

GREENWICH
SPECTROSCOPIC AND PHOTOGRAPHIC
RESULTS.

1883.

SPECTROSCOPIC AND PHOTOGRAPHIC
OBSERVATIONS

MADE AT THE

ROYAL OBSERVATORY, GREENWICH,

1883.

(EXTRACTED FROM THE GREENWICH OBSERVATIONS, 1883.)

GREENWICH SPECTROSCOPIC AND PHOTOGRAPHIC RESULTS, 1883.

INTRODUCTION.

§ 14. *Spectroscopic Observations in the Year 1883.*

The spectroscope used for these observations (see page xiv.) was mounted on the South-east equatoreal, the object-glass of which (made by Merz and Son of Munich) has a clear aperture of 12·8 inches, with a focal length of about 17ⁿ 10^m.

This section contains:—Observations of Solar Prominences; Observations of Spectra of Sun Spots; Measures of Displacement of Lines in the Spectra of Stars and Concluded Motions in the Line of Sight; and Observations of the Spectra of Comet *b* 1883 (PONS-BROOKS), and of γ Ceti.

For the observations of solar prominences, the Greenwich mean solar times are given; and the position-angle from the Sun's axis of the two extremities of each prominence, together with its height in seconds of arc. The Sun's image was always placed centrally with respect to the position-circle, a radial excentricity being given to the spectroscope, so that the slit swept round the Sun's limb.

The position-angles have been first corrected for index-error of the position-circle, which is determined at the time of observation.

The method employed for this purpose has been to set the position-circle to 90° *plus* the approximate index-error, so that the slit points approximately E. and W., and to move the telescope by the slow-motions until either the north or the south limb of the Sun just comes into the middle of the field. The position-circle is then read, and the spectroscope rotated through 180°, the telescope remaining rigidly clamped, and as the diurnal motion brings the Sun up to the slit again, the limb previously observed is again brought to the centre of the field by means of the rotation of the spectroscope. The position-circle is read a second time, and the mean of the two readings is taken as the zero of the position-circle.

The corrected position-angles have then been converted into Heliographic N.P.D. by applying as a correction the position-angle of the Sun's north pole, taken from the "Auxiliary Tables for determining the Angle of Position of the Sun's Axis, and the Latitude and Longitude of the Earth referred to the Sun's Equator," by Warren De La Rue, F.R.S.

The heights of the bright lines seen in the prominences or chromosphere were read off on a pearl scale, divided to 0.005 inch (corresponding to 2".4), and carried by the micrometer of the spectroscope. Other particulars are given in the note at the head of this section.

The measures of displacement of lines in the spectra of stars were made with a micrometer in the viewing telescope of the "Half-prism" Spectroscope. The eye-piece used gives a magnifying power of 14. Estimations of the displacement, in terms of the apparent breadth of the bright comparison-line, were also made; the breadth corresponding to any given width of slit being determined by a careful observation under similar conditions. 1^{rev.} of the screw for opening the slit corresponds to 0.01 inch, or 10". It has not been thought necessary to give in detail all these particulars of the reductions. The values used in each case may be inferred from the observed motion, which is the algebraic sum of the concluded motion and of the Earth's motion. One tenth-metre corresponds at D to a motion of 31.7 miles per second, at *b* to a motion of 36.1 miles, and at F to a motion of 38.4 miles. For comparison with the spectrum of hydrogen or other chemical element, an image of the vacuum tube or electrodes is formed on the slit, by means of a transparent plate of glass placed at an angle of 45° with the axis of the collimator, in connexion with a collimating lens, so that the cone of rays from the comparison-light, as well as that from the star, fills the whole of the object-glass of the collimator.

Whenever the star-line was sufficiently distinct to allow of its being seen at the same time as the bright comparison-line, a direct comparison of the two was made; in other cases the bright line was compared with the pointer of the micrometer which had just previously been placed on the star-line, giving an indirect comparison.

The reading of the position-circle is given, as it is conceivable that the results might be affected by the position of the spectroscope. The slit lies north and south when the reading is 5°.

With regard to the other observations contained in this section, it is sufficient to remark that curves have been laid down in the usual manner, connecting scale or micrometer readings and wave-lengths, and that for each series of observations a correction for index-error has been deduced from observations of comparison-lines and applied to the observed readings, to reduce them to the standard curve, from which the corresponding wave-lengths have been read off. The tabular wave-lengths

of comparison-lines have been taken from Ångström's *Spectre Normal du Soleil*, or in the case of the spectra of carbon compounds, from Ångström and Thalén's *Récherches sur les Spectres des Métalloïdes*.

§ 15. *Measures of Positions and Areas of Spots and Faculae upon the Sun's Disk on Photographs taken at the Royal Observatory, Greenwich, and at Dehra Dûn in India in the year 1883 ; with the deduced Heliographic Longitudes and Latitudes.*

The photographs from which these measures were made were taken either at Greenwich or at Dehra Dûn, North-West Provinces, India.

The photographs of the Greenwich series were taken with the Dallmeyer Photoheliograph returned from the Transit of Venus expedition to New Zealand.

Bromo-iodized gelatine dry plates with alkaline development have been regularly used throughout the year.

The Indian photographs, which have been forwarded by the Solar Physics Committee to fill the gaps in the Greenwich series, were taken under the superintendence of J. B. N. Hennessey, F.R.S., Deputy Superintendent, Trigonometrical Survey of India, with a Dallmeyer photoheliograph giving an image of the Sun 4 inches in diameter, for the period from 1883 January 1 to May 20, after which another secondary magnifier, giving an image of the Sun nearly 8 inches in diameter, was adapted to the photoheliograph under the auspices of the Solar Physics Committee. In the process adopted at Dehra Dûn bromo-iodized collodion has been used in connexion with iron development.

Photographs of the Sun were taken at Greenwich on 215 days, and Indian photographs on 125 days were received from the Solar Physics Committee to complete the total of 340 days for which there are either Greenwich or Indian photographs of the Sun available in 1883.

The *first* column on each page contains the Greenwich Mean Solar Time at which each photograph was taken, expressed by the day of the year and decimals of a day, reckoning from Greenwich mean noon of January 1, and also by the day of the month (civil reckoning), which latter is placed opposite the total area of Spots and Faculae for the day. The photographs taken in India are distinguished by the letter I.

The *second* column contains the initials of the two persons measuring the photograph ; the initial on the left being that of the person who measured the photograph on the left of the centre of the measuring instrument, and that on the right being that of the person who measured on the right of the centre.

The following are the signatures of those persons who measured the photographs for the year 1883:—

E. W. Maunder	-	M	F. Finch	-	-	F
H. P. Hollis	-	H	J. Hawton	-	-	JH
J. Power	-	JP	S. Phillips	-	-	SP
J. Knowles	-	K	F. E. Wilkins	-	-	W

The *third* column gives the No. of the group. The groups are numbered in the order of their appearance.

The *next two* columns give the Distance from the Centre of the Sun in terms of the Sun's Radius, and the Position-Angle from the Sun's Axis, reckoned from the Sun's North Pole in the direction *n, f, s, p*, both results being corrected for the effects of instrumental distortion and astronomical refraction.

The measures of the four-inch photographs were made with a position-micrometer, specially constructed by Mr. Simms. The photograph is held with the collodion-side uppermost, on two cross-slides, which give the means of accurately centering it on the large position-circle, which rotates with it. A positive eye-piece, having at its focus a glass diaphragm, ruled into squares, with sides of one-hundredth of an inch (for measurement of areas), is carried by a micrometer-screw diametrically across the photograph, the diaphragm being nearly in contact with the photographic film, so that parallax is avoided.

For the measurement of the eight-inch photographs a larger position-micrometer, constructed by Messrs. Troughton and Simms on the same principle but with some improvements, has been used. In this instrument the distance of a spot or facula from the Sun's centre is read off to 1-250th of an inch by means of a scale and vernier instead of a long micrometer-screw.

The following is the process of measurement of a photograph:—

By means of the cross-slides mounted on the position-circle, the image of the Sun is centred as accurately as possible by rotation. The position-circle is then set to the readings 0° , 90° , 180° , and 270° in succession, and the micrometer-readings taken for the two limbs. The mean difference of the readings for the two limbs is taken as the Sun's mean diameter on the photograph, and the mean of the half-sum as the reading for the Sun's centre.

At the principal focus of the photoheliograph are two cross-wires which serve to determine the zero of position-angles on the photograph.

The zero of the Dallmeyer Photoheliograph employed at Greenwich has been determined by allowing the diurnal motion to carry the spot or Sun's limb along the wire, a correction for the inclination of the Sun's path being applied to the reading of the position-circle so obtained, and also by running the image along the

wire by the use of the R.A. slow motion, the mean of the two determinations being adopted as the zero.

Date.		Corrected Zero of Position-Circle from transit.		Zero of Position-Circle obtained when using R. A. Slow Motion.		Zero Adopted.
		Wire <i>a</i> .	Wire <i>b</i> .	Wire <i>a</i> .	Wire <i>b</i> .	
	h	° /	° /	° /	° /	° /
1883, January	1. 23	353. 7	83. 6	353. 8	83. 4	353. 8
February	3. 1	353. 9	83. 12	353. 9	83. 9	353. 12
March	16. 22	353. 16	83. 16	353. 12	83. 12	353. 22
April	26. 1	353. 29	83. 31	353. 28	83. 26	353. 16
May	17. 1	353. 6	83. 2	353. 6	83. 2	353. 17
August	6. 23	353. 30	83. 30	353. 33	83. 30	
August	8. 21	353. 45	83. 45	353. 45	83. 44	353. 45
August	23. 22	353. 21	83. 21	353. 24	83. 24	353. 22
November	4. 22	353. 21	83. 19	353. 22	83. 21	

August 6. 23^h. The wire frame shifted in its place in setting the position-circle back to the adopted reading, 353°·4, after the determination of the zero of position of the wires. The wire frame was therefore taken out, and a clamping arrangement fitted to it. It was replaced August 8. 21^h, and the zero of position determined afresh.

August 23. 22^h. The reading of the interior position-circle carrying the wires was altered immediately before the determination of the zero on this day.

In the use at Greenwich of the Dallmeyer Photoheliograph the position-circle has usually been set to some convenient reading near that for zero,—the adopted reading for 1883 being 353°·4,—so that the wires are respectively parallel and perpendicular to the circle of declination, and a correction for zero of position of the photoheliograph for the mean of the two wires has been applied to the zero of the position-circle of the micrometer. The correction for zero of position of the photoheliograph adopted for any date has been the mean of the determinations of that zero made next before and next after that date, except in the interval 1883 August 8. 21^h—August 23. 22^h, when the determination made August 8. 21^h was employed alone. The zero of the position-circle of the micrometer has been determined from the readings of the position-circle for the four extremities of the two wires. The resulting combined correction is applied to all position-circle readings for spots and faculæ, so as to give true position-angles.

In the use of the Photoheliograph at Dehra Dûn the position-circle has always been set to the zero as determined by allowing the diurnal motion to carry a spot

or the Sun's limb along the horizontal wire, and the accuracy of the adjustment has been tested at short intervals. No correction for zero of the photoheliograph has therefore been required for the reduction of the photographs taken in India.

The uncorrected distance from the Sun's centre for the four-inch images of the Sun is given by the difference between the micrometer-readings for spots and faculæ, and the centre-reading. In the new micrometer used for the measurement of the eight-inch photographs the zero of the scale is adjusted to coincide with the centre, and the distance from the centre is given directly.

Two sets of measures of the Sun's limb and of spots and faculæ on each photograph have been taken and the mean of the two sets adopted. The Greenwich photographs have been usually measured by Mr. Maunder and one of his assistants, the Indian photographs by Mr. Hollis and Mr. Power.

Corrections are then applied for optical distortion of the photoheliographs and for refraction. The distortion has been determined for the Dallmeyer photoheliographs used in the Transit of Venus 1874 from measures of photographs of a scale of equal parts, 16 feet long, constructed by Mr. De La Rue, and lent by him for this purpose. The scale has eight plates of iron with edges carefully planed, the plates being each exactly one foot in breadth, and attached to a braced iron framework so as to leave equidistant spaces of exactly one foot between the plates. The scale was photographed at a distance of about 1,200 feet, and extended completely across the field of view.

The following table gives the distortion for the Dallmeyer Photoheliographs for images of the Sun, of about four inches diameter thus determined for every tenth of an inch distance from the centre of the field:—

Distance from Centre.	Correction for Distortion.	Distance from Centre.	Correction for Distortion.	Distance from Centre.	Correction for Distortion.
r	r	r	r	r	r
0	0.000	9	+ 0.035	18	+ 0.010
1	+ .006	10	+ .036	19	+ .004
2	+ .012	11	+ .035	20	— .004
3	+ .017	12	+ .034	21	— .012
4	+ .022	13	+ .032	22	— .020
5	+ .026	14	+ .028	23	— .029
6	+ .029	15	+ .024	24	— .038
7	+ .032	16	+ .020	25	— .047
8	+ .034	17	+ .016	26	— .057

1^r = 0ⁱⁿ.10, corresponding to 49".3.

The distances as measured on the four-inch photographs whether taken at Greenwich or in India have been corrected for the corresponding distortion, and in cases where the centre of the Sun's image did not fall very close to the centre of the plate, a correction has been applied to the position-angles for the resolved part of the distortion. No correction has been applied to the measure of Sun's radius on account of distortion, the scales adopted in forming the tables having been so chosen that the distortion shall be 0 at the average place of the Sun's limb on the photographic plate; viz., $19^{\circ}.5$.

No correction has been applied to the eight-inch photographs on account of distortion.

The correction for the effect of refraction has been thus found, the Sun's image being assumed to be sensibly an ellipse. The refraction being sensibly $c \tan z$ where $c = \sin 57''.5 = \frac{1}{3600}$ nearly, and z is the apparent zenith distance, we shall have—

$$\frac{\text{Vertical Diameter}}{\text{Horizontal Diameter}} = \frac{1 - c \sec^2 z}{1 - c} = 1 - c \tan^2 z;$$

and thus the effect of refraction will be to diminish any vertical ordinate y by the quantity $c \tan^2 z$. Resolving this along and perpendicular to the radius vector r , and putting v for the position-angle of the vertex, we have for δr and $\delta \theta$, the corrections to radius vector and position-angle for the effect of refraction—

$$\delta r = + c \cdot \tan^2 z \times r \cdot \cos^2 (\theta - v) = + c \cdot \tan^2 z \times r \times \frac{1 + \cos 2 (\theta - v)}{2}$$

$$\delta \theta = - c \cdot \tan^2 z \cdot \sin (\theta - v) \cdot \cos (\theta - v) = - c \cdot \tan^2 z \cdot \frac{\sin 2 (\theta - v)}{2}.$$

The quantity δr thus found is the correction, on the supposition that a horizontal diameter of the Sun is taken as the scale. But, as the mean of two diameters at right angles has been used, the scale itself requires the correction $\delta R = + c \cdot \tan^2 z \times R \times \frac{1}{2} \left\{ \frac{1 + \cos 2 (\theta_0 - v)}{2} + \frac{1 + \cos 2 (\theta_0 + 90^\circ - v)}{2} \right\} = + \frac{1}{2} c R \cdot \tan^2 z$, where R is the Sun's mean radius and $\theta_0, \theta_0 + 90^\circ$ the position-angles of the two diameters measured. Thus the final correction to r becomes—

$$\delta r = + c \cdot \tan^2 z \times r \times \frac{\cos 2 (\theta - v)}{2}.$$

x INTRODUCTION TO GREENWICH SPECTROSCOPIC AND PHOTOGRAPHIC RESULTS, 1883.

The quantities $c \tan^2 z$, $-\frac{\sin 2(\theta - v)}{2}$, and $\frac{\cos 2(\theta - v)}{2}$ have been tabulated for use as follows, $c \tan^2 z$ being expressed in circular measure and in arc for application to distances and position-angles respectively :—

$c \tan^2 z$.

z .	In Circular Measure.	In Arc.	z .	In Circular Measure.	In Arc.	z .	In Circular Measure.	In Arc.
0		'	0		'	0		'
80	·0089	31	70	·0021	7	60	·0008	3
79	·0073	25	69	·0019	6½	58	·0007	2
78	·0061	21	68	·0017	6	56	·0006	2
77	·0052	18	67	·0015	5½	54	·0005	2
76	·0045	15	66	·0014	5	52	·0005	2
75	·0039	13	65	·0013	4½	50	·0004	1
74	·0034	11½	64	·0012	4	45	·0003	1
73	·0030	10	63	·0011	4	40	·0002	1
72	·0026	9	62	·0010	3	30	·0001	0
71	·0023	8	61	·0009	3			

Factors for Refraction.

$\theta - v$	$\theta - v$	$-\frac{\sin 2(\theta - v)}{2}$	$\frac{\cos 2(\theta - v)}{2}$	$\theta - v$	$\theta - v$	$-\frac{\sin 2(\theta - v)}{2}$	$\frac{\cos 2(\theta - v)}{2}$
0	0			0	0		
0	180	— ·00	+ ·50	95	275	+ ·09	— ·49
5	185	— ·09	+ ·49	100	280	+ ·17	— ·47
10	190	— ·17	+ ·47	105	285	+ ·25	— ·43
15	195	— ·25	+ ·43	110	290	+ ·32	— ·38
20	200	— ·32	+ ·38	115	295	+ ·38	— ·32
25	205	— ·38	+ ·32	120	300	+ ·43	— ·25
30	210	— ·43	+ ·25	125	305	+ ·47	— ·17
35	215	— ·47	+ ·17	130	310	+ ·49	— ·09
40	220	— ·49	+ ·09	135	315	+ ·50	·00
45	225	— ·50	·00	140	320	+ ·49	+ ·09
50	230	— ·49	— ·09	145	325	+ ·47	+ ·17
55	235	— ·47	— ·17	150	330	+ ·43	+ ·25
60	240	— ·43	— ·25	155	335	+ ·38	+ ·32
65	245	— ·38	— ·32	160	340	+ ·32	+ ·38
70	250	— ·32	— ·38	165	345	+ ·25	+ ·43
75	255	— ·25	— ·43	170	350	+ ·17	+ ·47
80	260	— ·17	— ·47	175	355	+ ·09	+ ·49
85	265	— ·09	— ·49	180	360	·00	+ ·50
90	270	·00	— ·50				

The position-angle of the Vertex v is readily taken from a globe.

The distance from centre in terms of the Sun's radius given in the *fourth* column is then readily found by dividing the measured distance r_0 , as corrected for distortion and refraction, by the measured mean radius of the Sun, R ; and the Position-Angle from the Sun's Axis given in the *fifth* column is obtained by applying to then Corrected Position-Angle (from the N. point) the Position-Angle of the Sun's Axis derived from Warren De La Rue's Auxiliary Tables referred to in the preceding section.

The *sixth* and *seventh* columns give the Heliographic Longitude and Latitude computed by the formulæ $\sin \lambda = \cos \rho \cdot \sin D + \sin \rho \cdot \cos D \cdot \cos \chi$; $\sin (L - l) = \sin \chi \cdot \sin \rho \cdot \sec \lambda$; where L, l are the Heliographic Longitudes from the ascending node, and D, λ the Heliographic Latitudes of the Earth and the Spot respectively, referred to the Sun's Equator, ρ the True Angular Distance from centre, and χ the Position-Angle from the Sun's Axis. The quantities L and D are derived from Warren De La Rue's Auxiliary Tables previously referred to, and $\log \sin \rho$ and $\log \cos \rho$ are taken from "Tables for the Reduction of Solar Observations, No. 2" by Warren De La Rue, F.R.S.

The Heliographic Longitude of the Spot is found from l , the Heliographic Longitude from Node, by subtracting the Reduction to Prime Meridian, which is the Longitude of the Node at the epoch of the photograph, referred to the assumed Prime Meridian, the latter being the meridian which passed through the ascending node at the epoch 1854.0. The period of rotation assumed is 25.38 days.

The measures of areas given in the *last three* columns were made with a glass diaphragm ruled into squares, with sides of one hundredth of an inch, and placed nearly in contact with the photographic film. The integral number of squares and parts of a square contained in the area of a spot or facula was estimated by the observer, two independent sets of measures being made by two observers. The mean of the two sets of measures has been taken for each photograph. The factor for converting the areas, as measured in ten-thousandths of a square inch, into millionths of the Sun's visible hemisphere, allowing for the effect of foreshortening, has been inferred by means of a table of double entry, giving the equivalent of one square for different values of the Sun's radius, and for different distances of the spot or facula from the Sun's centre, as measured by means of the Position-Micrometer.

The individual spots in a group have in some cases not been measured separately, but combined into a cluster of two or three small spots close together, the position of the centre of gravity and the aggregate area of the cluster being given. The actual number of individual spots is usually stated in the Notes.

xii INTRODUCTION TO GREENWICH SPECTROSCOPIC AND PHOTOGRAPHIC RESULTS, 1883.

The Mean Areas of Spots and Faculæ and the mean Heliographic Latitude of Spots for each Rotation of the Sun, and for the year 1883, are given at the end of this section, and require no further explanation.

ROYAL OBSERVATORY, GREENWICH.

SPECTROSCOPIC OBSERVATIONS

MADE AT THE

ROYAL OBSERVATORY, GREENWICH,

1883.

Greenwich Mean Solar Time, 1883.	Position Angle from Sun's Axis.	Height in Seconds of arc.				Brightness.				Breadth.				REMARKS.
		C	D ₃	1474 K	F	C	D ₃	1474 K	F	C	D ₃	1474 K	F	
Jan. 9. 0. 43 —continued.	0 1	"	"	"	"									The entire limb of the Sun was examined with the slit radial. The observations were interrupted when three-quarters of the limb had been examined by the sudden stoppage of the driving clock of the equatoreal. Two prominences were seen in the remaining quadrant, 95° — 185°, but their positions could not be determined.
Jan. 22. 23. 36	93. 53 } 95. 8 }	19	22	4	17	3	1	1	1	3	1	1	1	Seen on C and D ₃ , and faintly on 1474 K and F. Faint jet. The entire limb of the Sun was examined with the slit radial, and seven prominences were seen. Of these the place of one only was determined, and that one the smallest. Each was examined on all the lines from B to F. None were seen on any metallic lines. All were seen on C and D ₃ (D ₃ being always longer than C, in one case as much as 5"), on F very faintly, the exact height being difficult to ascertain, and on 1474 K. On this last line the height was usually about 4". The Sun was generally in much white haze, which grew thicker and thicker until the chromospheric spectrum was wholly extinguished.
April 1. 23. 10	24. 31 } 30. 21 }	24												Faint prominence; very irregular outline.
23. 23	68. 11 } 76. 41 }	35												Fine bright prominence with two tall jets.
23. 25	102. 11 } 103. 21 }	17												Small straight jet.
23. 27	113. 21 } 126. 21 }	29												Long low bank; very irregular in shape and faint.
23. 31	136. 21 } 142. 21 }	17												Faint irregular prominence. Three jets.
23. 33	182. 21 } 183. 21 }	19												Faint narrow jet.
23. 36	246. 41 } 247. 21 }	26												Bright narrow jet.
23. 38	310. 21 } 312. 41 }	49												Faint tall narrow jet.
23. 39	321. 31 } 323. 31 }	26												The entire limb of the Sun was examined with the slit radial.
April 5. 23. 6	49. 12 } 65. 32 }	94	84	24	48	1	1	1	1	3	1	1	1	Very fine prominence; much detail, but not very bright on the whole. D ₁ , D ₂ , b ₁ , b ₂ , b ₃ were not distinctly seen to be reversed but the dark lines of the sky spectrum were faint and ill-defined near the limb, the D lines for about 5", the b lines for about 9" from the limb.
23. 47	81. 52 } 83. 12 }	22	24			1	1			1	1			Narrow jet.
23. 49	116. 2 } 119. 22 }	89	89	2	89	2	1	1	1	2	1		1	Fine prominence. Nearly detached. Bending over towards the south.
	147. 32 } 148. 52 }	24	29	4	?	1	1	1		1	1		1	Small straight jet.
6. 0. 4	237. 2 } 244. 12 }	29	29		24	1	2		1	3	1		1	Bright straight jet.
0. 4	248. 52 } 250. 12 }	22	22	4	17	1	3	1	1	1	1		1	Straight jet.
0. 15	284. 2 } 285. 42 }	41	41		17	2	1		?	1	1		?	
5. 22. 46	288. 12 } 294. 42 }	36	24	2	36	1	1	1	Very faint.	2	1		?	Greater part of prominence composed of faint cloud-like matter, but with brilliant veins of light running through.
22. 52	297. 12 } 299. 22 }	19	24		19	1	1	1	1	1	1		1	Bright straight jet.

OBSERVATIONS OF SOLAR PROMINENCES, MADE WITH THE SPECTROSCOPE.

[illegible]

Greenwich Mean Solar Time, 1883.		Position Angle from Sun's Axis.	Height in Seconds of arc.				Brightness.				Breadth.				REMARKS.
			C	D ₃	¹⁴⁷⁴ K	F	C	D ₃	¹⁴⁷⁴ K	F	C	D ₃	¹⁴⁷⁴ K	F	
May 22.	22. 48	172. 32 172. 57	17												Faint small jet.
	22. 51	202. 45	24	24		$\frac{1}{4}$	$\frac{1}{5}$			$\frac{1}{3}$	$\frac{1}{4}$				Very faint. Sun in much haze. Straight jet. Seen only on C and D ₃ .
	23. 30	204. 57	17												
	23. 13	227. 7 228. 7	17												
	23. 14	229. 49	46	46	36	$\frac{2}{3}$	$\frac{2}{3}$	1		$\frac{1}{2}$	$\frac{1}{2}$		$\frac{1}{4}$		Displaced about $\frac{1}{5}$ tenth-metre towards the blue on the F line. No displacement noticed on the C line.
	23. 44	239. 25	17	17		$\frac{1}{7}$	$\frac{1}{5}$			$\frac{1}{3}$	$\frac{1}{4}$				Seen only on C and D ₃ .
	23. 17	305. 7	19	22		$\frac{1}{4}$	$\frac{1}{3}$			$\frac{1}{2}$	$\frac{1}{2}$				A large but faint and broken prominence was seen on the C line, rising above and beyond this prominence. Its dimensions were as follows:—
	23. 47	305. 32													
	23. 18	317. 2													
	23. 50	319. 27													
	22. 57	315. 57	72			$\frac{1}{10}$									
	23. 49	319. 52													The entire limb of the Sun was examined twice with the slit radial. In the first search the position angles were determined, the prominences being examined on the C line only; in the second search the entire spectrum from B to F was examined for each prominence. The times given for each prominence are those of the first and second examinations respectively.
May 24.	0. 53	31. 6 32. 16	24	26	5	$\frac{1}{3}$	$\frac{1}{2}$	$\frac{1}{10}$		$\frac{1}{3}$	$\frac{1}{3}$	1			Prominence displaced at its upper extremity $\frac{1}{10}$ tenth-metre towards the red on the C line.
	1. 0	55. 26 58. 46	48	48	43	$\frac{2}{3}$	$\frac{1}{2}$	$\frac{1}{5}$		$\frac{1}{2}$	$\frac{1}{2}$	1			Fine bright prominence, partly detached.
	1. 2	78. 26 82. 16	34	34	34	$\frac{2}{3}$	$\frac{1}{3}$	$\frac{1}{10}$		$\frac{2}{3}$	$\frac{1}{2}$	1			Straight jet.
	1. 4	113. 26 114. 26	29	34	29	1	1	$\frac{1}{3}$		$\frac{3}{4}$	$\frac{1}{2}$	$\frac{2}{3}$			Straight jet. Upper part of prominence displaced $\frac{1}{4}$ tenth-metre on the F line. No displacement detected on C.
	1. 7	129. 46 131. 46	34	34		$\frac{1}{5}$	$\frac{1}{5}$			$\frac{2}{3}$	$\frac{1}{2}$				Very faint prominence. Bending over towards the south. Seen only on C and D ₃ .
	1. 12	133. 26 135. 6	43	43		$\frac{1}{3}$	$\frac{1}{5}$			$\frac{1}{2}$	?				Partly detached.
	1. 13	135. 46 138. 6	36	41	2 34	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{10}$		$\frac{1}{2}$	$\frac{1}{2}$	1			Partly detached.
	1. 18	205. 6 207. 6	50	55		$\frac{1}{2}$	$\frac{1}{3}$			$\frac{1}{2}$	$\frac{2}{3}$				The upper part of prominence displaced $\frac{1}{10}$ tenth-metre towards the red on the C line.
	1. 21	225. 26 227. 6	29	29	29	1	1	$\frac{1}{5}$		1	$\frac{3}{4}$	1			Short bright jet.
	1. 24	228. 46 231. 46	53	53	53	1	1	1		1	$\frac{2}{3}$	$\frac{2}{3}$			Fine bright prominence, bending over towards the south. Slightly displaced towards the blue on the F line ($\frac{1}{10}$ tenth-metre).
	1. 28	277. 6 279. 6	29	31	24	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{10}$		$\frac{2}{3}$	$\frac{1}{2}$	1			Short straight jet.
	1. 32	316. 56 320. 6	38	38		$\frac{1}{4}$	$\frac{1}{10}$			$\frac{1}{2}$	?				Faint prominence. Partly detached. Seen only on the C and D ₃ lines.
															The entire limb of the Sun was examined once with the slit radial.
May 28.	0. 20	26. 30 31. 6	41	43	41	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{1}{4}$		$\frac{1}{3}$	$\frac{1}{3}$	1			Bright prominence.
	27. 22. 21	57. 41 63. 23	17												Narrow jet. Not seen in the second search.
	28. 0. 24	73. 27 74. 22	17												
	0. 28	106. 45 121. 25	46	50	46	1	1	$\frac{1}{4}$		$\frac{1}{2}$	$\frac{1}{2}$	1			Very large prominence with two tall jets in the middle.
	0. 34	281. 59 286. 52	41	43	34	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{1}{4}$		$\frac{2}{3}$	$\frac{2}{3}$	1			Bright prominence.
	0. 37	297. 7 299. 12	14	14	14	1	1	$\frac{1}{4}$		$\frac{2}{3}$	$\frac{2}{3}$	1			Small straight jet.
															The entire limb of the Sun was examined twice with the slit radial. The chromosphere appeared low, averaging about 6'' in height, being seldom as high as 7'' and sometimes as low as 5''.

Greenwich Mean Solar Time, 1883.	Position Angle from Sun's Axis.	Height in Seconds of arc.				Brightness.				Breadth.				REMARKS.
		C	D ₃	¹⁴⁷⁴ K	F	C	D ₃	¹⁴⁷⁴ K	F	C	D ₃	¹⁴⁷⁴ K	F	
d h m	° ' "	"	"	"	"									
June 3. 23. 49 —continued.														tremulous. The prominence, which was very bright when first caught sight of, rapidly diminished in brightness and in height. At 24 ^h . 0 ^m its greatest height was 34". There was then a small but distinct displacement towards the red of about $\frac{1}{2}$ tenth-metre. At 0 ^h . 3 ^m height 29". By 0 ^h . 18 ^m the prominence had entirely vanished, leaving not the slightest trace.
3. 23. 26	116. 21	77	58	2	58	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{2}$	$\frac{1}{3}$	1	1	Large prominence. Much detail. Irregular in shape. The greater part of the prominence is very faint.
4. 0. 3	135. 43	77												Partly detached.
3. 23. 31	264. 1	58				$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{2}$	$\frac{1}{2}$			
4. 0. 7	276. 7	60			48	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{2}$	$\frac{1}{2}$			Short bright jet.
3. 23. 32	282. 38	19				$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{1}{2}$			Short straight jet.
4. 0. 11	285. 36	19	19		19	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{1}{2}$			Straight jet.
3. 23. 34	289. 49	19				$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{1}{2}$			
4. 0. 11	291. 13	19	19		19	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{1}{2}$			
3. 23. 35	293. 17	26			26	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{1}{2}$			
4. 0. 12	295. 28	26				$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{1}{2}$			
3. 23. 36	323. 30	67				$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{2}$	$\frac{1}{2}$	1	1	The entire limb of the Sun was examined twice with the slit radial. In the first search the position angles were determined, the prominences being examined on the C line only; in the second search the entire spectrum from B to F was examined at each prominence. The times given for each prominence are those of the first and second examinations respectively.
4. 0. 14	329. 27	50	38	2	38	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{2}$	$\frac{1}{2}$	1	1	
June 5. 1. 17	47. 18	38				$\frac{1}{4}$	$\frac{1}{4}$			$\frac{1}{3}$	$\frac{1}{3}$			Narrow faint jet nearly detached. Seen only on C and D ₃ .
1. 28	48. 3	38	38			$\frac{1}{4}$	$\frac{1}{4}$			$\frac{1}{3}$	$\frac{1}{3}$			Straight jet.
0. 29	58. 10	26			17	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{2}$	$\frac{1}{2}$		1	Straight jet. Position-angle for the centre of the prominence.
1. 27	58. 48	22	22			$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{2}$	$\frac{1}{2}$		1	Very broken. Not seen in the second search.
0. 30	63. 10	14				$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{2}$	$\frac{1}{2}$		1	
0. 31	87. 24	19	12	2	10	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{2}$	$\frac{1}{2}$		1	Bright prominence. Broken. Before the second search this prominence had greatly altered its shape, and was measured as follows:—
1. 31	88. 33	12				$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{2}$	$\frac{1}{2}$		1	b lines very distinctly reversed. 1474 K and D lines also for about 5" at 1 ^h . 38 ^m . Limb very tremulous. Much white haze.
4. 23. 59	100. 40	24				$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{2}$	$\frac{1}{2}$		1	Very tall prominence. Very much broken. At 1 ^h . 41 ^m it was much fainter than at 0 ^h . 11 ^m , but taller, being traceable for at least 156". At 1 ^h . 56 ^m it could not be detected on any line but C. At 1 ^h . 57 ^m it was entirely detached, the lower surface being 46" from the limb, the upper surface 173".
5. 0. 3	109. 46	67				$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{2}$	$\frac{1}{2}$		1	Seen only on C and D ₃ .
	112. 48					$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{2}$	$\frac{1}{2}$		1	Straight jet. Position-angle for the centre of the prominence. Not seen in the second search.
1. 35	108. 26	14	14	5	14	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{2}$	$\frac{1}{2}$		1	Very faint, bending over towards the north. Seen only on the C line.
1. 36	112. 18	14				$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{2}$	$\frac{1}{2}$		1	Detached cloud. Lower surface 14" from the limb. At 2 ^h . 7 ^m not detached, but bending over towards the south.
0. 11	131. 6	144				$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{2}$	$\frac{1}{2}$		1	
1. 41	124. 30	156				$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{2}$	$\frac{1}{2}$		1	
1. 57		173				$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{2}$	$\frac{1}{2}$		1	
0. 16	145. 53	20	19			$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{2}$	$\frac{1}{2}$		1	
2. 1	148. 12	19				$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{2}$	$\frac{1}{2}$		1	
0. 17	155. 1	14				$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{2}$	$\frac{1}{2}$		1	
0. 19	231. 48	20				$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{2}$	$\frac{1}{2}$		1	
2. 5	234. 6	29				$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{2}$	$\frac{1}{2}$		1	
0. 20	259. 46	46	43			$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{2}$	$\frac{1}{2}$		1	
2. 7	264. 25	43				$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{2}$	$\frac{1}{2}$		1	
0. 21	281. 33	22	17			$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{2}$	$\frac{1}{2}$		1	
2. 9	286. 38	26				$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{2}$	$\frac{1}{2}$		1	
0. 22	298. 20	26			12	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{2}$	$\frac{1}{2}$		1	
2. 11	300. 8	17	17			$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{2}$	$\frac{1}{2}$		1	
0. 23	321. 10	54				$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{2}$	$\frac{1}{2}$		1	
2. 13	325. 53	53				$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{2}$	$\frac{1}{2}$		1	The entire limb of the Sun was examined with the slit radial. In the first search the position angles were determined, the prominences being examined on the C line only; in the second search the entire spectrum from B to F was examined for each prominence. The times given for each prominence are those of the first and second examinations respectively.

Greenwich Mean Solar Time, 1883.	Position Angle from Sun's Axis.	Height in Seconds of arc.				Brightness.				Breadth.				REMARKS.
		C	D ₃	¹⁴⁷⁴ K	F	C	D ₃	¹⁴⁷⁴ K	F	C	D ₃	¹⁴⁷⁴ K	F	
June 5. 23. 12	47. 54	29				$\frac{1}{3}$				?				Very faint. Seen only on the C line.
23. 14	49. 51	29				$\frac{1}{3}$								Faint, bending over towards the south. Seen only on C and D ₃ .
22. 5	84. 29	29	26			$\frac{1}{3}$	$\frac{1}{3}$			$\frac{1}{2}$	$\frac{1}{2}$			No trace of this prominence could be detected at 22 ^h . 47 ^m .
22. 38	85. 26	26												Small faint straight jet. Seen only on C and D ₃ .
22. 8	107. 32	17												Partly detached. Broken prominence.
	109. 30													Straight jet. Seen only on C and D ₃ .
22. 12	132. 58	19	17			$\frac{2}{3}$	$\frac{1}{3}$			$\frac{2}{3}$	$\frac{1}{3}$			Straight jet.
22. 42	135. 6	17				$\frac{1}{2}$	$\frac{1}{2}$		$\frac{1}{10}$	$\frac{2}{3}$	$\frac{2}{3}$			Straight jet.
22. 13	136. 33	46	46		29	$\frac{1}{2}$	$\frac{1}{2}$		$\frac{1}{10}$	$\frac{2}{3}$	$\frac{2}{3}$			Straight jet.
22. 44	139. 15	46												Broken. Fine prominence nearly detached. Bending over towards the north.
22. 14	150. 10	18				$\frac{2}{3}$	$\frac{2}{3}$			$\frac{2}{3}$	$\frac{2}{3}$			Bright prominence partly detached. Bending over towards both the north and south.
22. 49	151. 44	17	17											The entire limb of the Sun was examined twice with the slit radial. In the first search the position angles were determined, the prominences being examined on the C line only; in the second search the entire spectrum from B to F was examined for each prominence. The times given for each prominence are those of the first and second examinations respectively. The Sun was in much white haze, and in only a few cases could the F line be seen. No lines other than C, D ₃ , and F were perceived.
22. 18	232. 16	23	22		14	1	1		$\frac{1}{10}$	$\frac{2}{3}$	$\frac{1}{2}$			
22. 53	235. 24	19												
22. 19	237. 49	18	26		22	1	1		$\frac{1}{10}$	$\frac{2}{3}$	$\frac{1}{2}$			
22. 55	238. 36	26												
22. 21	280. 46	24	22		17	$\frac{1}{3}$	$\frac{1}{3}$		$\frac{1}{10}$	$\frac{1}{2}$	$\frac{1}{3}$			
22. 59	281. 51	22												
22. 22	297. 6	46	43		22	1	1		$\frac{1}{10}$	$\frac{2}{3}$	$\frac{1}{2}$		1	
23. 0	298. 52	43												
22. 24	301. 9	55	53		31	1	$\frac{2}{4}$		$\frac{1}{3}$	$\frac{2}{3}$	$\frac{1}{2}$		1	
23. 5	305. 50	53												
22. 25	322. 24	48												
23. 8	327. 24	46	46		34	$\frac{3}{4}$	$\frac{2}{3}$		$\frac{1}{3}$	$\frac{2}{3}$	$\frac{1}{2}$		1	
June 9. 0. 48	61. 10	41												
	63. 22													
0. 20	107. 41	24												
	110. 6													
0. 24	113. 34	19												
	116. 43													
0. 30	124. 43	17												
0. 32	127. 6	24												
	129. 26													
0. 34	151. 31	24												
	153. 44													
0. 37	240. 25	41	34		34	1	1		$\frac{2}{3}$	$\frac{3}{4}$	$\frac{2}{3}$		$\frac{1}{2}$	Broken. Bending slightly over towards the north. F line unusually bright.
	244. 43	34												
0. 40	260. 36	17												
	263. 43													
0. 41	284. 8	17												
	286. 6													
0. 43	286. 26	50												
	291. 9													
0. 54	294. 44	41	41		41	1	1		1	$\frac{2}{3}$	$\frac{1}{2}$		$\frac{1}{3}$	A broken jet which rapidly changed its form. 45 seconds before the reading 50" was taken its height was only 40". At 0 ^h . 54 ^m it had entirely disappeared. Not seen at 0 ^h . 44 ^m . At 0 ^h . 54 ^m partly detached. At 1 ^h . 3 ^m a straight jet. At 1 ^h . 4 ^m very faint. 655 K was suspected to be reversed, height 17". 1474 K was not looked for. F line unusually bright.
1. 0	298. 11	41												
0. 46	325. 6	26												
	328. 38													
														The entire limb of the Sun was examined with the slit radial. The Sun was continually in much white haze, and little could be done by way of detailed examination of the lines.

OBSERVATIONS OF SOLAR PROMINENCES, MADE WITH THE SPECTROSCOPE.

Greenwich Mean Solar Time, 1883.	Position Angle from Sun's Axis.	Height in Seconds of arc.				Brightness.				Breadth.				REMARKS.
		C	D ₃	¹⁴⁷⁴ K	F	C	D ₃	¹⁴⁷⁴ K	F	C	D ₃	¹⁴⁷⁴ K	F	
Aug. 19. 23. 46	43. 10	31				$\frac{1}{3}$	$\frac{1}{4}$			$\frac{1}{3}$	$\frac{1}{4}$			Faint. No other lines.
20. 0. 8	44. 44	41	41											Partly detached. Not seen on the F line.
19. 23. 48	46. 37	41	31			$\frac{1}{2}$	$\frac{1}{2}$			$\frac{1}{2}$	$\frac{1}{3}$			Faint. Displaced $\frac{1}{2}$ tenth-metre towards the blue on the C line.
	58. 44	31												Bright straight jet, partly detached. The detached part displaced $\frac{1}{4}$ tenth-metre towards the blue on the C line.
23. 23	169. 40	19	14			1	1			1	$\frac{2}{3}$			Immediately above this jet was a detached cloud, of which the under side was 17" and the upper side 26" from the limb. The C line was wholly displaced towards the red $\frac{2}{3}$ tenth-metre. In spite of the very tremulous limb and the haze round the Sun, 1474 K was distinctly reversed to a height of 5". D ₁ , D ₂ , a little less distinctly but to a greater height, 7". b ₁ , b ₂ less distinctly still, to a height of 6". One or two other lines were suspected to be reversed, but were not distinctly seen.
23. 52	172. 8	14												
23. 27	250. 27	19	17		17	1	$\frac{3}{4}$		$\frac{1}{4}$	$\frac{2}{3}$	$\frac{1}{2}$		1	
23. 56	255. 4	17												
23. 29	258. 8	14												
20. 0. 5	259. 16	12	12		12	1	1		$\frac{1}{2}$	1	$\frac{2}{3}$		1	
19. 23. 44	265. 40	14	12		12	1	1		$\frac{1}{2}$	1	$\frac{2}{3}$		1	
20. 0. 5	267. 57	12												
19. 23. 45	302. 58	60	43			$\frac{1}{2}$	$\frac{1}{4}$			$\frac{1}{2}$	$\frac{1}{3}$			Fine prominence, much detail. Could not be distinctly made out on F. Sun in too much haze.
20. 0. 7	310. 20	43												The entire limb of the Sun was examined twice. In the first search the position angles were determined, the prominences being examined on the C line only; in the second search the entire spectrum from B to F was examined at each prominence. The times given for each prominence are those of the first and second examinations respectively. Sun in much white haze. Limb very tremulous.
Aug. 25. 0. 55	29. 31	19	14	2	10	$\frac{1}{4}$	$\frac{1}{5}$		$\frac{1}{10}$	$\frac{1}{2}$	$\frac{1}{3}$		1	Narrow. The upper part of the prominence was detached, and was displaced 1 tenth-metre towards the red on the C line.
1. 43		14												
0. 51	51. 34	43	48		34	$\frac{2}{3}$	$\frac{2}{3}$		$\frac{1}{10}$	$\frac{1}{2}$	$\frac{1}{3}$		1	
1. 40	50. 8	43												
0. 50	61. 52	29	31	2?	31	$\frac{1}{4}$	$\frac{1}{5}$		$\frac{1}{10}$	$\frac{1}{2}$	$\frac{1}{3}$		1	
1. 38	62. 57	31												
1. 32	245. 10	29	29	2	29	$\frac{2}{3}$	$\frac{1}{2}$	$\frac{1}{10}$	$\frac{1}{3}$	$\frac{3}{4}$	$\frac{1}{2}$		1	Partly detached. Bending over towards the south. The prominence was much altered in shape when it was examined the second time.
1. 50	248. 43	29												The entire limb of the Sun was examined twice with the slit radial. In the first search the position angles were determined, the prominences being examined on the C line only; in the second search the entire spectrum from B to F was examined at each prominence. The times given for each prominence are those of the first and second examinations respectively.
1. 0	292. 11	43	58		48	$\frac{1}{2}$	$\frac{1}{3}$		$\frac{1}{10}$	$\frac{1}{2}$	$\frac{1}{3}$		1	
1. 47	296. 30	58												
Aug. 27. 23. 52	105. 9	34	31	2	24	1	1	$\frac{2}{3}$	$\frac{1}{10}$	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	1	Bright jet.
28. 0. 37	108. 7	29												Bright straight jet.
27. 23. 47	109. 20	19	19	4	17	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{1}{5}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$	1	$\frac{3}{4}$	Bright broken prominence. No metallic lines visible.
28. 0. 40	111. 18	19												
27. 23. 45	122. 27	43	41	2	24	$\frac{1}{3}$	$\frac{1}{4}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{2}$	$\frac{1}{3}$	1	1	Bright broken prominence.
28. 0. 32	125. 35	41												
27. 23. 42	226. 18	43	41	4	17	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{1}{5}$	$\frac{1}{5}$	$\frac{2}{3}$	$\frac{1}{2}$	1	1	The chromosphere was very undulating, varying from 6" to 12" in height at about this point. 1474 K seen, but no metallic lines.
	229. 39	41												Not seen in the second search.
	253. 0													
27. 23. 39	267. 59	17	14	2	14	1	1	$\frac{1}{4}$	$\frac{2}{3}$	1	$\frac{2}{3}$	1	1	
28. 0. 23	270. 53	14												
27. 23. 37	272. 52													
	272. 55	14												

Greenwich Mean Solar Time, 1883.	Position Angle from Sun's Axis,	Height in Seconds of arc.				Brightness.				Breadth.				REMARKS.
		C	D ₃	¹⁴⁷⁴ K	F	C	D ₃	¹⁴⁷⁴ K	F	C	D ₃	¹⁴⁷⁴ K	F	
Aug. 27. 23. 36 28. 0. 21	289. 25 } 290. 41 }	24 19	22	2	14	$\frac{1}{3}$ $\frac{1}{4}$	$\frac{1}{10}$ $\frac{1}{10}$	$\frac{1}{10}$ $\frac{1}{10}$	$\frac{1}{2}$ $\frac{1}{3}$	$\frac{1}{2}$ $\frac{1}{3}$	1	1	The southern side of the prominence displaced 1 tenth-metre towards the blue on the C line. At 0 ^h . 21 ^m the northern edge of this prominence was displaced towards the red and the southern towards the blue, each about 1 tenth-metre.	
27. 23. 35 28. 0. 8	298. 18 } 300. 44 }	19 19	19		14	1 1		$\frac{1}{3}$ $\frac{3}{4}$	$\frac{3}{4}$ $\frac{2}{3}$			1	Entire limb of Sun examined twice. In the first search the position angles were determined, the prominences being examined on the C line only; in the second search the entire spectrum from B to F was examined at each prominence. The times given for each prominence are those of the first and second examinations respectively. All the prominences, except the one at 273°, were examined with the slit tangential as well as with the slit radial, but no metallic lines were seen, though 1474 K was always more or less distinctly visible.	
Nov. 5. 22. 54 23. 0 23. 3 23. 10 23. 15	59. 28 } 61. 25 } 83. 34 } 87. 16 } 118. 12 } 122. 43 } 151. 9 } 158. 11 } 259. 19 } 261. 37 }	22 26 29 115 26	22 29 29 ? 26		17 22 29 ? 26	$\frac{3}{4}$ 1 $\frac{3}{4}$ $\frac{1}{5}$ 1	$\frac{2}{3}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{10}$ $\frac{2}{3}$	$\frac{1}{3}$ $\frac{1}{2}$ $\frac{1}{5}$ $\frac{1}{2}$ 1	$\frac{3}{4}$ 1 $\frac{2}{3}$ $\frac{1}{3}$ $\frac{1}{2}$	$\frac{1}{2}$ $\frac{2}{3}$ $\frac{2}{3}$ $\frac{1}{3}$ $\frac{1}{2}$	1 1 1 1 1		Straight jet. Limb very tremulous. No reversal detected except on the usual three lines, C, D ₃ , and F. Bright prominence. A very large but very faint prominence. F line displaced $\frac{1}{2}$ tenth-metre towards the blue. At 23 ^h . 30 ^m . a part of the prominence was separated from the limb (the part on the southern side). The C line too showed a displacement of about $\frac{1}{3}$ tenth-metre. At 23 ^h . 31 ^m the F line was very brilliant. Breadth at base of the prominence, 3; at tip, $\frac{1}{2}$. b_2 and b_1 reversed to a height of 5". 1474 K, reversed to a height of 4". D_1 and D_2 were suspected to be reversed.	
23. 35 23. 42	279. 56 } 281. 29 }	19 19	19		?	$\frac{1}{2}$ $\frac{1}{3}$		?	$\frac{2}{3}$ $\frac{1}{2}$	$\frac{1}{2}$ $\frac{1}{2}$		?	Entire limb of Sun examined once with the slit radial. Chromosphere averaged 7" in height. Limb very tremulous. Sun often in much haze. Each prominence examined from B to F, but the Sun's limb boiled so much that no short lines could possibly be seen.	
Nov. 27. 0. 20 0. 49 0. 41 1. 5 0. 43 1. 7 0. 18 0. 45 0. 22 0. 51 0. 26 0. 55 0. 27	11. 27 } 19. 31 } 41. 38 } 47. 30 } 61. 8 } 62. 38 } 83. 17 } 94. 18 } 122. 58 } 124. 6 } 268. 50 } 270. 25 } 284. 2 } 285. 11 }	77 60 24 24 17 17 62 46 17 22 22 19 26	60 24 24 17 17 46 22 22 19		48 12 ? ? 36 14 ? ? 26	$\frac{3}{5}$ $\frac{3}{5}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ 1	$\frac{2}{3}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$	$\frac{1}{2}$ $\frac{1}{10}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$	$\frac{3}{4}$ $\frac{2}{3}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$	$\frac{2}{3}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$	1 1 1 1 1 1 1 1 1 1 1 1 1	Fine bright arched prominence. Small faint prominence. Small faint prominence. Fine prominence. Much broken. Small straight jet. Small faint jet. Chromosphere very undulating between these two prominences. Small brilliant prominence. The F and C lines displaced each 1 tenth-metre towards the blue. Limb boiling and much mist, so that short and faint lines could not be easily made out, but 1474 K seemed reversed to a height of 2", and b_1 and b_2 were suspected to be reversed. On D_1 and D_2 nothing was clearly made out. At 0 ^h . 57 ^m the bright prominence which had been seen here in the first search had entirely disappeared, the only trace of it being the very slightest elevation of the chromosphere and a peculiar vividness in the three chromospheric lines C, D ₃ , and F.		

OBSERVATIONS OF SOLAR PROMINENCES, MADE WITH THE SPECTROSCOPE.

Greenwich Mean Solar Time, 1883.	Position Angle from Sun's Axis.	Height in Seconds of arc.				Brightness.				Breadth.				REMARKS.
		C	D ₃	¹⁴⁷⁴ K	F	C	D ₃	¹⁴⁷⁴ K	F	C	D ₃	¹⁴⁷⁴ K	F	
d h m	° ' "	"	"	"	"									
Nov. 27. 0. 38 1. 1	288. 55 } 293. 46 }	41 41	41		41	1	1½		½	1	2		2	Small triple forked jet. The entire limb of the Sun was examined twice with the slit radial. In the first search the position angles were determined, the prominences being examined on the C line only; in the second search the entire spectrum from B to F was examined at each prominence. The times given for each prominence are those of the first and second examinations respectively. The general height of the chromosphere was about 6" to 7". Near the north pole it was very undulating, and varied from 7" to 8" or even 10". The Sun was in much white haze, and the limb was boiling throughout the observation. It was therefore scarcely possible that short or faint lines should have been seen. ¹⁴⁷⁴ K was, however, suspected to be reversed to a height of about 2" all round the limb. The <i>b</i> lines were not distinctly seen to be reversed anywhere, but the dark lines of the sky spectrum seemed slightly fainter close to the limb over each prominence. The same remark in a lesser degree applies to the D lines. The image of the Sun was brighter in the first search than in the second.
Nov. 28. 0. 50 0. 46 0. 57½ 1. 1 1. 4 1. 5 1. 9 1. 9 1. 11 0. 35 0. 37 0. 40 0. 41 0. 43	44. 1 } 45. 54 } 65. 13 } 78. 4 } 87. 36 } 92. 51 } 93. 24 } 95. 21 } 109. 58 } 111. 3 } 117. 44 } 121. 5 } 124. 56 } 125. 54 } 126. 1 } 127. 41 } 212. 4 } 213. 29 } 252. 29 } 252. 43 } 265. 17 } 267. 57 } 269. 9 } 274. 18 } 277. 35 } 279. 53 } 298. 14 } 300. 0 }	19 29 36 29 12 43 17 17 17 19 19 29 26 19											Small faint jet. Partly detached. Bending over towards the south. Displaced ½ tenth-metre towards the blue on the southern side on the C and F lines. Very bright, ? metallic eruption. Bending over towards the north. These two prominences make as it were the two sides of an arch which has no keystone, but the first is very bright and the second very faint. At 1 ^h . 15 ^m this second prominence was only 12" in height. Small straight jet. Height not measured. Narrow jet. Upper north edge displaced ½ tenth-metre towards the blue. The chromosphere between these two prominences is undulating and is higher than usual, being 10" in height. Straight jet. Forked prominence. Small jet. Entire limb of Sun examined with the slit radial on the C line only.	
Dec. 6. 0. 25 0. 27 1. 9 1. 43	39. 2 } 41. 36 } 100. 23 } 105. 1 } 112. 20 } 114. 3 } 227. 57 } 229. 50 }	26 24 48 36	26 24 48 36		? 24 36	½ ¾ ½ ⅔	½ ⅓ ½ ½		⅓ ⅓ ⅓ ⅓	⅓ 1 ¼ ½	¼ ½ 1/10 ½		1 1 1	Detached cloud. Greatest height, 48". Nearest point to limb 17". Not certainly made out on the F line.

Greenwich Mean Solar Time, 1883.			Position Angle from Sun's Axis.		Height in Seconds of arc.				Brightness.				Breadth.				REMARKS.	
					C	D _s	¹⁴⁷⁴ K	F	C	D _s	¹⁴⁷⁴ K	F	C	D _s	¹⁴⁷⁴ K	F		
d	h	m	°	'	"	"	"	"										
Dec.	6.	1. 1	243. 43	}	34	34		34	$\frac{3}{4}$	$\frac{1}{2}$		$\frac{1}{10}$	$\frac{3}{4}$	$\frac{1}{2}$		1	Partly detached.	
		0. 21	245. 22															
			281. 20		19	19				$\frac{1}{2}$	$\frac{1}{2}$		?	$\frac{1}{3}$	$\frac{1}{4}$		?	Small jet. Leaning over towards the north.
			282. 20															
		0. 6	296. 10	}	22	22	4	22	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{2}$	$\frac{1}{2}$	1	1		
			299. 18															
		1. 4	325. 16															
			325. 47		29	29				$\frac{3}{8}$	$\frac{1}{2}$			$\frac{1}{5}$	$\frac{1}{10}$			Very faint ill-defined prominence. Not seen on the F line.
The entire limb of the Sun examined with the slit radial. Each prominence examined on all lines from B to F. Work constantly interrupted by cloud. No metallic lines seen. 1474 K glimpsed once.																		
Dec.	7.	1. 28	32. 49	}	24												Very faint.	
			38. 15															
		1. 11	42. 12		19													Very faint.
			43. 32															
		1. 13	61. 55	}	17												Very faint.	
			63. 4															
		1. 14	80. 12		29													C line displaced $\frac{3}{4}$ tenth-metre towards the blue.
			83. 25															
		1. 15	115. 39	}	34													
			119. 36															
		1. 18	242. 21		24													
			246. 28															
		1. 20	251. 46	}	14												Small but very brilliant jet. ? Metallic eruption.	
			253. 46															
		1. 21	263. 42		22													Partly detached.
			266. 13															
		1. 22	276. 11	}	14												Small faint jet.	
			277. 58															
		1. 23	289. 50		43													Five brilliant jets on a fainter background.
			304. 12															
		1. 26	324. 45	}	36													
			329. 4															Entire limb of the Sun examined with the slit radial on the C line only. Sun in much white haze. Chromo- sphere only appeared 5" in height. Prominences nearly all exceedingly faint.

OBSERVATIONS OF SPECTRA OF SUN SPOTS made at the ROYAL OBSERVATORY, GREENWICH, in the Year 1883.

The numeration of the spots is taken from the Photographic Results.

The observations were made by Mr. Maunder with the Half-prism Spectroscope mounted on the South-East Equatorial. With the spectroscope in the direct position, one "half-prism" gives a dispersion of about $18\frac{1}{2}^\circ$ from A to H, and two "half-prisms" a dispersion of about 80° . On some occasions the spectroscope was reversed end for end, the slit and eye-piece being interchanged. The spectroscope in this position gives great purity of spectrum. The wave-lengths of the lines observed and the corresponding elements are taken from Ångström's *Spectre Normal du Soleil*. The wave-lengths of lines not given in Ångström's map are inferred from the wave-lengths of the neighbouring lines. Lines not given by Ångström are distinguished by an asterisk. The amount of broadening is expressed in terms of the normal breadth of the line.

Spot No. 987.

1883 April 6.

The general absorption over the nucleus was very considerable, and from about midway between C and B to the limit of the spectrum at the red end it was very strongly marked. The selective absorption on the other hand was on the whole mainly confined to the fainter lines of the spectrum, often lines not recorded by Ångström. The spectrum from *b* to F was charted with the spectroscope in the direct position, one-prism train; the spectrum below D to the red was examined with the spectroscope reversed, two-prism train. With neither dispersion were any reversals or displacements noticed; the spot seemed to be deep but quiescent.

Wave-length.	Element.	Amount of Broadening.	Remarks.	Wave-length.	Element.	Amount of Broadening.	Remarks.
Tenth-metres.				Tenth-metres.			
6867.0	..	1	B. Much broadened.	5141.4	..	$\frac{1}{2}$	
6603.9	Iron	$\frac{1}{2}$		5138.8	Iron	$\frac{1}{2}$	
6573.9	Iron	$\frac{1}{2}$		5138.3*	..	..	Line about 0.3 tenth-metre in breadth, seen only over the spot.
6562.1	Hydrogen	$\frac{1}{2}$	C.				
6492.3	Calcium	1		5136.9	Iron and nickel	Slight	Line about 0.3 tenth-metre in breadth, seen only over the spot.
6461.9	Calcium	$\frac{1}{2}$		5136.4*	..	..	Line about 0.3 tenth-metre in breadth, seen only over the spot.
6449.2	Calcium	$\frac{1}{2}$					
6438.3	Calcium	$\frac{1}{2}$		5133.7*	..	..	Line about 0.2 tenth-metre in breadth, seen only over the spot.
6161.4	Calcium	$\frac{1}{2}$					
6140.8	Barium	$\frac{1}{2}$					
6121.3	Calcium	$\frac{1}{2}$					
6101.9	Lithium and calcium.	$\frac{1}{2}$					
5895.1	} Sodium {	$\frac{1}{2}$	The D lines. Very nebulous.	5133.1	Iron	Slight	
5889.1		$\frac{1}{2}$		5131.0	Iron	Slight	
5183.1	Magnesium	$\frac{1}{2}$	<i>b</i> ₁ . Nebulous.	5129.4*	..	..	Line about 0.2 tenth-metre in breadth, seen only over the spot.
5176.2	..	$\frac{1}{2}$					
5175.7	Nickel	$\frac{1}{2}$	<i>b</i> ₂ . Nebulous.	5128.7	Titanium	Slight	
5172.2	Magnesium	$\frac{1}{2}$	<i>b</i> ₃ .	5126.8	Iron	$\frac{1}{2}$	
5168.5	Iron and nickel	$\frac{1}{2}$		5125.6	..	$\frac{1}{2}$	
		Very slight.	<i>b</i> ₄ .	5123.3	Iron	$\frac{1}{2}$	
5166.9	Iron and magnesium.	Very slight.		5120.1	Titanium	..	A "band," 0.8 tenth-metre in breadth, seen only over the spot, lies on the more refrangible side of this line. The line seems to coincide exactly with one edge of the "band." If, therefore, the "band" is really only the line greatly broadened, it is displaced towards the blue by 0.4 tenth-metre. Two "bands," each 0.8 tenth-metre in breadth. Much fainter over the spot. Line about 0.3 tenth-metre in breadth, seen only over the spot.
5164.7	Iron	$\frac{1}{2}$					
5164.2	Iron	$\frac{1}{2}$					
5162.3*	..	..	Two of the "bands" seen first on 1880 November 27. Breadth 1.0 tenth-metre. Seen only over the spot.				
5159.6*	..	..					
5156.4*	..	..	Two fine lines, seen only over the spot.				
5156.0*	..	..					
5155.2	Nickel	..	About 0.3 tenth-metre in breadth over the spot.				
5154.7	Sodium	..	About 0.3 tenth-metre in breadth over the spot.				
5153.2	..	..					
5152.7	Sodium and copper	..		5117.8*	} ..	..	
5151.4	Iron	$\frac{1}{2}$		5116.0*	} ..	..	
5150.3	Iron	Slight		5115.0	Nickel	..	
5147.6	Iron	Slight		5113.5*	..	..	
5145.9	Iron and nickel	$\frac{1}{2}$					
5144.6	..	$\frac{1}{2}$					
5143.0*	..	..	A fine line, seen only over the spot.	5112.5	..	1	

Wave-length.	Element.	Amount of Broadening.	Remarks.	Wave-length.	Element.	Amount of Broadening.	Remarks.
Tenth-metres. 5110.9*	..	..	Line about 0.2 tenth-metre in breadth, seen only over the spot.	Tenth-metres. 5044.3*	..	..	
5109.9	Iron	Slight		5043.5*	Iron	..	
5107.2	Iron	Slight		5042.8	..	..	
5105.1	Copper	..		5041.3	Iron and calcium	..	
5103.8	..	..		5040.3	Iron	..	
5102.3	..	..		5038.8	Titanium	..	
5101.0*	..	..		5038.3	Iron	..	
			Line about 0.3 tenth-metre in breadth, seen only over the spot.	5037.8	Titanium	..	
			A broad "band" seen only over the spot. It could not be resolved into lines.	5035.9	Titanium	..	
5096.0*	..	..		5035.5	Titanium	..	
5093.2*	..	..		5032.0	..	..	A "band," 1.0 tenth-metre in breadth, seen only over the spot.
5091.9*	..	..	A "band," 0.6 tenth-metre in breadth, seen only over the spot.	5030.3	..	..	
5090.5	Iron	$\frac{1}{4}$		5029.1	..	..	
5089.5	..	..	Three "bands," each 0.5 tenth-metre in breadth, seen only over the spot.	5017.8	..	Slight	
5087.5	..	..		5016.8	Nickel	..	
5086.0	..	..		5015.6*	..	..	
5084.5	..	..	Line about 0.3 tenth-metre in breadth, seen only over the spot.	5014.4	Iron	..	
				5013.3	Titanium	..	
5083.7	..	Slight		5011.6	Iron	..	
5082.6	Iron	..		5009.5*	..	..	
5081.9	..	Slight		5006.7	Iron and titanium	Slight	
5079.0	Iron	..		5005.6	Iron	..	Double line.
5078.0	Iron	..		5003.2	Iron	..	
5076.4*	..	..	Line about 0.2 tenth-metre in breadth, seen only over the spot.	5002.1	Iron	..	
				5001.2	..	..	
5076.0	Iron	$\frac{1}{4}$		4997.5	..	Slight	
5074.2	Iron	$\frac{1}{5}$		4996.1	..	Slight	
5071.8	Iron	..		4993.4	Iron	..	
			Much broadened. 0.3 tenth-metre in breadth, over the spot.	4990.5	Iron and titanium	..	
5070.3	..	..		4988.5	Iron	..	
			Much broadened. 0.1 tenth-metre in breadth, over the spot.	4984.8	Iron	..	
5068.3	Iron	Slight		4983.5	Iron, nickel, and sodium.	..	
5066.5	Iron	..		4982.7	Iron	..	
5064.5	Iron and titanium	Slight	Double line. The two components were not separated with the dispersion employed.	4982.0	Iron and sodium	..	
				4979.8	Nickel	..	
5063.2*	..	..	Line about 0.3 tenth-metre in breadth, seen only over the spot.	4977.9	Iron	..	
				4975.9	..	..	
5061.4*	..	..	A "band," 1.0 tenth-metre in breadth, seen only over the spot.	4975.2	..	..	
				4972.4	Iron	..	
5059.9	Iron	$\frac{1}{5}$		4970.1	..	..	
5058.3*	..	..	A "band," 0.7 tenth-metre in breadth, seen only over the spot.	4969.1	Iron	..	
				4967.6	Iron	..	
5055.7*	..	..	A "band," 1.0 tenth-metre in breadth, seen only over the spot.	4967.2	Iron	..	
				4965.5	Iron	..	
5053.8*	..	..	Line about 0.2 tenth-metre in breadth, seen only over the spot.	4964.8	..	..	
				4961.8	Iron	..	
5052.7*	..	..	Line about 0.4 tenth-metre in breadth, seen only over the spot.	4961.4*	..	..	Two lines, each about 0.2 tenth-metre in breadth, seen only over the spot.
				4960.9*	..	..	
5046.2*	..	$\frac{2}{3}$		4956.9	Iron	..	
				4954.4	Iron	..	
				4952.2	Iron	..	
				4949.5	Iron	Slight	
				4947.5	..	..	
				4942.0	Iron	Slight	
				4939.0	..	..	
				4938.4	Iron	..	
				4938.0	Iron	..	
				4937.4	..	..	
				4936.5	..	..	
				4935.2	Nickel	..	
				4933.6	Barium	..	
				4932.9	Iron	..	
				4931.3	..	Slight	

OBSERVATIONS OF SPECTRA OF SUN SPOTS

Wave-length.	Element.	Amount of Broadening.	Remarks.	Wave-length.	Element.	Amount of Broadening.	Remarks.
Tenth-metres.				Tenth-metres.			
4929.6	Iron	Slight	Much broadened. Each line about 0.6 tenth-metre in breadth, over the spot.	4892.3	..	$\frac{1}{10}$	F. Slightly diffused.
4927.0	Iron	..		4891.0	Iron	$\frac{1}{10}$	
4924.6	..	..		4890.2	Iron	$\frac{1}{10}$	
4921.4	..	$\frac{1}{10}$		4877.5	Iron and calcium	$\frac{1}{10}$	
4919.9	Iron	$\frac{1}{10}$		4875.5	Iron	$\frac{1}{10}$	
4918.3	Iron	$\frac{1}{10}$		4872.7*	Nickel	$\frac{1}{10}$	
4916.6	..	$\frac{1}{10}$		4871.4	Iron	$\frac{1}{10}$	
4913.4	..	$\frac{1}{10}$		4870.6	Iron	$\frac{1}{10}$	
4899.5	Barium	$\frac{1}{10}$		4867.7	Cobalt	$\frac{1}{10}$	
4896.0	..	$\frac{1}{10}$		4865.4	Nickel	$\frac{1}{10}$	
				4863.7	Iron	$\frac{1}{10}$	
				4860.7	Hydrogen	$\frac{1}{10}$	

Spot No. 1027.

1883 May 15.

The spot, which was not a large one and which had two nuclei divided by a narrow bridge, showed very strong general absorption over both nuclei. The selective absorption was not remarkable. The "bands" were not seen. No twisting, bending, or reversal was noticed on any line in the neighbourhood of the *b* group. The *b* lines themselves were slightly broadened by about one-fourth, and were at once ill-defined at their edges and much darker over the spot than on the general disk. Many of the lines in their immediate neighbourhood were similarly affected. The definition was very bad, and observation was constantly interrupted by passing cloud. Two-prism train direct. Magnifying power 14. Position angle of slit 273°.

1883 May 16.

The general absorption over the two small nuclei was strongly marked, as it had been on the previous day. No twisting or reversal was detected. The definition was fair at the time of the commencement of the observations, but deteriorated as the morning advanced. The observations of the less refrangible lines were therefore made under better conditions than those of the more refrangible. Two-prism train direct. Magnifying power 14. Position angle of slit, 91°.

Wave-length.	Element.	Amount of Broadening.	Remarks.	Wave-length.	Element.	Amount of Broadening.	Remarks.
Tenth-metres.				Tenth-metres.			
6562.1	Hydrogen	..	C. Scarcely affected. The edges of the line were a little fuzzy over the spot.	5150.3	Iron	$\frac{1}{10}$	Three lines, each about 0.5 tenth-metre in breadth, seen only over the spot.
5895.1	Sodium	$\frac{2}{3}$	The D lines.	5147.6	Iron	$\frac{1}{10}$	
5889.1				5145.9	Iron and nickel	$\frac{1}{10}$	
5269.1	Iron and calcium	$\frac{1}{10}$	E. Double line.	5144.6	..	$\frac{1}{10}$	
5183.1				5142.2	..	$\frac{1}{10}$	
5173.2	Iron	$\frac{1}{10}$		5141.8	Iron	$\frac{1}{10}$	
5172.2	Magnesium	$\frac{1}{10}$	<i>b</i> ₁ .	5141.4	..	$\frac{1}{10}$	
5171.2	..	$\frac{1}{10}$	<i>b</i> ₂ .	5138.8	Iron	$\frac{1}{10}$	
5168.5	Iron and nickel	$\frac{1}{10}$	<i>b</i> ₃ .	5136.9	Iron and nickel	$\frac{1}{10}$	
5166.9	Iron and magnesium.	$\frac{1}{10}$	<i>b</i> ₄ .	5135.2*	..	$\frac{1}{10}$	
5165.9	Iron	$\frac{1}{10}$		5133.8*	..	Slight	Line about 0.3 tenth-metre in breadth, seen only over the spot.
5164.7	Iron	$\frac{1}{10}$		5133.1	Iron	Slight	
5164.2	..	$\frac{1}{10}$		5131.0	Iron	$\frac{1}{10}$	
5161.8	Iron	$\frac{1}{10}$		5129.7	..	$\frac{1}{10}$	
5158.6	Iron	$\frac{1}{10}$		5128.7	Titanium	$\frac{1}{10}$	
5155.2	Nickel	$\frac{1}{10}$		5126.8	Iron	$\frac{1}{10}$	
5154.7	Sodium	$\frac{1}{10}$		5119.0*	..	..	
5153.2	..	$\frac{1}{10}$		5117.8*	..	..	
5152.7	Sodium and copper.	$\frac{1}{10}$		5116.3*	..	..	
5151.4	Iron	$\frac{1}{10}$		5113.5*	..	$\frac{1}{10}$	
				5112.5	..	$\frac{1}{10}$	
				5111.9*	..	..	
				5110.9*	..	$\frac{1}{10}$	

Wave-length.	Element.	Amount of Broadening.	Remarks.	Wave-length.	Element.	Amount of Broadening.	Remarks.
Tenth-metres.				Tenth-metres.			
5109.9	Iron	$\frac{1}{3}$		5035.0	Nickel	$\frac{1}{3}$	
5109.0	..	$\frac{1}{3}$		5030.3	..	$\frac{1}{3}$	
5107.2	Iron	$\frac{1}{3}$		5029.1	..	$\frac{1}{3}$	
5105.1	Copper	Slight		5027.4	Iron	$\frac{1}{3}$	
5103.8	..	$\frac{1}{3}$		5026.5	Iron	$\frac{1}{3}$	
5102.3	..	$\frac{1}{3}$		5025.0*	..	$\frac{1}{3}$	
5101.0*	..	..	Line about 0.2 tenth-metre in breadth, seen only over the spot.	5023.0*	..	$\frac{1}{3}$	
				5021.9	..	$\frac{1}{3}$	
5098.7	Nickel	$\frac{1}{4}$		5021.3	Iron	$\frac{1}{4}$	
5098.3	Iron	$\frac{1}{4}$		5019.5	Iron and titanium	$\frac{1}{4}$	
5096.4*	..	..	Three ill-defined lines, each about 0.4 tenth-metre in breadth, seen only over the spot.	5017.8	..	$\frac{1}{4}$	
5095.3*	..	..		5016.8	Nickel	Slight	
5094.2*	..	..		5015.6*	..	$\frac{1}{4}$	
5092.4	..	..	A "band," 1.0 tenth-metre in breadth, seen only over the spot.	5014.4	Iron	$\frac{1}{4}$	
				5013.3	Titanium	$\frac{1}{4}$	
5090.5	Iron	$\frac{1}{2}$		5012.5*	..	$\frac{1}{4}$	
5089.5	..	..	Three "bands," each 0.8 tenth-metre in breadth, seen only over the spot.	5011.6	Iron	$\frac{1}{4}$	
5087.5	..	..		5010.1*	..	$\frac{1}{4}$	
5085.5	..	..		5009.2*	..	$\frac{1}{4}$	
5083.7	..	Slight		5008.3*	..	$\frac{1}{4}$	
5082.6	Iron	$\frac{1}{4}$		5006.7	Iron and titanium	$\frac{1}{4}$	
5082.0	..	$\frac{1}{4}$		5005.6	Iron	$\frac{1}{4}$	
5079.0	Iron	Slight		5005.3	Iron	$\frac{1}{4}$	
5078.0	Iron	$\frac{1}{4}$		5003.2	Iron	$\frac{1}{4}$	
5076.4*	..	..	Line about 0.2 tenth-metre in breadth, seen only over the spot.	5002.1	Iron	$\frac{1}{4}$	
				5001.2	..	$\frac{1}{4}$	
5076.0	Iron	$\frac{1}{4}$		4998.9	Titanium	$\frac{1}{4}$	
5074.2	Iron	$\frac{1}{4}$		4996.1	..	$\frac{1}{4}$	
5072.6*	..	..	Line about 0.2 tenth-metre in breadth, seen only over the spot.	4993.4	Iron	$\frac{1}{4}$	
				4992.4*	..	$\frac{1}{4}$	
5071.8*	Iron	$\frac{1}{5}$		4991.7*	..	$\frac{1}{4}$	
5070.1*	..	$\frac{1}{5}$		4990.5	Iron and titanium	$\frac{1}{4}$	
5068.3	Iron	Slight		4989.6*	..	$\frac{1}{4}$	
5066.5	Iron	$\frac{1}{2}$		4988.5	Iron	$\frac{1}{4}$	
5065.3*	..	$\frac{1}{2}$		4986.2*	..	$\frac{1}{4}$	
5064.5	Iron and titanium	$\frac{1}{2}$		4984.8	Iron	$\frac{1}{4}$	
				4983.5	Iron, nickel, and sodium.	Very slight.	
5063.2*	..	..	Double line. The two components were not separated with the dispersion employed.	4982.7	Iron		
5061.4*	..	..		4982.0	Iron and sodium		
				4981.1	Titanium	$\frac{1}{4}$	
				4979.8	Nickel	$\frac{1}{4}$	
				4977.9	Iron	$\frac{1}{5}$	
				4972.4	Iron	$\frac{1}{5}$	
				4969.1	Iron	$\frac{1}{5}$	
				4965.5	Iron	$\frac{1}{4}$	
				4964.8	..	$\frac{1}{4}$	
				4961.8	Iron	$\frac{1}{4}$	
				4959.9*	..	$\frac{1}{4}$	
				4954.4	..	$\frac{1}{4}$	
				4949.5	..	$\frac{1}{4}$	
				4945.8	Iron	$\frac{1}{4}$	
				4945.4	..	$\frac{1}{4}$	
				4942.0	Iron	$\frac{1}{4}$	
				4933.6	Barium	$\frac{3}{10}$	
				4932.9	Iron	$\frac{1}{10}$	
				4931.3	..	$\frac{1}{10}$	
				4929.6	Iron	$\frac{1}{10}$	
				4927.0	..	$\frac{1}{10}$	
				4926.7	Iron	$\frac{1}{10}$	
				4917.7*	..	$\frac{1}{10}$	
				4914.8*	..	$\frac{1}{10}$	
				4913.4	..	$\frac{1}{10}$	
				4907.1	Iron	$\frac{1}{10}$	
				4902.6	Iron	$\frac{1}{10}$	
				4899.5	Barium	$\frac{1}{10}$	
				4891.0	Iron	$\frac{1}{10}$	

Wave-length.	Element.	Amount of Broadening.	Remarks.	Wave-length.	Element.	Amount of Broadening.	Remarks.
Tenth-metres.				Tenth-metres.			
4890.2	Iron	$\frac{1}{3}$		4867.7	Cobalt	$\frac{1}{2}$	
4886.8	Iron	$\frac{1}{3}$		4867.0*	..	$\frac{1}{2}$	
4884.7	Iron and titanium	$\frac{1}{3}$		4865.4	Nickel	$\frac{1}{2}$	
4883.0	..	$\frac{1}{3}$		4864.9*	..	$\frac{1}{2}$	
4881.1	Iron	$\frac{1}{3}$		4863.7	Iron	Slight	
4877.6	Iron and calcium	Slight		4860.7	Hydrogen	..	F. Scarcely affected. The edges of the line were a little fuzzy over the spot.
4872.7*	..	$\frac{1}{3}$					
4871.4	Iron	$\frac{1}{3}$					
4870.6	Iron	$\frac{1}{3}$					
4869.7*	..	$\frac{1}{3}$		4859.3	Iron	$\frac{1}{3}$	
4869.0*	..	$\frac{1}{2}$		4854.9	Iron and nickel	$\frac{1}{3}$	

SPOT No. 1056.

1883 June 23.

The spot showed very considerable general absorption; the selective absorption was much more marked than usual. The great majority of the lines between *b* and F were much broadened, but the sky clouded over before many of them could be recorded. The "bands," however, were not noticed. Definition bad, limb boiling. Two-prism train direct. Magnifying power 14. Position angle of slit 10° .

Wave-length.	Element.	Amount of Broadening.	Remarks.	Wave-length.	Element.	Amount of Broadening.	Remarks.
Tenth-metres.				Tenth-metres.			
5183.1	Magnesium	$\frac{1}{3}$	b_1 .	5142.2	..	$\frac{1}{3}$	
5172.2	Magnesium	$\frac{1}{3}$	b_2 .	5141.8	Iron	$\frac{1}{3}$	
5168.5	Iron and nickel	$\frac{1}{3}$	b_3 .	5141.4	..	$\frac{1}{3}$	
5166.9	Iron and magnesium.	$\frac{1}{3}$	b_4 .	5138.8	Iron	$\frac{1}{2}$	
5161.8	Iron	$\frac{1}{3}$		5136.8	Iron and nickel	$\frac{1}{3}$	
5158.6	Iron	$\frac{1}{3}$		5133.1	Iron	$\frac{1}{3}$	
5151.4	Iron	$\frac{1}{3}$		5131.0	Iron	$\frac{1}{3}$	
5150.3	Iron	$\frac{1}{3}$		5128.7	Titanium	$\frac{1}{3}$	
5147.6	Iron	$\frac{1}{3}$		5126.8	Iron	$\frac{1}{3}$	
5145.9	Iron and nickel	Slight		5125.6	..	$\frac{1}{3}$	
5144.6	..	Slight		5124.5	Iron	$\frac{1}{3}$	
5143.9*	..	..	0.1 tenth-metre in breadth, seen only over the spot.	5123.3	Iron	$\frac{1}{3}$	
				5121.2	Iron	$\frac{1}{3}$	
				5120.1	Titanium	$\frac{1}{3}$	

SPOT No. 1062.

1883 June 30.

The definition was very bad and the spectrum could not be satisfactorily examined. C and F disappeared over the spot though they could not be distinctly seen to be reversed. Several other lines seemed at times to disappear in like manner, but the spot spectrum was so dark and the definition so bad that it was not possible to make sure of it. The D lines were greatly broadened, particularly D₂, which was quite 6 tenth-metres in breadth, the chief extension taking place towards the blue. The *b* lines seemed only slightly broadened, but were very ill-defined over the spot. Two-prism train reversed.

1883 July 2.

The spectrum showed much selective absorption, the number of new lines which appeared and of old lines broadened being much greater than usual. The "bands" evidently consisted of groups of fine lines. The definition in the early part of the morning was exceedingly bad, and nothing could be done on the spot although the sun was bright. Towards noon the definition improved, and the spectrum from *b* to F was examined with the two-prism train direct. Magnifying power 14. The definition whilst the part from *b* to *c* was examined was fair and often good, but the part from *c* to F was mapped under much less favourable circumstances, the sun getting into haze again. The portion of the spectrum below D towards the red was examined with the two-prism train reversed. Magnifying power 28. Position angle of slit $113^\circ.5$.

Wave-length.	Element.	Amount of Broadening.	Remarks.	Wave-length.	Element.	Amount of Broadening.	Remarks.
Tenth-metres. 6573.9 6562.1	Iron Hydrogen	1 ..	C. No distinct reversal was perceived, but the line disappeared in one or two places over the spot.	Tenth-metres. 5142.2 5141.8 5141.4 5139.8*	.. Iron	$\frac{3}{10}$ $\frac{1}{10}$ Slight ..	Line about 0.1 tenth-metre in breadth, seen only over the spot.
6515.7	..	1		5138.8	Iron	$\frac{1}{2}$	
6492.3	Calcium	1		5138.3*	..	..	
6168.7	Calcium	1					
6161.4	Calcium	2					
6140.8	Barium	1	D ₁ considerably broadened. D ₂ about 3.0 tenth-metres broader than usual. 2.0 tenth-metres of this additional breadth was on the side of the line towards the blue.	5136.9	Iron and nickel	$\frac{1}{4}$	Line about 0.3 tenth-metre in breadth, seen only over the spot.
6135.7	Iron	1		5136.4*	..	..	
6121.3	Calcium	1					
6101.9	Lithium and calcium.	1		5134.2			
5895.1	Sodium	..					
5889.1	Sodium	..	The coronal line 1474 K. No change was detected in this line.	5133.1	Iron	Very slight.	Line about 0.2 tenth-metre in breadth, seen only over the spot.
				5131.0	Iron	Very slight.	
5315.9	..	..		5129.9*	..	..	
5269.1	Iron	..		5128.7	Titanium	Very slight.	
5183.1	Magnesium	$\frac{1}{4}$		5126.8	Iron	Very slight.	
5172.2	Magnesium	$\frac{1}{4}$	Very much broadened. 0.3 tenth-metre over the spot.	5122.2*	..	..	Line about 0.2 tenth-metre in breadth, seen only over the spot.
5171.2	Iron	..					
5170.3*	}	..		5118.0*	}	..	
5169.6*		..		5116.0*		..	
5168.5	Iron and nickel	$\frac{1}{4}$		5113.5*	..	..	
5166.9	Iron and magnesium.	$\frac{1}{4}$	A "band," 1.2 tenth-metre in breadth, seen only over the spot.	5111.2*	..	..	Line about 0.3 tenth-metre in breadth, seen only over the spot.
5165.6	Iron	$\frac{1}{4}$					
5164.7	Iron	$\frac{1}{4}$		5109.9	Iron	$\frac{1}{4}$	
5162.8*		..		5108.3*	..	$\frac{1}{4}$	
				5105.9*	..	$\frac{1}{4}$	
5161.8	Iron	..	A "band," 1.2 tenth-metre in breadth, seen only over the spot.	5105.1	Copper	Slight	A "band," about 1.0 tenth-metre in breadth, seen only over the spot.
5159.8*	..	..		5100.5*	..	..	
5158.6	Iron	$\frac{1}{4}$		5095.3*	}	..	
5156.0				5094.8*		..	
			A line about 0.2 tenth-metre in breadth, seen only over the spot.	5094.0*		..	
5155.2	Nickel	$\frac{1}{2}$		5093.5*		..	
5151.4	Iron	$\frac{1}{4}$		5092.2*		..	
5150.3	Iron	$\frac{1}{4}$	Line about 0.2 tenth-metre in breadth, seen only over the spot.	5091.7*	}	..	Lines slightly diffused, seen only over the spot. These lines occupy the place of some of the "bands" seen first on 1880 November 27.
5149.2*	..	..		5090.1*		..	
				5089.7*		..	
				5089.0*		..	
				5088.0*		..	
5147.6	Iron	$\frac{1}{4}$	Line about 0.1 tenth-metre in breadth, seen only over the spot.	5087.3*	}	..	
5146.5*	..	..		5085.9*		..	
				5085.3*		..	
				5082.6	Iron	$\frac{1}{4}$	
				5081.9	..	$\frac{1}{4}$	
5145.9	Iron and nickel	$\frac{1}{2}$	Line about 0.1 tenth-metre in breadth, seen only over the spot.	5079.0	Iron	$\frac{1}{4}$	Line about 0.2 tenth-metre in breadth, seen only over the spot.
5144.6		$\frac{1}{2}$		5078.0	Iron	$\frac{1}{4}$	
5143.1*	..	..		5074.2	Iron	$\frac{1}{4}$	
				5072.5*	..	..	

OBSERVATIONS OF SPECTRA OF SUN SPOTS

Wave-length.	Element.	Amount of Broadening.	Remarks.	Wave-length.	Element.	Amount of Broadening.	Remarks.
Tenth-metres.				Tenth-metres.			
5071.8	Iron	$\frac{1}{2}$	Line about 0.1 tenth-metre in breadth, seen only over the spot.	5011.6	Iron	..	Line about 0.1 tenth-metre in breadth, seen only over the spot.
5070.0*	..	..		5010.4*	..	..	
5068.3	Iron	$\frac{1}{4}$	Line about 0.2 tenth-metre in breadth, seen only over the spot.	5008.9*	..	..	Line about 0.3 tenth-metre in breadth, seen only over the spot.
5066.5	Iron	$\frac{1}{4}$		5006.7	Iron and titanium	$\frac{1}{2}$	
5065.2*	..	..	Lines slightly diffused, seen only over the spot. These lines occupy the place of some of the "bands" seen first on 1880 November 27.	5005.6	Iron	$\frac{1}{2}$	Line about 0.1 tenth-metre in breadth, seen only over the spot.
5064.5	Iron and titanium	$\frac{1}{2}$		5005.0	Iron	$\frac{1}{2}$	
5064.0*	..	..	Lines slightly diffused, seen only over the spot. These lines occupy the place of some of the "bands" seen first on 1880 November 27.	5004.2*	..	..	Line about 0.1 tenth-metre in breadth, seen only over the spot.
5063.0*	..	..		5003.2	Iron	$\frac{1}{2}$	
5061.9*	..	..		5002.1	Iron	$\frac{1}{2}$	
5061.1*	..	..		5001.2	..	$\frac{1}{2}$	
5059.9	Iron	$\frac{1}{2}$	Lines slightly diffused, seen only over the spot. These lines occupy the place of some of the "bands" seen first on 1880 November 27.	5000.6*	..	..	Line about 0.1 tenth-metre in breadth, seen only over the spot.
5058.4*	..	..		5000.0	..	$\frac{1}{2}$	
5057.3*	..	..		4998.9	Titanium	$\frac{1}{2}$	
5056.4*	..	..		4997.5	..	$\frac{1}{2}$	
5055.0*	..	..	Line about 0.1 tenth-metre in breadth, seen only over the spot.	4996.1	..	..	Two lines, each about 0.1 tenth-metre in breadth, seen only over the spot.
5053.9*	..	..		4994.8	..	..	
5052.7*	..	..		4993.4	Iron	$\frac{1}{2}$	
5051.1*	Iron	$\frac{1}{2}$		4990.5	Iron and titanium	$\frac{1}{2}$	
5049.5	Iron	$\frac{1}{2}$	Line about 0.1 tenth-metre in breadth, seen only over the spot.	4988.5	Iron	$\frac{1}{2}$	Line about 0.2 tenth-metre in breadth, seen only over the spot.
5048.3	..	..		4984.8	Iron	$\frac{1}{2}$	
5047.9	Iron	$\frac{1}{2}$		4983.5	Iron, nickel, and sodium.	$\frac{1}{2}$	
5046.6*	..	..		4982.0	Iron and sodium	$\frac{1}{2}$	
5045.1*	..	..	Two lines each 0.1 tenth-metre in breadth, seen only over the spot.	4981.1	Titanium	$\frac{1}{2}$	Two lines, each about 0.1 tenth-metre in breadth, seen only over the spot.
5043.5	Iron	$\frac{3}{10}$		4979.8	Nickel and titanium.	$\frac{1}{2}$	
5042.6*	..	..		4977.9	Iron	$\frac{1}{2}$	
5042.0*	..	..		4977.2*	..	..	
5041.3	Iron and calcium	$\frac{1}{2}$	Three lines, each about 0.2 tenth-metre in breadth, seen only over the spot.	4976.2*	..	..	Line about 0.2 tenth-metre in breadth, seen only over the spot.
5040.3	Iron	Slight		4975.9	..	$\frac{3}{10}$	
5038.8	Titanium	Slight		4975.2	..	$\frac{1}{3}$	
5038.3	Iron	Slight		4973.6*	..	..	
5037.8	Titanium	Slight	Two lines, each 0.1 tenth-metre in breadth, seen only over the spot.	4972.4	Iron	$\frac{3}{10}$	Line about 0.2 tenth-metre in breadth, seen only over the spot.
5035.9	Titanium	Slight		4970.1	..	$\frac{3}{10}$	
5035.5	Titanium	Slight		4969.5	Iron	$\frac{3}{10}$	
5035.0	Nickel	Slight		4969.1	Iron	$\frac{3}{10}$	
5033.7*	..	..	Two lines, each 0.1 tenth-metre in breadth, seen only over the spot.	4967.6	Iron	$\frac{3}{10}$	Two lines, each 0.2 tenth-metre in breadth, seen only over the spot.
5032.4*	..	..		4967.2	Iron	$\frac{3}{10}$	
5031.1*	..	..		4965.5	Iron	$\frac{1}{4}$	
5030.3	..	$\frac{1}{4}$		4964.8	..	$\frac{1}{4}$	
5029.1	..	$\frac{1}{4}$	Line about 0.1 tenth-metre in breadth, seen only over the spot.	4963.1*	..	..	Two lines, each 0.2 tenth-metre in breadth, seen only over the spot.
5027.4	Iron	$\frac{1}{10}$		4961.8	Iron	$\frac{1}{4}$	
5026.5	Iron	$\frac{1}{10}$		4960.3*	..	..	
5024.2*	..	..		4958.3*	..	..	
5023.8*	..	..	Line about 0.1 tenth-metre in breadth, seen only over the spot.	4956.9	Iron	Slight	Line about 0.1 tenth-metre in breadth, seen only over the spot.
5021.9	..	$\frac{1}{10}$		4954.4	Iron	$\frac{1}{4}$	
5021.3	Iron	Slight		4952.2	Iron	$\frac{1}{4}$	
5019.5	Iron and titanium	Slight		4952.0	..	$\frac{1}{4}$	
5017.8	..	..	Line about 0.1 tenth-metre in breadth, seen only over the spot.	4949.5	Iron	$\frac{1}{10}$	Line about 0.1 tenth-metre in breadth, seen only over the spot.
5016.8	Nickel	$\frac{1}{10}$		4945.7	Iron	$\frac{1}{4}$	
5015.6*	..	$\frac{1}{10}$		4945.2	..	$\frac{1}{4}$	
5014.4	Iron	$\frac{1}{10}$					
5013.3	Titanium	$\frac{1}{10}$					
5012.5*	..	..					

Wave-length.	Element.	Amount of Broadening.	Remarks.	Wave-length.	Element.	Amount of Broadening.	Remarks.
Tenth-metres.				Tenth-metres.			
4942.0	Iron	$\frac{1}{4}$		4884.7	Iron and titanium	$\frac{1}{4}$	
4933.6	Barium	$\frac{1}{5}$		4883.0	..	$\frac{1}{4}$	
4927.0	Iron	$\frac{1}{5}$		4881.1	Iron	$\frac{1}{4}$	
4923.2	Iron	$\frac{1}{5}$		4877.6	Iron and calcium	$\frac{1}{2}$	
4919.9	Iron	$\frac{1}{4}$		4875.5	Iron	$\frac{1}{2}$	
4918.3	Iron	$\frac{1}{4}$		4874.2*	..	$\frac{1}{2}$	
4916.6	..	$\frac{1}{4}$		4872.9*	..	$\frac{1}{2}$	
4911.0	..	$\frac{1}{2}$		4871.4	Iron	$\frac{1}{2}$	
4907.1	Iron	$\frac{1}{4}$		4870.6	Iron	$\frac{1}{2}$	
4904.1	Nickel	$\frac{1}{4}$		4867.7	Cobalt	$\frac{1}{2}$	
4902.6	Iron	$\frac{3}{10}$		4866.2*	..	$\frac{3}{10}$	
4899.5	Barium	$\frac{3}{10}$		4865.4	Nickel	$\frac{3}{10}$	
4892.3	..	$\frac{1}{4}$		4864.5*	..	$\frac{3}{10}$	
4891.0	Iron	$\frac{3}{10}$		4863.7	Iron	$\frac{3}{10}$	
4890.2	Iron	$\frac{3}{10}$		4860.7	Hydrogen	..	F. Ill-defined over the spot. Not distinctly seen to be broadened.
4888.4	..	$\frac{1}{4}$					
4888.1	Iron	$\frac{1}{4}$					
4886.8	Iron	$\frac{1}{3}$		4859.3	Iron	$\frac{1}{2}$	

1883 July 5.

The definition was very bad, clouds were constantly passing, and the images were very unsteady. A comparison of the spectrum of the spot with the chart made on 1883 July 2 showed that its general character had suffered little or no change. No lines were noticed to be reversed, but two or three appeared much broader than on July 2. The "bands" could not be distinguished, probably on account of the bad definition. One-prism train direct. Magnifying power 28. Position angle of slit 90°.

Wave-length.	Element.	Amount of Broadening.	Remarks.
Tenth-metres.			
6562.1	Hydrogen	..	C. Ill-defined over the spot. Not distinctly seen to be broadened.
5895.1	Sodium	$\frac{1}{2}$	D ₁ .
5889.1	Sodium	$\frac{1}{2}$	D ₂ . No displacement noticed on this line, the broadening seeming symmetrical with the line.
5269.1	Iron	Slight	E.
5183.1	Magnesium	$\frac{1}{3}$	b ₁ .
5172.2	Magnesium	$\frac{1}{3}$	b ₂ .
5168.5	Iron and nickel	$\frac{1}{3}$	b ₃ .
5166.9	Iron and magnesium.	$\frac{1}{3}$	b ₄ .
4867.7	Cobalt	..	More than doubled. Very much broader than on July 2.
4860.7	Hydrogen		F. Ill-defined over the spot. Not distinctly seen to be broadened.

SPOT No. 1144.

1883 October 15.

The nucleus of this spot showed a spectrum which differed in an important degree from most of those examined during the last two years. With a very dark, *uniformly* dark continuous spectrum, the traces of selective absorption in the part of the spectrum between *b* and *F* as shown by the broadening of individual lines were very slight. Many lines on the contrary were much fainter over the nucleus, so that the loss of distinctness of many of the lines was more noticeable than any increase in breadth. It, was, however, a very difficult phenomenon to observe satisfactorily, particularly as the images were unsteady and clouds were frequently passing. A hasty inspection showed that the lines

below b presented more of their usual appearance than the lines between b and F , i.e., they were broadened rather than weakened. The "bands" were seen but were not conspicuous. The penumbra showed very slight absorption of any kind. One prism-train direct. Magnifying power 28. Position angle of slit 95° .

Wave-length.	Element.	Amount of Broadening.	Remarks.	Wave-length.	Element.	Amount of Broadening.	Remarks.
Tenth-metres.				Tenth-metres.			
6562.1	Hydrogen	..	C. Slightly broadened, but not so dark over the spot as on the Sun.	5117.8*	}	..	Two bands, each 0.8 tenth-metre in breadth, seen only over the spot.
				5116.0*		..	
5895.1	Sodium	2	D ₁ . } The broadening was faint and diffused.	5096.2*		..	
5889.1	Sodium	2		5093.8*		..	
5315.9	..	..	The coronal line, 1474 K. Very faint. Scarcely visible.	5091.8*	..	..	A "band," about 0.8 tenth-metre in breadth, seen only over the spot.
5269.1	Iron	..	E. Ill-defined over the spot. The lines were believed to be slightly broader and at the same time slightly fainter.	5089.6*	}	..	Three "bands," each about 1.0 tenth-metre in breadth, seen only over the spot.
				5087.8*		..	
				5085.9*		..	
5183.1	Magnesium	..	b ₁ . Somewhat ill-defined. Not noticed to be either broader or fainter.	5076.8*	..	..	A "band," about 1.0 tenth-metre in breadth, seen only over the spot.
5172.2	Magnesium	1/4	b ₂ . Very ill-defined indeed.	5071.8	Iron	..	Very greatly broadened. 1.2 tenth-metre in breadth.
5168.5	Iron and nickel	..	b ₃ . } Somewhat ill-defined. Not noticed to be either broader or fainter.	5064.5	Iron and titanium	1/3	Double line. The two components were not separated with the dispersion employed. The line appeared to be displaced towards the red.
5166.9	Iron and magnesium.	..	b ₄ . }				Two "bands," each about 0.8 tenth-metre in breadth, seen only over the spot.
5164.2	..	..					
5162.3*	..	..	A "band," 1.0 tenth-metre in breadth, seen only over the spot.	5063.0*	}	..	Two "bands," each about 0.8 tenth-metre in breadth, seen only over the spot.
				5061.2*		..	
5159.6	..	..	A "band," 0.5 tenth-metre in breadth, seen only over the spot.	5059.9	Iron	1/3	
5158.6	Iron	1/3		5058.5*	}	..	Five "bands," each about 0.8 tenth-metre in breadth, seen only over the spot.
5156.2*	..	..	Line 0.3 tenth-metre in breadth, seen only over the spot.	5057.1*		..	
				5059.9*		..	
				5054.3*		..	
5153.2	..	}	These two lines were much broadened so that they were confused together over the spot.	5052.9*	..	..	Fainter over the spot.
5152.7	Sodium and copper.			5048.3	..	..	
				5047.9	Iron	..	Fainter over the spot.
5141.4	..	1/2		5044.2	}	..	Two lines, each about 0.3 tenth-metre in breadth, seen only over the spot.
5138.8	Iron	1/2		5042.8		..	
5136.9	Iron and nickel	1/2					
5124.8*	..	..	Line about 0.1 tenth-metre in breadth, seen only over the spot.	5035.9	Titanium	2/3	
				5035.5	Titanium	1/3	
				5009.0*	..	..	Line about 0.4 tenth-metre in breadth over the spot.
5124.5	Iron	Very slight.		5003.2	Iron	..	Fainter over the spot.
5123.3	Iron	Very slight.		5002.1	Iron	..	Fainter over the spot.
				5001.2	..	..	Fainter over the spot.
5120.1	Titanium	..	A "band," 0.8 tenth-metre in breadth, seen only over the spot, lies on the more refrangible side of this line. The line seems to coincide exactly with one edge of the "band." If, therefore, the "band" is really only the line greatly broadened, it is displaced towards the blue by 0.4 tenth-metre.	4998.9	Titanium	1/4	
				4997.5	..	..	Fainter over the spot.
				4996.1	..	..	
				4993.4	Iron	1/4	
				4990.5	Iron and titanium	3/10	
				4988.5	Iron	1/5	
				4984.8	Iron	1/5	
				4977.9	Iron	1/5	
				4975.9	..	1/5	
				4975.2	..	1/5	
				4965.5	Iron	1/5	
				4964.8	..	1/5	
				4961.8	Iron	1/4	

Wave-length.	Element.	Amount of Broadening.	Remarks.	Wave-length.	Element.	Amount of Broadening.	Remarks.
Tenth-metres.				Tenth-metres.			
4954.4	Iron	$\frac{1}{4}$	Displaced towards the red. About 0.3 tenth-metre in breadth over the spot.	4899.5	Barium	$\frac{1}{2}$	Fainter over the spot although considerably broadened.
4949.5	Iron	$\frac{1}{4}$					
4947.5*	..	..		4891.0	Iron	..	Fainter over the spot.
4945.7	Iron	$\frac{1}{2}$	Very much fainter over the spot.	4890.2	Iron	..	Fainter over the spot.
4945.2	..	$\frac{1}{2}$		4881.1	Iron	..	Fainter over the spot.
4937.4	..	$\frac{1}{4}$		4871.4	Iron	Very slight.	Much fainter over the spot.
4936.5	..	$\frac{1}{4}$					
4923.2	Iron	..		4870.6	Iron	$\frac{1}{3}$	Fainter over the spot.
4919.9	Iron	$\frac{1}{4}$	Displaced towards the red. Much fainter over the spot. Fainter over the spot.	4868.1*	..	$\frac{1}{3}$	
4918.3	Iron	$\frac{1}{4}$		4867.7	Cobalt	$\frac{1}{3}$	
4907.1	..	$\frac{1}{4}$		4863.7	Iron	$\frac{1}{4}$	
4904.1	Nickel	..		4860.7	Hydrogen	..	F. Very slightly broadened but much fainter over the spot.
4902.6	Iron	..					
				4859.3	Iron	..	Much fainter over the spot.

SPOT No. 1138.

1883 October 15.

The part of the spot examined was the nucleus nearest the limb. The spectrum was nearly as dark as that of Spot No. , but there was much greater evidence of selective absorption as seen in the broadening of particular lines. With the spectroscope reversed, two-prism train, magnifying powers 56 and 28, the C and F lines were perceived to be reversed, and each displaced about $\frac{1}{3}$ tenth-metre towards the blue. This reversal took place on the following edge of the nucleus examined and extended about $\frac{1}{3}$ of the distance towards its centre. Several lines appeared fainter or smudged over the spot, the pairs of iron lines 4919.9, 4918.3, and 4871.4, 4870.6 being specially noted. The following observations were made with the one-prism train direct. Magnifying power 28, position angle of slit 95°. The observations were much interrupted by passing cloud.

Wave-length.	Element.	Amount of Broadening.	Remarks.
Tenth-metres.			
6562.1	Hydrogen	..	C. Reversed, but no displacement noticed.
5895.1	Sodium	$1\frac{1}{2}$	D ₁ . Diffused over the spot.
5889.1	Sodium	$1\frac{1}{2}$	D ₂ . Diffused over the spot.
5871.0	..	..	D ₃ . Not seen.
5315.9	..	..	The coronal line. 1474 K. No change perceived.
5269.1	Iron	$\frac{1}{4}$	E.
5183.1	Magnesium	$\frac{1}{4}$	b ₁ .
5172.2	Magnesium	$\frac{1}{4}$	b ₂ .
5168.5	Iron and nickel	$\frac{1}{4}$	b ₃ .
5166.9	Iron and magnesium.	$\frac{1}{4}$	b ₄ .
4860.7	Hydrogen	..	F. Reversed, but no displacement noticed.

MEASURES OF DISPLACEMENT OF LINES in the SPECTRA of STARS, as compared with those of
ROYAL OBSERVATORY, GREENWICH,

Note.—The motion corresponding to the displacement actually observed may be inferred from the Concluded Motion by adding the Earth's Motion algebraically.

The "Half-prism" Spectroscope was used throughout. The numerals in the third column denote the number of "Half-prisms" used. Each "Half-prism" is compound, and is composed of a flint "half-prism," (*i.e.*, the half of an isosceles prism, cut by a plane perpendicular to the base,) and a crown prism, cemented on the emergent face, so as to form the half of a direct-vision prism. With one such half-prism, a dispersion of about $18\frac{1}{2}^\circ$ from A to H, equivalent to that produced by four flint prisms of 60° , is obtained; and with a train of two a dispersion of about 80° , equivalent to that produced by sixteen flint prisms of 60° . The dispersions have been inferred from measurements of the distance between b_1 and b_4 as compared with the wave-length measure.

Date, 1883, Greenwich Sidereal Time.	Observer.	Number of Half- Prisms.	Reading of Position Circle.	Objects compared.	Micrometer Readings.	Displacement.		Width of Slit.
						Measured.	Estimated in Terms of the Breadth of the Comparison Line.	
d h m Jan. 15. 6. 9	M	1	5	Moon F H β Moon F H β Moon F H β	r 0.657 0.648 0.659 0.649 0.646 0.632	r + 0.009 + 0.010 + 0.014	r	
Feb. 16. 7. 0 7. 15 7. 35 7. 50	M " " "	1 " " "	5 " " "	Sirius F..... H β Sirius F..... H β Sirius F..... H β Sirius F..... H β	0.503 0.423 0.505 0.427 0.477 0.422 0.485 0.431	+ 0.080 + 0.078 + 0.055 + 0.054	$\frac{1}{3}$ towards red $\frac{1}{3}$ towards red $\frac{1}{6}$ towards red $\frac{1}{6}$ towards red	
Feb. 16. 8. 0 8. 10	M "	1 "	5 "	Procyon F H β Procyon F H β	0.433 0.343 0.448 0.336	+ 0.090 + 0.112	$\frac{1}{4}$ towards red $\frac{1}{8}$ towards red	
Feb. 16. 8. 25 8. 35	M "	1 "	5 "	Pollux F..... H β Pollux F..... H β	0.304 0.383 0.239 0.411	- 0.079 - 0.172	$\frac{1}{8}$ towards blue $\frac{1}{2}$ towards blue	
Feb. 16. 8. 45 8. 55 9. 5	M " "	1 " "	5 " "	Castor F..... H β Castor F..... H β Castor F..... H β	0.711 0.622 0.697 0.652 0.775 0.682	+ 0.089 + 0.045 + 0.093	$\frac{1}{3}$ towards red $\frac{1}{3}$ towards red $\frac{1}{3}$ towards red	
Feb. 16. 9. 15 9. 35	M " " " " "	1 " " " " "	5 " " " " "	Moon F..... H β Moon F..... H β Moon F..... H β Moon F..... H β Moon F..... H β	0.651 0.663 0.652 0.677 0.662 0.654 0.655 0.661 0.670 0.646	- 0.012 - 0.025 + 0.008 - 0.006 + 0.024		

TERRESTRIAL ELEMENTS, and CONCLUDED MOTIONS in the LINE of SIGHT, from OBSERVATIONS at the in the Year 1883.

1^{rev.} of the micrometer corresponds, with one "half-prism" to 10.4 tenth-metres or 375 miles per second for the *b* lines, and to 7.91 tenth-metres or 304 miles per second for the F line; and with two "half-prisms" to 2.1 tenth-metres or 76 miles per second for *b* and to 1.71 tenth-metres or 66 miles per second for F.

1^{rev.} of the screw for opening the slit corresponds to 0.01 inch, or about 10".

The slit lies north and south when the reading of the Position-Circle is 5°.

The estimations of the displacements have been made by *indirect* comparison with the comparison-line, except where the contrary is expressly stated.

Earth's Motion in Miles per Second.	Concluded Motion of Star in Miles per Second.		REMARKS.
	Measured.	Estimated.	
	+ 2.8 + 3.1 + 4.3		Moon in cloud. Spectrum faint. Coincidence apparently perfect.
+10.3 +10.3 +10.3 +10.3	+ 14.2 + 13.6 + 6.6 + 6.3	+ 18.7 + 18.7 + 13.9 + 13.9	Definition poor.
+10.1 +10.1	+ 17.5 + 24.3	+ 26.1 + 38.2	Definition good.
+10.8 +10.8	- 35.0 - 63.6	- 59.1 - 83.2	Definition fair.
+11.8 +11.8 +11.8	+ 15.4 + 2.0 + 16.7	+ 36.5 + 17.2 + 36.5	Definition good. Star-line not satisfactorily seen. Conditions as good as for the first observation.
	- 3.7 - 7.7 + 2.5 - 1.8 + 7.4		Coincidence appeared perfect.

Date, 1885, Greenwich Sidereal Time.	Observer.	Number of Half- Prisms.	Reading of Position Circle.	Objects compared.	Micrometer Readings.	Displacement.		Width of Slit.
						Measured.	Estimated in Terms of the Breadth of the Comparison Line.	
Feb. 23. 6. 10	M	1	5	Higel F.....	1'112			
				H β	0'962	+ 0'150	$\frac{1}{2}$ towards red	0'150
				Higel F.....	1'032			
				H β	0'932	+ 0'100	$\frac{1}{2}$ towards red	0'150
Feb. 23. 6. 50	M	1	5	Sirius F.....	0'684			
				H β	0'646	+ 0'038	$\frac{1}{2}$ towards red	0'150
				Sirius F.....	0'732			
				H β	0'672	+ 0'060	$\frac{1}{2}$ towards red	0'150
				Sirius F.....	0'731			
				H β	0'690	+ 0'041	$\frac{1}{2}$ towards red	0'150
Feb. 23. 7. 55	M	1	5	Sirius F.....	0'691			
				H β	0'691	0'000	Coincident	0'150
				Procyon F.....	0'780			
				H β	0'662	+ 0'118	$\frac{1}{2}$ towards red	0'150
Feb. 23. 8. 5				Procyon F.....	0'748			
				H β	0'684	+ 0'064	$\frac{1}{2}$ towards red	0'150
Feb. 23. 8. 20	M	1	5	Pollux F.....	0'828			
				H β	0'861	- 0'033	$\frac{1}{2}$ towards blue	0'150
				Pollux F.....	0'731			
				H β	0'832	- 0'101	$\frac{1}{2}$ towards blue	0'150
Feb. 23. 8. 40	M	1	5	Regulus F.....	0'548			
				H β	0'275	+ 0'075	$\frac{1}{2}$ towards red	0'150
				Regulus F.....	0'582			
				H β	0'288	+ 0'094	$\frac{1}{2}$ towards red	0'150
Feb. 23. 9. 0	M	1	5	Moon F.....	0'954			
				H β	0'949	+ 0'005		0'150
				Moon F.....	0'952			
				H β	0'947	+ 0'005		0'150
				Moon F.....	0'962			
				H β	0'973	- 0'011		0'150
				Moon F.....	0'983			
				H β	0'990	- 0'007		0'150
				Moon F.....	0'991			
				H β	0'999	- 0'008		0'150
Mar. 30. 7. 40	M	1	5	Sirius F.....	0'369			
				H β	0'397	- 0'028	$\frac{1}{2}$ towards blue	0'165
				Sirius F.....	0'345			
Mar. 30. 7. 50				H β	0'384	- 0'039	$\frac{1}{2}$ towards blue	0'165
Mar. 30. 8. 10	M	2	5	Sirius F.....	1'279			
				H β	0'961	+ 0'318	$\frac{1}{2}$ towards red	0'165
				Sirius F.....	0'705			
				H β	0'883	- 0'008	$\frac{1}{2}$ towards blue	0'165
				Sirius F.....	0'420			
				H β	0'068	+ 0'352	$\frac{1}{2}$ towards red	0'115
Mar. 30. 8. 40				Sirius F.....	0'116			
				H β	0'102	+ 0'014	Coincident	0'115
Mar. 30. 8. 50	M	1	5	Sirius F.....	0'128			
				H β	0'098	+ 0'030	$\frac{1}{2}$ towards red	0'115
				Sirius F.....	0'091			
				H β	0'120	- 0'031	$\frac{1}{2}$ towards blue	0'115
				Sirius F.....	0'152			
				H β	0'150	+ 0'002	Coincident	0'115
Mar. 30. 9. 10				Sirius F.....	0'112			
				H β	0'145	- 0'033	$\frac{1}{2}$ towards blue	0'115

Earth's Motion in Miles per Second.	Concluded Motion of Star in Miles per Second.		REMARKS.
	Measured.	Estimated.	
+15.8	+ 30.2	+ 30.2	Star-line faint, observations difficult.
+15.8	+ 14.9	+ 14.9	
+11.4	+ 0.3	- 1.8	Definition good. Spectrum bright. Though the measures are accordant, the star-line is so difficult to bisect from its breadth and diffused character, that the agreement may be largely accidental. Repeated and careful direct comparisons seemed to show an exceedingly small displacement towards the red.
+11.4	+ 7.0	+ 7.8	
+11.4	+ 1.2	- 1.8	
+11.4	+ 11.4	- 11.4	
+11.8	+ 24.4	+ 26.6	Star-line well seen.
+11.8	+ 7.8	+ 7.4	
+12.5	- 22.6	- 20.2	Star-line very faint, and difficult to see.
+12.5	- 43.5	- 43.2	
+ 2.2	+ 20.8	+ 23.4	Star-line distinct. Observations considered quite satisfactory.
+ 2.2	+ 26.6	+ 28.5	
	+ 1.5		Coincidence appeared perfect. Both spectra well defined.
	+ 1.5		
	- 3.4		
	- 2.2		
	- 2.5		
+14.2	- 22.8	- 24.9	Spectrum steady. Definition good. Direct comparison showed little or no displacement.
+14.2	- 26.2	- 24.9	
+14.2	+ 6.6	+ 11.3	The star-line with this dispersion is so exceedingly broad and ill-defined that the bisections are necessarily very rough.
+14.2	- 20.0	- 21.9	
+14.2	+ 8.8	+ 11.9	
+14.2	- 13.3	- 14.2	
+14.2	- 5.0	- 3.4	
+14.2	- 23.7	- 25.0	
+14.2	- 13.6	- 14.2	
+14.2	- 24.3	- 25.0	

Date, 1883, Greenwich Sidereal Time.	Observer.	Number of Half- Prisms.	Reading of Position Circle.	Objects compared.	Micrometer Readings.	Displacement.		Width of Slit.
						Measured.	Estimated in Terms of the Breadth of the Comparison Line.	
d h m			°		r	r		r
Mar. 30. 9. 50	M	1	5	Procyon F.....	0.228			
				H β	0.186	+ 0.042	$\frac{1}{3}$ towards red	0.115
10. 0	"	"	"	Procyon F.....	0.182			
				H β	0.133	+ 0.049	$\frac{1}{4}$ towards red	0.115
Mar. 30. 10. 10	M	2	5	Procyon F.....	0.970			
				H β	0.589	+ 0.381	$\frac{1}{2}$ towards red	0.115
10. 20	"	"	"	Procyon F.....	0.756			
				H β	0.546	+ 0.210	$\frac{1}{4}$ towards red	0.115
Mar. 30. 10. 55	M	1	5	Pollux F.....	0.099			
				H β	0.240	- 0.141	$\frac{2}{3}$ towards blue	0.115
11. 15	"	"	"	Pollux F.....	0.202			
				H β	0.238	- 0.036	$\frac{1}{3}$ towards blue	0.115
Mar. 30. 11. 35	M	1	5	Regulus F.....	0.808			
				H β	0.706	+ 0.102	$\frac{1}{2}$ towards red	0.115
11. 50	"	"	"	Regulus F.....	0.838			
				H β	0.742	+ 0.096	$\frac{1}{2}$ towards red	0.115
Mar. 30. 12. 10	M	1	5	Spica F.....	0.990			
				H β	1.009	- 0.019	$\frac{1}{10}$ towards blue	0.115
12. 25	"	"	"	Spica F.....	0.942			
				H β	0.971	- 0.029	$\frac{1}{3}$ towards blue	0.115
Mar. 30. 12. 40	M	1	5	Arcturus F.....	0.090			
				H β	0.208	- 0.118	$\frac{2}{3}$ towards blue	0.115
12. 55	"	"	"	Arcturus F.....	0.068			
				H β	0.204	- 0.136	$\frac{2}{3}$ towards blue	0.115
May 7. 14. 0	M	1	6	Spica F.....	0.128			
				H β	0.287	- 0.159	$\frac{2}{3}$ towards blue	0.148
14. 15	"	"	"	Spica F.....	0.132			
				H β	0.289	- 0.157	$\frac{2}{3}$ towards blue	0.148
May 7. 14. 35	M	1	6	Arcturus F.....	0.130			
				H β	0.332	- 0.202	$\frac{3}{4}$ towards blue	0.148
14. 50	"	"	"	Arcturus F.....	0.282			
				H β	0.394	- 0.112	$\frac{2}{3}$ towards blue	0.148
May 15. 14. 18	N	1	5	Moon F.....	0.361			
				H β	0.367	- 0.006		
14. 22	"	"	"	Moon F.....	0.190			
				H β	0.200	- 0.010		
14. 27	"	"	"	Moon F.....	0.198			
				H β	0.210	- 0.012		
14. 32	"	"	"	Moon F.....	0.002			
				H β	0.013	- 0.011		
May 16. 13. 30	M	1	6	Pollux F.....	0.354			
				H β	0.596	- 0.242	$\frac{1}{2}$ towards blue	0.205
13. 45	"	"	"	Pollux F.....	0.558			
				H β	0.604	- 0.046	$\frac{1}{2}$ towards blue	0.205
14. 5	"	"	"	Pollux F.....	0.378			
				H β	0.603	- 0.225	$\frac{1}{2}$ towards blue	0.205

Earth's Motion in Miles per Second.	Concluded Motion of Star in Miles per Second.		REMARKS.
	Measured.	Estimated.	
+ 17.2	- 4.3	- 6.4	
+ 17.2	- 2.1	- 3.7	
+ 17.2	+ 7.7	+ 8.9	Spectrum too faint for the two-prism train to be used with advantage. Definition fair.
+ 17.2	- 3.5	- 4.1	Spectrum steady.
+ 17.8	- 61.1	- 53.8	Star-line faint and very difficult to bisect.
+ 17.8	- 28.9	- 28.6	
+ 12.3	+ 19.0	+ 14.7	Definition good. Spectrum steady. Star-line fairly easy to bisect.
+ 12.3	+ 17.2	+ 14.7	
- 3.9	- 1.9	- 1.5	Definition good.
- 3.9	- 5.0	- 6.9	
- 3.4	- 32.8	- 29.0	Star-line well seen. Definition good.
- 3.4	- 38.3	- 32.6	
+ 7.6	- 55.9	- 50.5	Definition very bad, and bisections therefore by no means satisfactory.
+ 7.6	- 55.3	- 50.5	
+ 6.4	- 67.8	- 54.7	Spectrum tremulous. Star-line faint. Definition poor.
+ 6.4	- 40.4	- 32.2	
	- 1.8		Coincidence appeared perfect.
	- 3.0		
	- 3.6		
	- 3.3		
+ 14.9	- 88.4	- 63.5	Spectrum tremulous. Definition bad. Star-line only seen by glimpses.
+ 14.9	- 28.9	- 28.8	
+ 14.9	- 83.3	- 63.5	

Date, 1883. Greenwich Sidereal Time.	Observer.	Number of Half- Prisms.	Reading of Position Circle.	Objects compared.	Micrometer Readings.	Displacement.		Width of Slit.
						Measured.	Estimated in Terms of the Breadth of the Comparison Line.	
d h m			°		r	r		r
May 16. 14. 25	M	1	6	Moon F.....	0.511			
	"	"	"	H β	0.500	+ 0.011		0.205
	"	"	"	Moon F.....	0.492			
	"	"	"	H β	0.498	- 0.006		0.205
	"	"	"	Moon F.....	0.488			
	"	"	"	H β	0.482	+ 0.006		0.205
	"	"	"	Moon F.....	0.493			
	"	"	"	H β	0.486	+ 0.007		0.205
	"	"	"	Moon F.....	0.484			
	"	"	"	H β	0.492	- 0.008		0.205
May 16. 15. 20	M	1	6	Spica F.....	0.425			
	"	"	"	H β	0.492	- 0.067	$\frac{1}{2}$ towards blue	0.205
15. 35	"	"	"	Spica F.....	0.408			
	"	"	"	H β	0.497	- 0.089	$\frac{1}{4}$ towards blue	0.205
15. 50	"	"	"	Spica F.....	0.480			
	"	"	"	H β	0.486	- 0.006	Coincident	0.205
May 16. 16. 20	M	1	6	α Coronæ F.....	0.286			
	"	"	"	H β	0.147	+ 0.139	$\frac{1}{2}$ towards red	0.205
16. 40	"	"	"	α Coronæ F.....	0.220			
	"	"	"	H β	0.150	+ 0.070	$\frac{1}{4}$ towards red	0.205
May 16. 17. 5	M	1	6	α Lyrae F.....	0.762			
	"	"	"	H β	0.925	- 0.163	$\frac{1}{2}$ towards blue	0.205
17. 20	"	"	"	α Lyrae F.....	0.787			
	"	"	"	H β	0.954	- 0.167	$\frac{1}{2}$ towards blue	0.205
May 21. 13. 30	M	1	6	Arcturus F.....	0.272			
	"	"	"	H β	0.402	- 0.130	$\frac{3}{8}$ towards blue	0.175
13. 45	"	"	"	Arcturus F.....	0.278			
	"	"	"	H β	0.408	- 0.130	$\frac{3}{8}$ towards blue	0.175
May 21. 14. 0	M	1	6	Moon F.....	0.678			
	"	"	"	H β	0.708	- 0.030		0.175
	"	"	"	Moon F.....	0.698			
	"	"	"	H β	0.692	+ 0.006		0.175
	"	"	"	Moon F.....	0.737			
	"	"	"	H β	0.730	+ 0.007		0.175
	"	"	"	Moon F.....	0.820			
	"	"	"	H β	0.830	- 0.010		0.175
14. 20	"	"	"	Moon F.....	0.796			
	"	"	"	H β	0.782	+ 0.014		0.175
May 21. 14. 50	M	1	6	η Ursæ Majoris F....	0.211			
	"	"	"	H β	0.190	+ 0.021	$\frac{1}{10}$ towards red	0.175
May 22. 15. 25	N	1	10	Moon F.....	0.354			
	"	"	"	H β	0.340	+ 0.014		0.259
15. 27	"	"	"	Moon F.....	0.357			
	"	"	"	H β	0.364	- 0.007		0.259
15. 34	"	"	"	Moon F.....	0.440			
	"	"	"	H β	0.453	- 0.013		0.259
15. 44	"	"	"	Moon F.....	0.494			
	"	"	"	H β	0.511	- 0.017		0.259
May 23. 13. 41	N	1	6	Regulus F.....	0.897			
	"	"	"	H β	0.865	+ 0.032	$\frac{1}{2}$ towards red	0.145
13. 53	"	"	"	Regulus F.....	0.892			
	"	"	"	H β	0.862	+ 0.030	$\frac{1}{2}$ towards red	0.145

Earth's Motion in Miles per Second.	Concluded Motion of Star in Miles per Second.		REMARKS.
	Measured.	Estimated.	
	+ 3.3 - 1.8 + 1.8 + 2.1 - 2.4		Coincidence appeared perfect.
+ 9.9 + 9.9 + 9.9	- 30.3 - 36.9 - 11.7	- 29.3 - 34.2 - 9.9	Spectrum bright, but tremulous. Definition poor.
+ 3.4 + 3.4	+ 38.8 + 17.9	+ 45.2 + 20.9	Spectrum steady. Definition fair.
- 6.3 - 6.3	- 43.2 - 44.4	- 42.3 - 42.3	Definition very good.
+ 9.5 + 9.5	- 49.0 - 49.0	- 45.7 - 45.7	Star-line well seen, measures considered very satisfactory.
	- 9.1 + 1.8 + 2.1 - 3.0 + 4.3		Coincidence appeared perfect.
+ 9.5	- 3.1	- 3.5	Spectrum faint.
	+ 4.3 - 2.1 - 4.0 - 5.1		Coincidence appeared perfect. Observations interrupted by clouds.
+ 17.8 + 17.8	- 8.1 - 8.7	- 8.0 - 8.0	Spectrum very tremulous. Star-line dark and fairly well defined.

Date, 1883, Greenwich Sidereal Time.	Observer.	Number of Half- Prisms.	Reading of Position Circle.	Objects compared.	Micrometer Readings.	Displacement.		Width of Slit.
						Measured.	Estimated in Terms of the Breadth of the Comparison Line.	
d h m			o		r	r		r
May 23. 14. 5	M	1	6	Regulus F.	0.987			
				H β	0.904	+ 0.083	$\frac{1}{2}$ towards red	0.145
14. 15	"	"	"	Regulus F.	0.975			
				H β	0.902	+ 0.073	$\frac{1}{2}$ towards red	0.145
May 23. 14. 30	M	1	6	β Leonis F.	0.052			
				H β	0.016	+ 0.036	$\frac{1}{2}$ towards red	0.145
14. 40	"	"	"	β Leonis F.	0.138			
				H β	0.036	+ 0.102	$\frac{3}{4}$ towards red	0.145
May 23. 15. 5	M	1	6	η Ursæ Majoris F.	0.152			
				H β	0.048	+ 0.104	$\frac{2}{3}$ towards red	0.145
15. 20	"	"	"	η Ursæ Majoris F.	0.122			
				H β	0.071	+ 0.051	$\frac{1}{2}$ towards red	0.145
15. 40	"	"	"	η Ursæ Majoris F.	0.149			
				H β	0.051	+ 0.098	$\frac{2}{3}$ towards red	0.145
15. 50	"	"	"	η Ursæ Majoris F.	0.107			
				H β	0.071	+ 0.036	$\frac{1}{2}$ towards red	0.145
May 23. 16. 15	M	1	6	Arcturus F.	0.094			
				H β	0.168	- 0.074	$\frac{1}{2}$ towards blue	0.145
16. 20	"	"	"	Arcturus F.	0.093			
				H β	0.178	- 0.085	$\frac{1}{2}$ towards blue	0.145
May 23. 16. 33	M	1	6	α Coronæ F.	0.408			
				H β	0.337	+ 0.071	$\frac{1}{2}$ towards red	0.145
16. 40	"	"	"	α Coronæ F.	0.370			
				H β	0.328	+ 0.042	$\frac{1}{2}$ towards red	0.145
May 23. 16. 50	M	1	6	α Ophiuchi F.	0.708			
				H β	0.686	+ 0.022	$\frac{1}{10}$ towards red	0.145
16. 55	"	"	"	α Ophiuchi F.	0.756			
				H β	0.692	+ 0.064	$\frac{1}{2}$ towards red	0.145
May 23. 17. 10	M	1	6	Moon F.	0.742			
				H β	0.748	- 0.006		0.145
	"	"	"	Moon F.	0.755			
	"	"	"	H β	0.759	- 0.004		0.145
	"	"	"	Moon F.	0.754			
	"	"	"	H β	0.754	0.000		0.145
	"	"	"	Moon F.	0.773			
	"	"	"	H β	0.765	+ 0.008		0.145
17. 30	"	"	"	Moon F.	0.755			
				H β	0.764	- 0.009		0.145
May 24. 14. 10	M	1	6	Spica F.	0.874			
				H β	1.001	- 0.127	$\frac{2}{3}$ towards blue	0.145
14. 30	"	"	"	Spica F.	0.845			
				H β	0.976	- 0.131	$\frac{2}{4}$ towards blue	0.145
May 24. 15. 0	M	1	6	β Libræ F.	0.985			
				H β	1.102	- 0.117	$\frac{2}{3}$ towards blue	0.145
15. 20	"	"	"	β Libræ F.	0.047			
				H β	0.118	- 0.071	$\frac{1}{2}$ towards blue	0.145
May 24. 15. 45	M	1	6	α Ophiuchi F.	0.380			
				H β	0.417	- 0.037	$\frac{1}{7}$ towards blue	0.145
16. 0	"	"	"	α Ophiuchi F.	0.353			
				H β	0.408	- 0.055	$\frac{1}{4}$ towards blue	0.145

Earth's Motion in Miles per Second.	Concluded Motion of Star in Miles per Second.		REMARKS.
	Measured.	Estimated.	
+ 17.8	+ 7.4	+ 6.5	
+ 17.8	+ 4.4	+ 6.5	
+ 16.7	- 5.8	- 0.5	Star-spectrum steadier than that of Regulus, but star-line broader and not so well defined.
+ 16.7	+ 14.3	+ 15.7	
+ 9.6	+ 22.0	+ 22.8	Star-line faint and ill-defined.
+ 9.6	+ 5.9	+ 6.6	
+ 9.6	+ 20.2	+ 22.8	
+ 9.6	+ 1.3	+ 6.6	
+ 9.9	- 32.4	- 34.2	Spectrum very bright. Star-line well defined though rather faint. Spectrum steady.
+ 9.9	- 35.7	- 34.2	
+ 4.8	+ 16.8	+ 19.5	Spectrum steady and fairly bright. Line dark and broad, a little ill-defined at edges.
+ 4.8	+ 7.9	+ 11.4	
- 4.5	+ 11.2	+ 9.4	Spectrum very bright and steady, but star-line very difficult to bisect, as it was faint and very diffused.
- 4.5	+ 23.9	+ 20.7	
	- 1.8		Coincidence apparently perfect. Both spectra seen very well.
	- 1.2]		
	0.0		
	+ 2.4		
	- 2.7		
+ 11.8	- 50.4	- 49.6	Measures considered fairly satisfactory. Spectrum bright but tremulous. Star-line ill-defined and fuzzy.
+ 11.8	- 51.6	- 54.4	
+ 4.8	- 40.3	- 38.9	Star-spectrum and line faint. Definition poor.
+ 4.8	- 26.4	- 23.7	
- 4.3	- 6.9	- 3.8	Star-line very diffused. Spectrum faint. Observation difficult.
- 4.3	- 12.4	- 9.9	

Date, 1883, Greenwich Sidereal Time.	Observer.	Number of Half- Prisms.	Reading of Position Circle.	Objects compared.	Micrometer Readings.	Displacement.		Width of Slit.
						Measured.	Estimated in Terms of the Breadth of the Comparison Line.	
d h m			°		r	r		r
May 24. 16. 20	M	1	6	α Lyrae F	0.458			
				H β	0.602	- 0.144	$\frac{3}{4}$ towards blue	0.145
16. 30	"	"	"	α Lyrae F	0.442			
				H β	0.588	- 0.146	$\frac{3}{4}$ towards blue	0.145
May 24. 16. 50	M	1	6	Moon F	0.754	+ 0.009		0.145
				H β	0.745			
	"	"	"	Moon F	0.740	+ 0.004		0.145
				H β	0.736			
	"	"	"	Moon F	0.738	- 0.001		0.145
				H β	0.739			
	"	"	"	Moon F	0.762	+ 0.014		0.145
				H β	0.748			
17. 15	"	"	"	Moon F	0.747	- 0.009		0.145
				H β	0.756			
May 28. 13. 55	M	1	10	Arcturus b_1	0.848	- 0.148	$\frac{3}{8}$ towards blue	0.105
				Mg ₁	0.996			
14. 10	"	"	"	Arcturus b_1	0.856	- 0.164	$\frac{3}{8}$ towards blue	0.105
				Mg ₁	1.020			
May 28. 14. 40	M	1	10	ϵ_3 Boötis b_1	0.072	+ 0.024	$\frac{1}{8}$ towards red	0.105
				Mg ₁	0.048			
14. 55	"	"	"	ϵ_3 Boötis b_1	0.009	- 0.043	$\frac{1}{4}$ towards blue	0.105
				Mg ₁	0.052			
May 28. 16. 45	M	1	10	α Herculis b_4	0.409	- 0.116	$\frac{1}{2}$ towards blue	0.105
				Mg ₃	0.525			
17. 0	"	"	"	α Herculis b_4	0.415	- 0.096	$\frac{3}{8}$ towards blue	0.105
				Mg ₃	0.511			
May 31. 16. 18	N	1	10	Regulus F	0.844	+ 0.036	$\frac{1}{2}$ towards red	0.175
				H β	0.808			
May 31. 17. 0	N	1	10	Spica F	0.899	- 0.025	$\frac{1}{8}$ towards blue	0.175
				H β	0.924			
17. 4	"	"	"	Spica F	0.950	- 0.018	$\frac{1}{10}$ towards blue	0.175
				H β	0.968			
May 31. 17. 55	N	1	10	β Librae F	0.189	- 0.011	Nearly coincident	0.175
				H β	0.200			
18. 2	"	"	"	β Librae F	0.135	- 0.115	$\frac{1}{2}$ towards blue	0.175
				H β	0.250			
May 31. 18. 45	N	1	10	α Lyrae F	0.211	- 0.070	$\frac{1}{4}$ towards blue	0.175
				H β	0.281			
18. 50	"	"	"	α Lyrae F	0.208	- 0.080	$\frac{1}{4}$ towards blue	0.175
				H β	0.288			
June 1. 14. 10	M	1	10	Arcturus F	0.679	- 0.175	$\frac{1}{2}$ towards blue	0.154
				H β	0.854			
14. 25	"	"	"	Arcturus F	0.690	- 0.155	$\frac{1}{2}$ towards blue	0.154
				H β	0.845			
June 1. 14. 50	M	1	10	α Canum Venat. F...	0.292	+ 0.080	$\frac{1}{4}$ towards red	0.154
				H β	0.212			
15. 5	"	"	"	α Canum Venat. F...	0.294	+ 0.086	$\frac{1}{4}$ towards red	0.154
				H β	0.208			

Earth's Motion in Miles per Second.	Concluded Motion of Star in Miles per Second.		REMARKS.
	Measured.	Estimated.	
- 5.5	- 38.2	- 37.1	Spectrum bright but very tremulous. Definition poor.
- 5.5	- 38.8	- 37.1	
	+ 2.7		Coincidence appeared perfect. Both spectra seen very well.
	+ 1.2		
	- 0.3		
	+ 4.3		
	- 2.7		
+ 10.8	- 66.4	- 68.5	Measures considered very satisfactory. Star-line well defined.
+ 10.8	- 72.4	- 68.5	
+ 8.9	+ 0.1	+ 3.1	Star-spectrum very faint. Star-lines only caught at rare intervals. Displacement evidently <i>very</i> small.
+ 8.9	- 25.0	- 32.9	
- 1.8	- 41.7	- 39.5	Measures not wholly satisfactory, as the b_4 line could not be clearly isolated.
- 1.8	- 34.2	- 47.8	
+ 17.5	- 6.6	- 0.7	Star very low and spectrum somewhat faint.
+ 13.3	- 20.9	- 23.8	
+ 13.3	- 18.8	- 21.7	
+ 6.7	- 10.0	- 6.7	Spectrum faint. Star-line very well seen at times.
+ 6.7	- 41.6	- 48.7	Star-line much better seen than in the first observation.
- 4.7	- 16.6	- 16.3	
- 4.7	- 19.6	- 16.3	
+ 10.2	- 63.3	- 55.6	Spectrum bright, star-line not very distinct.
+ 10.2	- 57.3	- 55.6	
+ 13.4	+ 10.9	+ 9.3	Spectrum faint, but star-line dark and distinct.
+ 13.4	+ 12.7	+ 9.3	

Date, 1883, Greenwich Sidereal Time.	Observer.	Number of Half- Prisms.	Reading of Position Circle.	Objects compared.	Micrometer Readings.	Displacement.		Width of Slit.
						Measured.	Estimated in Terms of the Breadth of the Comparison Line.	
d h m			o		r	r		r
June 1. 15. 35	M	1	10	ζ Ursæ Majoris F....	0.237			
				H β	0.163	+ 0.074	$\frac{1}{4}$ towards red	0.154
15. 50	"	"	"	ζ Ursæ Majoris F....	0.259			
				H β	0.180	+ 0.079	$\frac{1}{4}$ towards red	0.154
June 4. 15. 15	M	1	10	Arcturus b_1	0.413	- 0.107	$\frac{3}{10}$ towards blue	0.150
				Mg ₁	0.306			
15. 30	"	"	"	Arcturus b_1	0.388	- 0.080	$\frac{1}{4}$ towards blue	0.150
				Mg ₁	0.308			
June 4. 15. 55	M	1	10	ϵ_2 Boötis b_1	0.286			
				Mg ₁	0.284	- 0.002	Coincident	0.150
16. 20	"	"	"	ϵ_2 Boötis b_1	0.352			
				Mg ₁	0.317	- 0.035	$\frac{1}{7}$ towards blue	0.150
June 6.	M	1	10	Sky b_1	0.075			
	"	"	"	Mg ₁	0.043	- 0.032		0.150
	"	"	"	Sky b_1	0.061			
	"	"	"	Mg ₁	0.059	- 0.002		0.150
	"	"	"	Sky b_1	0.669			
	"	"	"	Mg ₁	0.661	- 0.008		0.150
	"	"	"	Sky b_1	0.741			
	"	"	"	Mg ₁	0.746	+ 0.005		0.150
	"	"	"	Sky b_1	0.744			
	"	"	"	Mg ₁	0.736	- 0.008		0.150
June 8. 18. 25	N	1	10	Arcturus b_1	0.199			
				Mg ₁	0.386	- 0.187	$\frac{3}{8}$ towards blue	0.123
18. 30	"	"	"	Arcturus b_1	0.262			
				Mg ₁	0.370	- 0.108	$\frac{1}{4}$ towards blue	0.123
June 14. 16. 20	N	1	10	Arcturus b_1	0.461			
				Mg ₁	0.639	- 0.178	$\frac{1}{4}$ towards blue	0.125
16. 24	"	"	"	Arcturus b_1	0.530			
				Mg ₁	0.640	- 0.110	$\frac{3}{10}$ towards blue	0.125
June 14. 16. 44	N	1	10	Moon b_1	0.701			
				Mg ₁	0.704	- 0.003	Coincident	0.125
16. 48	"	"	"	Moon b_1	0.618			
				Mg ₁	0.621	- 0.003	Coincident	0.125
June 14. 17. 47	N	1	10	α Cygni b_1	0.186			
				Mg ₁	0.234	- 0.048	$\frac{1}{10}$ towards blue	0.125
18. 5	"	"	"	α Cygni b_1	0.323			
				Mg ₁	0.183	+ 0.140	$\frac{1}{8}$ towards red	0.125
18. 26	"	"	"	α Cygni b_1	0.568			
				Mg ₁	0.497	+ 0.071	$\frac{1}{2}$ towards red	0.125
June 26. 18. 5	N	1	10	Arcturus F	0.884			
				H β	0.937	- 0.053	$\frac{1}{4}$ towards blue	0.075
10. 10	"	"	"	Arcturus F	0.883			
				H β	0.932	- 0.049	$\frac{1}{4}$ towards blue	0.075
June 26. 18. 28	N	1	10	α Lyrae F	0.889			
				H β	0.944	- 0.055	$\frac{1}{4}$ towards blue	0.075
18. 33	"	"	"	α Lyrae F	0.858			
				H β	0.957	- 0.099	$\frac{1}{2}$ towards blue	0.075

Earth's Motion in Miles per Second.	Concluded Motion of Star in Miles per Second.		REMARKS.
	Measured.	Estimated.	
- 2'2	+ 24'7	+ 24'9	Spectrum fairly bright. Star-line fairly distinct, but a little ill-defined at edges. Measures considered fairly good.
- 2'2	+ 26'2	+ 24'9	
+ 12'0	- 52'2	- 55'2	Star-spectrum bright and steady, but star-lines not very well defined.
+ 12'0	- 42'0	- 48'1	
+ 10'0	- 10'8	- 10'0	Star-line very difficult to see.
+ 10'0	- 23'1	- 30'6	
	- 12'0		
	- 0'8		
	- 3'0		
	+ 1'9		
	- 3'0		Sky hazy. Spectrum not very bright. Measures made with difficulty.
+ 12'6	- 82'8	- 66'0	
+ 12'6	- 53'1	- 48'2	
+ 13'4	- 80'2	- 78'2	
+ 13'4	- 54'7	- 52'2	
	- 1'1		
	- 1'1		
- 8'4	- 9'6	- 4'6	A doubtful measure. Spectrum bright, but star-line diffused and difficult to bisect.
- 8'4	+ 61'0	+ 51'6	
- 8'4	+ 35'0	+ 34'3	
+ 14'6	- 30'7	- 30'6	Star-line distinct and readily bisected.
+ 14'6	- 29'5	- 30'6	
- 1'3	- 15'4	- 14'7	
- 1'3	- 28'8	- 30'8	

Date, 1883, Greenwich Sidereal Time.	Observer.	Number of Half- Prisms.	Reading of Position Circle.	Objects compared.	Micrometer Readings.	Displacement.		Width of Slit.
						Measured.	Estimated in Terms of the Breadth of the Comparison Line.	
d h m			°		r	r		r
June 26. 19. 0	N	1	10	Moon F	0.200	+ 0.001	Coincident	0.075
19. 4	"	"	"	H β	0.199			
				Moon F	0.181	- 0.015	Coincident	0.075
				H β	0.196			
July 4. 17. 30	M	1	10	Arcturus b_1	0.382	- 0.164	$\frac{3}{8}$ towards blue	0.155
17. 45	"	"	"	Mg ₁	0.218			
				Arcturus b_1	0.255	- 0.047	$\frac{1}{2}$ towards blue	0.155
18. 0	"	"	"	Mg ₁	0.208			
				Arcturus b_1	0.274	- 0.086	$\frac{1}{4}$ towards blue	0.155
				Mg ₁	0.188			
July 4. 19. 0	M	1	10	γ Draconis b_1	0.042	+ 0.026	$\frac{1}{10}$ towards red	0.155
19. 15	"	"	"	Mg ₁	0.068			
				γ Draconis b_1	0.020	+ 0.057	$\frac{1}{2}$ towards red	0.155
				Mg ₁	0.077			
July 4. 19. 45	M	1	10	γ Cygni b_1	1.022	- 0.033	$\frac{1}{10}$ towards blue	0.155
20. 5	"	"	"	Mg ₁	0.989			
				γ Cygni b_1	1.037	- 0.023	$\frac{1}{10}$ towards blue	0.155
				Mg ₁	1.014			
July 4. 20. 25	M	1	10	α Cygni b_1	0.953	- 0.061	$\frac{1}{4}$ towards blue	0.155
20. 35	"	"	"	Mg ₁	0.892			
				α Cygni b_1	1.030	- 0.122	$\frac{1}{2}$ towards red	0.155
				Mg ₁	0.908			
July 4. 7. 15	M	1	10	Sky b_1	0.448	+ 0.011		0.155
	"	"	"	Mg ₁	0.459			
	"	"	"	Sky b_1	0.441	+ 0.011		0.155
	"	"	"	Mg ₁	0.452			
	"	"	"	Sky b_1	0.472	0.000		0.155
	"	"	"	Mg ₁	0.472			
	"	"	"	Sky b_1	0.468	+ 0.020		0.155
	"	"	"	Mg ₁	0.488			
	"	"	"	Sky b_1	0.464	+ 0.009		0.155
	"	"	"	Mg ₁	0.473			
July 5. 18. 2	N	1	10	Arcturus b_1	0.373	- 0.097	$\frac{1}{2}$ towards blue	0.125
18. 7	"	"	"	Mg ₁	0.470			
				Arcturus b_1	0.339	- 0.141	$\frac{3}{8}$ towards blue	0.125
				Mg ₁	0.480			
July 5. 18. 59	N	1	10	ϵ_2 Boötis b_1	0.820	- 0.080	$\frac{1}{4}$ towards blue	0.125
19. 9	"	"	"	Mg ₁	0.900			
				ϵ_2 Boötis b_1	0.814	- 0.136	$\frac{3}{8}$ towards blue	0.125
				Mg ₁	0.950			
July 5. 19. 47	N	1	10	α Cygni b_1	0.650	- 0.119	$\frac{1}{2}$ towards blue	0.125
19. 54	"	"	"	Mg ₁	0.769			
				α Cygni b_1	0.514	- 0.195	$\frac{5}{8}$ towards blue	0.125
20. 8	"	"	"	Mg ₁	0.709			
				α Cygni b_1	0.848	- 0.075	$\frac{1}{4}$ towards blue	0.125
				Mg ₁	0.923			
July 5. 20. 34	N	1	10	ϵ Cygni b_1	0.050	- 0.202	$\frac{5}{8}$ towards blue	0.125
20. 40	"	"	"	Mg ₁	0.252			
				ϵ Cygni b_1	0.189	- 0.158	$\frac{1}{2}$ towards blue	0.125
				Mg ₁	0.347			

Earth's Motion in Miles per Second.	Concluded Motion of Star in Miles per Second.		REMARKS.
	Measured.	Estimated.	
	+ 0.3 - 4.6		
+ 15.0 + 15.0 + 15.0	- 76.6 - 32.7 - 47.3	- 78.1 - 36.0 - 50.1	Spectrum tremulous. Star-line very well seen at times, but not steadily visible.
+ 1.3 + 1.3	+ 8.4 + 20.1	+ 9.2 + 19.7	Definition fair.
- 6.3 - 6.3	- 6.1 - 2.3	- 4.2 - 4.2	Star-lines very difficult to see. Definition poor.
- 6.9 - 6.9	- 16.0 - 38.9	- 19.4 - 45.6	Star-lines faint and rather hard to see. Definition poor.
	+ 4.1 + 4.1 0.0 + 7.5 + 3.4		
+ 15.1 + 15.1	- 51.5 - 68.0	- 55.4 - 60.4	
+ 13.1 + 13.1	- 43.1 - 64.1	- 43.3 - 58.6	Star-line very faint and ill-defined.
- 6.8 - 6.8 - 6.8	- 37.9 - 66.4 - 21.3	- 33.5 - 68.8 - 23.4	Star-line fuzzy.
- 7.8 - 7.8	- 68.0 - 51.5	- 67.8 - 52.7	Spectrum bright. Star-line distinct and sharp.

Date, 1883, Greenwich Sidereal Time.	Observer.	Number of Half- Prisms.	Reading of Position Circle.	Objects compared.	Micrometer Readings.	Displacement.		Width of Slit.
						Measured.	Estimated in Terms of the Breadth of the Comparison Line.	
d h m			°		r	r		r
July 6. 16. 25	M	1	10	Arcturus b_1	0.282	— 0.159	$\frac{2}{5}$ towards blue	0.195
16. 35	"	"	"	Mg ₁	0.441			
	"	"	"	Arcturus b_1	0.242	— 0.156	$\frac{2}{5}$ towards blue	0.195
16. 45	"	"	"	Mg ₁	0.398			
	"	"	"	Arcturus b_1	0.312	— 0.080	$\frac{1}{4}$ towards blue	0.195
	"	"	"	Mg ₁	0.392			
July 6. 17. 5	M	2	10	Arcturus b_1	0.230	— 0.408	$\frac{3}{10}$ towards blue	0.195
17. 20	"	"	"	Mg ₁	0.638			
	"	"	"	Arcturus b_1	0.298	— 0.369	$\frac{1}{4}$ towards blue	0.195
	"	"	"	Mg ₁	0.667			
July 6. 17. 45	M	1	10	α Serpentis b_1	0.581	+ 0.083	$\frac{1}{4}$ towards red	0.195
18. 0	"	"	"	Mg ₁	0.498			
	"	"	"	α Serpentis b_1	0.654	+ 0.133	$\frac{2}{5}$ towards red	0.195
	"	"	"	Mg ₁	0.521			
July 6. 18. 15	M	1	10	β Herculis b_1	0.495	— 0.079	$\frac{1}{4}$ towards blue	0.195
18. 30	"	"	"	Mg ₁	0.574			
	"	"	"	β Herculis b_1	0.467	— 0.116	$\frac{1}{8}$ towards blue	0.195
	"	"	"	Mg ₁	0.583			
July 6. 18. 55	M	1	10	ζ Herculis b_1	0.525	— 0.016	Coincident	0.195
19. 10	"	"	"	Mg ₁	0.541			
	"	"	"	ζ Herculis b_1	0.446	— 0.079	$\frac{1}{4}$ towards blue	0.195
	"	"	"	Mg ₁	0.525			
July 7.	M	1	10	Sky b_1	0.173	— 0.054		0.195
	"	"	"	Mg ₁	0.227			
	"	"	"	Sky b_1	0.180	0.000		0.195
	"	"	"	Mg ₁	0.180			
	"	"	"	Sky b_1	0.171	— 0.008		0.195
	"	"	"	Mg ₁	0.179			
	"	"	"	Sky b_1	0.202	— 0.011		0.195
	"	"	"	Mg ₁	0.213			
	"	"	"	Sky b_1	0.191	— 0.011		0.195
	"	"	"	Mg ₁	0.202			
July 9. 17. 50	M	1	10	Arcturus b_1	0.310	— 0.112	$\frac{1}{4}$ towards blue	0.200
18. 5	"	"	"	Mg ₁	0.422			
	"	"	"	Arcturus b_1	0.324	— 0.095	$\frac{1}{4}$ towards blue	0.200
	"	"	"	Mg ₁	0.419			
July 13. 17. 25	M	1	10	Arcturus F	0.642	— 0.131	$\frac{1}{2}$ towards blue	0.143
17. 40	"	"	"	H β	0.773			
	"	"	"	Arcturus F	0.652	— 0.128	$\frac{1}{2}$ towards blue	0.143
	"	"	"	H β	0.780			
July 13. 17. 50	M	1	10	Moon F	0.215	0.000		0.143
	"	"	"	H β	0.215			
	"	"	"	Moon F	0.196	— 0.010		0.143
	"	"	"	H β	0.206			
	"	"	"	Moon F	0.252	+ 0.003		0.143
	"	"	"	H β	0.249			
	"	"	"	Moon F	0.248	+ 0.004		0.143
	"	"	"	H β	0.244			
	"	"	"	Moon F	0.252	+ 0.006		0.143
	"	"	"	H β	0.246			

Earth's Motion in Miles per Second.	Concluded Motion of Star in Miles per Second.		REMARKS.
	Measured.	Estimated.	
+ 15.1	- 74.8	- 71.4	Spectrum tremulous. Definition fair.
+ 15.1	- 73.7	- 71.4	
+ 15.1	- 45.1	- 50.3	
+ 15.1	- 46.3	- 50.3	
+ 15.1	- 43.3	- 44.4	
+ 13.0	+ 18.2	+ 22.2	Star-line faint and difficult to bisect, but better seen than is usual in stars of this type.
+ 13.0	+ 36.9	+ 43.3	
+ 9.2	- 38.9	- 44.4	Star-line better seen than usual for this star, in which the lines are peculiarly faint and difficult to bisect.
+ 9.2	- 52.7	- 56.1	
+ 7.4	- 13.4	- 7.4	Star-lines difficult to bisect.
+ 7.4	- 37.1	- 42.6	
	- 20.3		
	0.0		
	- 3.0		
	- 4.1		
	- 4.1		
+ 15.2	- 57.3	- 54.3	Spectrum tremulous and watery. Star-lines somewhat difficult to bisect. They were, however, well seen at times.
+ 15.2	- 50.9	- 54.3	
+ 15.3	- 55.1	- 40.7	Spectrum tremulous. Star-line not very well seen.
+ 15.3	- 54.2	- 40.7	
	0.0		
	- 3.0		
	+ 0.9		
	+ 1.2		
	+ 1.8		

Date, 1883, Greenwich Sidereal Time.	Observer.	Number of Half- Prisms.	Reading of Position Circle.	Objects compared.	Micrometer Readings.	Displacement.		Width of Slit.
						Measured.	Estimated in Terms of the Breadth of the Comparison Line.	
d h m July 13. 18. 25 18. 40	M ,, ,,	1 ,, ,,	10 ,, ,,	β Ursæ Majoris F ... H β β Ursæ Majoris F ... H β	r 0.184 0.182 0.166 0.170	+ 0.002 - 0.004	Coincident Coincident	r 0.143 0.143
July 13. 18. 50 18. 55	M ,, ,,	1 ,, ,,	10 ,, ,,	γ Ursæ Majoris F ... H β γ Ursæ Majoris F ... H β	0.203 0.176 0.216 0.184	+ 0.027 + 0.032	$\frac{1}{4}$ towards red $\frac{1}{4}$ towards red	0.143 0.143
July 13. 19. 0 19. 5	M ,, ,,	1 ,, ,,	10 ,, ,,	ϵ Ursæ Majoris F ... H β ϵ Ursæ Majoris F ... H β	0.205 0.170 0.210 0.182	+ 0.035 + 0.028	$\frac{1}{4}$ towards red $\frac{1}{4}$ towards red	0.143 0.143
July 13. 19. 15 19. 20	M ,, ,,	1 ,, ,,	10 ,, ,,	ζ Ursæ Majoris F ... H β ζ Ursæ Majoris F ... H β	0.323 0.200 0.292 0.201	+ 0.123 + 0.091	$\frac{2}{3}$ towards red $\frac{2}{3}$ towards red	0.143 0.143
July 13. 19. 45 20. 0	M ,, ,,	1 ,, ,,	10 ,, ,,	η Ursæ Majoris F ... H β η Ursæ Majoris F ... H β	0.175 0.135 0.017 0.135	+ 0.040 - 0.118	$\frac{1}{4}$ towards red $\frac{3}{4}$ towards blue	0.143 0.143
July 17. 19. 8 19. 16	N ,, ,,	1 ,, ,,	12 ,, ,,	Arcturus F H β Arcturus F H β	0.879 1.032 0.930 1.058	- 0.153 - 0.128	$\frac{2}{3}$ towards blue $\frac{1}{3}$ towards blue	0.175 0.175
July 17. 19. 41 19. 46	N ,, ,,	1 ,, ,,	12 ,, ,,	Moon F H β Moon F H β	0.431 0.478 0.574 0.566	- 0.047 + 0.008		0.175 0.175
July 19. 18. 19 18. 15 18. 24 18. 37	N ,, ,, ,,	1 ,, ,, ,,	11 ,, ,, ,,	Moon F H β Moon F H β Moon F H β Moon F H β	0.296 0.272 0.234 0.278 0.335 0.370 0.380 0.405	+ 0.024 - 0.044 - 0.035 - 0.025		0.145 0.145 0.145 0.145
July 19. 19. 9 19. 16	N ,, ,,	1 ,, ,,	11 ,, ,,	α Lyrae F H β α Lyrae F H β	0.399 0.485 0.208 0.349	- 0.086 - 0.141	$\frac{1}{3}$ towards blue $\frac{1}{2}$ towards blue	0.145 0.145
July 19. 19. 33 19. 44 19. 50	N ,, ,, ,,	1 ,, ,, ,,	11 ,, ,, ,,	α Aquilæ F H β α Aquilæ F H β α Aquilæ F H β	0.383 0.362 0.140 0.017 0.098 0.040	+ 0.021 + 0.123 + 0.058	Nearly coincident $\frac{2}{3}$ towards red $\frac{1}{2}$ towards red	0.145 0.145 0.145
July 26. 19. 30 19. 37	N ,, ,,	1 ,, ,,	10 ,, ,,	α Lyrae F H β α Lyrae F H β	0.950 1.006 0.883 0.970	- 0.056 - 0.087	$\frac{1}{2}$ towards blue $\frac{1}{4}$ towards blue	0.175 0.175

Earth's Motion in Miles per Second.	Concluded Motion of Star in Miles per Second.		REMARKS.
	Measured.	Estimated.	
+ 5.6	- 6.2	- 5.6	Spectrum tremulous. Star-line fairly defined.
+ 5.6	- 4.4	- 5.6	
+ 7.4	+ 0.8	+ 5.3	Spectrum tremulous. Star-line fairly defined.
+ 7.4	+ 2.3	+ 5.3	
+ 7.5	+ 3.1	+ 5.2	Definition good. Spectrum fairly bright.
+ 7.5	+ 1.0	+ 5.2	
+ 7.8	+ 29.6	+ 32.8	Definition good. Spectrum fairly bright.
+ 7.8	+ 19.8	+ 22.7	
+ 9.3	+ 2.8	+ 3.4	Observations not considered satisfactory. Continually interrupted by cloud. Star-line never seen distinctly.
+ 9.3	- 45.1	- 49.9	
+ 15.3	- 61.8	- 62.1	Spectrum very tremulous. Star-line faint.
+ 15.3	- 54.2	- 54.3	
	- 14.3		
	+ 2.4		
	+ 7.3		Observed through thin cloud. F line distinctly and easily measured.
	- 13.4		No cloud now over the Moon, but there is a white haze prevalent.
	- 10.6		
	- 7.6		
+ 1.9	- 28.0	- 34.0	Star line broad, and somewhat difficult to bisect. Sky hazy.
+ 1.9	- 44.7	- 50.1	
- 0.8	+ 7.2	+ 0.8	Star-line broad and distinct.
- 0.8	+ 38.2	+ 39.3	
- 0.8	+ 18.4	+ 20.0	
+ 2.9	- 19.9	- 22.6	
+ 2.9	- 29.3	- 32.4	

Date, 1883, Greenwich Sidereal Time.	Observer.	Number of Half- Prisms.	Reading of Position Circle.	Objects compared.	Micrometer Readings.	Displacement.		Width of Slit.
						Measured.	Estimated in Terms of the Breadth of the Comparison Line.	
d h m			0		r	r		r
July 26. 20. 27	N	1	10	α Aquilæ F.....	0.968	+ 0.015	Coincident	0.175
20. 33	"	"	"	H β	0.953			
				α Aquilæ F.....	1.031	+ 0.034	$\frac{1}{10}$ towards red	0.175
				H β	0.997			
July 26. 21. 26	N	1	10	α Pegasi F.....	0.037	+ 0.036	$\frac{1}{10}$ towards red	0.175
21. 55	"	"	"	H β	0.001			
				α Pegasi F.....	0.014	- 0.034	$\frac{1}{10}$ towards blue	0.175
22. 1	"	"	"	H β	0.048			
				α Pegasi F.....	0.026	+ 0.003	Coincident	0.175
				H β	0.023			
July 26. 22. 20	N	1	10	Moon F.....	0.068	- 0.018		0.175
22. 26	"	"	"	H β	0.086			
				Moon F.....	0.410	+ 0.010		0.175
				H β	0.400			
Aug. 3. 20. 10	M	1	10	α Aquilæ F.....	0.616	+ 0.051	$\frac{1}{4}$ towards red	0.151
20. 25	"	"	"	H β	0.565			
				α Aquilæ F.....	0.642	+ 0.069	$\frac{3}{10}$ towards red	0.151
				H β	0.573			
Aug. 3. 20. 40	M	1	10	α Lyrae F.....	0.097	- 0.122	$\frac{2}{3}$ towards blue	0.151
20. 50	"	"	"	H β	0.219			
				α Lyrae F.....	0.112	- 0.101	$\frac{1}{2}$ towards blue	0.151
				H β	0.213			
Aug. 13. 18. 45	M	1	10	Arcturus F.....	0.877	- 0.131	$\frac{3}{4}$ towards blue	0.095
19. 0	"	"	"	H β	1.008			
				Arcturus F.....	0.935	- 0.086	$\frac{1}{2}$ towards blue	0.095
				H β	1.021			
Aug. 13. 19. 35	M	1	10	Moon F.....	0.532	- 0.008		0.095
19. 40	"	"	"	H β	0.540			
				Moon F.....	0.580	+ 0.008		0.095
19. 45	"	"	"	H β	0.572			
				Moon F.....	0.559	+ 0.021		0.095
				H β	0.538			
Aug. 13. 20. 5	M	1	10	α Coronæ Borealis F..	0.768	+ 0.133	$\frac{3}{4}$ towards red	0.095
20. 20	"	"	"	H β	0.635			
				α Coronæ Borealis F..	0.692	+ 0.074	$\frac{1}{2}$ towards red	0.095
				H β	0.618			
Aug. 13. 20. 55	M	1	10	η Ursæ Majoris F....	0.632	+ 0.022	$\frac{1}{4}$ towards red	0.095
21. 20	"	"	"	H β	0.610			
				η Ursæ Majoris F....	0.628	- 0.006	Coincident	0.095
				H β	0.634			
Aug. 14. 18. 52	N	1	10	α Lyrae F.....	0.357	- 0.162	$\frac{1}{2}$ towards blue	0.115
19. 4	"	"	"	H β	0.519			
				α Lyrae F.....	0.404	- 0.143	$\frac{1}{2}$ towards blue	0.115
				H β	0.547			
Aug. 14. 19. 26	N	1	10	Moon F.....	0.230	- 0.031		0.115
19. 30	"	"	"	H β	0.261			
				Moon F.....	0.307	+ 0.023		0.115
				H β	0.284			

Earth's Motion in Miles per Second.	Concluded Motion of Star in Miles per Second.		REMARKS.
	Measured.	Estimated.	
+ 1.0 + 1.0	+ 3.6 + 9.3	- 1.0 + 10.8	Star-line faint and ill-defined at edges.
- 12.5 - 12.5 - 12.5	+ 23.4 + 2.2 + 13.4	+ 24.3 + 0.7 + 12.5	Star-line faint and difficult to bisect.
	- 5.5 + 3.0		
+ 3.0 + 3.0	+ 12.5 + 18.0	+ 11.9 + 14.9	
+ 3.9 + 3.9	- 41.0 - 34.6	- 27.7 - 23.8	Spectrum faint. Star-lines ill-defined. Measures very poor indeed.
+ 13.6 + 13.6	- 53.4 - 39.7	- 51.0 - 38.5	Star-line faint. Spectrum tremulous.
	- 2.4 + 2.4 + 6.4		
+ 12.6 + 12.6	+ 27.8 + 9.9	+ 24.8 + 12.3	Spectrum very tremulous.
+ 5.9 + 5.9	+ 0.8 - 7.7	+ 2.4 - 5.9	Observation much interrupted by cloud, and therefore somewhat uncertain.
+ 5.2 + 5.2	- 54.4 - 48.6	- 51.7 - 51.7	Spectrum tremulous. High wind. Clouds passing.
	- 9.4 + 7.0		

Date, 1883, Greenwich Sidereal Time.	Observer.	Number of Half- Prisms.	Reading of Position Circle.	Objects compared.	Micrometer Readings.	Displacement.		Width of Slit.
						Measured.	Estimated in Terms of the Breadth of the Comparison Line.	
d h m			°		r	r		r
Aug. 14. 20. 7	N	1	10	ζ Aquilæ F.	0'100			
				H β	0'122	— 0'022	Coincident	0'115
20. 12	"	"	"	ζ Aquilæ F.	0'031			
				H β	0'133	— 0'102	$\frac{1}{4}$ towards blue	0'115
Aug. 16. 18. 52	N	1	10	Moon F.	0'299			
				H β	0'300	— 0'001		0'126
18. 56	"	"	"	Moon F.	0'304			
				H β	0'323	— 0'019		0'126
Aug. 16. 20. 59	N	1	10	α Pegasi F.	0'344			
				H β	0'322	+ 0'022	Nearly coincident	0'126
21. 23	"	"	"	α Pegasi F.	0'816			
				H β	0'854	— 0'038	$\frac{1}{10}$ towards blue	0'126
Aug. 21. 19. 20	N	1	12	Arcturus F.	0'754			
				H β	0'858	— 0'104	$\frac{1}{8}$ towards blue	0'125
19. 24	"	"	"	Arcturus F.	0'732			
				H β	0'848	— 0'116	$\frac{1}{3}$ towards blue	0'125
Aug. 21. 19. 58	N	1	12	γ Ursæ Majoris F.	1'176			
				H β	1'000	+ 0'176	$\frac{1}{2}$ towards red	0'125
20. 3	"	"	"	γ Ursæ Majoris F.	1'171			
				H β	0'996	+ 0'175	$\frac{1}{2}$ towards red	0'125
Aug. 21. 21. 35	N	1	12	ε Ursæ Majoris F.	0'650			
				H β	0'554	+ 0'096	$\frac{1}{4}$ towards red	0'125
21. 40	"	"	"	ε Ursæ Majoris F.	0'618			
				H β	0'540	+ 0'078	$\frac{1}{8}$ towards red	0'125
Aug. 21. 22. 31	N	1	12	Moon F.	0'220			
				H β	0'231	— 0'011		0'125
22. 35	"	"	"	Moon F.	0'243			
				H β	0'257	— 0'014		0'125
22. 39	"	"	"	Moon F.	0'234			
				H β	0'240	— 0'006		0'125
22. 42	"	"	"	Moon F.	0'285			
				H β	0'300	— 0'015		0'125
Aug. 23. 20. 47	N	1	12	α Lyrae F.	0'369			
				H β	0'466	— 0'097	$\frac{1}{4}$ towards blue	0'125
20. 51	"	"	"	α Lyrae F.	0'363			
				H β	0'472	— 0'109	$\frac{1}{4}$ towards blue	0'125
Aug. 23. 21. 10	N	1	12	α Aquilæ F.	0'186			
				H β	0'248	— 0'062	$\frac{1}{6}$ towards blue	0'125
21. 21	"	"	"	α Aquilæ F.	0'241			
				H β	0'278	— 0'037	$\frac{1}{10}$ towards blue	0'125
Aug. 23. 22. 8	N	1	12	α Pegasi F.	0'947			
				H β	0'969	— 0'022	Nearly coincident	0'125
22. 18	"	"	"	α Pegasi F.	1'011			
				H β	1'021	— 0'010	Coincident	0'125
Aug. 23. 22. 56	N	1	12	α Andromedæ F.	0'213			
				H β	0'283	— 0'070	$\frac{1}{8}$ towards blue	0'125
23. 6	"	"	"	α Andromedæ F.	0'173			
				H β	0'326	— 0'153	$\frac{2}{5}$ towards blue	0'125

Earth's Motion in Miles per Second.	Concluded Motion of Star in Miles per Second.		REMARKS.
	Measured.	Estimated.	
+ 8.0 + 8.0	- 14.7 - 39.0	- 8.0 - 31.2	Spectrum faint and tremulous. Star-line broad but indistinct.
	- 0.3 - 5.8		
- 8.0 - 8.0	+ 14.7 - 3.6	+ 8.0 - 2.8	Spectrum faint. Star-line difficult to bisect.
+ 12.5 + 12.5	- 44.1 - 47.8	- 49.6 - 49.6	Star-line faint.
0.0 0.0	+ 53.5 + 53.1	+ 55.6 + 55.6	Spectrum bright. Star-line very distinct but somewhat broad.
+ 1.6 + 1.6	+ 27.5 + 22.1	+ 26.2 + 20.6	Star-line very distinct.
	- 3.3 - 4.3 - 1.8 - 4.6		
+ 6.2 + 6.2	- 35.7 - 39.3	- 33.4 - 33.4	Star-line broad and fuzzy.
+ 7.9 + 7.9	- 26.7 - 19.2	- 26.0 - 18.8	Star-line fairly distinct. Spectrum bright.
- 6.2 - 6.2	+ 0.5 + 3.2	+ 6.2 + 6.2	Star-line faint and only seen by glimpses.
- 10.8 - 10.8	- 10.5 - 35.7	- 10.9 - 32.7	Spectrum bright. Star-line fairly well seen.

Date, 1883, Greenwich Sidereal Time.	Observer.	Number of Half- Prisms.	Reading of Position Circle.	Objects compared.	Micrometer Readings.	Displacement.		Width of Slit.
						Measured.	Estimated in Terms of the Breadth of the Comparison Line.	
d h m Aug. 23. 23. 23	N	1	10	Moon F..... H β	0.118 0.112	+ 0.006		0.125
23. 27	"	"	"	Moon F..... H β	0.958 0.983	- 0.025		0.125
Aug. 24. 19. 45	M	1	6	Arcturus D ₂ Na ₂	0.203 0.357	- 0.154	$\frac{3}{8}$ towards blue	0.162
20. 0	"	"	"	Arcturus D ₁ Na ₁	0.675 0.739	- 0.064	$\frac{3}{10}$ towards blue	0.162
Aug. 25.	M	1	6	Sky D ₁ Na ₁	0.091 0.082	+ 0.009		0.162
"	"	"	"	Sky D ₂ Na ₂	0.695 0.691	+ 0.004		0.162
"	"	"	"	Sky D ₂ Na ₂	0.688 0.704	- 0.016		0.162
"	"	"	"	Sky D ₁ Na ₁	0.091 0.088	+ 0.003		0.162
Sept. 18. 21. 12	N	1	6	α Lyrae F..... H β	0.679 0.728	- 0.049	$\frac{1}{2}$ towards blue	0.145
21. 20	"	"	"	α Lyrae F..... H β	0.676 0.730	- 0.054	$\frac{1}{2}$ towards blue	0.145
Sept. 18. 21. 50	N	1	6	α Aquilae F..... H β	0.892 0.913	- 0.021	Nearly coincident	0.145
21. 57	"	"	"	α Aquilae F..... H β	0.927 0.934	- 0.007	Nearly coincident	0.145
Sept. 18. 22. 24	N	1	6	Moon F..... H β	0.797 0.810	- 0.013		0.145
22. 28	"	"	"	Moon F..... H β	0.819 0.822	- 0.003		0.145
Sept. 18. 23. 17	N	1	6	Capella F..... H β	0.469 0.402	+ 0.067	$\frac{1}{2}$ towards red	0.145
23. 25	"	"	"	Capella F..... H β	0.471 0.423	+ 0.048	$\frac{1}{2}$ towards red	0.145
Sept. 20. 22. 1	N	1	6	α Lyrae F..... H β	0.076 0.174	- 0.098	$\frac{1}{4}$ towards blue	0.175
22. 10	"	"	"	α Lyrae F..... H β	0.005 0.160	- 0.155	$\frac{1}{2}$ towards blue	0.175
22. 18	"	"	"	α Lyrae F..... H β	0.063 0.205	- 0.142	$\frac{3}{8}$ towards blue	0.175
Sept. 20. 22. 53	N	1	6	Moon F..... H β	0.717 0.698	+ 0.019		0.175
23. 0	"	"	"	Moon F..... H β	0.750 0.763	- 0.013		0.175
Sept. 20. 0. 46	N	1	6	Fomalhaut F..... H β	0.141 0.260	- 0.119	$\frac{2}{3}$ towards blue	0.175
Oct. 13. 21. 50	M	1	5	Moon F..... H β	0.300 0.309	- 0.009		0.132
21. 55	"	"	"	Moon F..... H β	0.311 0.279	+ 0.032		0.132
22. 0	"	"	"	Moon F..... H β	0.291 0.307	- 0.016		0.132

Earth's Motion in Miles per Second.	Concluded Motion of Star in Miles per Second.		REMARKS.
	Measured.	Estimated.	
	+ 1.8 - 7.6		
+ 12.0 + 12.0	- 89.1 - 44.0	- 79.9 - 45.8	Star spectrum faint and very tremulous and the lines ill-defined, and, indeed, only visible at rare intervals; little weight can, therefore, be attached to the measures. The displacement was, however, unmistakably towards the blue.
	+ 4.5 + 2.0 - 8.0 + 1.5		
+ 8.2 + 8.2	- 23.1 - 24.6	- 23.1 - 23.1	
+ 13.1 + 13.1	- 19.5 - 15.2	- 13.1 - 13.1	Spectrum bright. Star-line ill-defined.
	- 4.0 - 0.9		
+ 16.7 + 16.7	+ 3.7 - 2.1	+ 1.2 - 3.9	Sky somewhat hazy.
+ 8.3 + 8.3 + 8.3	- 38.1 - 55.4 - 51.4	- 32.9 - 57.5 - 45.2	Spectrum very steady, and star-line distinct.
	+ 5.8 - 4.0		Moon shining through cloud.
+ 7.3	- 43.4	- 46.7	A very doubtful measure. Star spectrum faint, and star-line only seen indistinctly now and then.
	- 2.7 + 9.7 - 4.9		

Date, 1883, Greenwich Sidereal Time.	Observer.	Number of Half- Prisms.	Reading of Position Circle.	Objects compared.	Micrometer Readings.	Displacement.		Width of Slit.
						Measured.	Estimated in Terms of the Breadth of the Comparison Line.	
d h m			°		r	r		r
Oct. 13. 22. 25	M	1	5	α Aquilæ F	0.581	+ 0.129	$\frac{2}{3}$ towards red	0.132
22. 40	"	"	"	H β	0.452			
	"	"	"	α Aquilæ F	0.469	+ 0.013	$\frac{1}{10}$ towards red	0.132
	"	"	"	H β	0.456			
Oct. 13. 23. 0	M	1	5	α Pegasi F	0.592	- 0.090	$\frac{1}{2}$ towards blue	0.132
23. 15	"	"	"	H β	0.682			
	"	"	"	α Pegasi F	0.589	- 0.112	$\frac{2}{3}$ towards blue	0.132
	"	"	"	H β	0.701			
Oct. 17. 0. 10	M	1	5	α Pegasi F	0.150	- 0.028	$\frac{1}{10}$ towards blue	0.137
0. 20	"	"	"	H β	0.178			
	"	"	"	α Pegasi F	0.128	- 0.052	$\frac{1}{3}$ towards blue	0.137
	"	"	"	H β	0.180			
Oct. 17. 0. 30	M	1	5	α Andromedæ F	0.177	- 0.003	Coincident	0.137
0. 40	"	"	"	H β	0.180			
	"	"	"	α Andromedæ F	0.377	- 0.098	$\frac{1}{2}$ towards blue	0.137
	"	"	"	H β	0.475			
0. 50	"	"	"	α Andromedæ F	0.388	- 0.080	$\frac{1}{2}$ towards blue	0.137
	"	"	"	H β	0.468			
Oct. 17. 0. 55	M	1	5	Moon F	0.020	- 0.010		0.137
1. 0	"	"	"	H β	0.030	- 0.028		0.137
1. 3	"	"	"	Moon F	0.987			
	"	"	"	H β	1.015	+ 0.001		0.137
1. 6	"	"	"	Moon F	0.999			
	"	"	"	H β	0.998	+ 0.007		0.137
1. 10	"	"	"	Moon F	1.005	- 0.008		0.137
	"	"	"	H β	0.998			
	"	"	"	H β	0.989			
	"	"	"	H β	0.997			
Oct. 17. 1. 20	M	1	5	Aldebaran F	0.378	+ 0.158	1 towards red	0.137
1. 30	"	"	"	H β	0.220	+ 0.174	1 towards red	0.137
	"	"	"	Aldebaran F	0.399			
	"	"	"	H β	0.225			
Oct. 22. 22. 45	M	1	5	α Aquilæ F	0.307	+ 0.129	$\frac{3}{4}$ towards red	0.137
22. 55	"	"	"	H β	0.178			
	"	"	"	α Aquilæ F	0.201	+ 0.013	$\frac{1}{10}$ towards red	0.137
23. 5	"	"	"	H β	0.188	- 0.008	Coincident	0.137
	"	"	"	α Aquilæ F	0.160			
	"	"	"	H β	0.168			
Oct. 22. 23. 45	M	1	5	α Cygni F	0.169	- 0.111	$\frac{2}{3}$ towards blue	0.137
	"	"	"	H β	0.280			
Nov. 6. 3. 23	N	1	5	Capella F	0.756	+ 0.099	$\frac{1}{4}$ towards red	0.122
3. 36	"	"	"	H β	0.657	+ 0.101	$\frac{1}{4}$ towards red	0.122
	"	"	"	Capella F	0.710			
	"	"	"	H β	0.609			
Nov. 7. 1. 0	N	1	5	Sky F	0.208	- 0.018		0.122
	"	"	"	H β	0.226	+ 0.012		0.122
	"	"	"	Sky F	0.345			
	"	"	"	H β	0.333	+ 0.017		0.122
	"	"	"	Sky F	0.218			
	"	"	"	H β	0.201			

Earth's Motion in Miles per Second.	Concluded Motion of Star in Miles per Second.		REMARKS.
	Measured.	Estimated.	
+ 15.9	+ 23.3	+ 19.9	Spectrum faint from mist. Measures difficult.
+ 15.9	- 11.9	- 10.5	
+ 8.3	- 35.6	- 35.2	Mist rising. Spectrum very faint. Moon near and bright. Atmospheric bands troublesome. Measures difficult.
+ 8.3	- 42.3	- 44.1	
+ 9.4	- 17.9	- 14.6	Measures considered very satisfactory.
+ 9.4	- 25.2	- 26.8	
+ 3.4	- 4.3	- 3.4	Star-line not very well seen.
+ 3.4	- 33.2	- 29.6	
+ 3.4	- 27.7	- 29.6	Star-line seen a little better than in the first observation.
	- 3.0		
	- 8.5		
	+ 0.3		
	+ 2.1		
	- 2.4		Definition poor.
- 12.8	+ 60.8	+ 65.1	
- 12.8	+ 65.6	+ 65.1	Observation not considered satisfactory. Observation considered good. Observation considered somewhat doubtful.
+ 16.2	+ 23.0	+ 18.6	
+ 16.2	- 12.2	- 11.0	
+ 16.2	- 18.6	- 16.2	
+ 7.7	- 41.4	- 39.1	Spectrum faint. Star-line very difficult to observe.
- 10.1	+ 40.2	+ 39.8	Measures very unsatisfactory. Sky hazy.
- 10.1	+ 40.8	+ 39.8	
	- 5.5		
	+ 3.6		
	+ 5.1		

Date, 1883, Greenwich Sidereal Time.	Observer.	Number of Half- Prisms.	Reading of Position Circle.	Objects compared.	Micrometer Readings.	Displacement.		Width of Slit.
						Measured.	Estimated in Terms of the Breadth of the Comparison Line.	
d h m Nov. 10. 22. 0	M	1	5	α Lyrae F..... H β	0.664 0.746	— 0.082	$\frac{1}{2}$ towards blue	0.122
22. 10	"	"	"	α Lyrae F..... H β	0.766 0.860	— 0.094	$\frac{2}{3}$ towards blue	0.122
Nov. 10. 22. 35	M	1	5	γ Cygni F..... H β	0.386 0.320	+ 0.066	$\frac{1}{2}$ towards red	0.200
22. 50	"	"	"	γ Cygni F..... H β	0.261 0.295	— 0.034	$\frac{1}{10}$ towards blue	0.200
Nov. 10. 23. 20	M	1	5	ϵ Cygni F..... H β	0.698 0.626	+ 0.072	$\frac{1}{4}$ towards red	0.200
23. 45	"	"	"	ϵ Cygni F..... H β	0.667 0.597	+ 0.070	$\frac{1}{4}$ towards red	0.200
Nov. 10. 23. 55	M	1	5	α Cygni F..... H β	0.282 0.438	— 0.156	$\frac{1}{2}$ towards blue	0.200
0. 0	"	"	"	α Cygni F..... H β	0.290 0.445	— 0.155	$\frac{1}{2}$ towards blue	0.200
Nov. 10. 0. 15	M	1	5	ϵ Pegasi F..... H β	0.621 0.540	+ 0.081	$\frac{2}{3}$ towards red	0.200
0. 25	"	"	"	ϵ Pegasi F..... H β	0.669 0.530	+ 0.139	$\frac{1}{3}$ towards red	0.200
Nov. 10. 0. 30	M	1	5	Moon F..... H β	0.605 0.600	+ 0.005		0.200
				Moon F..... H β	0.576 0.579	— 0.003		0.200
				Moon F..... H β	0.589 0.586	+ 0.003		0.200
				Moon F..... H β	0.574 0.582	— 0.008		0.200
0. 40				Moon F..... H β	0.592 0.597	— 0.005		0.200
Nov. 10. 0. 50	M	1	5	α Arietis F..... H β	0.870 0.860	+ 0.010	$\frac{1}{10}$ towards red	0.200
1. 0	"	"	"	α Arietis F..... H β	0.982 0.919	+ 0.063	$\frac{1}{4}$ towards red	0.200
1. 10	"	"	"	α Arietis F..... H β	0.940 0.871	+ 0.069	$\frac{1}{4}$ towards red	0.200
Nov. 10. 1. 30	M	1	5	Aldebaran F..... H β	0.476 0.358	+ 0.118	$\frac{3}{8}$ towards red	0.200
1. 40	"	"	"	Aldebaran F..... H β	0.476 0.382	+ 0.094	$\frac{1}{3}$ towards red	0.200
Nov. 12. 0. 50	M	1	5	Capella F..... H β	0.790 0.735	+ 0.055	$\frac{1}{3}$ towards red	0.200
1. 5	"	"	"	Capella F..... H β	0.846 0.769	+ 0.077	$\frac{1}{3}$ towards red	0.200
Nov. 12. 1. 15	M	1	5	β Aurigæ F..... H β	0.806 0.789	+ 0.017	$\frac{1}{10}$ towards red	0.200
1. 25	"	"	"	β Aurigæ F..... H β	0.856 0.838	+ 0.018	$\frac{1}{10}$ towards red	0.200

Earth's Motion in Miles per Second.	Concluded Motion of Star in Miles per Second		REMARKS.
	Measured.	Estimated.	
+ 7.3 + 7.3	- 32.2 - 35.9	- 32.2 - 40.5	Star-line ill defined. Spectrum comparatively faint.
+ 10.1 + 10.1	+ 9.9 - 20.4	+ 6.4 - 18.4	Spectrum faint. It was necessary to open slit much wider than usual in order to see star-line; but this spoiled its definition.
+ 12.1 + 12.1	+ 9.8 + 9.2	+ 8.6 + 8.6	Spectrum a little better seen than for γ Cygni, but the observation was still very difficult, the star spectrum and star-line both being very faint.
+ 9.1 + 9.1	- 56.5 - 56.2	- 50.4 - 50.4	Both measures appeared excellent. Star spectrum bright. Star-line well defined.
+ 17.0 + 17.0	+ 7.6 + 25.2	+ 16.1 + 10.5	Star-line very faint. Observation difficult.
	+ 1.5 - 0.9 + 0.9 - 2.4 - 1.5		Measures of both spectra made under very favourable circumstances.
+ 3.9 + 3.9 + 3.9	- 0.9 + 15.2 + 17.1	+ 4.4 + 16.8 + 16.8	Star-line rather faint. Bisection somewhat difficult.
- 6.3 - 6.3	+ 42.1 + 34.9	+ 39.4 + 33.8	Measures considered satisfactory.
- 8.6 - 8.6	+ 25.3 + 32.0	+ 36.1 + 36.1	Spectrum faint. Star-line faint. Definition fair. Much mist.
- 10.9 - 10.9	+ 16.0 + 16.4	+ 19.2 + 19.2	Spectrum <i>very</i> faint. Much mist. Measures very difficult and though accordant, no great weight can be attached to them.

Date, 1883, Greenwich Sidereal Time.	Observer.	Number of Half- Prisms.	Reading of Position Circle.	Objects compared.	Micrometer Readings.	Displacement.		Width of Slit.
						Measured.	Estimated in Terms of the Breadth of the Comparison Line.	
d h m			°		r	r		r
Nov. 12. 1.40	M	1	5	β Tauri F	0'946	+ 0'044	$\frac{1}{8}$ towards red	0'200
				H β	0'902			
1.50	"	"	"	β Tauri F	0'900	- 0'022	$\frac{1}{10}$ towards blue	0'200
				H β	0'922			
Nov. 12. 2. 5	M	1	5	Aldebaran F	0'106	+ 0'045	$\frac{1}{8}$ towards red	0'200
				H β	0'061			
2.15	"	"	"	Aldebaran F	0'227	+ 0'132	$\frac{2}{3}$ towards red	0'200
				H β	0'095			
Nov. 12. 2.20	M	1	5	Moon F	0'042	- 0'020		0'200
				H β	0'062			
				Moon F	0'072	+ 0'014		0'200
				H β	0'058			
				Moon F	0'076	- 0'020		0'200
				H β	0'096			
				Moon F	0'087	- 0'005		0'200
				H β	0'092			
2.35				Moon F	0'098	+ 0'018		0'200
				H β	0'080			
Nov. 16. 0.25	M	1	5	α Aquilæ F	0'808	+ 0'056	$\frac{1}{4}$ towards red	0'170
				H β	0'752			
0.40	"	"	"	α Aquilæ F	0'772	+ 0'034	$\frac{1}{10}$ towards red	0'170
				H β	0'738			
0.50	"	"	"	α Aquilæ F	0'757	+ 0'009	$\frac{1}{10}$ towards red	0'170
				H β	0'748			
Nov. 16. 1. 0	M	1	5	δ Cygni F	0'090	- 0'100	$\frac{1}{2}$ towards blue	0'170
				H β	0'190			
1. 5	"	"	"	δ Cygni F	0'195	0'000	Coincident	0'170
				H β	0'195			
1.10	"	"	"	δ Cygni F	0'177	+ 0'002	Coincident	0'170
				H β	0'175			
1.15	"	"	"	δ Cygni F	0'157	- 0'024	$\frac{1}{10}$ towards blue	0'170
				H β	0'181			
Nov. 16. 1.35	M	1	5	α Cephei F	0'057	- 0'118	$\frac{2}{3}$ towards blue	0'170
				H β	0'175			
1.50	"	"	"	α Cephei F	0'085	- 0'109	$\frac{2}{3}$ towards blue	0'170
				H β	0'194			
Nov. 16. 2. 0	M	1	5	β Cassiopeiæ F	0'937	+ 0'085	$\frac{2}{3}$ towards red	0'170
				H β	0'852			
2.10	"	"	"	β Cassiopeiæ F	0'857	0'000	Coincident	0'170
				H β	0'857			
2.20	"	"	"	β Cassiopeiæ F	0'872	+ 0'015	$\frac{1}{10}$ towards red	0'170
				H β	0'857			
Nov. 16. 2.30	M	1	5	γ Cassiopeiæ F	1'028	+ 0'048	$\frac{1}{3}$ towards red	0'170
				H β	0'980			
2.40	"	"	"	γ Cassiopeiæ F	0'801	+ 0'014	$\frac{1}{10}$ towards red	0'170
				H β	0'787			
2.50	"	"	"	γ Cassiopeiæ F	0'841	+ 0'071	$\frac{3}{10}$ towards red	0'170
				H β	0'770			
Nov. 16. 3. 5	M	1	5	β Persei F	0'028	- 0'170	$\frac{3}{4}$ towards blue	0'170
				H β	0'198			
3.15	"	"	"	β Persei F	0'092	- 0'132	$\frac{2}{3}$ towards blue	0'170
				H β	0'224			
3.25	"	"	"	β Persei F	0'048	- 0'172	$\frac{3}{4}$ towards blue	0'170
				H β	0'220			

Earth's Motion in Miles per Second.	Concluded Motion of Star in Miles per Second.		REMARKS.
	Measured.	Estimated.	
- 9.5	+ 22.9	+ 26.0	Spectrum faint but steady. Star-line dark. The only drawback to observation was the extreme faintness of the spectrum.
- 9.5	+ 2.8	+ 5.4	
- 5.7	+ 19.4	+ 22.2	Spectrum very faint. Star-line very faint. Measures difficult.
- 5.7	+ 45.8	+ 38.8	
	- 6.1		Very misty throughout the evening. Spectra very faint but steady. The faintness of the spectra made measures difficult and uncertain.
	+ 4.3		
	- 6.1		
	- 1.5		
	+ 5.5		
+ 15.0	+ 2.0	+ 1.4	Spectrum very tremulous. The star-line was however fairly well seen, and the measures were considered satisfactory.
+ 15.0	- 4.7	- 8.4	
+ 15.0	- 12.3	- 8.4	
+ 8.0	- 38.4	- 40.8	Spectrum faint and tremulous. Measures difficult. Star-line hard to see. Seen best at the last measure.
+ 8.0	- 8.0	- 8.0	
+ 8.0	- 7.4	- 8.0	
+ 8.0	- 15.3	- 14.6	
+ 4.6	- 40.4	- 44.0	Star-line evidently largely displaced towards the blue. Direct comparison seemed to show a still larger displacement. The star, from its position, was however difficult to observe. Spectrum tremulous but fairly bright. Star-line fairly well defined and not very broad.
+ 4.6	- 37.7	- 44.0	
+ 4.2	+ 21.6	+ 22.1	Star-line faint but fairly well defined and not broad. Spectrum bright and steady.
+ 4.2	- 4.2	- 4.2	
+ 4.2	+ 0.4	+ 2.4	
+ 2.6	+ 12.0	+ 10.5	This beautiful spectrum was bright and well defined, but rather tremulous. The bright F line was easily seen, but was difficult to hold steadily when the pointer was close to it; so difficult that though three perfectly distinct measures proved fairly accordant, none of them was considered wholly satisfactory. The star-line was evidently not greatly displaced.
+ 2.6	+ 1.7	+ 4.0	
+ 2.6	+ 19.0	+ 17.1	
0.0	- 51.6	- 49.2	Star in awkward position. Star-line dark and fairly defined. Large displacement towards the blue.
0.0	- 40.1	- 39.4	
0.0	- 52.3	- 49.2	

Date, 1883, Greenwich Sidereal Time.	Observer.	Number of Half- Prisms.	Reading of Position Circle.	Objects compared.	Micrometer Readings.	Displacement.		Width of Slit.
						Measured.	Estimated in Terms of the Breadth of the Comparison Line.	
d h m			°		r	r		r
Nov. 16. 3. 35	M	1	5	α Persei F.....	0.240	— 0.071	$\frac{1}{3}$ towards blue	0.170
3. 45	"	"	"	H β	0.311			
	"	"	"	α Persei F.....	0.228	— 0.112	$\frac{2}{3}$ towards blue	0.170
	"	"	"	H β	0.340			
Nov. 16. 4. 0	M	1	5	Rigel F	1.000	+ 0.050	$\frac{1}{4}$ towards red	0.170
4. 10	"	"	"	H β	0.950			
	"	"	"	Rigel F	1.068	+ 0.090	$\frac{2}{5}$ towards red	0.170
	"	"	"	H β	0.978			
Nov. 16. 4. 15	M	1	5	Moon F	0.556	— 0.005		0.170
	"	"	"	H β	0.561			
	"	"	"	Moon F	0.601	+ 0.042		0.170
	"	"	"	H β	0.559			
	"	"	"	Moon F	0.572	+ 0.007		0.170
	"	"	"	H β	0.565			
	"	"	"	Moon F	0.557	— 0.009		0.170
	"	"	"	H β	0.566			
4. 25	"	"	"	Moon F	0.566	0.000		0.170
	"	"	"	H β	0.566			
Nov. 16. 4. 40	M	1	5	Sirius F	0.581	— 0.047	$\frac{1}{5}$ towards blue	0.170
4. 45	"	"	"	H β	0.628			
	"	"	"	Sirius F	0.592	— 0.040	$\frac{1}{5}$ towards blue	0.170
	"	"	"	H β	0.632			
4. 50	"	"	"	Sirius F	0.555	— 0.085	$\frac{2}{5}$ towards blue	0.170
	"	"	"	H β	0.640			
4. 55	"	"	"	Sirius F	0.591	— 0.049	$\frac{1}{5}$ towards blue	0.170
	"	"	"	H β	0.640			
Nov. 20. 1. 16	N	1	5	α Arietis b_1	0.058	+ 0.009	Coincident	0.157
1. 44	"	"	"	Mg ₁	0.049			
	"	"	"	α Arietis b_1	0.107	+ 0.026	$\frac{1}{10}$ towards red	0.157
	"	"	"	Mg ₁	0.081			
Nov. 20. 2. 2	N	1	5	Aldebaran b_1	0.254	+ 0.115	$\frac{2}{5}$ towards red	0.157
2. 12	"	"	"	Mg ₁	0.139			
	"	"	"	Aldebaran b_1	0.210	+ 0.052	$\frac{1}{5}$ towards red	0.157
	"	"	"	Mg ₁	0.158			
Nov. 20. 2. 55	N	1	5	Capella b_1	0.565	+ 0.102	$\frac{1}{3}$ towards red	0.157
3. 3	"	"	"	Mg ₁	0.463			
	"	"	"	Capella b_1	0.567	+ 0.100	$\frac{1}{3}$ towards red	0.157
	"	"	"	Mg ₁	0.467			
Nov. 20. 3. 27	N	1	5	Pollux b_1	0.515	— 0.090	$\frac{1}{3}$ towards blue	0.157
3. 33	"	"	"	Mg ₁	0.605			
	"	"	"	Pollux b_1	0.553	— 0.064	$\frac{1}{3}$ towards blue	0.157
	"	"	"	Mg ₁	0.617			
Nov. 20. 3. 55	N	1	5	Moon b_1	0.920	— 0.011		0.157
3. 58	"	"	"	Mg ₁	0.931			
	"	"	"	Moon b_1	0.928	— 0.025		0.157
	"	"	"	Mg ₁	0.953			
4. 1	"	"	"	Moon b_1	0.965	— 0.003		0.157
	"	"	"	Mg ₁	0.968			
Nov. 23. 2. 35	M	1	5	Capella b_1	0.486	+ 0.144	$\frac{1}{3}$ towards red	0.110
2. 45	"	"	"	Mg ₁	0.342			
	"	"	"	Capella b_1	0.490	+ 0.146	$\frac{1}{3}$ towards red	0.110
	"	"	"	Mg ₁	0.344			
3. 0	"	"	"	Capella b_1	0.420	+ 0.082	$\frac{3}{10}$ towards red	0.140
	"	"	"	Mg ₁	0.338			

Earth's Motion in Miles per Second.	Concluded Motion of Star in Mile per Second.		REMARKS.
	Measured.	Estimated.	
- 1'7	- 19'9	- 20'2	Star-line ill-defined.
- 1'7	- 32'3	- 37'7	
- 5'7	+ 20'9	+ 22'1	Spectrum tremulous. Star-line, however, pretty fairly defined.
- 5'7	+ 33'0	+ 32'0	
	- 1'5 + 12'7 + 2'1 - 2'7 0'0		Moon spectrum most beautifully defined.
- 10'8	- 3'5	- 2'3	Direct comparison showed a distinct displacement towards the blue. It was difficult, however, to be sure of the exact amount from the broad ill-defined nature of the star-line. The direct comparison suggested, however, that the largest measure made (the third) was more correct than the smaller, as the displacement was quite unmistakable.
- 10'8	- 1'3	- 2'3	
- 10'8	- 15'0	- 15'5	
- 10'8	- 4'1	- 2'3	
+ 7'0	- 3'6	- 7'0	Spectrum bright but tremulous.
+ 7'0	+ 2'7	+ 5'2	
- 3'2	+ 46'4	+ 52'2	
- 3'2	+ 22'7	+ 23'6	
- 6'4	+ 44'7	+ 47'2	Spectrum bright and steady, and star-line bisected easily.
- 6'4	+ 43'9	+ 47'2	
- 15'2	- 18'6	- 25'6	Spectrum bright. Star-line tolerably distinct.
- 15'2	- 8'8	- 9'3	
	- 4'1 - 9'4 - 1'1		Definition very bad.
- 5'6	+ 59'7	+ 43'7	
- 5'6	+ 60'4	+ 43'7	
- 5'6	+ 36'4	+ 34'6	

Date, 1883, Greenwich Sidereal Time.	Observer.	Number of Half- Prisms.	Reading of Position Circle.	Objects compared.	Micrometer Readings.	Displacement.		Width of Slit.
						Measured.	Estimated in Terms of the Breadth of the Comparison Line.	
d h m			°		r	r		r
Nov. 23. 3. 15	M	1	5	Aldebaran b_1	0.712		Coincident	0.140
				Mg ₁	0.712	0.000		
3. 25	"	"	"	Aldebaran b_1	0.738	+ 0.020	$\frac{1}{10}$ towards red	0.140
				Mg ₁	0.718			
Nov. 23. 3. 35	M	1	5	α Orionis b_1	0.886	+ 0.007	$\frac{2}{3}$ towards red	0.140
				Mg ₁	0.809			
3. 45	"	"	"	α Orionis b_1	0.878	+ 0.061	$\frac{1}{3}$ towards red	0.140
				Mg ₁	0.817			
Nov. 23. 4. 0	M	1	5	Pollux b_1	0.280	- 0.109	$\frac{1}{2}$ towards blue	0.140
				Mg ₁	0.389			
4. 10	"	"	"	Pollux b_1	0.312	- 0.068	$\frac{3}{10}$ towards blue	0.140
				Mg ₁	0.380			
Nov. 27.	M	1	5	Sky b_1	0.458	- 0.014		0.140
	"	"	"	Mg ₁	0.472			
	"	"	"	Sky b_1	0.469	- 0.020		0.140
	"	"	"	Mg ₁	0.489			
	"	"	"	Sky b_1	0.470	+ 0.005		0.140
	"	"	"	Mg ₁	0.465			
	"	"	"	Sky b_1	0.464	+ 0.004		0.140
	"	"	"	Mg ₁	0.460			
	"	"	"	Sky b_1	0.485	+ 0.003		0.140
	"	"	"	Mg ₁	0.482			
Dec. 5. 0. 28	N	1	5	α Lyræ F	0.916	- 0.064	$\frac{1}{3}$ towards blue	0.160
				H β	0.980			
Dec. 5. 3. 1	N	1	5	Aldebaran F	0.521	+ 0.097	$\frac{1}{3}$ towards red	0.160
				H β	0.424			
3. 9	"	"	"	Aldebaran F	0.579	+ 0.099	$\frac{1}{3}$ towards red	0.160
				H β	0.480			
Dec. 5. 3. 51	N	1	5	Capella F	0.179	+ 0.077	$\frac{1}{4}$ towards red	0.160
				H β	0.102			
4. 10	"	"	"	Capella F	0.365	+ 0.245	$\frac{3}{4}$ towards red	0.160
				H β	0.120			
Dec. 5. 4. 45	N	1	5	Sirius F	0.772	- 0.005	Nearly coincident	0.160
				H β	0.777			
4. 50	"	"	"	Sirius F	0.741	- 0.048	$\frac{1}{3}$ towards blue	0.160
				H β	0.789			

Earth's Motion in Miles per Second.	Concluded Motion of Star in Miles per Second.		REMARKS.
	Measured.	Estimated.	
- 2.2	+ 2.2	+ 2.2	Star-line dark, but spectrum very tremulous and measures difficult.
- 2.2	+ 9.7	+ 11.8	
- 7.8	+ 36.7	+ 46.4	Definition very bad. Measures not considered satisfactory.
- 7.8	+ 30.7	+ 40.0	
- 14.6	- 26.3	- 33.7	Spectrum very tremulous, though bright. Measures difficult and of little weight.
- 14.6	- 10.9	- 14.4	
	- 5.3		The lines of magnesium and of the sky spectrum were not absolutely parallel to each other. They seemed perfectly coincident in the centre of the spectrum, where the measures are made, but the sky spectrum was slightly displaced towards the blue at the lower part of the field.
	- 7.5		
	+ 1.9		
	+ 1.5		
	+ 1.1		
+ 4.5	- 23.9	- 20.8	A doubtful measure, star spectrum being very faint and tremulous.
+ 1.8	+ 27.7	+ 25.3	Observations difficult. Spectrum faint and very unsteady.
+ 1.8	+ 28.3	+ 25.3	
- 2.0	+ 25.4	+ 22.4	Spectrum very bright.
- 2.0	+ 76.4	+ 63.1	
- 7.0	+ 5.5	+ 7.0	Star-line very broad, but a well-marked central condensation was shown.
- 7.0	- 7.6	- 6.6	

COLLECTED RESULTS for MOTIONS of STARS in the line of Sight, from SPECTROSCOPIC OBSERVATIONS made at the ROYAL OBSERVATORY, GREENWICH, in the Year 1883.

(F for the Star or Moon is compared with H_{β} of Hydrogen, and b_1, b_2, b_4 with Mg_1, Mg_2, Mg_3 of Magnesium.)

(+ denotes Recession; - Approach.)

Date, 1883.	Observer.	Number of Measures.	Number of Prisms.	Position Circle.	Width of Slit.	Line.	Earth's Motion in Miles per Second.	Concluded Motion of Star in Miles per Second.		
								Measured.	Estimated.	
α ANDROMEDÆ.										
August 23	N	2	1	10	0.125	F	- 10.8	- 23.1	- 21.8	
October 17	M	3	1	5	0.137	F	+ 3.4	- 21.7	- 20.9	
β CASSIOPEÆ.										
November 16	M	3	1	5	0.170	F	+ 4.2	+ 5.9	+ 6.8	
γ CASSIOPEÆ.										
November 16	M	3	1	5	0.170	F	+ 2.6	+ 10.9	+ 10.5	
α ARIETIS.										
November 10	M	3	1	5	0.200	F	+ 3.9	+ 10.5	+ 12.7	
20	N	2	1	5	0.157	b_1	+ 7.0	- 0.5	- 0.9	
β PERSEI.										
November 16	M	3	1	5	0.170	F	+ 0.0	- 48.0	- 45.9	
α PERSEI.										
November 16	M	2	1	5	0.170	F	- 1.7	- 26.1	- 29.0	

Date, 1883.	Observer.	Number of Measures.	Number of Prisms.	Position Circle.	Width of Slit.	Line.	Earth's Motion in Miles per Second.	Concluded Motion of Star in Miles per Second.		
								Measured.	Estimated.	
α TAURI (<i>Aldebaran</i>).										
October 17	M	2	1	5	0'137	F	- 12'8	+ 63'2	+ 65'1	
November 10	M	2	1	5	0'200	F	- 6'3	+ 38'5	+ 36'6	
12	M	2	1	5	0'200	F	- 5'7	+ 32'6	+ 30'5	
20	N	2	1	5	0'157	b_1	- 3'2	+ 34'6	+ 37'9	
23	M	2	1	5	0'140	b_1	- 2'2	+ 6'0	+ 7'0	
December 5	N	2	1	5	0'160	F	+ 1'8	+ 28'0	+ 25'3	
α AURIGÆ (<i>Capella</i>).										
September 18	N	2	1	6	0'145	F	+ 16'7	+ 0'8	- 1'4	
November 6	N	2	1	5	0'122	F	- 10'1	+ 40'5	+ 39'8	
12	M	2	1	5	0'200	F	- 8'6	+ 28'7	+ 36'1	
20	N	2	1	5	0'157	b_1	- 6'4	+ 44'3	+ 47'2	
23	M	3	1	5	0'110 & 0'140	b_1	- 5'6	+ 52'2	+ 40'7	
December 5	N	2	1	5	0'160	F	- 2'0	+ 50'9	+ 42'8	
β ORIONIS (<i>Rigel</i>).										
February 23	M	2	1	5	0'250	F	+ 15'8	+ 22'6	+ 22'6	
November 16	M	2	1	5	0'170	F	- 5'7	+ 27'0	+ 27'1	
β TAURI.										
November 12	M	2	1	5	0'200	F	- 9'5	+ 12'9	+ 15'7	
α ORIONIS.										
November 23	M	2	1	5	0'140	b_1	- 7'8	+ 33'7	+ 43'2	
β AURIGÆ.										
November 12	M	2	1	5	0'200	F	- 10'9	+ 16'2	+ 19'2	

62 COLLECTED RESULTS FOR MOTIONS OF STARS IN THE LINE OF SIGHT, FROM SPECTROSCOPIC OBSERVATIONS

Date, 1883.	Observer.	Number of Measures.	Number of Prisms.	Position Circle.	Width of Slit.	Line.	Earth's Motion in Miles per Second.	Concluded Motion of Star in Miles per Second.		
								Measured.	Estimated.	
α CANIS MAJORIS (<i>Sirius</i>).										
February	16	M	4	1	5	..	F	+ 10.3	+ 10.2	+ 16.3
	23	M	4	1	5	0.250	F	+ 11.4	- 0.7	- 1.8
March	30	M	2	1	5	0.165	F	+ 14.2	- 24.5	- 24.9
		M	4	1	5	0.115	F	+ 14.2	- 16.7	- 16.9
		M	2	2	5	0.165	F	+ 14.2	- 6.7	- 5.3
		M	2	2	5	0.115	F	+ 14.2	- 2.3	- 1.2
November	16	M	4	1	5	0.170	F	- 10.8	- 6.0	- 5.6
December	5	N	2	1	5	0.160	F	- 7.0	- 1.1	+ 0.2
α^2 GEMINORUM (<i>Castor</i>).										
February	16	M	3	1	5	..	F	+ 11.8	+ 11.4	+ 30.1
α CANIS MINORIS (<i>Procyon</i>).										
February	16	M	2	1	5	..	F	+ 10.1	+ 20.9	+ 32.2
	23	M	2	1	5	0.250	F	+ 11.8	+ 16.1	+ 17.0
March	30	M	2	1	5	0.115	F	+ 17.2	- 3.2	- 5.0
	30	M	2	2	5	0.115	F	+ 17.2	+ 2.1	+ 2.4
β GEMINORUM (<i>Pollux</i>).										
February	16	M	2	1	5	..	F	+ 10.8	- 49.3	- 71.2
	23	M	2	1	5	0.250	F	+ 12.5	- 33.1	- 31.7
March	30	M	2	1	5	0.115	F	+ 17.8	- 45.0	- 41.2
May	16	M	3	1	6	0.205	F	+ 14.9	- 66.9	- 51.9
November	20	N	2	1	5	0.157	b_1	- 15.2	- 13.7	- 17.5
	23	N	2	1	5	0.140	b_1	- 14.6	- 18.6	- 24.1
α LEONIS (<i>Regulus</i>).										
February	23	M	2	1	5	0.250	F	+ 2.2	+ 23.7	+ 25.9
March	30	M	2	1	5	0.115	F	+ 12.3	+ 18.1	+ 14.7
May	23	N	2	1	6	0.145	F	+ 17.8	- 8.4	- 8.0
		M	2	1	6	0.145	F	+ 17.8	+ 5.9	+ 6.5
May	31	N	1	1	10	0.175	F	+ 17.5	- 6.6	- 0.7

Date, 1883.	Observer.	Number of Measures.	Number of Prisms.	Position Circle.	Width of Slit.	Line.	Earth's Motion in Miles per Second.	Concluded Motion of Star in Miles per Second.		
								Measured.	Estimated.	
β URSAE MAJORIS.										
July	13	M	2	1	10	0'143	F	+ 5.6	- 5.3	- 5.6
β LEONIS.										
May	23	M	2	1	6	0'145	F	+ 16.7	+ 4.3	+ 7.6
γ URSAE MAJORIS.										
July	13	M	2	1	10	0'143	F	+ 7.4	+ 1.6	+ 5.3
August	21	N	2	1	12	0'125	F	0.0	+ 53.3	+ 55.6
ϵ URSAE MAJORIS.										
July	13	M	2	1	10	0'143	F	+ 7.5	+ 2.1	+ 5.2
August	21	N	2	1	12	0'125	F	+ 1.6	+ 24.8	+ 23.4
α CANUM VENATICUM.										
June	1	M	2	1	10	0'154	F	+ 13.4	+ 11.8	+ 9.3
α VIRGINIS (<i>Spica</i>).										
March	30	M	2	1	5	0'115	F	- 3.9	- 3.5	- 4.2
May	7	M	2	1	6	0'148	F	+ 7.6	- 55.6	- 50.5
	16	M	3	1	6	0'205	F	+ 9.9	- 26.3	- 24.5
	24	M	2	1	6	0'145	F	+ 11.8	- 51.0	- 52.0
	31	N	2	1	10	0'175	F	+ 13.3	- 19.8	- 22.7
ζ URSAE MAJORIS.										
June	1	M	2	1	10	0'154	F	- 2.2	+ 25.4	+ 24.9
July	13	M	2	1	10	0'143	F	+ 7.8	+ 24.7	+ 27.7

64 COLLECTED RESULTS FOR MOTIONS OF STARS IN THE LINE OF SIGHT, FROM SPECTROSCOPIC OBSERVATIONS

Date, 1883.	Observer.	Number of Measures.	Number of Prisms.	Position Circle.	Width of Slit.	Line.	Earth's Motion in Miles per Second.	Concluded Motion of Star in Miles per Second.		
								Measured.	Estimated.	
γ URSAE MAJORIS.										
May	21	M	1	1	6	0.175	F	+ 9.5	- 3.1	- 3.5
	23	M	4	1	6	0.145	F	+ 9.6	+ 12.4	+ 14.7
July	13	M	2	1	10	0.143	F	+ 9.3	- 21.1	- 23.3
August	13	M	2	1	10	0.095	F	+ 5.9	- 3.5	- 1.8
α BOÖTIS (<i>Arcturus</i>).										
March	30	M	2	1	5	0.115	F	- 3.4	- 35.6	- 30.8
May	7	M	2	1	6	0.148	F	+ 6.4	- 54.1	- 43.5
	21	M	2	1	6	0.175	F	+ 9.5	- 49.0	- 45.7
	23	M	2	1	6	0.145	F	+ 9.9	- 34.1	- 34.2
	28	M	2	1	10	0.105	b ₁	+ 10.8	- 69.4	- 68.5
June	1	M	2	1	10	0.154	F	+ 10.2	- 60.3	- 55.6
	4	M	2	1	10	0.150	b ₁	+ 12.0	- 47.1	- 51.7
	8	N	2	1	10	0.123	b ₁	+ 12.6	- 68.0	- 57.1
	14	N	2	1	10	0.125	b ₁	+ 13.4	- 67.5	- 65.2
	26	N	2	1	10	0.075	F	+ 14.6	- 30.1	- 30.6
July	4	M	3	1	10	0.155	b ₁	+ 15.0	- 52.2	- 54.7
	5	N	2	1	10	0.125	b ₁	+ 15.1	- 59.8	- 57.9
	6	M	3	1	10	0.195	b ₁	+ 15.1	- 64.5	- 64.4
		M	2	2	10	0.195	b ₁	+ 15.1	- 44.8	- 47.4
	9	M	2	1	10	0.200	b ₁	+ 15.2	- 54.1	- 54.3
	13	M	2	1	10	0.143	F	+ 15.3	- 54.6	- 40.7
	17	N	2	1	12	0.175	F	+ 15.3	- 58.0	- 58.2
August	13	M	2	1	10	0.095	F	+ 13.6	- 46.6	- 44.8
	21	N	2	1	12	0.125	F	+ 12.5	- 46.0	- 49.6
	24	M	1	1	6	0.162	D ₂	+ 12.0	- 89.1	- 79.9
		M	1	1	6	0.162	D ₁	+ 12.0	- 44.0	- 45.8
ε ₂ BOÖTIS.										
May	28	M	2	1	10	0.105	b ₁	+ 8.9	- 12.5	- 14.9
June	4	M	2	1	10	0.150	b ₁	+ 10.0	- 17.0	- 20.3
July	5	N	2	1	10	0.125	b ₁	+ 13.1	- 53.6	- 50.9
β LIBRÆ.										
May	24	M	2	1	6	0.145	F	+ 4.8	- 33.4	- 31.3
	31	N	2	1	10	0.175	F	+ 6.7	- 25.9	- 27.7

Date, 1883.	Observer.	Number of Measures.	Number of Prisms.	Position Circle.	Width of Slit.	Line.	Earth's Motion in Miles per Second.	Concluded Motion of Star in Miles per Second.		
								Measured.	Estimated.	
α CORONÆ BOREALIS.										
May	16	M	2	1	0	r	F	+ 3.4	+ 28.3	+ 33.1
	23	M	2	1	6	0.205	F	+ 4.8	+ 12.4	+ 15.5
August	13		2	1	10	0.095	F	+ 12.6	+ 18.9	+ 18.6
α SERPENTIS.										
July	6	M	2	1	10	0.195	b ₁	+ 13.0	+ 27.5	+ 32.8
β HERCULIS.										
July	6	M	2	1	10	0.195	b ₁	+ 9.2	- 45.8	- 50.3
ζ HERCULIS.										
July	6	M	2	1	10	0.195	b ₁	+ 7.4	- 25.2	- 25.0
α HERCULIS.										
May	28	M	2	1	10	0.105	b ₄	- 1.8	- 38.0	- 43.6
α OPHIUCHI.										
May	23	M	2	1	6	0.145	F	- 4.5	+ 17.6	+ 15.1
	24	M	2	1	6	0.145	F	- 4.3	- 9.7	- 6.9
γ DRACONIS.										
July	4	M	2	1	10	0.155	b ₁	+ 1.3	+ 14.3	+ 14.5

66 COLLECTED RESULTS FOR MOTIONS OF STARS IN THE LINE OF SIGHT FROM SPECTROSCOPIC OBSERVATIONS

Date, 1883.	Observer.	Number of Measures.	Number of Prisms.	Position Circle.	Width of Slit.	Line.	Earth's Motion in Miles per Second.	Concluded Motion of Star in Miles per Second.		
								Measured.	Estimated.	
α LYRÆ (<i>Vega</i>).										
May	16	M	2	1	6	0.205	F	- 6.3	- 43.8	- 42.3
	24	M	2	1	6	0.145	F	- 5.5	- 38.5	- 37.1
	31	N	2	1	10	0.175	F	- 4.7	- 18.1	- 16.3
June	26	N	2	1	10	0.075	F	- 1.3	- 22.1	- 22.7
July	19	N	2	1	11	0.145	F	+ 1.9	- 36.4	- 42.0
	26	N	2	1	10	0.175	F	+ 2.9	- 24.6	- 27.5
August	3	M	2	1	10	0.151	F	+ 3.9	- 37.8	- 25.8
	14	N	2	1	10	0.115	F	+ 5.2	- 51.5	- 51.7
	23	N	2	1	10	0.125	F	+ 6.2	- 37.5	- 33.4
September	18	N	2	1	6	0.145	F	+ 8.2	- 23.9	- 23.1
	20	N	3	1	6	0.175	F	+ 8.3	- 48.3	- 45.2
November	10	M	2	1	5	0.122	F	+ 7.3	- 34.1	- 36.4
December	5	N	1	1	5	0.160	F	+ 4.5	- 23.9	- 20.8
ζ AQUILÆ.										
August	14	N	2	1	10	0.115	F	+ 8.0	- 26.9	- 19.6
δ CYGNI.										
November	16	M	4	1	5	0.170	F	+ 8.0	- 17.3	- 17.9
α AQUILÆ (<i>Altair</i>).										
July	19	N	3	1	11	0.145	F	- 0.8	+ 21.3	+ 20.0
	26	N	2	1	10	0.175	F	+ 1.0	+ 6.5	+ 4.9
August	3	M	2	1	10	0.151	F	+ 3.0	+ 15.3	+ 13.4
	23	N	2	1	10	0.125	F	+ 7.9	- 23.0	- 22.4
September	18	N	2	1	6	0.145	F	+ 13.1	- 17.4	- 13.1
October	13	M	2	1	5	0.132	F	+ 15.9	+ 5.7	+ 4.7
	22	M	3	1	5	0.137	F	+ 16.2	- 2.6	- 2.9
November	16	M	3	1	5	0.170	F	+ 15.0	- 5.0	- 5.1
γ CYGNI.										
July	4	M	2	1	10	0.155	b_1	- 6.3	- 4.2	- 4.2
November	10	M	2	1	5	0.122	F	+ 10.1	- 5.3	- 6.0

Date, 1883.	Observer.	Number of Measures.	Number of Prisms.	Position Circle.	Width of Slit.	Line.	Earth's Motion in Miles per Second.	Concluded Motion of Star in Miles per Second.	
								Measured.	Estimated.
α CYGNI.									
June 14	N	3	1	10	0'125	b_1	- 8'4	(+ 28'8)	(+ 27'1)
July 4	M	2	1	10	0'155	b_1	- 6'9	- 27'5	- 32'5
	N	3	1	10	0'125	b_1	- 6'8	- 41'9	- 41'9
October 22	M	1	1	5	0'137	F	+ 7'7	- 41'4	- 39'1
November 10	M	2	1	5	0'200	F	+ 9'1	- 56'4	- 50'4
ϵ CYGNI.									
July 5	N	2	1	10	0'125	b_1	- 7'8	- 59'8	- 60'2
November 10	M	2	1	5	0'200	F	+ 12'1	+ 9'5	+ 8'6
α CEPHEI.									
November 16	M	2	1	5	0'170	F	+ 4'6	- 39'1	- 44'0
ϵ PEGASI.									
November 10	M]	2	1	5	0'200	F	+ 17'0	+ 16'4	+ 13'3
α PISCIS AUSTRALIS (<i>Fomalhaut</i>).									
September 20	N	1	1	6	0'175	F	+ 7'3	- 43'4	- 46'7
α PEGASI.									
July 26	N	3	1	10	0'175	F	- 12'5	+ 13'0	+ 12'5
August 16	N	2	1	10	0'126	F	- 8'0	+ 5'6	+ 2'6
	N	2	1	10	0'125	F	- 6'2	+ 1'9	+ 6'2
October 13	M	2	1	5	0'132	F	+ 8'3	- 39'0	- 39'7
	M	2	1	5	0'137	F	+ 9'4	- 21'6	- 20'7

68 COLLECTED RESULTS FOR MOTIONS OF STARS IN THE LINE OF SIGHT, FROM SPECTROSCOPIC OBSERVATIONS

Date, 1883.	Observer.	Number of Measures.	Number of Prisms.	Position Circle.	Width of Slit.	Line.	Earth's Motion in Miles per Second.	Concluded Motion of Star in Miles per Second.		
								Measured.	Estimated.	
MOON.										
January	15	M	3	1	5	..	F	..	+ 3.4	..
February	16	M	5	1	5	..	F	..	- 0.7	..
	23	M	5	1	5	0.250	F	..	- 1.0	..
May	15	N	4	1	5	..	F	..	- 3.0	..
	16	M	5	1	6	0.205	F	..	+ 0.6	..
	21	M	5	1	6	0.175	F	..	- 0.8	..
	22	N	4	1	10	0.259	F	..	- 1.7	..
	23	M	5	1	6	0.145	F	..	- 0.7	..
	24	M	5	1	6	0.145	F	..	+ 1.0	..
June	14	N	2	1	10	0.125	b ₁	..	- 1.1	..
	26	N	2	1	10	0.075	F	..	- 2.2	..
July	13	M	5	1	10	0.143	F	..	+ 0.2	..
	17	N	2	1	12	0.175	F	..	- 5.9	..
	19	N	4	1	11	0.145	F	..	- 6.1	..
	26	N	2	1	10	0.175	F	..	- 1.3	..
August	13	M	3	1	10	0.095	F	..	+ 2.1	..
	14	N	2	1	10	0.115	F	..	- 1.2	..
	16	N	2	1	10	0.126	F	..	- 3.0	..
	21	N	4	1	12	0.125	F	..	- 3.5	..
	23	N	2	1	10	0.125	F	..	- 2.9	..
September	18	N	2	1	6	0.145	F	..	- 2.5	..
	20	N	2	1	6	0.175	F	..	+ 0.9	..
October	13	M	3	1	5	0.132	F	..	+ 0.7	..
	17	M	5	1	5	0.137	F	..	- 2.3	..
November	10	M	5	1	5	0.200	F	..	- 0.5	..
	12	M	5	1	5	0.200	F	..	- 0.8	..
	16	M	5	1	5	0.170	F	..	+ 2.1	..
	20	N	3	1	5	0.157	b ₁	..	- 4.9	..
SKY SPECTRUM.										
June	6	M	5	1	10	0.150	b ₁	..	- 3.4	..
July	4	M	5	1	10	0.155	b ₁	..	+ 3.8	..
	7	M	5	1	10	0.195	b ₁	..	- 6.3	..
August	25	M	4	1	6	0.162	D	..	0.0	..
November	7	N	3	1	5	0.122	F	..	+ 1.1	..
	27	M	5	1	5	0.140	b ₁	..	- 1.7	..

OBSERVATIONS of the SPECTRA of COMET *b* 1883, and of γ CETI, made at the ROYAL OBSERVATORY, GREENWICH, in the YEAR 1883.COMET *b* 1883 (PONS-BROOKS).

1883, November 27.

Half-prism Spectroscope. One "half-prism" reversed.

Observer, M.

The observations were much interrupted by the passage of light cloud, and no measures were obtained. The spectrum consisted of the three usual cometary bands, with edges bright and sharp towards the red, and fading gradually away towards the blue. No continuous spectrum could be certainly made out, though the band in the yellow, which was very faint, could be traced nearly up to the sharp edge of the band in the green, and that again could be traced very nearly up to the sharp edge of the band in the blue. The bands in the red and violet were not looked for. The band in the green was fairly bright, and the edge towards the red sharp and well-defined. The band in the blue was much fainter, and its less refrangible edge not so well defined as that of the band in the green. The band in the yellow was fainter even than that in the blue.

As seen in the finder, the Comet appeared nearly circular, about 4' or 5' in diameter; it showed a central condensation of stellar appearance and a faint prolongation of the Comet at about 20° position angle seemed to indicate the commencement of a tail.

1883, December 6.

Half-prism Spectroscope. One "half-prism" reversed.

Width of Slit, 0^{ln}.01688.

Observer, M.

The Comet was decidedly brighter than on November 27, but its appearance as seen in the finder had not undergone any material change. The spectrum, however, seemed somewhat different. There was a very distinct continuous spectrum about 1" in breadth, and a fainter continuous spectrum was suspected to extend for 25" or 30" on both sides of this bright central spectrum. The band in the green was traced for a total length of 4' and probably extended further still. The band in the yellow was traced for a total length of about 2' or 2' 10"; the band in the blue for about 70" or 80". The band in the yellow was now very much brighter than that in the blue; the intensities of the three bands being roughly estimated as follows:—Yellow band 5. Green band 10. Blue band 1. The red and violet bands were not looked for. The less refrangible edges of all three bands were very sharp and well defined.

The following measures were obtained of the sharp edge of the green band of the comet spectrum as compared with the green band of the spectrum given by a vacuum tube containing alcohol-vapour.

Greenwich Sidereal Time.	Comet-band — Alcohol-band.		Inferred Wave-length of Comet-band.
	Micrometer Reading.	Wave-length.	
h m	r	tenth-metres.	tenth-metres.
0. 30	1.885	34.5	5162.5
0. 45	2.269	41.5	5155.5
1. 5	2.176	39.8	5157.2
1. 20	1.980	36.2	5160.8
1. 40	1.708	31.3	5165.7
		Mean.....	5160.3

The green band of the Comet spectrum was obviously not coincident with the green band of the alcohol spectrum, but considerably further towards the blue. There was, however, a bright line in the spectrum from the alcohol vacuum tube coincident with the green band of the Bunsen-flame, and with this the Comet-band was very nearly coincident. It seemed, however, to be a little nearer the blue. The width of the slit during the above measures was 15.8 tenth-metres.

Thalén's wave-length for the less refrangible edge of the green band in the spectrum of the alcohol was assumed throughout, viz., 5197.0 tenth-metres.

η CETI.

1883, December 11.

Half-prism Spectroscope. One "half-prism" reversed.

Magnifying powers 15 and 28.

Observer, M.

The character of the evening was very unfavourable for the examination of the spectrum of this star, the Moon being bright, and there being much mist, so that the star, which was low down, was hardly visible to the naked eye.

With the lowest power eye-piece, magnifying power 15, no cylindrical lens being used, the spectrum was a narrow line of irregular intensity, and the presence of a number of bright lines was suggested. The red end of the spectrum was however very feeble, and nothing like a bright line could be detected near C. There was a noticeable change in the intensity of the spectrum about F, and there seemed some suspicion of several bright lines near D.

But when the cylindrical lens was employed it became evident that there was no bright line near F, nor could any appearance of bright lines be detected near D, whether a high power or a low power was employed. A few dark lines were made out with difficulty, probably *b*, E, and F, but the sky clouded over before their positions could be determined. A distinct dark edge was seen near F, probably exactly at it, and the spectrum on the blue side of this edge was perceptibly fainter than that on the other side; but the intensity of the light in the solar spectrum seems to change just about F, and the occurrence of so dark a line just at that point might readily account for the appearance presented by the spectrum of η Ceti, which indeed looked just like a faint solar spectrum viewed under bad circumstances. The spectrum of η Ceti would therefore appear to be of the ordinary second type.

ROYAL OBSERVATORY, GREENWICH.

MEASURES OF POSITIONS AND AREAS
OF
SPOTS AND FACULÆ
UPON THE SUN'S DISK
ON
PHOTOGRAPHS
TAKEN WITH THE
PHOTOHELIOGRAPHS
AT GREENWICH AND IN INDIA;
WITH THE DEDUCED
HELIOGRAPHIC LONGITUDES AND LATITUDES.

1883,

MEASURES OF POSITIONS AND AREAS OF SPOTS AND FACULÆ UPON THE SUN'S DISK ON PHOTOGRAPHS TAKEN AT THE ROYAL OBSERVATORY, GREENWICH, AND AT DEHRA DUN IN INDIA, IN THE YEAR 1883.

NOTE.—The Greenwich Mean Solar Time at which the photograph was taken is expressed by the Day of the Year and decimals of a day, reckoning from Greenwich Mean Noon of January 1.

For convenience of reference the Month and Day of the Month (Civil Reckoning) are added.

The letter I. signifies that the photograph was taken in India; the time given is Greenwich Mean Solar Time.

The position-angles are reckoned from the North Pole of the Sun's Axis in the direction N., E., S., W., N.

Greenwich Mean Solar Time.	Measurers.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Mean Solar Time.	Measurers.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1882. 364 ^d 656	H, JP		0°950	241°8	°	°			344	1883. 1 ^d 655	H, JP	925	0°735	233°3	285°7	-28°5	32	183	189 ^c
I.			0°714	311°9			0	29	111			925	0°677	230°3	279°8	-28°3	19	169	274 ^c
	928	0°944	286°2	338°9	+14°1		0	29	542 ^c			925	0°568	227°7	271°3	-25°4	3	13	
	924	0°897	254°1	333°4	-15°7	18	101	476 ^c			920	0°476	245°4	270°1	-14°4	39	275		
	924	0°859	249°3	328°1	-19°3	8	23				926	0°200	125°1	234°2	-9°9	14	109		
	925	0°500	209°5	286°2	-28°8	28	189				926	0°233	116°2	231°5	-9°2	14	47		
	925	0°462	201°6	281°1	-28°5	37	162				926	0°299	116°8	228°0	-11°0	5	17		
	920	0°193	181°1	270°2	-14°3	48	286				927	0°534	117°6	214°1	-17°2	29	176		
	921	0°233	5°9	268°6	+10°2	0	4				929	0°673	117°7	204°3	-20°8	16	74		
	926	0°617	102°0	232°4	-9°9	21	89				930	0°727	80°3	197°9	+4°7	17	130		
	926	0°664	101°7	228°8	-10°2	13	50				930	0°779	80°8	193°4	+5°0	28	163		
	927	0°830	108°9	214°9	-17°4	24	183	222 ^c			930	0°817	81°6	189°7	+4°9	28	202	1030 ^c	
	929	0°913	111°4	204°8	-20°8	22	123	459 ^c			930	0°839	79°1	187°8	+7°3	11	107		
930	0°980	84°1	192°0	+5°2	79	461	624 ^c					0°834	59°3				141 ^c		
1883. Jan. 1			0°840	54°3					844	Jan. 3								83	
							(298)	(1700)	(3622)								(255)	(1665)	(2525)
0°929	K, M		0°969	252°9					320	2°690	H, JP		0°928	251°4					422
			0°794	249°0					59			925	0°847	238°9	285°1	-28°1	21	173	
925		925	0°645	227°4	285°8	-28°6	47	170		I.	925	0°802	237°1	279°6	-28°2	15	115	592 ^c	
925		925	0°589	222°9	280°2	-28°5	55	203	203 ^c		925	0°721	239°4	272°7	-24°2	0	20	39 ^c	
920		920	0°343	234°8	270°0	-14°7	73	271			925	0°704	234°6	269°8	-26°8	3	5	35 ^c	
926		926	0°364	109°1	232°9	-10°0	41	198			920	0°659	252°0	270°2	-14°5	45	246	236 ^c	
926		926	0°425	106°0	228°8	-9°8	4	9			926	0°140	212°6	234°4	-10°3	14	74		
926		926	0°452	108°2	227°4	-11°1	10	38			926	0°114	193°0	231°5	-9°9	5	35		
927		927	0°656	113°1	214°1	-17°5	42	189	106 ^c		926	0°133	162°7	227°7	-10°9	5	8		
929		929	0°777	114°8	204°2	-21°2	31	135	175 ^c		927	0°359	132°4	213°9	-17°5	29	183		
930		930	0°839	82°8	196°8	+4°2	19	132			929	0°512	126°6	204°0	-20°9	5	31		
930		930	0°866	81°7	194°0	+5°4	20	60			930	0°537	75°6	198°7	+4°6	21	160		
930		930	0°874	83°3	192°9	+4°2	72	152			930	0°576	77°3	195°8	+4°3	8	70		
930		930	0°878	85°8	192°2	+2°0	0	18	430 ^c		930	0°642	78°1	191°1	+4°8	30	302	441 ^c	
930		930	0°903	83°3	189°3	+4°6	13	278			930	0°689	75°8	187°9	+7°0	7	101		
930		930	0°918	81°2	187°4	+6°7	20	162				0°764	86°0					107	
Jan. 2							(447)	(2015)	(1293)	Jan. 4			0°842	100°2			(208)	(1523)	(2000)
1°655	H, JP		0°996	251°7					291				0°826	242°0					344
I.			0°941	298°6					262	3°670	H, JP		0°795	289°3					282
			0°874	252°2					255	I.									

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculae relative to the Spots with which they are associated are indicated by the letters n, s, p, f, c, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculae are expressed in millionths of the Sun's visible Hemisphere.

Group 920, 1882 Dec. 26-1883 Jan. 7. A regular spot.
 Group 924, 1882 Dec. 30-1883 Jan. 1. Several very small spots.
 Group 925, 1882 Dec. 30-1883 Jan. 6. Two regular spots, with, on some days, smaller spots in their neighbourhood.
 Group 926, 1882 Dec. 30-1883 Jan. 7. A very small spot on 1882 Dec. 30. Other spots appear on the following days, and the group rapidly increases in size until 1883 Jan. 3. After passing the central meridian on 1883 Jan. 4 the group begins to decrease, and entirely disappears before Jan. 8.
 Group 927, 1882 Dec. 30-1883 Jan. 11. A regular spot.
 Group 928, 1882 Dec. 31-1883 Jan. 1. Two small spots on 1882 Dec. 31. The preceding spot has disappeared before 1883 Jan. 1.
 Group 929, 1882 Dec. 31-1883 Jan. 7. A small regular spot on 1882 Dec. 31. It gradually becomes elongated in the direction of the solar equator, breaks up into several small spots on 1883 Jan. 4, and gradually disappears.
 Group 921, 1882 Dec. 27-1883 Jan. 1. A small regular spot.

Measures of Positions and Areas of Spots and Faculae upon the Sun's Disk—continued.

Greenwich Mean Solar Time.	Measurers.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Mean Solar Time.	Measurers.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).		
1883. 3 ^d 670	H, JP	925	0'931	241'5	284'6	-27'9	36	180	535 <i>c</i>	1883. 6 ^d 923	K, M	930	0'346	293'6	192'8	+ 4'2	6	25		
I.		925	0'896	240'7	279'0	-27'8	11	66		Jan. 8			0'923	61'2				252		
		920	0'800	255'1	269'8	-14'1	47	259	283 <i>c</i>							(33)	(211)	(612)		
		926	0'312	247'3	234'0	-10'4	17	78												
		926	0'275	246'5	231'9	-9'9	16	37	122 <i>c</i>											
		926	0'217	234'9	227'5	-10'8	4	6			7'935	K, M		0'954	259'2				253	
		927	0'242	166'2	213'6	-17'2	32	205						0'891	302'7				395	
		929	0'364	143'7	203'9	-20'6	0	4					927	0'801	249'9	-18'5	23	135	244 <i>c</i>	
		930	0'345	64'7	198'9	+ 4'9	29	168					930	0'651	282'7	+ 5'1	25	52		
		930	0'381	72'3	195'9	+ 3'2	4	24					930	0'564	284'6	+ 4'7	9	45		
		930	0'459	71'2	191'3	+ 5'2	30	316					931	0'286	29'8	+ 10'2	0	5		
		930	0'512	69'7	188'3	+ 7'0	8	85			Jan. 9			0'827	56'3				481	
			0'847	111'3					117									(57)	(237)	(1373)
			0'979	74'9					337											
Jan. 5							(234)	(1428)	(2020)	8'757	H, JP		0'945	299'7				632		
4'963	K, M		0'949	244'1					88	I.			927	0'898	251'4	-18'5	21	104	541 <i>c</i>	
			0'903	286'2					246				930	0'787	279'7	+ 5'0	0	224		
		925	0'994	242'6	285'2	-27'7	0	88	193 <i>f</i>				930	0'705	280'5	+ 4'4	4	14		
		920	0'938	256'1	269'9	-14'3	78	262	277 <i>f</i>				930	0'693	283'4	+ 6'2	6	36		
		926	0'557	256'4	233'4	-10'7	9	43				930	0'6746	278'6	+ 3'6	6	90			
		927	0'334	222'1	213'6	-18'0	47	163				931	0'249	353'2	+ 10'0	12	19			
		929	0'304	198'6	206'0	-20'4	0	19				932	0'774	51'7	+ 25'5	1	3	599 <i>f</i>		
		930	0'159	5'0	199'3	+ 5'3	19	135				933	0'959	97'4	- 8'3	67	620	924 <i>f</i>		
		930	0'174	19'2	196'8	+ 5'6	0	31			Jan. 10			0'974	78'7				259	
		930	0'141	28'2	196'3	+ 3'3	0	52									(117)	(1110)	(3524)	
		930	0'190	43'2	192'6	+ 4'2	12	92			9'668	H, JP	927	0'964	251'7	213'0	-18'7	27	144	550 <i>f</i>
		930	0'224	43'9	191'2	+ 5'5	36	119					930	0'899	277'4	+ 4'7	4	11		
		930	0'278	48'6	188'0	+ 6'9	4	18					930	0'818	279'3	+ 5'1	7	13		
		0'940	70'9					(205)	(1022)	(1524)			931	0'363	311'7	+ 9'8	3	5		
	Jan. 6								720				931	0'320	318'9	+ 9'7	0	6		
5'681	H, JP		0'921	285'2					416	Jan. 11			933	0'879	97'2	- 8'4	70	463	721 <i>c</i>	
			0'981	255'9	269'9	-14'6	37	270	951 <i>s</i>			933	0'916	99'1	- 10'0	5	77	(2340)		
		926	0'684	258'4	233'5	-10'8	9	30	72 <i>p</i>											
		927	0'449	236'4	213'7	-18'0	20	153		10'659	H, JP		0'977	248'5				215		
		929	0'378	214'2	203'9	-22'0	0	4				0'923	276'9				1755			
		930	0'225	313'8	200'0	+ 5'1	15	84				0'857	298'7				395			
		930	0'146	341'6	193'3	+ 4'1	16	92				933	0'746	97'2	- 8'3	82	438			
		930	0'163	352'6	191'9	+ 5'4	10	87				933	0'785	98'8	- 9'6	0	94			
		930	0'168	319'8	190'1	+ 3'5	2	36				933	0'843	99'0	- 10'0	6	9			
			0'890	68'5					1019				934	0'979	74'9	+ 13'8	45	221	186 <i>c</i>	
			0'913	54'6					208					0'812	77'2				80	
	Jan. 7							(109)	(756)	(2666)	Jan. 12			0'979	66'6				337	
	6'923	K, M		0'863	260'8					360	11'656	H, JP		0'963	276'9				845	
927			0'659	246'8	213'7	-18'1	21	139				0'824	294'9				312			
930			0'457	289'4	199'8	+ 5'1	6	47				935	0'489	357'7	113'2	+ 24'6	0	4		

Measures of Positions and Areas of Spots and Faculæ upon the Sun's Disk—continued.

Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1883. 11 ^d 656	H, JP	933	0°57'5	98°1	77°0	— 8°4	72	452	} 242 c 573 c 520 (2492)	1883. 15 ^d 659	H, JP	934	0°35'4	28°3	49°3	+ 13°3	30	224	} 183 c 574 c 230 237 (2519)
I.		933	0°61'8	99°4	74°0	— 9°3	20	173		I.		938	0°77'1	98°7	8°7	— 9°9	24	159	
		933	0°68'8	99°6	68°7	— 9°9	0	8				938	0°81'7	98°7	4°3	— 9°9	21	133	
		934	0°91°0	72°5	48°9	+ 13°8	34	283					0°84'7	73°6					
Jan. 13			0°92'8	63°0						Jan. 17			0°97'4	102°5					
12°660	H, JP		0°92'7	291°6					402	16°657	H, JP		0°92'9	299°8					1274
I.			0°81'8	286°5					236	I.			0°52°0	260°7	77°3	— 9°1	43	479	
		933	0°37°3	101°4	77°2	— 8°5	84	588				933	0°47°9	258°6	74°4	— 9°9	17	192	
		933	0°42'8	102°8	73°9	— 9°6	11	67				933	0°42°0	255°8	70°4	— 10°4	8	56	
		933	0°49'8	101°7	69°3	— 9°8	0	27				933	0°39°3	255°4	68°7	— 10°3	4	8	
		936	0°46°4	62°2	74°4	+ 8°3	7	22				934	0°31°9	349°5	49°5	+ 13°2	34	258	
		936	0°50'8	63°4	71°5	+ 9°1	12	20				938	0°60°5	100°2	9°0	— 10°2	17	148	83 c
		934	0°80°0	69°2	48°7	+ 13°6	33	249	1056 c			938	0°66°5	99°3	4°5	— 9°9	13	203	199 c
			0°92'8	114°1					458				0°91'8	104°6					526
Jan. 14			0°63'8	57°8					705	Jan. 18			0°91'8	119°5					205
									(147)				0°94°0	72°0					215
									(973)										(2502)
14°021	K, M	933	0°101	138°9	77°0	— 9°2	89	479		17°683	M, F		0°99°0	293°9					387
		933	0°14'8	133°8	74°6	— 10°7	8	50		I.			0°94°2	276°1					132
		933	0°21°0	120°0	70°2	— 10°7	0	42					0°86°9	307°6					258
		933	0°26°9	109°0	65°9	— 9°7	0	28				933	0°71°0	262°4	77°9	— 9°3	92	508	
		936	0°24°0	18°2	76°5	+ 8°4	0	6				933	0°67°6	261°1	75°1	— 10°1	29	204	
		934	0°59'7	60°0	48°8	+ 13°3	56	265	96			933	0°60°8	258°4	76°7	— 11°7	0	21	
Jan. 15			0°91'8	100°8					(96)			933	0°61°5	259°6	70°4	— 10°4	5	36	
									(153)			933	0°60°0	259°5	69°3	— 10°3	0	28	
15°098	K, M		0°90°4	293°5					1035			934	0°42°5	317°9	49°6	+ 13°4	47	266	
		937	0°56'7	282°9	100°2	+ 3°2	0	10		Jan. 19			934	0°38°5	322°4	46°5	+ 12°8	0	2
		933	0°19°6	249°0	77°3	— 8°9	91	470		19°679	M, F		938	0°40°2	104°1	9°4	— 10°3	27	160
		933	0°15°2	232°8	73°7	— 10°1	34	216		I.			938	0°48°8	101°2	3°6	— 9°9	28	113
		933	0°12°5	220°0	71°4	— 10°4	8	66					0°76°1	103°0					96
		933	0°10°5	203°6	69°1	— 10°4	7	53					0°94°2	69°6					270
		936	0°29°8	320°8	77°6	+ 8°5	0	6											(1143)
		934	0°42°1	44°7	49°1	+ 12°7	39	285											
Jan. 16		938	0°84°5	98°9	8°9	— 10°2	28	149	539 c										
		938	0°88°2	98°9	4°6	— 10°2	26	166	(1574)										
							(233)	(1421)											
15°659	H, JP		0°87°0	299°3					1295										
I.		936	0°39°8	305°2	78°3	+ 8°6	0	2					933	0°94°8	263°0	78°1	— 8°4	51	278
		933	0°31°4	256°8	77°1	— 8°8	37	478					933	0°93°5	261°9	75°8	— 9°5	9	110
		933	0°27°0	250°9	74°1	— 9°8	22	216					933	0°91°6	261°1	72°9	— 10°3	0	106
		933	0°22°3	242°7	70°8	— 10°6	3	84					934	0°72°9	294°1	49°3	+ 13°4	50	272
		933	0°18°3	239°4	68°4	— 10°2	5	40					938	0°10°8	208°9	9°3	— 10°7	13	44
													938	0°08°9	144°3	3°3	— 9°5	3	32
													938	0°04°3	156°3	2°9	— 12°8	0	7
													939	0°42°7	23°2	356°2	+ 17°8	0	16
													939	0°46°3	27°4	353°3	+ 19°0	7	11
													0°72°4	60°2					149

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculæ relative to the Spots with which they are associated are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculæ are expressed in millionths of the Sun's visible Hemisphere.

Group 936, Jan. 14-17. Two small spots on Jan. 14. The following spot disappears before Jan. 15, and the preceding spot is much reduced in size.

Group 937, Jan. 16. A small spot.

Group 938, Jan. 16-23. Two spots. The following spot breaks up into three or four divisions on Jan. 19. The preceding spot has divided into two portions by Jan. 21, and the following portion entirely disappears before Jan. 23.

Group 939, Jan. 21-23. Two small spots close to each other on Jan. 21. They tend to separate on the following days.

Measures of Positions and Areas of Spots and Faculae upon the Sun's Disk—continued.

Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1883. 19 ^d 679	M, F		0° 84' 2"	103° 8'	°	°			97	1883. 25 ^d 700	M, F		0° 95' 9"	259° 3'	°	°			503
I.			0° 87' 5"	57° 6'					44	I.			0° 95' 5"	291° 3'					260
Jan. 21			0° 94' 7"	64° 9'					162			943	0° 87' 1"	259° 8'	347° 8'	-11° 7'	6	61	309 c
			0° 97' 1"	97° 2'			(133)	(876)	56			943	0° 87' 1"	256° 9'	347° 9'	-14° 3'	7	69	
												943	0° 868	258° 3'	347° 5'	-13° 1'	0	19	
20° 850	M, F		0° 988	260° 8'					574			941	0° 407	154° 7'	275° 8'	-27° 2'	15	119	
I.			0° 901	253° 0'					499			944	0° 540	60° 3'	258° 6'	+10° 4'	5	39	
			0° 855	297° 1'					344			944	0° 590	60° 3'	255° 5'	+12° 0'	8	21	
		934	0° 878	288° 9'	49° 5'	+13° 8'	42	255	328 c			944	0° 640	62° 7'	251° 6'	+12° 3'	0	8	
		940	0° 798	260° 2'	44° 0'	-11° 1'	23	44		Jan. 27		946	0° 962	108° 5'	212° 1'	-19° 3'	13	68	270 f
		940	0° 762	261° 5'	40° 6'	-10° 0'	0	10					0° 937	60° 6'				209	
		940	0° 760	256° 9'	40° 3'	-13° 4'	0	47	113 c				0° 981	85° 6'			(54)	(404)	(1709)
		940	0° 744	259° 4'	39° 0'	-11° 5'	8	17											
		938	0° 351	250° 7'	10° 6'	-11° 7'	5	35											
		938	0° 316	254° 8'	8° 9'	-9° 9'	3	8											
		938	0° 250	252° 9'	4° 9'	-9° 5'	0	11											
		938	0° 248	236° 6'	3° 1'	-13° 1'	0	10											
		939	0° 404	345° 5'	357° 0'	+17° 6'	0	12											
		939	0° 418	356° 8'	352° 3'	+19° 2'	10	63											
		941	0° 959	117° 4'	276° 9'	-27° 8'	39	129	170 c										
			0° 859	57° 9'					144										
			0° 898	107° 0'					33										
			0° 898	97° 2'					141										
			0° 979	110° 4'					112										
Jan. 22							(130)	(641)	(2458)										
21° 925	K, M	934	0° 964	286° 0'	49° 1'	+13° 8'	0	98	106 n f										
		940	0° 921	260° 3'	44° 2'	-11° 1'	19	83	236 s f										
		938	0° 561	257° 3'	10° 6'	-11° 6'	10	39		Jan. 28									
		938	0° 530	259° 8'	8° 6'	-10° 0'	0	7											
		939	0° 524	317° 7'	358° 4'	+17° 6'	0	9											
		939	0° 486	329° 4'	351° 9'	+19° 3'	9	29											
		941	0° 879	118° 5'	276° 4'	-27° 6'	27	128	220 c										
		942	0° 926	103° 0'	268° 6'	-14° 1'	0	11	139 s										
Jan. 23							(65)	(404)	(701)										
24° 930	K, M		0° 910	233° 1'					252										
			0° 846	295° 4'					125										
		943	0° 757	257° 4'	346° 4'	-13° 3'	7	41	1211 p										
		941	0° 499	139° 2'	275° 7'	-27° 4'	33	134											
		941	0° 498	134° 3'	274° 0'	-25° 5'	0	20											
		944	0° 649	68° 4'	259° 7'	+9° 3'	10	44											
		944	0° 696	67° 5'	256° 4'	+11° 1'	0	34											
		944	0° 760	68° 7'	251° 0'	+12° 1'	9	15											
		945	0° 830	97° 2'	240° 9'	-9° 2'	0	9	821 s										
Jan. 26							(59)	(297)	(2678)										

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculae relative to the Spots with which they are associated are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculae are expressed in millionths of the Sun's visible Hemisphere.

Group 940, Jan. 22-23. A group of five or six spots arranged in a circle on Jan. 22. The preceding spot alone remains on Jan. 23.

Group 941, Jan. 22-Feb. 3. A regular spot. Several very small spots are seen close to it on Jan. 26.

Group 943, Jan. 26-27. Three small spots on Jan. 26. Their size and distance from each other have increased by Jan. 27, and they disappear before Jan. 28.

Group 944, Jan. 26-29. A number of very small spots following one another in a somewhat curved line. The group undergoes many minute changes.

Group 945, Jan. 26. A very small spot.

Group 946, Jan. 27-Feb. 3. A small regular spot.

Group 948, Jan. 29-Feb. 1. Two small spots on Jan. 29. A third is seen on Jan. 30, and the first two disappear before Jan. 31.

Group 949, Jan. 29-30. Three small spots. One of them disappears before Jan. 30.

Group 951, Jan. 30. Two very small faint spots.

Group 942, Jan. 23. A small faint spot.

Group 947, Jan. 28. A cluster of very small faint spots.

Group 950, Jan. 30. Two small spots.

MEASURES OF POSITIONS AND AREAS OF SPOTS AND FACULÆ UPON THE SUN'S DISK

Measures of Positions and Areas of Spots and Faculæ upon the Sun's Disk—continued.

Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1883. 28 ^d 9 ^h 30 ^m	K, M	949	0°478	323°1	261°9	+16°7	0	1		1883. 34 ^d 0 ^h 0 ^m	K, M	955	0°283	186°2	179°6	-22°7	28	154	
		946	0°580	115°2	210°9	-19°3	12	90				955	0°292	175°5	176°3	-23°3	0	6	
		952	0°648	89°1	204°2	-4°0	0	10				955	0°319	165°6	172°7	-24°3	16	72	
		952	0°688	88°2	201°1	-3°2	0	2				954	0°476	51°0	155°6	+11°4	41	193	
		953	0°727	95°6	197°7	-8°2	0	8					0°813	60°4					
			0°797	80°1					495	Feb. 4							(85)	(425)	156
			0°930	112°4					131										(156)
Jan. 30							(51)	(323)	(866)	35°062	K, M	955	0°393	222°5	180°5	-23°0	21	99	
												955	0°369	216°9	177°7	-23°3	0	29	
												955	0°336	208°6	173°8	-23°4	27	105	
29° 22	K, M	948	0°783	290°4	279°8	+11°9	3	16				954	0°341	25°6	155°2	+11°5	52	204	
		941	0°704	237°5	272°9	-26°8	19	77	128 c				0°833	56°7					430
		946	0°412	125°6	210°7	-19°5	13	49					0°948	83°4					265
		954	0°976	76°4	155°8	+11°8	0	174											(695)
			0°843	113°6					131	Feb. 5							(100)	(437)	
Jan. 31							(35)	(316)	(259)	36°020	K, M		0°856	277°8					207
													0°811	248°7					339
30° 662	M, F		0°834	289°5			0	26	197			955	0°550	237°0	181°0	-23°0	19	79	
		948	0°882	287°3	281°0	+12°1	0	26				955	0°516	234°1	178°0	-23°3	0	15	
I.		941	0°800	240°8	273°0	-26°8	30	107	144 c			955	0°464	230°0	173°8	-23°3	38	158	
		946	0°294	142°7	210°9	-19°5	11	38				954	0°313	347°2	155°1	+11°2	34	195	
		955	0°717	116°0	177°6	-22°7	0	23				958	0°780	78°4	101°2	+4°8	0	13	197 s f
		955	0°730	114°0	176°1	-21°5	0	11	262 c			959	0°880	81°3	90°6	+4°5	58	254	
		955	0°755	116°7	174°3	-24°0	14	52				959	0°899	79°2	88°5	+6°7	81	146	465 c
		954	0°926	74°6	156°2	+11°7	64	304	495 c			960	0°954	96°8	78°1	-8°4	0	67	405 f
Feb. 1							(119)	(561)	(1098)				0°862	50°8					895
										Feb. 6							(230)	(927)	(2508)
31° 694	M, F		0°933	285°9					342				0°868	277°6					554
			0°858	293°3					79				0°852	287°9					133
I.			0°793	289°5					233	36°660	M, H		0°840	248°6					422
		941	0°904	243°0	272°6	-27°0	22	115				962	0°679	280°6	184°5	+2°3	0	15	
		956	0°866	249°3	268°1	-21°0	0	50	556 c			962	0°638	281°7	181°3	+2°4	4	26	
		946	0°239	188°3	210°2	-19°8	4	18				955	0°654	242°6	181°6	-22°6	15	84	131 c
		957	0°120	82°7	201°3	-5°3	0	10				955	0°567	237°2	173°9	-23°4	13	78	
		955	0°573	121°6	176°3	-22°7	26	131				955	0°545	237°2	172°5	-22°8	0	14	
		954	0°817	71°0	156°2	+11°6	46	202	283 c			955	0°545	234°8	171°8	-24°0	0	16	255 c
			0°951	70°0					644			954	0°373	324°5	155°5	+11°3	32	192	
Feb. 2							(98)	(526)	(2137)			959	0°789	79°0	92°1	+4°6	31	284	757 c
												959	0°839	77°0	87°5	+7°2	59	299	
32° 927	K, M		0°929	284°4			12	57				959	0°837	79°4	87°3	+5°2	0	35	
		941	0°979	243°1	271°8	-27°6	6	48	385 f			960	0°895	96°3	78°9	-8°5	10	36	581 s f
		956	0°968	249°6	268°5	-21°3	0	6				961	0°968	106°2	66°2	-17°3	0	31	642 s
		946	0°382	230°9	210°2	-19°8	0	6					0°792	46°5					315
		955	0°344	143°9	179°3	-22°2	20	133											(3790)
		955	0°394	140°6	176°1	-23°7	0	4											
		955	0°428	137°2	173°4	-24°2	11	118		Feb. 7							(164)	(1110)	
		954	0°646	63°8	155°8	+11°5	54	208	16 c										437
			0°874	66°5					635	37°664	F, H	962	0°942	247°6					439 c
Feb. 3							(103)	(574)	(1247)				0°845	277°5	186°3	+2°7	7	30	

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculæ relative to the Spots with which they are associated are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculæ are expressed in millionths of the Sun's visible Hemisphere.

Group 952, Jan. 30. Two small faint spots.

Group 953, Jan. 30. A small faint spot.

Group 954, Jan. 31-Feb. 12. A regular spot.

Group 955, Feb. 1-8. Three or four small spots on Feb. 1. The group increases in size on the following days, and lengthens out into a long line of spots. It begins to diminish after crossing the central meridian, and gradually fades away.

Group 956, Feb. 2-3. Three small spots on Feb. 2, of which only the largest remains on Feb. 3.

Group 957, Feb. 2. A faint spot of irregular outline.

Group 958, Feb. 6. A small faint spot.

Group 959, Feb. 6-14. Two large spots. A small spot is detached from the following spot on Feb. 7. The group rapidly diminishes in size after passing the central meridian, and the preceding spot also breaks up, so that on Feb. 12 the preceding spot has divided into two separate portions, and on Feb. 13 the group is composed of several small faint spots scattered over a wide area.

Group 960, Feb. 6-12. A very small regular spot. A second spot appears near it on Feb. 11, the two being measured together on that day.

Group 961, Feb. 7-20. A regular spot. Small spots are seen from time to time in its immediate neighbourhood.

Group 962, Feb. 7-9. Two small spots on Feb. 7 and 9, but only one is seen on Feb. 8.

Measures of Positions and Areas of Spots and Faculae upon the Sun's Disk—continued.

Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULAE.	Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULAE.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1883. 37 ^d 66 ^h 4	F, H	955	0°797	247°0	181°7	-22°2	10	39	115 c	1883. 41 ^d 047	K, M	960	0°068	95°5	81°1	-7°0	0	10	
I.		955	0°714	243°4	173°4	-23°5	0	39	131 c			961	0°489	115°0	57°4	-17°8	46	186	
		955	0°689	242°1	171°0	-23°8	0	13	142 c	Feb. 11		964	0°943	79°5	16°0	+7°5	29	463	354 c
		954	0°524	304°3	155°6	+11°2	23	166					0°896	103°3				467	
		963	0°480	90°3	100°8	-6°0	1	18										467	
		963	0°522	91°3	98°0	-6°3	3	16										467	
		963	0°526	87°1	97°9	-4°2	0	30										467	
		959	0°618	74°6	93°0	+4°1	30	233		Feb. 11	H, JP			0°878	297°1				
		959	0°706	72°4	86°9	+7°4	30	207	139 c			954	0°989	282°8	156°5	+11°5	20	231	57
		959	0°708	75°1	86°2	+5°7	0	49		I.		963	0°482	270°5	105°8	-5°8	16	162	
		960	0°771	95°8	78°8	-8°7	0	21	298 c			963	0°368	275°1	98°4	-4°5	21	128	
		961	0°886	106°2	66°7	-17°4	0	63	359 c			959	0°352	299°5	94°7	+3°5	4	104	
		961	0°948	106°7	57°2	-17°9	53	263	625 c			959	0°352	306°1	93°4	+5°4	8	47	
Feb. 8							(157)	(1187)	(2685)			959	0°281	314°9	88°3	+4°7	0	16	
39°045	K, M		0°914	68°0					263			960	0°100	273°8	82°6	-6°4	0	6	
			0°895	246°9					415			960	0°061	220°8	79°2	-9°5	0	8	
		962	0°984	275°7	190°2	+4°4	0	69	344 p			961	0°370	122°1	57°8	-17°7	26	172	
		954	0°732	291°3	155°2	+10°6	48	199	202 c	Feb. 12		964	0°889	77°9	15°9	+7°5	64	635	928 c
		963	0°159	86°7	102°3	-6°0	32	144					0°908	101°4				342	
		963	0°245	84°3	97°3	-5°0	26	233										635	
		959	0°362	59°5	93°3	+4°3	47	269										635	
		959	0°474	60°7	86°9	+7°4	36	169										635	
		960	0°537	95°0	78°8	-8°2	5	18										635	
		961	0°717	108°5	66°0	-17°8	0	42	551 c									635	
		961	0°813	106°4	56°9	-17°1	31	271										635	
Feb. 9							(225)	(1414)	(1775)										
39°672	H, JP		0°993	274°3					541										526
I.			0°989	247°3					392										95 c
		954	0°824	288°1	155°8	+10°8	31	148	306 c										59 c
		963	0°017	304°0	103°9	-6°2	16	124											
		963	0°022	31°1	102°4	-5°6	4	41											
		963	0°061	47°6	100°5	-4°3	0	8											
		963	0°106	69°9	97°4	-4°6	20	249											
		959	0°247	40°8	93°8	+4°2	28	248											
		959	0°359	49°7	87°2	+7°0	16	73											
		960	0°401	95°4	79°4	-8°3	0	8											
		961	0°720	108°0	57°4	-17°5	31	204	337 c										
			0°868	63°3					242	Feb. 13									
Feb. 10							(146)	(1103)	(1818)										
41°047	K, M		0°846	297°0					170										760
		954	0°956	284°0	155°8	+11°2	27	181	257 c										317
		963	0°340	271°8	104°9	-5°7	29	153											
		963	0°232	280°5	98°2	-4°2	21	170											
		959	0°248	320°0	94°2	+4°3	37	182											
		959	0°227	349°3	87°4	+6°2	3	22											

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculae relative to the Spots with which they are associated are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculae are expressed in millionths of the Sun's visible Hemisphere.

Group 963, Feb. 8-15. Three very small spots on Feb. 8. By Feb. 9 the group has expanded into a very fine group, composed of two large spots and several smaller spots between them. The smaller spots gradually disappear, and on Feb. 11 only the two principal components remain, and of these the following spot gradually diminishes on the succeeding days, and disappears before Feb. 15.

Group 964, Feb. 11-22. A very large spot of irregular shape. It divides into two on Feb. 13, the preceding portion being the more compact. The following portion breaks up into a great number of small spots, and diminishes in size on the following days, until on Feb. 21 the preceding spot alone remains.

Group 965, Feb. 13. A small faint spot.

Group 966, Feb. 13. Two small spots.

Measures of Positions and Areas of Spots and Faculæ upon the Sun's Disk—continued.

Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.			
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).				
1883. 43 ^d 659	H, JP	961	0°22'5	210°8	57°5	-18°0	22	126		1883. 47 ^d 743	H, JP		0°99'4	262°3					513			
I.		964	0°58'2	66°9	18°1	+7°4	72	556		I.			0°94'2	251°8					587			
		964	0°67'7	70°4	10°7	+7°8	19	369					964	0°93'4	272°8				259			
		967	0°89'7	104°2	346°3	-15°7	0	9	449 ^c				961	0°85'4	298°5				373			
			0°80'1	86°8					162				964	0°86'3	254°0	57°0	-17°4	19	96	703 ^e		
Feb. 14			0°92'9	74°4					510			964	0°46'5	303°5	19°9	+8°4	0	5				
							(132)	(1249)	(2713)			964	0°45'1	300°8	19°7	+6°9	3	12				
												964	0°42'3	304°5	17°4	+7°3	67	478				
									269			964	0°38'6	310°5	14°1	+7°8	8	46				
44°663	H, JP		0°98'0	294°9					755			964	0°33'7	313°7	11°0	+6°6	0	11				
I.			0°92'5	309°1					453			964	0°33'9	320°2	9°5	+8°2	5	21				
			0°85'3	279°3					650 ^f			967	0°15'5	166°3	354°7	-15°6	10	20				
		963	0°93'4	266°3	106°7	-5°9	11	183			969	0°74'2	107°6	309°2	-17°7	4	17	587 ⁿ				
		961	0°42'8	241°1	60°5	-18°3	4	29			967	0°17'8	153°7	352°2	-16°2	0	4					
		961	0°38'5	238°9	57°6	-18°0	19	115			967	0°19'8	139°0	349°2	-15°5	0	4					
		964	0°40'9	54°4	17°9	+7°2	73	572				0°82'7	58°2					124				
		964	0°50'1	61°0	11°3	+7°8	11	383				0°90'4	105°9					316				
		967	0°72'3	105°4	351°2	-15°9	10	39	323 ^c			0°96'1	75°2					445				
		967	0°76'8	105°7	347°2	-16°5	0	8				0°96'7	58°2					76				
			0°99'0	101°9					48	Feb. 18								(116)	(714)	(3983)		
Feb. 15							(128)	(1329)	(2498)													
									272	48°704	H, JP	961	0°94'8	254°0	56°6	-17°4	17	17	1172 ^c			
									367	I.		970	0°86'7	294°6	39°6	+17°2	0	19	918 ^c			
46°082	K, M		0°96'0	277°4								964	0°58'8	293°2	17°1	+7°5	62	546				
			0°80'8	256°2								964	0°52'0	301°8	10°7	+9°6	0	9				
		961	0°63'3	250°8	57°4	-17°5	33	143			967	0°24'2	230°6	355°3	-15°7	4	11					
		968	0°39'7	341°9	26°0	+15°1	0	6			969	0°56'4	112°7	311°1	-18°4	0	10					
		964	0°24'1	353°2	20°3	+6°9	18	75			969	0°60'0	113°4	308°6	-19°5	2	22					
		964	0°24'9	5°2	17°4	+7°3	110	502			969	0°69'7	114°6	301°3	-22°0	0	7					
		964	0°27'5	20°3	13°2	+8°0	12	57				0°91'0	73°6					699				
		964	0°29'4	34°0	9°2	+7°1	17	55				0°95'7	108°4					599				
		967	0°44'5	111°6	353°4	-15°7	12	36		Feb. 19								(85)	(641)	(3388)		
		967	0°48'3	109°5	350°6	-15°4	0	18														
		967	0°54'3	109°7	346°6	-16°5	3	7														
				0°91'9	104°6					1000	49°657	H, JP		0°96'0	294°4					737		
		Feb. 16							(205)	(899)	(1639)	I.			0°83'4	250°1				213		
											356			961	0°99'3	253°1	56°2	-17°5	0	48	480 ^c	
									593			964	0°73'8	287°0	16°8	+7°4	62	407	315 ^c			
									398 ^c			964	0°70'8	288°9	14°0	+8°0	0	11				
46°820	H, JP		0°93'4	261°8								967	0°42'7	248°7	355°9	-15°4	5	30				
		I.											969	0°42'7	123°3	309°4	-20°1	0	7			
				961	0°74'7	252°9	57°1	-17°4	18	120				0°81'8	69°1					368		
				964	0°30'6	320°4	20°2	+6°7	8	20				0°91'1	111°4					482		
				964	0°29'1	328°1	17°8	+7°3	82	557				0°97'1	97°8					129		
				964	0°26'3	344°7	12°9	+7°7	6	24		Feb. 20								(67)	(503)	(2724)
				964	0°26'3	3°55'8	10°0	+8°1	7	53												
				964	0°23'9	3°53'6	10°4	+6°7	4	15												
				967	0°29'4	121°6	353°9	-15°6	8	24												
				967	0°36'1	115°2	349°2	-15°4	0	3		50°655	H, JP		0°82'6	255°2					559	
Feb. 17			0°83'5	103°1					980	I.		964	0°79'0	183°6				339				
							(133)	(816)	(2327)				0°87°0	282°8	17°1	+7°5	56	413	697 ^{n,f}			

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculæ relative to the Spots with which they are associated are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculæ are expressed in millionths of the Sun's visible Hemisphere.

Group 967, Feb. 14-21. Two small spots. Two or three smaller spots are seen between them on Feb. 16. The following spot of the pair disappears before Feb. 19.
Group 968, Feb. 16. A small faint spot.
Group 970, Feb. 19. A small faint spot.
Group 969, Feb. 18-20. Two or three small faint spots, showing a marked southerly drift in latitude.

Measures of Positions and Areas of Spots and Faculae upon the Sun's Disk—*continued*.

Greenwich Mean Solar Time.	Measurers.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULAE.	Greenwich Mean Solar Time.	Measurers.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULAE.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	Area for each Group (and for Day).						Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	Area for each Group (and for Day).
1883. 50 ^d 655 I. Feb. 21	H, JP	967	0°618 0°753 0°808	254°0 65°3 108°7	356°4	—15°4	0	21	81 <i>c</i> 54 804	1883. 57 ^d 089 Feb. 27	K, M	972	0°731 0°852	76°7 91°6	188°3	+ 4°6	6	19	47 (744)
51°693 I. Feb. 22	H, JP	964	0°903 0°870 0°956 0°840	258°0 237°3 280°5 251°9	16°2	+ 7°8	73	614	509 246 1392 <i>n f</i> 79	58°040 Feb. 28	K, M	971 971 972 972	0°858 0°790 0°455 0°398 0°524 0°575 0°918	290°9 254°4 257°8 254°3 67°7 70°9 76°2	248°1 —12°0 —12°8 192°2 188°3	+ 4°6 23 7 + 5°2 + 4°8	6 131 22 11 15	285 280	
53°035 Feb. 23	K, M		0°894 0°961	255°8 85°9			(0)	(0)	121 181 (302)	58°661 I.	H, JP	971 971 972	0°974 0°574 0°518 0°457	283°2 258°9 256°9 63°4	248°0 —12°3 —12°9 188°9	—12°3 —12°9 + 5°2	22 0 0	111 10 13	205
53°665 I. Feb. 24	H, JP	971	0°919 0°892 0°572 0°910 0°922	254°0 292°3 102°3 84°3 60°5	244°1	—12°9	0	34	386 173 405 151	Mar. 1	K, M	971	0°932	249°6			(22)	(134)	114 79 (398)
54°724 I. Feb. 25	H, JP	971	0°940 0°935 0°911 0°769 0°361 0°903 0°949 0°968	225°9 292°2 249°5 255°7 107°6 111°8 83°1 63°8	244°2	—13°0	5	34	308 164 388 307 118 910 278	60°109 Mar. 2	K, M	971	0°801	260°3	247°6	—12°1	27 (27)	74 (74)	694 153 <i>c</i> (847)
56°045 Feb. 25	K, M	971 971 972	0°892 0°084 0°145 0°876 0°884 0°928 0°959	254°3 175°0 144°2 80°6 58°7 112°7 93°7	247°1 —12°0 —13°9 + 4°7	26 9 0	112 40 16	270	504 <i>n p</i> 270 158 163	61°019 Mar. 3	K, M	971	0°908 0°956	259°7 94°2	247°9	—12°4	0 (0)	46 (46)	135 <i>f</i> 186 (321)
57°089 Feb. 26	K, M	971 971 972	0°951 0°941 0°843 0°253 0°209 0°697	255°3 235°9 287°1 250°3 240°0 75°1	247°7 —11°9 —13°1 + 5°0	23 0 0	143 29 10	247 66 182	61°973 Mar. 4	K, M	971	0°775 0°978 0°892 0°928 0°721 0°803	280°5 259°0 92°0 81°7 65°5 54°3	248°4	—12°3	0 (0)	48 (48)	213 142 <i>f</i> 234 65 112 493 (1259)	
							(35)	(168)	(1365)	63°018 Mar. 5	K, M	971	0°795 0°890 0°906 0°959 0°981	91°6 79°1 54°6 97°9 107°3			(0) (0)	(0)	165 401 356 128 207 (1257)
									202 <i>c</i>	63°893 K, M	971 971 972	0°950 0°844 0°766 0°886	272°0 303°1 283°7 51°2					77 122 349 114	

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculae relative to the Spots with which they are associated are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculae are expressed in millionths of the Sun's visible Hemisphere.

Group 971, Feb. 24–Mar. 4. A close cluster of very small spots. It rapidly increases in size between Feb. 25 and 26, and on the latter date forms a group composed regular spot followed by a long line of small spots. These smaller spots all disappear before Mar. 2.

Group 972, Feb. 26–Mar. 1. A small faint spot. A second spot is seen on Feb. 27–28.

Measures of Positions and Areas of Spots and Faculæ upon the Sun's Disk—continued.

Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1883. 63d-893	K, M		0°888 0°890 0°956	72°5 99°3 109°7	°	°			62 80 117 (921)	1883. 70d-088	H, F	979 979 979 979 973 976 978 978 978 980	0°194 0°203 0°222 0°237 0°100 0°436 0°708 0°741 0°754 0°928	191°4 180°6 175°7 159°9 162°1 29°3 100°9 99°7 102°7 72°0	64°8 62°6 61°5 57°6 60°7 49°8 17°2 14°4 13°3 357°5	-18°1 -18°9 -20°0 -20°0 -12°7 +15°3 -12°8 -12°1 -14°3 +13°7	0 6 8 5 0 0 23 0 0 17	8 33 20 51 12 72 120 73 26 96	
Mar. 6							(0)	(0)											
64°956	K, M		0°908 0°929 0°953 0°895	279°9 101°2 101°9 110°7	61°0 56°7	-13°1 -13°6	36 0	147 23	223 213 c 296 (732)	Mar. 12									
Mar. 7							(36)	(170)											
66°092	K, M		0°966 0°893 0°819 0°287 0°318 0°320 0°527 0°573 0°805 0°945	295°4 247°6 268°2 129°5 125°6 120°2 56°3 56°7 101°8 70°8	101°7 99°4 98°4 88°7 85°9 61°1 47°5	-17°5 -17°6 -16°2 +10°5 +12°0 -13°8 +15°4	5 0 0 0 5 14 4	15 16 1 3 18 109 42	265 99 182 404 s f 586 s (1536)	70°947	JP, F	977 979 979 979 979 976 978 978 978 980	0°516 0°279 0°278 0°277 0°237 0°386 0°560 0°601 0°602 0°849 0°899	241°5 223°9 218°6 213°8 201°9 2°5 102°2 102°0 104°0 68°9 72°9	79°9 62°8 61°7 60°5 56°5 50°1 17°1 14°2 14°2 356°7	-20°6 -18°6 -19°6 -20°3 -19°8 +15°4 -12°8 -13°0 -14°1 +13°6	5 13 0 3 3 18 40 13 0 23	35 27 12 17 32 109 214 56 58 67	
Mar. 8							(28)	(204)											
66°913	K, M		0°179 0°175 0°193 0°453 0°686 0°877 0°763 0°934	175°0 166°5 158°6 43°0 101°9 66°9 107°5 113°5	103°4 101°9 100°1 85°9 60°8 47°3	-17°4 -16°9 -17°5 +12°4 -13°4 +16°3	10 0 2 2 33 11	16 4 10 4 61 28	169 c 753 c 758 215 (1895)	Mar. 13									
Mar. 9							(58)	(123)											
67°913	JP, F		0°917 0°270 0°230 0°293 0°334 0°515 0°757 0°968 0°888 0°959	285°4 229°3 221°3 145°6 139°6 103°6 60°1 101°1 115°4 80°2	103°5 100°3 81°0 77°8 60°4 48°0 14°8	-17°2 -17°1 -21°1 -21°7 -13°2 +16°9 -12°6	4 0 2 0 10 0 0	20 16 15 13 47 29 233	265 57 c 998 c 207 c 389 298 (2214)	Mar. 14									
Mar. 10							(16)	(373)											
70°088	H, F		0°395 0°359	231°5 225°2	81°7 78°3	-21°0 -21°5	0 0	24 14		Mar. 15									

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculæ relative to the Spots with which they are associated are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculæ are expressed in millionths of the Sun's visible Hemisphere.

Group 973, March 7-12. A regular spot. A small spot follows it closely on March 7.

Group 975, March 8-9. Two small spots. The preceding spot disappears before March 9.

Group 976, March 8-17. A small spot. A number of other small spots appear close to it after March 10, and form with it a compact cluster.

Group 977, March 10-13. Two or three very small faint spots near together.

Group 978, March 10-21. A regular spot, with a number of smaller spots following it closely. These latter diminish in size and fade out one by one, until on March 20 the preceding spot of the group alone remains.

Group 980, March 12-21. A regular spot, rapidly diminishing in size after it has passed the central meridian. Two or three very small spots are seen near it on March 16, 17, and 18.

Group 974, March 8-10. Two or three very small spots.

Group 979, March 12-14. A straggling group, composed of about half a dozen small spots.

Measures of Positions and Areas of Spots and Faculae upon the Sun's Disk—continued.

Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULAE.	Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULAE.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1883. 73 ^d 990	JH, F		0.830	253.0	0	0			833	1883. 77 ^d 661	JH, JP		0.977	290.9	0	0			275
		976	0.716	299.5	51.2	+15.2	0	95	211 c				0.931	246.1					329
		978	0.168	229.1	18.6	-13.4	30	224					0.881	282.4					372
		978	0.103	214.0	14.5	-12.0	14	43					0.827	258.9	18.8	-13.1	11	137	306 c
		980	0.446	32.4	356.8	+15.1	0	16					0.637	300.4	356.8	+13.0	4	20	
		980	0.424	36.8	356.1	+12.9	16	69					0.421	93.2	297.6	-7.7	55	484	
		981	0.957	96.2	297.5	-8.0	56	480	1051 c				0.533	96.0	290.3	-9.1	0	37	
		0.897	106.7						451				0.517	114.2	292.9	-18.4	0	8	
Mar. 16							(116)	(927)	(2546)				0.582	113.4	288.3	-19.2	5	35	
													0.827	111.6					148
74 ^d 905	H, F		0.876	305.3					281	Mar. 20			0.947	113.7					537
		976	0.836	295.0	51.0	+16.4	0	34	572 n f								(75)	(721)	(1967)
		978	0.353	250.6	18.9	-13.4	33	205					0.940	281.0					178
		978	0.314	248.7	16.4	-13.3	0	12					0.936	288.0					123
		978	0.286	252.0	15.1	-11.9	7	26					0.877	255.5					321
		980	0.320	350.8	2.0	+11.3	0	8					0.934	259.0	19.3	-12.8	12	83	240 c
		980	0.376	9.9	355.2	+14.6	0	7					0.781	292.8	357.0	+13.0	0	18	114 c
		980	0.340	8.0	356.2	+12.6	13	73					0.212	93.5	297.2	-7.6	51	488	
		981	0.859	95.2	299.4	-8.1	51	257					0.309	100.3	291.6	-9.9	0	13	
		981	0.881	95.8	296.8	-8.5	34	222					0.318	92.9	290.9	-7.6	0	15	
		981	0.942	95.9	288.1	-8.0	0	54	464 c				0.371	125.3	290.9	-19.0	9	34	
		0.875	159.2						748				0.415	120.9	287.5	-18.8	0	52	
Mar. 17							(138)	(898)	(2065)				0.872	114.4					420
										Mar. 21							(72)	(703)	(1396)
75 ^d 700	JH, JP		0.935	251.7					1109				0.971	302.1					306
		0.869	296.7						499				0.969	255.1					594
		978	0.511	255.8	18.0	-13.3	29	182					0.919	289.7					499
		978	0.443	259.8	13.7	-10.9	0	20					0.760	300.6	333.9	+17.8	0	43	292 c
		980	0.367	338.1	355.5	+12.8	9	36					0.129	268.9	298.1	-7.0	25	159	
		981	0.764	94.5	297.4	-8.0	52	586	430 c				0.104	286.0	296.4	-5.3	0	14	
		981	0.851	96.2	288.8	-9.0	3	120	452 c				0.098	255.6	296.2	-8.3	45	276	
		0.971	109.3						147				0.058	258.5	294.0	-7.5	4	23	
Mar. 18							(93)	(944)	(2637)				0.019	209.2	291.2	-7.8	8	68	
									968				0.197	188.2	292.4	-18.1	19	78	
76 ^d 653	JH, JP		0.985	251.0					357				0.229	165.6	287.2	-19.7	19	164	
		0.977	288.7						289				0.646	118.3	252.6	-23.3	0	22	
		0.930	314.5						592				0.702	118.3	248.1	-24.5	15	71	151 c
		0.924	293.8						248								(135)	(918)	(1842)
		0.850	244.8							Mar. 22									
		978	0.682	258.5	19.0	-13.0	17	166					0.841	299.5					
		980	0.484	313.8	356.8	+13.0	6	38					0.318	268.3	297.7	-7.1	26	169	
		981	0.613	93.8	297.9	-7.8	59	563					0.283	264.8	295.6	-8.1	39	276	
		981	0.711	95.6	290.3	-8.9	3	81					0.193	264.0	290.2	-8.0	0	35	
		982	0.727	109.7	289.7	-19.1	0	8					0.306	233.8	294.0	-17.1	12	65	
		0.882	109.1						138				0.284	224.0	291.1	-18.5	0	31	
		0.990	113.1						792				0.256	209.9	286.9	-19.6	23	132	
Mar. 19							(85)	(856)	(3384)										

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculae relative to the Spots with which they are associated are indicated by the letters *n*, *s*, *p*, *f*, *c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculae are expressed in millionths of the Sun's visible Hemisphere.

Group 981, March 16-27. A very fine spot, with a number of very small spots following it. The spot is nearly divided into two by a brilliant bridge, and the two parts are measured separately on March 17, 22, 23, and 24. The spot diminishes in size very rapidly after March 24.

Group 982, March 19-26. A scattered group of very small spots when first seen on March 19. It rapidly increases in size on the following days, and forms a long straight line of spots, of which the first and last are the largest. The intermediate spots disappear before March 25.

Group 984, March 22-31. A group of several very small spots on March 22, which increases in size very rapidly on the following days and forms a long line of spots, of which the preceding spot is the largest. The group rapidly diminishes in size after passing the central meridian, the following spots disappearing the first, so that on March 31 the preceding spot is left alone.

Measures of Positions and Areas of Spots and Faculæ upon the Sun's Disk—continued.

Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1883. 80 ^d 961	H, F	984	0.517	125.2	251.8	-23.5	9	46		1883. 85 ^d 924	JP, F	984	0.597	237.2	247.0	-24.5	14	74	
		984	0.565	123.8	248.3	-24.2	13	105				985	0.669	94.7	171.5	-8.1	32	197	173 c
		984	0.610	123.7	245.0	-25.5	7	63	207 c			985	0.721	94.5	167.4	-7.9	5	18	
Mar. 23							(129)	(922)	(367)	Mar. 28		987	0.991	75.4	133.6	+13.4	90	669	840 c
81 ^d 993	JP, F		0.895	292.0					203								(168)	(1198)	(1253)
		981	0.538	267.1	298.2	-7.3	30	218				986	0.939	251.8	275.2	-19.3	0	68	153 c
		981	0.507	265.5	296.1	-8.1	36	201				984	0.813	245.1	253.8	-24.0	38	216	530 c
		981	0.424	265.9	290.7	-7.9	0	46				984	0.787	243.3	250.8	-24.9	0	29	
		982	0.529	250.1	296.6	-16.2	26	159				984	0.730	242.5	245.3	-24.4	0	29	
		982	0.496	246.2	293.8	-17.5	0	36				984	0.717	246.2	244.8	-21.5	0	6	
		982	0.417	235.5	286.9	-20.0	13	91				985	0.473	94.4	171.9	-7.9	35	192	
		984	0.350	143.9	252.6	-23.0	26	116				985	0.542	94.6	167.3	-8.1	0	44	
		984	0.402	138.3	248.6	-24.0	34	147				987	0.923	72.5	135.7	+13.3	75	629	870 c
		984	0.481	135.6	243.5	-26.4	18	99				987	0.963	76.4	127.8	+11.2	0	45	272 c
		984	0.464	131.2	243.1	-24.0	0	12				988	0.973	101.7	122.7	-12.9	9	133	184 c
Mar. 24			0.934	84.9			(183)	(1125)	150 (353)	Mar. 29							(157)	(1391)	(2009)
83 ^d 091	H, F	981	0.714	265.1	296.8	-8.2	41	265	496 c	87 ^d 650	H, JP		0.806	241.3			0	21	318
		982	0.729	253.8	297.6	-16.4	24	89	54 c			986	0.978	251.2	270.2	-19.7	0	11	393 f
		982	0.585	245.6	285.3	-19.6	0	60		I.		984	0.920	247.2	258.4	-23.6	0	11	
		984	0.293	183.3	252.1	-23.7	32	213				984	0.895	246.5	254.6	-24.0	26	157	609 c
		984	0.303	167.8	247.0	-24.0	21	75				985	0.323	95.8	172.0	-8.1	28	181	
Mar. 25		984	0.367	160.6	243.2	-26.9	2	47				985	0.395	95.9	167.6	-8.4	0	10	
							(120)	(749)	(550)			985	0.425	91.3	165.7	-6.5	0	4	
83 ^d 981	JP, F	981	0.834	264.5	296.0	-8.3	44	242	942 c			987	0.855	70.3	135.4	+13.1	114	689	511 c
		982	0.849	255.1	297.6	-16.2	0	121	137 c			987	0.900	74.7	129.1	+10.6	5	30	
		982	0.723	249.8	284.9	-19.2	0	25				989	0.940	73.0	123.5	+13.5	31	242	
		984	0.367	215.9	252.7	-23.8	42	223		Mar. 30		988	0.923	101.5	122.9	-13.1	26	125	
		984	0.320	201.4	246.5	-24.0	17	76				990	0.977	81.0	114.5	+7.3	0	51	463 p
		984	0.349	191.4	243.6	-26.6	0	18									(230)	(1521)	180 c
Mar. 26		985	0.923	95.8	171.5	-7.9	0	143	178 p	89 ^d 071	JP, F		0.746	318.2			0	12	62
							(103)	(848)	(1257)			984	0.987	246.7	254.7	-24.0	50	201	920 f
84 ^d 917	H, F	981	0.923	263.7	296.2	-8.3	0	123	225			985	0.031	169.1	171.8	-8.2	27	193	
		984	0.510	233.3	253.4	-23.7	23	202	325 c			987	0.667	61.8	135.1	+13.1	114	540	305 c
		984	0.429	224.6	246.2	-24.1	7	42				987	0.713	66.8	130.3	+11.4	0	32	443 c
		984	0.430	217.1	243.8	-26.4	0	5				989	0.784	68.4	124.0	+12.4	10	85	53 c
		985	0.817	96.0	171.9	-8.8	0	153				988	0.754	101.8	123.0	-13.2	26	151	82 c
Mar. 27		985	0.851	96.4	168.3	-9.0	0	42	335 c			990	0.854	77.2	115.2	+7.4	0	22	198 c
							(30)	(567)	(885)	Mar. 31			0.934	106.6					587
85 ^d 924	JP, F		0.958	249.4					186				0.978	86.1			(227)	(1224)	412
		986	0.849	252.1	272.0	-18.7	0	34	54 c	89 ^d 975	JP, F	985	0.198	260.3	171.5	-8.2	19	196	
		984	0.674	241.8	253.8	-23.7	27	206				987	0.524	51.5	135.4	+13.2	118	525	
												987	0.560	53.8	132.6	+13.6	0	77	

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculæ relative to the Spots with which they are associated are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculæ are expressed in millionths of the Sun's visible Hemisphere.

Group 985, March 26–April 6. A regular spot, followed by a few small spots on March 27, 28, 29, and 30.

Group 986, March 28–30. A small faint spot.

Group 987, March 28–April 9. A very large regular spot, with two or three small spots near it. These disappear before April 2.

Group 988, March 29–April 8. A small regular spot.

Group 989, March 30–April 3. Two or three small spots close together.

Group 990, March 30–April 1. A small faint spot.

Measures of Positions and Areas of Spots and Faculae upon the Sun's Disk—continued.

Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULAE.	Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULAE.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1883. 89 ^d 975	JP, F	989	0.656	63.0	123.6	+12.2	0	79		1883. 94 ^d 056	JP, F	988	0.335	245.3	124.5	-14.0	19	77	
		988	0.599	104.2	123.7	-13.6	22	150				991	0.171	11.6	104.3	+3.5	13	57	
		990	0.730	73.8	115.4	+7.2	0	18				991	0.187	34.8	100.2	+2.7	0	17	
		991	0.872	83.9	100.3	+2.1	12	70	138 c			991	0.224	48.7	96.6	+2.4	22	120	
Apr. 1		992	0.942	107.0	89.1	-18.1	0	85	288 c			992	0.277	134.9	94.5	-17.3	27	197	
							(171)	(1200)	(426)			992	0.335	128.2	90.3	-17.9	0	32	
												992	0.376	124.1	87.3	-18.0	10	90	
90 ^d 911	JP, F	985	0.400	263.9	171.4	-8.3	15	101				992	0.415	117.8	83.8	-16.9	40	151	
		987	0.394	31.5	135.6	+13.3	104	547										31	
		993	0.438	54.2	126.8	+8.9	0	11										926	
		988	0.418	108.9	123.9	-13.6	23	130										57	
		989	0.508	51.7	123.8	+12.5	0	58										138	
		991	0.739	80.5	101.1	+2.7	28	106	171 c									225	
		991	0.791	82.7	96.3	+1.8	0	73	128 c									52	
		992	0.836	106.9	90.9	-17.7	27	146										191	
Apr. 2		992	0.897	105.5	83.6	-16.8	0	125	249 c									191	
							(197)	(1297)	(548)	Apr. 5							(228)	(1415)	(2268)
91 ^d 906	H, F		0.930	266.9				78		94 ^d 906	H, F	985	0.973	262.8	172.3	-8.4	0	110	558 c
		985	0.601	264.8	171.8	-8.2	19	112	72 c			994	0.912	281.5	159.4	+7.8	0	38	
		987	0.341	356.3	136.0	+13.6	103	514				994	0.872	282.5	154.2	+7.8	0	74	
		988	0.221	126.7	124.2	-13.8	14	94				987	0.705	296.0	135.7	+13.3	94	575	
		989	0.391	31.1	122.8	+13.3	0	40				988	0.509	252.2	125.1	-14.3	12	83	
		991	0.557	74.5	102.3	+3.2	9	83				991	0.238	312.7	105.2	+3.3	12	66	
		991	0.628	78.9	96.8	+2.0	0	51				991	0.174	330.9	100.0	+2.6	0	51	
		992	0.673	109.4	93.1	-17.6	36	236	218 c			991	0.150	349.6	96.8	+2.4	6	61	
Apr. 3		992	0.776	107.3	84.0	-17.4	22	175	281 c			992	0.197	176.3	94.4	-17.4	29	172	
			0.936	90.1				410				992	0.217	164.3	91.7	-18.1	0	17	
							(203)	(1305)	(1059)			992	0.256	148.8	86.4	-18.7	17	173	
92 ^d 637	H, JP		0.981	265.9				108				992	0.270	134.7	83.7	-16.9	35	188	
			0.921	266.9				57				995	0.505	96.6	64.9	-8.6	0	12	
I.		985	0.727	264.7	171.9	-8.2	17	82	157 c				0.813	66.1				43	
		987	0.381	332.4	135.5	+13.6	75	505					0.880	64.1				280	
		988	0.132	175.4	124.5	-13.8	15	51					0.917	106.0				281	
		991	0.406	67.4	103.2	+3.1	11	44		Apr. 6			0.928	80.2				189	
		991	0.496	74.5	96.7	+2.1	22	81									(205)	(1620)	(1966)
		992	0.535	112.8	94.1	-17.4	25	138		95 ^d 953	H, F	987	0.845	290.6	135.6	+13.8	78	417	326 c
		992	0.634	111.2	86.8	-18.2	0	29				988	0.693	256.4	125.0	-13.8	0	69	87 c
		992	0.665	108.6	84.0	-17.0	19	125				991	0.451	290.3	106.3	+3.6	0	44	
			0.895	109.8					724			992	0.292	229.0	94.6	-16.9	28	118	
			0.971	81.7					248			992	0.220	204.5	86.8	-17.5	0	88	
Apr. 4			0.973	69.2					410			992	0.195	192.5	83.8	-16.9	0	126	
							(184)	(1055)	(1704)	Apr. 7		996	0.733	103.7	34.3	-14.1	0	67	
94 ^d 056	JP, F	985	0.903	263.5	171.2	-8.5	0	115	648 c								(106)	(929)	(413)
		994	0.770	285.2	154.6	+7.5	0	18		97 ^d 056	M, F	987	0.946	286.1	135.5	+13.1	64	305	340 c
		987	0.379	304.1	135.7	+13.6	97	541				988	0.850	256.4	125.2	-14.7	0	31	158 c
												991	0.662	282.2	107.0	+3.5	11	50	

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column, it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculae relative to the Spots with which they are associated are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculae are expressed in millionths of the Sun's visible Hemisphere.

Group 991, April 1-9. A small spot on April 1. Other small spots appear following it on the following days, and the group increases in size until it passes the central meridian. The following spots then disappear very quickly, and the preceding spot alone remains on April 7.

Group 992, April 1-12. A small spot on April 1, which rapidly increases in size on the following days. A second spot appears following it on April 2, and smaller spots are formed between the two on April 4 and 5. The group diminishes in size soon after passing the central meridian, and the preceding spot alone remains on April 11.

Group 993, April 2. A very small faint spot.

Group 994, April 5-6. Two small spots.

Group 995, April 6. A small faint spot.

Group 996, April 7-14. A small faint spot on April 7. It rapidly increases in size on the two following days, and other spots appear. The group begins to decrease as it passes the central meridian. The following spots disappear, and the preceding spot alone remains on April 13.

Measures of Positions and Areas of Spots and Faculae upon the Sun's Disk—*continued.*

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column, it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculae relative to the Spots with which they are associated are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculae are expressed in millionths of the Sun's visible Hemisphere.

Group 997, April 9-11. Two very small faint spots.
Group 998, April 10-19. A small spot on April 10 and 11. It has greatly increased in size by April 12, and forms a large group of very irregular shape. It continues to change with great rapidity on the following days, breaking up into a great number of small and somewhat scattered spots.
Group 999, April 12-23. A large regular spot, followed by a large spot of irregular outline. Several small spots cluster round each of the large spots, and are measured with them. The following spot divides into two portions on April 14, and breaks up yet further on the following days. Only two small spots of this portion of the group remain on April 20 and only one on April 21; and this last disappears before April 22. Two new spots (which are measured together as one on April 21 and 22) appear on April 21.
Group 1000, April 12-23. A very fine spot of irregular outline, with a number of small spots close to it. The group greatly diminishes in size between April 14 and 16.
Group 1001, April 13-24. Several spots in a compact cluster, followed by a number of spots, most of them small and arranged in a straight line. The group diminishes rapidly after passing the central meridian, the following spots disappearing before April 24.

Measures of Positions and Areas of Spots and Faculae upon the Sun's Disk—continued.

Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).		
1883. 104 ^d 986	F, JP		0°943	291°5	°	°	°			143	1883. 107 ^d 641	H, JP	0°832	299°5	°	°	°		252	
			0°898	324°1					123	I.		998	0°951	279°6	357°8	+ 7°5	9	56	1333 c	
			0°808	254°7					230			998	0°938	284°3	354°8	+ 11°5	23	52		
		998	0°597	291°2	356°2	+ 8°0	15	56				998	0°904	282°2	350°2	+ 8°8	16	210		
		998	0°592	297°5	354°3	+ 11°3	20	145				998	0°911	288°3	350°0	+ 14°3	11	126		
		998	0°524	295°1	350°6	+ 8°1	16	23				999	0°435	227°9	307°2	- 21°7	51	404		
		998	0°522	306°6	347°6	+ 13°3	6	38				999	0°383	212°0	299°8	- 23°8	18	164		
		999	0°365	142°5	308°3	- 22°0	76	502				1000	0°340	236°4	304°0	- 15°7	73	437		
		999	0°471	133°1	300°1	- 23°7	27	213				1003	0°314	312°6	300°4	+ 7°3	0	3		
		1000	0°323	115°4	304°7	- 13°1	10	33				1001	0°189	163°1	283°7	- 15°4	27	311		
		1000	0°354	121°6	303°9	- 15°8	80	346				1001	0°289	157°5	280°2	- 20°5	0	5		
		1001	0°640	107°7	283°0	- 15°4	36	230	119 c			1001	0°303	138°5	274°9	- 18°1	5	46		
		1001	0°741	110°1	275°1	- 18°4	20	95	389 c			1004	0°329	92°2	267°8	- 5°6	1	12		
		1002	0°926	114°4	254°3	- 24°7	21	43	345 c			1004	0°394	94°5	263°8	- 6°5	0	9		
Apr. 16							(327)	(1724)	(1679)	Apr. 19							(234)	(1835)	(1585)	
105°647	H, JP		0°976	277°0					127	109°038	F, JP	999	0°654	241°8	306°7	- 21°9	62	471	422 c	
			0°957	286°9					123			999	0°598	235°4	301°0	- 24°0	5	60		
			0°901	255°2					597			1000	0°598	249°4	304°0	- 16°2	39	326		
		998	0°708	287°0	356°3	+ 8°1	17	74	254 c			1001	0°333	238°1	285°4	- 14°9	0	89		
		998	0°704	292°7	354°7	+ 11°8	23	193				1001	0°326	233°8	284°6	- 15°9	0	52		
		998	0°639	289°9	350°5	+ 8°4	13	62		Apr. 20		1004	0°042	113°8	266°3	- 6°0	0	13		
		998	0°654	298°3	349°5	+ 13°8	9	85									(106)	(1011)		(o)
		999	0°297	164°0	308°3	- 21°8	60	442		109°939	M, F	999	0°777	245°9	306°1	- 21°7	63	385		
		999	0°382	147°4	300°4	- 23°8	22	170				999	0°704	239°3	298°2	- 24°7	0	29		
		1000	0°206	130°5	304°1	- 12°9	0	24				999	0°641	242°3	293°9	- 21°2	0	32		
		1000	0°241	139°3	303°9	- 15°7	59	447				1000	0°739	252°2	303°6	- 16°4	58	257		
		1003	0°316	44°9	300°4	+ 7°7	0	10				1001	0°506	248°4	285°6	- 15°0	18	63		
		1003	0°367	48°6	297°2	+ 8°9	0	9				1001	0°487	245°6	283°9	- 16°0	0	48		
		1001	0°521	111°1	283°2	- 15°4	24	282			1001	0°371	233°6	274°8	- 17°3	0	31			
		1001	0°600	113°1	278°0	- 18°0	0	10			1004	0°223	269°2	269°5	- 5°0	16	74			
		1001	0°646	111°7	274°3	- 18°0	11	63			1004	0°203	264°7	268°3	- 5°9	0	13			
		1002	0°868	115°3	254°0	- 24°5	2	12			1004	0°150	255°8	265°0	- 7°0	0	28			
Apr. 17			0°938	116°2			(240)	(1883)	(1389)	288							(155)	(960)	(o)	
106°891	F, H	998	0°879	286°7	356°2	+ 12°0	0	133	86 c	110°933	F, JP	999	0°895	247°2	306°5	- 22°5	46	261	422 c	
		998	0°839	290°1	351°0	+ 13°7	0	313	437 c			999	0°799	246°8	295°4	- 21°4	0	142		
		998	0°819	284°5	350°1	+ 8°8	7	82				1000	0°870	253°2	303°8	- 17°0	30	167		
		999	0°334	212°3	308°0	- 21°5	55	474				1005	0°840	282°6	299°1	+ 7°8	0	31		
		999	0°327	188°8	300°1	- 24°0	12	148				1001	0°674	252°6	285°0	- 15°2	17	68		
		1000	0°225	212°9	304°3	- 16°0	49	485				1001	0°578	247°6	277°2	- 17°0	0	15		
		1003	0°233	340°8	301°4	+ 7°5	0	11				1001	0°534	243°2	273°5	- 18°1	0	20		
		1001	0°297	129°0	283°2	- 15°8	23	323				1004	0°445	269°4	269°9	- 4°6	19	168		
		1001	0°430	122°3	274°6	- 18°1	0	42				1004	0°385	265°1	266°1	- 6°3	5	75		
		1004	0°498	92°5	267°1	- 5°8	0	9				1006	0°821	79°9	189°4	+ 5°5	0	17		
		1004	0°544	93°9	264°0	- 6°5	0	6				1007	0°879	105°5	182°0	- 15°9	0	39		
Apr. 18							(146)	(2026)	(523)	Apr. 22			1008	0°957	80°8	171°5	+ 7°3	0		118
																	(117)	(1121)	(841)	

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column, it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculae relative to the Spots with which they are associated are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculae are expressed in millionths of the Sun's visible Hemisphere.

Group 1002, April 16-17. A small spot.

Group 1003, April 17-19. Two small spots. The following spot is only seen on April 17.

Group 1004, April 18-26. Three or four very small spots arranged in a straight line. The group greatly increases in size before April 21, and forms a straight line of spots, of which the preceding spot is the largest. The following spots diminish after April 22, and disappear before April 24.

Group 1005, April 22. Two small spots.

Group 1007, April 22-23. A small faint spot. A second is seen near it on April 23.

Group 1006, April 22. Two small spots.

Group 1008, April 22-May 3. A regular spot.

Measures of Positions and Areas of Spots and Faculæ upon the Sun's Disk—continued.

Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1883. 112 ^d 103	M, F		0°9'43	281°1	°	°			15 ^a	1883. 114 ^d 918	M, F		0°9'31	104°2	°	°			339
		999	0°9'77	249°1	306°4	-21°4	37	235	786 c				0°9'79	80°2					152
		999	0°9'42	249°7	298°7	-20°7	0	48		Apr. 26							(68)	(455)	(1471)
		999	0°9'00	248°6	292°0	-21°3	0	11		115°702	H, JP		0°8'56	243°6					406
		1000	0°9'68	253°8	304°1	-16°9	0	65	415 c			1010	0°5'71	284°9	214°0	+ 4°8	5	15	
		1001	0°8'45	254°9	285°6	-15°3	42	89	152 c	I.		1008	0°2'45	29°1	173°6	+ 8°0	23	168	
		1001	0°8'08	252°8	281°5	-16°6	0	9				1009	0°4'36	63°5	157°4	+ 7°1	2	21	
		1004	0°6'65	268°0	269°7	- 4°8	16	112				1009	0°4'49	67°9	155°9	+ 5°7	13	19	
		1004	0°6'14	266°0	266°0	- 6°2	11	36				1012	0°4'96	246°9	208°6	-15°1	5	14	
		1007	0°7'25	108°6	182°5	-16°7	0	15				1012	0°4'10	233°4	200°7	-18°3	0	6	
		1007	0°7'72	106°3	178°1	-15°5	0	15				1011	0°6'61	65°1	142°7	+12°7	4	19	
		1008	0°8'43	78°1	172°0	+ 7°4	15	106	254 c				0°7'80	65°8					349
		1009	0°9'62	84°3	154°6	+ 4°2	0	29	309 p				0°8'12	107°4					346
Apr. 23							(121)	(770)	(2066)	Apr. 27							(52)	(262)	(1401)
										116°682	H, JP		0°9'17	242°2					404
		1001	0°9'43	255°5	285°6	-15°3	0	23	414 f			1010	0°7'35	280°3	213°8	+ 4°6	4	14	
		1004	0°8'16	267°8	269°5	- 4°6	26	84	337 f	I.		1013	0°6'72	252°2	208°8	-15°1	5	19	
		1010	0°1'80	19°8	211°3	+ 5°0	8	23				1008	0°2'33	334°1	173°3	+ 7°8	23	163	
		1010	0°2'41	27°4	208°3	+ 7°6	4	20				1009	0°2'52	42°4	157°7	+ 6°5	0	5	
		1008	0°6'99	73°9	172°3	+ 7°7	34	147	97 c			1009	0°2'71	50°6	155°4	+ 5°7	15	42	
		1009	0°8'70	82°0	155°2	+ 4°6	0	11	292 n			1011	0°5'06	55°0	142°4	+12°9	7	28	
		1011	0°9'63	75°4	142°2	+12°7	0	26	218 f			1014	0°9'30	105°1	99°0	-15°6	4	21	470 s f
Apr. 24							(72)	(334)	(1358)	Apr. 28							(58)	(292)	(1213)
									831	117°636	H, JP		0°9'37	296°5					326
		1004	0°9'59	253°2	269°8	- 4°1	52	135	541 c	I.		1010	0°7'39	280°2					120
		1010	0°2'34	313°0	212°4	+ 4°6	13	33				1013	0°8'68	277°6	214°4	+ 4°4	0	11	286 c
		1010	0°2'34	327°0	209°9	+ 6°7	0	26				1008	0°8'20	254°6	209°7	-15°0	7	22	184 f
		1012	0°2'23	191°0	205°1	-17°2	25	50				1009	0°3'79	301°6	173°9	+ 7°4	20	133	
		1012	0°2'47	176°7	201°7	-18°9	8	26				1009	0°1'86	344°1	157°9	+ 6°1	0	1	
		1008	0°5'37	66°9	172°8	+ 8°1	30	240				1009	0°1'73	357°0	155°5	+ 5°7	8	25	
		1009	0°7'14	83°7	157°6	+ 1°3	0	5				1011	0°3'57	36°6	142°5	+12°6	7	14	
		1009	0°7'42	79°9	155°7	+ 4°3	12	26				1011	0°4'67	47°1	134°4	+14°6	17	46	
		1011	0°8'85	73°2	142°6	+12°5	12	40	315 f			1015	0°8'09	69°8	103°8	+13°6	7	12	120 c
Apr. 25							(152)	(581)	(1687)	Apr. 29							(76)	(303)	(2269)
									140	119°041	JH, F		0°9'30	252°8					311
		1004	0°8'93	244°3	269°9	- 4°1	0	76	305 s f			1008	0°6'40	287°1	174°2	+ 7°6	24	79	
		1010	0°4'07	291°8	213°0	+ 4°5	0	21				1011	0°3'02	339°8	142°4	+12°3	0	19	
		1012	0°3'23	230°7	205°8	-16°1	8	55				1011	0°2'89	350°8	139°0	+12°4	0	20	
		1012	0°3'28	215°7	202°5	-19°8	0	4				1011	0°3'00	3°6	135°2	+13°3	0	28	
		1012	0°2'94	212°4	200°3	-18°7	8	33				1011	0°3'04	12°2	132°5	+13°1	4	19	
		1008	0°3'75	54°5	172°9	+ 8°2	33	201				1015	0°5'84	59°7	105°2	+13°6	3	16	
		1009	0°5'94	75°5	155°7	+ 4°9	10	19											
		1009	0°6'06	72°2	155°4	+ 7°0	0	8											
		1011	0°7'84	69°6	142°1	+12°9	9	38	535 f										

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column, it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculæ relative to the Spots with which they are associated are indicated by the letters *n*, *s*, *p*, *f*, *c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculæ are expressed in millionths of the Sun's visible Hemisphere.

Group 1009, April 23-29. A small spot. A very small spot is seen near it on April 25, but disappears before April 26. Another very small spot appears on April 26, and others (which are measured with it) form in the neighbourhood on April 27.
 Group 1010, April 24-29. A small spot. Two other small spots are seen near it on April 24 and 25.
 Group 1011, April 24-May 1. A small spot disappearing before May 1. Several other small spots are seen in its neighbourhood on April 29-May 1.
 Group 1012, April 25-27. Two small spots. Other small spots appear in their neighbourhood on April 26. The group has greatly diminished on April 27.
 Group 1013, April 28-29. Two small spots.
 Group 1014, April 28-29. A small spot. A second is seen near it on April 29.
 Group 1015, April 29-May 2. A small spot. A second is seen near it on May 1.

Measures of Positions and Areas of Spots and Faculae upon the Sun's Disk—continued.

Measures of Positions and Areas of Spots and Faculae upon the Sun's Disk—continued.																					
Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.		
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).			
1883. 119 ^d 041	JH, F		0.882 0.954	106.2 102.9	°	°	°		129 248 (688)	1883. 124 ^d 016	M, F		0.892 0.882 0.953	287.2 109.1 77.9	°	°	°	18 150	204 294 c 438 (936)		
Apr. 30								(31)	(181)	May 5		1021			9.4	-18.4					
119.916	JH, F	1008	0.775	283.4	174.1	+ 7.8	19	70	117 c	124.930	M, F		0.954 0.569 0.627 0.768 0.792 0.866 0.854	288.1 66.5 66.2 111.1 110.1 106.6 76.6					304		
		1011	0.385	320.6	139.3	+13.4	0	16				1022			26.6 22.8 9.7 7.3 359.0	+10.2 +11.8 -18.3 -18.0 -16.1	0 0 16 0 0	12 11 81 16 8			
		1011	0.314	334.0	132.9	+12.4	0	13				1022									
		1016	0.330	59.6	108.2	+ 5.8	0	20				1021									
		1016	0.357	60.9	106.6	+ 6.2	4	13				1021									
		1017	0.395	40.7	109.5	+13.5	0	18				1021									
		1015	0.452	47.1	104.9	+14.1	2	9				1023									
		1015	0.463	48.9	103.8	+13.9	0	24													
			0.867	105.1				295 456 252 (1120)		May 6								(16)	(128)	727 (1697)	
			0.969	88.3																	
			0.973	78.9																	
May 1							(25)	(183)		125.633	H, JP	1024	0.884 0.894 0.433 0.500 0.667 0.702 0.798 0.844 0.981	288.3 286.3 56.4 59.1 113.9 112.2 109.7 73.4 71.2	114.1 110.7 27.8 23.3 9.4 6.3	+14.4 +12.9 +10.6 +11.8 -18.3 -17.8	0 0 7 0 18 0	9 16 38 17 137 9	416 c 200 c 406 874 207 (2103)		
120.690	H, JP		0.916	254.2				220 223 494 n		I.											
			0.773	285.4																	
		1008	0.878	280.9	174.7	+ 7.6	18	71													
		1016	0.187	24.7	110.0	+ 5.9	2	20													
		1016	0.229	37.6	106.5	+ 6.6	8	14													
		1017	0.309	12.6	110.5	+13.6	0	26													
		1015	0.347	24.8	105.9	+14.4	2	13													
			0.848	108.0				491 789 (2217)		May 7								(25)	(226)		
			0.906	71.2																	
May 2							(30)	(144)		126.643	H, JP		0.921 0.850 0.316 0.338 0.315 0.274 0.326 0.499 0.542 0.914	280.4 250.6 348.6 354.9 358.6 26.8 38.6 121.7 119.5 69.3							630 472
121.916	M, F		0.924	282.1				300		I.		1025	0.316 0.338 0.315 0.274 0.326 0.499 0.542 0.914	348.6 354.9 358.6 26.8 38.6 121.7 119.5 69.3	39.6 37.7 36.4 28.7 24.0 9.5 6.2	+14.7 +16.3 +15.0 +10.9 +11.5 -18.1 -18.3	10 0 9 12 0 18 0	48 4 43 60 4 109 2	190 (1292)		
		1008	0.975	278.8	174.6	+ 7.7	0	107													
		1018	0.813	285.4	153.1	+10.6	0	24													
		1018	0.834	286.1	150.8	+10.7	0	27													
		1019	0.421	230.5	118.4	-19.0	0	4													
		1019	0.389	224.9	115.3	-19.6	0	9													
		1016	0.278	306.9	111.3	+ 5.9	2	12													
		1016	0.228	323.4	106.2	+ 6.7	3	16													
		1020	0.922	106.1	31.3	-16.3	0	9													
			0.843	69.1				196 231 161 (929)		May 8								(49)	(270)		
			0.943	107.9																	
			0.947	73.0																	
May 3							(5)	(208)		127.641	H, JP		0.938 0.421 0.433 0.390 0.265 0.337 0.983 0.984 0.886	257.4 315.8 322.8 325.4 339.7 140.1 105.4 112.1 61.1	40.2 38.4 35.6 28.0 9.5 30.3 30.2 30.2	+14.4 +17.1 +15.6 +11.1 -18.1 -15.7 -22.3	9 5 4 7 18 0 119	61 30 38 149 83 13 403	1112 594 n p 694 c 176 (2576)		
122.991	M, F	1018	0.924	282.9	150.3	+10.4	0	46	98 c	May 9								(162)	(777)		
		1016	0.418	295.4	106.5	+ 7.5	0	12													
		1021	0.962	108.0	10.0	-18.3	28	148	398 c												
May 4							(28)	(206)	(496)												

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column, it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculae relative to the Spots with which they are associated are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculae are expressed in millionths of the Sun's visible Hemisphere.

Group 1016, May 1-4. A number of very small faint spots arranged in a straight line. Only the last spot is left on May 4.

Group 1017, May 1-2. A very small spot.

Group 1019, May 3. Two small faint spots.

Group 1021, May 4-14. A regular spot, with sometimes two or three very small spots close to it.

Group 1022, May 6-12. Two small spots. The following spot disappears before May 9, and the preceding spot increases in size, breaking up into several portions on the following day.

Group 1023, May 6. A small faint spot.

Group 1024, May 7. Two small faint spots.

Group 1025, May 8-11. A regular spot, followed by a curved cluster of small spots. These latter spots form a straight line on May 9, and disappear before May 10.

Group 1026, May 9-14. A small spot.

Group 1027, May 9-21. A large regular spot. A small spot is seen near it on May 11.

Measures of Positions and Areas of Spots and Faculæ upon the Sun's Disk—continued.

Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).		
1883. 128 ^d .628	H, JP	1025	0°58'1	300°1	40°8	+14°3	3	15		1883. 132 ^d .661	H, JP	1026	0°31'6	134°6	302°8	-15°3	0	7		
I.		1022	0°40'7	305°4	29°3	+10°7	4	20				1027	0°41'5	144°7	301°6	-22°2	54	342		
		1022	0°36'7	313°9	25°3	+11°8	0	40				1028	0°45'8	60°4	292°4	+10°7	37	239		
		1021	0°26'0	180°6	9°9	-18°0	17	106				1028	0°46'7	64°2	291°1	+9°3	2	32		
		1021	0°27'2	170°1	6°9	-18°4	0	9		May 14							(108)	(687)	(1637)	
		1026	0°9'16	105°6	303°6	-15°5	0	15	966 c											
		1027	0°9'27	112°9	302°5	-22°4	46	270	830 s f	133°927	M, F		0°9'18	285°9					385	
May 10		1028	0°9'78	78°1	292°8	+11°0	56	508	444 c				0°9'15	248°8				289		
129°909	M, F	1025	0°77'7	292°1	40°6	+14°6	0	20				1031	0°34'8	260°4	319°7	-5°6	0	24		
		1022	0°63'9	291°0	30°0	+10°9	0	25				1031	0°31'1	258°9	317°4	-5°8	0	15		
		1022	0°62'8	293°0	28°8	+11°9	0	8				1031	0°27'0	262°7	315°1	-4°3	0	9		
		1022	0°59'8	295°5	26°1	+12°4	0	16				1030	0°38'4	236°9	318°9	-14°4	0	9		
		1021	0°38'2	227°0	9°7	-17°8	23	104				1027	0°33'8	183°9	301°0	-22°0	79	295		
		1026	0°77'2	108°1	303°2	-15°7	0	13	313 f	May 15			0°9'85	68°6				(100)	(486)	(850)
May 11		1027	0°79'9	116°3	302°0	-22°6	62	329	454 f											
		1027	0°85'6	113°2	295°4	-21°2	0	8		134°989	M, F		0°9'42	286°3					523	
		1028	0°88'1	75°9	292°4	+11°0	57	318	601 f			1030	0°61'5	249°6	321°8	-14°2	5	39		
							(142)	(841)	(1368)			1027	0°41'9	215°6	300°7	-22°0	57	296		
												1028	0°25'3	332°0	292°5	+10°7	34	174		
												1028	0°27'3	336°6	291°8	+12°1	3	8		
130°662	H, JP		0°90'5	290°9					1052				0°9'13	66°5				229		
I.			0°90'2	243°8					292	May 16								(99)	(517)	(752)
		1022	0°76'2	286°7	30°5	+10°7	6	9	57 c											
		1021	0°51'2	238°5	9°9	-18°0	12	77												
		1026	0°65'5	110°5	303°4	-15°4	5	9		135°906	M, F		0°9'85	285°8					121	
		1027	0°69'8	119°7	301°9	-22°3	53	320	315 c			1030	0°77'4	252°9	323°0	-14°6	40	195		
		1028	0°78'6	73°6	292°7	+11°0	43	246	337 c			1030	0°71'5	251°6	317°6	-14°6	7	35		
May 12		1029	0°85'3	74°1	285°9	+12°0	2	10	417 s f			1027	0°54'6	231°1	300°4	-21°9	62	284		
			0°87'2	115°7					1389			1028	0°39'2	305°5	292°2	+11°1	45	164		
							(121)	(671)	(3859)			1028	0°40'7	309°8	291°9	+13°0	0	2		
										May 17			1032	0°79'9	62°4	224°5	+20°3	0	20	222 c
																		(154)	(700)	(343)
132°017	M, F		0°95'3	254°1					247											
May 13			0°92'5	285°5					352											
		1021	0°73'2	247°1	9°9	-18°4	10	54		136°960	M, F		1030	0°89'8	254°2	322°8	-15°1	17	106	327 c
		1026	0°42'4	121°3	302°9	-15°2	1	8				1030	0°85'5	253°4	317°4	-15°3	7	41		
		1027	0°50'3	132°4	301°3	-22°2	53	380				1027	0°69'9	239°4	299°9	-22°4	54	253		
		1028	0°57'5	66°2	292°5	+11°1	51	314				1028	0°57'7	292°2	292°3	+10°8	23	158		
			0°90'2	109°4					311			1032	0°64'7	53°2	225°9	+21°0	0	14		
							(115)	(756)	(910)	May 18			0°9'38	159°7				(101)	(572)	(461)
132°661	H, JP		0°94'3	285°2					537											
I.			0°92'0	295°7					135	138°014	M, F		0°9'15	260°3					89	
			0°79'8	284°4					460			1030	0°97'7	255°1	323°1	-15°0	35	114		
		1021	0°81'7	249°2	9°6	-18°4	10	54	505 c			1030	0°95'2	254°3	317°3	-15°6	0	62	405 c	
		1030	0°21'1	183°7	317°0	-14°7	5	8				1027	0°83'7	243°9	299°9	-22°7	44	229		
		1030	0°22'7	167°6	313°3	-15°4	0	5				1028	0°74'9	286°3	292°3	+10°7	28	183		
																			105 c	

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column, it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculæ relative to the Spots with which they are associated are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculæ are expressed in millionths of the Sun's visible Hemisphere.

Group 1028, May 10-21. A large regular spot. Two or three small faint spots are occasionally seen in its neighbourhood. Group 1029, May 12. A small spot.
Group 1030, May 14-20. Two small spots. Only one of these is seen on May 15 and 16. The group increases in size very suddenly, and on May 17 consists of a regular spot, with a smaller one following it. Group 1031, May 15. Three small faint spots.
Group 1032, May 17-22. A small spot. A second spot is seen near it on May 20. The two are measured together on May 21 and 22.

Measures of Positions and Areas of Spots and Faculae upon the Sun's Disk—continued.

Measures of Positions and Areas of Spots and Faculae upon the Sun's Disk—continued.																				
Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).		
1883. 138 ^d 014	M, F	1033	0'676	239'5	284'1	—21'6	0	5		1883. 143 ^d 902	M, F		0'897	110'4					355	
		1033	0'650	236'8	281'4	—22'4	8	27					0'960	73'8					330	
		1034	0'427	43'6	227'7	+16'0	0	18		May 25							(0)	(30)	(1052)	
		1032	0'482	37'0	227'5	+20'6	0	11												
			0'943	74'9					400	146'051	M, F		0'896	80'9					76	
May 19							(115)	(649)	(999)	May 27							(0)	(0)	(76)	
138'632	H, JP		0'927	256'1					637	146'896	M, F		0'731	241'7					36	
			0'918	266'5					340				0'777	113'5					85	
I.			0'819	236'1					424	May 28							(0)	(0)	(121)	
		1030	0'988	255'3	318'4	—14'8	5	69	451 c											
		1027	0'900	246'3	299'9	—22'1	37	196	368 c	147'912	M, F	1038	0'914	79'5	49'2	+ 9'2	0	9	192 c	
		1028	0'835	285'1	292'4	+11'5	23	141	277 c				0'908	286'4				86		
		1033	0'742	241'6	281'8	—22'0	4	40	49 c	May 29							(0)	(9)	(278)	
		1032	0'483	34'7	220'2	+21'5	0	20												
		1032	0'411	22'7	227'6	+20'3	0	9		149'098	M, F	1039	0'986	75'2	19'0	+14'5	27	90	210 s f	
			0'887	77'4					763	May 30							(27)	(90)	(210)	
May 20							(69)	(475)	(3309)	149'895	M, F	1039	0'950	74'2	17'5	+14'8	26	69		
139'907	M, F		0'845	245'1					516				1039	0'966	75'5	14'2	+13'8	18	267	
		1027	0'984	247'2	299'7	—22'7	26	183	305 c	May 31							(44)	(336)	263 c	
		1028	0'957	282'2	292'5	+11'1	35	117	196 c										(263)	
		1032	0'397	348'7	225'2	+21'1	0	13		150'899	M, F	1040	0'113	146'9	71'5	— 5'8	34	100		
			0'854	80'8					208				1040	0'181	141'1	68'5	— 8'5	0	34	
			0'986	76'4					182				1040	0'160	128'0	67'8	— 6'0	0	17	
May 21							(61)	(313)	(1407)				1039	0'854	72'5	18'0	+14'6	19	72	
			0'923	243'2					523	June 1			1039	0'884	74'0	14'2	+13'9	18	113	
140'904	M, F	1032	0'486	321'9	225'8	+20'9	0	7									(71)	(336)	252 c	
			0'913	74'5					166	151'992	M, F		0'863	289'1					197	
May 22							(0)	(7)	(689)				1040	0'237	246'9	73'1	— 5'6	87	381	
141'901	M, F	1035	0'506	261'0	224'1	— 5'9	2	14					1040	0'222	224'8	69'6	— 9'3	0	9	
		1036	0'396	301'3	214'1	+10'4	2	18					1040	0'165	234'8	68'3	— 5'8	0	22	
		1036	0'373	305'4	212'1	+11'0	6	28					1040	0'158	228'6	67'3	— 6'3	14	88	
			0'970	79'0					636				1040	0'191	213'5	66'6	— 9'5	35	231	
May 23							(10)	(60)	(636)				1039	0'707	68'7	17'8	+14'6	24	86	
143'004	M, F	1036	0'602	288'7	214'6	+ 9'9	0	10					1039	0'712	70'7	17'0	+13'4	0	29	
		1037	0'896	74'9	117'1	+12'8	0	36	1088 c	June 2			1039	0'754	70'5	13'5	+14'4	43	192	
			0'878	83'0					372				1041	0'958	101'0	347'6	—10'7	71	298	
			0'971	107'9					128									(274)	(1336)	539 f
May 24							(0)	(46)	(1588)	152'945	M, F		0'944	289'2					282	
143'902	M, F		0'875	293'7					114				1040	0'452	256'8	74'2	— 6'1	65	309	
			0'817	285'5					77				1040	0'413	255'4	71'6	— 6'2	14	69	
		1037	0'787	73'5	117'3	+12'1	0	14					1040	0'356	254'8	68'1	— 5'5	9	70	
		1037	0'823	71'4	114'2	+14'4	0	16	176 f				1040	0'351	244'2	66'6	— 9'0	49	365	

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column, it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculae relative to the Spots with which they are associated are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculae are expressed in millionths of the Sun's visible Hemisphere.

Group 1033, May 19-20. Two small spots. The preceding spot disappears before May 20.
 Group 1035, May 23. A small spot. Group 1036, May 23-24. Two small spots. The following spot disappears before May 24.
 Group 1037, May 24-25. A small spot on May 24. A second appears near it on May 25. Group 1038, May 29. A small faint spot.
 Group 1039, May 30-June 11. Two spots. Several small spots are seen near the preceding spot on June 2-4. On June 7 small spots accompany the following spot.
 The following spot and its companions disappear before June 8, leaving the preceding spot alone.
 Group 1040, June 1-7. A fine group breaking out suddenly on June 1 near the centre of the Sun. It consists at first of a large spot followed by an irregular group of small spots. The last of these develop on the following days into a large spot, showing much detail. The other small spots tend to coalesce, and on June 5, the group consists of five spots. Two of these disappear before June 6.
 Group 1041, June 2-9. A large spot of irregular shape. Several small spots follow it on June 4 and succeeding days. The group gradually diminishes in size, only one small spot remaining on June 8. This breaks up into yet smaller spots on June 9 and 10.

Measures of Positions and Areas of Spots and Faculæ upon the Sun's Disk—continued.

Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1883. 152 ^d 94 ^h 5	M, F	1039	0°553	62°6	17°7	+14°6	16	84	168 f	1883. 155 ^d 900	M, F	1039	0°287	330°7	17°1	+14°6	17	54	168 f
		1039	0°553	65°0	17°1	+13°3	0	19				1039	0°254	340°1	13°9	+14°0	15	69	
		1039	0°604	65°2	13°7	+14°4	31	144				1045	0°241	219°5	17°7	+10°5	0	13	
		1042	0°817	100°0	353°8	—8°3	4	12				1045	0°225	206°5	14°6	+11°4	0	18	
		1041	0°875	102°0	347°7	—10°6	53	425				1045	0°214	191°3	11°2	+11°9	0	19	
		1043	0°988	106°6	327°4	—16°5	0	56				1042	0°257	120°6	356°0	—7°3	0	4	
			0°811	71°9				171				1042	0°333	116°5	351°3	—8°4	0	9	
June 3			0°837	70°3			(241)	(1553)	(1955)			1041	0°416	116°3	346°6	+10°4	18	193	
153 ^d 929	M, F	1044	0°902	287°6	97°9	+15°7	37	188	265 c			1041	0°471	116°3	343°3	+11°9	0	86	
		1040	0°642	260°2	74°3	—6°3	97	436				1043	0°701	113°7	327°0	+16°2	26	66	
		1040	0°599	256°6	70°8	—8°0	10	67				1046	0°968	113°5	294°8	+22°7	0	197	
		1040	0°557	259°6	68°2	—5°8	7	35				1046	0°975	116°2	293°3	+25°5	0	32	259 c
		1040	0°544	253°9	66°7	—8°7	47	560					0°935	78°2				107	
		1039	0°383	48°8	17°7	+14°4	26	84		June 6	H, JP		0°955	278°6			(178)	(1482)	(1376)
		1039	0°361	55°3	17°3	+11°7	0	4				1040	0°981	262°4	77°5	—7°4	40	203	131
		1039	0°430	54°6	13°8	+14°3	26	141		I.		1040	0°926	259°3	66°2	—9°8	16	291	701 n f
		1045	0°400	120°3	14°3	+11°7	0	5				1047	0°917	288°9	64°2	+17°4	1	22	290 c
		1042	0°676	101°5	353°1	—7°8	0	32				1039	0°394	309°7	17°2	+14°9	13	62	192 p
		1041	0°747	103°6	347°5	+10°2	57	314	211 c			1039	0°346	312°4	14°2	+13°7	2	28	
		1041	0°795	105°1	343°4	+12°0	0	39				1039	0°361	315°7	14°1	+15°2	0	11	
		1043	0°931	107°5	327°5	+16°2	13	89	257 c			1045	0°384	241°1	18°9	+10°4	4	8	
June 4							(320)	(1994)	(733)			1045	0°344	234°4	15°5	+11°5	4	31	
154 ^d 896	M, F	1044	0°973	285°1	98°0	+14°7	0	52	211 c			1045	0°305	226°7	12°0	+11°7	4	31	
		1044	0°907	287°4	96°4	+16°8	0	16				1048	0°164	37°2	353°3	+7°8	4	34	
		1040	0°813	260°7	75°9	—7°5	47	242				1048	0°179	51°1	351°0	+6°7	5	32	
		1040	0°787	262°6	73°6	—5°8	0	59				1042	0°209	146°0	352°2	—9°7	0	3	
		1040	0°765	259°7	71°3	—7°8	0	97				1042	0°222	140°5	350°8	—9°6	0	14	
		1040	0°724	262°2	68°0	—5°6	0	34				1041	0°255	130°5	347°7	—9°2	3	11	
		1040	0°709	256°7	66°6	—9°4	92	487				1041	0°289	132°1	346°4	+10°9	5	104	
		1039	0°261	18°0	17°3	+14°3	19	74				1041	0°337	131°4	344°1	+12°6	0	4	
		1039	0°277	30°3	13°9	+13°8	10	64				1043	0°586	119°0	326°9	+16°2	14	50	
		1045	0°226	150°4	15°6	+11°3	5	31				1046	0°918	115°7	295°0	+23°3	21	306	481 c
		1045	0°258	139°9	12°4	+11°3	0	18					0°921	77°7				325	
		1045	0°266	148°7	14°0	+13°1	0	4					0°956	111°4				129	
		1045	0°287	135°0	10°2	+11°7	0	4					0°981	116°0				68	
		1042	0°468	106°4	355°3	—7°6	0	13		June 7							(136)	(1245)	(2317)
		1042	0°531	106°5	351°2	—8°6	0	5		158 ^d 082	M, F	1039	0°641	292°7	17°5	+14°6	22	36	
		1041	0°596	107°9	347°0	+10°5	47	202				1045	0°630	252°2	17°5	+10°8	12	83	
		1041	0°655	108°9	342°9	+12°2	0	106				1045	0°640	242°7	16°3	+16°8	0	8	
		1043	0°832	109°9	327°6	+16°5	11	42				1045	0°566	247°6	12°2	+12°1	10	64	
June 5			0°941	105°0			(231)	(1550)	(317)			1045	0°506	240°1	6°8	+14°2	0	10	
155 ^d 900	M, F	1040	0°931	261°7	76°9	—7°7	45	282				1048	0°298	295°6	355°7	+7°8	5	26	
		1040	0°905	262°8	73°2	—6°5	0	33				1048	0°213	299°9	350°7	+6°5	17	52	
		1040	0°853	258°9	66°6	—9°3	57	407	1010 c			1042	0°288	240°5	354°6	—7°7	4	14	
												1042	0°254	232°8	351°7	—8°4	0	13	
												1041	0°225	210°2	346°5	+10°8	6	21	

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column, it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculæ relative to the Spots with which they are associated are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculæ are expressed in millionths of the Sun's visible Hemisphere.

Group 1042, June 3–10. A small spot. A second is seen on June 5, and the following days. The group undergoes several slight changes, and the following spot disappears before June 9.

Group 1044, June 4–5. Three spots close together.

Group 1045, June 4–11. A small faint spot on June 4. Several other spots appear following it on June 5.

Group 1046, June 6–17. A large spot of irregular outline. It undergoes many changes both in shape and size during the period of its appearance.

Group 1047, June 7. A small spot.

Group 1048, June 7–10. Two small spots.

Measures of Positions and Areas of Spots and Faculae upon the Sun's Disk—continued.

Measures of Positions and Areas of Spots and Faculae upon the Sun's Disk—continued.																				
Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULAE.	Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULAE.	
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).		
1883. 158 ^h 08 ^m 2	M, F	1043	0°35'9	142°8	327°0	-16°2	14	32	} 320 c 240 (560)	1883. 160 ^h 64 ^m 4	H, JP	1049	0°9'38	116°2	238°9	-24°2	1	14	89 c	
		1046	0°7'57	120°6	295°4	-22°3	51	311					0°9'63	97°9					107	
		1046	0°7'78	122°5	294°1	-24°4	0	51					0°9'76	71°9					112	
June 8			0°9'54	112°1						June 11							(1)	(343)	(1248)	
158 ^h 92 ^m 6	M, F	1039	0°7'64	289°4	16°9	+15°0	20	58	} 225 c 155 69 (900)	162 ^h 03 ^m 7	M, F		0°9'07	278°7					126	
		1045	0°7'88	256°0	19°7	-10°7	0	26					0°8'72	257°4					325	
		1045	0°7'09	253°3	12°5	-11°4	0	11				1046	0°4'18	195°7	294°6	-22°8	20	281	} 225 c	
		1048	0°4'73	285°8	356°0	+7°8	0	11				1049	0°6'97	123°0	248°8	-21°5	0	3		
		1048	0°3'73	286°2	349°8	+6°5	0	21				1049	0°7'83	122°9	241°5	-24°5	31	133		
		1042	0°4'60	252°3	354°9	-7°5	0	10				1049	0°8'14	120°6	237°8	-23°8	9	33		
		1041	0°3'61	237°4	346°7	-10°7	0	9					0°7'98	121°6					155	
		1041	0°3'25	226°1	342°6	-12°5	0	5					0°8'53	100°3					69	
		1043	0°2'91	174°4	327°1	-16°3	0	8			June 12							(60)	(450)	(900)
		1046	0°6'50	127°5	294°9	-22°8	25	331			162 ^h 90 ^m 7	M, F		0°9'33	255°1					597
June 9							(45)	(490)		(0)			1046	0°5'09	214°6	294°3	-23°7	42	537	} 225 c 155 69 (900)
159 ^h 64 ^m 9	W, SP		0°9'74	237°3								1050	0°3'62	116°2	256°9	-8°2	0	11		
			0°9'63	255°1								1049	0°6'78	129°4	241°0	-24°6	19	107		
			0°8'71	251°5							1049	0°7'20	126°6	236°7	-24°5	0	6			
		1039	0°8'62	287°0	17°5	+14°9	14	41			1051	0°9'74	68°8	199°9	+20°9	20	111			
I.		1043	0°8'89	257°8	21°3	-11°1	7	21		June 13							(81)	(772)	87 c	
		1045	0°8'73	258°0	19°3	-10°7	0	7	114 c	163 ^h 98 ^m 2	M, F		0°9'59	256°0					84	
		1045	0°8'23	255°7	13°4	-11°4	0	10	136 c			0°8'84	250°2						218	
		1048	0°6'19	282°0	356°7	+7°8	0	7			1046	0°6'47	229°8	294°4	-23°7	81	713	266 c		
		1048	0°5'27	281°7	350°4	+6°6	1	9			1049	0°5'41	142°7	240°9	-24°4	16	61	} 796 c 148 172 (1668)		
		1042	0°5'63	253°5	352°1	-8°6	0	5			1049	0°5'83	138°1	236°7	-24°6	3	11			
		1041	0°5'40	246°9	349°5	-11°7	0	3		June 14		1051	0°8'87	67°2	201°2	+20°6	18	106		
		1041	0°5'23	249°4	348°9	-10°0	0	1									(118)	(891)	(970)	
		1041	0°5'00	246°8	347°0	-10°8	0	7											84	
		1041	0°5'04	243°5	346°6	-12°4	0	2		164 ^h 85 ^m 9	H, JP		0°9'96	257°4					265	
		1041	0°4'55	240°4	343°0	-12°4	0	3				0°9'66	251°5						109	
		1043	0°3'23	203°6	326°9	-16°6	1	9		I.		0°9'38	260°0						94 c	
		1046	0°5'56	136°5	294°7	-23°2	14	203			1046	0°7'57	236°9	293°8	-23°5	39	641	} 796 c 148 172 (1668)		
			0°8'84	130°5							1049	0°4'60	160°7	240°6	-24°4	8	30			
			0°8'88	97°5							1049	0°4'89	153°1	236°2	-24°6	0	2			
			0°9'65	99°3							1051	0°7'89	64°1	200°9	+20°9	7	59			
							(37)	(328)	(1184)			1051	0°8'13	64°2	198°6	+21°4	0		13	
June 10												1051	0°8'50	62°1	195°0	+24°1	0	10		
160 ^h 64 ^m 4	H, JP		0°8'81	289°4									0°9'17	85°5					148	
			0°8'71	276°1									0°9'46	73°6					172	
		1045	0°9'73	259°5	22°0	-10°0	0	31	385 sf	June 15									(54)	
		1045	0°8'86	254°1	7°1	-13°7	0	27	48 c										(755)	
		1039	0°9'51	285°4	17°3	+14°9	0	26	360 c	166 ^h 02 ^m 3	M, F	1046	0°8'89	242°0	293°7	-23°9	65	690	355 c	
		1043	0°4'53	228°7	326°7	-16°7	3	9			1049	0°4'48	191°7	240°6	-24°5	0	10	} 243 c 230 (828)		
		1046	0°4'17	163°5	298°7	-22°8	0	2			1051	0°6'27	57°4	200°5	+20°9	6	18			
		1046	0°4'38	155°4	294°6	-22°7	10	200		June 16			0°8'41	73°1						
		1049	0°9'22	116°7	241°7	-24°2	5	34										(71)	(718)	(828)

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column, it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculae relative to the Spots with which they are associated are indicated by the letters *n*, *s*, *p*, *f*, *e*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculae are expressed in millionths of the Sun's visible Hemisphere.

Group 1049, June 11-16. A small regular spot followed by some smaller spots.

Group 1051, June 13-18. A regular spot followed by several very small faint spots on June 15, which disappear before June 16.

Group 1050, June 13. A small faint spot.

Measures of Positions and Areas of Spots and Faculæ upon the Sun's Disk—continued.

Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.								
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).		Area for each Group (and for Day).							
1883. 166 ^d .913	M, F		0°9'14 0°8'45	283°8 227°5	°	°			126 281 363 c	1883. 170 ^d .093	M, F	1056 1056 1056 1054 1054 1054 1054	0°32'4 0°32'5 0°36'5 0°62'7 0°66'4 0°67'6 0°68'5	135°9 127°8 125°0 119°6 118°0 114°1 117°0	167°7 166°0 163°4 146°5 143°4 141°6 141°6	-11°6 -9°6 -10°2 -16°4 -16°6 -14°5 -16°6	11 0 0 37 0 16 8	55 5 9 164 24 133 40									
June 17 168°054	M, F		0°9'11 0°8'98	230°7 246°8			(132)	(1079)	146 (1324)	June 20			0°9'32 0°9'90	71°5 73°4			(225)	(1311)	585 71 503 (1768)								
		1052 1052 1051 1053 1053 1054 1054	0°9'11 0°4'74 0°4'24 0°3'64 0°6'24 0°6'52 0°8'86	230°7 189°0 186°9 21°8 84°2 84°1 108°9	212°6 -26°2 -23°2 +21°2 +4°9 +5°1 -15°1	51 39 3 0 0 18 21	219 268 14 6 8 118 139		156 102	170°935	M, F	1052 1052 1052 1052 1056 1056 1056 1056 1057 1054 1054 1054	0°9'31 0°88'2 0°8'19 0°7'61 0°7'59 0°7'05 0°56'210 0°23'4 0°19'6 0°23'7 0°36'9 0°49'2 0°54'3 0°58'1	241°3 289°2 237°3 234°0 239°0 233°2 189°0 177°2 171°6 162°7 171°0 131°9 124°1 116°8	219°0 212°3 213°9 207°5 171°6 169°0 168°0 165°6 166°2 147°2 141°9 137°6	-24°9 -25°0 -21°5 -23°3 -9°9 -11°5 -9°2 -11°0 -19°3 -17°3 -15°9 -13°5	30 63 21 49 48 21 2 20 5 35 23 0	209 211 145 175 253 84 10 102 25 241 161 7									
June 18 168°701	H, JP		0°9'57 0°9'36 0°8'76	250°7 236°4 264°3			(132)	(772)	54 925 99 102 sp			1055 1052 1052 1052 1052 1053 1053 1054 1054	0°9'57 0°5'16 0°5'10 0°4'56 0°4'64 0°4'85 0°5'33 0°8'21 0°8'69	250°7 206°3 210°4 211°7 209°1 169°8 82°3 110°9 107°5	-15°4 -25°9 -26°9 -22°5 -24°2 +5°0 +5°0 -16°0 -14°3	1 23 4 14 7 3 0 8 11	14 190 22 184 73 9 9 87 152										
I.			0°9'19 0°9'56 0°9'72	73°4 113°5 100°2					127 c 308 c 601 1070 71 (3357)	June 21 171°726	H, JP	1052 1052 1052 1052 1052 1056 1056 1056 1054 1054 1058	0°9'82 0°9'50 0°9'08 0°8'62 0°8'46 0°8'62 0°8'25 0°8'04 0°3'10 0°2'55 0°2'57 0°3'77 0°4'18 0°9'70	243°3 284°3 240°5 238°4 236°5 242°7 239°6 236°7 228°5 217°9 205°2 148°2 137°9 99°3	220°2 213°6 211°2 214°9 209°9 206°9 172°9 168°4 165°7 147°4 142°4 84°1	-25°5 -25°6 -26°5 -22°1 -23°3 -24°8 -9°9 -9°6 -11°4 -16°7 -16°1 -8°5	15 21 6 10 0 6 50 3 43 26 8 5	144 125 57 102 40 60 422 37 363 194 143 18									
June 19 170°093	M, F		0°9'87 0°9'07 0°8'79	253°2 272°8 237°9			(71)	(740)	412 71 126	June 22			0°8'66 0°9'06	70°1 114°9			(193)	(1705)	2530								
		1052 1052 1052 1052 1053 1053 1056	0°7'02 0°6'56 0°6'40 0°6'04 0°1'60 0°2'35 0°2'78	228°9 225°2 230°5 224°4 72°4 74°9 138°2	-25°9 -25°8 -22°3 -23°8 +4°7 +5°4 -10°0	27 23 27 45 2 0 29	286 172 155 168 6 8 86																				

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column, it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculæ relative to the Spots with which they are associated are indicated by the letters *n*, *s*, *p*, *f*, *c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculæ are expressed in millionths of the Sun's visible Hemisphere.

Group 1052, June 17-24. Two small spots on June 17. These have greatly increased in size by June 18. On June 19 they form two lines each composed of a great number of spots, the first spot in each line being the largest. The following spots in each line are measured as one cluster on June 19-21, but are divided into two clusters on June 22. The following portion of the more northerly line disappears before June 23. The individual spots of the whole group show large proper motion.

Group 1053, June 17-20. Two small spots.

Group 1054, June 17-28. A fine regular spot followed by a great number of small spots. The group undergoes many changes.

Group 1055, June 19. A small faint spot.

Group 1056, June 20-27. An irregular group, first seen on June 20 not far from the centre of the Sun. It rapidly increases in size on the following days, the smaller spots of the group disappearing or coalescing with the larger spots, so that on June 23 and the following days the group consists almost entirely of three large regular spots.

Group 1057, June 21. A small regular spot.

Group 1058, June 22-July 4. A very fine large spot with a great number of small spots preceding it. The large spot is very irregular in outline, is crossed by bridges in various directions, and has a large number of separate nuclei. It undergoes many changes, and breaks up into a number of small spots after passing the central meridian on June 28.

Measures of Positions and Areas of Spots and Faculae upon the Sun's Disk—continued.

Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC	SPOTS.		FACULÆ.	Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC	SPOTS.		FACULÆ.		
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).						Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	Area for each Group (and for Day).	
1883. 172 ^d 889	M, JH		0°002 0°846	231°4 295°8	°	°			60	1883. 175 ^d 054	M, F	1058 1058 1058 1061 1061 1062 1062	0°545 0°629 0°718 0°867 0°888 0°974 0°992	107°9 104°5 107°7 84°5 83°9 81°2 79°9	83°8 — 7°6 — 7°1 — 10°9 + 6°0 + 6°5 + 9°2 + 10°3	° ° 23 71 ° ° 137 °	6 211 565 21 11 477 274		
		1052 1052 1052 1056 1056 1056 1056 1054 1054 1058 1058 1058	0°973 0°938 0°960 0°535 0°457 0°427 0°398 0°318 0°314 0°876 0°928 0°962	243°4 240°9 246°2 248°6 240°7 232°6 235°9 189°0 172°5 101°1 98°7 102°1	217°7 209°7 215°1 — 9°3 — 10°9 — 12°9 — 10°8 — 16°1 — 15°9 83°7 76°5 70°8	— 25°2 — 26°2 — 22°1 — 9°3 — 10°9 — 12°9 — 10°8 — 16°1 — 15°9 8°6 — 7°3 — 11°0	27 ° 12 93 37 10 49 34 20 ° 31 31	198 43 78 474 291 69 270 141 170 18 186 312	411 856 c 1010 c	June 25 175°893	JH, F	1056 1056 1056 1054 1054 1058 1058 1058 1058 1058 1061 1061 1062 1062	0°952 0°906 0°860 0°715 0°675 0°387 0°380 0°457 0°482 0°569 0°745 0°789 0°911 0°952	259°4 257°7 257°1 244°8 243°4 123°5 116°2 109°4 112°6 112°9 84°5 83°8 81°2 81°5	175°3 — 9°3 — 10°0 162°2 146°2 142°7 85°1 84°1 78°5 77°5 72°0 56°1 52°2 38°6 32°0	— 9°3 — 10°0 — 9°8 — 15°8 — 15°6 — 9°9 — 7°3 — 6°5 — 8°4 — 10°6 + 5°8 + 6°5 + 9°1 + 8°9	49 15 28 17 15 ° ° 21 ° 79 1 ° 83 60 (368)	268 86 130 36 181 18 7 106 29 793 20 534 438 (2650)	649 c 576 c (1225)
June 23 173°679 I.	H, JP		0°967 0°912 0°790	254°8 293°9 331°8			(344)	(2250)	(2586)			178 471 42	1125 c	June 26 176°939	M, JH				
		1052 1052 1056 1056 1056 1056 1054 1054 1054 1059 1059 1059 1059 1058 1058 1058 1058 1058 0°941 0°984	0°979 0°993 0°683 0°600 0°573 0°536 0°386 0°322 0°341 0°235 0°277 0°322 0°774 0°840 0°891	243°2 246°9 253°6 248°8 240°9 245°3 214°8 210°1 204°4 50°8 60°6 67°0 101°8 99°9 103°3	209°1 214°8 174°8 167°9 164°4 163°0 146°6 142°9 141°8 122°8 119°3 116°0 83°7 77°1 71°7	— 25°7 — 22°6 — 9°4 — 10°6 — 14°1 — 10°9 — 16°2 — 13°8 — 15°7 + 10°8 + 10°0 + 9°4 — 7°6 — 7°0 — 10°7	° ° 54 17 ° 21 13 ° 7 ° ° ° 1 14 38	32 110 431 164 10 251 101 6 122 3 6 1 7 185 394	42 1125 c 94 s 779 c 211 105 (3005)	June 26 176°939	M, JH	1056 1056 1056 1063 1054 1054 1064 1064 1064 1058 1058 1058 1058 1058 1058 1061 1062 1062	0°879 0°996 0°980 0°953 0°944 0°852 0°826 0°654 0°593 0°593 0°213 0°192 0°226 0°250 0°283 0°343 0°378 0°422 0°563 0°611 0°784 0°853	287°7 259°9 258°8 259°3 253°7 249°3 248°9 247°4 248°4 248°2 158°6 149°1 138°4 128°3 129°1 119°7 126°2 118°1 83°1 85°6 79°8 80°3	174°5 — 9°9 — 10°4 — 9°4 — 16°2 — 16°0 — 15°7 — 12°5 — 10°4 — 10°5 — 8°8 — 6°9 — 7°1 — 6°3 — 7°7 — 7°3 — 10°4 — 9°1 + 6°0 + 4°8 + 9°6 + 9°6	° ° ° ° ° 9 ° ° ° ° 4 ° ° 21 8 10 121 5 4 ° 96 113	344 85 28 10 8 79 5 12 11 20 6 4 99 50 40 792 20 26 10 541 686	126 668 108 c 589 c	
June 24 175°054	M, F		0°877 0°827 0°813 0°752 0°590 0°544 0°216 0°242	257°2 257°2 255°2 253°7 237°7 233°9 25°4 31°6	175°2 169°8 — 9°2 — 10°5 — 10°5 — 16°3 — 16°5 + 13°6 + 14°3	129 ° 18 28 17 11 4 °	522 27 151 155 94 208 14 4	380 c											

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column, it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculae relative to the Spots with which they are associated are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculae are expressed in millionths of the Sun's visible Hemisphere.

The photograph of June 25 is badly defined, being taken through cloud.

Group 1059, June 24. Four small faint spots in a straight line.

Group 1061, June 25–28. Two small spots. The following spot disappears before June 27 and another small spot is seen on that day.

Group 1062, June 25–July 7. Two very fine spots when first seen on June 25. A third appears on June 27. The three spots tend to coalesce on the following days, and form one magnificent spot on June 29. By July 1 this has broken up to form two large spots and several smaller spots. The large spots break up further on the following days.

Group 1063, June 27. A small spot.

Group 1064, June 27–30. Three small spots on June 27. The group increases in size very rapidly on the following days and entirely changes in appearance. It consists of two spots with a few small spots near them on June 28 and 29. Only one large spot is seen on June 30.

Measures of Positions and Areas of Spots and Faculæ upon the Sun's Disk—*continued*.

Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1883. 176 ^d .937	M, JH	1062	0°866 0°927	80°0 103°5	30°5	+10°0	19	164	154 (1645)	1883. 180 ^d .931	M, JH	1058	0°918 0°691 0°692 0°635 0°607 0°594 0°669 0°598 0°137 0°184 0°161	285°6 258°4 253°2 256°0 250°0 246°0 273°6 276°5 352°9 21°0 34°0	0 80°2 79°5 75°7 72°7 71°0 79°4 74°1 38°5 33°6 32°3	0 — 5°7 — 9°2 — 6°4 — 9°5 — 11°3 + 4°7 + 6°3 + 10°9 + 13°0 + 10°7	11 27 7 3 28 189 13 15 187 0 122	33 164 46 28 189 84 96 894 42 653	119
June 27 177°872	H, JP		0°960 0°833 0°921 0°762 0°737 0°235 0°160 0°206 0°207 0°179 0°270 0°284 0°384 0°643 0°715 0°850 0°862	286°8 241°1 251°1 255°6 251°8 216°5 186°2 184°3 168°0 157°8 151°8 137°8 79°3 77°0 77°7 104°4 75°4	142°9 126°2 123°4 86°1 79°0 78°9 75°5 74°1 70°6 66°9 55°8 38°6 32°9	— 16°2 — 9°1 — 11°4 — 8°2 — 6°4 — 9°1 — 8°9 — 6°9 — 11°1 — 9°5 + 6°6 + 10°4 + 10°7	5 10 15 0 19 0 51 16 56 12 0 117 106	31 90 63 6 142 5 322 53 456 41 11 654 851	764 c	July 1 181°648	H, JP	1058 1058 1058 1058 1058 1065 1065 1062 1062 1062 1058 1058 1058 1065 1065 1062 1062 1062 1058 1058 1058 1065 1065 1062 1062 1062 1066	0°941 0°938 0°766 0°802 0°802 0°763 0°713 0°797 0°723 0°224 0°151 0°907 0°929 0°920 0°851 0°921 0°866 0°428 0°341 0°310 0°997 0°809	244°9 288°5 247°2 260°2 256°0 258°9 250°2 273°4 275°9 306°8 328°9 107°4 258°5 262°0 254°0 273°9 275°3 288°6 292°8 300°7 112°8 110°5	80°4 79°8 76°7 71°1 80°8 74°2 38°5 32°5 — 5°8 — 9°2 — 6°3 — 11°6 + 4°7 + 6°5 + 10°8 + 10°6	9 18 2 13 8 11 130 67	39 235 15 181 84 127 974 536	1004 c	
June 28 178°915	M, JH		0°980 0°867 0°930 0°900 0°875 0°869 0°341 0°303 0°301 0°248 0°250 0°265 0°232 0°214 0°232 0°180 0°489	254°1 289°2 242°1 259°2 258°1 255°9 233°4 237°0 226°3 228°3 214°4 202°0 191°0 190°8 277°0 287°3 73°8	127°3 124°1 123°0 80°2 79°0 76°9 74°9 72°4 70°0 67°0 66°5 77°5 74°1 35°8	— 8°4 — 8°9 — 10°7 — 8°9 — 6°7 — 9°2 — 6°6 — 9°0 — 11°3 — 11°4 — 9°2 + 4°4 + 5°9 + 10°4	64 0 13 0 24 54 12 10 49 10 0 8 16 334	293 4 100 5 118 262 44 134 237 18 2 44 30 1733	278 c	July 2 182°664	H, JP	1058 1058 1058 1065 1065 1062 1062 1062 1066	0°929 0°920 0°851 0°921 0°866 0°428 0°341 0°310 0°997 0°809	258°5 262°0 254°0 273°9 275°3 288°6 292°8 300°7 112°8 110°5	81°7 80°7 71°1 81°6 74°5 38°9 33°2 30°4 291°0	— 9°4 — 6°0 — 11°8 + 4°9 + 6°3 + 10°9 + 10°7 + 12°3 — 22°4	18 6 17 11 0 160 67 6 0	144 19 166 94 78 1025 408 99 445	845 n
June 29 179°896	M, JH	1064	0°979 0°497 0°491 0°434 0°410 0°459 0°388 0°302	260°4 252°0 245°4 248°7 233°8 274°6 278°9 62°5	128°5 79°4 77°9 75°0 70°7 78°3 73°7 35°3	— 8°8 — 6°2 — 9°1 — 6°3 — 11°1 + 4°8 + 6°2 + 10°9	48 17 39 8 33 18 30 339	331 103 248 46 276 106 110 1876	529 s f	July 3 184°006	M, F	1058 1062 1062 1062 1066	0°979 0°859 0°969 0°673 0°607 0°558 0°933 0°910	275°9 276°2 257°2 282°5 284°3 286°1 115°2 78°7	71°2 38°6 33°5 29°9 291°4	— 11°5 + 10°9 + 11°3 + 11°7 — 22°0	50 191 73 8 89	275 1045 412 46 608	114 142 842 c
June 30							(532)	(3096)	(529)	July 4							(411)	(2386)	(1698)

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column, it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculæ relative to the Spots with which they are associated are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculæ are expressed in millionths of the Sun's visible Hemisphere.

Group 1065, June 29–July 3. Several small spots arranged in two compact clusters.

Group 1066, July 3–13. Two spots which are measured together on July 3 and 4. A small spot is seen near them on July 5. The spots coalesce and form one long irregular spot on July 6 and 7, which, for the sake of convenience, is measured in two portions. This spot breaks up on the following days, and the group rapidly diminishes in size after July 11.

Measures of Positions and Areas of Spots and Faculae upon the Sun's Disk—continued.

Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULAE.	Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULAE.		
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).			
1883. 184 ^d 893	M, F	1062	0.828	281.9	40.8	+11.8	61	291	610 c	1883. 191 ^d 025	M, F	1069	0.959	276.8					53		
		1062	0.797	281.1	37.7	+11.0	109	656				1069	0.859	246.5					448		
		1062	0.755	282.5	33.7	+11.7	64	340				1069	0.721	247.0	306.7	-13.3	0	17			
		1062	0.718	281.8	30.6	+10.9	6	18				1069	0.668	243.0	301.7	-14.4	0	5			
		1062	0.710	284.7	29.7	+12.8	0	18				1066	0.666	226.5	295.6	-23.8	11	81			
		1066	0.807	120.1	296.7	-21.5	0	12				1066	0.590	219.7	288.0	-23.2	41	327			
		1066	0.836	120.5	293.8	-22.9	49	224		386 c		1068	0.722	107.4	219.8	-9.5	36	193	326 c		
		1066	0.863	118.7	290.3	-22.5	62	346			1068	0.781	106.5	214.6	-10.2	21	148				
July 5							(351)	(1905)	(996)		1067	0.847	124.0	212.9	-25.7	148	755	1176 n.f			
185.918	M, F		0.788	251.3					63		1070	0.913	79.1	197.9	+11.6	0	47	342 c			
		1062	0.937	280.8	41.0	+11.4	55	287	839 c	July 11		1070	0.941	78.1	193.5	+12.6	0	25	49		
		1062	0.916	279.9	37.8	+10.5	94	571				0.901	66.6				(257)	(1598)	(2394)		
		1062	0.890	280.2	34.2	+10.7	23	161			191.794	H, JP	1066	0.764	234.2	296.0	-23.4	3	52	279 c	
		1062	0.881	281.9	33.1	+12.2	31	110			I.	1066	0.694	230.3	289.0	-22.8	23	137			
		1066	0.718	126.8	293.0	-22.6	64	148				1066	0.713	225.4	288.1	-26.5	0	2			
		1066	0.752	124.3	289.4	-22.4	45	416			1066	0.681	226.9	286.6	-24.2	5	44				
July 6		0.932	114.7				(312)	(1693)	(1249)			1068	0.582	114.0	221.1	-10.1	26	199			
									295			1068	0.636	110.9	216.8	-9.7	8	47			
187.031	M, F		0.901	255.8					89			1068	0.669	111.4	214.5	-10.9	9	125			
		1062	0.994	281.2	41.0	+11.6	0	258	595 n.f			1067	0.729	133.1	217.4	-26.4	2	5			
		1062	0.981	279.2	35.8	+9.8	0	614				1067	0.769	129.5	212.5	-26.1	51	746	264 c		
		1062	0.969	281.2	32.7	+11.8	0	67				1070	0.812	80.2	199.5	+10.4	8	88	223 c		
		1066	0.557	142.7	295.3	-22.7	19	59				1070	0.873	78.6	192.9	+12.0	0	17	91 c		
		1066	0.601	135.2	289.7	-21.9	73	652				1071	0.983	102.1	175.6	-11.0	45	251	216 c		
		0.834	112.3						132			0.844	125.4					395			
July 7		0.902	124.6				(92)	(1650)	(930)	July 12		0.953	74.4					158			
189.081	M, F		0.933	255.1					177			192.900	M, F	1066	0.879	240.6	295.3	-23.2	4	18	543 c
		0.931	283.8						82				1066	0.824	238.4	288.5	-22.7	22	105		
		0.641	298.0						34				1066	0.813	236.0	286.5	-24.1	0	19		
		1066	0.466	192.4	295.9	-23.1	21	146	669 c			1072	0.299	26.7	230.9	+19.7	13	104			
		1066	0.441	178.5	289.0	-22.2	51	405				1068	0.369	131.1	222.8	-9.9	30	206			
		1067	0.982	117.7	214.2	-26.2	62	566				1068	0.468	121.3	215.2	-10.2	15	97			
July 9		0.986	109.1				(134)	(1117)	(1666)			1067	0.646	140.6	212.0	-26.1	79	792	582 f		
									704			1070	0.624	78.8	200.8	+10.3	33	128			
												1071	0.903	104.6	176.3	-11.3	66	382	452 f		
189.084	M, F		0.861	277.3					45	July 13		0.940	82.5					113			
		1066	0.532	210.6	295.9	-23.3	27	107	215 c			194.978	M, F	0.978	248.0				142		
		1066	0.471	208.5	292.6	-20.4	3	13					0.891	241.1					217		
		1066	0.474	199.6	288.7	-22.5	50	399					0.445	305.1	234.1	+18.9	13	27			
		1068	0.902	104.2	216.1	-11.0	6	107					0.400	310.2	230.4	+19.2	5	30			
		1067	0.942	119.8	213.3	-26.2	133	718					0.375	318.3	227.0	+20.6	6	39			
July 10		0.980	80.9				(219)	(1344)	(1114)			1068	0.345	224.4	225.7	-9.9	35	266			

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column, it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculae relative to the Spots with which they are associated, are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculae are expressed in millionths of the Sun's visible Hemisphere.

Group 1067, July 9-21. A very large spot. A number of small spots appear in its neighbourhood from time to time. The group diminishes rapidly after passing the central meridian on July 14, and breaks up into three portions before July 19.

Group 1068, July 10-20. Two spots on July 10. The group increases rapidly and forms a long line of spots on July 12, the first spot being the largest. The group diminishes rapidly after passing the central meridian, the following part of the group disappearing first. The preceding spot shows a rapid forward movement in longitude.

Group 1070, July 11-16. Three small spots. The first two spots are measured together on July 11, 12, and 13. On July 13 the following spot has disappeared, but three spots are again seen on July 14. The group shows considerable proper motion.

Group 1071, July 12-21. A regular spot. Some small spots appear in its immediate neighbourhood on July 16. These increase in size and number on the following days.

Group 1072, July 14-16. A great number of very small spots irregularly distributed over a somewhat wide area.

MEASURES OF POSITIONS AND AREAS OF SPOTS AND FACULÆ UPON THE SUN'S DISK

Measures of Positions and Areas of Spots and Faculæ upon the Sun's Disk—continued.

Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).		Area for each Group (and for Day).
1883. 194 ^d 978	M, F	1068	0°269	201°2	217°2	-10°0	0	30		1883. 199 ^d 086	M, F	1073	0°271	286°8	172°4	+9°2	9	63		
		1068	0°238	195°0	215°2	-8°8	2	6				1078	0°250	271°2	171°7	+5°1	0	8		
		1067	0°511	179°8	211°5	-26°1	98	534				1075	0°270	172°3	155°1	-10°6	28	167		
		1067	0°457	179°7	211°4	-22°6	7	32				1075	0°272	150°8	149°5	-8°9	0	4		
		1070	0°176	51°5	203°6	+10°7	16	50				1074	0°494	133°7	135°6	-15°4	109	636		
		1070	0°203	55°7	201°8	+11°0	6	14				1074	0°582	123°4	127°2	-14°4	52	319		
		1070	0°225	59°1	200°3	+11°0	0	7				1079	0°747	115°4	113°0	-15°1	36	157		
		1071	0°623	114°3	176°4	-11°1	84	347				1079	0°790	114°8	109°1	-16°0	14	163		
		1073	0°648	82°6	171°3	+8°2	0	17				1079	0°842	112°3	103°4	-15°8	17	86		
		1073	0°699	82°9	167°3	+8°2	0	19				1080	0°992	100°1	75°7	-9°3	0	589		
		1074	0°982	106°2	134°4	-15°0	0	219	614 p				0°811	72°4				946 p		
			0°757	110°3					306				0°871	121°9				145		
			0°833	72°6					260				0°884	86°3				82		
			0°964	115°3					225				0°940	66°5				263		
July 15							(272)	(1637)	(1764)	July 19							(387)	(2922)	(5473)	
195°653	H, JP	1072	0°584	295°2	236°3	+18°2	2	17		199°650	H, JP		0°982	291°3					268	
		1072	0°562	300°5	233°6	+20°4	5	10				1068	0°989	259°8	230°1	-9°3	5	31	538 s f	
I.		1072	0°522	299°3	231°2	+18°9	3	26				1081	0°937	265°2	218°7	-2°8	3	14		
		1072	0°484	306°1	227°2	+20°7	0	26				1067	0°920	239°6	211°1	-25°4	13	131		
		1068	0°467	238°2	226°3	-10°0	20	192				1067	0°917	235°7	209°3	-28°7	17	72		
		1068	0°354	225°5	217°4	-9°9	0	9				1076	0°779	250°0	198°1	-12°2	1	5		
		1068	0°312	223°7	215°1	-8°5	0	3				1077	0°744	244°6	193°7	-15°1	0	4	102 c	
		1067	0°483	197°9	211°8	-22°7	0	7				1082	0°595	272°1	186°3	+5°2	0	1		
		1067	0°528	194°0	210°8	-26°2	30	382				1071	0°559	240°9	179°6	-11°5	12	170		
		1070	0°112	347°8	204°0	+10°9	8	23				1071	0°508	239°7	176°2	-10°4	43	270		
		1070	0°116	0°3	202°6	+11°3	0	7				1071	0°527	234°3	175°8	-13°4	0	6		
		1070	0°118	14°1	200°9	+11°2	0	1				1073	0°440	279°1	175°7	+8°4	6	43		
		1071	0°481	124°1	178°7	-11°4	0	4				1073	0°373	283°2	171°3	+9°4	3	12		
		1071	0°524	125°5	176°7	-13°6	1	17				1075	0°290	207°7	157°6	-10°0	1	4		
		1071	0°514	120°7	176°0	-11°0	56	296				1075	0°287	199°5	155°4	-10°7	15	146		
		1073	0°511	81°0	172°1	+8°5	0	11				1074	0°411	147°1	136°5	-15°3	57	446		
		1073	0°553	80°8	169°2	+8°9	0	5				1074	0°459	144°0	133°5	-17°0	11	93		
		1075	0°780	107°9	153°7	-10°9	7	16				1074	0°474	136°9	130°2	-15°6	6	32		
		1075	0°805	105°5	150°9	-9°6	0	14	75 c			1074	0°503	131°5	126°9	-14°9	23	252		
		1074	0°948	107°5	133°4	-15°0	32	277				1079	0°667	119°5	113°0	-15°2	20	120	106 c	
		1074	0°978	105°7	126°5	-14°3	21	270	1032 c			1079	0°715	118°7	109°2	-16°3	10	54	48 c	
			0°941	117°8					368			1079	0°751	116°4	105°3	-16°0	2	4		
July 16							(185)	(1613)	(1475)	July 20										
199°086	M, F		0°958	290°9					345				0°917	281°2						
		1068	0°959	259°4	229°4	-8°7	0	56	291 s f				0°910	254°1						
		1067	0°876	237°9	211°9	-24°9	25	102					0°990	243°8	210°2	-25°0	0	112		
		1067	0°870	233°8	209°7	-28°0	5	65												
		1067	0°858	237°4	209°6	-24°5	9	44												
		1076	0°686	247°2	197°3	-11°7	3	17												
		1077	0°657	241°2	193°5	-14°4	0	17												
		1071	0°468	236°0	180°4	-10°6	10	70												
		1071	0°463	229°7	178°3	-12°8	2	71												
		1071	0°408	231°1	175°9	-10°2	68	288												

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column, it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculæ relative to the Spots with which they are associated are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculæ are expressed in millionths of the Sun's visible Hemisphere.

Group 1073, July 15-21. Several very small spots in a straight line. On July 19 the following spots have disappeared and the preceding spots have increased in size. These coalesce on the following days forming a nearly circular spot on July 21.
 Group 1074, July 15-27. A very fine group of spots, consisting chiefly of a large and nearly circular spot followed at a little interval by a large cluster of spots arranged in a roughly circular manner. These latter spots have greatly decreased in size by July 25, but by July 26 a number of other small spots have formed in their neighbourhood.
 Group 1075, July 16-24. Several small spots. The preceding spot increases in size on the following days, and becomes circular in shape; the other spots diminish and gradually disappear.
 Group 1076, July 19-20. A small faint spot.
 Group 1077, July 19-20. A small faint spot.
 Group 1079, July 19-28. A number of spots arranged in a straight line. The following spots diminish in size and gradually disappear before July 25.
 Group 1080, July 19-31. A very fine group consisting of a very large spot showing much intricate detail with a great number of small spots preceding it. These small spots, which are irregularly distributed over an extensive area, diminish greatly between July 28 and 29. The large spot is somewhat indistinctly seen on July 31, as it is then close to the limb.
 Group 1081, July 20. A small faint spot.
 Group 1082, July 20. A very small faint spot.
 Group 1083, July 20-24. Several very small faint spots close together.
 Group 1084, July 20-26. An irregular group composed of three or four spots. The group diminishes in size on July 24 and the following days.

Measures of Positions and Areas of Spots and Faculae upon the Sun's Disk—continued.

Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.		
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).			
1883. 200 ^d 997	JH, F	1067	0°984	240°3	207°2	-28°0	0	71	114 c 627 c 235 c	1883. 205 ^d 061	M, F	1080	0°274	156°0	71°7	-9°1	218	1239	361 f 135 f 1699		
		1071	0°772	250°2	179°6	-11°7	0	78				1084	0°176	63°9	69°0	+9°8	6	39			
		1071	0°725	251°3	175°9	-9°8	42	275				1085	0°305	43°0	65°6	+18°1	4	31			
		1071	0°727	247°6	175°2	-12°4	0	30				1086	0°595	82°0	41°7	+9°1	21	141			
		1073	0°700	276°7	176°4	+8°4	17	95				1087	0°807	107°4	26°8	-10°6	8	24			
		1075	0°471	237°2	155°5	-10°0	34	114		July 25							(457)	(2843)			
		1074	0°348	192°6	136°4	-14°7	82	507													
		1074	0°351	174°7	130°0	-15°3	10	35				205°905	JH, F	1074	0°953	251°4	136°6	-15°9		60	463
		1074	0°351	164°8	126°5	-14°7	18	182						1074	0°904	251°1	128°9	-14°5		0	45
		1079	0°464	136°8	112°8	-14°9	23	121						1074	0°889	249°0	126°4	-15°8		0	69
		1079	0°515	133°9	109°3	-16°2	0	23					1074	0°850	250°8	122°3	-13°1	0	4		
		1079	0°560	127°8	104°7	-15°5	0	61					1079	0°759	243°5	111°7	-15°9	16	61		
		1083	0°579	87°5	96°5	+5°6	0	11					1080	0°383	234°2	85°2	-7°7	9	32		
		1080	0°820	105°0	78°7	-9°2	46	480	470 c			1080	0°347	223°5	80°9	-9°2	7	24			
		1080	0°872	103°2	72°9	-8°9	184	1028				1080	0°304	219°7	78°3	-8°1	10	108			
		1084	0°893	83°3	68°5	+8°3	20	181				1080	0°275	198°0	71°9	-9°6	186	857			
			0°886	113°8								1084	0°075	337°0	68°7	+9°5	0	16			
July 21							(476)	(3404)	(3896)				1086	0°429	80°9	41°7	+8°9	23	120		
203°894	M, JH		0°953	278°6					375	July 26			1087	0°651	108°2	28°6	-7°4	0	3		
			0°855	287°7					90			1087	0°677	112°5	27°6	-10°7	0	10			
		1075	0°904	255°0	156°2	-11°1	16	60	1237 c								(314)	(1812)	(1261)		
		1074	0°737	243°0	136°4	-15°6	125	734	1277 p	206°944	M, JH		0°856	286°2							
		1074	0°650	238°9	128°7	-15°3	12	187				1074	0°995	253°2	135°4	-16°0	0	299			
		1079	0°461	220°5	111°6	-15°4	32	137				1074	0°969	251°5	126°4	-16°4	0	34			
		1079	0°439	214°7	108°6	-16°0	5	10				1079	0°883	248°4	111°8	-16°2	9	34			
		1083	0°117	258°2	100°2	+3°9	0	4				1080	0°572	247°7	85°4	-7°8	0	41			
		1083	0°045	251°4	96°0	+4°5	0	1				1080	0°529	249°5	83°0	-5°9	0	10			
		1083	0°017	306°6	94°4	+5°9	1	4				1080	0°483	241°5	78°6	-8°4	4	127			
		1083	0°011	137°5	93°2	+4°8	0	4				1080	0°413	230°1	72°0	-10°2	253	1196			
		1080	0°279	143°6	84°0	-7°7	13	107				1086	0°213	55°8	43°0	+12°3	0	3			
		1080	0°347	135°3	79°4	-9°1	26	249				1086	0°206	72°3	41°9	+9°0	27	130			
		1080	0°383	119°6	74°1	-5°9	11	170			1086	0°251	69°3	39°6	+10°4	0	4				
		1080	0°438	123°7	72°0	-9°1	195	1116			1087	0°492	122°8	28°5	-10°4	7	17				
		1084	0°422	78°6	68°9	+9°6	18	58			1087	0°560	120°3	23°9	-11°6	0	7				
		1084	0°465	81°4	66°0	+8°7	0	35					0°968	110°2							
		1085	0°517	61°8	65°0	+18°7	1	11		July 27							(300)	(1902)	217		
		1086	0°784	82°3	41°9	+9°3	32	168	790 n f			1079	0°960	251°2	111°5	-16°2	0	42			
		1087	0°936	102°8	25°9	-10°0	0	23	169 f	207°900	M, JH	1080	0°734	253°2	85°7	-8°3	7	28			
			0°788	116°6					221			1080	0°711	256°1	84°3	-5°8	0	6			
July 24							(487)	(3078)	(4159)			1080	0°654	249°7	78°8	-8°7	0	99			
205°061	M, F	1074	0°883	249°0	136°9	-15°6	117	832	1102 c			1080	0°587	251°2	74°4	-6°3	0	34			
		1074	0°797	244°2	126°5	-16°7	0	44			1080	0°580	243°8	72°4	-10°0	236	1221				
		1079	0°635	236°7	111°5	-15°9	15	126	101 c			1086	0°062	338°2	41°9	+8°9	26	133			
		1080	0°256	196°7	82°5	-8°8	34	126			1087	0°333	143°7	29°1	-10°0	5	9				
		1080	0°278	182°5	78°9	-10°7	13	92					0°831	111°0							
		1080	0°236	180°1	78°3	-8°2	6	25					0°916	114°2							
		1080	0°206	168°6	75°9	-6°2	15	124		July 28							(274)	(1572)	(1645)		

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column, it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculae relative to the Spots with which they are associated, are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculae are expressed in millionths of the Sun's visible Hemisphere.

Group 1085, July 24-25. Several very small spots, somewhat scattered.

Group 1086, July 24-Aug. 2. A regular spot. Two very small faint spots are seen near it on July 27.

Group 1087, July 24-29. A small spot. A very small spot precedes it on July 26. Another small spot follows it on July 27.

Measures of Positions and Areas of Spots and Faculæ upon the Sun's Disk—continued.

Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1883. 208 ^d 949	M, F	1080	0° 883	257° 3	87° 1	- 8° 4	0	12		1885. 217 ^d 924	M, F	1093	0° 982	80° 6	188° 2	+ 10° 4	0	53	868 c
		1080	0° 825	248° 8	79° 0	- 13° 9	0	8					0° 848	75° 7				152	
		1080	0° 746	251° 4	72° 5	- 9° 8	198	1072	1591 p				0° 941	102° 1				169	
		1086	0° 272	283° 1	42° 3	+ 9° 1	21	112					0° 944	119° 7			(25)	557	
		1087	0° 278	192° 1	30° 2	- 10° 0	0	9		Aug. 7							(164)	2544	
			0° 803	119° 9															
July 29							(219)	(1213)	(1755)	218° 798	H, JP		0° 946	248° 0				71	
													1091	0° 426	66° 5	+ 15° 6	0	2	
210° 975	M, F		0° 961	244° 8					190	I.		1091	0° 458	68° 1	+ 15° 6	4	38		
			0° 937	277° 8					236			1091	0° 529	73° 9	+ 13° 9	1	2		
		1080	0° 983	254° 7	77° 2	- 13° 8	0	590				1092	0° 864	112° 8	- 16° 0	0	45	179 c	
		1080	0° 969	261° 0	74° 4	- 7° 3	0	177	1229 c			1092	0° 937	111° 2	- 17° 3	0	30	228 c	
		1080	0° 958	257° 3	71° 5	- 10° 4	154	860				1093	0° 925	81° 7	+ 10° 1	0	29	686 n	
		1086	0° 674	277° 4	42° 2	+ 9° 3	18	84	173 c			1093	0° 965	84° 1	+ 7° 4	0	23		
		1088	0° 144	271° 6	8° 2	+ 6° 0	0	9				1094	0° 986	102° 8	- 11° 4	46	345	561 p	
		1088	0° 092	262° 0	5° 1	+ 5° 1	0	8		Aug. 8			0° 887	125° 3			(51)	368	
		1089	0° 405	143° 7	345° 7	- 13° 4	28	100									(514)	2093	
		1089	0° 449	136° 9	341° 6	- 13° 6	21	131											
			0° 965	115° 2					328	219° 921	M, F		0° 932	282° 2				198	
July 31							(221)	(1959)	(2156)				0° 897	242° 1				700	
												1091	0° 244	50° 9	+ 15° 1	0	15		
211° 907	M, F	1086	0° 816	277° 2	42° 5	+ 9° 3	13	90	581 c			1092	0° 746	120° 1	- 17° 2	0	13		
		1089	0° 334	172° 0	344° 9	- 13° 4	16	107				1092	0° 829	116° 4	- 17° 6	0	8		
		1089	0° 349	163° 0	341° 6	- 13° 6	21	136				1094	0° 886	106° 4	- 11° 3	0	14		
			0° 898	118° 4					303			1094	0° 909	104° 6	- 10° 4	37	214	340 c	
			0° 970	86° 1					77			1094	0° 921	107° 8	- 13° 6	0	85		
Aug. 1							(50)	(333)	(961)	Aug. 9			0° 954	79° 1			(37)	120	
212° 711	H, JP		0° 891	292° 8					145				0° 914	239° 4			(349)	1358	
			0° 807	250° 4					257	220° 891	JH, F		0° 869	278° 6				198	
I.		1086	0° 913	277° 8	43° 3	+ 9° 6	9	60	753 c				0° 739	141° 3				33	
		1089	0° 362	203° 7	345° 6	- 13° 3	9	83				1092	0° 668	126° 2	- 17° 9	0	5	552	
		1089	0° 343	193° 0	341° 5	- 13° 5	8	40				1092	0° 703	123° 4	- 17° 6	0	3		
			0° 833	120° 7					426			1094	0° 774	111° 6	- 12° 1	0	11		
Aug. 2			0° 951	58° 4			(26)	(183)	(1653)			1094	0° 801	108° 3	- 10° 4	20	295	527 c	
									72			1094	0° 823	112° 2	- 14° 1	5	85		
214° 064	M, F		0° 962	283° 2					254			1095	0° 834	80° 8	+ 11° 3	4	30	446 p	
			0° 908	251° 9					111	Aug. 10			1095	0° 865	81° 2	+ 10° 9	5	49	154
		1089	0° 543	233° 2	345° 6	- 13° 5	12	41					0° 962	106° 5			(34)	(478)	
		1089	0° 499	228° 7	341° 7	- 13° 6	0	13										(1910)	
			0° 981	71° 1					97	221° 931	M, JH		0° 966	240° 8				340	
Aug. 3							(12)	(54)	(462)				1092	0° 486	136° 1	- 14° 4	0	8	
217° 924	M, F		0° 980	254° 0					294			1094	0° 624	117° 3	- 11° 2	0	8		
		1090	0° 596	234° 7	298° 1	- 14° 7	7	33				1094	0° 649	114° 3	- 10° 3	36	202		
		1091	0° 618	72° 6	230° 4	+ 15° 6	18	71				1094	0° 680	119° 2	- 14° 2	0	22		
		1092	0° 955	109° 5	198° 4	- 16° 5	0	7	504 c			1095	0° 583	76° 4	+ 13° 2	0	9		
												1095	0° 659	80° 5	+ 11° 1	15	47		

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column, it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculæ relative to the Spots with which they are associated, are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculæ are expressed in millionths of the Sun's visible Hemisphere.

Group 1088, July 31. Two very small faint spots.

Group 1089, July 31-Aug. 3. Two spots of nearly equal size. The preceding spot breaks up into several portions on August 1, and both spots diminish in size on August 2 and 3, the following spot more rapidly than the preceding.

Group 1091, Aug. 7-9. A small regular spot. Two small faint spots are seen near it on August 8.

Group 1092, Aug. 7-15. Several small faint spots. The components of this group are very unstable.

Group 1093, Aug. 7-8. A small faint spot. A second is seen at a little distance from it on August 8.

Group 1094, Aug. 8-20. A regular spot with two smaller spots to the south of it. The latter disappear before August 12. The three spots are measured as one on August 8. Some very small spots are occasionally seen in the neighbourhood of the principal spot.

Group 1095, Aug. 10-18. Two small regular spots. The two spots tend to separate on August 10, 11, and 12, and the following spot disappears before August 16. A number of very small faint spots are seen near them on August 11 and 12.

Measures of Positions and Areas of Spots and Faculae upon the Sun's Disk—continued.

Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULAE.	Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULAE.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1883. 221 ^d 931	M, JH	1095	0.686	81.1	171.6	+10.9	0	13		1883. 226 ^d 989	M, F		0.966	283.1					
		1095	0.726	81.0	168.4	+11.0	25	122					0.853	237.4					486
		1096	0.938	106.5	148.0	-13.0	0	21	592 c			1094	0.589	236.4	177.7	-13.1	0	2	663
Aug. 11			0.954	114.4					219			1094	0.558	241.0	177.9	-9.8	46	193	
							(76)	(452)	(1151)			1095	0.473	281.8	176.4	+11.6	5	20	
222 ^d 961	M, JH	1092	0.434	159.3	192.3	-17.4	19	72				1098	0.892	112.3	89.2	-16.3	22	117	
		1094	0.482	125.5	178.1	-10.2	40	229		Aug. 16		1098	0.905	114.0	88.0	-18.3	0	10	
		1095	0.266	79.3	186.2	+9.2	0	15				1099	0.950	109.0	79.6	-15.7	20	61	3681 n
		1095	0.442	78.4	175.4	+11.0	10	30		227 ^d 633	H, JP		0.932	282.2			(93)	(403)	(4830)
		1095	0.498	82.2	171.6	+9.6	0	2					0.897	242.1					198
		1095	0.549	79.6	168.2	+11.2	20	124					0.737	276.9					700
			0.906	353.6					250			1094	0.668	247.9	178.4	-9.3	25	199	134 c
			0.909	109.2					398			1095	0.600	280.1	176.6	+11.5	5	19	
Aug. 12							(89)	(472)	(648)			1098	0.822	115.3	89.2	-16.3	11	112	180 c
223 ^d 889	M, JH		0.912	247.4					155			1099	0.899	111.2	79.4	-15.7	5	82	1132 c
		1092	0.408	193.8	195.0	-16.7	8	39				1100	0.927	104.6	74.0	-10.8	7	34	979 c
		1092	0.416	188.8	193.0	-17.6	0	30				1101	0.947	92.5	68.8	-0.1	2	47	232 c
		1092	0.423	184.0	191.0	-18.3	2	11				1102	0.993	80.2	55.6	+10.6	5	58	833 p
		1094	0.346	146.1	177.9	-10.2	37	207					0.909	80.9					77
		1095	0.246	70.0	175.6	+11.2	7	41		Aug. 17			0.948	66.0					48
		1095	0.362	74.9	168.4	+11.6	20	110									(60)	(551)	(4773)
			0.876	114.6					888			1094	0.844	253.9	177.6	-9.6	44	208	463 p
			0.835	77.3					93			1095	0.807	279.0	176.7	+11.3	0	19	830 n p
Aug. 13							(74)	(438)	(1136)			1098	0.649	125.5	89.2	-16.3	36	179	
224 ^d 891	M, JH		0.938	230.8					55			1099	0.771	122.1	78.9	-19.2	0	11	
			0.908	221.8					56			1099	0.756	118.2	78.8	-16.0	15	65	
			0.846	292.6					279			1100	0.784	109.6	73.9	-10.7	0	29	1309 f
		1097	0.992	251.5	255.0	-16.8	0	239				1101	0.819	95.2	68.1	-0.3	0	18	96 c
		1097	0.975	252.0	250.2	-15.9	0	123	318 c	Aug. 18		1102	0.932	79.6	53.1	+12.2	5	29	1101 p
		1092	0.494	214.2	192.8	-17.6	0	48									(100)	(548)	(3799)
		1094	0.292	185.8	177.6	-10.1	46	227		229 ^d 879	H, JP		0.947	280.5					496
		1095	0.080	2.6	175.7	+11.3	5	25					0.880	246.1					58
		1095	0.165	57.1	167.8	+11.8	22	56					0.874	250.6					100
			0.835	116.6					483			1094	0.938	257.1	177.9	-9.6	6	125	400 c
Aug. 14							(73)	(718)	(1191)			1094	0.910	251.3	172.5	-13.8	0	2	
225 ^d 942	M, JH		0.893	292.6					75			1098	0.520	138.8	89.3	-16.5	25	142	
			0.892	272.0					94			1099	0.631	126.5	78.3	-16.2	4	19	
			0.873	283.2					252			1099	0.678	123.6	74.2	-16.4	0	2	
		1092	0.622	230.4	192.1	-17.5	0	4				1100	0.646	115.9	74.0	-10.8	5	10	
		1094	0.388	223.3	177.7	-9.9	34	185				1101	0.667	97.8	68.9	0.0	0	8	
		1094	0.425	217.3	177.4	-13.2	0	18				1102	0.733	81.8	62.7	+10.7	5	25	93 c
		1095	0.248	289.2	175.9	+11.2	0	13				1102	0.791	80.1	57.5	+12.1	0	7	
		1095	0.139	311.3	168.2	+12.0	2	16				1102	0.816	81.4	55.0	+11.0	3	21	428 c
		1098	0.970	109.0	89.2	-16.5	36	95	2156 n			1102	0.842	80.1	52.3	+12.0	4	22	
Aug. 15							(72)	(331)	(2577)	Aug. 19			0.953	61.7					40
													0.961	74.4					214
																	(52)	(383)	(1829)

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column, it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculae relative to the Spots with which they are associated are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculae are expressed in millionths of the Sun's visible Hemisphere.

Group 1096, Aug. 11. A small faint spot.

Group 1098, Aug. 15-26. A regular spot. A very small spot is seen near it on Aug. 16 and another on Aug. 22.

Group 1099, Aug. 16-20. A single spot. A small spot is seen near it on Aug. 18 and another on Aug. 19.

Group 1100, Aug. 17-19. Two small spots which are measured together.

Group 1101, Aug. 17-19. A compact cluster of very small faint spots. Part of it has disappeared before Aug. 18.

Group 1102, Aug. 17-20. A small faint spot. On Aug. 19 five spots are seen scattered over a wide area. Two of these (long. 55° 0') are measured together. On Aug. 20 only two spots remain.

Group 1097, Aug. 14. Two spots.

Measures of Positions and Areas of Spots and Faculæ upon the Sun's Disk—continued.

Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1883. 230 ^d 910	M, F		0°9'48 0°8'45	281°7 238°1	°	°			126 52 185 s	1883. 235 ^d 930	JH, F	1105 1105 1103 1103 1103 1103 1103 1103	0°3'46 0°3'95 0°4'27 0°4'62 0°5'18 0°5'46 0°5'58 0°5'71	45°9 49°0 149°3 143°9 142°6 139°6 133°4 136°2	14°7 11°4 17°1 13°7 10°8 8°3 5°1 5°6	+20°8 +21°7 -14°6 -15°0 -17°5 -17°9 -16°0 -17°8	6 1 55 0 0 2 0 31	14 12 313 16 11 23 5 131	
Aug. 20			0°8'69 0°8'69	73°6					69 (64)	Aug. 25									(2854)
231°909	M, F		0°9'14 0°4'10 0°9'29 0°9'64 0°9'80	252°4 194°3 109°1 109°4 109°3	89°3 18°3 12°0 8°0	-16°4 -14°8 -16°6 -17°2	19 55 0 32	138 350 100 158	510 734 c (1244)	236°965	JH, F	1098 1104 1105 1105 1103 1103 1103 1103	0°9'63 0°5'98 0°2'30 0°2'61 0°3'72 0°4'37 0°4'49	251°2 277°5 356°0 14°3 181°9 163°4 156°3	87°7 53°4 17°5 12°5 17°2 9°0 5°7	-15°9 +10°2 +20°3 +21°7 -14°7 -17°7 -17°2	6 3 39 6 66 0 14	70 19 148 33 296 52 72	575 n (134) (690) (575)
232°911	H, JP		0°9'22 0°5'51 0°5'08 0°8'36 0°8'97 0°9'24 0°9'43	245°5 223°9 218°7 112°5 112°9 111°9 69°5	93°4 89°3 17°3 10°4 6°4	-16°9 -16°7 -14°5 -17°0 -17°2	0 16 44 0 13	3 135 383 91 167	596 210 c 471 c 12 (1289)	Aug. 26									306 195 283
I.										I.									
Aug. 22																			
233°918	M, F		0°9'42 0°6'41 0°7'04 0°7'91 0°8'27 0°8'59 0°8'62 0°8'69	248°1 233°5 119°0 118°3 116°9 283°0 141°7 74°6	89°1 17°4 10°1 6°2	-16°5 -14°6 -17°2 -17°6	25 75 0 26	132 378 72 187	304 722 c 82 62 297 (1467)	Aug. 27									90 c (874)
Aug. 23										238°900	JH, F	0°9'15 0°8'95 1105 1105 1105 1105 1103 1103 1107 1107 1106 1106	280°5 281°8 0°5'79 0°5'15 0°4'28 0°3'89 0°5'70 0°4'80 0°2'87 0°3'25 0°6'56 0°7'19	280°5 281°8 301°9 299°4 303°5 310°5 230°4 211°6 142°6 132°1 113°3 110°5	23°2 19°4 13°1 9°2 17°7 6°0 34°7 -5°5 -8°7 -9°3	+23°8 +21°0 +20°3 +21°5 -14°9 -17°1 -6°0 -5°5 -8°7 -9°3	0 64 2 14 56 12 63 29 32 18	11 266 26 25 308 45 90 45 119 120	(88) (697) (290) (1055) (366)
234°923	JH, F		0°7'78 0°5'60 0°6'70 0°7'04	242°0 130°0 126°6 124°4	89°0 17°2 9°2 6°0	-16°5 -14°7 -17°7 -17°8	16 64 1 30	106 391 43 187	212 s 174 c (386)	Aug. 28									
235°930	JH, F		0°9'03 0°7'69 0°8'89 0°4'46 0°4'05	278°5 229°4 247°5 278°9 279°6	88°6 56°5 53°8	-16°3 +10°3 +10°4	16 0 0	67 5 5	151 316 2387 n										

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column, it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculæ relative to the Spots with which they are associated are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculæ are expressed in millionths of the Sun's visible Hemisphere.

Group 1103, Aug. 20–Sept. 1. A fine regular spot followed on Aug. 21 and succeeding days by a smaller regular spot. A number of small spots are seen at times between the two. Two small spots are seen following the group on Aug. 27. The smaller regular spot disappears before Aug. 30, leaving the principal spot alone.

Group 1104, Aug. 25–27. Two small spots on Aug. 25. The preceding spot disappears before Aug. 26.

Group 1105, Aug. 25–Sept. 1. Two small spots on Aug. 25. Both increase in size on the following days, the preceding spot becoming a large regular spot, the following a stream of small spots. The following part of the group disappears before Aug. 30. A small spot is seen in advance of the group on Aug. 28.

Group 1106, Aug. 27–Sept. 5. Three small spots on Aug. 27. The group increases in size on the following days, a fresh spot of regular outline appearing on the preceding side. The following portion of the group consists of an irregular scattered stream of many small spots. The group diminishes rapidly after passing the central meridian on Aug. 31, and only two small spots are left on Sept. 3. The group is measured as a whole on Sept. 1.

Group 1107, Aug. 28–Sept. 3. A fine group appearing suddenly near the centre of the sun and consisting at first of several small spots in two clusters. On Aug. 30 it becomes two large spots both closely accompanied by several very small spots.

Measures of Positions and Areas of Spots and Faculae upon the Sun's Disk—continued.

Greenwich Mean Solar Time.	Measurers.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Mean Solar Time.	Measurers.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1883. 240 ^d 969	J H, F	1105	0'837	289'6	20'5	+20'3	19	206		1883. 242 ^d 896	J H, F	1109	0'762	121'9	255'2	-18'4	73	491	
		1103	0'857	247'9	18'5	-14'7	15	243		Sept. 1		1110	0'980	80'5	218'7	+10'7	19	146	247 ^f
		1107	0'594	237'9	34'3	0 - 5'3	77	322									(387)	(2464)	(968)
		1107	0'314	226'6	336'7	- 5'4	59	307		244 ^d 917	M, F	1107	0'956	263'1	343'3	- 4'4	30	203	} 452 c
		1106	0'302	158'3	317'0	- 9'1	30	137				1107	0'938	262'6	340'1	- 4'4	0	36	
		1106	0'504	151'4	315'1	- 8'3	0	20				1107	0'917	261'3	336'7	- 5'0	11	47	
		1106	0'332	143'6	312'1	- 8'4	0	22				1106	0'782	253'0	320'3	- 8'5	7	55	
		1106	0'363	135'7	308'7	- 8'1	0	18				1106	0'712	249'9	313'8	- 8'9	7	24	
		1106	0'399	139'8	308'4	-10'7	0	30				1108	0'399	193'7	277'0	-15'6	118	549	
		1108	0'786	116'6	276'8	-15'7	14	136				1108	0'387	172'5	268'4	-15'3	69	357	
		1108	0'800	114'4	274'8	-14'6	0	14				1109	0'517	147'5	254'4	-18'9	94	493	
		1108	0'816	116'3	273'9	-16'6	0	22				1110	0'786	82'1	219'2	+10'7	50	292	
		1108	0'831	111'7	271'1	-13'6	34	138				1110	0'862	81'1	211'4	+11'3	17	174	} 244 c
		1109	0'950	112'2	255'7	-18'4	67	426				1111	0'818	101'2	217'9	- 4'9	4	28	
Aug. 30							(315)	(2041)	558 c			1112	0'959	109'3	201'2	-16'2	0	16	226 ^f
																		126 ^f	
241 ^d 782	H, F		0'980	288'9				122		Sept. 3							(407)	(2274)	(1231)
			0'859	291'4				96											
I.			0'882	244'8				166		245 ^d 895	M, F								337
		1105	0'922	288'6	20'7	+19'9	16	221	154 c			1106	0'991	264'1					441 c
		1103	0'929	250'9	17'7	-14'7	49	261	350 c			1106	0'899	256'5	320'5	- 8'8	11	77	
		1107	0'539	248'7	342'8	- 5'1	48	252				1106	0'844	254'0	313'6	- 9'3	0	20	
		1107	0'455	243'0	336'7	- 5'3	31	249				1108	0'487	218'3	276'7	-15'6	71	528	
		1106	0'294	195'6	317'3	- 9'2	26	155				1108	0'431	206'4	269'9	-15'6	27	151	
		1106	0'274	178'8	312'3	- 8'6	0	14				1108	0'410	199'7	266'7	-15'5	41	197	
		1106	0'273	164'3	308'4	- 8'0	0	12				1109	0'448	169'8	253'7	-18'9	84	511	
		1106	0'313	164'8	307'9	-10'3	0	19				1110	0'629	81'9	219'3	+10'7	53	225	
		1108	0'702	122'0	274'5	-16'2	51	395	117 c			1110	0'715	82'0	212'6	+10'7	9	50	
		1108	0'730	115'9	270'4	-13'3	30	115				1110	0'757	80'1	209'0	+12'2	0	10	
		1108	0'756	117'4	268'8	-15'2	48	217	107 c			1111	0'675	105'7	217'9	- 5'1	7	25	484 n ^f
		1109	0'887	115'2	255'1	-18'4	71	453	352 ^f			1112	0'891	113'0	199'8	-16'8	0	36	
			0'949	64'9				79				1113	0'924	75'2	190'1	+16'4	0	10	298 ^f
			0'960	116'2				190					0'886	83'3					262
			0'966	102'6				84					0'891	122'3					125
Aug. 31			0'973	74'1				84		Sept. 4							(303)	(1840)	(1947)
242 ^d 896	J H, F		0'946	249'0				115		246 ^d 992	M, F	1106	0'980	259'6	320'8	- 8'6	0	46	756 ^f
		1105	0'990	289'2	21'7	+20'0	0	180	331 n ^f			1106	0'961	256'7	315'8	-10'6	0	11	
		1103	0'992	254'6	18'4	-14'2	26	162	275 c			1108	0'638	234'4	276'4	-15'7	98	498	
		1107	0'727	256'2	343'0	- 5'0	55	282				1108	0'560	228'1	269'4	-15'4	8	78	
		1107	0'649	253'6	336'5	- 4'9	21	175				1108	0'529	223'6	266'1	-15'8	31	227	
		1106	0'437	231'2	318'1	- 9'1	25	120				1109	0'469	199'1	253'2	-19'1	85	575	
		1108	0'522	137'7	276'7	-16'0	94	579				1110	0'418	79'6	219'3	+10'9	53	244	
		1108	0'571	131'4	271'7	-15'7	5	49				1110	0'521	80'8	212'5	+10'9	0	24	
		1108	0'568	127'4	270'4	-13'8	22	64				1111	0'484	114'7	217'8	- 5'2	5	13	
		1108	0'600	126'9	268'3	-14'8	47	216		Sept. 5									319
																			286
																	(280)	(1716)	(1361)

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column, it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculae relative to the Spots with which they are associated are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculae are expressed in millionths of the Sun's visible Hemisphere.

Group 1108, Aug. 30-Sept. 9. Two large regular spots with a number of small spots between them. The small spots (which are measured with the following spot on Sept. 3) disappear before Sept. 7. The preceding large spot undergoes a remarkable change of shape between Aug. 30 and Sept. 1.

Group 1109, Aug. 30-Sept. 10. A fine regular spot accompanied by two or three very small spots close to it.

Group 1110, Sept. 1-12. A large regular spot followed at a little distance by several small spots which differ greatly in number, arrangement, and area from day to day.

Group 1111, Sept. 3-5. A small spot.

Group 1112, Sept. 3-4. A small spot.

Group 1113, Sept. 4. A small spot.

Measures of Positions and Areas of Spots and Faculæ upon the Sun's Disk—continued.

Greenwich Mean Solar Time.	Measurers.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Mean Solar Time.	Measurers.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1883. 248 ^d 644	H, F	1108	0°858	246°2	276°8	-16°1	63	426	133 c	1883. 253 ^d 983	JH, F	1114	0°564	148°4	133°2	-21°8	194	1094	286 n f 675 c
I.		1108	0°758	242°6	266°2	-15°2	22	159				1117	0°803	81°5	97°9	+11°1	35	131	
		1109	0°640	228°5	253°1	-19°2	60	468	71 c			1119	0°973	80°8	74°3	+10°6	52	387	1427
		1110	0°082	33°3	219°6	+11°3	42	245		Sept. 12			0°848	106°4			(337)	(1895)	(3126)
		1110	0°177	70°7	212°5	+10°6	0	9											322
		1110	0°192	63°4	212°0	+12°1	0	4											50 c
		1110	0°221	71°7	209°9	+11°1	0	6		254°989	JH, F		0°879	278°9	183°1	+6°0	0	15	
Sept. 7							(187)	(1317)	(204)			1120	0°702	271°2	132°7	-21°9	226	1032	
250°006	M, JH		0°974	237°2					73			1114	0°495	169°3	132°7	-21°9	226	1032	
		1108	0°970	250°9	277°0	-16°5	91	496	736 c			1122	0°331	150°5	128°9	-9°6	10	56	
		1108	0°907	250°2	265°9	-14°6	29	161				1121	0°166	104°7	129°2	+4°7	0	17	
		1109	0°816	240°2	252°6	-19°2	62	370	618 c			1121	0°203	101°5	126°9	+4°8	2	12	
		1110	0°278	284°8	220°0	+11°0	45	294				1121	0°248	102°1	124°4	+4°0	0	35	
		1110	0°176	278°4	214°3	+8°5	0	4				1117	0°665	81°1	96°5	+11°3	32	203	254 c
		1114	0°964	114°3	134°1	-21°1	198	818	1665 f			1119	0°897	81°9	74°1	+10°4	60	399	588 c
Sept. 8							(425)	(2143)	(3092)	Sept. 13			0°856	107°5			(330)	(1769)	(1771)
251°067	JH, F	1108	0°980	253°4	266°0	-14°6	0	131	354 c	255°912	JH, F		0°908	244°8					600
		1109	0°924	245°2	252°9	-19°7	60	469	338 c			1120	0°803	272°4	179°8	+6°2	18	55	429 n
		1110	0°500	280°0	220°1	+11°3	34	227				1114	0°500	191°6	132°4	-22°0	217	966	
		1110	0°431	275°5	215°7	+8°9	0	21				1122	0°297	199°3	131°9	-9°1	18	100	
		1114	0°882	118°8	134°3	-21°2	214	873	832 f			1122	0°283	187°9	128°4	-9°1	7	71	
Sept. 9							(308)	(1721)	(1524)			1122	0°309	181°9	126°8	-10°7	6	58	
251°868	H, F		0°901	251°6					30			1121	0°074	234°0	129°6	+4°7	2	8	
I.			0°605	291°5					9			1121	0°069	155°9	124°6	+3°6	0	11	
			0°846	225°6					37			1117	0°475	79°2	97°9	+11°5	31	135	
		1109	0°977	248°4	253°6	-19°3	21	214	544 c			1117	0°545	80°8	93°1	+11°0	0	15	
		1110	0°653	279°2	220°5	+11°4	33	253	55 c			1119	0°788	82°4	73°8	+10°4	68	451	452 f
		1110	0°616	275°6	217°8	+9°1	7	29				0°920	124°7					235	
		1110	0°591	275°2	216°0	+8°9	0	9				0°811	110°9					557	
		1110	0°579	276°9	215°1	+9°9	6	14		Sept. 14							(367)	(1870)	(2273)
		1115	0°666	249°3	218°4	-8°0	11	31		257°041	JH, F	1120	0°906	274°6	176°6	+7°2	0	25	164 p
		1116	0°605	291°3	215°9	+18°5	0	4				1114	0°585	215°3	132°5	-21°7	265	1048	
		1114	0°803	123°7	133°9	-21°5	147	798	1697 s f			1122	0°439	234°6	132°4	-8°0	31	134	
		1114	0°829	120°7	130°3	-20°4	0	79				1122	0°393	224°6	127°5	-9°3	19	59	
		1117	0°986	80°4	98°4	+10°6	11	43	119 c			1117	0°236	70°7	98°2	+11°5	11	70	
			0°758	136°0					103			1119	0°598	82°6	74°4	+10°2	43	444	
			0°916	80°6					243			1119	0°615	74°9	73°5	+14°9	5	11	
			0°955	89°3					75								(374)	(1791)	(164)
			0°977	102°0					516										
Sept. 10							(236)	(1474)	(3428)	257°980	JH, F		0°982	275°2					218
253°983	JH, F	1110	0°932	277°0	221°0	+9°2	12	44	392 f			1114	0°814	245°5					152
		1110	0°930	279°5	220°8	+11°5	35	148				1122	0°694	227°5	132°3	-22°0	252	1015	
		1115	0°947	259°0	221°3	-8°0	0	43				1122	0°601	246°3	132°5	-8°0	45	201	
		1115	0°917	257°3	216°3	-8°6	8	41	278 c			1122	0°550	239°5	127°5	-9°9	13	58	
		1118	0°786	240°3	197°4	-17°9	1	7	68 c			1117	0°077	9°2	98°2	+11°6	11	49	
												1119	0°320	74°4	80°6	-11°8	5	33	

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column, it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculæ relative to the Spots with which they are associated are indicated by the letters n, s, p, f, c, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculæ are expressed in millionths of the Sun's visible Hemisphere.

Group 1114, Sept. 8-20. A very large regular spot. On Sept. 10 a large penumbral spot is seen detached from the principal spot. It coalesces with it before Sept. 12.
 Group 1115, Sept. 10-12. A cluster of several small spots.
 Group 1117, Sept. 10-18. A regular spot closely followed by several small spots. The group undergoes many slight changes, and diminishes rapidly after passing the central meridian on Sept. 16.
 Group 1119, Sept. 12-23. A spot of irregular outline. It undergoes frequent changes, and small spots appear in its neighbourhood on Sept. 15 and the following days.
 Group 1120, Sept. 13-15. A small spot.
 Group 1121, Sept. 13-14. Four small spots on Sept. 13. The two middle spots being close together are measured as one. Only two spots remain on Sept. 14.
 Group 1122, Sept. 13-20. A group appearing suddenly near the centre of the sun. It consists at first of three small spots which are measured together. It increases in size on Sept. 14 and then becomes a regular spot followed by two compact clusters of small spots. These two clusters are measured as one on Sept. 15 and 16.

Measures of Positions and Areas of Spots and Faculae upon the Sun's Disk—continued.

Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULAE.	Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULAE.	
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).		Area for each Group (and for Day).
1883. 257 ^d .980	JH, F	1119	0.413	79.8	74.6	+10.7	46	308		1883. 261 ^d .797	M, F	1119	0.446	281.7	74.9	+11.6	86	525		
		1123	0.958	72.7	24.3	+18.6	0	41	154 ^f	I.		1119	0.386	280.5	71.1	+10.6	0	4	16	
			0.945	103.9					279				0.883	135.0				196		
			0.976	67.8					152				0.916	68.2				22		
Sept. 16							(372)	(1705)	(955)	Sept. 20			0.940	78.9			(86)	(931)	(1498)	
258.911	JH, F	1114	0.802	235.4	131.9	-22.2	185	1070		262.653	M, F		0.942	256.5				284		
		1122	0.749	252.7	132.6	-8.0	42	148					0.903	278.4				168		
		1122	0.717	249.7	129.4	-9.2	14	42	122 ^p				0.889	262.0				80		
		1122	0.704	246.2	127.5	-11.1	0	42					0.631	273.9	76.5	+8.0	0	9		
		1117	0.217	292.4	98.4	+11.7	0	19				1119	0.613	279.6	75.1	+11.4	66	385		
		1119	0.207	72.5	75.1	+10.6	63	322				1119	0.832	66.4				43		
		1119	0.253	82.4	72.0	+8.8	0	31	354 ^{nf}				0.844	79.6				18		
		1123	0.871	73.0	25.6	+18.3	0	34	353				0.852	103.0				66		
Sept. 17			0.898	105.3			(304)	(1708)	(829)				0.973	101.3				139		
260.037	JF, F		0.830	269.6					105	Sept. 21			0.988	72.4			(66)	(394)	(856)	
		1114	0.916	241.8	132.3	-22.3	221	1029	1194 ^c				0.977	263.0				306		
		1122	0.890	257.3	132.7	-7.9	37	170	92 ^c				0.960	279.6				207		
		1122	0.863	254.7	129.0	-9.3	12	27		263.826	M, F		0.876	252.8				225		
		1122	0.854	252.7	127.6	-10.7	0	41	211 ^c				0.851	233.0				217		
		1117	0.448	281.8	98.2	+11.7	3	21					0.823	274.9	77.5	+8.1	2	4		
		1119	0.057	272.0	75.0	+7.2	0	9				1119	0.804	278.8	75.7	+11.3	59	493	222 ⁿ	
		1119	0.084	321.2	74.8	+10.9	60	378				1124	0.914	101.4	317.4	-7.4	0	5	274 ^f	
		1119	0.033	116.1	70.0	+6.3	0	4	498 ^f			1125	0.917	73.0	314.5	+18.4	0	14	138 ^c	
		1123	0.726	71.7	25.4	+18.1	2	12	709	Sept. 22			0.868	107.2			(61)	(516)	(1770)	
Sept. 18			0.879	112.5			(335)	(1691)	185				0.943	249.2				533		
260.965	JH, F		0.934	271.6					131	264.959	JH, F		0.898	233.1				316		
		1122	0.969	259.6	133.6	-8.2	32	150	224 ^{sf}				0.930	278.8	75.8	+10.7	94	407	599 ^c	
		1114	0.972	245.1	131.4	-22.1	68	880	1817 ^f				0.834	106.6			(94)	(407)	(1640)	
		1119	0.278	286.7	75.2	+11.4	65	426		Sept. 23			0.968	237.8				467		
		1119	0.190	269.4	70.5	+6.9	0	15					0.989	106.9			(0)	(0)	(935)	
			0.790	82.8					122											
			0.831	118.1					314	266.072	JH, F		0.909	285.8				114		
			0.958	67.7					108				0.946	110.7				864		
Sept. 19			0.972	95.2			(165)	(1471)	140	Sept. 24								(0)	(0)	(978)
261.797	M, F		0.981	277.1					77	266.920	JH, F		0.909	285.8				114		
			0.956	234.6					112				0.946	110.7				864		
			0.926	175.9					19	Sept. 25								(0)	(0)	(978)
			0.862	253.8					175	268.059	JH, F		0.826	297.2				133		
		1122	0.994	261.1	130.8	-8.0	0	124	184 ^{sf}			1126	0.981	111.1	250.6	-19.0	0	120	296 ^p	
		1114	0.996	246.5	129.7	-22.5	0	278	697 ^{sf}	Sept. 26							(0)	(120)	(429)	

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column, it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculae relative to the Spots with which they are associated are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculae are expressed in millionths of the Sun's visible Hemisphere.

Group 1123, Sept. 16-18. A small spot.
Group 1125, Sept. 22. Three small faint spots.

Group 1124, Sept. 22. A small spot.
Group 1126, Sept. 26-Oct. 8. A regular spot.

Measures of Positions and Areas of Spots and Faculæ upon the Sun's Disk—continued.

Greenwich Mean Solar Time.	Measurers.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Mean Solar Time.	Measurers.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	Area for each Group (and for Day).						Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	Area for each Group (and for Day).
1883. 268 ^d 897	JH, F		0°940 0°840 0°932 0°769	250°2 291°1 113°7 124°6	°	°			157 169 219 c 277 (822)	1883. 274 ^d 063	M, JH	1126 1130	0°426 0°949 0°827	186°6 98°7 114°9	249°5 176°2 —	—18°4 —6°0 —	19 51 (70)	171 358 (529)	683 c 311 (1657)
Sept. 27		1126			250°4	—19°2	26	109 (26)		Oct. 2									
269 ^d 922	JH, F		0°905 0°388 0°362 0°834 0°979	244°7 192°9 183°1 118°2 98°3	°	°			257	274 ^d 795	M, JP		0°983 0°980 0°974 0°940 0°884	333°7 256°8 289°1 253°2 249°6					104 75 111 109 34
Sept. 28		1127 1127 1126 1126			306°4 302°5 250°5	—15°4 —14°3 —18°9	0 4 30 147	7 27 165 c 343 (765)		I.									
270 ^d 894	M, JH		0°793 0°403 0°689 0°719 0°892 0°907	283°6 215°6 130°1 124°7 78°7 101°4	°	°			103	Oct. 3									
Sept. 29		1127 1128 1126 1129			302°3 254°3 250°0 224°8	—12°6 —20°8 —18°9 +13°1	0 0 24 0	15 24 125 22	249 f 383 f 305	275 ^d 795	M, JP		0°995 0°827 0°584 0°755 0°794 0°874 0°975 0°985 0°993	286°1 239°4 224°5 105°1 104°5 105°7 106°0 70°4 96°4					99 183 42 c 113 c 680 84 151 169 (1521)
271 ^d 634	M, F		0°919 0°890 0°875 0°832 0°524 0°623 0°622 0°801 0°832 0°918 0°919 0°968	260°5 278°7 292°0 298°7 230°2 137°9 132°4 78°7 104°2 140°2 78°9 103°2	°	°			79 77 63 13	Oct. 4									
I.		1127 1128 1126 1129			303°0 252°1 249°8 225°2	—13°4 —21°5 —18°9 +13°0	0 0 23 2	10 12 146 7	59 c 174 19 282 94 (860)	276 ^d 952	M, F		0°932 0°878 0°712 0°732 0°560 0°609 0°907 0°988 0°871 0°927	245°6 281°6 246°3 237°5 112°6 111°1 99°6 113°9 109°5 70°5					239 86
Sept. 30							(25)	(175)		Oct. 5									
273 ^d 023	M, JH		0°967 0°941 0°841 0°821 0°464 0°930	291°1 255°5 253°7 288°9 158°3 109°0	°	°			178 232 85 139	278 ^d 041	JH, F		0°987 0°955 0°835 0°859 0°365 0°412 0°740	247°8 282°1 252°0 248°5 127°5 123°2 103°4					213 178
Oct. 1		1126			250°0	—19°0	16	128 (16)											
274 ^d 063	M, JH		0°993 0°944 0°943 0°933 0°872	279°3 256°2 288°3 279°6 250°4	°	°			136 169 149 81 128										

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column, it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculæ relative to the Spots with which they are associated are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculæ are expressed in millionths of the Sun's visible Hemisphere.

Group 1127, Sept. 28–30. Several very small spots.

Group 1130, Oct. 2–13. A fine spot with a smaller one following it. Some small spots appear near them on Oct. 7, but disappear before Oct. 10, and the principal spot alone remains on Oct. 11.

Group 1131, Oct. 5–7. A small spot. Two smaller spots are seen near and measured with it on Oct. 6, and on Oct. 7 the group consists of a great number of very small spots.

Group 1132, Oct. 5–15. A small spot on Oct. 5. On Oct. 6, 7, and 8 the group is composed of a few faint and widely scattered small spots. It has undergone an entire change before Oct. 9, and then consists of two spots with some very faint spots near them. The group undergoes several slighter changes on the following days.

Only one spot is visible on Oct. 15.

Group 1133, Oct. 5–17. A regular spot. A small very faint spot is seen near it on Oct. 11, and two on Oct. 12.

Group 1129, Sept. 29–30. A small spot.

Group 1130, Oct. 2–13. A fine spot with a smaller one following it. Some small spots appear near them on Oct. 7, but disappear before Oct. 10, and the principal spot alone remains on Oct. 11.

Measures of Positions and Areas of Spots and Faculae upon the Sun's Disk—continued.

Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).			
1883. 278 ^d 04 ^m 1	JH, F	1132	0°77'8	103°3	144°7	— 5°8	0	13		1883. 279 ^d 64 ^m 8	F, JP	1137	0°89'8	107°8	111°8	— 13°0	15	129	
		1132	0°800	99°8	142°1	— 4°0	4	33		I.	1137	0°925	108°2	108°1	— 14°3	2	15	197 ^c	
		1133	0°932	116°7	130°3	— 22°1	87	496	1051 ⁿ		1134	0°885	80°7	110°2	+ 11°1	14	83		
		1134	0°993	79°4	110°1	+ 11°2	0	101	150 ^p		1134	0°901	80°5	108°2	+ 11°3	0	7	599 ^f	
			0°855	68°3					151			0°876	74°7					73	
Oct. 6							(159)	(939)	(2146)			0°905	104°5					130	
												0°906	121°5					530	
277°79 ⁵	M, JP		0°990	282°4					75			0°945	94°0					525	
			0°927	241°7					167			0°947	145°1					79	
I.		1131	0°913	253°8	249°7	— 12°0	0	31	104 ^c	Oct. 8						(218)	(1160)	(2932)	
		1126	0°914	246°7	248°2	— 18°3	15	92	110 ^c										
		1135	0°445	228°9	206°1	— 11°1	0	13		280°784	F, H		0°936	237°8				104	
		1130	0°272	146°3	177°5	— 6°8	26	176		I.			0°932	259°0				92	
		1130	0°321	144°4	175°3	— 8°9	0	8					0°917	284°0				217	
		1130	0°315	137°5	173°9	— 7°3	5	12					0°865	278°2				138	
		1132	0°650	106°0	147°5	— 5°4	0	16				1135	0°820	253°4	210°6	— 9°8	9	34	
		1132	0°691	106°2	144°5	— 6°4	5	14				1135	0°777	252°9	206°5	— 9°2	5	11	
		1132	0°715	102°3	141°8	— 4°3	3	22				1135	0°753	251°7	204°2	— 9°3	1	12	
		1132	0°759	105°1	138°8	— 7°1	0	3				1135	0°713	247°8	200°0	— 11°0	1	12	
		1133	0°886	119°3	129°7	— 22°3	93	444	1274 ^f			1135	0°680	247°9	197°5	— 10°1	1	5	
		1136	0°915	111°2	123°6	— 16°5	0	3				1130	0°404	237°7	177°9	— 6°6	22	115	
		1136	0°934	112°2	121°0	— 18°1	0	12				1130	0°385	230°6	175°3	— 8°2	0	7	
		1137	0°975	105°1	111°2	— 13°1	18	200	221 ⁿ			1130	0°364	230°5	174°3	— 7°4	2	10	
		1134	0°969	80°3	109°9	+ 11°0	14	62	271 ⁿ			1132	0°287	138°0	146°8	— 6°2	21	56	
			0°847	56°5					14			1132	0°315	128°5	143°6	— 5°3	12	30	
			0°910	79°8					80			1132	0°383	122°3	139°0	— 5°9	0	2	
Oct. 7							(179)	(1108)	(2316)			1133	0°646	136°2	129°1	— 22°3	59	412	
												1136	0°647	124°1	124°2	— 16°0	18	141	
												1136	0°687	122°8	120°9	— 16°9	6	26	
279°64 ⁸	F, JP		0°981	255°7					153			1136	0°683	120°1	120°3	— 15°1	1	19	
			0°912	233°4					66			1136	0°720	121°6	118°1	— 17°4	4	16	
			0°838	257°2					59			1138	0°554	77°1	124°5	+ 12°3	13	105	
I.		1126	0°979	249°7	248°1	— 18°4	12	82	140 ^s			1138	0°592	78°4	121°7	+ 11°9	3	10	
		1135	0°638	245°2	208°8	— 10°5	12	38				1138	0°643	77°1	118°0	+ 13°0	16	104	
		1135	0°575	242°7	204°0	— 9°9	9	34				1139	0°600	69°6	122°0	+ 17°1	3	54	
		1130	0°239	199°6	177°5	— 6°8	26	159				1139	0°633	65°8	120°2	+ 20°0	4	11	
		1130	0°270	187°6	175°0	— 9°3	1	6				1139	0°655	68°1	118°1	+ 18°9	3	10	
		1130	0°234	185°2	174°1	— 7°3	6	12				1137	0°765	112°7	111°7	— 12°9	12	85	
		1132	0°463	112°7	147°6	— 4°7	0	8				1137	0°801	112°5	108°4	— 13°8	0	3	
		1132	0°519	114°2	144°5	— 6°8	4	9				1134	0°729	80°7	111°0	+ 11°0	14	103	
		1132	0°547	107°7	141°5	— 4°3	0	9				1140	0°972	76°0	80°5	+ 15°1	10	66	
		1133	0°785	125°4	129°2	— 22°6	82	431	190 ^{s f}			0°774	128°3					370 ^f	
		1136	0°806	115°1	123°7	— 16°0	14	59				0°868	130°5					1044 ^f	
		1136	0°838	114°8	120°4	— 16°9	0	4				0°878	222°2					100	
		1136	0°844	115°4	120°0	— 17°5	0	2				0°940	84°0					251	
		1136	0°834	112°3	119°8	— 14°7	5	22	135 ^c			0°971	117°6					61	
		1138	0°767	79°2	122°7	+ 12°3	4	31	22 ^c			0°993	101°9					183	
		1138	0°808	78°4	118°8	+ 13°0	12	20	34 ^c	Oct. 9						(240)	(1459)	(3467)	

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column, it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculae relative to the Spots with which they are associated are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric. The Areas of Spots and Faculae are expressed in millionths of the Sun's visible Hemisphere.

The Areas of Spots and Faculae are expressed in millionths of the Sun's visible Hemisphere.

Group 1134, Oct. 6-17. A regular spot. A small spot follows it on Oct 8, and other small spots appear in its neighbourhood on Oct. 10 and following days. The principal spot diminishes in size at the same time as that date. After 11 the group consists of a great number of small spots irregularly distributed.

Group 1135, Oct. 7-12. Several very small faint spots on Oct. 7. On Oct. 8 two dark and well-defined spots have formed. On Oct. 9 the group consists of a great number of small spots extending over a large area. The group continues to increase in size until it passes out of view at the west limb.

Group 1136, Oct. 7-17. Two small spots on Oct. 7. The preceding spot increases in size on the following days, and many small spots appear near it, *s* and *f*. The smaller spots disappear before Oct. 17.

Group 1137, Oct. 7-16. A regular spot with a small spot closely following it on Oct. 8 and 9. Another very small spot follows it on Oct. 12. The principal spot slowly diminishes in size as it approaches the west limb.

Group 138, Oct. 8-17. Two small spots on Oct. 8. The group increases in size rapidly on the following days; the preceding spot becoming a very large and irregular spot. It is followed by an irregular stream of spots, some of them large, and spread over an extensive area. Part of the large spot becomes detached and is measured separately on Oct. 17, whilst the smaller spots are

Group 1139. Oct. 9-12. Three spots on Oct. 9. One of these disappears before Oct. 10, whilst the preceding spot separates into two portions. A fourth spot is seen on Oct. 11. Only the two preceding spots (which are measured together) are left on Oct. 12.

MEASURES OF POSITIONS AND AREAS OF SPOTS AND FACULÆ UPON THE SUN'S DISK

Measures of Positions and Areas of Spots and Faculæ upon the Sun's Disk—continued.

Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1883. 282 ^d 049	JH, F	1135	0'953	257'6	211'9	— 9'8	0	81	598 c	1883. 282 ^d 673	H, JH	1136	0'401	160'4	125'0	— 16'2	32	319	37 c
		1135	0'914	255'9	205'3	— 10'2	0	131				1136	0'446	148'1	118'8	— 16'3	14	172	
		1135	0'889	254'2	201'7	— 11'0	16	75		I.		1138	0'163	49'7	125'7	+ 12'0	51	308	
		1135	0'840	253'8	196'1	— 10'1	0	29				1138	0'231	64'0	120'8	+ 11'7	15	96	
		1136	0'631	251'9	178'3	— 6'4	33	155				1138	0'282	62'6	118'2	+ 13'3	14	102	
		1136	0'582	246'1	173'7	— 8'5	0	8				1139	0'247	59'2	123'6	+ 16'9	0	5	
		1132	0'233	207'7	147'5	— 5'8	0	67				1139	0'264	43'0	122'2	+ 17'0	7	44	
		1132	0'211	200'7	145'6	— 5'2	5	33				1139	0'303	42'6	119'5	+ 18'7	0	3	
		1132	0'202	192'3	143'8	— 5'2	8	80				1139	0'325	45'5	118'9	+ 19'0	4	13	
		1132	0'243	189'5	143'6	— 7'7	0	4				1137	0'473	132'0	112'0	— 12'8	7	61	
		1133	0'515	157'2	128'9	— 22'3	93	435				1134	0'342	75'3	113'4	+ 10'6	20	89	
		1136	0'461	144'1	125'0	— 16'0	47	219				1134	0'366	78'1	111'8	+ 9'9	0	9	
		1136	0'515	135'6	119'4	— 15'9	34	186				1134	0'391	80'3	110'1	+ 9'3	0	9	
		1138	0'291	68'6	125'3	+ 12'0	60	265				1134	0'412	76'5	109'0	+ 11'0	0	3	
		1138	0'352	73'3	121'3	+ 11'6	17	68				1134	0'446	74'9	107'0	+ 12'1	0	4	
		1138	0'402	71'3	118'4	+ 13'0	25	107				1140	0'794	75'4	80'4	+ 15'3	11	64	
		1139	0'350	57'4	123'5	+ 16'7	0	16					0'840	80'7				194 c	
		1139	0'376	59'6	121'6	+ 16'7	2	27					0'902	127'9				580	
		1139	0'443	57'6	118'1	+ 19'3	0	10					0'910	112'8				293	
		1137	0'572	122'7	111'9	— 12'7	16	48					0'933	146'0				796	
		1134	0'480	78'9	112'6	+ 12'1	19	98					0'955	76'7				39	
		1134	0'513	82'5	110'4	+ 9'1	0	5		Oct. 11			0'985	100'1				189	
		1134	0'566	77'7	107'0	+ 12'0	0	10										117	
		1140	0'869	76'0	80'6	+ 15'2	29	48										139	
			0'900	116'6					1474 s f	283 ^d 667	H, JH		0'969	289'5				33	
			0'941	122'8					669				0'904	296'4				64	
									133				0'867	280'3					
Oct. 10							(404)	(2205)	(2874)	I.									
282 ^d 673	H, JH		0'973	249'5				107				1135	0'998	259'0	205'1	— 10'5	0	182	322 c
			0'961	285'8				415				1135	0'973	257'7	195'0	— 10'4	6	41	
			0'917	251'8				81				1143	0'905	282'7	185'3	+ 14'0	0	3	123 n
			0'894	243'6				42				1143	0'880	283'6	182'1	+ 14'8	0	3	
		1135	0'992	259'3	214'4	— 9'8	5	83	673 c			1141	0'912	247'2	182'0	— 18'0	7	34	222 f
		1135	0'974	259'0	208'5	— 9'3	5	28				1141	0'864	243'4	174'8	— 19'3	1	4	
		1135	0'963	257'8	205'7	— 10'0	11	187	96 c			1130	0'865	258'8	178'6	— 6'6	21	115	350 c
		1135	0'946	256'0	202'1	— 11'1	12	97				1132	0'498	246'3	147'3	— 6'2	5	82	
		1135	0'907	255'8	196'1	— 10'2	6	45	22 c			1132	0'450	245'4	144'3	— 5'4	13	101	155
		1141	0'786	242'1	179'6	— 17'5	5	16				1142	0'324	218'5	131'8	— 8'8	15	115	
		1141	0'756	239'5	176'1	— 18'2	6	9	42 c			1142	0'289	205'8	127'4	— 9'1	7	81	388
		1130	0'736	255'6	178'6	— 6'3	12	128				1133	0'497	196'3	128'7	— 22'5	75	388	
		1132	0'317	229'8	147'0	— 6'0	13	90	163 c			1133	0'460	188'6	124'3	— 21'0	0	2	367
		1132	0'273	224'9	144'1	— 5'2	19	125				1133	0'496	189'7	125'3	— 23'2	1	3	
		1132	0'277	215'7	142'3	— 7'0	0	11	4			1138	0'147	313'9	126'3	+ 11'8	62	367	157
		1142	0'263	172'0	130'9	— 9'1	0	4				1138	0'137	339'3	122'9	+ 13'4	0	3	
		1142	0'267	166'1	129'3	— 9'0	0	2	5			1138	0'102	353'6	120'8	+ 11'8	6	117	257
		1142	0'284	159'5	127'2	— 9'4	0	5				1138	0'134	7'5	119'1	+ 13'7	24	157	
		1133	0'482	172'2	129'0	— 22'4	70	369	138 c			1136	0'387	193'2	125'4	— 16'1	40	257	18
		1133	0'462	165'8	126'1	— 20'6	0	9				1136	0'419	185'6	122'6	— 18'6	2	18	
												1136	0'387	182'9	121'3	— 16'7	0	4	

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculæ relative to the Spots with which they are associated are indicated by the letters *n*, *s*, *p*, *f*, *c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculæ are expressed in millionths of the Sun's visible Hemisphere.

Group 1141, Oct. 11-13. Two small spots. Only the preceding spot is seen on Oct. 13.

Group 1142, Oct. 11-17. A number of small spots on Oct. 11, which have greatly increased in size before Oct. 12, and on the following days tend to coalesce into two clusters, finally forming two regular spots on Oct. 16. The preceding spot has passed the west limb before Oct. 17.

Group 1143, Oct. 12. Two very small spots.

Measures of Positions and Areas of Spots and Faculae upon the Sun's Disk—continued.

Measures of Positions and Areas of Spots and Faculae upon the Sun's Disk—continued.																				
Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).		
1883. 283 ^d .667	I.	II, JH	1136	0.400	177.7	119.9	-17.5	0	10		1883. 286 ^d .048	M, F	1142	0.724	251.4	132.4	-9.2	51	177	
			1136	0.368	176.4	118.7	-15.5	7	81				1142	0.667	248.2	127.3	-9.8	38	161	
			1139	0.196	14.6	123.0	+16.9	5	11				1133	0.742	232.2	127.7	-22.5	63	363	
			1134	0.118	48.8	114.9	+10.4	23	143				1136	0.681	239.6	125.9	-15.6	42	192	
			1134	0.188	54.4	111.1	+12.2	0	2				1136	0.647	233.0	121.3	-18.0	0	32	
			1134	0.182	68.5	110.2	+9.8	0	3				1136	0.598	234.4	118.6	-15.3	0	21	
			1137	0.350	156.3	111.8	-12.7	11	50				1138	0.625	280.4	127.1	+11.0	249	853	
			1137	0.340	150.0	110.2	-11.2	0	3				1138	0.520	286.3	119.2	+13.4	34	119	
			1140	0.639	72.8	81.0	+15.6	8	80	60 c			1134	0.502	280.1	118.5	+10.1	22	105	
			1144	0.996	100.8	36.6	-10.2	172	636	534 c			1134	0.419	285.3	112.8	+11.7	2	34	
				0.909	117.9					871			1137	0.500	231.0	111.9	-13.0	0	22	
				0.928	102.7					220			1140	0.225	33.3	81.1	+16.5	12	49	
Oct. 12								(511)	(3096)	(2938)			1144	0.833	104.6	34.1	-8.8	246	1592	840 c
284 ^d .915		JH, F	1141	0.989	249.8	182.1	-18.9	8	54	694 f			1147	0.961	79.1	19.3	+12.1	18	92	137 n
			1130	0.972	261.2	178.7	-7.1	14	109	796 s f								(810)	(4061)	(3131)
			1145	0.894	273.3	167.0	+5.6	0	18	89 p										
			1132	0.716	254.4	147.3	-6.9	11	24					0.924	278.3					54
			1132	0.672	254.9	144.0	-5.6	40	72					0.841	228.2					389
			1142	0.545	242.4	132.7	-9.5	26	131					0.940	261.1	146.3	-6.3	0	60	427 c
			1142	0.472	237.4	127.2	-9.3	25	107					0.842	255.4	132.9	-9.1	43	224	
			1133	0.605	219.6	128.0	-22.4	98	398					0.790	253.0	127.4	-9.7	42	190	222 c
			1136	0.515	225.3	125.8	-15.7	45	239					0.836	238.4	127.7	-22.4	101	366	
			1136	0.524	220.8	124.5	-17.8	7	20					0.798	245.5	126.2	-15.6	49	233	948 c
			1136	0.505	216.0	121.7	-18.4	14	39					0.756	240.1	120.9	-18.0	0	6	
			1136	0.480	217.6	121.2	-16.7	0	38					0.723	242.5	119.0	-15.2	6	22	
			1136	0.486	210.9	118.7	-18.9	0	35					0.762	279.2	127.2	+10.7	241	1532	290 c
			1136	0.434	214.6	118.2	-15.1	15	43					0.664	283.4	118.9	+13.1	30	138	
			1138	0.406	283.7	127.1	+10.9	148	832					0.666	279.1	119.3	+10.3	24	115	
			1138	0.299	295.4	119.5	+13.0	36	182					0.621	280.3	115.8	+10.9	6	31	138 c
			1137	0.350	204.7	112.1	-12.7	6	51					0.578	281.2	112.6	+11.1	17	139	
			1134	0.242	288.5	116.9	+10.2	18	113					0.631	241.8	112.1	-12.7	0	27	
			1134	0.189	302.1	112.9	+11.6	5	9					0.190	340.8	81.2	+16.0	17	49	
			1134	0.176	311.9	111.2	+12.6	0	10					0.373	124.1	59.5	-6.6	17	62	
			1140	0.367	62.2	82.2	+16.1	16	59					0.512	107.8	48.4	-4.0	1	4	
			1144	0.939	101.6	35.2	-8.8	287	1250					0.700	110.4	35.9	-9.9	190	1109	508 c
			1144	0.964	102.0	30.6	-9.9	0	295	1193 c				0.760	109.7	30.9	-10.9	30	162	
			1144	0.970	100.1	28.9	-8.3	0	155					0.778	106.5	28.6	-9.0	30	93	
				0.794	106.3					139				0.845	79.5	19.6	+11.9	19	68	344 n f
				0.948	75.1					129				0.723	70.8				42	
Oct. 13								(819)	(4283)	(3040)				0.909	62.3				217	
286 ^d .048		M, F	1130	0.996	263.1	177.6	-6.3	3	70	726 s f				0.972	107.4				130	
			1145	0.990	272.2	175.7	+3.1	0	34									(863)	(4630)	(3709)
			1145	0.984	270.9	173.4	+2.0	3	21	501 c										
			1145	0.959	274.2	167.5	+5.7	0	19					0.896	234.3					421
			1145*	0.971	254.7	167.8	-13.3	27	76	784 c				0.952	257.9	133.0	-9.7	17	265	463 c
			1132	0.880	258.6	148.7	-7.2	0	9					0.916	256.8	127.0	-9.7	22	144	
			1132	0.849	259.5	145.3	-5.7	0	20					0.937	243.5	127.3	-22.4	61	384	446 c
														0.918	249.9	125.9	-15.9	22	224	499 c

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column, it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculae relative to the Spots with which they are associated are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculae are expressed in millionths of the Sun's visible Hemisphere.

Group 1144, Oct. 12-24. A very large and fine spot. The spot is measured in three parts on Oct. 13, and in two parts on Oct. 15. A regular spot is separated from it by Oct. 15, and some very small spots are seen from time to time in its immediate neighbourhood.

Group 1145, Oct. 13-14. A small spot. Two other small spots are seen near it on Oct. 14.

Group 1146, Oct. 15-21. A cluster of small spots.

Group 1147, Oct. 14-18. A small spot, which is replaced by another small spot on Oct. 18.

MEASURES OF POSITIONS AND AREAS OF SPOTS AND FACULÆ UPON THE SUN'S DISK

Measures of Positions and Areas of Spots and Faculæ upon the Sun's Disk—continued.

Greenwich Mean Solar Time.	Measurers.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Mean Solar Time.	Measurers.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1883. 288 ^d .022	JH, F	1136	0°865	248°6	118°8	—15°3	0	8	536 c	1883. 289 ^d .897	JH, F	1146	0°364	234°5	55°1	—7°0	13	55	510 (1365)
		1138	0°898	279°7	127°1	+11°1	275	1292				1144	0°273	172°6	35°8	—10°2	154	1101	
		1138	0°832	282°2	118°8	+13°3	0	174				1144	0°201	154°4	32°8	—5°0	0	30	
		1134	0°845	279°3	120°3	+10°9	16	162				1144	0°275	147°7	29°3	—8°0	15	160	
		1134	0°805	279°0	116°2	+10°6	6	52				1148	0°335	36°2	25°6	+21°0	2	8	
		1134	0°759	280°5	111°8	+11°6	6	35				1148	0°376	47°1	20°8	+20°1	0	6	
		1137	0°796	249°3	112°0	—12°7	0	7				1147	0°286	64°0	22°6	+12°5	0	9	
		1140	0°360	301°0	81°0	+16°0	9	33					0°908	79°7					
		1146	0°217	164°0	59°0	—6°5	4	47		Oct. 18									
		1146	0°250	154°8	56°3	—7°5	9	80											
		1144	0°513	120°2	35°8	—9°9	156	1005					0°979	231°4					
		1144	0°593	112°6	28°9	—8°5	15	75					0°972	266°2					
		1144	0°683	78°4	19°4	+12°0	2	20					0°953	280°1					
		1147	0°916	113°6									0°940	104°5					
Oct. 16							(620)	(4007)	(3344)				0°921	291°3					
288°897	JH, F		0°877	224°9					77				0°862	235°2					
			0°787	263°9					107				0°830	290°2					
			0°765	285°0					122				0°824	257°3					
		1142	0°980	258°6	127°1	—10°0	57	133	3000			1146	0°622	252°6	62°2	—6°4	9	92	
		1133	0°985	245°8	127°6	—22°7	78	294				1146	0°576	250°7	58°7	—6°5	3	17	
		1136	0°980	251°6	126°9	—16°8	57	180				1146	0°543	248°0	56°1	—7°1	4	28	
		1138	0°982	279°5	130°6	+10°4	86	257				1144	0°318	212°8	35°7	—10°2	162	1155	
		1138	0°959	279°8	124°9	+11°0	65	814				1144	0°368	202°2	33°9	—14°5	0	7	
		1134	0°932	279°8	120°1	+11°2	30	222				1144	0°229	217°4	33°7	—5°1	0	2	
		1134	0°881	278°7	113°0	+10°3	15	55				1144	0°242	195°2	29°4	—8°1	14	73	
		1140	0°522	291°7	80°1	+15°9	3	11					0°820	111°2					
		1146	0°267	215°3	58°9	—7°0	8	71					0°882	80°3					
		1146	0°237	200°2	54°7	—7°2	12	77					0°982	74°1					
		1144	0°372	136°7	35°0	—10°2	129	997	119 141 (6353)	Oct. 19									
		1144	0°442	129°8	29°8	—11°1	1	30											
		1144	0°442	122°3	27°9	—8°4	18	39					0°947	251°4					
		1148	0°504	56°9	23°2	+20°9	0	10					0°907	233°8					
		1147	0°522	76°0	18°9	+12°1	0	15					0°893	282°3					
			0°832	119°4								1146	0°812	258°1	63°3	—6°5	18	60	
			0°952	80°3								1146	0°744	255°9	56°8	—6°8	8	31	
Oct. 17							(559)	(3205)	(6353)			1144	0°495	238°7	35°7	—10°1	160	1159	
289°897	JH, F		0°991	242°2					315			1144	0°392	236°1	29°5	—7°6	14	81	
			0°967	256°2					328			1149	0°767	108°8	322°9	—10°7	3	24	
			0°951	231°4					119			1149	0°803	107°4	319°4	—10°6	28	48	
			0°940	281°8					834										
			0°769	221°2					90										
			0°742	247°2					123										
		1140	0°695	287°3	81°2	+15°9	1	10	46 c				0°981	283°2					
		1146	0°440	243°3	61°0	—6°3	12	36				1146	0°913	260°5	62°0	—6°5	20	167	
		1146	0°393	243°9	58°4	—4°8	0	5				1144	0°675	248°9	36°8	—10°0	167	763	
												1144	0°621	251°4	33°4	—7°3	0	32	

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column, it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculæ relative to the Spots with which they are associated are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculæ are expressed in millionths of the Sun's visible Hemisphere.

Group 1148, Oct. 17-18. Two small spots. They are measured together on Oct. 17.

Group 1149, Oct. 20-30. A number of small spots. The group undergoes many changes, rapidly increasing in size after passing the central meridian on Oct. 24.

MEASURES OF POSITIONS AND AREAS OF SPOTS AND FACULÆ UPON THE SUN'S DISK

Measures of Positions and Areas of Spots and Faculæ upon the Sun's Disk—continued.

Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	Area for each Group (and for Day).						Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	Area for each Group (and for Day).
1883. 297 ^d 811	H, W	1149	0°533	240°5	321°5	-10°9	4	26		1883. 301 ^d 086	JH, F		0°946	280°1					150
I.		1149	0°516	236°9	319°5	-12°0	0	3			1149	0°993	256°5	331°8	-12°8	0	184	1149 c	
		1152	0°268	48°6	281°4	+14°9	5	82			1149	0°958	256°6	321°8	-11°4	0	226		
		1154	0°667	105°6	253°3	-6°7	10	97	58 c		1152	0°562	290°0	283°1	+14°9	4	12		
		1155	0°860	101°8	235°5	-7°6	11	164			1152	0°531	291°7	280°7	+15°2	0	10		
		1155	0°903	100°9	230°2	-7°7	8	31	370 c		1162	0°557	193°5	258°6	-28°2	5	35		
		1156	0°953	101°5	222°4	-9°4	50	511	370 s f		1154	0°204	204°3	254°9	-6°2	11	72		
			0°747	105°2					178		1155	0°306	130°4	236°6	-7°0	21	41		
Oct. 26			0°890	75°2				308			1155	0°384	124°9	231°6	-8°4	0	4	250 f	
			0°920	121°2				145			1158	0°424	44°2	231°6	+21°9	27	54		
							(118)	(1315)	(2113)		1158	0°451	49°7	228°6	+21°1	13	30		
											1156	0°503	118°3	223°5	-9°8	83	543		
											1156	0°555	116°1	219°8	-10°3	24	108		
											1156	0°609	114°1	215°8	-10°7	0	13		
											1160	0°825	76°1	194°7	+14°0	0	7		
299°036	JH, F		0°891	282°3					407		1160	0°837	77°4	193°4	+13°0	0	28	731 c	
		1149	0°812	252°2	329°1	-11°5	59	452	167 c		1160	0°839	74°2	193°3	+15°7	0	7		
		1149	0°755	250°4	323°5	-11°4	19	163			1161	0°913	89°0	184°3	+2°8	28	238		
		1149	0°747	244°7	321°5	-15°2	9	84			1161	0°938	86°7	180°3	+4°7	1	152		
		1157	0°600	251°0	311°9	-7°4	2	7			1161	0°971	86°1	173°9	+4°9	0	123		
		1152	0°197	337°2	281°7	+15°1	12	57				0°796	111°7				67		
		1154	0°433	114°4	253°9	-6°0	19	112				0°953	102°6				253		
Oct. 27		1155	0°678	105°6	236°2	-7°0	14	150				0°953	114°1				93	(2693)	
		1155	0°748	104°8	230°5	-7°8	6	34	559 c										
		1156	0°831	104°4	222°8	-9°2	65	463											
		1156	0°869	104°2	218°6	-9°9	1	100											
							(206)	(1622)	(1133)	Oct. 29									
										301°804	H, W								
										I.									
300°075	JH, F		0°890	279°2					339				0°985	279°9				268	
		1149	0°926	255°2	329°6	-11°8	81	583	829 c				0°932	307°3				162	
		1149	0°875	253°9	322°5	-11°7	36	261					0°931	291°1				144	
		1149	0°868	249°3	320°7	-15°4	0	43					0°995	256°9	323°7	-12°6	19	196	
		1157	0°769	255°9	312°2	-7°8	1	15	61 c				0°982	256°1	318°3	-12°7	11	120	
		1152	0°362	300°3	282°4	+14°9	9	35					0°682	287°5	282°9	+15°1	1	8	
		1154	0°244	139°6	254°5	-6°1	11	73					0°653	287°9	280°7	+14°9	0	3	
Oct. 28		1155	0°500	113°2	236°1	-7°3	15	99					0°604	210°0	260°6	-27°3	4	6	
		1155	0°570	111°3	231°3	-8°1	0	20					0°595	208°0	259°1	-27°4	0	4	
		1158	0°604	55°7	230°7	+23°7	0	3					0°592	205°4	257°5	-28°0	0	2	
		1158	0°602	57°8	230°3	+22°5	0	6					0°593	203°3	256°2	-28°6	2	16	
		1158	0°594	60°9	230°1	+20°6	0	3					0°305	233°6	255°0	-6°2	12	61	
		1156	0°684	109°6	222°9	-9°8	81	520					0°267	234°7	253°4	-4°6	0	1	
		1156	0°733	108°7	218°9	-10°3	19	74					0°206	161°6	237°1	-6°9	9	47	
Oct. 28		1159	0°822	108°9	210°9	-12°7	4	20	65 c				0°344	23°0	232°5	+22°7	32	186	
		1160	0°937	76°1	193°8	+14°6	0	29	400 n f				0°336	32°0	229°9	+20°8	6	40	
		1160	0°942	77°8	192°9	+13°0	0	11					0°365	29°3	229°7	+22°8	0	5	
		1161	0°985	88°2	183°6	+2°6	12	95					0°366	35°2	227°7	+21°6	16	48	
			0°915	111°2					174 c				0°385	128°5	223°1	-9°6	86	591	
			0°927	103°9					106				0°449	122°7	218°3	-9°9	0	4	
									248				0°484	121°6	216°1	-10°7	0	6	
							(269)	(1890)	(2222)				0°646	113°5	203°8	-11°4	5	8	

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column, it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculæ relative to the Spots with which they are associated are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculæ are expressed in millionths of the Sun's visible Hemisphere.

Group 1157, Oct. 27-28. A small spot.

Group 1158, Oct. 28-Nov. 6. Three very small spots on Oct. 28. The group rapidly increases in size on the following days, and on Oct. 30 consists of a large regular spot, with a somewhat scattered cluster of small spots at a little distance. These small spots tend to coalesce after passing the central meridian on Oct. 31, and at the same time diminish in size.

Group 1159, Oct. 28. A small spot.

Group 1161, Oct. 28-Nov. 8. Three regular spots. Several small spots are seen near the middle spot on Oct. 30 and 31. The two following spots break up and diminish in size on the following days, and disappear, the last spot before Nov. 4, the middle spot before Nov. 5, leaving the preceding spot alone.

Group 1162, Oct. 29-31. A scattered group composed of very small spots.

Group 1163, Oct. 30-Nov. 8. An irregular and very scattered group of small spots. The group undergoes constant change during the period of its visibility.

Group 1160, Oct. 28-Nov. 1. A cluster of small spots.

Measures of Positions and Areas of Spots and Faculae upon the Sun's Disk—continued.

Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1883. 301 ^d 80 ⁴	H, W	1160	0°753	76°3	194°0	+13°0	4	59	134 n f	1883. 303 ^d 787	H, W	1161	0°486	91°6	185°6	+2°9	22	182	83 c
I.		1161	0°833	89°6	184°5	+2°8	29	177	754 c	I.	1161	0°547	88°2	181°5	+4°5	16	106	68 c	
		1161	0°858	91°0	181°9	+1°5	0	2			1161	0°604	86°7	177°5	+5°4	4	12		
		1161	0°869	87°3	180°5	+4°6	16	151			1161	0°634	87°5	175°3	+4°8	7	67	61 c	
		1161	0°917	86°4	174°3	+5°1	17	98			1164	0°811	80°2	160°5	+10°4	6	23	45 c	
			0°825	73°0							321	1165	0°992	101°7	133°0	+11°0	0	40	545 p
Oct. 30			0°924	104°3			(269)	(1839)	(3782)			1166	0°992	80°0	131°4	+10°4	33	429	68 c
302 ^d 797			0°961	254°7					92	Nov. 1			0°777	104°8				205	
I.			0°927	338°5					86				0°876	81°8				192	
			0°841	250°7					91	304 ^d 789	H, W		0°932	124°5			(197)	(1781)	(2531)
			0°803	226°0					349	I.			0°958	246°9				485	
			0°784	287°3					436				0°956	284°9				780	
		1162	0°677	218°2	256°0	—28°3	1	9				0°934	271°0				91		
		1154	0°493	249°0	255°2	—6°4	10	60				0°893	234°3				290		
		1155	0°255	221°2	237°4	—6°8	5	31				0°816	259°0	254°9	—6°5	4	16	418 s	
		1158	0°332	347°9	232°0	+23°2	32	178				0°617	253°3	237°8	—6°9	1	14		
		1158	0°295	358°8	228°1	+21°4	12	103				0°542	306°2	229°5	+22°2	15	220		
		1156	0°256	168°0	224°6	—10°2	94	460				0°514	242°9	229°0	—9°9	9	52		
		1156	0°274	156°2	221°3	—10°2	15	111				0°452	237°1	224°0	—10°4	17	191		
		1156	0°318	143°9	216°8	—10°6	1	7				0°272	185°6	217°0	—11°6	1	18		
		1163	0°457	125°4	205°5	—11°3	2	6				0°104	328°3	206°5	+7°2	0	5		
		1163	0°500	121°2	202°0	—11°1	10	42				0°278	195°8	205°8	—11°4	12	61		
		1163	0°548	118°6	198°4	—11°4	10	49				0°290	168°9	198°1	—12°4	2	14		
		1160	0°550	72°6	195°2	+13°1	8	33				0°270	94°5	185°8	+2°8	29	190		
	1161	0°677	90°5	185°2	+2°8	33	180				0°331	87°7	182°1	+4°7	11	48			
	1161	0°730	87°6	180°9	+4°7	20	141				0°340	99°4	181°9	+0°7	0	2			
	1161	0°763	89°3	178°1	+3°3	1	12			0°435	87°9	175°7	+4°6	6	27				
	1161	0°798	86°9	174°8	+5°1	6	87			0°655	79°1	160°8	+10°2	4	8	21 c			
	1164	0°921	80°4	160°5	+10°6	0	19			0°938	103°4	133°2	—11°1	5	19				
Oct. 31			0°767	109°5					380			1165	0°959	101°7	129°2	—10°0	5	36	599 c
			0°880	107°1					637			1168	0°960	108°8	130°0	—16°8	15	94	
			0°964	101°5					263			1166	0°933	80°6	132°3	+10°3	29	311	
			0°983	119°3					129			1166	0°967	80°9	125°9	+9°9	8	136	1448 c
							(260)	(1528)	(3244)			1166	0°970	79°1	125°1	+11°6	5	17	
303 ^d 787			0°873	284°9					623			1169	0°996	114°0	119°1	—23°4	0	219	272 p
I.			0°852	235°9					426				0°748	81°6				83	
		1154	0°670	255°2	255°1	—6°6	3	29				0°845	127°4				76		
		1155	0°430	244°5	237°5	—6°8	3	12				0°921	131°2				66		
		1158	0°419	320°9	231°2	+23°0	20	150				0°964	68°3				124		
		1158	0°370	324°2	228°0	+21°5	7	67				0°973	120°8				229		
		1156	0°311	214°6	224°9	—10°6	55	564		Nov. 2							(178)	(1698)	(4982)
		1163	0°324	147°6	204°4	—11°7	7	29				0°984	271°7				74		
		1163	0°335	139°9	202°0	—10°7	0	12				0°972	285°6				218		
		1163	0°391	135°7	198°4	—12°2	14	46				0°940	237°9				346		
		1160	0°349	63°6	196°0	+12°9	0	13				1154	0°915	261°1	255°0	—6°5	0	4	593 c

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column, it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculae relative to the Spots with which they are associated are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculae are expressed in millionths of the Sun's visible Hemisphere.

Group 1164, Oct. 31–Nov. 5. A small spot.

Group 1165, Nov. 1–9. A small spot. A second spot is seen near it on Nov. 2 and 3, and another is seen on Nov. 7.

Group 1166, Nov. 1–10. Three spots of considerable size with several very small spots near. The larger spots break up into a number of fragments, and the entire group diminishes rapidly in size on Nov. 3 and the following days. The group covers a wide area, the individual spots being somewhat scattered.

Group 1167, Nov. 2. A small spot.

Group 1168, Nov. 2–6. A regular spot. It diminishes in size on Nov. 3 and the following days.

Group 1169, Nov. 2–13. A large regular spot.

Measures of Positions and Areas of Spots and Faculæ upon the Sun's Disk—continued.

Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).		
1883. 305 ^d 663	H, W			°	°	°			212 c	1883. 306 ^d 791	H, W			°	°	°				
I.		1155	0°762	257°3	238°1	- 7°0	2	4	31 c	I.		1165	0°703	110°1	134°0	-11°0	4	9	184 f	
		1158	0°686	299°5	230°0	+23°8	13	118				1168	0°751	116°6	131°7	-16°8	6	55	124 f	
		1158	0°664	299°0	228°4	+21°9	6	55				1166	0°678	78°5	133°7	+10°6	22	146	847 f	
		1156	0°673	250°9	229°8	- 9°6	15	56				1166	0°716	79°5	130°6	+10°3	0	33		
		1156	0°625	246°0	225°3	-11°4	0	8				1166	0°723	75°0	130°4	+13°5	0	4		
		1156	0°600	247°6	223°9	- 9°9	13	103				1166	0°749	79°8	127°8	+10°2	13	91		
		1163	0°406	234°2	209°2	- 9°9	6	30				1166	0°766	77°5	126°4	+12°1	2	8		
		1163	0°394	229°3	207°4	-11°0	14	111				1166	0°783	74°0	125°1	+15°0	0	7		
		1163	0°342	220°9	202°9	-11°0	0	7				1169	0°877	119°2	119°9	-23°2	33	231	516 c	
		1163	0°360	216°8	202°5	-12°8	0	1					0°940	124°5				657	210 466	
		1163	0°311	207°9	198°3	-12°0	0	7					0°942	94°3						
		1161	0°063	110°8	186°4	+ 2°8	38	172					0°965	74°9						
		1161	0°129	85°9	182°4	+ 4°5	12	42	Nov. 4 307°897	JH, F			0°840	283°7				(203)	(1285)	(5028)
		1161	0°178	83°9	179°6	+ 5°1	0	3				1156	0°947	258°4	230°3	- 9°6	0	44	133 c	
		1161	0°212	86°6	177°6	+ 4°6	0	3				1158	0°936	293°0	229°3	+22°8	0	65	178 f	
		1161	0°246	85°4	175°6	+ 5°1	3	5				1163	0°795	253°5	211°0	-10°6	34	215	1241 p	
		1164	0°489	76°1	161°1	+10°3	5	11				1163	0°763	249°8	207°3	-12°7	0	38		
		1165	0°845	105°8	134°1	-11°0	7	12				1163	0°754	252°4	207°2	-10°6	0	52		
		1165	0°874	103°4	130°4	- 9°7	0	10				1170	0°591	288°9	195°5	+14°1	22	72		
		1168	0°878	111°6	131°5	-16°8	9	78				1161	0°458	267°9	187°5	+ 2°4	49	177		
	1166	0°843	80°1	132°4	+10°5	34	270				1164	0°117	345°3	162°1	+10°3	0	14	528 sf 234 234		
	1166	0°874	76°6	129°0	+13°7	0	27				1165	0°506	121°2	134°3	-11°7	0	10			
	1166	0°888	80°7	127°1	+10°1	16	113				1168	0°570	127°8	132°5	-16°5	7	36			
	1166	0°892	78°7	126°7	+11°0	0	8				1166	0°458	73°7	133°9	+10°8	32	142			
	1166	0°903	75°5	125°3	+14°8	0	15				1166	0°497	67°9	132°2	+14°1	7	40			
	1169	0°957	115°9	120°5	-23°3	38	212				1166	0°533	70°8	129°4	+13°3	0	10			
	0°936	75°0									1166	0°529	77°2	129°0	+ 9°9	15	102			
	0°961	126°4									1169	0°741	127°0	119°9	-23°8	53	246		528 sf	
	0°987	92°5										0°911	82°4						234	
						(231)	(1485)	(4855)											(2314)	
Nov. 3										Nov. 5										
306°791	H, W								387	308°796	H, W									
I.		0°963	261°3						77	I.		0°968	282°4						113	
		0°932	293°3						73			0°952	246°4						81	
		0°958	230°9						149			0°834	244°7						168	
		0°922	244°9						282			1158	0°985	292°1	229°2	+22°4	8	74	398 c	
		0°886	279°5						526 n p			1163	0°906	256°9	212°1	-10°2	41	250	1136 c	
		1156	0°834	255°5	230°9	- 9°8	4	33	262 c			1163	0°872	254°4	207°4	-11°6	6	52		
		1156	0°772	253°8	224°7	- 9°9	7	57	268 n			1170	0°744	286°1	196°0	+14°4	13	40		
		1158	0°825	294°7	230°1	+22°5	17	101				1161	0°637	269°5	188°0	+ 2°5	23	164		
		1158	0°807	294°3	228°3	+21°8	3	31				1165	0°357	136°7	134°2	-11°4	3	6		
		1163	0°597	246°4	209°8	-10°6	20	174				1168	0°436	142°5	132°6	-16°6	1	12		
		1163	0°572	244°3	207°6	-11°0	2	22				1166	0°269	59°4	135°0	+11°4	0	2	32 26 9 8	
		1170	0°362	299°4	195°0	+13°9	25	61				1166	0°281	64°5	133°7	+10°5	32	133		
		1170	0°375	305°4	194°6	+16°2	7	23				1166	0°319	55°9	132°9	+13°8	9	26		
		1161	0°194	263°4	187°2	+ 2°6	33	183				1166	0°346	61°7	130°5	+13°0	0	9		
		1161	0°125	275°7	183°2	+ 4°6	2	9				1166	0°339	69°3	129°9	+10°4	0	8		
	1164	0°274	65°1	161°5	+10°4	3	7													

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column, it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculæ relative to the Spots with which they are associated are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculæ are expressed in millionths of the Sun's visible Hemisphere.

Nov. 5. The image of the sun on the photograph taken on this day is distorted into an elliptical form. The distance from the centre is expressed in each case in terms of the corresponding radius of the sun on the photograph.

Group 1170, Nov. 4-8. A number of small spots irregularly arranged. Only two spots remain on Nov. 7, only one on Nov. 8.

Measures of Positions and Areas of Spots and Faculae upon the Sun's Disk—continued.

[illegible]

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column, it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculae relative to the Spots with which they are associated are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculae are expressed in millionths of the Sun's visible Hemisphere.

Group 1171, Nov. 6-9. Two very small spots on Nov. 6, one of which disappears before Nov. 7. The group suddenly develops on Nov. 8 into two clusters of small spots, one of which disappears before Nov. 9.

Group 1172, Nov. 9-20. Two regular spots. A number of small spots are seen between them Nov. 9-14, and on Nov. 16.

Group 1172, Nov. 9-20. Two regular spots. A number of small spots are seen between them Nov. 9-14, and Nov. 16. Group 1173, Nov. Nov. 21. A large regular spot, followed on Nov. 12 and succeeding days by another but smaller regular spot. This latter is again followed on and after Nov. 14, by an irregular chain of small spots which undergo frequent changes in number, shape, and area. On Nov. 16, 17, and 18, a large portion of the principal spot separates from it, breaks up, and moves forward. Small spots are also seen between the two principal spots of the group on Nov. 13 and 14.

Group 1174, Nov. 10-16. A number of small spots irregularly arranged. The group undergoes constant changes.

Measures of Positions and Areas of Spots and Faculæ upon the Sun's Disk—continued.

Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1883. 316 ^d .007	JH, F		0°20	255°2	°	°			78	1883. 318 ^d .061	JH, F	1173	0°181	203°4	30°5	— 6°9	45	277	
			0°01	234°0					262			1173	0°204	164°7	23°3	— 8°8	23	98	
		1169	0°21	242°6	116°6	— 23°8	48	184	142 c			1177	0°826	108°4	332°9	— 13°6	105	514	526 f
		1175	0°848	289°6	110°4	+ 18°0	0	15											229
		1175	0°819	291°2	107°1	+ 18°9	0	40		Nov. 15									
		1174	0°306	292°3	70°1	+ 9°3	6	19											
		1174	0°282	304°9	67°1	+ 12°0	2	18											
		1174	0°251	306°8	65°3	+ 11°4	3	25		318°651	H, W		0°916	270°7					366
		1176	0°144	332°0	57°4	+ 10°0	2	9											301
		1176	0°131	345°0	55°5	+ 10°0	0	4		I.		1178	0°979	288°8	96°8	+ 18°9	0	21	66 n
		1176	0°130	358°6	55°3	+ 10°2	0	3				1174	0°770	283°5	68°3	+ 12°0	0	21	222 c
		1172	0°288	178°0	52°9	— 13°8	49	235				1179	0°789	252°5	68°7	— 12°1	0	4	
		1172	0°299	170°9	50°7	— 14°3	13	88				1179	0°760	254°3	66°4	— 10°2	6	39	63 c
		1172	0°356	154°5	44°4	— 15°9	58	369				1179	0°749	251°6	65°0	— 11°9	0	5	
		1173	0°351	125°8	36°8	— 9°1	114	604				1176	0°675	280°3	60°6	+ 8°8	29	282	58 c
		1173	0°312	112°2	36°7	— 4°1	9	40				1176	0°654	283°0	58°8	+ 10°3	2	25	21 c
		1173	0°453	111°5	28°5	— 7°0	17	98				1176	0°599	282°6	54°8	+ 9°5	15	204	62 c
		1177	0°992	104°0	331°7	— 13°6	0	232	365 p			1172	0°588	239°5	50°1	— 15°2	0	12	
Nov. 13							(321)	(1983)	(925)			1172	0°520	233°3	44°2	— 15°8	38	277	
												1173	0°397	243°0	39°4	— 8°0	7	164	
317°052	JH, F		0°28	284°4					283			1173	0°365	235°5	36°3	— 9°5	113	704	
		1174	0°538	283°1	71°6	+ 9°3	0	9				1173	0°266	230°8	30°5	— 7°2	45	230	
		1174	0°506	284°3	69°4	+ 9°5	0	4				1173	0°220	220°0	26°8	— 7°2	0	6	
		1174	0°499	288°2	68°5	+ 11°3	1	8				1173	0°212	210°1	24°7	— 8°0	0	9	
		1174	0°484	292°9	66°8	+ 13°2	1	14				1173	0°211	199°6	22°7	— 8°9	2	73	
		1176	0°345	291°4	58°6	+ 9°8	0	36				1180	0°406	126°8	359°3	— 11°7	0	4	
		1176	0°297	295°3	55°4	+ 9°9	9	48				1180	0°423	126°8	358°4	— 12°3	2	17	
		1172	0°353	216°0	52°0	— 13°9	49	213				1177	0°752	110°6	332°4	— 13°6	56	328	641 c
		1172	0°309	202°6	46°7	— 13°8	0	29				1177	0°828	109°5	325°1	— 14°5	0	5	
		1172	0°328	193°8	44°3	— 15°9	62	345				1177	0°869	109°8	320°7	— 15°7	0	4	
		1173	0°212	166°2	36°8	— 9°2	113	610				1181	0°781	69°0	328°8	+ 17°8	0	60	85 c
		1173	0°198	123°9	30°3	— 3°7	10	64					0°861	73°8					103
		1173	0°238	133°6	29°8	— 6°7	34	287					0°960	113°1					139
		1173	0°356	125°0	22°2	— 15°0	11	44											
		1173	0°418	124°9	19°3	— 11°3	0	15											
		1177	0°931	105°6	332°7	— 13°5	64	389	528 c										
Nov. 14							(354)	(2115)	(811)										
318°061	JH, F		0°910	276°2					176				0°912	283°3					119
			0°843	247°5					140				0°829	233°2					204
			0°685	217°6					87				1179	0°928	257°8	67°8	— 10°4	15	96
		1174	0°666	284°6	67°4	+ 11°6	0	13				1176	0°867	279°1	60°7	+ 9°1	40	258	
		1176	0°561	282°3	60°0	+ 9°1	29	267				1176	0°816	280°2	55°2	+ 9°7	15	122	
		1176	0°486	284°8	54°7	+ 9°5	35	267	130 c			1172	0°799	250°6	51°5	— 13°8	50	231	
		1172	0°501	236°2	51°7	— 13°8	47	286				1172	0°725	245°9	44°0	— 15°4	18	195	
		1172	0°429	223°6	44°2	— 15°6	79	336	64 c			1173	0°621	252°3	37°4	— 8°9	187	1018	
		1173	0°269	220°7	36°6	— 9°2	163	708				1173	0°527	251°8	31°0	— 7°4	73	260	
												1173	0°417	243°9	22°9	— 8°4	5	16	
												1180	0°239	183°0	1°5	— 11°3	3	7	
												1180	0°266	175°6	359°6	— 13°0	0	3	

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column, it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculae relative to the Spots with which they are associated are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculae are expressed in millionths of the Sun's visible Hemisphere.

Group 1175, Nov. 13. Two small spots.

Group 1176, Nov. 13-18. A number of small spots, measured in two clusters on Nov. 14. On Nov. 15, 16, and 17, the group consists of two large regular spots with a few small spots between them. These small spots are measured with the large spots on Nov. 15 and 17. The following spot has broken up into a number of small spots on Nov. 18.

Group 1177, Nov. 13-25. A regular spot. Several small spots are seen near it on Nov. 16, 18, 19, 20, and 23.

Group 1178, Nov. 16. A small faint spot.

Group 1179, Nov. 16-18. A somewhat scattered group composed of several very small spots. The group increases in size on the following days, and from Nov. 20 onwards consists mainly of four spots closely following each other. These are measured in two pairs on Nov. 22 and 23.

Group 1180, Nov. 16-25. Two or three small spots on Nov. 16. The group increases in size very rapidly on the three following days, and forms a large but at the same time compact group composed of many spots, some of them large. The spots begin to break up after passing the central meridian on Nov. 19.

Measures of Positions and Areas of Spots and Faculae upon the Sun's Disk—continued.

Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre terms of Sun's Radius.	in Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULAE.	Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre terms of Sun's Radius.	in Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULAE.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Area for each Group (and for Day).	Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	
1883. 320 ^d 004	JH, F	1180	0°255	168°9	357°9	— 12°0	2	15		1883. 321 ^d 099	JH, F	1180	0°545	244°0	4°5	— 12°0	20	125	
		1177	0°532	120°8	332°9	— 13°6	76	407				1180	0°492	242°1	0°8	— 11°4	5	35	
		1181	0°566	61°8	329°4	+ 17°5	54	429				1180	0°455	230°3	358°0	— 11°4	0	4	
Nov. 17			0°811	114°8					202			1177	0°278	183°7	335°7	— 14°0	2	8	
321°704	H, JH		0°952	246°4			(538)	(3057)	(970)			1177	0°308	181°8	335°2	— 15°7	0	9	
I.			0°916	234°2					69			1177	0°275	173°6	332°8	— 13°7	75	369	
			0°846	216°0					188			1181	0°289	1°8	334°1	+ 18°8	86	337	
		1179	0°986	260°3	71°2	— 9°2	0	14	18			1181	0°284	20°5	328°6	+ 17°5	28	366	
		1179	0°963	260°1	65°1	— 8°9	1	28				1183	0°388	118°0	314°4	— 8°5	0	22	
		1179	0°962	257°7	64°7	— 11°2	0	15	334 s			1183	0°443	114°5	310°6	— 8°6	0	9	
		1176	0°935	278°4	60°7	+ 8°6	27	264				1182	0°833	86°5	278°4	+ 4°1	17	113	
		1176	0°904	281°3	56°0	+ 11°2	0	4				1182	0°904	87°8	270°1	+ 3°0	0	26	425 c
		1176	0°900	278°4	55°6	+ 8°6	3	25	560 c				0°756	107°2				111	
		1176	0°891	280°1	54°3	+ 10°0	1	18					0°786	71°6				408	
		1172	0°874	253°0	50°7	— 13°6	22	211	325 c				0°911	111°8				112	
		1172	0°811	248°5	43°1	— 15°8	17	161	110 p		Nov. 19		0°925	118°7				461	
		1173	0°789	257°9	42°6	— 8°1	16	122					0°963	99°4			(494)	(3120)	200
		1173	0°759	256°6	39°7	— 8°6	26	171			322°914	JH, F	0°949	248°5				(5286)	
		1173	0°723	255°1	36°5	— 9°1	105	800	203 c				0°891	286°8				230	
		1173	0°650	255°6	30°9	— 7°5	38	183				1172	0°991	253°0	43°5	— 16°5	0	136	529
		1173	0°548	251°1	23°0	— 8°2	0	10				1173	0°965	259°8	36°4	— 9°3	186	878	468 c
		1180	0°312	218°0	2°9	— 12°0	8	25				1173	0°936	260°1	31°0	— 8°6	46	279	1087 c
		1180	0°276	210°9	359°9	— 11°4	0	9				1180	0°704	250°8	5°0	— 11°9	40	222	
		1180	0°274	202°0	357°6	— 12°4	3	19				1180	0°660	250°4	1°6	— 11°2	0	113	
		1177	0°434	136°4	333°5	— 16°1	0	5				1180	0°661	247°9	1°1	— 12°8	0	11	
		1177	0°415	130°2	332°7	— 13°3	59	380				1180	0°637	246°4	359°1	— 13°1	0	102	240 c
		1177	0°444	133°8	332°2	— 15°7	0	3				1177	0°350	221°0	336°0	— 13°3	0	12	
		1177	0°458	132°8	331°2	+ 15°9	2	8				1177	0°323	212°4	332°6	— 13°8	82	430	
		1181	0°425	48°7	332°1	+ 18°4	6	152				1177	0°347	205°0	331°2	— 16°3	0	4	
		1181	0°401	55°6	331°6	+ 15°2	0	13				1177	0°256	208°6	329°5	— 11°0	0	3	
		1181	0°425	53°8	330°8	+ 16°6	0	11				1177	0°300	201°5	328°9	— 14°2	0	2	
		1181	0°465	51°0	329°2	+ 19°1	9	65				1181	0°352	325°4	334°5	+ 18°7	72	372	
		1181	0°456	55°9	328°5	+ 16°9	34	247				1181	0°264	329°5	330°3	+ 15°1	2	21	
		1182	0°660	86°2	278°0	+ 4°3	15	104	359 c			1181	0°285	341°2	327°9	+ 17°5	22	344	
		1182	0°991	87°1	269°5	+ 3°2	0	19				1183	0°218	146°4	315°4	— 8°5	7	20	
Nov. 18			0°934	75°6			(392)	(3086)	(2417)			1182	0°691	86°2	278°9	+ 4°1	17	104	57 c
321°991	JH, F		0°994	279°8					1388			1182	0°790	88°0	270°4	+ 2°8	0	10	299 s p
			0°940	238°1					248			1184	0°942	103°5	253°2	— 12°0	0	73	843 s
			0°890	269°3					146				0°870	99°0	252°3	— 13°6	0	22	169
		1172	0°977	255°2	51°2	— 14°0	21	194					0°914	124°6				250	
		1172	0°941	251°9	43°1	— 16°3	21	149	672 c		Nov. 20						(474)	(3158)	(4172)
		1173	0°893	258°2	36°8	— 9°5	164	1101			323°914	JH, F	0°957	284°9				221	
		1173	0°843	258°8	31°1	— 8°2	55	248					0°672	235°4				36	
		1173	0°773	257°4	24°1	— 8°4	0	5	1115 c			1173	0°991	260°8	30°8	— 8°8	0	179	561 f

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column, it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculae relative to the Spots with which they are associated are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric. The Areas of Spots and Faculae are expressed in millionths of the Sun's visible Hemisphere.

Group 1182, Nov. 18-23. A regular spot with some very small faint spots following at some distance. These latter disappear before Nov. 22.
Group 1183, Nov. 19-20. Two small spots. The following spot disappears before Nov. 20.
Group 1184, Nov. 20-27. A small spot. Other smaller spots are seen near it on Nov. 20, 24, and 25.

Measures of Positions and Areas of Spots and Faculæ upon the Sun's Disk—continued.

Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1883. 323 ^d 9 ^h 14	JH, F	1180	0.836	254.5	4.4	-11.9	52	212	319 c	1883. 325 ^d 9 ^h 44	JH, F	1185	0.699	116.2	241.1	-16.7	0	7	192 c
		1180	0.799	254.4	0.7	-11.2	26	99				1186	0.753	69.9	234.6	+16.0	10	25	
		1180	0.799	252.0	0.3	-13.1	0	23				1186	0.784	72.5	231.4	+14.6	33	41	
		1180	0.773	251.3	357.8	-13.1	19	121				1186	0.894	67.2	230.3	+19.2	0	10	
		1177	0.465	234.7	332.1	-13.8	85	411				1186	0.807	72.8	229.1	+14.8	0	7	
		1181	0.504	305.5	334.8	+18.7	49	352				1187	0.838	103.6	226.1	-10.4	52	333	
		1181	0.407	308.6	328.5	+16.5	22	220				1188	0.913	102.2	217.1	-10.4	77	483	
		1181	0.416	315.3	327.1	+18.9	16	129					0.679	104.8					
		1182	0.507	85.0	278.9	+4.2	7	52					0.758	34.0					
		1182	0.596	89.6	272.8	+1.8	0	13					0.799	58.0					
		1182	0.633	87.6	270.1	+3.0	0	7					0.911	47.3					
		1184	0.850	105.3	252.5	-11.9	16	40					0.943	77.2					
		1185	0.939	109.4	241.2	-17.5	0	48		Nov. 23									
			0.914	66.1				701 c											
			0.988	75.0				204											
Nov. 21							(292)	(1906)	(2333)	326 ^d 9 ^h 22	JH, F		0.925	261.4					101
													0.911	247.2					102
													0.773	253.0					131
324 ^d 9 ^h 37	JH, F	1180	0.940	256.6	4.7	-11.9	25	283	505 c			1177	0.897	253.5	331.8	-14.0	54	335	264 c
		1180	0.908	255.5	359.7	-12.4	63	514				1181	0.916	289.9	334.9	+18.8	54	285	
		1177	0.637	245.5	332.3	-13.8	78	413				1181	0.902	286.6	333.2	+15.6	23	245	
		1181	0.633	296.3	332.2	+17.7	81	540				1181	0.892	289.4	331.6	+18.0	0	450	
		1182	0.288	82.2	279.3	+4.0	3	16				1184	0.366	130.3	253.1	-12.3	7	23	
		1184	0.703	109.1	253.3	-11.6	9	26				1184	0.396	132.9	252.3	-14.1	0	25	
		1185	0.819	112.6	243.7	-17.2	0	23				1185	0.507	127.8	245.0	-16.6	0	26	
		1185	0.841	112.1	241.3	-17.4	0	26				1185	0.546	126.9	242.4	-17.8	0	27	
		1186	0.906	74.2	231.5	+15.0	0	86				1186	0.600	65.0	235.3	+15.9	0	21	
		1187	0.943	101.7	226.2	-10.4	70	502				1186	0.654	69.0	230.6	+14.7	0	21	
		1188	0.985	101.0	216.5	-10.5	51	357				1187	0.713	106.5	225.7	-10.6	35	268	
			0.884	103.2				138				1188	0.770	99.5	220.0	-6.3	0	6	
			0.941	64.7				256				1188	0.816	104.5	216.3	-10.9	50	360	
Nov. 22							(380)	(2786)	(1686)	Nov. 24			0.846	77.7					(223) (2092) (2000)
325 ^d 9 ^h 44	JH, F		0.887	299.4				244	640 c	327 ^d 6 ^h 93	H, W		0.983	260.2					277
			0.842	207.6				105					0.958	255.0	331.6	-14.0	22	283	422 sf
		1180	0.996	258.4	5.9	-11.4	0	501				1181	0.971	287.9	335.1	+17.7	26	566	
		1180	0.981	257.0	359.7	-12.4	0	437				1181	0.952	288.0	330.9	+17.6	13	394	
		1177	0.797	251.2	332.6	-13.8	57	351				1184	0.258	155.6	253.2	-12.1	3	20	
		1177	0.777	251.0	330.7	-13.6	0	13				1184	0.287	157.9	253.0	-14.0	0	9	
		1181	0.833	289.4	336.8	+16.9	0	12				1184	0.274	149.0	250.8	-12.1	0	3	
		1181	0.828	291.9	335.9	+18.9	40	187				1186	0.469	55.9	235.6	+16.5	0	13	
		1181	0.789	291.9	332.0	+18.1	19	250				1186	0.479	58.2	234.5	+15.9	0	2	
		1181	0.775	288.7	331.2	+15.4	1	177				1186	0.533	63.4	230.0	+15.0	0	5	
		1181	0.741	292.3	327.5	+17.4	0	17				1187	0.589	110.7	225.4	-10.8	29	263	
		1182	0.064	44.8	279.2	+4.2	2	7				1188	0.706	106.9	216.1	-10.9	33	245	
		1184	0.525	116.1	253.1	-11.9	9	22				1189	0.823	104.2	205.3	-10.8	0	11	
		1185	0.658	118.4	244.7	-16.9	3	52				1189	0.856	103.2	201.7	-10.5	0	2	
		1185	0.690	119.0	242.5	-18.3	0	41											292 c

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column, it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculæ relative to the Spots with which they are associated are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculæ are expressed in millionths of the Sun's visible Hemisphere.

Group 1185, Nov. 21-24. Several small spots close together.
 Group 1186, Nov. 22-25. A disturbed area in which several small faint spots appear and disappear at short intervals. One spot is seen on Nov. 22, four on Nov. 23, two on Nov. 24, three on Nov. 25.
 Group 1188, Nov. 22-Dec. 4. A regular spot. A small spot is near it on Nov. 24, and another from Nov. 26 to Nov. 30. The latter is measured with the large spot on Nov. 28 and 29.
 Group 1187, Nov. 22-Dec. 2. A regular spot.
 Group 1189, Nov. 25. Two small spots.

Measures of Positions and Areas of Spots and Faculae upon the Sun's Disk—continued.

Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.				
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).		Area for each Group (and for Day).			
1883. 327 ^d 693	H, W		0°894 0°928 0°961 0°976	76°3 91°0 103°1 86°3	°	°			122 123 217 238	1883. 331 ^d 941	H, M	1191 1191 1190 1192	0°178 0°141 0°542 0°965	338°8 356°4 105°9 98°5	206°9 203°7 171°6 129°0	+10°4 +9°0 —7°8 —8°0	0 3 10 0	26 37 20 23					
I. Nov. 25							(126)	(1816)	(2798)		Nov. 29							(78)	(486)	454 ^f 193 (1670)			
329°048	H, F		0°957 0°945 1184 0°305 1187 0°340 1188 0°429 1188 0°475 1190 0°949 0°811 0°813 0°883	261°4 248°3 219°9 128°3 121°8 116°5 98°6 90°3 70°7 108°6	°	—12°2 —10°9 —11°9 —11°0 —7°8		9 40 0 43 9	26 220 22 210 53	138 105 110 c 777 104 713 (1947)	332°759	H, W	0°982 0°917 0°895 0°886 0°837 0°778 1187 0°576 1188 0°493 1188 0°433 1191 0°340 1191 0°311 1191 0°292 1191 0°280 1191 0°248 1191 0°224 1190 0°391 1192 0°909 1193 0°945 0°816 0°897 0°909 0°920 0°954	272°6 234°9 270°0 252°8 276°0 245°0 248°9 245°8 242°8 298°4 307°3 300°4 306°9 301°8 308°8 112°9 99°1 103°2 102°5 82°0 71°3 56°2 114°8	—11°3 —11°4 —10°6 +10°0 +11°6 +9°2 +10°4 +8°3 +8°9 —8°0 —8°0 —12°2	11 0 17 40 0 5 7 3 13 0 0 0	76 4 166 292 3 23 47 14 34 7 12 9				(96)	(687)	330 c 220 66 479 68 142 (2742)
Nov. 26							(101)	(531)	(1947)		Nov. 30												
329°952	H, F		0°860 1184 0°461 1187 0°219 1188 0°276 1188 0°310 1191 0°417 1190 0°857 0°878	286°2 239°8 162°2 144°0 132°0 70°3 99°6 109°5	°	—12°3 —10°9 —11°7 —10°7 +9°2 —7°6		4 27 0 37 0 11	8 193 4 211 14 27	103 37 c 194 c 552 (886)	334°724	H, JH	0°983 0°967 0°962 0°904 0°886 0°779 0°705 0°627 0°881 0°883 0°921 0°944 0°948 0°973	262°9 248°4 257°9 280°9 256°7 256°5 282°5 285°5 118°4 81°2 67°3 131°3 100°3 109°8	—11°5 —10°2 +9°1 +10°0 —24°2 +8°0	5 21 42 4 5 6	24 149 297 26 11 40				(83)	(547)	68 328 129 337 401 c 182 p 311 s ^f 344 ^f 164 182 110 122 (2678)
Nov. 27							(79)	(457)	(886)		Dec. 2												
330°953	H, F		0°872 0°851 1187 0°265 1188 0°208 1191 0°197 1191 0°245 1190 0°719 0°977 0°862	286°2 273°2 218°0 177°1 39°2 57°4 102°0 98°1 105°6	°	—11°0 —11°0 +9°8 +8°5 —7°9		21 30 13 3 16	155 199 28 15 20	260 623 150 239 (1272)													
Nov. 28							(83)	(417)	(1272)														
331°941	H, M		0°956 0°949 0°850 0°820 1187 0°434 1188 0°294 1191 0°191	272°3 285°9 229°9 249°7 241°8 227°4 324°7	°	—11°0 —10°6 +9°8		15 24 26	108 161 111														

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column, it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculae relative to the Spots with which they are associated are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculae are expressed in millionths of the Sun's visible Hemisphere.

Group 1190, Nov. 26-30. A small spot.

Group 1191, Nov. 27-Dec. 4. A few faint spots irregularly arranged on Nov. 27. The group rapidly increases in size on the following days, and on Nov. 30 is composed of a large regular spot, followed by a train of many small spots. The small spots diminish in number and size on the following days, and have all disappeared before Dec. 4.

Group 1193, Nov. 30. A small spot.

Group 1194, Dec. 2. A small spot.

Group 1192, Nov. 29-30. A small spot.
Group 1195, Dec. 2-4. A small spot.

Measures of Positions and Areas of Spots and Faculæ upon the Sun's Disk—continued.

Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	Area for each Group (and for Day).						Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	Area for each Group (and for Day).
1883. 336 ^d 913	H, M	1188	0° 986	260° 1	217° 8	— 9° 7	0	128	374 ^f	1883. 340 ^d 755	H, W		0° 864	118° 3					76
		1191	0° 958	279° 4	210° 7	+ 9° 1	50	245	451 ⁿ	I.			0° 898	133° 9					114
		1195	0° 548	75° 1	105° 7	+ 8° 3	0	12					0° 924	69° 1					263
			0° 938	105° 9					534	Dec. 8			0° 937	123° 5					50
Dec. 4							(50)	(385)	(1359)								(71)	(569)	(1867)
										341° 697	H, W		0° 866	287° 2					179
										I.			0° 825	259° 8					312
												1199	0° 222	332° 9	80° 8	+ 11° 0	0	5	
												1196	0° 449	70° 9	49° 6	+ 8° 1	0	3	
												1196	0° 453	73° 9	49° 0	+ 6° 9	0	8	
												1197	0° 502	115° 4	47° 3	— 12° 8	0	18	
												1197	0° 509	117° 3	47° 3	— 13° 8	0	5	
												1197	0° 521	112° 6	45° 6	— 11° 9	0	6	
												1197	0° 555	115° 5	43° 9	— 14° 1	6	70	
												1198	0° 632	108° 5	37° 3	— 11° 9	0	5	
												1198	0° 655	104° 8	35° 1	— 9° 9	31	218	49 c
												1198	0° 675	107° 3	33° 9	— 11° 9	0	2	
												1198	0° 674	100° 5	33° 3	— 7° 3	9	65	
												1198	0° 697	108° 9	32° 4	— 13° 3	0	15	
												1201	0° 703	73° 3	31° 7	+ 11° 3	2	9	
												1201	0° 727	75° 0	29° 5	+ 10° 6	0	2	
												1200	0° 936	102° 5	6° 1	— 11° 8	6	56	44 c
												1202	0° 981	77° 5	356° 6	+ 12° 2	36	156	442 c
													0° 806	72° 4					117 c
													0° 842	136° 9					94
													0° 871	63° 8					73
										Dec. 9							(90)	(643)	(1383)
										342° 787	H, W		0° 958	287° 6					299
										I.			0° 930	273° 1					48
													0° 904	260° 0					309
												1203	0° 805	238° 5	109° 6	— 25° 2	0	2	
												1196	0° 231	56° 8	49° 3	+ 6° 8	0	9	
												1197	0° 297	133° 3	47° 8	— 12° 2	9	70	
												1197	0° 322	129° 2	45° 8	— 12° 2	0	18	
												1197	0° 297	116° 6	45° 0	— 8° 1	0	7	
												1197	0° 362	130° 6	44° 1	— 14° 1	8	114	
												1198	0° 423	114° 3	37° 5	— 10° 4	0	3	
												1198	0° 482	119° 2	34° 9	— 14° 0	0	6	
												1198	0° 461	111° 0	34° 7	— 10° 0	35	214	
												1198	0° 474	104° 4	33° 1	— 7° 2	5	36	
												1201	0° 495	66° 4	33° 1	+ 10° 9	2	9	
												1201	0° 534	67° 4	30° 4	+ 11° 4	0	5	
												1201	0° 555	60° 6	28° 7	+ 10° 7	2	27	
												1201	0° 828	103° 8	5° 5	— 11° 7	7	86	45 c
												1202	0° 908	76° 4	356° 3	+ 12° 1	34	252	135 c

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column, it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculæ relative to the Spots with which they are associated are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculæ are expressed in millionths of the Sun's visible Hemisphere.

Group 1196, Dec. 6-10. Two small spots.

Group 1197, Dec. 6-17. Two small spots. The group increases in size as it approaches the central meridian, and on Dec. 9 and the following days it forms two compact clusters of spots with a few smaller spots scattered in the neighbourhood. The preceding cluster coalesces before Dec. 14 to form a regular spot, the following cluster breaks up and its component parts become scattered and diminish in size.

Group 1198, Dec. 6-18. A regular spot with some small attendant spots. These latter have all disappeared before Dec. 18.

Group 1199, Dec. 8-9. Two small spots. The preceding spot disappears before Dec. 9.

Group 1200, Dec. 8-20. A regular spot. A number of small spots, which undergo frequent and rapid changes, appear near it on Dec. 12 and the following days. The regular spot disappears before Dec. 18.

Group 1201, Dec. 9-14. Two small spots. Fresh spots appear, and on Dec. 12 when on the central meridian the group is composed of a very great number of small spots. It diminishes rapidly after passing the central meridian.

Group 1202, Dec. 9-20. A regular spot. Several small spots appear following it on Dec. 12. These disappear before Dec. 15, on which day several small spots are seen to the north of the principal spot. These last are measured with the principal spot on Dec. 16.

Measures of Positions and Areas of Spots and Faculae upon the Sun's Disk—continued.

Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1883. 342 ^d 787 I. Dec. 10	H, W	1204	0°970 0°877 0°975	74°1 108°0 100°4	345°4 +15°3		11	139	485 c 237 222 (113) (997) (1941)	1883. 344 ^d 814 I.	H, W	1202	0°616 0°650 0°669 0°745 0°765 0°898 0°898 0°806 0°941 0°988	68°3 71°7 70°2 69°4 68°6 66°7 108°0 107°2 78°2 105°7	358°1 355°0 353°8 347°9 346°1 332°4 331°1	+12°5 +11°1 +12°5 +14°6 +15°7 +20°4 -16°5	50 0 1 6 6 21 5	271 4 12 23 36 131 43	162 c 230 c 847 s 491 f 214 103 253 (368g)
344°038 M, F			0°929 0°865 0°218 0°179 0°121 0°226 0°223 0°213 0°268 0°321 0°637 0°745 0°855 0°956 0°957 0°866	241°0 279°7 202°6 193°9 200°5 180°4 135°2 120°1 43°0 52°5 107°0 72°1 71°6 68°3 106°8 101°6	49°0 -12°3 -10°7 -7°2 -13°7 -9°8 -6°8 33°4 +10°6 29°2 5°9 357°7 347°1 332°9 331°7 -16°3	20 0 0 33 37 11 6 24 21 93 30 37 0	95 23 12 227 205 45 30 92 78 333 149 148 40	261 f 212 c 606 c 617 c 273 c 278 (312) (1477) (2711)	Dec. 12 346°043 H, M		0°989 0°901 0°877 0°557 0°506 0°480 0°328 0°294 0°337 0°278 0°304 0°232 0°283 0°333 0°391 0°466 0°569 0°762 0°756 0°792 0°814 0°916	277°5 279°2 281°9 248°0 247°5 242°2 240°3 248°7 306°3 310°8 317°1 132°9 132°3 118°7 54°1 59°3 61°5 62°4 111°9 119°6 74°2 108°0	81°2 +7°9 +9°9 -12°8 -12°0 43°4 -13°7 -10°2 -7°0 +10°6 +9°6 +12°0 7°7 -9°9 -11°9 -10°0 358°8 353°4 346°6 331°8 330°6	0 0 34 9 35 21 8 0 6 9 16 7 51 0 0 17 12	21 15 241 37 225 161 22 13 21 9 78 38 304 16 69 123 30	187 169 c 428 c 488 s 62 c 172 195 280 (1981)			
Dec. 11 344°814 I.	H, W		0°971 0°928 0°923 0°895 0°895 0°826 0°796 0°344 0°320 0°291 0°251 0°297 0°297 0°166 0°107 0°205 0°196 0°192 0°232 0°203 0°481 0°502 0°516 0°525 0°538	240°5 291°7 279°5 258°8 231°5 267°6 280°8 231°2 228°9 230°9 243°4 221°5 215°0 186°3 178°1 349°5 357°5 6°9 17°7 21°2 108°4 112°1 108°5 112°0 115°4	49°7 -13°2 -12°8 -11°3 -7°3 -13°6 -14°8 -10°3 -6°9 +10°8 +10°4 +10°2 29°7 +11°9 +10°0 6°4 -9°4 -11°6 4°1 -10°1 4°1 -12°0 3°9	14 6 0 0 6 22 29 0 0 0 0 5 3 2 15 0 0 0 0 0	97 28 8 4 26 169 167 10 2 17 13 57 6 85 11 14 4	239 384 210 40 387 53 76	Dec. 13 346°799 H, W		0°791 0°873 0°882 0°895 0°959 0°974 0°697 0°670 0°633 0°621 0°609 0°476	251°4 285°5 261°5 248°3 279°7 228°0 252°7 252°5 248°9 246°5 250°5 250°5	50°4 -12°7 -12°4 -14°0 -15°1 -12°6 -10°0	33 0 0 9 12 22	268 46 7 78 61 152	84 191 190 262 132 69			

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column, it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculae relative to the Spots with which they are associated are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculae are expressed in millionths of the Sun's visible Hemisphere.

Group 1204, Dec. 10-20. Two spots, which are measured together on Dec. 10 and 11. On Dec. 13 they have broken up into a line of small faint spots which are measured together, and of these only one remains on Dec. 14. The group is not seen on Dec. 15, but re-appears as a small faint spot on Dec. 16. Several other small spots appear on Dec. 17, and form an irregular scattered group.

Group 1205, Dec. 11-23. A regular spot. Smaller spots are seen near it on Dec. 18, 20, and 22.

Group 1206, Dec. 11-19. A small faint spot. Several other small spots appear near it on Dec. 15, and others on Dec. 17. The group is measured together as a whole on Dec. 15 and 16.

Group 1207, Dec. 13. Two small spots.

Measures of Positions and Areas of Spots and Faculæ upon the Sun's Disk—continued.

Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	Area for each Group (and for Day).						Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	Area for each Group (and for Day).
1883. 346 ^d 799	H, W	1198	0°45'7"	257°0'	34°1'	— 6°8'	1	11		1883. 348 ^d 998	H, M	1200	0°47'5"	249°5'	5°5'	— 10°7'	0	21	
I.		1198	0°48'6"	242°7'	33°9'	— 13°7'	0	17				1200	0°45'2"	254°2'	4°7'	— 8°12'	14	97	
		1201	0°48'8"	204°4'	34°4'	+ 10°7'	0	6				1202	0°46'0"	303°0'	1°9'	+ 13°3'	36	184	
		1201	0°49'5"	302°8'	33°0'	+ 14°6'	0	2				1204	0°27'9"	339°4'	344°5'	+ 13°8'	0	10	
		1201	0°44'1"	298°3'	30°8'	+ 11°1'	0	5				1205	0°39'7"	17°7'	331°3'	+ 20°8'	18	108	
		1201	0°41'1"	296°0'	29°5'	+ 9°4'	0	6				1206	0°28'6"	154°3'	331°3'	— 16°2'	0	16	
		1208	0°29'6"	350°1'	10°6'	+ 15°9'	0	3					0°88'6"	86°4'					
		1208	0°29'6"	2°4'	6°9'	+ 16°1'	0	5											
		1200	0°18'5"	169°1'	5°6'	— 11°4'	10	61		Dec. 16							(112)	(760)	249 (597)
		1200	0°16'2"	160°0'	4°4'	— 9°8'	0	5		349°783	H, W		0°9'38"	268°9'					128
		1200	0°16'2"	151°8'	3°2'	— 9°2'	0	13		I.			0°9'20"	240°4'					401
		1200	0°22'1"	139°9'	359°3'	— 10°7'	4	17					0°8'9'3"	284°1'					590
		1202	0°25'9"	27°5'	0°6'	+ 12°3'	34	176					0°88'8"	292°5'					67
		1202	0°28'6"	32°2'	358°6'	+ 13°0'	0	4				1197	0°9'9'1"	257°6'	50°6'	— 12°5'	12	140	} 667 c
		1202	0°29'5"	38°2'	356°9'	+ 12°4'	5	24				1197	0°9'7'0"	257°5'	44°1'	— 12°5'	0	12	
		1202	0°30'7"	44°3'	355°0'	+ 11°7'	0	7				1198	0°9'2'1"	262°8'	35°2'	— 7°2'	0	18	} 270 c
		1202	0°34'4"	42°9'	354°3'	+ 13°6'	0	4				1198	0°9'18"	259°4'	34°7'	— 10°3'	13	101	
		1204	0°4'34"	52°5'	346°9'	+ 14°3'	0	13				1208	0°7'52"	294°2'	14°0'	+ 16°9'	4	16	
		1209	0°4'18"	115°9'	345°1'	— 11°4'	0	2				1200	0°6'44"	258°7'	7°9'	— 8°4'	0	5	
		1205	0°6'6'1"	56°2'	331°8'	+ 20°7'	27	121	23 c			1200	0°6'20"	259°3'	6°2'	— 7°7'	0	40	
		1206	0°6'39"	115°4'	330°7'	— 16°6'	4	19				1200	0°6'25"	254°5'	6°0'	— 10°7'	0	12	
			0°8'4'1"	109°5'					442			1200	0°6'18"	256°9'	5°8'	— 9°2'	0	4	
			0°9'29"	65°6'					57			1200	0°5'9'2"	254°3'	3°7'	— 10°4'	0	2	
			0°9'87"	75°3'					125			1200	0°5'8'2"	257°0'	3°2'	— 8°6'	15	89	
Dec. 14							(161)	(1133)	(1575)			1202	0°6'7'6"	296°8'	7°3'	+ 16°6'	0	5	
347°975	H, M	1197	0°8'58"	256°2'	50°5'	— 12°4'	16	119				1202	0°6'30"	296°2'	4°1'	+ 15°0'	4	65	
		1197	0°8'06"	254°9'	44°8'	— 12°8'	9	68				1202	0°6'03"	292°8'	3°1'	+ 12°3'	31	165	
		1197	0°8'02"	261°9'	44°1'	— 15°1'	0	22	395 c			1202	0°5'7'4"	297°3'	0°0'	+ 14°0'	3	29	
		1198	0°6'83"	256°5'	34°3'	— 10°0'	21	93				1204	0°3'9'7"	301°2'	348°5'	+ 10°6'	0	5	
		1198	0°6'77"	261°2'	34°3'	— 6°9'	0	12	110 c			1204	0°3'9'2"	305°8'	347°3'	+ 11°9'	0	4	
		1208	0°4'39"	313°2'	11°5'	+ 16°3'	3	47				1204	0°3'53"	305°5'	345°3'	+ 10°4'	0	4	
		1208	0°4'12"	319°1'	8°4'	+ 16°9'	0	9				1204	0°3'36"	311°1'	344°5'	+ 12°3'	4	10	
		1200	0°2'86"	234°0'	5°7'	— 10°8'	4	34				1205	0°3'88"	352°8'	331°4'	+ 21°1'	23	126	
		1200	0°2'08"	218°9'	359°7'	— 10°4'	0	6				1206	0°3'43"	194°4'	333°6'	— 20°8'	0	5	
		1202	0°2'86"	324°7'	1°8'	+ 12°3'	27	155				1206	0°3'11"	194°2'	333°0'	— 18°9'	5	15	
		1202	0°3'12"	330°0'	1°3'	+ 14°4'	0	22				1206	0°2'63"	191°8'	331°6'	— 16°3'	4	10	
		1209	0°1'98"	145°9'	345°6'	— 10°6'	0	4				1206	0°3'11"	188°8'	331°2'	— 19°2'	0	9	
		1205	0°4'97"	41°3'	331°6'	+ 20°8'	25	132				1206	0°2'44"	189°6'	330°8'	— 15°3'	0	5	
		1206	0°4'34"	127°4'	331°1'	— 16°3'	4	14				1210	0°3'59"	138°3'	314°0'	— 16°9'	0	5	
			0°9'55"	87°5'					407 (912)				0°7'97"	87°1'					785
Dec. 15							(109)	(736)					0°8'45"	64°2'					59
348°998	H, M	1197	0°9'52"	257°6'	50°5'	— 12°2'	13	117					0°9'39"	103°8'					917
		1197	0°9'07"	256°7'	43°2'	— 12°6'	0	47					0°9'61"	123°1'					775
		1198	0°8'29"	262°5'	34°4'	— 7°0'	0	14	348 c										(118)
		1198	0°8'29"	258°6'	34°1'	— 10°2'	18	92		Dec. 17			0°9'67"	282°8'					(901)
		1208	0°6'17"	299°0'	12°8'	+ 16°3'	13	42		350°784	H, W		0°8'7'0"	255°5'					289
		1208	0°5'56"	302°5'	7°8'	+ 16°2'	0	14		I.			0°8'46"	291°0'					102
																			236

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column, it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculæ relative to the Spots with which they are associated are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following concentric.

The Areas of Spots and Faculæ are expressed in millionths of the Sun's visible Hemisphere.

Group 1208, Dec. 14-17. A small spot followed at a little distance by a small cluster of faint spots. This cluster disappears before Dec. 17.

Group 1209, Dec. 14-15. A small faint spot.

Group 1210, Dec. 17. A small faint spot.

GREENWICH MEAN SOLAR TIME.															GREENWICH MEAN SOLAR TIME.														
MEASURES.		NO. OF GROUP.		DISTANCE FROM CENTRE IN TERMS OF SUN'S RADIUS.		POSITION ANGLE FROM SUN'S AXIS.		HELIOGRAPHIC.		SPOTS.		FACULAE.		MEASURES.		NO. OF GROUP.		DISTANCE FROM CENTRE IN TERMS OF SUN'S RADIUS.		POSITION ANGLE FROM SUN'S AXIS.		HELIOGRAPHIC.		SPOTS.		FACULAE.			
LONGITUDE.	LATITUDE.	AREA OF UMBRA FOR EACH SPOT (AND FOR DAY).	AREA OF WHOLE FOR EACH SPOT (AND FOR DAY).	AREA FOR EACH GROUP (AND FOR DAY).	LONGITUDE.	LATITUDE.	AREA OF UMBRA FOR EACH SPOT (AND FOR DAY).	AREA OF WHOLE FOR EACH SPOT (AND FOR DAY).	AREA FOR EACH GROUP (AND FOR DAY).	LONGITUDE.	LATITUDE.	AREA OF UMBRA FOR EACH SPOT (AND FOR DAY).	AREA OF WHOLE FOR EACH SPOT (AND FOR DAY).	AREA FOR EACH GROUP (AND FOR DAY).	LONGITUDE.	LATITUDE.	AREA OF UMBRA FOR EACH SPOT (AND FOR DAY).	AREA OF WHOLE FOR EACH SPOT (AND FOR DAY).	AREA FOR EACH GROUP (AND FOR DAY).	LONGITUDE.	LATITUDE.	AREA OF UMBRA FOR EACH SPOT (AND FOR DAY).	AREA OF WHOLE FOR EACH SPOT (AND FOR DAY).	AREA FOR EACH GROUP (AND FOR DAY).	LONGITUDE.	LATITUDE.	AREA OF UMBRA FOR EACH SPOT (AND FOR DAY).	AREA OF WHOLE FOR EACH SPOT (AND FOR DAY).	AREA FOR EACH GROUP (AND FOR DAY).
1883. 350 ^d 784	H, W	1198	0°981	259°8	33°9	— 10°3	20	87	332 f	1883. 352 ^d 807	H, W	0°965	269°4																
I.		1200	0°790	260°9	7°0	— 8°1	4	84	107 c	I.		0°941	248°6																
		1200	0°739	260°4	2°4	— 8°1	7	77	176 c			0°765	255°0																
		1202	0°801	289°2	6°3	+ 14°3	5	41	49 c			1200	0°961	262°0	2°4	— 8°2	0	26											
		1202	0°781	292°2	3°9	+ 16°2	0	5				1202	0°973	283°0	4°2	+ 12°3	20	105											
		1202	0°765	287°4	3°3	+ 12°2	26	120	66 c			1204	0°887	282°7	349°9	+ 10°4	6	31											
		1204	0°568	290°4	34°7	+ 10°1	0	6				1204	0°886	285°5	349°4	+ 12°8	0	7											
		1204	0°553	293°4	34°6	+ 11°4	0	4				1204	0°863	282°5	347°1	+ 9°8	1	3											
		1204	0°535	291°8	34°5	+ 10°2	5	14				1204	0°848	283°1	345°3	+ 10°1	11	18											
		1205	0°466	323°6	33°3	+ 20°5	0	3				1204	0°849	286°8	344°9	+ 13°2	6	17											
		1205	0°466	326°2	33°3	+ 21°3	14	113				1205	0°767	301°3	333°4	+ 22°2	0	41											
		1206	0°425	227°3	33°4	— 18°1	0	10				1205	0°735	301°8	330°5	+ 21°4	18	111											
		1206	0°408	223°0	33°2	— 18°7	5	19				1211	0°105	134°0	284°2	— 6°0	7	35											
		1206	0°374	228°3	33°0	— 15°8	0	7				1211	0°175	125°3	280°3	— 7°6	0	8											
		1206	0°371	221°2	33°0	— 17°6	0	6				1214	0°379	135°7	272°5	— 17°4	5	24											
			0°896	106°9																									

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column, it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculae relative to the Spots with which they are associated are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculae are expressed in millionths of the Sun's visible Hemisphere.

Group 1211, Dec. 19-22. Two small clusters of spots, preceded on Dec. 19 by a very small spot. The following cluster disappears before Dec. 27.
Group 1212, Dec. 19-29. An extensive group of very irregular character, composed of a large spot of irregular outline surrounded by a great number of small spots. The group diminishes in size after Dec. 21, and suffers continual change. On Dec. 26 and following days the group consists of a great number surrounded by a great number of small spots. The group diminishes in size on Dec. 28, and breaks up into small spots on Dec. 27. Occasionally a very faint spot is seen in the neighbourhood of the principal spot on Dec. 20-29. A regular spot. It gradually diminishes in size from day to day. Group 1213, Dec. 20-29. A regular spot. Small spots are seen near it on Dec. 21 and 22, and the group forms a wavy line.
Group 1214, Dec. 20-29. A regular spot. Small spots are seen near it on Dec. 21 and 22, and the group forms a wavy line.
Group 1215, Dec. 20-29. A regular spot. Small spots are seen near it on Dec. 21 and 22, and the group forms a wavy line.
Group 1216, Dec. 20-29. A regular spot. Small spots are seen near it on Dec. 21 and 22, and the group forms a wavy line.
Group 1217, Dec. 20-29. A regular spot. Small spots are seen near it on Dec. 21 and 22, and the group forms a wavy line.
Group 1218, Dec. 20-29. A regular spot. Small spots are seen near it on Dec. 21 and 22, and the group forms a wavy line.
Group 1219, Dec. 20-29. A regular spot. Small spots are seen near it on Dec. 21 and 22, and the group forms a wavy line.
Group 1220, Dec. 20-29. A regular spot. Small spots are seen near it on Dec. 21 and 22, and the group forms a wavy line.

MEASURES OF POSITIONS AND AREAS OF SPOTS AND FACULÆ UPON THE SUN'S DISK

Measures of Positions and Areas of Spots and Faculæ upon the Sun's Disk—continued.

Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC.		SPOTS.		FACULÆ.	Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC.		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1883. 354 ^d .768	H, W	1205	0°57'	245°8'	336°7'	+24°0'	0	55	} 468 c	1883. 355 ^d .684	H, W	1217	0°79'3"	85°9'	198°5'	+2°0'	38	191	350 c
I.		1205	0°37'	293°8'	329°5'	+21°4'	8	59		I.		1218	0°84'	105°0'	194°1'	-13°7'	6	20	} 622 f 61 98 (2869)
		1205	0°37'	296°7'	329°0'	+24°1'	0	16				1218	0°849"	109°1'	193°7'	-17°2'	45	175	
		1211	0°398"	261°9'	285°9'	-5°1'	3	14				1218	0°870"	109°7'	191°6'	-18°1'	0	2	
		1214	0°315'	217°6'	274°2'	-16°3'	8	41					0°925"	102°4'					
		1214	0°295'	212°7'	272°2'	-16°3'	1	16					0°928"	75°0'					
		1214	0°299'	205°8'	270°5'	-17°5'	0	12		Dec. 23 356°790	H, W		0°955"	255°3'					
		1214	0°278'	203°0'	269°2'	-16°8'	2	17					0°829"	290°2'					
		1212	0°534'	108°8'	231°8'	-11°6'	0	5				1214	0°665"	246°8'	275°5'	-16°9'	7	57	
		1212	0°596'	102°0'	226°7'	-8°7'	48	769				1214	0°631"	246°4'	272°9'	-16°5'	0	6	
		1212	0°682'	105°8'	220°7'	-12°2'	2	34				1214	0°596"	245°1'	270°1'	-16°4'	3	13	
		1213	0°720'	106°7'	217°8'	-13°3'	33	277	184 c			1219	0°422"	237°1'	257°5'	-15°3'	0	2	
		1215	0°801'	78°3'	210°5'	+8°1'	45	212	133 f			1212	0°162"	153°2'	231°8'	-10°6'	0	20	
		1216	0°846'	99°1'	205°2'	-8°8'	76	686	750 c			1212	0°146"	147°6'	231°5'	-9°3'	2	10	
		1216	0°912'	99°7'	197°2'	-9°6'	20	513	323 c			1212	0°138"	134°6'	230°3'	-7°8'	0	11	
		1217	0°909'	86°8'	197°7'	+2°1'	35	204	414 f			1212	0°196"	126°8'	226°9'	-9°0'	23	457	
		1218	0°939'	107°7'	193°4'	-17°3'	24	139	285			1212	0°221"	103°5'	223°6'	-5°2'	0	5	
		1218	0°944'	103°1'	192°2'	-13°1'	11	43	107			1213	0°348"	122°1'	218°5'	-12°8'	37	221	
		1218	0°946'	106°4'	192°1'	-16°2'	9	63	(325) (3175) (3457)			1215	0°458"	67°5'	210°8'	+8°0'	34	199	
			0°820'	108°2'					382			1215	0°500"	68°0'	208°2'	+8°7'	0	17	
Dec. 22 355°684	H, W		0°951'	255°8'					474	Dec. 24 357°724	H, W		0°926"	287°1'				} 115 c 170 f 35 c 396 115 183 (1524)	
I.			0°902'	253°8'					270 f			1216	0°531"	108°0'	205°1'	-11°4'	2		89
		1205	0°985'	291°9'	328°9'	+21°2'	0	72	1216			0°575"	104°9'	201°7'	-10°4'	0	76		
		1214	0°481'	237°7'	275°6'	-16°8'	10	61	1216			0°639"	103°0'	197°0'	-10°0'	25	240		
		1214	0°461'	237°2'	274°3'	-16°4'	4	9	1216			0°681"	103°1'	193°7'	-10°6'	7	85		
		1214	0°430'	230°8'	271°0'	-17°7'	0	5	1217			0°554"	82°5'	202°8'	+2°3'	0	7		
		1214	0°403'	225°1'	268°0'	-18°5'	0	28	1217			0°607"	84°1'	199°0'	+1°7'	38	206		
		1219	0°247'	223°7'	260°6'	-12°4'	0	28	1218			0°681"	108°4'	194°4'	-14°1'	0	13		
		1219	0°253'	211°3'	258°4'	-14°5'	2	17	1218			0°705"	112°1'	193°1'	-17°1'	46	222		
		1219	0°251'	204°6'	256°8'	-15°2'	1	4	1218			0°733"	113°4'	191°0'	-18°5'	0	3		
		1212	0°306'	107°1'	233°5'	-7°2'	1	12	1220			0°870"	115°6'	177°6'	-23°3'	0	35		
		1212	0°322'	110°7'	232°9'	-8°5'	0	2				0°856"	109°6'						
		1212	0°390'	118°9'	230°2'	-12°8'	0	2				0°953"	75°1'						
		1212	0°417'	106°6'	226°9'	-8°8'	41	543				0°964"	112°6'						
		1212	0°486'	110°4'	223°0'	-11°6'	0	22											
		1212	0°472'	96°4'	222°6'	-4°8'	0	16											
		1212	0°509'	111°1'	221°6'	-12°4'	0	13				0°842"	273°8'						
		1213	0°560'	110°3'	218°1'	-12°9'	50	246	118 c				0°815"	296°7'					
		1213	0°602'	113°5'	215°8'	-15°6'	0	2				0°731"	250°5'						
		1215	0°656'	75°0'	211°0'	+8°1'	45	218	64 c			1214	0°798"	250°5'	275°4'	-16°9'	7	62	
		1216	0°859'	107°5'	208°8'	-13°0'	5	57				1219	0°575"	246°8'	256°8'	-15°0'	3	14	
		1216	0°706'	99°9'	206°1'	-8°5'	115	620				1212	0°170"	241°3'	232°4'	-7°0'	2	26	
		1216	0°729'	103°4'	204°5'	-11°1'	4	91	203 c			1212	0°197"	227°1'	232°2'	-10°0'	0	77	
		1216	0°796'	100°2'	198°2'	-9°4'	19	611	227 c			1212	0°131"	212°1'	227°8'	-8°8'	18	455	
		1216	0°842'	100°9'	193°6'	-10°3'	24	191											

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column, it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculæ relative to the Spots with which they are associated are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculæ are expressed in millionths of the Sun's visible Hemisphere.

Group 1219, Dec. 23-27. Three small faint spots.

Group 1220, Dec. 24-29. Two small spots, measured together on Dec. 24. They move apart on the following days, and the following spot disappears before Dec. 27.

Measures of Positions and Areas of Spots and Faculae upon the Sun's Disk—continued.

Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1883. 357 ^d 7 ^h 24	H, W	1212	0°157	160°4	220°7	-10°9	0	4		1883. 358 ^d 687	H, W	1218	0°421	137°3	193°4	-20°4	3	10	
I.		1213	0°199	156°0	219°1	-12°8	14	168		I.		1218	0°383	126°9	192°6	-15°6	4	32	
		1215	0°286	51°0	210°9	+ 8°0	35	179				1218	0°416	130°8	191°8	-18°1	4	31	
		1215	0°264	60°6	210°5	+ 5°1	0	1				1220	0°579	127°1	181°2	-22°6	4	33	
		1216	0°296	118°5	208°5	-10°4	1	7				1220	0°656	125°1	175°2	-24°2	1	3	
		1216	0°321	109°0	206°0	- 8°3	92	666				1221	0°885	103°5	149°3	-13°1	1	4	494 n f
		1216	0°350	117°4	205°4	-11°5	10	57					0°949	75°4					228
		1216	0°391	111°1	202°1	-10°3	2	89			Dec. 26						(390)	(2305)	(2469)
		1216	0°467	107°7	197°0	-10°3	19	220			359°707	H, W		0°969	275°4				241
		1216	0°514	106°5	193°9	-10°4	15	90			I.			0°879	237°0				85
		1217	0°322	77°0	205°6	+ 1°9	0	4						0°869	264°5				181
		1217	0°416	80°8	200°6	+ 1°6	30	190						0°737	257°2				110
		1218	0°513	113°8	195°0	-14°0	4	8				1219	0°892	256°7	260°4	-13°1	4	114	1053 c
		1218	0°546	117°9	193°7	-16°8	29	163				1219	0°870	257°5	257°7	-12°2	0	2	
		1218	0°556	115°2	192°4	-15°7	10	51				1219	0°856	254°6	255°9	-14°6	0	2	
		1220	0°737	119°7	179°9	-23°1	10	53	306 s f			1212	0°587	259°4	233°1	- 8°4	3	34	
		1220	0°778	119°4	176°1	-24°0	0	15	342 f			1212	0°551	257°6	230°5	- 9°0	14	173	
		1221	0°951	102°4	151°9	-12°6	0	3	83			1212	0°489	256°4	226°2	- 8°9	4	92	
			0°897	74°1					149			1213	0°408	244°0	219°6	-12°7	15	72	
			0°900	115°3					(2056)			1215	0°301	309°4	211°1	+ 8°5	24	115	
Dec. 25							(301)	(2602)				1215	0°279	307°5	210°4	+ 7°2	4	29	
358°687	H, W		0°921	271°9					845			1216	0°227	222°1	206°5	-12°3	0	17	
I.			0°902	294°7					200			1216	0°174	236°0	205°9	- 8°2	125	700	
		1214	0°903	253°0	275°0	-16°4	13	54	309 c			1216	0°192	216°6	204°3	-11°4	2	9	
		1219	0°759	253°7	259°5	-14°0	3	5	393 c			1216	0°156	205°5	201°5	-10°7	4	35	
		1219	0°721	252°4	256°1	-14°3	4	6				1216	0°125	210°8	201°3	- 8°8	0	12	
		1212	0°345	251°3	230°3	- 8°7	20	245				1216	0°188	184°6	198°5	-13°4	0	3	
		1212	0°276	250°5	226°3	- 7°7	9	64				1216	0°141	180°5	197°7	-10°7	14	100	
		1212	0°275	243°8	225°5	- 9°4	4	66				1216	0°146	158°0	194°4	-10°4	19	95	
		1212	0°228	257°8	224°0	- 5°2	0	22				1217	0°094	325°1	200°7	+ 1°9	33	201	
		1212	0°236	238°0	222°8	- 9°6	0	2				1218	0°194	170°2	195°7	-13°6	3	6	
		1213	0°231	218°5	219°5	-12°8	20	143				1218	0°249	166°9	194°2	-16°6	34	182	
		1215	0°187	0°4	211°0	+ 8°2	28	194				1218	0°319	166°4	193°0	-20°6	0	11	
		1216	0°131	139°1	206°2	- 8°1	135	626				1220	0°423	143°0	181°7	-22°2	4	18	
		1216	0°179	151°6	206°1	-11°6	4	26					0°849	101°9					341
		1216	0°199	133°0	202°6	-10°3	3	58					0°923	68°5					250
		1216	0°269	132°4	199°4	-12°8	0	5					0°940	84°7					73
		1216	0°257	126°1	198°9	-11°1	2	37			Dec. 27						(306)	(2022)	(2343)
		1216	0°278	118°7	196°8	-10°1	34	138			360°667	H, W		0°951	252°3				513
		1216	0°321	115°2	194°0	-10°2	18	94			I.			0°836	233°7				434
		1217	0°113	44°1	206°6	+ 2°2	1	11				1222	0°912	263°7	250°7	- 6°9	0	6	110 c
		1217	0°149	56°1	204°0	+ 2°3	0	3				1212	0°727	261°2	231°4	- 8°2	13	65	564 c
		1217	0°190	58°5	201°8	+ 3°2	0	6				1212	0°713	259°8	230°1	- 9°2	0	69	
		1217	0°205	68°6	200°1	+ 1°8	43	215				1212	0°671	260°3	226°8	- 8°5	3	47	130 c
		1217	0°247	64°3	198°3	+ 3°7	0	3				1213	0°587	252°2	219°8	-12°6	7	17	
		1218	0°330	126°6	195°3	-13°7	3	8				1213	0°557	252°9	217°8	-11°7	0	3	
		1218	0°377	131°2	193°9	-16°7	29	161											

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column, it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculae relative to the Spots with which they are associated are indicated by the letters n, s, p, f, c, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculae are expressed in millionths of the Sun's visible Hemisphere.

Group 1221, Dec. 25-26. A very small faint spot.

Group 1222, Dec. 28. A very small faint spot.

Measures of Positions and Areas of Spots and Faculæ upon the Sun's Disk—concluded.

Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Mean Solar Time.	Measures.	No. of Group.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1883. 360 ^d 667	H, W	1215	0.481	293.3	211.4	+ 8.5	19	111		1883. 361 ^d 739	H, W	1212	0.870	261.4	231.1	- 8.9	0	34	1837 ^c
I.		1215	0.463	291.7	210.6	+ 7.4	2	11		I.		1215	0.669	286.2	211.1	+ 8.6	15	117	
		1215	0.447	297.0	208.7	+ 9.2	0	2				1216	0.624	257.3	208.8	- 10.1	0	1	
		1216	0.419	250.7	208.6	- 10.4	0	3				1216	0.630	259.5	208.4	- 8.8	0	4	
		1216	0.412	244.7	207.3	- 12.6	0	2				1216	0.598	253.6	206.6	- 12.0	0	22	
		1216	0.373	254.8	206.2	- 8.1	128	585				1216	0.579	260.0	205.8	- 8.1	128	556	
		1216	0.389	244.8	205.6	- 12.0	0	6				1216	0.557	253.7	203.7	- 11.4	0	5	
		1216	0.367	245.0	204.7	- 11.4	1	8				1216	0.527	251.8	201.4	- 11.9	0	8	
		1216	0.320	252.0	202.8	- 8.2	4	40				1216	0.514	256.0	201.0	- 9.6	4	40	
		1216	0.306	242.9	201.0	- 10.6	8	91				1216	0.470	254.2	198.0	- 9.8	2	25	
		1216	0.253	239.5	197.7	- 10.0	4	35				1216	0.426	251.7	195.0	- 10.2	11	85	
		1216	0.217	231.8	194.9	- 10.3	14	90				1217	0.508	278.5	200.8	+ 1.9	30	202	
		1217	0.287	285.2	201.0	+ 1.7	34	195				1217	0.484	273.7	199.6	- 0.7	0	3	
		1218	0.289	214.3	194.7	- 16.4	28	155				1218	0.461	245.4	196.2	- 13.6	0	2	
		1224	0.130	220.0	189.8	- 8.4	10	24				1218	0.456	238.9	194.7	- 16.2	28	161	
		1224	0.105	205.3	187.6	- 8.1	0	13				1224	0.372	254.7	192.0	- 8.2	7	63	
		1223	0.198	159.7	181.0	- 13.4	0	3				1224	0.306	249.4	187.6	- 8.9	1	18	
		1220	0.339	171.3	181.8	- 22.2	1	6				1224	0.274	251.6	185.9	- 7.7	0	9	
Dec. 28		1225	0.948	104.9	113.7	- 15.0	14	62	308 ^f	Dec. 29		1223	0.290	228.1	183.6	- 13.9	6	65	
			0.846	63.4					268			1223	0.249	222.6	180.7	- 13.3	4	49	
			0.868	94.6					341			1220	0.369	207.6	181.4	- 21.7	0	3	
			0.960	79.6					149			1225	0.848	105.6	113.4	- 14.7	5	39	293 ^c
			0.972	118.2					124				0.804	55.6				157	
							(290)	(1651)	(2941)				0.878	77.2				184	
													0.908	121.0				343	
361 ^d 739	H, W		0.985	263.7					75				0.961	79.6				200	
I.			0.945	250.5					328				0.963	65.7				118	
			0.932	233.5					162				0.976	107.9				185	
			0.861	287.5					297										
			0.850	300.3					113										

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column, it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculæ relative to the Spots with which they are associated are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric.

The Areas of Spots and Faculæ are expressed in millionths of the Sun's visible Hemisphere.

Group 1223, 1883 Dec. 28-1884 Jan. 3. A small faint spot on Dec. 28. The group has greatly increased in size before Dec. 29, and appears as a number of small spots scattered over a considerable area, the preceding spot being the largest.

Group 1224, Dec. 28-29. An irregular cluster of small spots.

Group 1225, 1883 Dec. 28-1884 Jan. 4. A regular spot. It has broken up before Jan. 2, and only two or three very small faint spots remain to mark its place.

MEAN AREAS of UMBRÆ, WHOLE SPOTS, and FACULÆ upon the SUN'S DISK, as measured on PHOTOGRAPHS taken at the ROYAL OBSERVATORY, GREENWICH, and at DEHRA DUN, INDIA, for each ROTATION of the SUN, from 1882 December 23 to 1884 January 8.

The Mean Areas have been formed by taking the Means of the Areas for each day of observation throughout each Rotation of the Sun, and are expressed in millionths of the Sun's visible Hemisphere.

No. of Rotation.	Date of commencement of each Rotation.	No. of Days on which Photographs were taken.	Mean of Daily Areas.		
			Umbrae.	Whole Spots.	Faculae.
137	1882 December 23.46	26	148	897	2207
138	1883 January 17.84	22	120	741	1646
139	February 12.22	25	59	403	1676
140	March 9.60	25	127	919	1552
141	April 3.98	24	156	1116	1595
142	April 29.36	25	68	409	1404
143	May 24.74	25	99	721	967
144	June 19.12	23	312	2093	1647
145	July 14.50	17	240	1687	2300
146	August 8.88	24	139	866	1672
147	September 3.26	23	204	1164	1575
148	September 28.64	26	299	1726	2529
149	October 24.02	23	247	1652	2452
150	November 18.40	24	182	1312	2297
151	December 13.78	23	218	1858	3103

MEAN AREAS of UMBRÆ, WHOLE SPOTS, and FACULÆ upon the SUN'S DISK, as measured on PHOTOGRAPHS taken at the ROYAL OBSERVATORY, GREENWICH, and at DEHRA DUN, INDIA, for the Year 1883.

The Mean Areas are expressed in millionths of the Sun's visible Hemisphere.

Year.	No. of Days on which Photographs were taken.	Mean of Daily Areas.		
		Umbrae.	Whole Spots.	Faculae.
1883	340	175	1155	1856

MEAN HELIOGRAPHIC LATITUDE of the SPOTS upon the SUN'S DISK, as measured on the PHOTOGRAPHS taken at the ROYAL OBSERVATORY, GREENWICH, and at DEHRA DUN, INDIA, for each ROTATION of the SUN, from 1882 December 23 to 1884 January 8.

The numbers given in the accompanying table have been formed as follows:—

The Heliographic Latitude of each spot for each day has been multiplied by its area for the day, and the sum of the products for Spots North of the Sun's Equator has been divided by the sum of the corresponding Areas to form Mean Heliographic Latitude of Spotted Area North of Equator. Similarly for Spots South of the Equator. In forming the Mean Heliographic Latitude of entire Spotted Area the algebraic sum of the products for Spots North and South of the Equator has been divided by the sum of the Areas; and for the Mean Distance from the Equator for all spots, the numerical sum of the products, without regard to the sign of the latitude, has been similarly divided.

The Mean Areas have been formed by dividing the Sum of the Daily Areas by the number of days of observation for each Rotation of the Sun, and are expressed in millionths of the Sun's visible hemisphere.

No. of Rotation.	Date of Commencement of each Rotation.	No. of Days on which Photographs were taken.	Spots NORTH of the Equator.		Spots SOUTH of the Equator.		Mean Heliographic Latitude of entire Spotted Area.	Mean Distance from Equator of all Spots.
			Mean of Daily Areas.	Mean Heliographic Latitude.	Mean of Daily Areas.	Mean Heliographic Latitude.		
137	1882 Dec. 23 ^d 46	26	253	+ 7 ^o 62	644	— 14 ^o 27	— 8 ^o 09	12 ^o 39
138	1883 Jan. 17 th 84	22	362	9 ^o 19	378	15 ^o 72	— 3 ^o 53	12 ^o 52
139	Feb. 12 th 22	25	284	7 ^o 57	119	13 ^o 45	+ 1 ^o 36	9 ^o 31
140	Mar. 9 th 60	25	285	12 ^o 52	634	13 ^o 44	— 5 ^o 38	13 ^o 15
141	Apr. 3 th 98	24	340	10 ^o 99	776	17 ^o 34	— 8 ^o 71	15 ^o 41
142	Apr. 29 th 36	25	176	11 ^o 31	234	20 ^o 26	— 6 ^o 70	16 ^o 42
143	May 24 th 74	25	112	14 ^o 65	608	16 ^o 02	— 11 ^o 23	15 ^o 80
144	June 19 th 12	23	833	10 ^o 45	1260	15 ^o 74	— 5 ^o 32	13 ^o 64
145	July 14 th 50	17	139	10 ^o 18	1548	12 ^o 39	— 10 ^o 51	12 ^o 19
146	Aug. 8 th 88	24	127	15 ^o 44	739	13 ^o 58	— 9 ^o 33	13 ^o 85
147	Sept. 3 th 26	23	343	10 ^o 89	821	19 ^o 20	— 10 ^o 34	16 ^o 75
148	Sept. 28 th 64	26	451	11 ^o 89	1274	12 ^o 31	— 5 ^o 98	12 ^o 20
149	Oct. 24 th 02	24	472	10 ^o 94	1241	11 ^o 89	— 5 ^o 60	11 ^o 63
150	Nov. 18 th 40	23	425	15 ^o 13	810	11 ^o 55	— 2 ^o 37	12 ^o 78
151	Dec. 13 th 78	23	674	11 ^o 82	1185	10 ^o 83	— 2 ^o 57	11 ^o 24

MEAN HELIOGRAPHIC LATITUDE of SPOTS upon the SUN'S DISK, as measured on the PHOTOGRAPHS taken at the ROYAL OBSERVATORY, GREENWICH, and at DEHRA DUN, INDIA, for the YEAR 1883.

Year.	No. of Days on which Photographs were taken.	Spots NORTH of the Equator.		Spots SOUTH of the Equator.		Mean Heliographic Latitude of entire Spotted Area.	Mean Distance from Equator of all Spots.
		Mean of Daily Areas.	Mean Heliographic Latitude.	Mean of Daily Areas.	Mean Heliographic Latitude.		
1883	340	340	+ 11 ^o 05	815	— 13 ^o 95	— 6 ^o 59	13 ^o 09