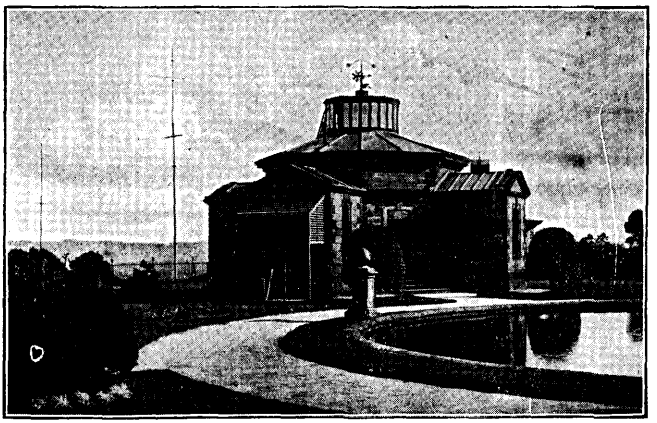
STONYHURST COLLEGE OBSERVATORY.

Lat. 53° 50′ 38·5″ N. Long. 9^{m} $52^{s}\cdot88$ W.
Height of the Barometer above the Sea, 381 feet.



(FOUNDED 1838.)

Results of Geophysical and Solar Observations,

1928.

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.

REPORT AND NOTES.

GENERAL.—The Staff of the Observatory remains the same as last year.

In addition to the ordinary routine work, which was carried on as usual during the year, considerable time was devoted to Synoptic Meteorology, and to the preparation of solar charts for each rotation of the Sun. These latter it is hoped to publish regularly, and to carry the series back to 1881, when the daily Solar drawings were first started at Stonyhurst.

The Director and Father Rowland attended the Meeting of the International Astronomical Union at Leiden, Holland, from July 5th to July 13th. The Director was elected a member of Commission 12 on Solar Physics, Stonyhurst being the International Centre for visual observations and Drawings of Sun-spots.

The Observatory now collaborates with Professor Brunner, of the Observatoire Fédéral, Zurich, by sending up data for the determination of the " Sun-spot numbers," both as regards the whole Solar Disc, and the central portion of the same, in accordance with the resolution adopted at the meeting of the I.A.U., at Leiden.

It will be noted that a slight alteration has been made in our Latitude and Longitude figures. The figures as given heretofore referred to the Transit

Instrument. The figures now given refer to the " Perry Memorial " Refracting Equatorial, and are the same as those given in the new list of Observatories in the Nautical Almanac.

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. 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.

Exceptionally heavy falls of rain occurred in the course of the year, especially during the months of January, February, August and November. The amount recorded in January, 12·267 inches, was the highest for the month for the past 81 years, being no less than 43% greater than the previous record.

The total rainfall, 60·344 inches, exceeded the average for the last 81 years by 13·004 inches, and was only 3·214 inches below the greatest annual fall of 1923. Precipitation occurred on 214 days, the greatest fall in one day being on the 12th of January, when 1·610 inches were registered. January, June and August were the wettest months of the year; April, May and September the driest.

On the whole, however, the year was moderately sunny, there being an excess of sunshine above the average in eight of the twelve months, while the number

of hours of bright sunshine for the whole year totalled 1366·5, as against an average for the past 48 years of 1306 hours.

Fine day periods of five days or more were recorded as follows :—February 19th—28th ; April 11th—18th ; 24th—29th ; May 1st—9th ; 27th—31st ; June 1st—5th ; July 12th—17th ; August 1st—5th ; September 11th—16th ; 25th—31st ; a total of ten periods, with an average of 6·9 days each.

Bright sunshine for ten hours or more was registered as follows :—Two days in April, seven days in May, seven in June, nine in July, two in August, and one in September, a total of 28 days, with an average of 12·6 hours each day.

The days on which were recorded the greatest number of continuous hours of sunshine were :—January 19th, 27th ; February 21st, 28th ; April 24th ; May 4th, 6th, 10th, 30th ; June 1st, 2nd, 3rd, 4th, 20th ; October 4th ; December 8th.

The adopted mean temperature was 47°·4, 0°·5 above the normal. The highest shade temperature was 72°·2, on August 5th, 9°·1 below the normal. The lowest was 23°·5, on December 9th and 15th, 7°·0 above the normal. July, August and September were the warmest months ; January, February and December the coldest.

Nineteen gales of 37 miles per hour or over were recorded :—Six in January, four in February, one in June, two in October, five in November, and one in December. The greatest velocity of the wind, 52 miles per hour, in direction S.E., was on November 23rd.

Synopsis of the Monthly Weather :—

January :—Exceptionally wet and stormy ; rather mild. The rainfall for the month, 12·267 inches, was 183·3% above the average, and, as already stated, the record for the last 81 years. It was distributed evenly during the month, the 8th and 16th being the only dry days. Three days had each one inch or more, the 5th, 7th and 12th. In spite of the heavy rainfall the total number of hours of bright sunshine was above the average by 15·9%, 37·1 hours being recorded on 16 days. Nearly half of this was registered on the three days, 3rd, 19th and 27th, with 5·7, 5·7 and 7·0 hours respectively. The adopted mean temperature was above the average by 6·6%, ground frost being recorded on five days only. The total wind mileage was 26·8% above the average, the greatest velocity being 50 miles per hour on the 1st. Gales of wind were also recorded on the 6th, 10th, 21st and 25th.

February :—Very wet, wild and dull for the first 18 days, fine and dry, but colder, for the rest of the month. Practically all the rain recorded fell during the period 1st—18th. The total fall was 6·270, 76·6% above the average, the 4th and 15th being the wettest days, with 1·455 and 1·145 inches respectively. There were 57·6 hours of bright sunshine, being 2·6% in excess of the mean for 48 years. The sunniest period was from the 21st—29th, with nearly 40 hours of sunshine on eight days. The adopted mean temperature was in excess of the average by 6·8%, and the coldest part of the month was from the 20th—28th, during which period ground frost was registered on seven days. The total wind mileage was above the normal by 33·4%, and gales of wind were recorded on the 7th, 10th, 11th

and 17th, the greatest of these being on the 10th, with a velocity of 41 miles per hour.

March :—Rather dull and mild. The rainfall for the month was 22·7% below the average of 3·355, and except for a heavy fall on the 29th, of 0·960 inches, was distributed fairly evenly. Bright sunshine fell below the average by 22·0%. From the 7th—13th, 36·5 hours were registered ; this was the sunniest period of the month. The adopted mean temperature was 2·7% in excess of the normal. A cold period occurred from the 9th—15th, with ground frost each night. Gale force was never reached, and the total wind mileage was below the average by 8·3%.

April :—Dry and comparatively warm and fine. The rainfall for the month was below the average by 48·5%, and precipitation occurred on only nine days. From the 11th—30th only 0·300 of an inch was registered, the rainiest period being during the first ten days. Bright sunshine, slightly below normal, was fairly evenly distributed, and was recorded on 28 days. The adopted mean temperature was above the average by 3·0%, with a cold spell from the 10th—20th. The wind mileage was below the average by 4·0%, and gale force was never reached.

May :—Very dry, but otherwise normal. As in April, only nine wet days occurred during the month, and the total rainfall fell below the average by 67·5%. The first fortnight was very dry, practically all the rain falling between the 15th and 26th. Bright sunshine, the adopted mean temperature, and the total wind mileage were all approximately normal, with a sunny

period from the 4th—11th. Over half the total amount of sunshine was registered on these eight days. No gales occurred during the month.

June :—Very wet and rather wild, with a normal amount of sunshine. The rainfall for the month, commencing on the 6th, was very heavy, being 129·2% above the average of 3·257 inches. Precipitation occurred on almost every day after the 6th, and a heavy fall of 1·325 inches was recorded on the 28th. The first four days of the month were very bright, over 57 hours of sunshine being recorded during this period. The adopted mean temperature was 5·8% below normal, the total wind mileage 28·9% above, and a gale occurred on the 9th.

July :—Very bright, windy, and with the exception of a heavy fall of rain on the 4th, dry. The rainfall was 18·3% below the average, and bright sunshine 25·8% above, a very bright period occurring between the 11th —17th, with over ten hours sunshine on every day except the 11th. The adopted mean temperature was 2·4% below normal. There were only three days during the month, viz., the 11th, 12th and 13th, on which the shade temperature rose above 70°. Although gale force was never reached, the wind mileage was 18·6% above the average, and approximately 63% of the 7,500 miles registered came from the S.W.

August :—Very wet, but otherwise normal. The rainfall for the month, 8·112 inches, was 59·4% above normal, and was registered on 20 days. Two heavy falls, of over an inch each, occurred on the 19th and 20th respectively. The driest period was the first ten days. Sunshine, temperature and wind were all more or less normal.

September :—Mild, dry and sunny. The rainfall, which was 62·5% below normal, fell in two periods. The wettest part of the month was from the 3rd—10th, with a less rainy period from the 17th—24th. No heavy falls occurred, the greatest being below half an inch. Bright sunshine was 23·5% above the average, and was distributed evenly on 27 days during the month. The adopted mean temperature fell slightly below normal. Over half the total wind mileage was registered from the S. to S.W., and the total amount was 21·7% below the average. The greatest velocity reached 23 miles per hour, on the 7th.

October :—Normally sunny, but wet and rather wild. Fairly evenly distributed, the rainfall was 25·5% above the average, with several rather heavy falls of over half an inch each. The heaviest, 0·710 inches, occurred on the 10th. Bright sunshine, approximately normal, was recorded on 23 days. Temperature was also normal, while total wind mileage was above the average by 11·3%. A gale of wind occurred on the 19th, with a velocity of 43 miles per hour, followed by one less violent on the 20th.

November :—Wet and very wild, but normally sunny. The rainfall was 60·5% in excess of the mean. A heavy fall of 1·217 inches occurred on the 11th, and heavy falls of over half an inch were registered on four days, between the 21st and 24th. Only five dry days were recorded. Bright sunshine was only slightly above normal, with an adopted mean temperature of 5·4% over the average. The total wind mileage, 9,281 miles, was 30·1% above normal, with a strong gale of 52 miles per hour on the 23rd. Other gales were recorded on the 14th, 19th, 24th and 25th, with velocities of 42, 37, 39 and 46 miles per hour respectively.

December :—Comparatively dry and sunny. The rainfall for the month, 3·148 inches, was 32·6% below the mean, with a dry period between the 8th and 17th, when only about half an inch was recorded. Bright sunshine was 36% in excess of the mean, but it occurred on eleven days only. These were distributed evenly throughout the month. In spite of the excess of sunshine, the adopted mean temperature was slightly below the average. Wind mileage was also below the mean, and one gale only was registered, on the 25th, with a velocity of 41 miles per hour.

Synoptic Meteorology.—Mr. Ward reports as follows: It was announced in the Annual Report of last year that the Observatory was about to undertake work on Synoptic Meteorology, and that to this end a new W/T receiving apparatus was about to be installed. The installation was effected on February 12th, the old apparatus, which had seen service since 1912 (with interruptions during the period of the war), being superseded from that date. The new apparatus is of modern design, the circuit used being a modification of the Schnell circuit; three valves may be employed—detector, and two L.F. amplifiers, though for normal work the second L.F. stage is dispensed with. By means of interchangeable coils a wave-band from 20 metres to 20,000 metres can be covered, the degree of selectivity attained being sufficient for the reception of Morse signals. While abnormal sensitivity is not to be expected with such a set, it has been found possible to pick up all transmissions which are needed for routine work without much difficulty in operation.

Towards the end of February a start was made on the work of Synoptic Meteorology. At first work was

confined to the construction of a small daily chart of the weather in North-western Europe, together with a 24-hour forecast of local weather conditions. The forecast, and a list of the 0700 G.M.T. observations at a selection of observing stations, was published daily in the College. With succeeding months the scope of the work has developed—more in the direction of amplifying the collection of data on which the forecast is made, than in any other. Work is still confined to the construction of one chart every 24 hours—that for 0700 G.M.T.—and the normal morning routine in the reception of meteorological messages is now as follows :—

0720 Königswusterhausen (DKB)	German observations.
0735 Lyngby (OXE)	...Danish observations and Greenland.
0740 Karlsborg (SAJ)... ...	...Swedish observations.
0750 Oslo (LCH)	...Norwegian, Spitzbergen, etc., obs.
0800 Air Ministry (GFA) ...	...Great Britain, Iceland, and observations from ships in the Atlantic.
0820 Air Ministry (GFA) ...	...Late reports.
0820 Eiffel Tower (FLE) ...	...French, Belgian, Dutch observations.
0850 Bergen (LCH)	...Observations from Scandinavian ships in the Atlantic and North Sea.

During Summer Time it is possible to add to these certain messages which are sent before 0720 G.M.T.

With the data obtained from these messages it is possible to construct a chart covering a fairly wide area of Europe and the Atlantic.

In the late summer the Observatory was asked to undertake the provision of a daily forecast of local weather conditions to the *Lancashire Daily Post*, an evening newspaper published in the neighbouring town of Preston. This has been done since the beginning of September.

Naturally, the ultimate purpose of the work of synoptic meteorology, as undertaken by the Observatory, is something more permanent than the issuing of weather forecasts, though these have their value. But it is impossible, in the space of one year, and that a year of trial and experiment, to have arrived at results of a more permanent nature. Until the normal routine work of chart-construction becomes more smooth, it will be quite beyond the capacities of the observatory to undertake more systematic research work, though there are, even at present, certain fields of investigation in contemplation.

MAGNETICAL.—Father Rowland reports: 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 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 :—

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 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. The Base-line value of the Horizontal Force shews a marked seasonal variation, which is almost certainly due to temperature changes in the underground magnetic chamber, the temperature range in which is much greater since the substitution of electricity for gas as an illuminant. Data are being accummulated with a view to determining if possible the temperature Co-efficient of the magnet.

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 has been made this year and the following scale adopted : (c) 0–2, (s) 3–7, (m) 8–20, (g) 21–65, (v.g.) over 65.

This change in scale should be noted in any comparison made of the number of days of the different characters in the present and subsequent years with those of previous years.

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.

The mean daily ranges of Declination, $8'\cdot9$ for the quiet days, and $15'\cdot3$ for all days, and of Horizontal Force 43_γ for the quiet days, and 73_γ for all days, shew a slight increase on the corresponding values for 1927. The percentage of magnetically quiet days (c) was 26, as against 32 in the preceding year. These figures all shew a general increase in magnetic disturbance corresponding to the increased solar activity.

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
May 27—28	41	392
June 22	28	260
July 7—8	> 75	> 682
Oct. 18	62	273
Oct. 24—25	38	317

"Sudden Commencements" were noted on the dates, and at the times indicated in the following table:

DATE	TIME *h.*	TIME *m.*
Feb. 10	7	45
„ 12	7	18
Mar. 16	13	20
„ 20	22	32
Apr. 21	13	48
„ 30	22	52
Aug. 4	17	9
„ 25	22	38
Sep. 8	13	46
„ 18	15	43
„ 24	16	23
Oct. 18	7	25
Nov. 11	16	58

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

SOLAR OBSERVATIONS.—Observations of the Solar Surface were made on 269 days, and include 275 drawings. Of these drawings 233 are complete, and show all spots and faculæ; of the remaining 42, 13 are complete for the spots. The observation days and daily areas are recorded on page 39. The horizontal lines on that page indicate the commencement of a new Solar rotation.

The mean daily disc area of the spots in units 1/5000th of the disc, stands at 7·19, as compared with 5·15 in 1927, and 5·33 in 1926.

The following table shews the distribution of spot groups in the Northern and Southern Hemispheres at each rotation, with their maximum projected areas. The first rotation, starting on 1927, December 9·97, corresponds to Greenwich No. 993. The fourteenth (No. 1006) ended on December 25·86. The last column gives the sum of the maximum areas of all the spots on the Sun during the rotation in question.

Rotation	Northern Hemisphere		Southern Hemisphere		Sum. of Max'm Areas
	No. of Groups	Max'm Areas	No. of Groups	Max'm Areas	
1. Dec. 9·97	5	7·9	7	9·1	17·0
2. Jan. 6·30	8	14·4	16	14·6	29·0
3. Feb. 2·64	9	9·5	14	15·4	24·9
4. Feb. 29·98	8	21·2	11	12·2	33·4
5. March 28·29	9	11·0	16	15·4	26·4
6. April 24·57	6	5·7	12	22·6	28·3
7. May 21·79	10	13·5	8	10·5	24·0
8. June 17·99	13	27·2	8	16·1	43·3
9. July 15·19	12	22·1	14	19·1	41·2
10. Aug. 11·41	18	12·6	13	11·1	23·7
11. Sep. 7·66	6	24·6	7	27·8	52·4
12. Oct. 4·93	9	23·0	11	4·7	27·7
13. Nov. 1·22	10	10·7	6	10·3	21·0
14. Nov. 28·53	11	17·1	8	7·5	24·6
TOTAL	134	220·5	151	196·4	416·9

No spots were visible on May 19th and 20th.

The Sun-spot Statistics, as derived from our drawings are given on pp. 40—50. 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. The dates entered in column 2 are the first and last dates on which the group in question was *actually* seen.

SEISMOLOGY.—Father Rowland reports :—The Milne-Shaw Seismograph has been in constant use throughout the year, with few interruptions from instrumental defects, but the entanglement of lines on the record, due to tilting of the pier from temperature

changes, continues to be troublesome at times, and a few records of earthquakes have been unreadable from this cause.

The total number of definite earthquakes recorded during the year was 115, which is 26% increase on the number recorded in the previous year. They were distributed throughout the year as follows :—

Jan	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
7	11	13	10	10	11	14	10	10	7	8	8	115

In addition to these are a considerable number of movements which are not sufficiently definite to be pronounced as certainly of seismic origin.

Of the recorded earthquakes, about eighteen or twenty would rank as large ones on our record, and some which were not conspicuous on the records are known to have been destructive in the regions of their origin.

Perhaps the most notable feature of the year was the series of destructive earthquakes which occurred in South-Eastern Europe, during March and April. The series commenced with a relatively small shock, which caused damage in Calabria, on March 7th. This was followed by two destructive shocks in Northern Italy, on the 26th and 27th, and by a larger and more destructive one at Smyrna, on the 31st. On April 14th and 18th very large and disastrous earthquakes occurred in Bulgaria, and on the 22nd, Corinth was destroyed. The series, which included many minor shocks, in addition to those noted above, seems to have terminated with a shock of moderate intensity, which did damage in the vicinity of Constantinople, on May 2nd.

In addition to these notable earthquakes of European origin, a considerable number of large earthquakes were recorded during the year, having origins in more distant regions of the world. The most notable, with their places of origin, were as follows :—

Jan. 6—Destructive near Mt. Kenia, Central Africa.

Mar. 9—Very large, near N. Sumatra.

,, 16—Large ; St. Matthew Island, Oceanea.

,, 22, June 17, Aug. 4, Oct. 9—Great earthquakes in, or in the vicinity of Mexico.

May 14—Large ; Columbia, Ecuador.

,, 27—Large ; N. of Japan.

June 15, Dec. 19—Phillipine Islands.

,, 21—Behring Strait.

July 18—Peru ; Destructive at Chochapoyas.

Oct. 15—Large ; Indian Ocean.

Dec. 1—Chili ; Destructive in the vicinity of Talea.

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, 1928.

Results of Observations taken during the Month.		Mean for the last 81 years.
Mean Reading of the Barometer ..... inches	29·330	29·480
Highest ,, ,, on the 1st ..... ,,	29·868	30·123
Lowest ,, ,, on the 31st ..... ,,	28·906	28·591
Range of Barometer Readings ..... ,,	0·962	1·532
Highest Reading of a Max. Therm. on the 21st...	53·4	51·4
Lowest Reading of a Min. Therm. on the 1st.....	27·0	21·9
Range of Thermometer Readings	26·4	29·5
Mean of Highest Daily Readings	45·0	42·6
Mean of Lowest Daily Readings	35·2	33·3
Mean Daily Range	9·8	9·3
Deduced Mean Temp. (from mean of Max. and Min.)	39·9	37·7
Mean Temperature from Dry Bulb	40·6	38·0
Adopted Mean Temperature	40·3	37·9
Mean Temperature of Evaporation	39·1	36·6
Mean Temperature of Dew Point	37·2	34·5
Mean elastic force of Vapour ..... inches	0·227	0·202
Mean weight of Vapour in a cub. ft. of air, grains	2·6	2·4
Mean additional weight required for saturation ,,	0·4	0·4
Mean degree of Humidity (saturation 100)	87	88
Mean weight of a cubic foot of air ..... grains	543·2	549·1
Mean amount of Cloud (0—10)	8·1	7·8
Fall of Rain ..... inches	12·267	4·428
Greatest Rainfall in one day (12th)..... ,,	1·610	0·832
No. of days on which ·005 in. or more Rain fell...	29	19·7

Wind:—Direction.....	N	NE	E	SE	S	SW	W	NW
No. of days.....	0	1	1	2	6	17	3	1
Mean Velocity in miles per hr	0	2·1	7·4	11·8	13·9	17·0	8·1	10·1
Total No. of miles.....	0	50	178	568	2004	6820	582	242

		Mean*
Total No. of miles registered	10544	8349·3
Greatest hourly velocity (1st at 2400 G.M.T. Dir. S.S.E.)	50	41·4

* *For the last* 61 *years.*

JANUARY, 1928.

DIFFERENCES.

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

Mean barometric pressure	—	0·150 in.
Monthly range ,, ...	—	0·570 in.
Mean of highest daily temperatures	+	2·4°
Mean of lowest ,, ,, ...	+	1·9°
Mean daily range	+	0·5°
Adopted mean temperature	+	2·4°
Total rainfall	+	7·839 in.

Ground Frost on 1st, 4th, 27th and 28th. Hoar Frost on 4th. Snow on 27th. Hail on 10th, 19th and 24th. Heavy Rain on 1st, 4th—7th, 12th, 18th, 21st and 23rd. Gales of Wind on 1st, 2nd, 6th, 10th, 21st and 26th. Fog on 2nd, 3rd, 17th, 19th, and 28th. Solar Halo on 16th.

EXTREME READINGS FOR JANUARY.

During 81 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, 1928.

Results of Observations taken during the Month.		Mean for the last 81 years.
Mean Reading of the Barometer ..... inches	29·548	29·487
Highest ,, ,, on the 19th... ,,	30·187	30·101
Lowest ,, ,, on the 10th... ,,	28·483	28·643
Range of Barometer Readings ..... ,,	1·704	1·458
Highest Reading of a Max. Therm. on the 25th ...	53·2	52·2
Lowest Reading of a Min. Therm. on the 6th ...	30·3	22·8
Range of Thermometer Readings	22·9	29·4
Mean of Highest Daily Readings	45·7	44·0
Mean of Lowest Daily Readings	36·2	33·7
Mean Daily Range	9·5	10·3
Deduced Mean Temp. (from mean of Max. and Min.)	40·6	38·3
Mean Temperature from Dry Bulb	41·4	38·6
Adopted Mean Temperature	41·0	38·5
Mean Temperature of Evaporation	39·7	36·9
Mean Temperature of Dew Point	37·5	34·7
Mean elastic force of Vapour ..... inches	0·226	0·197
Mean weight of Vapour in a cub. ft. of air, grains	2·6	2·4
Mean additional weight required for saturation ,,	0·4	0·4
Mean degree of Humidity (saturation 100)	85	87
Mean weight of a cubic foot of air ..... grains	546·2	548·4
Mean amount of Cloud (0—10)	6·2	7·5
Fall of Rain ..... inches	6·270	3·585
Greatest Rainfall in one day (4th)..... ,,	1·455	0·768
No. of days on which ·005 in. or more Rain fell...	17	17·0

Wind:—Direction.....	N	NE	E	SE	S	SW	W	NW
No. of days.....	2	3	2	0	3	13	6	0
Mean Velocity in miles per hr.	6·9	9·4	10·7	0	4·2	20·0	12·8	0
Total No. of miles.....	330	675	515	0	302	6247	1845	0

		Mean*
Total No. of miles registered	9914	7474·4
Greatest hourly velocity (11th, at 0100 G.M.T., Dir., W.S.W.	41	40·5

* *For the last* 61 *years.*

FEBRUARY, 1928.

DIFFERENCES.

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

Mean barometric pressure	+	0·061 in.
Monthly range ,, ...	+	0·246 in.
Mean of highest daily temperatures	+	1·7°
Mean of lowest ,, ,, ...	+	2·5°
Mean daily range	—	0·8°
Adopted mean temperature	+	2·5°
Total rainfall	+	2·685 in.

Ground Frost on 4th, 12th, 20th—22nd, 25th—28th. Hoar Frost on 25th. Snow on 3rd and 10th. Hail on 1st, 2nd, 10th and 11th. Heavy Rain on 4th, 10th, 14th and 15th. Gales of Wind on 7th, 10th, 11th and 17th. Fog on 13th, 14th, 20th, 22nd and 25th. Thunder on 10th. Lightning on 10th. Lunar Halo on 5th.

EXTREME READINGS FOR FEBRUARY,

During 81 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, 1928.

Results of Observations taken during the Month.		Mean for the last 81 years.
Mean Reading of the Barometer ..... inches	29·334	29·450
Highest ,, ,, on the 10th ... ,,	29·807	30·040
Lowest ,, ,, on the 30th ... ,,	28·275	28·643
Range of Barometer Readings ..... ,,	1·532	1·397
Highest Reading of a Max. Therm. on the 20th...	57·8	56·8
Lowest Reading of a Min. Therm. on the 12th...	25·6	23·6
Range of Thermometer Readings	32·2	33·2
Mean of Highest Daily Readings	46·6	46·9
Mean of Lowest Daily Readings	36·5	34·5
Mean Daily Range	10·1	12·4
Deduced Mean Temp. (from mean of Max. and Min.)	40·5	39·8
Mean Temperature from Dry Bulb	41·9	40·4
Adopted Mean Temperature	41·2	40·1
Mean Temperature of Evaporation	39·8	38·3
Mean Temperature of Dew Point	36·3	35·9
Mean elastic force of Vapour ..... inches	0·222	0·210
Mean weight of Vapour in a cub. ft. of air, grains	2·3	2 4
Mean additional weight required for saturation ,,	0·5	0·5
Mean degree of Humidity (saturation 100)	82	85
Mean weight of a cubic foot of air ..... grains	541·7	546·0
Mean amount of Cloud (0—10)	8·5	7·5
Fall of Rain ..... inches	2·593	3·345
Greatest Rainfall in one day (29th)..... ,,	0·960	0·760
No. of days on which ·005 in. or more Rain fell...	17	16·8

Wind:—Direction.....	N	NE	E	SE	S	SW	W	NW
No. of Days	2	14	3	3	2	5	2	0
Mean Velocity in miles per hr.	9·5	7·4	14·4	18·2	16·3	9·9	8·8	0
Total No. of miles.....	458	2489	1035	1308	783	1184	423	0

		Mean*
Total No. of miles registered	7680	8364·7
Greatest hourly velocity (29th at 1200 G.M.T. Dir. E. by N.)	36	39·8

* *For the last* 61 *years.*

MARCH, 1928.

DIFFERENCES.

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

Mean barometric pressure	—	0·116 in.
Monthly range ,, ...	+	0·135 in.
Mean of highest daily temperatures	—	0·3°
Mean of lowest ,, ,, ...	+	2·0°
Mean daily range	—	2·3°
Adopted mean temperature	+	1·1°
Total rainfall	—	0·752 in.

Ground Frost on 2nd, 9th—15th and 29th. Hoar Frost on 15th. Snow on 9th—13th. Hail on 29th and 30th. Heavy Rain on 29th. Fog on 5th, 6th, 14th, 22nd and 26th. Thunder on 18th. Solar Halo on 26th.

EXTREME READINGS FOR MARCH,

During 81 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, 1928.

Results of Observations taken during the Month.		Mean for the last 81 years.
Mean Reading of the Barometer ..... inches	29·370	29·482
Highest ,, ,, on the 22nd ... ,,	29·750	29·956
Lowest ,, ,, on the 10th ... ,,	28·909	28·796
Range of Barometer Readings ..... ,,	0·841	1·160
Highest Reading of a Max. Therm. on the 26th...	70·3	64·4
Lowest Reading of a Min. Therm. on the 18th...	28·5	28·2
Range of Thermometer Readings	41·8	36·2
Mean of Highest Daily Readings	53·1	54·2
Mean of Lowest Daily Readings	39·7	37·9
Mean Daily Range	13·4	16·3
Deduced Mean Temp. (from mean of Max. and Min.)	44·9	43·9
Mean Temperature from Dry Bulb	46·3	44·7
Adopted Mean Temperature	45·6	44·4
Mean Temperature of Evaporation	42·5	41·6
Mean Temperature of Dew Point	38·2	38·2
Mean elastic force of Vapour ..... inches	0·232	0·234
Mean weight of Vapour in a cub. ft. of air, grains	2·7	2·7
Mean additional weight required for saturation ,,	1·0	0·7
Mean degree of Humidity (saturation 100)	71	80
Mean weight of a cubic foot of air ..... grains	537·3	542·1
Mean amount of Cloud (0—10)	6·8	6·8
Fall of Rain ..... inches	1·335	2·576
Greatest Rainfall in one day (2nd) ..... ,,	0·440	0·602
No. of days on which ·005 in. or more Rain fell...	9	15·0

Wind:—Direction.....	N	NE	E	SE	S	SW	W	NW
No. of days.....	3	7	3	4	4	4	2	3
Mean Velocity in miles per hr.	6·4	10·0	12·2	12·9	8·7	10·5	6·3	10·3
Total No. of miles.....	464	1686	881	1243	839	1007	304	744

		Mean*
Total No of miles registered	7168	7471·2
Greatest hourly velocity (10th, at 1300 G.M.T., Dir. S.S.E.)	33	36·2

* *For the last* 61 *years.*

APRIL, 1928.

DIFFERENCES.

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

Mean barometric pressure	—	0·112 in.
Monthly range ,, ...	—	0·319 in.
Mean of highest daily temperatures	—	1·1°
Mean of lowest ,, ,, ...	+	1·8°
Mean daily range	—	2·9°
Adopted mean temperature	+	1·2°
Total rainfall	—	1·241 in.

Ground Frost on 16th—22nd. Snow on 15th, 16th and 18th. Hail on 3rd and 18th. Fog on 2nd. Thunder on 10th and 11th. Solar Halo on 8th.

EXTREME READINGS FOR APRIL,

During 81 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, 1928.

Results of Observations taken during the Month.		Mean for the last 81 years.
Mean Reading of the Barometer ..... inches	29·543	29·538
Highest ,, ,, on the 25th ... ,,	29·807	29·984
Lowest ,, ,, on the 17th ... ,,	29·093	28·946
Range of Barometer Readings ..... ,,	0·714	1·038
Highest Reading of a Max. Therm. on the 30th...	71·2	71·8
Lowest Reading of a Min. Therm. on the 10th...	33·0	32·0
Range of Thermometer Readings	38·2	39·8
Mean of Highest Daily Readings	57·8	59·3
Mean of Lowest Daily Readings	43·2	42·6
Mean Daily Range	14·6	16·7
Deduced Mean Temp. (from mean of Max. and Min.)	48·8	49·2
Mean Temperature from Dry Bulb	50·5	50·1
Adopted Mean Temperature	49·7	49·6
Mean Temperature of Evaporation	44·7	46·5
Mean Temperature of Dew Point	38·6	43·0
Mean elastic force of Vapour ..... inches	0·235	0·280
Mean weight of Vapour in a cub. ft. of air, grains	2·7	3·2
Mean additional weight required for saturation ,,	1·5	0·8
Mean degree of Humidity (saturation 100)	60	77
Mean weight of a cubic foot of air ..... grains	536·3	536·9
Mean amount of Cloud (0—10)	6·9	7·1
Fall of Rain ..... inches	0·905	2·440
Greatest Rainfall in one day (19th)..... ,,	0·275	0·642
No. of days on which ·005 in. or more Rain fell...	9	14·7

Wind:—Direction	N	NE	E	SE	S	SW	W	NW
No. of days.....	5	13	2	0	2	1	4	4
Mean Velocity in miles per hr.	8·3	7·6	12·3	0	6·0	8·5	8·0	8·4
Total No. of miles.....	994	2383	592	0	287	204	768	805

		Mean*
Total No of miles registered	6033	6863·4
Greatest hourly velocity (15th, at 1900 G.M.T., Dir. W.)	32	32·3

* *For the last* 61 *years.*

MAY, 1928.

DIFFERENCES.

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

Mean barometric pressure	+	0·005 in.
Monthly range ,, ...	—	0·324 in.
Mean of highest daily temperatures	—	1·5°
Mean of lowest ,, ,, ...	+	0·6°
Mean daily range	—	2·1°
Adopted mean temperature	+	0·1°
Total rainfall	—	1·535 in.

Ground Frost on 5th, 9th and 13th. Hail on 18th. Solar Halo on 4th, 8th and 10th.

EXTREME READINGS FOR MAY,

During 81 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, 1928.

Results of Observations taken during the Month.		Mean for the last 81 years.
Mean Reading of the Barometer ..... inches	29·452	29·560
Highest ,, ,, on the 2nd ... ,,	29·917	29·936
Lowest ,, ,, on the 9th ... ,,	28·673	29·046
Range of Barometer Readings ..... ,,	1·244	0·890
Highest Reading of a Max. Therm. on the 3rd....	70·8	76·5
Lowest Reading of a Min. Therm. on the 15th...	36·8	39·2
Range of Thermometer Readings	34·0	37·3
Mean of Highest Daily Readings	59·5	64·9
Mean of Lowest Daily Readings	46·4	48·1
Mean Daily Range	13·1	16·8
Deduced Mean Temp. (from mean of Max. and Min.)	51·2	54·7
Mean Temperature from Dry Bulb	52·9	55·3
Adopted Mean Temperature	52·1	55·0
Mean Temperature of Evaporation	49·2	51·7
Mean Temperature of Dew Point	45·5	48·2
Mean elastic force of Vapour ..... inches	0·305	0·346
Mean weight of Vapour in a cub. ft. of air, grains	3·5	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	531·8	531·4
Mean amount of Cloud (0—10)	7·5	7·2
Fall of Rain ..... inches	7·466	3·309
Greatest Rainfall in one day (28th)..... ,,	1·325	0·803
No. of days on which ·005 in. or more Rain fell...	22	15·1

Wind:—Direction	N	NE	E	SE	S	SW	W	NW
No. of days.....	1	4	2	3	4	10	6	0
Mean Velocity in miles per hr.	8·4	10·1	7·2	6·0	11·5	13·2	12·0	0
Total No. of miles.....	202	966	346	429	1107	3167	1729	0

		Mean*
Total No. of miles registered	7946	6193·5
Greatest hourly velocity (9th, at 2300 G.M.T., Dir. S.S.E.)	40	29·3

* *For the last* 61 *years.*

JUNE, 1928.

DIFFERENCES.

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

Mean barometric pressure	—	0·108 in.
Monthly range ,, ...	+	0·354 in.
Mean of highest daily temperatures	—	5·4°
Mean of lowest ,, ,, ...	—	1·7°
Mean daily range	—	3·7°
Adopted mean temperature	—	2·9°
Total rainfall	+	4·157 in.

Hail on 11th and 15th. Heavy Rain on 6th, 7th, 9th, 13th, 28th and 29th. Gale of Wind on 9th. Thunder on 6th, 9th and 26th. Lightning on 6th.

EXTREME READINGS FOR JUNE,

During 81 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, 1928.

Results of Observations taken during the Month.			Mean for the last 81 years.
Mean Reading of the Barometer	inches	29·619	29·526
Highest ,, ,, on the 17th ...	,,	30·032	29·904
Lowest ,, ,, on the 28th ...	,,	29·190	29·008
Range of Barometer Readings	,,	0·842	0·896
Highest Reading of a Max. Therm. on the 11th...		72·0	78·3
Lowest Reading of a Min. Therm. on the 8th...		42·8	42·9
Range of Thermometer Readings		29·2	33·4
Mean of Highest Daily Readings		63·2	67·3
Mean of Lowest Daily Readings		51·5	51·3
Mean Daily Range		11·7	16·0
Deduced Mean Temp. (from mean of Max. and Min.)		55·5	57·6
Mean Temperature from Dry Bulb		57·5	58·0
Adopted Mean Temperature		56·5	57·9
Mean Temperature of Evaporation		52·0	54·8
Mean Temperature of Dew Point		47·0	52·0
Mean elastic force of Vapour	inches	0·322	0·388
Mean weight of Vapour in a cub. ft. of air,	grains	3·7	4·4
Mean additional weight required for saturation	,,	1·7	1·1
Mean degree of Humidity (saturation 100)		67	81
Mean weight of a cubic foot of air	grains	529·9	527·5
Mean amount of Cloud (0—10)		6·9	7·4
Fall of Rain	inches	3·412	4·029
Greatest Rainfall in one day (4th).....	,,	1·350	0·884
No. of days on which ·005 in. or more Rain fell...		13	16·6

Wind:—Direction.....	N	NE	E	SE	S	SW	W	NW
No. of days.....	0	0	0	0	0	19	12	0
Mean Velocity in miles per hr.	0	0	0	0	0	10·2	9·8	0
Total No. of Miles.....	0	0	0	0	0	4666	2834	0

		Mean*
Total No. of miles registered	7500	6326·4
Greatest hourly velocity (7th, at 1100 G.M.T., Dir. S.S.E.)	25	28·3

* *For the last* 61 *years.*

JULY, 1928.

DIFFERENCES.

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

Mean barometric pressure	+	0·093 in.
Monthly range ,, ...	—	0·054 in.
Mean of highest daily temperatures	—	4·1°
Mean of lowest ,, ,, ...	+	0·2°
Mean daily range	—	4·3°
Adopted mean temperature	—	1·4°
Total rainfall	—	0·617 in.

Heavy Rain on the 4th.

EXTREME READINGS FOR JULY,

During 81 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, 1928.

Results of Observations taken during the Month.		Mean for the last 81 years
Mean Reading of the Barometer ..... inches	29·421	29·491
Highest ,, ,, on the 31st ... ,,	29·817	29·892
Lowest ,, ,, on the 13th ... ,,	29·077	28·946
Range of Barometer Readings ..... ,,	0·740	0·946
Highest Reading of a Max. Therm. on the 5th ...	72·2	75·9
Lowest Reading of a Min. Therm. on the 30th ...	43·2	42·0
Range of Thermometer Readings	29·0	33·9
Mean of Highest Daily Readings	64·4	66·2
Mean of Lowest Daily Readings	51·9	50·9
Mean Daily Range	12·5	15·3
Deduced Mean Temp. (from mean of Max. and Min.)	56·9	56·9
Mean Temperature from Dry Bulb	58·5	57·7
Adopted Mean Temperature	57·7	57·3
Mean Temperature of Evaporation	54·7	54·5
Mean Temperature of Dew Point	51·2	51·8
Mean elastic force of Vapour ..... inches	0·378	0·387
Mean weight of Vapour in a cub. ft. of air, grains	4·3	4·3
Mean additional weight required for saturation ,,	1·2	0·9
Mean degree of Humidity (saturation 100)	78	82
Mean weight of a cubic foot of air ..... grains	525·0	527·4
Mean amount of Cloud (0—10)	7·3	7·3
Fall of Rain ..... inches	8·112	5·125
Greatest Rainfall in one day (20th) ..... ,,	1·567	1·069
No. of days on which ·005 in. or more Rain fell...	20	18·7

Wind :—Direction	N	NE	E	SE	S	SW	W	NW
No. of days.....	0	2	1	1	7	13	7	0
Mean Velocity in miles per hr.	0	4·4	4·3	7·4	9·9	9·0	8·0	0
Total No. of miles.....	0	212	102	177	1663	2812	1337	0

		Mean*
Total No. of miles registered	6303	6315·9
Greatest hourly velocity (13th, 0830 G.M.T., Dir. S.)	27	30·5

* *For the last* 61 *years.*

AUGUST, 1928.

DIFFERENCES.

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

Mean barometric pressure	—	0·070 in.
Monthly range ,, ...	—	0·206 in.
Mean of highest daily temperatures	—	1·8°
Mean of lowest ,, ,, ...	+	1·0°
Mean daily range	—	2·8°
Adopted mean temperature	+	0·4°
Total rainfall	+	2·987 in.

Hail on 27th. Heavy Rain on 7th, 11th, 19th, 20th, 26th and 27th. Fog on 5th. Thunder on 7th, 11th, 12th, 13th, 24th, 26th, 27th and 29th. Lightning on 11th, 12th, 24th, 27th and 29th. Solar Halo on 17th, 22nd and 30th.

EXTREME READINGS FOR AUGUST,

During 81 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, 1928.

Results of Observations taken during the Month.		Mean for the last 81 years.
Mean Reading of the Barometer ..... inches	29·692	29·542
Highest , ,, on the 22nd ... ,,	30·001	30·004
Lowest ,, ,, on the 28th ... ,,	29·339	28·891
Range of Barometer Readings ..... ,,	0·662	1·113
Highest Reading of a Max. Therm. on the 5th ...	71·0	71·7
Lowest Reading of a Min. Therm. on the 30th...	35·0	36·7
Range of Thermometer Readings	36·0	35·0
Mean of Highest Daily Readings	60·2	61·7
Mean of Lowest Daily Readings	47·1	47·3
Mean Daily Range	13·1	14·4
Deduced Mean Temp. (from mean of Max. and Min.)	52·4	53·3
Mean Temperature from Dry Bulb	53·9	54·2
Adopted Mean Temperature	53·2	53·8
Mean Temperature of Evaporation	50·1	51·0
Mean Temperature of Dew Point	46·4	48·3
Mean elastic force of Vapour ..... inches	0·313	0·339
Mean weight of Vapour in a cub. ft. of air, grains	3·5	3·9
Mean additional weight required for saturation ,,	1·1	0·8
Mean degree of Humidity (saturation 100)	75	82
Mean weight of a cubic foot of air ..... grains	534·9	532·6
Mean amount of Cloud (0—10)	5·2	6·7
Fall of Rain ..... inches	1·646	4·361
Greatest Rainfall in one day (3rd)..... ,,	0·394	0·970
No. of days on which ·005 in. or more Rain fell...	10	16·8

Wind :—Direction	N	NE	E	SE	S	SW	W	NW
No. of days.....	4	4	2	0	5	9	5	1
Mean Velocity in miles per hr.	5·2	5·8	3·3	0	8·4	8·6	4·9	4·0
Total No. of miles	502	555	157	0	1006	1859	583	95

		Mean*
Total No. of miles registered	4757	6053·7
Greatest hourly velocity (17th, at 1100 G.M.T., Dir. S.S.E.)	23	31·7

* *For the last* 81 *years.*

SEPTEMBER, 1928.

DIFFERENCES.

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

Mean barometric pressure	+	0·150 in.
Monthly range ,, ...	—	0·451 in.
Mean of highest daily temperatures	—	1·5°
Mean of lowest ,, ,, ...	—	0·2°
Mean daily range	—	1·3°
Adopted mean temperature	—	0·6°
Total rainfall	—	2·715 in.

Hoar Frost on 30th. Fog on 2nd and 12th. Solar Halo on 2nd and 14th. Aurora Borealis on 18th.

EXTREME READINGS FOR SEPTEMBER,

During 81 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, 1928.

Results of Observations taken during the Month.		Mean for the last 80 years.
Mean Reading of the Barometer ..... inches	29·337	29·448
Highest ,, ,, on the 3rd ... ,,	29·893	30·021
Lowest ,, ,, on the 26th ... ,,	28·626	28·686
Range of Barometer Readings ..... ,,	1·267	1·335
Highest Reading of a Max. Therm. on the 8th...	63·2	64·1
Lowest Reading of a Min. Therm. on the 1st ...	31·2	29·9
Range of Thermometer Readings	32·0	34·2
Mean of Highest Daily Readings	53·9	54·4
Mean of Lowest Daily Readings	43·4	42·1
Mean Daily Range	10·5	12·3
Deduced Mean Temp. (from mean of Max. and Min.)	48·3	47·3
Mean Temperature from Dry Bulb	49·2	48·0
Adopted Mean Temperature	48·8	47·8
Mean Temperature of Evaporation	46·7	45·5
Mean Temperature of Dew Point	44·0	43·1
Mean elastic force of Vapour ..... inches	0·289	0·279
Mean weight of Vapour in a cub. ft. of air, grains	3·3	3·2
Mean additional weight required for saturation ,,	0·7	0·6
Mean degree of Humidity (saturation 100)	82	84
Mean weight of a cubic foot of air ..... grains	533·7	537·4
Mean amount of Cloud (0—10)	6·6	7·2
Fall of Rain ..... inches	6·120	4·893
Greatest Rainfall in one day (10th)..... ,,	0·710	0·971
No. of days on which ·005 in. or more Rain fell...	24	18·8

Wind :—Direction.....	N	NE	E	SE	S	SW	W	NW
No. of days.....	1	4	1	2	8	8	5	2
Mean Velocity in miles per hr.	11·8	7·6	7·8	14·2	15·5	10·9	5·1	2·5
Total No. of miles.....	283	728	186	680	2975	2086	612	120

		Mean*
Total No. of miles registered, ...	7670	6748·4
Greatest hourly velocity (19th, at 2210 G.M.T., Dir. S.E. by S.)	43	36·9

* *For the last* 61 *years.*

OCTOBER, 1928.

DIFFERENCES.

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

Mean barometric pressure	—	0·111 in.
Monthly range ,, ...	—	0·068 in.
Mean of highest daily temperatures	—	0·5°
Mean of lowest ,, ,, ...	+	1·3°
Mean daily range	—	1·8°
Adopted mean temperature	+	1·0°
Total rainfall	+	1·227 in.

Ground Frost on 1st, 13th and 23rd Hoar Frost on 1st, 13th and 23rd. Hail on 19th and 20th. Heavy Rain on 10th, 14th, 16th, 18th and 29th. Gales of Wind on 19th, 20th. Fog on 5th, 13th, 16th, 23rd and 29th. Thunder on 9th and 18th. Lightning on 9th, 18th and 20th.

EXTREME READINGS FOR OCTOBER,

During 81 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, 1928.

Results of Observations taken during the Month.			Mean for the last 81 years.
Mean Reading of the Barometer	inches	29·301	29·463
Highest ,, ,, on the 28th ...	,,	29·953	30·066
Lowest ,, ,, on the 25th ...	,,	28·487	28·571
Range of Barometer Readings	,,	1·466	1·495
Highest Reading of a Max. Therm. on the 12th ...		60·3	55·8
Lowest Reading of a Min. Therm. on the 4th.....		29·0	25·4
Range of Thermometer Readings		31·3	30·4
Mean of Highest Daily Readings		49·5	47·1
Mean of Lowest Daily Readings		40·0	36·7
Mean Daily Range		9·5	10·4
Deduced Mean Temp. (from mean of Max. and Min.)		44·4	41·5
Mean Temperature from Dry Bulb		44·9	42·0
Adopted Mean Temperature		44·7	41·8
Mean Temperature of Evaporation		42·6	39·7
Mean Temperature of Dew Point		39·5	38·1
Mean elastic force of Vapour	inches	0·247	0·231
Mean weight of Vapour in a cub. ft. of air, grains		2·8	2·7
Mean additional weight required for saturation ,,		0·6	0·4
Mean degree of Humidity (saturation 100)		82	87
Mean weight of a cubic foot of air	grains	537·8	544·6
Mean amount of Cloud (0—10)		7·0	7·4
Fall of Rain	inches	7·070	4·438
Greatest Rainfall in one day (11th)	,,	1·217	1·001
No. of days on which ·005 in. or more Rain fell ...		24	18·2

Wind :—Direction	N	NE	E	SE	S	SW	W	NW
No. of days.....	1	7	1	0	5	6	9	1
Mean Velocity in miles per hr.	9·8	4·6	3·2	0	15·9	13·3	19·4	7·1
Total No. of miles.....	236	772	77	0	1911	1916	4198	171

		Mean*
Total No. of miles registered	9281	7119·1
Greatest hourly velocity (23rd, at 0915 G.M.T., Dir. S.E.)	52	40·7

* *For the last* 61 *years.*

NOVEMBER, 1928.

DIFFERENCES.

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

Mean barometric pressure	—	0·162 in.
Monthly range ,, ...	—	0·029 in.
Mean of highest daily temperatures	+	2·4°
Mean of lowest ,, ,, ...	+	3·3°
Mean daily range	—	0·9°
Adopted mean temperature	+	2·9°
Total rainfall	+	2·632 in.

Ground Frost on 3rd, 4th, 9th, 10th, 28th and 29th. Hoar Frost on 3rd, 4th, 9th and 28th. Hail on 14th and 25th. Heavy Rain on 11th, 16th, 21st and 24th. Gales of Wind on 14th, 19th, 23rd, 24th and 25th. Fog on 29th.

EXTREME READINGS FOR NOVEMBER,
During 81 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, 1928.

Results of Observations taken during the Month		Mean for the last 81 years.
Mean Reading of the Barometer ..... inches	29·574	29·435
Highest ,, ,, on the 18th ... ,,	30·045	30·065
Lowest ,, ,, on the 10th ... ,,	29·858	28·541
Range of Barometer Readings ..... ,,	1·187	1·524
Highest Reading of a Max. Therm. on the 25th ...	52·8	52·7
Lowest Reading of a Min. Therm. on the 9th & 15th	23·5	21·5
Range of Thermometer Readings	29·3	31·2
Mean of Highest Daily Readings	42·4	43·4
Mean of Lowest Daily Readings	32·0	33·8
Mean Daily Range	10·0	9·6
Deduced Mean Temp. (from mean of Max. and Min.)	37·4	38·6
Mean Temperature from Dry Bulb	37·9	39·2
Adopted Mean Temperature	37·7	38·9
Mean Temperature of Evaporation	36·3	37·3
Mean Temperature of Dew Point	34·1	35·4
Mean elastic force of Vapour ..... inches	0·197	0·208
Mean weight of Vapour in a cub. ft. of air, grains	2·3	2·4
Mean additional weight required for saturation ,,	0·4	0·4
Mean degree of Humidity (saturation 100)	85	87
Mean weight of a cubic foot of air ..... grains	550·7	547·9
Mean amount of Cloud (0—10)	7·3	7·7
Fall of Rain ..... inches	3·148	4·656
Greatest Rainfall in one day (24th) ..... ,,	0·460	0·841
No. of days on which ·005 in. or more Rain fell...	20	21·1

Wind :—Direction.....	N	NE	E	SE	S	SW	W	NW
No. of days.....	0	5	4	0	5	3	7	7
Mean Velocity in miles per hr.	0	10·6	7·8	0	11·6	9·6	8·6	6·1
Total No. of miles.....	0	1266	750	0	1386	688	1443	1030

		*Mean
Total No. of miles registered	6563	7788·4
Greatest hourly velocity (25th, at 2100 G.M.T., Dir. S. by E.)	41	41·6

* *For the last* 61 *years.*

DECEMBER, 1928.

DIFFERENCES.

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

Mean barometric pressure	+	0·139 in.
Monthly range ,, ...	—	0·337 in.
Mean of highest daily temperature	—	1·0°
Mean of lowest ,, ,, ...	—	1·8°
Mean daily range	+	0·4°
Adopted mean temperature	—	1·2°
Total rainfall	—	1·508 in.

Ground Frost on 2nd, 4th, 8th, 9th, 11th, 14th, 15th, 18th, 21st, 23rd and 30th. Hoar Frost on 4th, 14th, 15th, 21st and 23rd. Snow on 6th, 7th, 11th and 31st. Hail on 7th and 29th. Gales of Wind on 25th. Fog on 1st, 2nd, 18th, 19th and 21st. Thunder on 7th. Lightning on 7th.

EXTREME READINGS FOR DECEMBER, During 81 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, 1928.

Results of Observations taken during the Year.		Mean for the last 81 Years.
Readings of Barometer in inches.		
Mean of the Year	29·460	29·492
Highest Monthly Mean (September)	29·692	29·742
Lowest ,, ,, (November)	29·301	29·224
Highest Reading (February 19th)	30·187	30·293
Lowest ,, (March 30th)	28·275	28·208
Range	1·912	2·085
Thermometer, Fahrenheit.		
Highest Monthly Mean Temperature (July)	56·5	58·6
Lowest ,, ,, ,, (December)	37·7	35·8
Highest Reading of a Max. Therm. (August 5th)	72·2	81·2
Lowest ,, Min. ,, (Dec. 9 & 15)	23·5	16·6
Range of Thermometer Readings	48·7	64·6
Mean of Highest Daily ,,	53·4	54·3
Mean of Lowest Daily ,,	42·0	41·1
Mean Daily Range	11·4	13·2
Deduced Mean Temp. (from Mean of Max. and Min.)	46·7	46·7
Mean Temperature from Dry Bulb	48·0	47·2
Adopted Mean Temperature of the Year	47·4	46·9
Mean Temperature of Evaporation	44·8	44·6
Mean Temperature of Dew Point	41·3	42·2
Mean elastic force of Vapour ... inches	0·266	0·275
Mean weight of Vapour in a cub. ft. of air...grns.	3·0	3·2
Mean additional weight required for saturation ,,	0·9	0·7
Mean degree of Humidity (saturation 100)	77	84
Mean weight of a cubic foot of air ... grns.	537·4	539·0
Mean amount of Cloud (0—10)	7·0	7·3
Total fall of Rain ... inches	60·344	47·501
Greatest Monthly Rainfall (January)	12·267	7·623
Least ,, ,, (May)	0·905	1·260
Greatest Rainfall in one day (January 12th)	1·610	1·653
No. of days per Month on which ·005 inch or more Rain fell	17·8	17·3

SUMMARY OF WIND, 1928.

Prevailing Direction	N	NE	E	SE	S	SW	W	NW
No. of days for each	19	64	22	15	51	108	68	19
Mean Velocity in miles per hour...	7·6	7·7	9·1	12·2	11·6	12·6	10·2	7·0
Total No. of miles for each Direction	3469	11782	4819	4405	14263	32756	16658	3207

		Mean for the last 61 years.
Total No. of miles registered	91359	85188·2
Greatest Monthly Total (January)	10544	9933·4
Least ,, ,, (September)	4757	4926·7
Greatest recorded hourly velocity (November 23)	52	50·3
Prevailing Direction of Wind	S.W.	W.

DIFFERENCES, 1928.

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

Mean barometric pressure	—	0·032 in.
Yearly range ,, ...	—	0·173 in.
Mean of highest daily temperatures	—	0·9°
Mean of lowest ,, ,, ...	+	0·9°
Mean daily range	—	1·8°
Adopted mean temperature	+	0·5°
Total rainfall	+	22·843 in.

ABSOLUTE EXTREMES

FOR THE LAST 81 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 81 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.

1928	Frost	Hoar Frost	Snow	Hail	Heavy Rain
January	1, 4, 27, 28	4	27	10, 19, 24	1, 4-7, 12, 18, 21, 23
February	4, 12, 20-22, 25-28	25	3, 10	1, 2, 10, 11	4, 10, 14, 15
March	2, 9-15, 29	15	9-13	29, 30	29
April	16-22		15, 16, 18	3, 18	
May	5, 9, 13			18	
June				11, 15	6 7, 9, 13, 28, 29
July					4
August				27	7, 11, 19, 20, 26, 27
September		30			
October	1, 13, 23	1, 13, 23		19, 20	10, 14, 16, 18, 29
November	3, 4, 9, 10, 28, 29	3, 4, 9, 28		14, 25	11, 16, 21, 24
December	2, 4, 8, 9, 11, 14, 15, 18, 21, 23, 30	4, 14, 15, 21, 23	6, 7, 11, 31	7, 29	

1928	Gales of Wind	Fog	Thunder	Lightning	Lunar Halo	Solar Halo	Aurora Borealis
January	1, 2, 6, 10, 21, 26	2, 3, 17, 19, 28				16	
February	7, 10, 11, 17	13, 14, 20, 22, 25	10	10	5		
March		5, 6, 14, 22, 26	18			26	
April		2	10, 11			8	
May						4, 8, 10	
June	9		6, 9, 26	6			
July							
August			7,11,12,13,24,26,27,29	11, 12, 24, 27, 29		17, 22, 30	
September		2, 12				2, 14	18
October	19, 20	5, 13, 16, 23, 29	9, 18	9, 18, 20			
November	14, 19, 23, 24, 25	29					
December	25	1, 2, 18, 19, 21	7	7			

MONTHLY TOTALS FOR EACH HOUR OF RECORDED SUNSHINE.

1928. 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 ...	...	...	...	...	0·7	3·4	6·3	7·1	6·8	6·2	5·3	1·3	...	...	...	...	...
February ...	...	...	...	0·4	4·8	8·0	8·1	7·7	6·6	8·1	8·6	5·2	0·1	...	...	...	...
March ...	...	...	...	1·7	6·2	7·7	8·3	8·8	9·9	9·5	10·0	9·1	7·0	1·4	...	...	...
April ...	...	1·6	4·9	8·6	10·5	12·6	11·7	13·1	12·6	14·2	14·7	14·4	12·8	5·3	0·6	...	...
May ...	1·3	6·7	8·7	11·9	13·7	14·6	14·8	13·7	12·7	13·2	13·7	13·6	13·4	12·5	8·6	1·2	...
June ...	6·0	11·4	13·3	13·1	13·6	13·4	13·1	13·4	13·3	13·4	11·7	13·0	11·5	9·9	7·4	3·8	...
July ...	0·2	5·6	11·6	14·1	12·7	14·8	17·7	18·4	18·1	16·7	17·0	16·7	15·1	14·2	12·0	6·4	...
August ...	...	0·9	5·4	11·2	15·6	16·0	15·7	15·0	14·1	13·6	12·7	11·4	10·1	9·4	3·6	...	...
September ..	...	...	2·3	10·3	14·0	17·5	17·8	15·5	16·4	15·2	15·9	13·6	9·3	3·8	0·3	...	...
October ...	...	...	0·2	3·1	9·9	11·6	11·8	11·3	11·7	11·0	8·9	9·1	3·8	0·1	...	...	...
November...	...	...	...	...	3·1	8·8	10·0	8·9	8·4	6·9	5·2	0·9	0·2	...	...	...	...
December ...	...	...	...	...	0·4	3·8	6·2	6·8	6·6	5·5	6·3	0·7	...	...	...	...	...
Sums ...	7·5	6·2	46·4	74·4	105·2	132·2	141·5	139·7	137·2	133·5	130·0	109·0	83·3	56·6	32·5	11·4	...

TOTAL AMOUNT OF SUNSHINE RECORDED ON EACH DAY.

1928	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
January ...	...	...	5·7	...	0·1	...	...	4·3	0·1	1·1	1·8	...	0·3	...	1·8	1·7	1·0
February ...	0·1	1·1	3·4	...	3·0	2·0	0·8	...	0·9	0·9	2·4	0·2	...	0·3	...	...	3·2
March ...	...	...	5·6	2·4	0·1	0·3	7·3	2·9	7·0	5·4	6·1	1·3	6·5	...	2·9	0·2	...
April ...	0·1	2·3	0·8	6·7	10·6	8·3	1·7	2·7	0·1	1·0	3·8	6·8	...	2·5	7·4	6·1	3·8
May ...	4·2	4·0	0·1	13·6	11·4	13·0	11·8	8·0	9·9	11·4	9·7	...	1·8	6·7	0·7	5·0	0·8
June ...	15·0	14·9	14·6	13·0	...	1·1	1·5	1·1	2·8	5·1	5·7	8·7	0·1	0·8	7·0	12·6	9·2
July ...	0·4	9·9	12·4	8·3	0·1	3·3	12·8	0·7	4·9	0·2	9·8	11·4	13·3	12·3	14·3	13·7	14·5
August ...	3·7	9·5	4·1	9·1	10·9	1·1	...	8·2	6·7	8·1	3·3	10·0	3·2	7·5	4·1	2·0	6·8
September ..	4·7	8·5	0·1	7·9	7·2	7·8	4·4	...	2·5	5·8	8·0	10·3	6·3	8·9	2·3	2·3	...
October ...	5·5	2·6	0·7	8·5	...	4·9	...	7·0	2·5	...	...	6·8	8·1	5·9	5·0	...	4·0
November...	2·4	0·5	6·7	3·5	3·8	...	1·3	5·8	5·2	...	...	0·2	1·5	...	0·7	...	3·2
December ...	3·0	...	0·1	...	4·6	...	3·2	6·7	...	...	...	...	...	6·1	..	...	1·0

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

1928	18	19	20	21	22	23	24	25	26	27	28	29	30	31	MONTHLY Total	MONTHLY Percen.
January ...	...	5·7	...	...	3·5	...	0·8	2·0	...	7·0	...	...	0·2	...	37·1	15·0
February ...	...	...	0·7	6·8	2·7	3·0	...	3·8	5·3	7·8	8·2	1·0	...	...	57·6	20·4
March ..	6·5	0·1	...	...	0·1	0·3	0·4	1·5	4·8	4·3	8·6	0·2	1·4	3·4	79·6	21·7
April ...	6·4	6·5	5·4	7·4	7·9	...	10·1	0·8	4·8	7·1	5·7	7·1	3·7	...	137·6	32·8
May ...	6·8	0·9	2·4	0·8	5·3	...	4·8	12·8	3·5	0·4	1·8	3·0	14·9	4·8	174·3	35·4
June ...	4·7	2·4	15·0	1·2	11·2	6·3	9·9	...	2·5	6·0	...	0·3	8·6	...	181·3	35·7
July ...	...	3·5	6·5	8·9	2·1	1·6	0·1	11·1	1·6	2·8	6·8	7·5	6·6	9·8	211·2	41·5
August ...	8·2	4·9	...	0·7	5·8	0·5	...	6·3	4·4	4·1	7·3	4·2	9·6	0·4	154·7	33·9
September ..	4·8	7·4	7·9	...	9·9	5·0	2·4	8·1	3·5	1·6	0·2	5·0	9·1	...	151·9	40·1
October ...	...	4·4	2·3	3·1	3·0	1·1	1·4	4·0	...	0·3	6·1	...	2·4	2·9	92·5	28·4
November..	3·0	...	0·5	...	...	0·2	0·2	0·1	4·2	5·2	3·9	...	0·3	...	52·4	20·5
December ..	...	...	4·8	...	...	...	...	0·8	1·6	...	...	...	...	4·4	36·3	15·7

SUMMARY OF SUNSHINE.

	Bright Sunshine Recorded					
	1928			Mean for the last 48 years		
	Number of		Percentage of Possible Sunshine	Number of		Percentage of Possible Sunshine
	Days	Hours		Days	Hours	
January ...	16	37·1	15·0	14·4	32·2	13·0
February ...	21	57·6	20·4	17·7	56·2	20·5
March ...	25	79·6	21·7	24·3	101·6	27·8
April ...	28	137·6	32·8	26·4	146·3	34·9
May ...	29	174·3	35·4	27·8	182·5	37·0
June ...	27	181·3	35·7	28·0	185·4	36·6
July ...	30	211·2	41·5	28·2	168·8	33·3
August ...	28	154·7	33·9	27·5	146·6	32·1
September ..	27	151·9	40·1	25·6	123·6	32·6
October ..	23	92·5	28·4	23·6	86·0	26·4
November .	21	52·4	20·5	18·0	47·6	18·6
December ..	11	36·3	15·7	13·7	26·7	11·7
Year ..	286	1366·5	30·5	275·3	1306·0	29·2

SUMMARY OF SUNSHINE—*Continued.*

EXTREMES FOR THE LAST 48 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).

1928.	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					
	14° +						14° +	14° +	
	′	′	′	′	′	′	′	′	′
January ...	22·9	17·5	19·5	20·7	20·1	9·3	31·3	8·3	23·0
February ...	23·8	16·2	18·0	21·4	19·8	12·1	29·6	2·6	27·0
March	21·5	13·7	16·5	18·7	17·6	14·4	38·9	-0·1	39·0
April	22·2	11·8	16·0	19·6	17·4	16·4	30·0	-1·0	31·0
May	20·9	9·3	13·5	17·7	15·4	17·9	35·7	-5·3	41·0
June	19·8	7·6	13·0	18·0	14·6	16·2	28·8	0·8	28·0
July	17·9	7·9	11·9	15·7	13·4	18·1	>47·1‡	<-27·9‡	>75·0‡
August ...	17·5	6·7	9·9	13·9	12·0	15·6	27·9	-12·1	40·0
September ...	17·0	6·4	10·0	13·4	11·7	18·4	32·4	-12·6	45·0
October ...	16·1	5·5	8·7	12·1	10·6	19·3	33·3	-28·7	62·0
November ...	12·4	7·4	9·0	11·4	10·1	14·8	28·2	-15·8	44·0
December ...	13·9	8·9	11·1	12·5	11·6	11·5	20·7	-20·3	41·0
Means	18·8	9·9	13·1	16·3	14·5	15·3	32·0	- 9·3	41·3

Mean for the year ... ... 14° 14′·5 W.

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

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.

1928	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 ...	226	206	219	220	218	36·5	273	146	127
February ...	223	200	215	213	213	45·8	257	159	98
March ...	219	191	213	205	207	53·7	239	99	140
April	238	192	225	225	220	70·0	287	155	132
May	240	176	219	214	212	110·9	400	8	392
June	243	182	219	230	219	93·3	317	48	269
July	225	171	201	205	201	110·0	613	<- 69 ‡	> 682 ‡
August ...	231	180	207	204	205	77·6	319	91	228
September ...	228	175	213	204	204	81·3	294	114	180
October ...	222	169	203	200	199	88·6	278	- 38	316
November ...	210	186	202	202	200	63·1	304	96	208
December ...	221	203	211	214	212	43·7	255	137	118
Means	227	184	212	211	209	72·9	320	79	241

Mean for the year ... ... ·17209 C. G. S. Units.

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

ABSOLUTE MEASURES—SUMMARY.

1928	DIRECTION		FORCE.		
	Declination Corrected	Inclination	Horizontal	Vertical	Total
	° ′	° ′	C. G. S. UNITS.		
	14 +	68 +	0·17000+	0·44000+	0·47000+
January ...	20·1	43·5	218	218	452
February ...	19·8	44·5	213	245	474
March ...	17·6	48·4	207	376	594
April	17·4	45·1	220	285	516
May	15·4	44·9	212	257	485
June	14·6	45·1	219	283	514
July	13·4	45·7	201	249	472
August ..	12·0	47·3	205	330	551
September ..	11·7	51·3	204	483	694
October ...	10·6	50·7	199	446	657
November ...	10·1	46·4	200	283	506
December ...	11·6	45·1	212	261	490
	° ′	° ′			
Means ...	14 14·5 W.	68 46·5	0·17209	0·44310	0·47534

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.

1928	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1928
D.													D.
1	m	s	c	s	c	m	s	s	s	s	s	m	1
2	c	s	c	s	c	s	m	c	m	m	g	c	2
3	c	s	c	m	c	m	m	s	m	s	g	c	3
4	s	s	c	m	c	s	m	m	s	s	m	c	4
5	s	s	c	s	m	m	m	g	s	m	s	g	5
6	c	c	c	m	s	s	s	m	s	s	s	m	6
7	s	s	s	m	s	m	g	s	m	m	s	s	7
8	c	c	s	m	s	m	v.g.	s	m	s	·	s	8
9	s	c	s	m	c	s	m	c	m	c	c	s	9
10	c	c	s	m	m	c	m	s	s	s	m	s	10
11	c	c	g	s	m	c	s	c	s	c	g	m	11
12	c	s	m	s	m	m	c	m	c	c	m	m	12
13	c	s	m	s	m	m	c	c	s	m	g	m	13
14	c	m	m	s	s	s	c	c	m	s	s	m	14
15	c	s	m	m	m	s	c	s	c	m	g	s	15
16	c	s	s	m	m	c	s	s	c	m	m	s	16
17	c	s	s	m	s	s	s	c	c	m	m	c	17
18	s	s	s	c	m	s	s	s	g	g	m	s	18
19	s	m	s	s	s	s	s	s	g	s	m	c	19
20	s	m	s	m	c	s	s	c	c	m	s	c	20
21	s	m	s	m	s	c	s	s	c	m	c	m	21
22	s	s	m	s	c	g	m	c	m	m	c	s	22
23	s	s	m	s	c	m	s	s	m	c	s	c	23
24	c	s	m	s	c	s	m	s	m	m	m	s	24
25	s	m	m	c	c	c	s	c	g	g	m	s	25
26	s	m	s	c	c	c	m	m	s	s	s	m	26
27	g	m	s	c	g	c	s	g	s	s	s	c	27
28	m	s	s	c	g	c	s	m	c	c	c	c	28
29	m	s	s	c	g	s	c	c	s	m	c	s	29
30	s		s	s	s	c	c	c	s	s	s	s	30
31	c		s		m		m	s		s		c	31
TOTAL c	14	5	6	6	11	9	6	11	7	5	5	10	
TOTAL s	13	17	16	12	8	12	13	13	11	12	10	12	
TOTAL m	3	7	8	12	9	8	10	5	9	12	9	8	
TOTAL g	1	0	1	0	3	1	1	2	3	2	5	1	
TOTAL vg	0	0	0	0	0	0	1	0	0	0	0	0	

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.

1928	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1928
D.													D.
1					8·5	6·8	9·3	9·2	3·2	8·1	2·0	4·5	1
2	n	5·5		5·0	10·6	6·6	9·1	8·9	2·8	4·2			2
3	7·6	4·3	3·5	n		5·2	7·6	8·3		1·7	2·9	n	3
4			3·3	9·3	16·7	4·3	9·2	8·1	2·4	1·7	4·4	n	4
5	5·1	2·1	n	10·8	14·1			7·0	1·9		7·1	16·3	5
6	n	0·8	5·7	11·6	14·2	5·8		4·6	1·8	2·9			6
7		0·8	6·7	11·1	15·1		7·5		2·8		8·8	13·0	7
8	4·5		8·8	n	12·8			6·9		5·9	10·7	12·4	8
9	3·2	0·6	7·0		12·3	3·4	14·8	6·8		7·3	8·7		9
10	2·6		10·9	11·6	10·0	1·9		8·3	11·6			n	10
11	5·2		10·0	13·3	5·6	0·5	15·3	6·4	10·9				11
12		1·7	9·6	11·8		0·0	14·8	6·4	12·1	10·8			12
13			8·2		1·2	0·1	14·9	5·4	10 9	9·6	7·9		13
14		n	n		0·8		16·2	4·3	9·1	7·9	n	4·7	14
15	3·5		12·6	5·7	0·3	2·9	16·8	3·3	9·1	6·7	3·0	2·7	15
16	3·9		12·8	5·3	0·2	2·7	21·6	3·0	8·8				16
17	4·8	9·2		3·8	0·1	5·6	17·1	2·3		6·3	5·9	4·3	17
18			15·9	3·0	0·1	5·4		1·7	7·3		4·7		18
19	7·5			2·9	00 ns	8·0	12·6	2·2	10·6	6·7			19
20		11·0		2·6	ns 00	7·8	12·2		13·7	4·8	1·9	1·0	20
21		9·6	n	2·4	0·1		9·1	n	n	6·0		0·4	21
22	7·9	9·2	n	2·0	0·4	5·7		9·5	17·6	8·1	0·5		22
23		7·4	n			6·6	n	11·5	19·4	8·1		0·2	23
24	11·8		4·2	2·8	1·0	10·6			25·9	n			24
25	12·3	6·6	3·2	3·3	1·4		2·8	12·8	30·4	5·1		0·0	25
26	n	6·4	3·0	4·3	1·6	16·5	2·6	12·3	29·2		0·2	0·8	26
27	12·2	9·5	3·4	5·6	n		4·1	8·8	24·2	3·0	0·5		27
28		11·0	3·8	6·4	7·2		4·3	8·8		2·9	0·6		28
29		9·3		6·3	9·2		6·6	8·1	16·5				29
30	11·2		4·3	6·1	9·7	11·0	9·6	5·9	11·5	2·5			30
31	n		4·0		7·4		11·0	3·8		2·7		4·6	31
Daily Means	6·9	6·2	7·1	6·4	5·9	5·6	10·8	6·8	12·2	5·6	4·5	6·2	

SUN-SPOT STATISTICS, 1928.

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. 3— 8 ...	—13·3	20·9	0·4	I, g.	Ja. 4·7
2	,, 2— 8 ...	— 9·2	355·7	0·3	I, s.	,, 6·6
3	,, 3— 8 ...	+ 9·8	348·3	0·1	I, g.	,, 7·2
4	,, 3—11 ...	—17·4	326·8	1·5	I, IV, s.	,, 8·8
5	,, 5—10 ...	+ 9·8	14·4	0·7	I, g.	,, 5·2
6	,, 6—16 ...	+ 8·6	294·4	1·5	IV, g.	,, 11·3
7	,, 8—11 ...	— 7·6	332·4	0·4	I, g.	,, 8·4
8	,, 8	— 6·9	314·4	0·0	I, s.	,, 9·9
9	,, 8—11 ...	— 9·6	256·3	0·0	I, s.	,, 14·2
10	,, 10—19 ...	—12·5	272·9	2·5	I, III, g.	,, 12·9
		—10·4	277·5		ps.	,, 12·6
11	,, 10—15 ...	+16·5	231·3	0·1	I, s.	,, 16·1
12	,, 15—19 ...	+15·3	197·8	0·8	I, g.	,, 18·6
13	,, 16—17 ...	—17·1	210·4	0·1	I, g.	,, 17·7
14	,, 16—27 ...	+15·2	145·6	6·6	III, g.	,, 22·6
		+15·1	151·7		ps.	,, 22·1
		+15·7	138·1		fg.	,, 23·2
15	,, 19	—19·0	147·2	0·1	I, s.	,, 22·5
16	,, 19—30 ...	+ 5·7	111·7	3·2	IV, g.	,, 25·2
17	,, 22	—16·2	203·4	0·0	I, g.	,, 18·2
18	,, 24—31 ...	+ 8·1	100·5	2·1	III, g.	,, 26·0
19	,, 24—26 ...	— 9·3	152·3	0·7	I, g.	,, 22·1
20	,, 24—Feb. 5	— 7·5	35·9	3·4	IV, s.	,, 30·9

SUN-SPOT STATISTICS. 1928—*Contd.*

No. of Group	Date	Mean Latitude o	Mean Longitude o	Max. Area	Mean Type	Central Meridian
21	Jan. 24—30 ...	—15·2	45·5	0·5	I, g.	Ja. 30·2
22	,, 24—Feb. 5	—21·4	44·8	4·2	IV, s.	,, 30·2
23	,, 24—27 ...	—27·4	47·5	0·1	I, g.	,, 30·0
24	,, 25—30 ...	—21·5	70·0	0·2	I, g.	,, 28·3
25	,, 30—Feb. 2	—11·8	74·5	0·7	I, s.	,, 28·0
26	Feb. 2— 7 ...	+ 7·4	303·9	0·2	I, g.	Fy. 6·9
27	,, 2— 9 ...	—12·4	284·1	0·8	II, g.	,, 8·4
		—12·3	288·8		p.	,, 8·0
		—12·2	279·5		f.	,, 8·8
28	,, 2	—13·3	13·3	0·2	I, g.	,, 1·6
29	,, 3	+ 0·9	60·2	0·0	I, s.	Ja. 29·1
30	,, 3	+13·6	341·5	0·1	I, g.	Fy. 4·0
31	,, 3	—16·6	314·1	0·1	I, g.	,, 6·1
32	,, 5— 9 ...	—20·5	269·6	0·1	I, g.	,, 9·5
33	,, 6— 9 ...	—22·9	251·6	0·1	I, g.	,, 10·9
34	,, 7	+18·8	240·0	0·0	I, s.	,, 11·7
35	,, 9	—24·0	281·6	0·1	I, g.	,, 8·6
36	,, 12—14 ...	+10·9	272·4	0·4	IV, g.	,, 9·3
		+11·2	274·7		p.	,, 9·1
37	,, 12—17 ...	+15·8	209·1	1·4	IV, g.	,, 14·1
		+15·7	212·4		p.	,, 13·8
38	,, 17—23 ...	— 9·9	159·0	1·5	IV, s.	,, 17·9
39	,, 17—23 ...	—17·4	151·7	2·2	III, g.	,, 18·5
		—17·8	156·6		p.	,, 18·1
40	,, 17—23 ...	+20·0	137·2	0·3	I, g.	,, 19·6
40a	,, 20	+18·7	151·7	0·0	I, s.	,, 18·5
41	,, 17	—21·9	134·9	0·0	I, s.	,, 19·7
42	,, 17	+19·2	124·3	0·3	I, g.	,, 20·5
43	,, 17—27 ...	+ 5·0	112·1	6·7	V, IV, g.	,, 21·5
		+ 6·5	110·8		s.	,, 21·6
44	,, 20—29 ...	—12·7	59·2	5·5	IV, V, g.	,, 25·5
		—12·4	57·9		s.	,, 25·6
		—12·5	64·3		ps.	,, 25·1
45	,, 20—29 ...	—19·9	40·4	0·8	IV, s.	,, 26·9
46	,, 20—26 ...	—23·8	123·8	0·9	I, g.	,, 20·6
47	,, 21—Mar. 4	— 9·0	37·7	1·3	V, s.	,, 27·1
48	,, 22—23 ...	+11·9	129·4	0·1	I, g.	,, 20·2

SUN-SPOT STATISTICS, 1928—*Contd.*

No. of Group	Date.	Mean Latitude o	Mean Longitude o	Max. Area	Mean Type	Central Meridian
49	Feb. 25—29 ...	—27·1	71·9	0·3	I, g.	F. 24·5
50	,, 25—Mar. 7	—18·8	340·4	0·7	I, g.	Mr. 2·5
51	,, 27— ,, 3	— 5·3	52·1	1·7	IV, g.	F. 26·0
52	,, 27— ,, 9	— 6·0	323·6	2·6	IV, s.	Mr. 3·7
53	Mar. 4—13 ...	+ 7·7	271·4	7·6	III, V, g.	,, 7·7
		+ 5·4	276·7		p.	,, 7·3
		+ 7·0	267·6		f.	,, 8·0
54	,, 4—15 ...	+15·3	238·7	1·7	III, g.	,, 10·2
		+13·8	243·5		p.	,, 9·8
55	,, 6—16 ...	— 8·9	222·3	1·7	I, IV, g.	,, 11·4
		— 9·0	224·7		s.	,, 11·3
56	,, 7— 9 ...	+26·5	298·5	0·8	I, g.	,, 5·7
57	,, 7— 8 ...	— 8·3	333·3	0·1	I, g.	,, 3·0
58	,, 8—10 ...	—14·5	201·3	0·3	I, s.	,, 13·0
59	,, 9—18 ...	—19·8	160·1	2·3	IV, s.	,, 16·2
60	,, 12—16 ...	—17·7	220·7	0·5	I, IV, s.	,, 11·6
61	,, 12—24 ...	—23·0	130·8	3·2	III, g.	,, 18·4
		—23·0	133·2		p.	,, 18·2
		—22·2	127·2		f.	,, 18·6
62	,, 13	+12·7	165·4	0·0	I, g.	,, 15·7
63	,, 13—25 ...	+ 8·3	110·6	4·6	IV, s.	,, 19·9
64	,, 14—24 ...	+14·2	122·7	5·6	II, IV, g.	,, 19·0
		+14·0	127·0		p.	,, 18·7
		+15·5	117·7		f.	,, 19·4
65	,, 15—18 ...	—15·1	136·7	1·2	I, g.	,, 17·9
66	,, 18	+15·0	184·5	0·0	I, s.	,, 14·3
67	,, 18	—13·9	149·3	0·3	I, g.	,, 17·0
67a	,, 21—22 ...	—13·5	155·1	0·0	I, s.	,, 16·5
68	,, 18	— 5·9	59·9	0·0	I, s.	,, 23·7
69	,, 23—28 ...	+18·8	7·6	0·9	I, g.	,, 27·7
70	,, 23—Apl. 4	—10·9	347·8	1·2	IV, s.	,, 29·2
71	,, 23— ,, 2	—13·4	336·2	1·5	V, I, g.	,, 30·1
72	,, 25—28 ...	—19·1	328·2	0·4	I, g.	,, 30·7
73	,, 25	— 8·9	44·8	0·0	I, g.	,, 24·9
74	,, 25—28 ...	— 2·4	326·5	0·9	I, s.	,, 30·8
75	,, 27	—16·4	69·8	0·0	I, s.	,, 23·0
76	,, 27—Apl. 5	+ 6·1	295·1	0·5	IV, I, s.	Ap. 2·2

SUN-SPOT STATISTICS, 1928—*Contd.*

No. of Group	Date	Mean Latitude °	Mean Longitude °	Max Area	Mean Type	Central Meridian
77	Mar. 28— ,, 7	+21·1	287·0	1·6	IV, s.	Ap. 2·8
78	,, 30— ,, 8	+ 9·9	271·6	0·5	III, IV, s.	,, 4·0
78a	April 2— 7 ...	+ 7·1	280·7	1·1	IV, s.	,, 3·3
78b	,, 2— 8 ...	+ 6·4	274·4	1·7	IV, s.	,, 3·8
79	Mar. 31—Apl. 2	+19·5	243·6	0·0	I, s.	,, 6·1
80	April 2— 4 ...	+ 5·4	287·2	0·1	I, g.	,, 2·8
81	,, 2—12 ...	— 9·1	229·5	0·8	IV, s.	,, 7·2
82	,, 2—15 ...	—15·1	202·0	6·8	IV, III, g.	,, 9·3
		—16·8	207·3		p.	,, 8·9
83	,, 3— 8 ...	—25·5	209·5	0·7	I, g.	,, 8·7
84	,, 4—12 ...	+14·9	197·6	1·0	IV, s.	,, 9·6
84a	, 15—16 ...	+17·8	177·8	0·2	I g.	11·1
85	, 5— 7 ...	+13·5	250·5	0·2	I, g.	,, 5·6
86	,, 5	—15·8	266·1	0·0	I, s.	,, 4·4
87	,, 6—16 ...	—15·9	154·1	0·9	IV, s.	,, 12·9
88	,, 8—18 ...	+13·7	129·7	1·9	V, I, g.	,, 14·7
89	,, 10—21 ...	+ 8·2	112·1	2·2	IV, s.	,, 16·1
90	,, 10—12 ...	—18·3	138·1	0·3	I, g.	,, 14·1
91	,, 10—21 ...	— 9·4	111·0	2·6	III, IV, g.	,, 16·2
		— 8·4	116·8		p.	,, 15·7
		—10·9	103·9		f.	,, 16·7
92	,, 12	—16·3	168·0	0·0	I, s.	,, 11·8
93	,, 16—17 ...	—11·4	47·8	0·1	I, s.	,, 20·9
94	,, 19—21 ...	— 8·4	62·2	0·1	I, g.	,, 19·8
95	,, 19—May 1	—12·2	345·8	2·3	IV, s.	,, 25·6
96	,, 22—27 ...	+ 8·1	332·1	0·2	I, g.	,, 26·7
96b	,, 26	+16·8	323·1	0·0	I, g.	,, 27·4
97	,, 24—May 6	—16·9	273·8	3·8	IV, g.	My. 1·1
		—14·2	283·4		p.	Ap. 30·4
		—19·3	264·2		f.	My. 1·8
98	,, 27— ,, 9	+ 8·5	242·8	4·3	III, IV, g.	,, 3·4
		+ 8·7	248·2		p.	,, 3·0
99	,, 28	—14·0	25·1	0·0	I, s.	Ap. 22·7
100	,, 29—Ap. 30	—13·2	257·3	0·1	I, g.	My. 2·3
101	,, 29—My. 2	+21·9	236·8	0·4	I, g.	,, 3·9
102	,, 29	—22·9	232·8	0·0	I, s.	,, 4·2

SUN-SPOT STATISTICS, 1928—*Contd.*

No. of Group	Date	Mean Latitude °	Mean Longitude °	Max. Area	Mean Type	Central Meridian
103	April 30— ,, 11	—13·9	204·6	3·2	III, IV, g.	My. 6·3
		—12·6	211·3		p.	,, 5·8
		—13·6	200·9		f.	,, 6·6
104	May 1— 4 ...	—19·5	293·8	0·2	I, g.	Ap. 29·6
105	,, 1—10 ...	—21·5	232·1	3·3	I, III, g.	My. 4·2
		—21·9	235·9		p.	,, 3·9
106	,, 1—14 ...	—14·4	178·2	8·9	III, g.	,, 8·3
		—12·2	186·5		p.	,, 7·7
		—16·8	170·9		f.	,, 8·9
107	,, 6—11 ...	+21·9	141·1	0·4	I, g.	,, 11·1
108	,, 7—11 ...	+ 7·8	112·8	0·3	I, s.	,, 13·3
109	,, 7	—13·0	239·9	0·0	I, s.	,, 3·6
110	, 9—15 ...	—11·4	150·1	0·4	I, g.	,, 10·4
111	,, 13—18 ...	—12·7	28·3	0·5	I, g.	,, 19·7
112	,, 16—18 ...	—12·3	1·4	0·0	I, g.	,, 21·7
113	,, 21—June 2	—19·4	292·2	1·7	IV, III, p.	,, 26·9
		—16·6	283·5		s.f.	,, 27·6
114	,, 22— ,, 2	+12·3	280·8	1·6	I, g.	,, 27·8
115	,, 24— ,, 3	+ 7·9	251·9	0·5	I, s.	,, 30·0
116	,, 25	—15·6	268·0	0·0	I, s.	,, 28·7
117	,, 26— ,, 6	—10·6	223·1	1·1	I, g.	Jn. 1·1
		—10·6	228·4		pg.	My. 31·7
		—10·6	218·2		fg.	Jn. 1·5
118	,, 27— ,, 6	—13·0	199·5	3·8	V, g.	,, 2·9
119	,, 28— ,, 9	+ 7·5	195·0	2·3	IV, s.	,, 3·3
120	,, 29— ,, 4	+ 9·1	212·5	0·8	I, g.	,, 1·9
		+10·5	209·3		f.	,, 2·2
121	,, 29— ,, 6	—16·2	182·3	0·8	IV, I, s.	,, 4·2
122	,, 30— ,, 4	—19·6	207·1	0·1	I, g.	,, 2·3
123	June 2— ,, 11	+ 9·4	169·2	2·7	I, III, g.	,, 5·2
		+ 8·0	171·4		ps.	,, 5·0
		+ 7·7	164·6		fs.	,, 5·6
124	,, 2— 3 ...	+15·4	136·5	0·0	I, g.	,, 7·7
125	,, 6—11 ...	+18·3	154·1	0·8	IV, I, s.	,, 6·3
126	,, 9—13 ...	—10·4	65·5	0·4	I, g.	,, 13·0
127	,, 13—23 ...	+12·2	10·1	3·9	III, IV, g.	,, 17·2
		+12·4	13·1		p.	,, 17·0

SUN-SPOT STATISTICS, 1928 -*Contd.*

No. of Group	Date	Mean Latitude ° ′	Mean Longitude °	Max Area	Mean Type	Central Meridian
128	June 15—22 ...	—14·6	11·9	2·6	II, IV, g.	Jn. 17·1
		—15·0	10·5		p.	,, 17·2
		—16·0	7·5		f.	,, 17·4
129	,, 16—26 ...	+11·2	29?·6	3·5	IV, g.	,, 23·0
		+ 9·2	293·2		s.	,, 23·0
129a	,, 22—23 ...	+ 9·9	281·7	0·1	I, g.	,, 23·9
129b	,, 22—26 ...	+14·4	273·1	0·4	I, g.	,, 24·6
130	,, 19—23 ...	+18·2	5·9	0·5	I, g.	,, 17·5
131	,, 19—22 ...	+ 7·1	2·9	0·4	I, g.	,, 17·8
132	,, 22—July 3	—11·9	233·5	1·7	IV, s.	,, 27·6
133	,, 23— ,, 1	+ 8·3	247·9	1·3	I, g.	,, 26·5
		+ 8·2	250·5		s.	,, 26·3
134	,, 23— ,, 3	+11·3	224·1	1·1	I, II, g.	,, 28·3
135	,, 23— ,, 4	+17·1	201·4	6·0	IV, I, g.	,, 30·0
		+17·4	198·5		s.	,, 30·2
136	,, 23— ,, 4	—19·1	215·6	6·0	IV, s.	,, 28·9
137	,, 24—26 ...	+ 4·2	258·0	0·1	I, g.	,, 25·7
138	,, 26—July 4	+ 8·0	173·1	0·5	I, s.	Jy. 2·1
139	,, 30— ,, 1	+18·7	159·4	0·2	I, g.	,, 3·1
140	,, 30— ,, 3	+ 5·7	156·9	0·3	I, g.	,, 3·3
141	July 1—13 ...	—27·2	101·9	5·8	IV, III, g.	,, 7·5
		—26·3	105·2		s.	,, 7·2
142	,, 1— 3 ...	—11·4	219·3	0·1	I, g.	Jn. 28·6
143	,, 2	+15·5	179·1	0·0	I, s.	Jy. 1·7
144	,, 3	—13·1	191·8	0·1	I, g.	Jn. 30·7
145	,, 4	—16·3	110·4	0·3	I, s.	Jy. 6·8
146	,, 7—17 ...	+ 6·2	42·7	4·5	II, III, p.	,, 12·0
		+ 8·1	36·6	6·6	f.	,, 12·4
147	7—13 ...	—10·9	36·9	1·6	II, I, p.	,, 12·4
		—10·2	32·6		f.	,, 12·7
148	7—20 ...	+13·5	13·4	2·6	IV, s.	,, 14·2
149	12—16 ...	— 4·5	33·7	0·5	I, g.	,, 12·6
150	12—23 ...	—19·7	328·7	9·5	III, g.	,, 17·6
		—17·9	333·6		p.	,, 17·2
		—22·7	321·7		f.	,, 18·1
151	13—25 ...	+ 9·0	296·5	6·5	III, g.	,, 20·0
		+ 8·3	305·3		ps.	,, 19·3
		+ 8·9	294·1		fs.	,, 20·2

SUN-SPOT STATISTICS, 1928—*Contd.*

No. of Group	Date	Mean Latitude ○	Mean Longitude ○	Max Area	Mean Type	Central Meridian
152	July 15	—14·5	320·9	0·1	I, s.	Jy. 18·1
153	15	—25·6	306·9	0·0	I, s.	19·2
154	17—20 ...	—11·2	290·4	0·1	I, g.	,, 20·5
155	,, 19—20 ...	+ 7·4	349·7	0·1	I, g.	,, 16·0
156	,, 19—20 ...	+ 3·4	340·5	0·1	I, g.	,, 16·7
157	,, 19—28 ...	+17·0	274·8	0·5	I, IV, g.	,, 21·6
		+15·0	270·1		s.	,, 22·0
158	,, 20—Aug. 1	+13·9	206·2	1·4	IV, s.	,, 26·8
159	,, 21	—31·0	313·9	0·0	I, s.	,, 18·7
160	,, 21—23 ...	—19·7	211·3	0·0	I, s.	,, 26·4
161	,, 23—25 ...	—20·2	293·3	0·5	I, s.	,, 20·2
162	,, 25—Aug. 3	+ 6·1	169·8	0·6	I, g.	,, 29·6
163	,, 25— ,, 5	—20·4	146·2	2·3	V, I, g.	,, 31·4
		—20·0	151·0		p.	,, 31·0
164	,, 27— ,, 6	+14·6	139·2	8·2	V, IV, g.	,, 31·9
		+14·1	143·1		p.	,, 31·6
		+15·5	134·5		f.	Au. 1·2
165	,, 29— ,, 6	+ 7·5	100·2	1·2	IV, V, pg.	,, 3·8
166	,, 29— ,, 9	—16·1	103·4	0·6	I, g.	,, 3·6
		—15·9	107·6		s.	,, 3·3
166a	Aug. 5— 9 ...	—13·5	94·7	0·1	I, g.	,, 4·3
167	July 29—Aug. 3	—25·5	99·0	0·1	I, s.	,, 3·9
168	,, 31— ,, 6	+11·5	111·4	0·1	I, g.	,, 3·0
169	Aug. 2—14 ...	+ 6·5	48·7	3·2	II, p.	,, 7·7
		+ 8·6	40·7		f.	,, 8·3
170	,, 3— 5 ...	— 3·5	74·6	0·2	I, g	,, 5·8
171	,, 4	—10·7	50·0	0·0	I, g	,, 7·6
172	,, 4—15 ...	—16·0	19·8	5·0	II, III, g	,, 9·9
		—14·9	24·8		p	,, 9·5
		—17·5	14·7		f	,, 10·3
173	,, 4— 5 ...	+14·7	14·7	0·0	I, s	,, 10·3
174	,, 8—16 ...	—17·2	343·2	0·2	I, g	,, 12·7
175	,, 9—10 ...	+19·9	35·6	0·2	I, g	,, 8·7
176	,, 10—22 ...	+ 3·8	298·0	1·8	IV, s	,, 16·1
177	,, 11—13 ...	+23·5	325·1	0·1	I, g	,, 14·1
178	,, 11—19 ...	—17·6	303·6	0·3	I, g	,, 15·7
179	,, 12—15 ...	+20·4	298·2	0·3	I, g	,, 16·1

SUN-SPOT STATISTICS, 1928—*Contd.*

No. of Group	Date	Mean Latitude °	Mean Longitude °	Max Area	Mean Type	Central Meridian
180	Aug. 12—19 ...	+ 7·7	285·6	0·9	I, g.	Au. 17·0
181	,, 13—14 ...	— 9·8	291·0	0·0	I, g.	,, 16·6
182	,, 14	+ 8·6	313·1	0·0	I, g.	,, 15·0
183	,, 14—17 ...	—15 3	6·9	0·6	II, p.	,, 10·9
		—14·9	1·8		f.	,, 11·3
184	,, 14—15 ...	+ 9·0	260·7	0·0	I, g.	,, 18·9
185	,, 15—27 ...	—13·6	227·2	5·9	I, III, g.	,, 21·5
		—14·6	231·0		s_1	,, 21·2
		—10·7	228·9		s_2	,, 21·3
186	,, 18—29 ...	+ 5·2	183·1	1·5	IV, I, s.	,, 24·8
187	,, 22—29 ...	— 9·1	167·1	1·4	IV, I, s.	,, 26·0
188	,, 22—Sept. 2	+14·5	143·2	2·2	IV, s.	,, 27·8
189	,, 21— ,, 1	—20·4	151·1	1·3	IV, s.	,, 27·2
190	,, 23— ,, 2	+17·7	127·1	4·0	III, II, g.	,, 29·0
		+16·3	130·4		p.	,, 28·8
191	,, 25— ,, 4	+ 5·6	105·3	0·9	IV, s.	,, 30·7
192*	,, 25— ,, 2	—13·9	102·5	0·5	I, g.	,, 30·9
193	,, 26	+16·6	215·8	0·0	I, s.	,, 22·3
194	,, 27	+19·7	200·5	0·0	I, s.	,, 23·5
195	,, 27—28 ...	—15·2	141·1	0·1	I, g.	,, 28·0
196	,, 27—28 ...	+23·5	74·4	0·1	I, g.	Sep. 2·0
197	,, 28	— 8·6	94·5	0·0	I, s.	Au. 31·5
198	,, 29—Sept. 1	+18·3	48·7	0·1	I, p.	Sep. 4·0
		+20·2	39·6		f.	,, 4·7
199	,, 29— ,, 7	+ 7·8	46·6	0·8	IV, s.	,, 4·1
200	Sept. 1— 2 ...	—14·3	27·6	0·1	I, s.	,, 5·6
201	,, 1—12 ...	—13·0	9·1	0·4	IV, I, s.	,, 7·0
202	,, 2— 6 ...	— 7·2	96·7	0·7	I, g.	Au. 31·3
203	,, 4	+13·3	110·9	0·2	I, g.	,, 30·3
204	,, 4— 7 ...	— 0·9	70·3	0·2	I, g.	Sep. 2·3
205	,, 4— 7 ...	—15·4	341·5	0·3	I, g.	,, 9·1
206	,, 4— 5 ...	+ 7·3	79·7	0·1	I, s.	,, 1·6
207	,, 5— 7 ...	+19·8	30·2	0·2	I, g.	,, 5·4
208	,, 6—19 ...	+14·4	292·4	9·1	IV, III, g.	,, 12·8
		+13·8	297·9		ps.	,, 12·3
209	,, 10—16 ...	+ 7·0	318·9	2·8	II, p.	,, 10·8
		+ 8·6	308·7		f.	,, 11·5

*192—Not visible on August 31 and September 1st.

SUN-SPOT STATISTICS, 1928—*Contd.*

No. of Group	Date	Mean Latitude °	Mean Longitude °	Max Area	Mean Type	Central Meridian
210	Sept. 11—22 ...	—10·3	232·9	2·2	IV, s.	Sep. 17·3
211	,, 12	+12·4	328·1	0·1	I, g.	,, 10·1
212	,, 18—20 ...	+17·3	263·6	0·3	I, p.	,, 15·0
213	,, 18—30 ...	+15·4	132·6	11·4	III, g.	,, 24·9
		+15·7	142·2		s_1	,, 24·2
		+14·0	134·6		s_2	,, 24·7
		+15·6	122·6		s_3	,, 25·6
214	,, 18—30 ...	—17·1	143·6	5·4	III, g.	,, 24·0
		—16·0	154·0		s_1	,, 23·3
		—17·4	143·0		s_2	,, 24·1
		—20·2	133·5		s_3	,, 24·8
215	,, 21—Oct. 3	—15·2	98·9	18·5	V, II, g.	,, 27·4
216	,, 26—27 ...	— 6·3	88·2	0·1	I, p.	,, 28·2
217	,, 27—Oct. 4	+19·1	32·1	0·9	I, g.	Oc. 2·5
218	,, 29— ,, 1	—12·9	60·1	0·1	I, s.	Sep. 30·4
219	Oct. 1— 4 ...	—15·8	44·8	1·2	I, g.	Oc. 1·5
220	,, 2— 4 ...	+15·8	330·2	0·2	I, p.	,, 7·2
221	,, 2— 4 ...	—14·3	327·5	0·1	I, s.	,, 7·4
222	,, 3—15 ...	+14·0	302·3	3·2	II, p.	,, 9·3
		+13·3	294·5		f.	,, 9·9
223	,, 6— 9 ...	— 4·3	277·9	0·3	I, p.	,, 11·2
		— 4·0	269·6		f.	,, 11·8
224	,, 6—17 ...	+18·7	259·7	2·0	IV, s.	,, 12·5
225	,, 8	—16·2	347·1	0·1	I, g.	,, 5·9
226	,, 8— 9 ...	—13·2	318·6	0·2	I, g.	,, 8·1
227	,, 8—19 ...	+ 8·0	246·6	6·8	III, II, g.	,, 13·5
		+ 9·8	251·3		p.	,, 13·2
		+ 6·5	243·1		f.	,, 13·8
228	,, 12—15 ...	+ 9·7	271·3	0·6	I, g.	,, 11·7
229	,, 12—13 ...	— 7·7	224·3	0·0	I, s.	,, 15·2
230	,, 13	—15·5	249·5	0·1	I, g.	,, 13·3
231	,, 14—20 ...	+13·2	219·5	2·2	I, V, g.	,, 15·6
232	,, 14—19 ...	—17·5	165·1	0·3	I, g.	,, 19·7
233	,, 15—28 ...	+14·9	132·4	7·7	III, g.	,, 22·1
		+16·2	138·0		s_1	,, 21·8
		+13·1	137·8		s_2	,, 21·8
		+15·8	126·8		s_3	,, 22·6

SUN-SPOT STATISTICS, 1928—*Contd.*

No. of Group	Date	Mean Latitude °	Mean Longitude °	Max Area	Mean Type	Central Meridian
234	Oct. 19—23 ...	— 8·9	133·7	0·6	I, g.	Oc. 22·1
		— 8·6	141·7		p.	,, 21·5
234a	,, 23—25 ...	—13·6	138·7	0·1	I, g.	,, 21·7
235	,, 20	—15·3	111·8	0·0	I, s.	,, 23·7
236	,, 23—Nov. 3	— 9·5	49·2	2·6	IV, s.	,, 28·5
237	,, 25	+16·1	38·7	0·0	I. d. s.	,, 29·3
238	,, 30—Nov. 3	—13·6	11·4	0·4	I, g.	,, 31·4
239	,, 30— ,, 9	+13·5	319·6	1·2	I, s_1	No. 4·3
		+14·9	301·5		IV, s_2	,, 5·7
240	,, 31— ,, 1	+17·9	54·9	0·3	I, g.	Oc. 28·1
241	,, 31— ,, 1	+14·6	335·0	0·2	I, g.	No. 3·1
242	Nov. 3— 9 ...	+ 7·4	283·0	0·1	I, s.	,, 7·1
		+12·6	278·6		I, g.	,, 7·4
243	,, 3—13 ...	+20·4	255·7	0·4	I, s.	,, 9·1
244	,, 3—15 ...	—15·2	256·0	7·6	II, p.	,, 9·1
		—15·6	241·4		fg.	,, 10·2
245	,, 4	—12·9	332·9	0·1	I, g.	,, 3·3
246	,, 5—15 ...	+12·8	227·4	2·1	IV, s.	,, 11·3
247	,, 9—15 ...	+ 9·2	242·8	2·4	IV, g.	,, 10·1
		+ 9·7	247·3		p.	,, 9·8
		+ 8·1	239·1		f.	,, 10·4
248	,, 13—20 ...	—14·2	167·8	1·8	IV, g.	,, 15·8
		—16·3	171·0		s.	,, 15·6
249	,, 13—22 ...	+15·5	139·4	1·3	IV, g.	,, 18·0
		+15·6	137·5		s.	,, 18·1
250	,, 13—18 ...	—13·5	125·7	0·3	I, g.	,, 19·0
251	,, 17—20 ...	+12·2	174·5	2·6	IV, I, g.	,, 15·3
		+11·0	179·3		p.	,, 14·9
		+12·0	170·3		f.	,, 15·6
252	,, 18—20 ...	+18·2	60·4	0·1	I, s.	,, 23·9
253	,, 20	—11·6	73·6	0·2	I, p.	,, 22·9
		—12·3	65·3		f.	,, 23·6
254	,, 26—28 ...	+22·2	78·2	0·3	I, g.	,, 22·6
255	,, 26	+22·0	323·3	0·1	I, s.	De. 1·3
256	,, 27—28 ...	—13·1	39·8	0·3	I, g.	No. 25·5
257	,, 28—Dec. 1	+13·9	292·0	0·1	I, s.	De. 3·7

SUN-SPOT STATISTICS, 1928—*Contd.*

No. of Group	Date	Mean Latitude °	Mean Longitude °	Max Area	Mean Type	Central Meridian
258	Nov. 30— ,, 10	+ 8·3	266·6	12·0	III, V, g.	De. 5·6
		+ 8·5	271·7		p.	,, 5·2
		+ 7·6	260·9		f_1	,, 6·1
		+11·7	249·5		f_2	,, 6·9
		+12·1	244·3		f_3	,, 7·3
		+13·0	229·3		f_4	,, 8·4
259	Nov. 30—Dec 10	—16·1	256·9	1·7	IV, s.	,, 6·4
260	Dec. 3— 5 ...	+20·7	307·4	0·1	I, s.	,, 2·5
261	,, 4—14 ...	—10·9	236·9	4·7	II, III, g.	,, 7·9
		—10·3	239·8		p.	,, 7·7
		—11·6	234·2		f.	,, 8·1
262	,, 7—17 ...	+14·9	179·4	2·2	I, V, g.	,, 12·2
263	,, 7—17 ...	—10·2	175·3	0·6	IV, s.	,, 12·5
265	,, 10—14 ...	+14·2	136·0	0·1	I, g.	,, 15·5
265	,, 14	—14·1	187·1	0·2	I, g.	,, 11·7
266	,, 14—15 ...	—14·2	147·1	0·1	I, s.	,, 14·7
267	,, 14—15 ...	+ 4·8	136·0	0·2	I, g.	,, 15·5
268	,, 14—21 ...	+14·7	114·0	1·8	IV, s.	,, 17·2
269	,, 14—20 ...	—19·1	90·3	0·1	I, g.	,, 19·0
270	,, 14—20 ...	+21·6	79·4	0·2	I, s.	,, 19·8
271	,, 17	— 9·1	99·2	0·1	I, s.	,, 18·3
272	,, 20	+ 8·5	59·3	0·1	I, g.	,, 21·4
273	,, 20	— 8·7	51·5	0·0	I, s.	,, 21·9
274	,, 23	+ 9·0	28·7	0·2	I, g.	,, 23·7
275	,, 25	+ 7·2	353·2	0·0	I, s.	,, 26·4
276	,, 26—Jan. 3	+ 8·9	280·5	4·0	III, g.	,, 31·9
277	,, 31— ,, 1	+ 4·1	323·8	0·6	I, g.	,, 28·6
278	,, 31— ,, 3	+ 19·0	306·9	0·5	I, g.	,, 29·9
279	,, 31— ,, 3	—10·5	239·6	0·5	I, g.	Ja. 4·0