Results of Observations taken during the Month.		Mean for the last 80 years.
Mean Reading of the Barometer ..... inches	29·553	29·486
Highest ,, ,, on the 8th ... ,,	30·134	30·099
Lowest ,, ,, on the 28th ... ,,	28·569	28·645
Range of Barometer Readings ..... ,,	1·565	1·454
Highest Reading of a Max. Therm. on the 28th ...	52·0	52·1
Lowest Reading of a Min. Therm. on the 11th ...	21·6	22·7
Range of Thermometer Readings	30·4	29·4
Mean of Highest Daily Readings	43·4	44·0
Mean of Lowest Daily Readings	32·9	33·7
Mean Daily Range	10·5	10·3
Deduced Mean Temp. (from mean of Max. and Min.)	37·8	38·3
Mean Temperature from Dry Bulb	39·2	38·6
Adopted Mean Temperature	38·5	38·4
Mean Temperature of Evaporation	37·8	36·9
Mean Temperature of Dew Point	35·9	34·7
Mean elastic force of Vapour ..... inches	0·212	0·197
Mean weight of Vapour in a cub. ft. of air, grains	2·4	2·4
Mean additional weight required for saturation ,,	0·4	0·4
Mean degree of Humidity (saturation 100)	88	87
Mean weight of a cubic foot of air ..... grains	549·0	548·4
Mean amount of Cloud (0—10)	7·5	7·5
Fall of Rain ..... inches	2·070	3·551
Greatest Rainfall in one day (5th) ..... ,,	0·390	0·760
No. of days on which ·005 in. or more Rain fell...	15	17·0

Wind:—Direction.....	N	NE	E	SE	S	SW	W	NW
No. of days.....	0	4	4	1	4	4	9	2
Mean Velocity in miles per hr.	0	3·5	5·9	4·4	9·7	6·2	6·2	5·1
Total No. of miles.....	0	338	570	105	927	596	1338	247

		Mean*
Total No. of miles registered	4121	7433·8
Greatest hourly velocity (on the 28th, at 24 hours, Dir. S. by W.)	28	40·5

* *For the last* 60 *years.*

FEBRUARY, 1927.

DIFFERENCES.

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

Mean barometric pressure		0·000 in.
Monthly range ,, ...	+	0·111 in.
Mean of highest daily temperatures	—	0·6°
Mean of lowest ,, ,, ...	—	0·8°
Mean daily range	+	0·2°
Adopted mean temperature	+	0·1°
Total rainfall	—	1·481 in.

Ground Frost on the 2nd, 3rd, 5th, 8th—13th, 18th, 19th, 24th and 25th. Hoar Frost on the 11th, 12th, 19th, 24th and 25th. Fog on the 4th, 6th, 7th, 13th, 14th, 16th and 17th. Solar Halo on the 24th.

EXTREME READINGS FOR FEBRUARY,

During 80 Years.

Highest reading of Barometer ...	1902 (1st)	30·476 in.
Lowest ,, ,, ...	1900 (19th)	27·870 in.
Highest temperature	1877 (8th)	58·3°
Lowest ,, ...	1902 (11th)	5·0°
Highest adopted mean temperature	1869	44·0°
Lowest ,, ,,	1855	28·6°
Greatest fall of rain	1848	8·882 in.
Least ,, ...	1858	0·306 in.
Greatest fall of rain in one day ...	1909 (3rd)	2·000 in.
Greatest No. of days on which ·005 or more rain fell	1910	27
Least ,, ,, ,, ...	1855	4
*Greatest hourly velocity of wind ..	1903 (27th)	60 mls.
*Greatest No. of miles registered ...	1868	12577
*Least ,, ,, ,, ...	1917	3160

* *Since* 1867 *only.*

MARCH, 1927.

Results of Observations taken during the Month.			Mean for the last 80 years.
Mean Reading of the Barometer	inches	29·242	29·451
Highest ,, ,, on the 16th ...	,,	29·882	30·043
Lowest ,, ,, on the 25th ...	,,	28·278	28·647
Range of Barometer Readings	,,	1·604	1·396
Highest Reading of a Max. Therm. on the 21st ...		61·6	56·7
Lowest Reading of a Min. Therm. on the 11th ...		32·5	23·5
Range of Thermometer Readings		29·1	33·2
Mean of Highest Daily Readings		48·3	46·9
Mean of Lowest Daily Readings		38·3	34·5
Mean Daily Range		10·0	12·4
Deduced Mean Temp. (from mean of Max. and Min.)		42·3	39·8
Mean Temperature from Dry Bulb		43·7	40·4
Adopted Mean Temperature		43·0	40·1
Mean Temperature of Evaporation		41·3	38·2
Mean Temperature of Dew Point		38·5	35·9
Mean elastic force of Vapour	inches	0·233	0·210
Mean weight of Vapour in a cub. ft. of air, grains		2·7	2·4
Mean additional weight required for saturation ,,		0·6	0·5
Mean degree of Humidity (saturation 100)		81	85
Mean weight of a cubic foot of air	grains	538·0	546·1
Mean amount of Cloud (0—10)		7·9	7·5
Fall of Rain	inches	4·195	3·355
Greatest Rainfall in one day (2nd)	,,	0·704	0·757
No. of days on which ·005 in. or more Rain fell...		20	16·8

Wind:—Direction.....	N	NE	E	SE	S	SW	W	NW
No. of Days	1	2	1	4	2	6	11	4
Mean Velocity in miles per hr.	6·3	6·1	10·4	10·1	15·1	13·5	11·5	9·7
Total No. of miles.....	151	293	250	974	733	1942	3024	928

		Mean*
Total No. of miles registered	8295	8376·1
Greatest hourly velocity (on the 2nd, at 23 hours, Dir. W. by N.)	35	40·0

* *For the last* 60 *years.*

MARCH, 1927.

DIFFERENCES.

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

Mean barometric pressure	—	0·209 in.
Monthly range ,, ...	—	0·208 in.
Mean of highest daily temperatures	+	1·4°
Mean of lowest ,, ,, ...	+	3·8°
Mean daily range	—	2·4°
Adopted mean temperature	+	2·9°
Total rainfall	+	0·840 in

Ground Frost on the 9th, 11th, 13th and 17th. Hoar Frost on the 11th. Hail on the 24th. Heavy Rain on the 2nd and 26th.

EXTREME READINGS FOR MARCH,

During 80 Years.

Highest reading of Barometer ...	1854	(4th)	30·452 in.
Lowest ,, ,, ...	1876	(10th)	28·100 in.
Highest temperature	1871	(25th)	68·0°
Lowest ,, ...	1874	(10th)	11·1°
Highest adopted mean temperature	1920	.....	44·2°
Lowest ,, ,,	1883	.....	34·4°
Greatest fall of rain	1912	.....	7·205 in.
Least ,, ...	1852	.....	0·352 in.
Greatest fall of rain in one day ...	1898	(17th)	1·540 in.
Greatest No. of days on which ·005 in. or more rain fell ...	†1861	.....	28
Least ,, ,, ,, ...	1852	.....	3
*Greatest hourly velocity of wind	1905	(15th)	57 mls.
*Greatest No. of miles registered ...	1903	.....	12773
*Least ,, ,, ,, ...	1892	.....	5725

* *Since* 1867 *only.* † *And* 1914.

APRIL, 1927.

Results of Observations taken during the Month.		Mean for the last 80 years.
Mean Reading of the Barometer ..... inches	29·498	29·483
Highest ,, ,, on the 12th ... ,,	29·924	29·959
Lowest ,, ,, on the 7th ... ,,	28·954	28·794
Range of Barometer Readings ..... ,,	0·970	1·165
Highest Reading of a Max. Therm. on the 22nd ...	58·1	64·4
Lowest Reading of a Min. Therm. on the 29th...	27·8	28·2
Range of Thermometer Readings	30·3	36·2
Mean of Highest Daily Readings	49·4	54·2
Mean of Lowest Daily Readings	38·5	37·8
Mean Daily Range	10·9	16·4
Deduced Mean Temp. (from mean of Max. and Min.)	42·5	43·9
Mean Temperature from Dry Bulb	44·5	44·7
Adopted Mean Temperature	43·5	44·3
Mean Temperature of Evaporation	41·6	41·6
Mean Temperature of Dew Point	38·2	38·2
Mean elastic force of Vapour ..... inches	0·231	0·234
Mean weight of Vapour in a cub. ft. of air, grains	2·7	2·7
Mean additional weight required for saturation ,,	0·7	0·7
Mean degree of Humidity (saturation 100)	78	80
Mean weight of a cubic foot of air ..... grains	542·1	542·0
Mean amount of Cloud (0—10)	7·4	6·8
Fall of Rain ..... inches	3·789	2·591
Greatest Rainfall in one day (13th) ..... ,,	1·122	0·604
No. of days on which ·005 in. or more Rain fell...	22	15·0

Wind:—Direction.....	N	NE	E	SE	S	SW	W	NW
No. of days.....	1	2	0	0	2	0	15	10
Mean Velocity in miles per hr.	8·9	10·8	0	0	8·9	0	12·8	13·2
Total No. of miles.....	217	517	0	0	425	0	4596	3163

		Mean*
Total No of miles registered	8918	7476·3
Greatest hourly velocity (on the 25th, at 13 hours, Dir. W. by N.)	32	36·2

* *For the last* 60 *years.*

APRIL, 1927.

DIFFERENCES.

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

Mean barometric pressure	+	0·015 in.
Monthly range ,, ...	—	0·195 in.
Mean of highest daily temperatures	—	4·8°
Mean of lowest ,, ,, ...	+	0·7°
Mean daily range	—	5·5°
Adopted mean temperature	—	0·8°
Total rainfall	+	1·198 in.

Ground Frost on the 2nd, 11th, 12th, 16th, and 26th—30th. Hoar Frost on the 30th. Hail on the 2nd and 27th. Heavy Rain on the 13th.

EXTREME READINGS FOR APRIL,

During 80 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, 1927.

Results of Observations taken during the Month.			Mean for the last 80 years.
Mean Reading of the Barometer	inches	29·630	29·538
Highest ,, ,, on the 11th ...	,,	30·071	29·986
Lowest ,, ,, on the 17th ...	,,	29·050	28·944
Range of Barometer Readings	,,	1·021	1·042
Highest Reading of a Max. Therm. on the 7th		71·2	71·8
Lowest Reading of a Min. Therm. on the 1st		27·6	32·0
Range of Thermometer Readings		43·6	39·8
Mean of Highest Daily Readings		57·7	59·3
Mean of Lowest Daily Readings		42·8	42·6
Mean Daily Range		14·9	16·7
Deduced Mean Temp. (from mean of Max. and Min.)		48·6	49·2
Mean Temperature from Dry Bulb		50·1	50·1
Adopted Mean Temperature		49·4	49·6
Mean Temperature of Evaporation		47·3	46·5
Mean Temperature of Dew Point		44·3	43·1
Mean elastic force of Vapour	inches	0·278	0·280
Mean weight of Vapour in a cub. ft. of air, grains		3·4	3·2
Mean additional weight required for saturation ,,		0·8	0·8
Mean degree of Humidity (saturation 100)		81	77
Mean weight of a cubic foot of air	grains	538·0	536·9
Mean amount of Cloud (0—10)		7·4	7·0
Fall of Rain	inches	1·243	2·786
Greatest Rainfall in one day (20th)	,,	0·300	0·647
No. of days on which ·005 in. or more Rain fell...		11	14·8

Wind:—Direction	N	NE	E	SE	S	SW	W	NW
No. of days	3	5	4	3	1	1	9	5
Mean Velocity in miles per hr.	8·8	7·2	8·8	7·4	16·3	1·5	8·4	8·6
Total No. of miles	627	874	851	535	390	37	1771	1038

		Mean*
Total No of miles registered	6123	6877·2
Greatest hourly velocity (on the 2nd, at 15 hours, Dir. S.S.E.)	28	32·3

* *For the last* 60 *years.*

MAY, 1927.

DIFFERENCES.

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

Mean barometric pressure	+	0·092 in.
Monthly range „	—	0·021 in.
Mean of highest daily temperatures	—	1·6°
Mean of lowest „ „	+	0·2°
Mean daily range	—	1·8°
Adopted mean temperature	—	0·2°
Total rainfall	—	1·543 in.

Ground Frost on the 1st, 11th, 12th and 18th. Hoar Frost on the 1st. Thunder on the 4th. Lightning on the 4th.

EXTREME READINGS FOR MAY,

During 80 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, 1927.

Results of Observations taken during the Month.		Mean for the last 80 years.
Mean Reading of the Barometer ..... inches	29·449	29·561
Highest ,, ,, on the 15th ... ,,	29·823	29·937
Lowest ,, ,, on the 25th ... ,,	29·030	29·050
Range of Barometer Readings ..... ,,	0·793	0·887
Highest Reading of a Max. Therm. on the 16th...	72·0	76·6
Lowest Reading of a Min. Therm. on the 10th	39·4	39·2
Range of Thermometer Readings	32·6	37·4
Mean of Highest Daily Readings	59·0	65·0
Mean of Lowest Daily Readings	46·1	48·1
Mean Daily Range	12·9	16·9
Deduced Mean Temp. (from mean of Max. and Min.)	50·8	54·8
Mean Temperature from Dry Bulb	52·3	55·3
Adopted Mean Temperature	51·6	55·0
Mean Temperature of Evaporation	48·3	51·8
Mean Temperature of Dew Point	44·2	48·3
Mean elastic force of Vapour ..... inches	0·291	0·346
Mean weight of Vapour in a cub. ft. of air, grains	3·3	3·8
Mean additional weight required for saturation ,,	1·1	1·0
Mean degree of Humidity (saturation 100)	74	78
Mean weight of a cubic foot of air ..... grains	532·5	531·4
Mean amount of Cloud (0—10)	7·3	7·2
Fall of Rain ..... inches	3·999	3·257
Greatest Rainfall in one day (23rd) ..... ,,	0·772	0·796
No. of days on which ·005 in. or more Rain fell...	18	15·1

Wind:—Direction	N	NE	E	SE	S	SW	W	NW
No. of days.....	0	1	2	2	2	0	18	5
Mean Velocity in miles per hr.	0	5·3	5·6	8·3	9·8	0	11·6	8·6
Total No. of miles.....	0	128	270	399	471	0	5000	1037

		Mean*
Total No. of miles registered	7305	6164·3
Greatest hourly velocity (on the 21st, at 13 hours, Dir. W.)	31	29·1

* *For the last 60 years.*

JUNE, 1927.

DIFFERENCES.

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

Mean barometric pressure	—	0·112 in.
Monthly range ,, ...	—	0·094 in.
Mean of highest daily temperatures	—	6·0°
Mean of lowest ,, ,, ...	—	2·0°
Mean daily range	—	4·0°
Adopted mean temperature	—	3·4°
Total rainfall	+	0·742 in.

Heavy Rain on the 16th, 23rd and 25th. Thunder on the 4th. Lightning on the 4th.

EXTREME READINGS FOR JUNE,

During 80 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, 1927.

Results of Observations taken during the Month.			Mean for the last 80 years.
Mean Reading of the Barometer	inches	29·462	29·525
Highest ,, ,, on the 15th.....	,,	29·839	29·902
Lowest ,, ,, on the 27th.....	,,	29·037	29·006
Range of Barometer Readings	,,	0·802	0·896
Highest Reading of a Max. Therm. on the 10th...		78·0	78·3
Lowest Reading of a Min. Therm. on the 8th ...		48·5	42·9
Range of Thermometer Readings		29·5	35·4
Mean of Highest Daily Readings		66·5	67·3
Mean of Lowest Daily Readings		53·7	51·3
Mean Daily Range		12·8	16·0
Deduced Mean Temp. (from mean of Max. and Min.)		58·2	57·7
Mean Temperature from Dry Bulb		60·2	58·0
Adopted Mean Temperature		59·2	57·9
Mean Temperature of Evaporation		58·2	54·8
Mean Temperature of Dew Point		56·4	52·0
Mean elastic force of Vapour	inches	0·456	0·389
Mean weight of Vapour in a cub. ft. of air, grains		5·1	4·4
Mean additional weight required for saturation ,,		0·7	1·1
Mean degree of Humidity (saturation 100)		88	81
Mean weight of a cubic foot of air	grains	523·5	527·5
Mean amount of Cloud (0—10)		7·5	7·4
Fall of Rain	inches	4·945	4·037
Greatest Rainfall in one day (11th)	,,	0·715	0·878
No. of days on which ·005 in. or more Rain fell...		21	16·7

Wind:—Direction.....	N	NE	E	SE	S	SW	W	NW
No. of days.....	1	9	3	0	9	1	7	1
Mean Velocity in miles per hr	4·9	4·3	3·0	0	9·0	8·1	5·9	9.2
Total No. of Miles.....	119	934	212	0	1938	195	993	220

		Mean*
Total No. of miles registered	4611	6323·5
Greatest hourly velocity (on the 4th, at 9 hours, Dir. S.)	30	28·2

* *For the last* 60 *years.*

JULY, 1927.

DIFFERENCES.

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

Mean barometric pressure	—	0·063 in.
Monthly range ,, ...	—	0·094 in.
Mean of highest daily temperatures	—	0·8°
Mean of lowest ,, ,, ...	+	2·4°
Mean daily range	—	3·2°
Adopted mean temperature	+	1·3°
Total rainfall	+	0·908 in.

Heavy Rain on the 6th, 11th and 25th. Thunder on the 5th, 10th, 11th, 14th, 21st and 27th. Lightning on the 5th, 11th, 14th and 27th.

EXTREME READINGS FOR JULY,

During 80 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, 1927.

Results of Observations taken during the Month.		Mean for the last 80 years.
Mean Reading of the Barometer ..... inches	29·397	29·492
Highest ,, ,, on 30th ..... ,,	29·934	29·893
Lowest ,, ,, on the 22nd ... ,,	28·755	28·944
Range of Barometer Readings ..... ,,	1·179	0·949
Highest Reading of a Max. Therm. on the 6th ...	74·0	76·0
Lowest Reading of a Min. Therm. on the 17th...	48·0	42·0
Range of Thermometer Readings	26·0	34·0
Mean of Highest Daily Readings	64·6	66·2
Mean of Lowest Daily Readings	53·6	50·9
Mean Daily Range	11·0	15·3
Deduced Mean Temp. (from mean of Max. and Min.)	57·4	56·9
Mean Temperature from Dry Bulb	59·0	57·7
Adopted Mean Temperature	58·2	57·3
Mean Temperature of Evaporation	55·7	54·5
Mean Temperature of Dew Point	52·7	51·8
Mean elastic force of Vapour ..... inches	0·399	0·387
Mean weight of Vapour in a cub. ft. of air, grains	4·5	4·3
Mean additional weight required for saturation ,,	1·1	0·9
Mean degree of Humidity (saturation 100)	80	82
Mean weight of a cubic foot of air ..... grains	524·0	527·4
Mean amount of Cloud (0—10)	7·4	7·3
Fall of Rain ..... inches	7·126	5·088
Greatest Rainfall in one day (27th) ..... ,,	1·320	1·063
No. of days on which ·005 in. or more Rain fell...	23	18·6

Wind :—Direction	N	NE	E	SE	S	SW	W	NW
No. of days.....	0	4	3	3	2	5	13	1
Mean Velocity in miles per hr.	0	6·3	7·0	6·6	5·0	9·7	7·6	8·8
Total No. of miles.....	0	607	507	476	340	1165	2414	210

		Mean*
Total No. of miles registered	5719	6316·1
Greatest hourly velocity (on the 28th, at 6 hours, Dir. S.W.)	24	30·6

* *For the last* 60 *years.*

AUGUST, 1927.

DIFFERENCES.

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

Mean barometric pressure	—	0·095 in.
Monthly range ,, ...	+	0·030 in.
Mean of highest daily temperatures	—	1·6°
Mean of lowest ,, ,, ...	+	2·7°
Mean daily range	—	4·3°
Adopted mean temperature	+	0·9°
Total rainfall	+	2·038 in.

Heavy Rain on the 10th, 14th, 18th, 20th, 22nd, 27th and 28th. Thunder on the 9th, 12th, 14th, 20th and 21st. Lightning on the 9th, 21st and 31st. Solar Halo on the 1st.

EXTREME READINGS FOR AUGUST,

During 80 Years.

Highest reading of Barometer ...	1874 (21st)	30·114 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 ,, ...	1871	2·085 in.
Greatest fall of rain in one day ...	1857 (7th)	2·333 in.
Greatest No. of days on which ·005 in. or more rain fell ...	1891	27
Least ,, ,, ,, ...	1880	6
*Greatest hourly velocity of wind...	1903 (31st)	45 mls.
*Greatest No. of miles registered ...	1903	8486
*Least ,, ,, ,, ...	1915	3918

* *Since* 1867 *only.*

SEPTEMBER, 1927.

Results of Observations taken during the Month.		Mean for the last 80 years.
Mean Reading of the Barometer ..... inches	29·318	29·540
Highest ,, ,, on the 2nd ... ,,	29·843	30·004
Lowest ,, ,, on the 23rd ... ,,	28·594	28·885
Range of Barometer Readings ..... ,,	1·249	1·119
Highest Reading of a Max. Therm. on the 3rd ...	68·9	71·7
Lowest Reading of a Min. Therm. on the 28th	40·5	36·8
Range of Thermometer Readings	28·4	34·9
Mean of Highest Daily Readings	58·4	61·7
Mean of Lowest Daily Readings	48·0	47·3
Mean Daily Range	10·4	14·4
Deduced Mean Temp. (from mean of Max. and Min.)	51·9	53·3
Mean Temperature from Dry Bulb	53·8	54·2
Adopted Mean Temperature	52·9	53·8
Mean Temperature of Evaporation	51·2	51·0
Mean Temperature of Dew Point	48·7	48·0
Mean elastic force of Vapour ..... inches	0·342	0·339
Mean weight of Vapour in a cub. ft. of air, grains	3·9	3·9
Mean additional weight required for saturation ,,	0·8	0·8
Mean degree of Humidity (saturation 100)	82	82
Mean weight of a cubic foot of air ..... grains	528·3	532·5
Mean amount of Cloud (0—10)	7·6	6·7
Fall of Rain ..... inches	9·012	4·395
Greatest Rainfall in one day (20th) ..... ,,	2·240	0·977
No. of days on which ·005 in. or more Rain fell...	22	16·7

Wind :—Direction	N	NE	E	SE	S	SW	W	NW
No. of days.....	4	3	2	0	0	3	12	6
Mean Velocity in miles per hr.	5·3	6·6	9·8	0	0	14·5	9·8	8·7
Total No. of miles.....	509	477	468	0	0	1041	2819	1256

		Mean*
Total No. of miles registered	6570	6075·3
Greatest hourly velocity (on the 19th, at 13 hours, Dir. W.).....	28	31·8

* *For the last* 60 *years.*

SEPTEMBER, 1927.

DIFFERENCES.

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

Mean barometric pressure	—	0·186 in.
Monthly range ,, ...	+	0·130 in.
Mean of highest daily temperatures	—	3·3°
Mean of lowest ,, ,, ...	+	0·7°
Mean daily range	—	4·0°
Adopted mean temperature	—	0·9°
Total rainfall	—	0·964 in.

Heavy Rain on the 13th, 17th, 20th, 21st and 24th. Fog on the 13th. Thunder on the 17th. Lightning on the 17th.

EXTREME READINGS FOR SEPTEMBER,

During 80 Years.

Highest reading of Barometer ...	1851	(15th)	30·247 in.
Lowest ,, ,, ...	1918	(23rd)	28·210 in.
Highest temperature	1868	(6th)	85·0°
Lowest ,, ...	†1885	(25th)	29·8°
Highest adopted mean temperature	1865	.....	59·1°
Lowest ,, ,,	1863	.....	50·9°
Greatest fall of rain	1918	.....	12·620 in.
Least ,, ...	1910	.....	0·652 in.
Greatest fall of rain in one day ...	1889	(26th)	2·060 in.
Greatest No. of days on which ·005 in. or more rain fell ...	1918	.....	29
Least ,, ,, ,,	†1851	.....	6
*Greatest hourly velocity of wind ..	1875	(26th)	53 mls.
*Greatest No. of miles registered ...	1869	.....	9053
*Least ,, ,, ,, ...	1888	.....	3261

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

OCTOBER, 1927.

Results of Observations taken during the Month.		Mean for the last 80 years.
Mean Reading of the Barometer ..... inches	29·555	29·449
Highest ,, ,, on the 9th ..... ,,	30·064	30·021
Lowest ,, ,, on the 28th ... ,,	28·696	28·686
Range of Barometer Readings ..... ,,	1·368	1·335
Highest Reading of a Max. Therm. on the 2nd ...	62·2	64·1
Lowest Reading of a Min. Therm. on the 5th ...	33·2	29·9
Range of Thermometer Readings	29·0	34·2
Mean of Highest Daily Readings	55·2	54·4
Mean of Lowest Daily Readings	43·9	42·1
Mean Daily Range	11·3	12·3
Deduced Mean Temp. (from mean of Max. and Min.)	48·6	47·3
Mean Temperature from Dry Bulb	49·8	48·0
Adopted Mean Temperature	49·2	47·7
Mean Temperature of Evaporation	47·2	45·5
Mean Temperature of Dew Point	44·4	43·1
Mean elastic force of Vapour ..... inches	0·293	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	80
Mean weight of a cubic foot of air ..... grains	536·9	537·5
Mean amount of Cloud (0—10)	7·0	7·3
Fall of Rain ..... inches	3·431	4·878
Greatest Rainfall in one day (27th) ..... ,,	0·510	0·975
No. of days on which ·005 in. or more Rain fell...	17	18·7

Wind :—Direction.....	N	NE	E	SE	S	SW	W	NW
No. of days.....	0	7	1	1	0	1	5	3
Mean Velocity in miles per hr.	0	3·4	7·4	5·8	0	12·7	6·8	10·9
Total No. of miles.....	0	578	177	138	0	305	811	782

		Mean*
Total No. of miles registered, Oct. 1st—18th....	2791	6799·9
Greatest recorded hourly velocity (on the 2nd, at 13 hours, Dir. W.).....	40	36·8

* *For the last 60 years.*

OCTOBER, 1927.

DIFFERENCES.

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

Mean barometric pressure	+	0·106 in.
Monthly range ,, ...	+	0·033 in.
Mean of highest daily temperatures	+	0·8°
Mean of lowest ,, ,, ...	+	1·8°
Mean daily range	—	1·0°
Adopted mean temperature	+	1·5°
Total rainfall	—	1·447 in.

Heavy Rain on the 27th. Gales of Wind on the 2nd and 28th. Fog on the 7th, 10th and 13th. Lightning on the 27th.

EXTREME READINGS FOR OCTOBER, During 80 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.*

† *The hourly velocity of the unrecorded gale on the* 28*th this year was estimated at about* 70 *mls.*

NOVEMBER, 1927.

Results of Observations taken during the Month.		Mean for the last 80 years.
Mean Reading of the Barometer ..... inches	29·508	29·465
Highest ,, ,, on the 29th ... ,,	30·113	30·067
Lowest ,, ,, on the 6th ..... ,,	28·772	28·572
Range of Barometer Readings ..... ,,	1·341	1·495
Highest Reading of a Max. Therm. on the 2nd ...	61·2	55·7
Lowest Reading of a Min. Therm. on the 9th	24·2	25·4
Range of Thermometer Readings	37·0	30·3
Mean of Highest Daily Readings	46·5	47·0
Mean of Lowest Daily Readings	36·7	36·7
Mean Daily Range	9·8	10·3
Deduced Mean Temp. (from mean of Max. and Min.)	40·8	41·5
Mean Temperature from Dry Bulb	42·3	41·9
Adopted Mean Temperature	41·6	41·7
Mean Temperature of Evaporation	40·3	39·7
Mean Temperature of Dew Point	37·9	38·1
Mean elastic force of Vapour ..... inches	0·228	0·231
Mean weight of Vapour in a cub. ft. of air, grains	2·6	2·7
Mean additional weight required for saturation ,,	0·5	0·4
Mean degree of Humidity (saturation 100)	85	87
Mean weight of a cubic foot of air ..... grains	544·6	544·7
Mean amount of Cloud (0—10)	6·9	7·4
Fall of Rain ..... inches	5·492	4·405
Greatest Rainfall in one day (2nd) ..... ,,	1·642	0·997
No. of days on which ·005 in. or more Rain fell...	16	18·1

Wind :—Direction	N	NE	E	SE	S	SW	W	NW
No. of days.....	2	4	3	0	3	5	1	1
Mean Velocity in miles per hr.	6·6	14·1	8·9	0	8·1	5·9	9·8	5·0
Total No. of miles.....	317	1358	645	0	582	716	235	120

		Mean*
Total No. of miles registered, Nov. 12th—30th....	3973	7135·8
Greatest recorded hourly velocity (on the 19th, at 19 hours, Dir. N.E.)	29	40·5

* *For the last* 60 *years.*

NOVEMBER, 1927.

DIFFERENCES.

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

Mean barometric pressure	+	0·043 in.
Monthly range ,, ...	—	0·154 in.
Mean of highest daily temperatures	—	0·5°
Mean of lowest ,, ,, ...		0·0°
Mean daily range	—	0·5°
Adopted mean temperature	—	0·1°
Total rainfall	+	1·087 in.

Ground Frost on the 7th—13th, 28th and 30th. Hoar Frost on the 7th, 9th, 12th, 13th and 30th. Heavy Rain on the 1st, 2nd and 5th. Fog on the 22nd and 27th.

EXTREME READINGS FOR NOVEMBER, During 80 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, 1927.

Results of Observations taken during the Month.			Mean for the last 80 years.
Mean Reading of the Barometer	inches	29·505	29·434
Highest ,, ,, on the 28th ...	,,	30·295	30·065
Lowest ,, ,, on the 22nd ...	,,	28·175	28·537
Range of Barometer Readings	,,	2·120	1·528
Highest Reading of a Max. Therm. on the 6th ...		49·6	52·7
Lowest Reading of a Min. Therm. on the 20th...		20·0	21·5
Range of Thermometer Readings		29·6	31·2
Mean of Highest Daily Readings		38·0	43·4
Mean of Lowest Daily Readings		32·1	33·8
Mean Daily Range		5·9	9·6
Deduced Mean Temp. (from mean of Max. and Min.)		35·1	38·6
Mean Temperature from Dry Bulb		35·6	39·2
Adopted Mean Temperature		35·4	38·9
Mean Temperature of Evaporation		34·0	37·3
Mean Temperature of Dew Point		31·6	35·4
Mean elastic force of Vapour	inches	0·179	0·208
Mean weight of Vapour in a cub. ft. of air, grains		2·0	2·4
Mean additional weight required for saturation ,,		0·2	0·4
Mean degree of Humidity (saturation 100)		85	87
Mean weight of a cubic foot of air	grains	552·3	547·0
Mean amount of Cloud (0—10)		8·0	7·7
Fall of Rain	inches	1·220	4·675
Greatest Rainfall in one day (21st)	,,	0·440	0·895
No. of days on which ·005 in. or more Rain fell...		11	20·1

Wind :—Direction.....	N	NE	E	SE	S	SW	W	NW
No. of days.....	6	10	13	1	0	0	1	0
Mean Velocity in miles per hr.	8·8	7·8	9·0	9·3	0	0	2·8	0
Total No. of miles.....	1264	1878	2806	223	0	0	67	0

		*Mean
Total No. of miles registered	6238	7808·8
Greatest hourly velocity (on the 22nd, at 6 hours, Dir. E.)	25	41·6

* *For the last 60 years.*

DECEMBER, 1927.

DIFFERENCES.

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

Mean barometric pressure	+	0·071 in.
Monthly range ,, ...	+	0·592 in.
Mean of highest daily temperature	—	5·4°
Mean of lowest ,, ,, ...	—	1·7°
Mean daily range	—	4·7°
Adopted mean temperature	—	3·5°
Total rainfall	—	3·454 in.

Ground Frost on the 14th, 16th—21st, and 26th—31st. Hoar Frost on the 3rd, 16th, 18th, 19th and 31st. Snow on the 14th, 18th, 21st, 26th, 27th and 31st. Fog on the 9th, 21st and 22nd.

EXTREME READINGS FOR DECEMBER,
During 80 Years.

Highest reading of Barometer ...	1905	(12th)	30·484 in.
Lowest ,, ,, ...	1886	(8th)	27·350 in.
Highest temperature	1876	(9th)	58·1°
Lowest ,, ...	1860	(24th)	6·7°
Highest adopted mean temperature	1857	.....	44·6°
Lowest ,, ,,	1878	.....	30·3°
Greatest fall of rain	1918	.....	10·595 in.
Least ,, ...	1890	.....	0·550 in.
Greatest fall of rain in one day ...	1870	(19th)	1·962 in.
Greatest No. of days on which ·005 in. or more rain fell ...	1918	.....	30
Least ,, ,, ,, ...	†1853	.....	8
*Greatest hourly velocity of wind...	1894	(22nd)	72 mls.
*Greatest No. of miles registered ...	1898	.....	11265
*Least ,, ,, ,, ...	1916	.....	4517

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

Summary of Observations, 1927.

Results of Observations taken during the Year.		Mean for the last 80 Years.
Readings of Barometer in inches.		
Mean of the Year	29·448	29·493
Highest Monthly Mean (May)	29·630	29·742
Lowest ,, ,, (March)	29·242	29·224
Highest Reading (December 28th)	30·295	30·292
Lowest ,, (December 22nd)	28·175	28·207
Range	2·120	2·085
Thermometer, Fahrenheit.		
Highest Monthly Mean Temperature (July)	59·2	58·6
Lowest ,, ,, ,, (January)	35·4	35·8
Highest Reading of a Max. Therm. (July 10th)	78·0	81·3
Lowest ,, Min. ,, (December 20)	20·0	16·5
Range of Thermometer Readings	58·0	64·8
Mean of Highest Daily ,,	52·5	54·4
Mean of Lowest Daily ,,	41·8	41·1
Mean Daily Range	10·7	13·3
Deduced Mean Temp. (from Mean of Max. and Min.)	46·1	46·7
Mean Temperature from Dry Bulb	47·5	47·0
Adopted Mean Temperature of the Year	46·8	46·9
Mean Temperature of Evaporation	45·1	44·6
Mean Temperature of Dew Point	42·4	42·2
Mean elastic force of Vapour ..... inches	0·280	0·275
Mean weight of Vapour in a cub. ft. of air...grns.	3·2	3·2
Mean additional weight required for saturation ,,	0·7	0·7
Mean degree of Humidity (saturation 100)	83	84
Mean weight of a cubic foot of air ..... grns.	537·7	539·1
Mean amount of Cloud (0—10)	7·5	7·3
Total fall of Rain ..... inches	51·950	47·340
Greatest Monthly Rainfall (September)	9·012	7·565
Least ,, ,, (December)	1·220	1·264
Greatest Rainfall in one day (September 20th)	2·240	1·653
No. of days per Month on which ·005 inch or more Rain fell	18·5	17·2

SUMMARY OF WIND, 1927.

Prevailing Direction	N	NE	E	SE	S	SW	W	NW
No. of days for each	20	52	36	15	27	30	120	41
Mean Velocity in miles per hour...	7·1	6·5	7·8	7·9	10·1	11·3	10·0	9·8
Total No. of miles for each Direction	3393	8082	6756	2850	6513	8161	28769	9623

		Mean for the last 60 years.
Total No. of miles registered*	81319	85085·3
†Greatest Monthly Total (January)	9483	9923·2
†Least „ „ (February).....	4121	4929·6
Greatest recorded hourly velocity (January 26th)	52	50·3
Prevailing Direction of Wind	W.	W.

DIFFERENCES, 1927.

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

Mean barometric pressure	—	0·045 in.
Yearly range „	+	0·035 in.
Mean of highest daily temperatures	—	1·9°
Mean of lowest „ „	+	0·7°
Mean daily range	—	2·6°
Adopted mean temperature	—	0·1°
Total rainfall	+	4·610 in.

* On the assumption that the *average* mileage was registered in October and November.

† Exclusive of October and November.

ABSOLUTE EXTREMES

FOR THE LAST 80 YEARS.

Readings of Barometer, in inches.

Highest monthly mean	1891 (Feb.)	29·997
Lowest ,, ,, ...	1868 (Dec.)	28·984
Highest yearly ,, ...	1921	29·615
Lowest ,, ,, ...	1872	29·319
Greatest monthly range	1886 (Dec.)	2·795
Least ,, ,, ...	1852 (July)	0·505
Highest reading	1896 (Jan. 9th)	30·597
Lowest ,, ...	1886 (Dec. 8th)	27·350
Extreme range.....		3·247

Thermometer, Fahrenheit.

Highest monthly mean temperature ...	1901 (July)	63·2
Lowest ,, ,, ,, ...	1855 (Feb.)	28·6
Highest yearly ,, ,, ...	1921	49·4
Lowest ,, ,, ,, ...	1879	44·1
Highest reading ,, ...	1901 (July 20th)	89·0
Lowest ,, ,, ...	1881 (Jan. 15th)	4·6

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

Greatest monthly mean	1852 and 1927 (July)	5·1
Least ,, ,, ...†1855 (Feb.).....		1·4

† *And on other dates.*

ABSOLUTE EXTREMES

FOR THE LAST 80 YEARS—*Continued.*

Rainfall, in inches.

Greatest Rainfall in one day	1866 (Nov. 16) ..	3·700
Greatest „ „ month	1870 (Oct.)	13·437
Least „ „ „	1859 (May)	0·249
Greatest „ „ year	1923	63·558
Least „ „ „	1887	31·250
Days on which ·005 in. or more Rain fell :		
Greatest No. in one month	1890 (Jan.) ..... and 1918 (Dec.)	30
Least „ „	1852 (Mar.)	3
Greatest „ year	1872	281
Least „ „	1855	135

* *Wind.*

Greatest hourly velocity, in miles	1894 (Dec. 22) ...	72
Greatest No. of miles registered in a month	1888 (Nov.)	12813
Least „ „ ...	1917 (Feb.)	3160
Greatest Mean No. „ „ ...	March	8376
Least „ „ „ ...	September	6075
Greatest No. „ „ year..	1868	102395
Least „ „ „ „ ...	1915	70623

* *Record dates from* 1867 *only.*

DATES OF OCCASIONAL PHENOMENA.

1927	Frost	Hoar Frost	Snow	Hail	Heavy Rain
January	5, 8, 17-23	17, 19, 20	5, 13, 20, 22	3, 13, 27, 31	8, 20, 24
February	2, 3, 5, 8-13, 18, 19, 24-25	11, 12, 19, 24, 25			
March	9, 11, 13, 17	11		24	2, 26
April	2, 11, 12, 16, 26-30	30		2, 27	13
May	1, 11, 12, 18	1			
June					16, 23, 25
July					6, 11, 25
August					10,14,18,20,22,27,28
September					13, 17, 20, 21, 24
October					27
November	7-13, 28, 30	7, 9, 12, 13, 30			1, 2, 5
December	14, 16-21, 26-31	3,16,18,19,26-31	14, 18, 21, 26, 27, 31		

1927	Gales of Wind	Fog	Thunder	Lightning	Lunar Halo	Solar Halo	Aurora Borealis
January	13, 16, 28						
February		4, 6, 7, 13, 14, 16, 17				24	
March							
April							
May			4	4			
June			4	4			
July			5,10,11,14,21,27	5, 11, 14, 27			
August			9, 12, 14, 20, 21	9, 20, 31		1	
September		13	17	17			
October	2, 28	7, 10, 13		27			
November		22, 27					
December		9, 21, 22					

MONTHLY TOTALS FOR EACH HOUR OF RECORDED SUNSHINE.

1927. Local apparent time	4–5	5–6	6–7	7–8	8–9	9–10	10–11	11–12	12–1	1–2	2–3	3–4	4–5	5–6	6–7	7–8	8–9
January ...	...	...	...	...	0·5	2·8	4·1	4·8	4·0	3·9	2·6	0·2	...	...	...	...	...
*February ...	...	...	...	...	0·5	2·0	4·9	6·4	7·4	6·0	4·1	2·0	0·7	...	...	...	...
March ...	...	...	0·5	3·6	6·5	7·8	9·3	10·0	9·2	11·0	10·6	7·9	5·4	0·9	...	...	...
April ...	...	2·8	7·2	8·6	9·5	13·3	14·6	12·2	12·3	12·4	12·0	11·8	9·2	7·2	3·7	0·1	...
May ...	0·6	8·0	13·1	13·4	12·2	14·3	16·2	15·4	12·3	14·4	13·5	12·3	11·5	11·3	8·6	1·4	...
June ...	2·2	9·6	12·5	12·2	12·2	13·2	13·9	13·7	14·5	11·8	14·0	13·2	12·1	10·8	7·2	3·3	...
July ...	0·6	1·5	5·4	5·7	6·9	6·4	7·6	7·1	7·6	8·6	10·0	11·1	11·1	10·4	9·6	2·5	...
August ...	...	1·4	5·3	7·8	8·3	11·9	10·2	9·1	10·7	11·9	10·6	10·6	10·7	9·7	3·9	0·2	...
September ..	...	...	2·1	5·7	7·0	10·7	12·2	12·6	11·9	12·7	10·6	7·7	7·2	2·8	...	...	...
October ...	...	...	0·3	2·1	5·1	7·5	8·2	11·6	11·2	11·4	10·9	9·3	3·1	0·4	...	...	...
November...	...	...	...	...	2·9	5·6	8·5	9·2	10·3	9·1	7·7	1·9	...	...	...	...	...
December ...	...	...	...	...	...	2·6	5·0	8·2	8·7	7·2	4·2	0·1	...	...	...	...	...
Sums ...	3·4	23·3	46·4	59·1	71·6	98·1	114·7	120·3	120·1	120·4	110·8	88·1	71·0	53·5	33·0	7·5	...

* *Exclusive of February 1st, 2nd and 4th. Cf. note p.* 33.

TOTAL AMOUNT OF SUNSHINE RECORDED ON EACH DAY.

1927	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
January ...	...	0·9	0·3	1·7	...	2·3	...	...	...	...	...	...	...	0·2	1·3	1·5	0·5
February ...	*	*	...	*	...	3·8	...	5·6	...	1·4	4·7	1·3	2·5	...	...	...	...
March ...	...	...	6·4	1·9	0·1	3·9	0·8	3·2	2·5	3·9	2·6	7·1	0·7	3·3	4·0	0·0	6·2
April ...	9·4	1·4	9·4	...	5·2	8·4	4·0	7·0	...	1·3	0·2	3·2	...	3·5	10·6	6·5	2·1
May ...	8·2	...	...	0·8	4·5	9·1	10·8	14·2	13·5	...	10·5	6·1	1·1	0·5	6·9	4·0	12·2
June ..	0·1	11·2	10·1	7·4	0·4	9·0	12·2	10·9	12·8	6·0	2·5	11·5	10·5	11·3	9·9	2·4	6·1
July ...	...	5·3	3·0	1·0	2·5	6·3	2·3	5·8	0·2	12·2	1·1	1·4	...	7·7	5·0	2·8	8·8
August ...	5·2	9·0	1·1	5·6	7·8	8·9	3·3	0·5	2·4	3·2	4·0	0·9	4·8	2·7	...	0·1	12·8
September ..	2·6	6·3	7·5	10·6	0·5	0·7	5·6	...	0·1	3·6	4·8	4·5	...	...	2·2	5·1	9·9
October ...	...	0·2	9·6	8·6	8·0	3·0	5·3	1·0	5·6	5·0	4·6	...	2·4	...	5·3	3·3	1·8
November...	...	0·2	...	...	0·8	2·7	3·5	4·5	5·1	3·1	7·1	6·7	...	2·0	...	...	0·7
December ...	...	...	...	...	1·0	3·0	...	...	...	...	...	...	...	...	....	1·1	4·6

* *Estimated sunshine for these three days*—12 *hours.* *Cf. note p.* 33.

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

1927	18	19	20	21	22	23	24	25	26	27	28	29	30	31	MONTHLY Total	MONTHLY Percen.
January ...	5·2	6·3	0·4	...	...	0·9	...	...	0·5	0·9	...	...	...	...	22·9	9·2
February ...	4·3	...	...	0·2	0·4	1·2	3.7	...	3·3	1·6	...	...	...	...	46·0	16·9
March ..	3·2	...	6·0	3·0	6·2	...	4·0	...	...	2·2	4·4	...	3·6	3·5	82·7	22·6
April ...	3·9	0·2	6·6	1·8	1·0	6·4	0·1	0·6	13·2	7·1	4·3	9·9	9·6	...	136·9	32·7
May ...	13·1	12·0	1·3	4·5	8·8	1·4	0·2	5·2	5·5	8·4	4·8	...	5·5	5·4	178·5	36·2
June ...	5·9	3·5	10·5	5·1	6·3	6·3	0·4	1·0	2·3	0·3	0·5	...	...	...	176·4	34·7
July ...	7·7	2·7	...	1·9	1·2	3·5	5·4	6·3	0·3	2·5	2·2	3·8	3·8	5·4	112·1	22·0
August ...	...	6·1	0·1	2·6	0·7	6·0	3·4	10·8	...	...	...	11·3	5·0	4·0	122·3	26·8
September ..	8·6	1·4	1·5	...	0·1	4·3	0·3	4·4	0·3	8·4	2·8	3·4	3·7	...	103·2	27·2
October ...	2·4	2·3	4·3	0·1	...	2·4	0·8	0·2	0·2	2·5	...	...	...	2·2	81·1	24·9
November...	...	...	...	...	...	...	2·9	4·4	1·0	...	0·3	4·6	5·6	...	55·2	21·6
December ..	1·6	1·5	0·4	...	...	...	...	...	3·0	4·5	5·1	5·9	4·3	...	36·0	15·6

SUMMARY OF SUNSHINE.

	Bright Sunshine Recorded					
	1927			Mean for the last 47 years		
	Number of		Percentage of Possible Sunshine	Number of		Percentage of Possible Sunshine
	Days	Hours		Days	Hours	
January ...	14	22·9	9·2	14·3	32·1	12·8
February ...	16	*46·0	16·9	17·6	56·1	20·5
March ...	23	82·7	22·6	24·3	102·1	27·9
April ...	27	136·9	32·7	26·4	146·5	35·0
May ...	27	178·5	36·2	27·7	182·7	37·1
June ...	28	176·4	34·7	28·1	185·4	36·6
July ...	28	112·1	22·0	28·3	167·9	33·1
August ...	26	122·3	26·8	27·5	146·4	32·0
September ..	26	103·2	27·2	25·6	123·0	32·5
October ...	24	81·1	24·9	23·6	85·9	26·3
November ..	17	55·2	21·6	17·9	47·8	18·7
December ...	12	36·0	15·6	13·8	26·7	11·6
Year ...	268	1153·3	25·6	275·1	1304·5	29·2

*Recorder dismantled from January 28th to February 5th. There was no sunshine on the last four days of January. A total of twelve hours of sunshine was estimated

SUMMARY OF SUNSHINE—*Continued.*

EXTREMES FOR THE LAST 47 YEARS.

Month	Number of Days on which Sunshine was recorded				Number of Hours				Percentage of Possible Sunshine			
	Greatest		Least		Greatest		Least		Greatest		Least	
Jan.	21	1881	8	1898	64·2	1881	12·3	1913	25·9	1881	5·0	1913
Feb.	24	1895	11	1882	89·3	1887	29·6	1882	32·8	1887	10·9	1882
Mar.	28	*1894	17	1904	168·6	1907	56·8	1912	46·1	1907	15·5	1912
April	30	*1909	22	1920	223·7	1893	80·7	1920	53·4	1893	19·3	1920
May	30	*1880	22	1886	266·6	1881	79·7	1906	54·1	1881	16·2	1906
June	30	*1896	24	*1888	272·5	1887	85·2	1912	53·6	1887	16·8	1912
July	31	*1882	24	1920	263·4	1911	98·0	1888	51·7	1911	19·3	1888
Aug.	31	*1886	23	1894	235·2	1899	74·1	1912	51·5	1899	16·2	1912
Sept.	30	1914	21	1897	176·5	1914	62·9	1896	46·6	1914	16·6	1896
Oct.	28	*1891	17	1889	134·9	1899	50·0	1889	41·4	1899	15·3	1889
Nov.	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).

1927.	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. readin gs					
	14° +						14° +	14° +	
	′	′	′	′	′	′	′	′	′
January ...	35·0	31·8	32·8	33·8	33·4	10·8	39·6	1·6	38·0
February ...	35·4	30·8	32·0	34·4	33·2	11·5	40·6	14·6	26·0
March	36·6	27·2	30·2	34·8	32·2	15·5	41·6	6·6	35·0
April	34·8	23·8	29·4	32·6	30·2	14·8	39·6	3·6	36·0
May	32·8	23·4	27·2	30·6	28·5	13·7	42·6	7·6	35·0
June	30·2	22·0	26·0	29·2	26·9	11·3	34·6	14·6	20·0
July	29·6	20·2	24·4	27·6	25·5	12·4	48·6	−10·4	59·0
August ...	28·0	20·2	23·0	26·0	24·3	11·8	32·6	− 8·4	41·0
September ...	26·4	18·2	20·8	24·4	22·5	13·2	30·6	4·6	26·0
October ...	23·6	17·6	20·0	22·0	20·8	16·3	41·6	−13·4	55·0
November ...	22·0	19·2	20·2	21·0	20·6	6·1	27·6	1·6	26·0
December ...	20·6	18·4	19·4	19·8	19·6	9·5	30·6	− 3·4	34·0
Means	29·6	22·7	25·5	29·7	26·5	12·2	37·5	1·6	35·9

Mean for the year ... ... 14° 26′·5 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.

1927	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 +					0 +	17000 +		0 +
January ...	269	245	261	260	259	49·3	335	124	211
February ...	272	240	262	256	258	51·5	300	177	123
March ...	264	223	252	251	248	69·5	327	168	159
April	265	213	255	251	246	82·7	339	102	237
May	259	203	239	243	236	90·6	397	93	304
June	250	201	234	237	231	70·4	300	159	141
July	245	195	223	231	224	84·9	353	- 12	365
August ...	231	192	216	218	214	88·0	335	-122	457
September ...	230	185	211	211	209	81·0	379	137	242
October ...	221	187	208	206	206	92·0	463	- 39	502
November ...	225	206	222	218	218	36·1	256	151	105
December ...	223	218	228	226	226	47·1	260	115	145
Means	247	209	234	234	231	70·3	337	88	249

Mean for the year ... ... ·17231 C. G. S. Units.

* *For the 5 quietest days.*

† *Includes all days.*

ABSOLUTE MEASURES—SUMMARY.

1927	DIRECTION		FORCE.		
	Declination Corrected	Inclination	Horizontal	Vertical	Total
	° ′	° ′	C. G. S. UNITS.		
	14 +	68 +	0·17000+	0·44000+	0·47000+
January ...	31·8	43·4	244	281	519
February ...	30·5	44·6	220	265	496
March ...	30·1	42·1	220	168	407
April	29·7	41·9	242	219	460
May	27·8	43·0	240	257	496
June	28·3	43·6	245	291	530
July	25·7	43·8	229	259	494
August ...	25·1	45·4	214	281	509
September ...	24·1	43·0	222	210	446
October ...	22·0	45·0	238	328	562
November ...	21·5	41·9	233	197	436
December ...	21·1	43·8	229	259	494
	° ′	° ′			
Means ...	14 26·5 W.	68 43·5	0·17231	0·44251	0·47487

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.

1927	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1927
D.													D.
1	g	c	m	c	s	m	m	s	m	s	c	s	1
2	s	c	c	s	s	s	s	s	s	m	s	s	2
3	c	m	s	c	v.g.	s	s	s	s	s	c	s	3
4	v.g.	s	c	m	m	s	s	m	g	s	s	c	4
5	s	s	s	c	v.g.	m	s	s	s	g	c	m	5
6	s	c	c	c	s	s	s	c	m	m	c	m	6
7	v.g.	c	c	s	g	s	s	c	m	v.g.	s	s	7
8	v.g.	s	s	m	s	c	s	s	m	g	s	m	8
9	c	g	m	g	m	c	c	c	g	m	c	m	9
10	c	m	m	s	s	s	c	c	v.g.	g	s	s	10
11	m	c	m	m	c	s	c	c	s	s	s	c	11
12	m	m	c	s	c	m	c	s	s	v.g.	s	c	12
13	s	m	s	m	c	c	c	c	s	v.g.	s	v.g.	13
14	m	c	s	v.g.	c	s	c	s	m	s	c	g	14
15	s	c	m	s	m	s	s	m	s	s	c	g	15
16	s	m	g	c	s	s	c	s	s	c	c	s	16
17	s	s	v.g.	s	c	s	s	s	c	c	c	g	17
18	s	s	m	s	s	c	s	s	c	s	v.g.	v.g.	18
19	s	s	s	s	m	c	s	g	s	s	s	m	19
20	c	c	m	c	m	c	s	v.g.	c	s	s	c	20
21	c	c	c	c	·	c	g	v.g.	c	c	s	c	21
22	c	c	s	c	·	s	v.g.	m	c	v.g.	c	s	22
23	c	c	s	s	c	c	m	s	c	v.g.	c	s	23
24	m	g	c	m	c	c	s	s	c	s	s	c	24
25	s	m	c	s	c	c	s	s	m	s	c	c	25
26	m	m	m	c	s	m	s	s	m	m	c	c	26
27	c	s	g	c	s	s	m	s	s	c	s	c	27
28	s	m	m	c	m	s	s	s	s	c	c	v.g.	28
29	s		s	c	s	c	c	m	m	m	s	s	29
30	s		s	c	s	s	c	m	s	s	m	c	30
31	c		s		c		c	s		c		s	31
TOTAL c	9	11	8	13	9	11	10	6	7	6	14	10	
TOTAL s	13	7	11	10	11	15	16	17	12	12	14	10	
TOTAL m	5	8	9	5	6	4	3	5	8	5	1	5	
TOTAL g	1	2	2	1	1		1	1	2	3		3	
TOTAL vg	3		1	1	2		1	2	1	5	1	3	

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

The unit is $\frac{1}{5000}$th of the visible surface.

n = note without a complete drawing.

1927	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1927
D.													D.
1				1·7	n			2·8	5·8				1
2	8·4	12·6	1·6			3·6	10·2	1·8	6·7				2
3	12·7		2·8	7·9		4·6	9·1		5·8	1·5			3
4	10·4	12·4	3·8			4·9		1·2	4·0	1·4	0·6		4
5				7·0	n		7·2	2·0	6·6	2·7		0·7	5
6	10·5	14·7	3·3	7·4	3·8	8·5	6·7	1·8	3·1	4·2	1·1	1·9	6
7				7·8	3·7	9·9		0·7	3·0	5·6	0·3		7
8		13·2	3·1	8·1	3·2	11·6	4·4			6·4	0 7		8
9			2·6		2·5	12·0				7·2	4·4		9
10		10·1	2·2	7·5		7·9	1·5	1·5	2·4	8·0	9·9		10
11		7·9	n		5·5	6·5		1·4	2·7	6·8	14·7		11
12	n	8·1	3·7	8·3	7·3	3·8	0·2		6·5		16·1		12
13	6·8	6·1			11·0			2·1		4·3			13
14	n		5·3	7·4	10·1	1·1	0·8	6·0			9·7		14
15	6·7		8·1	7·7	10 2	0·7	1·2		16·2	3·1			15
16	9·1		6·6	8·9	6·9				15·5	1·9		0·8	16
17	11 7		10·2		5·1	0·7	2·5	11·8	14·4	2·2	5·6	0·6	17
18	13·8	2·2	9·1	5·7	2·2	0·7	1·5		10·3	2·1		0·3	18
19	16 6		n		1·5		n	8·2		n		0·2	19
20	16·0		8·4	5·2	3·3	0·9			4·3	1·8		0·1	20
21		2·0	7·0	3·5	3·1	1·7	1·5	4·5		n			21
22		2·7	4·6	n	2·5		n	n					22
23	12·9	2·1		2·3		2·1	4·4	7·1	3·6	4·9			23
24	6·7	1·5	2·2				4·8	8·7		4·9	6·4		24
25			n	n	2·3		5·4	8·3	4·2		6·7		25
26		1·8		3·4	4·8	2·0					6·2	2·4	26
27			0·5	3·9	3·6		4·1		2·6	1·0		3·0	27
28		1·9	0·1	n	3·6		4·9		2·2		5·2	4·3	28
29				n			4·5	6·5	1·4	0·4	5·4	7·4	29
30			0·2		2·9		3·7	5·2	1·6		4·3	9·0	30
31			0·3		2·5		3·3	4·6		1·6			31
Daily Means	11·0	6·6	3·9	6·1	4·6	4·6	4·1	4·5	5·9	3·6	6·1	2·6	

ERRATUM.

Owing to a systematic error in the tables from which the Ephemeris for Physical Observations of the Sun was taken, the longitudes in the Sun-Spot Statistics are all 6°·6 in excess of their true values.

The same applies to the corresponding Sun-Spot Statistics for the years 1925 and 1926.

SUN-SPOT STATISTICS, 1927.

Any area less than 0·1 is entered as 0·0. 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 spot, 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 of some magnitude.
III.—A train of spots.
IV.—A single large spot with or without small companions.
V.—Irregular group of larger spots.

No. of Group	Date	Mean Latitude °	Mean Longitude °	Max. Area	Mean Type	Central Meridian
1	Jan. 2— 6 ..	+18·6	138·3	0·5	IV, s.	6·8
2	,, 2	—10·3	252·2	0·1	I, g.	28·9
3	,, 2—15 ..	—13·5	113·6	6·3	V, g.	8·6
4	,, 6—16 ..	+ 7·5	77·5	2·2	V, g.	11·4
5	,, 6	—24·3	132·8	0·2	I, g.	7·1
6	,, 6—16 ..	—16·0	82·6	1·8	V, g.	11·0
7	,, 13—24 ..	+24·5	333·0	9·0	IV, s.	19·3
8	,, 13—16 ..	—18·6	350·5	0·3	I, g.	18·0
9	,, 15—24 ..	+32·9	304·7	1·6	IV, s.	21·6
10	,, 15—24 ..	—13·6	307·2	3·9	II, p.	21·3
		—14·5	297·3	1·8	f.	22·0
11	,, 16—17 ..	+25·5	21·6	0·4	I, g.	15·6
12	,, 16—23 ..	+12·7	335·9	0·7	I, g.	19·1
13	,, 17—18 ..	—17·6	313·0	0·2	I, g.	20·8
14	,, 23—24 ..	+10·6	327·2	0·2	I, g.	19·7
15	,, 23—24 ..	— 5·9	217·8	0·4	IV, s.	28·0
16	,, 24	—26·1	342·9	0·1	I, s.	18·6
17	Feb. 2— 4 ..	—16·8	190·6	2·9	V, g.	30·1
18	,, 2— 6 ..	—15·8	149·6	3·3	III, g.	2·2
		—13·1	153·4		p.s.	1·9
19	,, 2— 8 ..	+10·9	143·7	1·6	IV, s.	2·7
20	,, 2— 6 ..	—11·5	126·0	0·4	I, s.	4·0
21	,, 2— 8 ..	—27·2	120·8	1·4	II, I, p.	4·4

SUN-SPOT STATISTICS, 1927—*Contd.*

No. of Group	Date	Mean Latitude °	Mean Longitude °	Max. Area	Mean Type	Central Meridian
22	Feb. 2—10 ..	—15·6	116·3	3·9	IV, s.	4·8
23	,, 2—10 ..	+22·5	111·7	0·3	I, g.	5·1
24	,, 2— 6 ..	+24·0	99·7	0·1	I, g.	6·0
25	,, 2— 4 ..	+23·4	91·1	0·2	I, g.	6·7
26	,, 2—12 ..	+14·6	76·7	3·6	IV, V, g.	7·8
27	,, 2—13 ..	+ 8·0	66·3	2·4	IV, V, g,	8·6
		+ 9·7	68·5		s.	
28	,, 4—13 ..	—14·6	47·7	5·6	V, IV, g.	10·0
		—13·7	50·7		p.s.	
29	,, 6—10 ..	—13·0	62·9	0·2	I, g.	8·8
30	,, 8	+ 7·3	94·3	0·0	I, g.	6·4
31	,, 8—10 ..	+26·0	87·9	0·1	I, g.	6·9
32	,, 8	+13·2	22·0	0·1	I, s.	11·9
33	,, 8—13 ..	— 7·3	46·9	1·6	I, III, g.	10·0
34	,, 8—18 ..	—26·8	344·7	0·8	IV, s.	14·7
35	,, 11—23 ..	—13·6	302·2	0·8	IV, s.	18·0
36	,, 12	—29·4	332·1	0·0	I, s.	15·7
37	,, 18	+10·0	297·1	0·5	I, g.	18·4
38	,, 18—22 ..	+32·8	279·6	0·1	I, s.	19–7
39	,, 18	+11·7	245·6	0·3	I, g.	22·3
40	,, 18—26 ..	— 9·9	247·1	1·9	V, g.	22·2
41	,, 21	+15·0	207·2	0·0	I, s.	25·2
42	,, 21—Mar. 3	+13·5	186·5	0·8	I, g.	26·8
43	,, 21—Feb. 23	—25·3	192·0	0·0	I, g.	26·3
44	,, 22—24 ..	+11·4	209·9	0·1	I, g.	25·0
44a	Mar. 2	+10·7	213·1	0·1	I, s.	24·7
45	Feb. 23	—13·5	156·5	0·0	I, s.	1·0
46	,, 24—26 ..	—18·2	147·7	0·1	I, s.	1·7
47	,, 24—Mar. 8	—17·1	134·7	1·3	IV, s.	2·7
48	,, 26	+10·7	179·3	0·1	I, g.	27·3
49	,, 26—28 ..	—24·0	137·5	0·1	I, g.	2·5
49a	Mar. 3	—22·5	135·8	0·0	I, s.	2·6
50	Feb. 28—Mar. 9	+22·5	106·1	0·1	I, III, g.	4·9
51	Mar. 3— 8 ..	+ 9·5	51·0	0·1	I, s.	9·0
52	,, 3—15 ..	—13·4	49·0	1·9	IV, s.	9·2
53	,, 3— 6 ..	—16·6	150·3	0·5	I, g.	1·5
54	,, 4	—15·2	122·4	0·0	I, s.	3·6

SUN-SPOT STATISTICS, 1927—*Contd.*

No. of Group	Date.	Mean Latitude °	Mean Longitude °	Max. Area	Mean Type	Central Meridian
55	Mar. 4—10 ..	—21·1	47·7	0·1	I, g.	9·3
55a	,, 14	—18·4	47·6	0·1	I, g.	9·3
56	,, 6—12 ..	+17·6	51·2	0·4	I, g.	9·0
57	,, 8	+16·9	127·2	0·0	I, s.	3·3
58	,, 8— 9 ..	+ 5·0	123·4	0·1	I, g.	3·6
59	,, 8	—19·2	118·6	0·0	I, s.	3·9
60	,, 8—10 ..	—10·4	31·5	0·0	I, s.	10·5
61	,, 9—10 ..	—20·7	108·0	0·3	I, g.	4·7
62	,, 9—12 ..	—19·2	357·2	0·4	I, g.	13·1
62a	,, 15	—19·0	355·4	0·1	I, g.	13·3
63	,, 10—18 ..	+14·6	358·9	1·6	I, g.	13·0
64	,, 12—22 ..	— 9·1	298·2	1·3	IV, s.	17·6
65	,, 14—22 ..	+17·6	298·3	1·0	I, V, g.	17·6
66	,, 14—24 ..	+29·4	277·5	1·7	II, III, p.	19·2
		+33·6	265·5	4·1	f.g.	20·1
67	,, 14—24 ..	+16·4	274·1	1·1	IV, s.	19·4
68	,, 14—22 ..	— 9·4	262·1	1·2	V, I, g.	20·3
69	,, 17—24 ..	—10·8	245·2	1·1	I, g.	21·6
70	,, 17—18 ..	— 9·6	232·7	0·2	I, g.	22·6
71	,, 18	+24·4	262·0	0·0	I, s.	20·4
72	,, 21	+ 7·4	220·3	0·1	I, g.	23·5
73	,, 22	—23·8	287·6	0·0	I, s.	18·4
74	,, 22—24 ..	—15·7	175·2	0·2	I, g.	26·9
75	,, 24	+17·1	218·3	0·1	I, g.	23·7
76	,, 24—28 ..	+10·7	139·9	0·1	I, g.	29·6
77	,, 27	+14·2	206·7	0·1	I, g.	24·6
78	,, 27—28 ..	— 8·9	200·0	0·2	I, g.	25·1
79	,, 27—28 ..	—18·8	116·9	0·0	I, g.	31·4
*80	,, 30—Apl. 5	—22·9	131·6	2·0	I, V, g.	30·2
81	,, 30 ,, 7	+16·0	63·0	0·6	IV, s.	4·4
82	Apl. 1	+11·3	107·1	0·0	I, g.	1·1
83	,, 1— 8 ..	+22·5	69·3	0·2	I, g.	4·0
84	,, 1—12 ..	+12·4	26·4	5·1	III, g.	7·2
		+11·6	33·1		ps.	6·7
		+12·6	17·4		fs.	7·9
85	,, 1— 6 ..	—13·4	66·6	0·5	I, g.	4·2
86	,, 1	—17·4	28·7	0·0	I, s.	7·0

* *Not seen March 31st.*

SUN-SPOT STATISTICS, 1927—*Contd.*

No. of Group	Date	Mean Latitude o	Mean Longitude o	Max Area	Mean Type	Central Meridian
87	Apl. 3— 5 ..	—24·5	34·1	0·4	I, s.	6·6
88	,, 3— 7 ..	—13·8	102·3	0·3	I, g.	1·5
89	,, 5—18 ..	—16·3	315·0	5·5	III, g.	12·6
		—14·9	328·9		ps.	11·6
		—16·7	313·6		fs.	12·7
90	,, 8—18 ..	+13·8	303·2	1·7	II, III, g.	13·5
91	,, 10	+ 5·7	51·7	0·1	I, g.	5·3
92	,, 10—21 ..	+30·5	256·8	0·6	III, I, g.	17·0
		+29·1	261·2		ps.	16·7
93	,, 10—14 ..	— 6·6	265·7	0·3	I, g.	16·3
94	,, 12—16 ..	+10·3	247·1	0·4	I, g.	17·8
95	,, 12—21 ..	—14·8	262·1	1·9	V, I, g.	16·6
96	,, 14—16 ..	+17·1	238·1	0·2	I, s.	18·4
97	,, 15—23 ..	—11·9	248·3	4·2	V, II, g.	17·7
98	,, 18—23 ..	+ 8·1	164·0	0·3	I, s.	24·1
99	,, 20—28 ..	—20·0	135·9	0·4	I, s.	26·2
100	,, 21—27 ..	+23·5	172·0	0·8	I, g.	23·5
101	,, 22—23 ..	— 5·3	177·9	0·0	I, s.	23·0
102	,, 22—May 1	—15·9	109·5	1·8	I, V, g.	28·2
103	,, 23	—28·5	137·0	0·0	I, s.	26·1
104	,, 26—May 1	+ 4·6	67·8	1·1	IV, s.	1·3
105	,, 26 ,, 1	+20·6	86·0	0·5	I, g.	30·0
106	,, 26—Apl. 27	— 9·4	199·9	0·3	I, g.	21·3
107	,, 26 ,, 27	— 8·0	138·4	0·0	I, g.	26·0
108	May 5—May 7	—17·8	62·8	1·1	V, g.	1·7
109	,, 5— 8 ..	+22·5	33·3	0·5	I, g.	4·0
110	,, 5—12 ..	—15·2	346·1	2·1	III, I, g.	7·5
111	,, 5—12 ..	— 7·3	335·9	1·1	II, I, g.	8·3
112	,, 6— 7 ..	—10·9	353·5	0·2	I, g.	7·0
113	,, 7— 9 ..	+17·0	357·9	0·5	I, g.	6·6
114	,, 8— 9 ..	— 7·2	7·9	0·0	I, g.	5·9
115	,, 8—12 ..	—10·8	260·6	0·1	I, s.	14·0
116	,, 9—15 ..	+17·2	283·8	9·7	III, II, g.	12·2
		+17·7	292·0		ps.	11·6
		+16·9	286·7		fs.	12·0
117	,, 9—11 ..	—25·9	18·1	0·4	I, g.	5·1
118	,, 9—18 ..	—11·0	247·2	0·8	I, g.	15·0

SUN-SPOT STATISTICS, 1927—*Contd.*

No. of Group	Date	Mean Latitude °	Mean Longitude °	Max. Area	Mean Type	Central Meridian
119	May 11	+28·1	317·2	0·1	I, g.	9·7
120	,, 11—12 ..	+19·3	235·0	0·2	I, g.	15·9
121	,, 12—18 ..	—10·2	209·3	1·0	IV, g.	17·9
122	,, 15—26 ..	+12·9	166·0	0·7	II, I, g.	21·1
123	,, 15—16 ..	+15·2	303·8	0·1	I, s.	10·7
124	,, 15—22 ..	—23·3	185·3	1·5	I, g.	19·7
125	,, 18	+20·8	167·0	0·0	I, s.	21·1
126	,, 18—27 ..	— 7·9	154·2	1·1	III, V, g.	22·0
127	,, 18—21 ..	+20·0	227·8	0·3	I, g.	16·5
128	,, 18—22 ..	+ 3·4	124·8	0·1	I, g.	24·3
129	,, 21—22 ..	—11·6	105·0	0·1	I, g.	25·7
130	,, 21—31 ..	—10·4	86·1	1·0	IV, s.	27·2
131	,, 22	—25·2	200·2	0·1	I, g.	18·6
132	,, 22—26 ..	+15·8	69·4	0·2	I, g.	28·4
133	,, 25—30 ..	— 8·7	108·3	0·9	II, g.	25·5
134	,, 25—27 ..	—24·0	73·0	0·4	I, g.	28·2
135	,, 25—June 3	—18·8	50·0	1·1	IV, g.	29·9
136	,, 25 ,, 4	—18·7	30·4	1·5	IV, s.	31·4
137	,, 26	+10·1	68·1	0·1	I, g.	28·5
138	June 2—14 ..	+17·2	286·1	11·5	III, g.	8·3
		+17·4	290·2		p.	8·0
139	,, 6—12 ..	+16·2	267·3	0·8	I, g.	9·7
140	,, 6—12 ..	—17·7	291·9	0·9	I, g.	7·8
141	,, 8	— 8·4	346·0	0·0	I, s.	3·7
142	,, 11—21 ..	— 6·9	167·5	0·5	IV, s.	17·2
143	,, 12—15 ..	—24·0	180·4	0·2	I, g.	16·3
144	,, 12—18 ..	—24·2	156·9	0·1	I, g.	18·0
145	,, 14—15 ..	—18·7	228·1	0·2	I, g.	12·7
146	,, 17—26 ..	— 9·3	100·1	0·4	I, g.	22·3
147	,, 20—26 ..	— 6·8	60·1	1·5	I, g.	25·3
148	,, 23	—27·8	110·7	0·2	I, g.	21·5
149	,, 26	+22·8	48·2	0·2	I, s.	26·2
150	,, 26—July 6	— 6·2	345·2	6·1	III, IV, g.	1·0
151	,, 26	—17·7	339·5	0·3	I, s.	1·4
152	,, 26	— 7·1	323·3	0·0	I, s.	2·7
153	July 2— 3 ..	+23·5	21·2	0·7	II, I, g.	28·3
154	,, 2— 5 ..	+24·6	255·0	0·2	I, g.	7·8

SUN-SPOT STATISTICS, 1927—*Contd.*

No. of Group	Date	Mean Latitude °	Mean Longitude °	Max Area	Mean Type	Central Meridian
155	July 2—10 ..	+15·4	284·9	5·5	III, V, g.	5·6
156	,, 2— 3 ..	—20·3	306·1	0·0	I, s.	4·0
157	,, 2— 5 ..	— 8·3	257·2	0·0	I, s.	7·7
158	,, 5—10 ..	— 8·0	226·2	0·2	I, g.	10·0
159	,, 8—12 ..	— 5·9	170·9	0·1	I, s.	14·2
160	,, 10	—22·2	182·3	0·1	I, s.	13·3
161	,, 12—14 ..	+11·2	228·2	0·1	I, g.	9·8
162	,, 12	—26·3	235·8	0·1	I, s.	9·3
163	,, 14—24 ..	—12·4	106·2	1·5	IV, g.	19·1
164	,, 15—18 ..	+15·4	138·4	0·6	I, g.	16·6
165	,, 17	—11·2	189·0	0·4	I, g.	12·8
166	,, 17	—30·2	80·0	0·1	I, g.	21·0
167	,, 19—31 ..	+23·9	19·7	0·8	IV, s.	25·6
168	,, 21—27 ..	— 7·7	61·4	0·5	I, g.	22·4
169	,, 22—Aug. 2	— 8·1	350·1	4·2	IV, s.	27·8
170	,, 23—July 27	+10·4	69·9	0·4	I, g.	21·8
171	,, 25—28 ..	—15·6	47·0	0·1	I, g.	23·5
172	,, 27—30 ..	+15·7	6·8	0·2	I, g.	26·6
173	,, 27—Aug. 1	— 6·8	283·7	0·2	I, g.	1·9
174	,, 31— ,, 1	+11·2	323·8	0·6	I, IV, g.	29·7
175	,, 31— ,, 1	— 5·6	242·2	0·1	I, g.	5·0
176	,, 31— ,, 7	—16·8	219·9	0·4	I, g.	6·7
177	Aug. 2— 4 ..	+20·7	326·0	0·5	I, g.	29·7
178	,, 2— 7 ..	—14·9	267·1	1·7	I, Ii, g.	3·1
179	,, 4— 5 ..	+12·4	300·4	0·1	I, g.	31·6
*180	,, 6	— 5·8	241·5	0·3	I, g.	5·0
181	,, 10—19 ..	—11·7	113·7	9·4	III, IV, g.	14·7
182	,, 14—19 ..	— 7·0	74·7	0·3	I, g.	17·7
183	,, 14—25 ..	—16·3	53·2	1·8	IV, s.	19·3
184	,, 17—25 ..	+10·8	30·3	2·4	I, V, g.	21·0
185	,, 19—30 ..	— 9·7	351·3	3·9	IV, s.	24·0
186	,, 23—Sept. 3	—16·2	288·4	5·6	III, II, g.	28·7
187	,, 29— ,, 7	—15·7	225·6	2·3	I, II, g.	2·5
188	,, 30	+ 7·0	198·5	0·0	I, s.	4·5
189	,, 31—Sept. 7	—13·0	193·2	1·6	II, p.	4·9
		—14·3	185·2	1·8	f.	5·5
190	Sept. 4—16 ..	— 9·0	124·1	2·5	IV, s.	10·2

* *Recurrence of* 175.

SUN-SPOT STATISTICS, 1927—*Contd.*

No. of Group	Date	Mean Latitude ○	Mean Longitude ○	Max Area	Mean Type	Central Meridian
191	Sept, 7	+20·0	94·7	0·0	I, s.	12·4
192	,, 10—12 ..	— 7·0	81·9	0·5	IV, g.	13·4
193	,, 10—20 ..	—17·3	74·2	4·7	II, p.	14·0
		—20·5	63·8	4·2	f.	14·7
194	,, 11—12 ..	+16·2	153·5	0·1	I, g.	7·9
195	,, 11—20 ..	—10·7	74·4	5·7	III, g.	13·9
		—10·9	79·8	4·5	ps.	13·5
196	,, 12—20 ..	—10·3	22·9	0·7	I, g.	17·8
197	,, 15—25 ..	+21·9	1·7	1·6	IV, s.	19·4
198	,, 15—17 ..	—16·3	51·0	0·1	I, g.	15·7
199	,, 15—27 ..	—12·1	336·3	1·2	II, IV, g.	21·4
	,, 15—23 ..	—12·6	331·2	1·0	fs.	21·8
200	,, 16	+16·2	117·8	0·1	I, g.	10·7
201	,, 17	—13·7	357·3	0·1	I, s.	19·8
202	,, 20	+15·6	277·2	0·1	I, g.	25·8
203	,, 20	—11·9	290·9	0·1	I, s.	24·8
204	,, 23—27 ..	+22·0	336·8	0·9	I, g.	21·3
205	,, 23—27 ..	+10·9	317·0	0·3	I, g.	22·8
206	,, 23—Oct. 3	—18·1	246·5	2·0	IV, s.	28·2
207	,, 25—Sept. 27	+ 6·4	307·6	0·3	I, g.	23·5
208	,, 27—28 ..	+17·5	228·1	0·1	I, s.	29·6
209	,, 27	—21·6	305·2	0·0	I, g.	23·7
210	,, 27	—18·4	221·8	0·0	I, s.	30·0
211	,, 27—28 ..	—11·4	198·4	0·2	I, g.	1·8
212	,, 27	—33·2	201·2	0·0	I, s.	1·6
213	,, 30—Oct. 5	+21·6	164·9	0·2	I, g.	4·4
214	Oct. 3— 6 ..	+10·0	183·4	0·3	I, g.	3.0
215	,, 3	+16·3	125·8	0·0	I, s.	7·3
216	,, 3—13 ..	+18·6	101·8	2·2	II, III, g.	9·1
217	,, 7—11 ..	— 8·2	137·5	0·3	I, ps.	6·4
	,, 3—10 ..	— 8·5	128·1	0·3	fs.	7·1
218	,, 5—15 ..	—11·6	81·9	3·9	IV, III, g.	10·6
219	,, 5—17 ..	—18·6	68·8	2·1	IV, V, g.	11·6
220	,, 7—10 ..	+16·2	47·3	0·1	I, g.	13·3
221	,, 9—19 ..	— 9·0	30·9	1·7	III, IV, g.	14·5
222	,, 10—11 ..	—21·9	51·6	0·1	I, g.	12·9
223	,, 11—21 ..	+20·6	356·7	1·1	IV, s.	17·1

SUN-SPOT STATISTICS, 1927—*Contd.*

No. of Group	Date	Mean Latitude o	Mean Longitude o	Max Area	Mean Type	Central Meridian
224	Oct. 17—27 ..	— 9·6	284·5	0·9	I, III, g.	22·6
225	,, 19—29 ..	—18·5	242 9	1·8	IV, g	25·7
		—18·5	243·7		s.	25·7
226	,, 23	+36·1	256·9	0·0	I, s.	24·7
227	,, 21—24 ..	—10·3	331·5	0·6	IV, g.	19·0
228	,, 21—24 ..	— 5·0	311 6	2·4	V, g.	20·5
229	,, 23	—12·9	234·3	0·1	I, g.	26·4
230	,, 24	—16·4	265·5	0·1	I, g.	24·0
231	,, 27	+21·7	172·6	0·1	I, g.	31·1
232	,, 29	—22·2	207·6	0·1	I, s.	28·4
233	,, 29—31 ..	—15·2	192·9	0·3	I, g.	29·5
234	,, 31	+14·1	186·2	0·6	I, g.	30·0
235	,, 31—Nov. 7	+16·0	110·2	0·3	I, g.	4·8
		+17·4	94·8	0·4	fs.	6·0
236	Nov. 4	—11·0	104·3	0·1	I, g.	5·2
237	,, 6— 7 ..	+22·0	141·8	0·3	I, g.	2·4
238	,, 6—14 ..	— 9·2	33·9	12·0	V, IV, g.	10·6
239	,, 9—10 ..	+15·6	334·7	0·1	I, s.	15·1
240	,, 9—12 ..	—11·0	76·7	0·3	I, g.	7·3
241	,, 9—12 ..	—10·6	353·3	0·2	I, s.	13·7
242	,, 9—12 ..	+ 8·1	14·8	0·3	I, g.	12·0
243	,, 9—17 ..	— 6·0	326·5	2·9	IV, s.	15·7
244	,, 11—17 ..	+ 7·5	316·2	1·3	I, g.	16·5
245	,, 14—17 ..	—19·7	304·9	0·1	I, g.	17·3
246	,, 17—26 ..	+11·3	243·7	1·5	IIIb, g.	22·0
247	,, 17	— 7·2	310·6	0·1	I, g.	16·9
248	,, 17—24 ..	—19·3	286·2	0·9	I, s.	18·7
249	,, 17—26 ..	— 5·9	264·1	0·7	IV, g.	20·4
250	,, 24—25 ..	+17·4	192·9	0·1	I, g.	25·8
251	,, 24—30 ..	—15·2	201·4	5·5	III, g.	25·2
		—15·8	197·3		fg.	25·5
		—14·3	210·8		ps.	24·5
252	,, 24—30 ..	—14·6	137·6	0·9	V, g.	30·0
253	,, 30	— 9·7	157·7	0·1	I, s.	28·5
254	Dec. 5— 6 ..	—21·0	48·5	1·1	III, g.	6·8
255	,, 5— 6 ..	—10·8	20·9	0·5	I, g.	8·9
256	,, 6	+18·8	341·3	0·2	I, g.	11·9

SUN-SPOT STATISTICS, 1927—*Contd.*

No. of Group	Date	Mean Latitude °	Mean Longitude °	Max Area	Mean Type	Central Merid an
257	Dec. 6—17 ..	— 9·0	339·3	0·3	I, g.	12·0
258	,, 16—19 ..	+ 3·7	307·2	0·7	IV, s.	14·5
259	,, 19—20 ..	+13·6	227·2	0·1	I, s.	20·6
260	,, 26—29 a.	—13·2	201·6	0·1	I, g.	22·5
	b.	—13·2	194·9	0·3	I, s.	23·0
	c.	—12·1	185·5	0·4	I, s.	23·7
	d.	—13·7	180·4	0·1	I, g.	24·1
261	,, 26—30 ..	+11·8	136·0	6·2	IV, V, g.	27·5
	..	+11·3	140·2		ps.	27·2
262	,, 27—Jan. 6	—15·8	63·2	3·2	IV, V, g.	2·0
263	,, 28— ,, 9	— 8·5	39·5	3·7	IV, s.	3·8
264	,, 30	—13·5	129·3	0·3	I, g.	28·0