GREENWICH

PHOTO-HELIOGRAPHIC

RESULTS.

1912.

RESULTS OF MEASURES

MADE AT THE

ROYAL OBSERVATORY, GREENWICH,

UNDER THE DIRECTION OF

F. W. DYSON, M.A., LL.D., F.R.S.,
ASTRONOMER ROYAL,

OF

PHOTOGRAPHS OF THE SUN

TAKEN

AT GREENWICH, AT THE CAPE, AND IN INDIA,

IN THE YEAR

1912.

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GREENWICH PHOTO-HELIOGRAPHIC RESULTS, 1912.

INTRODUCTION.

§ 1. *Measures of Positions and Areas of Sun Spots and Faculæ on Photographs taken at the Royal Observatories of Greenwich, and of the Cape, and in India, at Kodaikánal and at Dehra Dûn, in the year* 1912; *with the deduced Heliographic Longitudes and Latitudes.*

The photographs from which these measures were made were taken at the Royal Observatories of Greenwich or of the Cape; at the Kodaikánal Observatory, Southern India, or at Dehra Dûn, North-West Provinces, India.

The photographs of the Sun, taken at Greenwich, were taken either with the Thompson or with the Dallmeyer Photoheliograph. The Thompson Photoheliograph, which was in regular use up to 1912 June 26, after which it was dismounted in order to be used in Brazil in the observation of the total solar eclipse of 1912 October 10, is a photographic refractor of 9 inches aperture, presented to the Royal Observatory by Sir Henry Thompson, which has been fitted with an enlarging doublet by Ross, and with a camera and shutter for rapid exposure so as to take photographs of the Sun on a scale of about 10 centimetres to the solar radius. The Dallmeyer—which had been occasionally used as well as the Thompson before 1912 June 26, and has been exclusively used since that date—is an instrument used in the Transit of Venus expedition to New Zealand, and, as now adapted, also gives a solar image of about 10 centimetres radius on the photographic plate.

The photographs have been taken throughout the year on gelatine dry plates, "Lantern" plates supplied by R. W. Thomas & Co. or "Fine grain, ordinary" supplied by the Imperial Dry Plate Company, being used, with hydroquinone development.

The photographs from the Cape Observatory were taken under the superintendence of Mr S. S. Hough, His Majesty's Astronomer at the Cape; and those from Kodaikánal

under the superintendence of Mr John Evershed, Director of that Observatory. The photographs from Dehra Dûn, which have been forwarded by the Solar Physics Committee to fill the gaps in the combined series, were taken under the superintendence of the Deputy Surveyor-General, Trigonometrical Survey of India. At each observatory the instrument employed was a Dallmeyer Photoheliograph giving an image of the Sun about 10 centimetres in radius. The plates and development used have been much the same at each of the four collaborating observatories.

Photographs of the Sun were available for measurement upon each day in 1912, except July 20; those finally selected for measurement being supplied by the different observatories as under :—

Greenwich	235
Cape	102
Kodaikánal	4
Dehra Dûn	24
Total	365
Days unrepresented	1
Total	366

The measures were made in the manner described in the *Introduction to the Greenwich Photo-Heliographic Results* for 1909, and the results of the measures are printed upon the same plan, the following being the signatures of those persons who measured the photographs for the year 1912 :—

E. W. Maunder	M	A. W. Berry	AB
A. H. Smith	AS	R. J. Pocock	RP

The zero of position-angles for the Thompson Photoheliograph employed at Greenwich has been determined by the same method as in 1909, and the following table gives the resulting correction for zero of position for the mean of the two wires :—

THOMPSON PHOTOHELIOGRAPH, GREENWICH.

Date, Greenwich Civil Time.		d h	Correction for Zero.	Date, Greenwich Civil Time.		d h	Correction for Zero.
1911	December	14. 10	+ 0°. 18′	1912	April	6. 9	+ 0°. 18′
1912	January	2. 12	+ 0. 19			17. 14	+ 0. 22
		9. 11	+ 0. 25			23. 11	+ 0. 19
		27. 11	+ 0. 20			24. 8	+ 0. 29
	February	7. 11	+ 0. 17		May	8. 12	+ 0. 32
		27. 10	+ 0. 17			9. 8	+ 0. 31
	March	14. 15	+ 0. 32			28. 7	+ 0. 11
		26. 16	+ 0. 27		June	13. 8	+ 0. 5

A correction of $+0^{\circ}\cdot3$ has been applied to the photographs taken at Greenwich with the Thompson Photoheliograph in the year 1912 up to the date, June 27, on which it was dismounted.

The same method was employed with the Dallmeyer Photoheliograph, at the Royal Observatory, Cape of Good Hope, and the following determinations obtained :—

DALLMEYER PHOTOHELIOGRAPH, CAPE OF GOOD HOPE.

Date, Greenwich Civil Time.		d h	Correction for Zero.	Date, Greenwich Civil Time.		d h	Correction for Zero.
			° ′				° ′
1911	December	20. 10	+ 0. 7	1912	June	20. 12	− 0. 10
1912	January	19. 11	+ 0. 3		July	19. 11	+ 0. 12
		30. 10	− 0. 4			30. 11	+ 0. 2
	February	17. 11	+ 0. 7		August	26. 12	+ 0. 16
	March	5. 11	+ 0. 1		September	7. 10	+ 0. 5
		27. 11	+ 0. 9		October	24. 11	+ 0. 3
	April	16. 11	0. 0		November	21. 10	− 0. 8
	May	20. 11	+ 0. 7		December	23. 10	− 0. 10
	June	6. 11	+ 0. 1	1913	January	13. 10	+ 0. 8

A correction of $+0^{\circ}\cdot1$ for zero of position has been applied to all photographs taken with the Cape Photoheliograph up to 1912 October 31. After that date and up to the end of the year 1912 no correction has been applied.

The same method was also employed with the Dallmeyer Photoheliograph at the Royal Observatory, Greenwich, with the modification that the two wires were arranged, not parallel and at right angles to the equator, but nearly at an angle of 45° to it. In the reduction of the measures of the photographs the wires were assumed to be in the zero position when inclined precisely 45° to the equator, and the correction to this zero of position was determined by the measurement of a photograph which had been exposed twice to the Sun's rays, with an interval of about 100 seconds between the two exposures, the instrument being firmly clamped throughout.

The determinations obtained were the following :—

DALLMEYER PHOTOHELIOGRAPH, GREENWICH.

Date, Greenwich Civil Time.		d h	Correction for Zero.	Date, Greenwich Civil Time.		d h	Correction for Zero.
			° ′				° ′
1912	August	14. 11	+ 3. 14	1912	December	2. 12	+ 2. 57
	September	6. 10	+ 3. 8			23. 12	+ 3. 2
		23. 12	+ 3. 20			23. 12	+ 3. 13
		23. 12	+ 2. 58			30. 12	+ 2. 58
	October	21. 11	+ 3. 20			30. 12	+ 2. 55
	November	2. 12	+ 2. 49	1913	January	31. 12	+ 2. 59

On 1912 June 10, a plate was exposed upon Arcturus, the instrument being rigidly clamped, and the star allowed to transit across the field. The measurement of the position of the resulting trail gave a correction of $+3^\circ\ 6'$ for the zero of position of the wires, and this correction of $+3^\circ{\cdot}1$ was used until 1912 October 30. From 1912 November 2 to the end of the year a correction of $+3^\circ{\cdot}0$ was used in the reduction of all the photographs taken at Greenwich with the Dallmeyer Photoheliograph.

Transits of the Sun were also taken over the two wires; the times of contact of the first and second limbs of the Sun with the two wires being noted. The ratio of the time taken by the Sun to pass over the NE–SW wire to that taken to pass over the SE–NW wire gives the tangent of the angle made by the Sun's path to the latter wire; the wires being assumed to be exactly at right-angles to each other. From this angle, when corrected for the Sun's motion in declination, the correction for the zero of position of the wires can be inferred.

TRANSITS OF THE SUN. DALLMEYER PHOTOHELIOGRAPH, GREENWICH.

Date.			Correction for Zero.	Date.			Correction for Zero.
			h. m. s.				h. m. s.
1912	July	29	+ 3. 20·9	1912	November	27	+ 3. 0·6
	August	2	+ 3. 25·7		December	2	+ 3. 13·8
		27	+ 3. 26·3			17	+ 2. 59·4
	September	9	+ 3. 28·6			23	+ 2. 55·0
		23	+ 3. 26·2			30	+ 3. 0·3
	November	2	+ 3. 0·8	1913	January	31	+ 3. 5·1

In the use of the photoheliographs at Kodaikánal and at Dehra Dûn the position-circle has 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. At Dehra Dûn the practice has also been adopted of stopping the driving-clock after the exposure of the plate has been made, and making a second exposure about two minutes later, thus affording a further means for determining the true west point of the plate. No correction for zero of position of the wires has been applied for the reduction of the photographs taken at Kodaikánal and Dehra Dûn during the year 1912.

The method of reduction of the measures of the photographs is the same as that described in the *Introduction to the Greenwich Photo-Heliographic Results* for 1909. The inclination of the Sun's axis to the ecliptic is assumed to be $82^\circ\ 45'$, the longitude of the ascending node for 1912·0 to be $74^\circ\ 31'{\cdot}9$, and the period of the

Sun's sidereal rotation to be 25·38 days; the meridian which passed through the ascending node 1854 January 1, Greenwich Mean Noon, being taken as the zero meridian.

§ 2. *Ledgers of Areas and Heliographic Positions of Groups of Sun Spots deduced from the measurement of the Solar photographs for each day in the year* 1912.

§ 3. *Catalogue of Recurrent Groups of Sun Spots compiled from the Ledgers of Groups of Sun Spots for the year* 1912.

§ 4. *Total Areas of Sun Spots and Faculæ for each day, and Mean Areas and Mean Heliographic Latitude of Sun Spots and Faculæ for each Rotation of the Sun, and for the year* 1912.

These three sections are similar in all respects to the corresponding sections for 1911.

F. W. DYSON.

Royal Observatory, Greenwich,
1913 *September.*

ROYAL OBSERVATORY, GREENWICH.

MEASURES OF POSITIONS AND AREAS

OF

SUN SPOTS AND FACULÆ

ON

PHOTOGRAPHS

TAKEN WITH THE

PHOTOHELIOGRAPHS

AT GREENWICH, AT THE CAPE, AND IN INDIA,

WITH THE DEDUCED

HELIOGRAPHIC LONGITUDES AND LATITUDES.

1912.

MEASURES of POSITIONS and AREAS of SUN SPOTS and FACULÆ on PHOTOGRAPHS taken at the ROYAL OBSERVATORIES of GREENWICH and of the CAPE, and in INDIA, at KODAIKÁNAL and at DEHRA DÛN, in the Year 1912.

NOTE.—The Greenwich Civil Time at which the Photograph was taken is expressed by the Day of the Year and decimals of a day, reckoning from Midnight, January 1d 0h. For convenience of reference, the Month and Day of the Month (Civil Reckoning) are added.

BLS The letter G. signifies that the photograph was taken at Greenwich; the letter C. that it was taken at the Cape; the letter K. that it was taken at Kodaikánal; the letter D. that it was taken at Dehra Dûn; the time given is Greenwich Civil Time.

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

In the line immediately below the results for each day are given in brackets:—1. The Position Angle of the Sun's Axis (from the North point); 2. The Heliographic Longitude and Latitude of the Centre of the Disc; 3. The total areas for each day of Spots and Faculæ.

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	Heliographic Longitude.	Heliographic Latitude.	Spots. Area of UMBRA for each Spot (and for Day).	Spots. Area of WHOLE for each Spot (and for Day).	Faculæ. Area for each Group (and for Day).
1912.				°	°	°			
0·368	AB, AS		0·883	104·7	97·1	−14·4			199
C.			0·949	89·6	87·3	− 0·6			164
Jan. 1				(+ 2·4)	(158·7)	(− 3·1)	(0)	(0)	(363)
1·445	AB, AS		0·909	272·6	209·5	+ 1·1			107
G.									
Jan. 2				(+ 1·9)	(144·5)	(− 3·2)	(0)	(0)	(107)
Jan. 3			No	Spots	or Faculæ.				
3·415	AB, AS		0·901	293·8	179·4	+19·7			144
C.			0·887	76·6	57·5	+10·2			169
Jan. 4				(+ 0·9)	(118·5)	(− 3·4)	(0)	(0)	(313)
4·446	AB, AS		0·829	286·8	159·0	+11·9			115
G.			0·919	108·7	38·6	−18·6			176
Jan. 5				(+ 0·4)	(105·0)	(− 3·5)	(0)	(0)	(291)
5·454	AB, AS		0·916	285·3	156·3	+12·5			181
C.			0·886	98·6	29·3	− 9·3			202
Jan. 6				(0·0)	(91·7)	(− 3·6)	(0)	(0)	(383)
6·410	AB, AS		0·874	287·1	137·9	+13·0			150
C.									
Jan. 7				(− 0·5)	(79·1)	(− 3·7)	(0)	(0)	(150)
7·439	AB, AS		0·891	84·2	3·2	+ 3·4			149
C.									
Jan. 8				(− 1·0)	(65·6)	(− 3·9)	(0)	(0)	(149)
8·416	AB, AS		0·778	86·3	2·0	+ 0·4			110
G.			0·794	112·4	1·5	−20·1			98
Jan. 9				(− 1·5)	(52·7)	(− 4·0)	(0)	(0)	(208)
9·472	AB, AS		0·856	299·6	92·3	+22·6			115
G.			0·857	113·3	340·9	−22·0			115
Jan. 10				(− 2·0)	(38·8)	(− 4·1)	(0)	(0)	(230)
Jan. 11			No	Spots	or Faculæ.				
11·452	AB, AS		0·846	241·5	68·5	−26·2			137
C.			0·876	103·3	311·6	−13·7			130
Jan. 12				(− 2·9)	(12·7)	(− 4·3)	(0)	(0)	(267)
Jan. 13			No	Spots	or Faculæ.				
13·288	AB, AS		0·927	68·0	283·8	+18·4			182
D.			0·928	91·8	280·4	− 3·4			183
Jan. 14				(− 3·8)	(348·5)	(− 4·5)	(0)	(0)	(365)
14·455	AB, AS		0·856	252·6	31·8	−17·3			101
C.			0·883	98·0	271·1	− 9·2			189
			0·924	79·0	267·0	+ 8·3			245
Jan. 15				(− 4·4)	(333·2)	(− 4·6)	(0)	(0)	(535)

Measures of Positions and Areas of Sun Spots and Faculæ on Photographs—*continued.*

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Heliographic: Position Angle from Sun's Axis.	Heliographic: Longitude.	Heliographic: Latitude.	Spots: Area of UMBRA for each Spot (and for Day).	Spots: Area of WHOLE for each Spot (and for Day).	Faculæ: Area for each Group (and for Day).
1912.				°	°	°			
15·445	AB, AS		0·848	260·8	18·2	−10·3			128
C.			0·855	74·9	263·3	+10·3			241
			0·842	101·4	262·7	−12·1			164
Jan. 16				(−4·8)	(320·1)	(−4·7)	(0)	(0)	(533)
16·456	AB, AS		0·741	71·1	261·5	+10·5			172
C.			0·744	86·3	259·1	− 0·5			110
			0·785	99·8	255·1	−10·7			161
Jan. 17				(− 5·3)	(306·8)	(−4·8)	(0)	(0)	(443)
17·520	AB, AS		0·789	271·4	344·7	− 2·0			136
C.			0·888	103·0	230·0	−13·8			136
Jan. 18				(− 5·8)	(292·8)	(−4·9)	(0)	(0)	(272)
18·453	AB, AS		0·916	271·0	346·6	− 1·1			168
C.									
Jan. 19				(−6·2)	(280·5)	(−5·0)	(0)	(0)	(168)
Jan. 20 to Jan. 23			No Spots or Faculæ.						
23·546	AB, AS		0·821	289·7	265·6	+12·8			78
G.									
Jan. 24				(−8·6)	(213·4)	(−5·4)	(0)	(0)	(78)
24·519	AB, AS		0·884	264·0	262·9	− 7·9			212
			0·885	283·8	261·0	+ 9·5			168
C.			0·918	83·9	134·7	+ 3·4			223
Jan. 25				(−9·0)	(200·6)	(−5·5)	(0)	(0)	(603)
25·288	AB, AS		0·898	261·7	254·7	− 9·9			144
D.			0·874	286·6	249·1	+11·6			174
Jan. 26				(−9·3)	(190·5)	(−5·6)	(0)	(0)	(318)
26·473	AB, AS		0·856	293·5	229·7	+16·7			135
G.			0·877	117·3	114·5	−26·6			93
Jan. 27				(−9·9)	(174·9)	(−5·7)	(0)	(0)	(228)
27·524	AB, AS		0·799	122·3	110·7	−29·0			100
G.									
Jan. 28				(−10·3)	(161·1)	(−5·8)	(0)	(0)	(100)

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Heliographic: Position Angle from Sun's Axis.	Heliographic: Longitude.	Heliographic: Latitude.	Spots: Area of UMBRA for each Spot (and for Day).	Spots: Area of WHOLE for each Spot (and for Day).	Faculæ: Area for each Group (and for Day).
1912.				°	°	°			
28·451	AB, AS		0·818	73·3	96·4	+10·1			104
G.			0·822	91·2	93·6	− 4·3			149
Jan. 29				(−10·7)	(148·9)	(−5·8)	(0)	(0)	(253)
29·427	AB, AS		0·914	273·1	201·6	+ 0·4			154
C.			0·943	83·7	66·3	+ 3·9			187
Jan. 30				(−11·1)	(136·0)	(−5·9)	(0)	(0)	(341)
30·606	AB, AS		0·815	264·8	175·3	− 7·7			103
G.									
Jan. 31				(−11·6)	(120·5)	(−6·0)	(0)	(0)	(103)
31·170	AB, AS		0·900	108·6	48·7	−19·3			169
D.			0·960	94·9	39·1	− 6·4			431
Feb. 1				(−11·8)	(113·1)	(−6·0)	(0)	(0)	(600)
32·483	AB, AS		0·841	82·9	39·4	+ 2·6			129
G.			0·889	94·0	32·9	− 6·4			239
Feb. 2				(−12·4)	(95·8)	(−6·1)	(0)	(0)	(368)
33·499	AB, AS		0·774	92·8	31·6	− 6·1			150
G.			0·902	83·0	18·8	+ 3·6			127
Feb. 3				(−12·8)	(82·4)	(−6·2)	(0)	(0)	(277)
34·406	AB, AS		0·801	79·4	18·5	+ 4·6			131
C.			0·878	110·6	9·0	−21·1			142
Feb. 4				(−13·2)	(70·5)	(−6·3)	(0)	(0)	(273)
Feb. 5 and Feb. 6			No Spots or Faculæ.						
37·440	AB, AS		0·857	94·1	331·3	− 6·9			78
G.									
Feb. 7				(−14·4)	(30·5)	(−6·4)	(0)	(0)	(78)
38·455	AB, AS		0·902	260·4	82·1	−11·4			157
C.			0·889	101·1	314·0	−12·8			160
Feb. 8				(−14·7)	(17·2)	(−6·5)	(0)	(0)	(317)

Measures of Positions and Areas of Sun Spots and Faculæ on Photographs—*continued.*

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	Heliographic Longitude.	Heliographic Latitude.	Spots. Area of UMBRA for each Spot (and for Day).	Spots. Area of WHOLE for each Spot (and for Day).	Faculæ. Area for each Group (and for Day).
1912.				°	°	°			
Feb. 9			No	Spots	or Faculæ.				
40·494	AB, AS		0·931	80·4	283·0	+ 6·5			136
G.									
Feb. 10				(−15·5)	(350·3)	(− 6·6)	(0)	(0)	(136)
41·522	AB, AS		0·848	266·0	35·0	− 7·0			109
G.			0·889	79·7	275·4	+ 6·0			98
Feb. 11				(−15·9)	(336·8)	(− 6·7)	(0)	(0)	(207)
42·236	AB, AS		0·882	260·8	29·8	−11·3			236
D.			0·890	76·2	266·5	+ 9·0			163
			0·894	98·1	263·5	−10·3			154
Feb. 12				(−16·1)	(327·4)	(− 6·7)	(0)	(0)	(553)
43·448	AB, AS		0·904	262·6	16·6	− 9·6			123
C.			0·853	66·4	257·2	+16·0			131
Feb. 13				(−16·6)	(311·4)	(− 6·8)	(0)	(0)	(254)
44·510	AB, AS		0·907	261·3	3·0	−10·7			137
C.			0·943	89·1	227·1	− 1·5			204
Feb. 14				(−16·9)	(297·4)	(− 6·8)	(0)	(0)	(341)
Feb. 15 and Feb. 16			No	Spots	or Faculæ.				
47·425	AB, AS		0·938	96·6	188·8	− 8·6			79
G.									
Feb. 17				(−17·9)	(259·0)	(− 6·9)	(0)	(0)	(79)
48·667	AB, AS		0·884	285·3	302·4	+10·0			129
G.			0·890	94·0	179·5	− 6·8			110
Feb. 18				(−18·3)	(242·7)	(− 7·0)	(0)	(0)	(239)
49·546	AB, AS		0·820	279·9	285·0	+ 4·0			110
C.			0·847	87·8	173·5	− 1·9			149
Feb. 19				(−18·6)	(231·1)	(− 7·0)	(0)	(0)	(259)
1912.									
50·173	AB, AS		0·891	71·0	163·1	+13·4			187
D.			0·904	94·2	157·9	− 6·9			149
Feb. 20				(−18·8)	(222·9)	(− 7·0)	(0)	(0)	(336)
51·449	AB, AS		0·896	285·4	267·3	+10·4			165
C.			0·873	303·5	259·1	+24·6			129
			0·889	82·9	144·2	+ 3·0			172
Feb. 21				(−19·2)	(206·1)	(− 7·1)	(0)	(0)	(466)
52·169	AB, AS		0·902	83·6	133·0	+ 2·7			173
D.									
Feb. 22				(−19·4)	(196·6)	(− 7·1)	(0)	(0)	(173)
Feb. 23			No	Spots	or Faculæ.				
54·426	AB, AS		0·785	116·6	116·2	−25·2			82
G.			0·815	119·8	113·7	−28·2			97
Feb. 24				(−20·1)	(166·9)	(− 7·1)	(0)	(0)	(179)
55·473	AB, AS		0·929	102·1	84·0	−13·9			136
G.									
Feb. 25				(−20·4)	(153·1)	(− 7·2)	(0)	(0)	(136)
56·453	AB, AS		0·880	113·6	78·2	−24·2			95
G.									
Feb. 26				(−20·7)	(140·1)	(− 7·2)	(0)	(0)	(95)
57·496	AB, AS		0·891	124·0	64·4	−33·4			99
G.									
Feb. 27				(−20·9)	(126·4)	(− 7·2)	(0)	(0)	(99)
58·521	AB, AS		0·917	86·7	46·8	+ 0·1			126
G.									
Feb. 28				(−21·2)	(112·9)	(− 7·2)	(0)	(0)	(126)
59·618	AB, AS		0·919	77·1	33·7	+ 8·8			140
G.									
Feb. 29				(−21·5)	(98·5)	(− 7·2)	(0)	(0)	(140)

Measures of Positions and Areas of Sun Spots and Faculæ on Photographs—*continued.*

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	Heliographic Longitude.	Heliographic Latitude.	Spots. Area of UMBRA for each Spot (and for Day).	Spots. Area of WHOLE for each Spot (and for Day).	Faculæ. Area for each Group (and for Day).
1912.				°	°	°			
60·262	AB, AS		0·874	85·3	29·7	+ 0·6			176
D.									
Mar. 1				(−21·7)	(90·0)	(−7·2)	(0)	(0)	(176)
Mar. 2			No	Spots	or Faculæ.				
62·514	AB, AS		0·872	99·7	359·1	−12·0			113
G.			0·893	124·2	357·9	−33·7			133
Mar. 3				(−22·2)	(60·3)	(−7·2)	(0)	(0)	(246)
63·515	AB, AS		0·882	274·2	108·5	+ 0·3			168
C.		6977*	0·729	268·3	94·0	− 6·2	0	3	77*c*
Mar. 4				(−22·5)	(47·1)	(−7·2)	(0)	(3)	(245)
64·412	AB, AS		0·922	282·3	100·7	+ 8·4			117
G.									
Mar. 5				(−22·7)	(35·3)	(−7·2)	(0)	(0)	(117)
65·498	AB, AS		0·872	127·1	322·3	−35·7			124
G.									
Mar. 6				(−22·9)	(21·0)	(−7·3)	(0)	(0)	(124)
66·417	AB, AS	6977*a*	0·961	100·6	294·1	−12·1	22	163	386*c*
G.		6977	0·980	100·5	289·4	−11·7	0	25	
Mar. 7				(−23·1)	(8·9)	(−7·2)	(22)	(188)	(386)
67·459	AB, AS		0·908	287·3	57·6	+12·4			164
		6977*a*	0·870	99·8	294·2	−12·1	22	151	
C.		6977	0·882	98·3	292·8	−10·7	0	7	515*c*
		6977	0·915	100·8	288·3	−12·8	14	134	
Mar. 8				(−23·3)	(355·2)	(−7·2)	(36)	(292)	(679)
68·415	AB, AS		0·867	285·4	40·3	+ 9·5			132
		6977*a*	0·743	99·9	294·3	−12·1	30	130	
G.		6977	0·754	98·1	293·3	−10·9	4	14	161*c*
		6977	0·801	100·8	289·0	−12·9	7	49	
Mar. 9				(−23·5)	(342·6)	(−7·2)	(41)	(193)	(293)
69·470	AB, AS	6977*a*	0·560	101·5	294·7	−12·4	25	144	
G.		6977	0·573	99·0	293·6	−11·1	6	23	
		6977	0·597	97·6	291·9	−10·3	1	13	
1912.				°	°	°			
69·470	AB, AS	6977	0·629	101·9	289·7	−13·1	3	19	
G.			0·663	99·7	287·0	−11·8			88
Mar. 10				(−23·7)	(328·7)	(−7·2)	(35)	(199)	(88)
70·602	AB, AS	6977*a*	0·338	108·3	294·6	−12·9	19	114	
		6977	0·347	105·0	293·8	−12·0	0	6	
		6977	0·351	102·4	293·4	−11·0	5	19	
G.		6977	0·373	105·3	292·2	−12·3	6	31	
		6977	0·425	109·3	289·3	−14·7	0	5	
			0·884	112·7	251·2	−23·4			130
Mar. 11				(−24·0)	(313·7)	(−7·2)	(30)	(175)	(130)
71·431	AB, AS	6977*a*	0·173	128·5	294·8	−13·3	19	93	
		6977	0·171	114·1	293·7	−11·1	2	12	
		6977	0·192	125·3	293·6	−13·5	1	7	
		6977	0·190	107·5	292·2	−10·3	0	6	
C.		6977	0·205	116·5	292·0	−12·3	0	3	
		6977	0·214	109·9	291·0	−11·2	0	6	
		6977	0·243	111·5	289·5	−12·1	1	6	
		6977	0·266	115·7	288·6	−13·6	0	7	
			0·934	99·7	233·0	−11·6			193
Mar. 12				(−24·1)	(302·8)	(−7·2)	(23)	(140)	(193)
72·445	AB, AS	6977	0·170	234·2	297·5	−12·8	0	5	
		6977	0·190	221·8	296·9	−15·3	0	3	
		6977*a*	0·157	228·7	296·3	−13·1	18	80	
C.		6977	0·154	215·5	294·7	−14·4	0	2	
		6977	0·104	225·3	293·7	−11·4	7	36	
		6977	0·058	210·6	291·1	−10·0	1	9	
			0·909	104·8	223·2	−16·5			166
Mar. 13				(−24·3)	(289·4)	(−7·2)	(26)	(135)	(166)
73·605	AB, AS	6977*a*	0·389	253·2	296·6	−13·0	15	70	
		6977	0·359	256·1	294·9	−11·6	1	5	
G.		6977	0·348	260·6	294·5	− 9·9	0	5	
		6977	0·336	257·2	293·6	−11·0	4	21	
			0·916	153·1	220·3	−59·2			126
Mar. 14				(−24·5)	(274·2)	(−7·1)	(20)	(101)	(126)
74·554	AB, AS		0·876	303·7	314·9	+24·9			154
		6977*a*	0·575	257·5	296·6	−13·0	17	80	
C.		6977	0·536	261·6	294·1	−10·5	8	30	
		6977	0·481	257·1	290·2	−12·4	0	3	
		6977	0·481	251·0	289·6	−15·3	0	10	
Mar. 15				(−24·6)	(261·6)	(−7·1)	(25)	(123)	(154)

Group 6977*, March 4. Very small spot.
Group 6977, March 7–18. A large regular spot, *a*, followed by several very unstable companions. The leader is well defined and steady in its position, and slowly diminishes in size; the companions are short lived, and their number and distribution alter quickly from day to day.

Measures of Positions and Areas of Sun Spots and Faculæ on Photographs—*continued.*

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	Heliographic Longitude.	Heliographic Latitude.	Spots. Area of UMBRA for each Spot (and for Day).	Spots. Area of WHOLE for each Spot (and for Day).	Faculæ. Area for each Group (and for Day).
1912.				°	°	°			
75·417	AB, AS		0·848	266·9	308·5	− 6·4			134
		6977*a*	0·726	258·3	297·1	−13·4	13	72	
G.		6977	0·705	263·1	295·4	− 9·9	7	19	180*c*
		6977	0·693	261·8	294·4	−10·8	4	22	
			0·881	76·0	190·6	+ 8·8			150
Mar. 16				(−24·8)	(250·3)	(− 7·1)	(24)	(113)	(464)
76·384	AB, AS	6977*a*	0·856	258·5	296·9	−13·5	14	54	
C.		6977	0·843	262·6	295·4	−10·0	3	16	405*f*
Mar. 17				(−24·9)	(237·5)	(− 7·1)	(17)	(70)	(405)
77·455	AB, AS	6977*a*	0·956	258·0	297·4	−13·6	14	47	519*f*
C.									
Mar. 18				(−25·1)	(223·4)	(− 7·1)	(14)	(47)	(519)
78·511	AB, AS		0·954	259·4	282·8	−12·2			151
G.									
Mar. 19				(−25·2)	(209·5)	(− 7·0)	(0)	(0)	(151)
Mar. 20 to Mar. 25			No Spots or Faculæ.						
85·439	AB, AS		0·816	266·3	173·0	− 7·0			114
G.			0·919	93·1	51·1	− 5·5			143
Mar. 26				(−26·0)	(118·1)	(− 6·8)	(0)	(0)	(257)
86·420	AB, AS		0·846	265·7	163·2	− 7·3			115
G.									
Mar. 27				(−26·0)	(105·2)	(− 6·7)	(0)	(0)	(115)
87·449	AB, AS		0·892	142·5	36·1	−48·9			136
G.									
Mar. 28				(−26·1)	(91·6)	(− 6·7)	(0)	(0)	(136)
88·418	AB, AS		0·887	98·3	15·9	−10·4			133
G									
Mar. 29				(−26·2)	(78·8)	(− 6·6)	(0)	(0)	(133)
Mar. 30 and Mar. 31			No Spots or Faculæ.						

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	Heliographic Longitude.	Heliographic Latitude.	Spots. Area of UMBRA for each Spot (and for Day).	Spots. Area of WHOLE for each Spot (and for Day).	Faculæ. Area for each Group (and for Day).
1912.				°	°	°			
91·355	AB, AS		0·808	270·8	93·9	− 3·2			96
G.		6978	0·550	303·4	68·0	+11·9	0	5	
Apr. 1				(−26·3)	(40·1)	(− 6·5)	(0)	(5)	(96)
92·541	AB, AS		0·975	99·9	306·5	−11·0			358
C.									
Apr. 2				(−26·3)	(24·4)	(− 6·4)	(0)	(0)	(358)
93·361	AB, AS		0·912	99·5	307·3	−11·2			175
G.									
Apr. 3				(−26·4)	(13·6)	(− 6·3)	(0)	(0)	(175)
94·566	AB, AS		0·837	99·6	300·6	−11·4			256
C.									
Apr. 4				(−26·4)	(357·7)	(− 6·3)	(0)	(0)	(256)
95·176	AB, AS		0·770	105·6	299·5	−15·9			189
D.			0·884	98·2	287·2	−10·2			152
Apr. 5				(−26·4)	(349·7)	(− 6·2)	(0)	(0)	(341)
96·354	AB, AS		0·899	98·0	269·7	− 9·9			140
G.									
Apr. 6				(−26·4)	(334·1)	(− 6·2)	(0)	(0)	(140)
97·508	AB, AS	6979	0·155	98·5	310·0	− 7·4	0	5	
G.			0·878	111·2	257·5	−21·5			161
Apr. 7				(−26·4)	(318·9)	(− 6·1)	(0)	(5)	(161)
98·383	AB, AS	6979	0·074	241·8	311·1	− 8·0	0	4	
		6979	0·065	223·5	309·9	− 8·7	0	13	
		6980	0·080	166·5	306·2	−10·4	0	5	
C.		6980	0·114	146·1	303·6	−11·4	4	16	
		6980	0·157	136·0	300·9	−12·4	0	10	
			0·912	105·6	241·1	−16·6			170
Apr. 8				(−26·4)	(307·3)	(− 6·0)	(4)	(48)	(170)
99·367	AB, AS	6979	0·277	262·6	310·3	− 7·7	2	13	
		6980	0·243	252·4	307·8	−10·0	0	7	
G.		6980	0·196	243·0	304·5	−10·9	8	54	
		6980	0·147	219·2	299·7	−12·4	2	19	
Apr. 9				(−26·4)	(294·3)	(− 5·9)	(12)	(93)	(0)

Group 6978, April 1. Very small spot.
Group 6979, April 7–9. Pair of small spots.
Group 6980, April 8–14. A revival, not a return, of Group 6977. A few small spots which rapidly increase in size, forming by April 10, a stream with two large well-defined spots, *a* and *b*, in the front and rear of the group, with a number of small unstable spots between them.

Measures of Positions and Areas of Sun Spots and Faculæ on Photographs—*continued.*

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	Heliographic Longitude.	Heliographic Latitude.	Spots. Area of UMBRA for each Spot (and for Day).	Spots. Area of WHOLE for each Spot (and for Day).	Faculæ. Area for each Group (and for Day).
1912.				°	°	°			
100·362	AB, AS	6980	0·452	260·4	307·9	− 9·6	5	30	
		6980*a*	0·433	257·5	306·6	−10·7	32	122	
		6980	0·396	254·4	304·0	−11·5	0	5	
G.		6980	0·375	256·9	302·9	−10·3	11	37	
		6980	0·372	252·2	302·3	−12·1	1	11	
		6980*b*	0·347	255·2	301·1	−10·6	24	88	
Apr. 10				(−26·4)	(281·2)	(− 5·9)	(73)	(293)	(0)
101·358	AB, AS	6980*a*	0·653	260·7	308·9	−10·5	38	118	
		6980	0·647	262·9	308·5	− 9·0	1	7	
		6980	0·639	258·1	307·7	−12·1	0	4	
G.		6980	0·620	260·1	306·4	−10·7	13	53	
		6980	0·568	260·8	302·7	−10·0	6	25	
		6980	0·556	256·2	301·5	−12·4	0	11	
		6980*b*	0·547	259·5	301·1	−10·6	25	107	
Apr. 11				(−26·3)	(268·1)	(− 5·8)	(83)	(325)	(0)
102·356	AB, AS	6980*a*	0·806	261·1	308·8	−10·6	45	231	
		6980	0·770	260·7	305·4	−10·8	13	57	
G.		6980	0·740	261·9	302·7	− 9·8	10	40	547*c*
		6980	0·737	257·8	302·3	−12·8	0	14	
		6980*b*	0·724	260·6	301·3	−10·7	34	176	
Apr. 12				(−26·3)	(254·9)	(− 5·7)	(102)	(518)	(547)
103·408	AB, AS	6980*a*	0·919	260·7	308·2	−10·8	73	354	
		6980	0·887	261·6	303·8	−10·0	3	16	
G.		6980	0·877	258·0	302·5	−13·2	2	13	559*c*
		6980*b*	0·867	260·7	301·4	−10·9	56	213	
Apr. 13				(−26·3)	(241·0)	(− 5·6)	(134)	(596)	(559)
104·092	AB, AS	6980*a*	0·971	260·1	308·8	−11·0	54	381	
		6980	0·942	258·4	302·8	−12·8	13	62	434*c*
D.		6980*b*	0·934	260·4	301·5	−11·0	40	242	
			0·885	128·2	172·7	−36·2			176
Apr. 14				(−26·2)	(232·0)	(− 5·6)	(107)	(685)	(610)
105·533	AB, AS		0·969	257·1	289·3	−13·8			227
G.			0·901	86·6	149·2	+ 0·7			190
Apr. 15				(−26·2)	(213·0)	(− 5·5)	(0)	(0)	(417)
106·415	AB, AS		0·884	267·9	263·5	− 4·4			111
G.			0·829	86·9	145·6	− 0·5			167
			0·842	112·1	144·5	−21·5			144
Apr. 16				(−26·1)	(201·3)	(− 5·4)	(0)	(0)	(422)

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	Heliographic Longitude.	Heliographic Latitude.	Spots. Area of UMBRA for each Spot (and for Day).	Spots. Area of WHOLE for each Spot (and for Day).	Faculæ. Area for each Group (and for Day).
1912.				°	°	°			
Apr. 17 to Apr. 20			No	Spots	or Faculæ.				
111·520	AB, AS	6981	0·576	299·8	164·5	+12·3	1	18	51*c*
G.									
Apr. 21				(−25·6)	(133·9)	(− 5·0)	(1)	(18)	(51)
112·360	AB, AS		0·815	81·4	69·1	+ 4·1			134
G.			0·822	108·6	68·0	−18·1			109
Apr. 22				(−25·5)	(122·8)	(− 4·9)	(0)	(0)	(243)
Apr. 23 to Apr. 28			No	Spots	or Faculæ.				
119·399	AB, AS		0·956	98·4	316·7	− 9·3			387
G.									
Apr. 29				(−24·6)	(29·8)	(− 4·2)	(0)	(0)	(387)
120·341	AB, AS	6983	0·932	97·7	308·5	− 8·6	0	14	705*p*
G.		6982	0·959	99·5	303·5	−10·3	9	47	
Apr. 30				(−24·4)	(17·3)	(− 4·1)	(9)	(61)	(705)
121·330	AB, AS	6983	0·817	97·2	309·5	− 8·2	0	6	
		6982	0·877	102·4	303·1	−12·8	0	13	554*c*
G.		6982	0·878	100·0	302·9	−10·7	9	43	
May 1				(−24·2)	(4·3)	(− 4·0)	(9)	(62)	(554)
122·343	AB, AS	6982	0·706	100·1	306·2	− 9·9	3	25	
		6982	0·735	100·4	303·8	−10·3	8	46	437*c*
G.		6982	0·747	103·1	303·0	−12·3	3	27	
May 2				(−24·0)	(350·9)	(− 3·9)	(14)	(98)	(437)
123·529	AB, AS	6982	0·489	103·8	306·5	−10·0	3	18	
C.		6982	0·545	106·6	303·0	−12·2	7	34	
May 3				(−23·8)	(335·2)	(− 3·8)	(10)	(52)	(0)
124·466	AB, AS	6982*	0·158	139·3	316·8	−10·6	1	5	
		6982†	0·346	119·7	304·9	−13·4	0	5	
C.		6982†	0·371	124·8	304·4	−15·7	0	12	

Group 6981, April 21. A few small spots.
Group 6982, April 30–May 9. Return of Group 6980. A number of small unstable spots clustered together.
Group 6983, April 30–May 1. Small faint spot.
Group 6982*, May 4. Very small spot,
Group 6982†, May 4. Two small spots.

Measures of Positions and Areas of Sun Spots and Faculæ on Photographs—*continued.*

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	Heliographic Longitude.	Heliographic Latitude.	Spots. Area of UMBRA for each Spot (and for Day).	Spots. Area of WHOLE for each Spot (and for Day).	Faculæ. Area for each Group (and for Day).
1912.				°	°	°			
124·466	AB, AS	6982	0·291	110·7	306·8	− 9·5	0	6	
C.		6982	0·360	114·9	303·4	−12·2	1	21	
May 4				(−23·6)	(322·8)	(− 3·7)	(2)	(49)	(0)
125·412	AB, AS		0·936	279·4	18·7	+ 7·5			62
		6982	0·150	149·4	305·9	−11·0	0	10	
C.		6982	0·202	136·2	302·1	−12·0	2	23	
		6982	0·243	134·8	300·1	−13·4	0	2	
			0·824	128·1	260·0	−32·8			97
May 5				(−23·5)	(310·3)	(− 3·6)	(2)	(35)	(159)
126·664	AB, AS	6982	0·254	235·0	305·9	−11·8	0	6	
G.		6982	0·209	236·1	303·8	−10·2	0	5	
May 6				(−23·2)	(293·7)	(− 3·5)	(0)	(11)	(0)
127·427	AB, AS	6984	0·431	264·2	309·0	− 5·6	0	12	
C.		6982	0·432	254·7	308·5	− 9·6	0	12	
		6982	0·398	249·0	305·8	−11·3	1	20	
May 7				(−23·0)	(283·6)	(− 3·4)	(1)	(44)	(0)
128·418	AB, AS	6982	0·587	253·8	305·7	−12·1	5	26	426*p*
G.									
May 8				(−22·8)	(270·6)	(− 3·3)	(5)	(26)	(426)
129·338	AB, AS	6982	0·728	257·1	304·6	−11·6	0	5	599*sp*
G.		6985	0·323	230·3	273·2	−15·0	2	9	
May 9				(−22·6)	(258·4)	(− 3·2)	(2)	(14)	(599)
130·320	AB, AS		0·876	259·0	306·4	−11·1			564
G.		6985	0·500	247·3	273·6	−13·8	0	5	
May 10				(−22·3)	(245·4)	(− 3·1)	(0)	(5)	(564)
131·311	AB, AS		0·931	257·5	300·8	−12·7			558
G.			0·845	85·8	175·0	+ 2·0			98
May 11				(−22·1)	(232·3)	(− 3·0)	(0)	(0)	(656)
132·442	AB, AS		0·853	252·5	275·1	−16·4			161
G.			0·757	91·2	168·2	− 2·8			144
May 12				(−21·8)	(217·3)	(− 2·8)	(0)	(0)	(305)
1912.				°	°	°			
133·322	AB, AS	6986	0·426	60·7	183·7	+ 9·5	1	8	
G.		6987	0·702	97·5	161·3	− 7·2	0	7	
			0·822	93·3	150·5	− 4·3			156
May 13				(−21·6)	(205·7)	(− 2·7)	(1)	(15)	(156)
134·315	AB, AS	6987*	0·358	37·0	179·8	+14·0	0	5	
G.			0·876	90·5	131·6	− 1·7			131
May 14				(−21·3)	(192·6)	(− 2·6)	(0)	(5)	(131)
May 15 to May 19			No Spots or Faculæ.						
140·468	AB, AS		0·882	86·1	49·7	+ 2·5			145
G.									
May 20				(−19·6)	(111·2)	(− 1·9)	(0)	(0)	(145)
141·326	AB, AS		0·821	278·3	154·3	+ 5·8			147
G.			0·876	97·8	38·9	− 7·7			153
May 21				(−19·3)	(99·8)	(− 1·8)	(0)	(0)	(300)
May 22 and May 23			No Spots or Faculæ.						
144·649	AB, AS		0·875	93·2	355·1	− 3·5			174
G.									
May 24				(−18·2)	(55·9)	(− 1·4)	(0)	(0)	(174)
145·304	AB, AS		0·870	82·7	347·3	+ 5·6			149
G.			0·890	101·3	344·8	−10·7			115
May 25				(−18·0)	(47·2)	(− 1·4)	(0)	(0)	(264)
146·486	AB, AS		0·805	280·8	84·3	+ 8·0			159
		6988	0·939	98·2	321·9	− 8·1	3	12	524*s*
G.			0·723	79·0	346·1	+ 7·0			122
			0·875	91·8	330·7	− 2·1			130
May 26				(−17·6)	(31·5)	(− 1·2)	(3)	(12)	(935)
147·429	AB, AS	6988	0·845	98·7	321·8	− 7·9	7	49	553*s*
G.									
May 27				(−17·3)	(19·1)	(− 1·1)	(7)	(49)	(553)

Group 6984, May 7. Small faint spot.
Group 6985, May 9–10. Small spot.
Group 6986, May 13. Very small spot.
Group 6987, May 13. Very small spot.
Group 6987*, May 14. Very small spot.
Group 6988, May 26–31. Cluster of faint spots.

Measures of Positions and Areas of Sun Spots and Faculæ on Photographs—*continued.*

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	Heliographic Longitude.	Heliographic Latitude.	Spots. Area of UMBRA for each Spot (and for Day).	Spots. Area of WHOLE for each Spot (and for Day).	Faculæ. Area for each Group (and for Day).
1912.				°	°	°			
148·353	AB, AS	6988	0·696	100·9	323·3	− 8·3	0	18	} 362*c*
		6988	0·719	98·7	321·3	− 6·9	0	8	
G.		6988	0·746	100·8	319·2	− 8·7	6	28	
			0·877	101·0	306·1	−10·1			394
May 28				(−16·9)	(6·8)	(− 1·0)	(6)	(54)	(756)
149·492	AB, AS	6988	0·474	106·1	324·5	− 8·4	2	14	} 91*f*
		6988	0·489	102·0	323·1	− 6·6	0	4	
		6988	0·539	104·5	320·1	− 8·5	3	19	
G.		6988	0·571	105·2	318·0	− 9·3	0	6	
			0·792	108·5	300·9	−15·1			208
May 29				(−16·5)	(351·8)	(− 0·9)	(5)	(43)	(299)
150·431	AB, AS	6988	0·272	122·5	326·0	− 9·1	0	5	
		6988	0·312	117·2	323·2	− 8·9	0	2	
G.		6988	0·363	120·1	320·8	−11·1	0	7	
			0·722	118·9	297·0	−20·9			122
			0·861	87·9	280·2	+ 1·5			135
May 30				(−16·2)	(339·4)	(− 0·7)	(0)	(14)	(257)
151·600	AB, AS	6989	0·819	260·4	18·4	− 8·2	10	31	} 125*c*
		6990	0·813	258·8	17·6	− 9·4	0	4	
		6990	0·790	258·6	15·4	− 9·3	7	28	
G.		6988	0·140	162·0	321·4	− 8·2	0	6	
		6988	0·193	145·1	317·5	− 9·7	0	6	
			0·865	84·3	264·4	+ 4·7			190
May 31				(−15·8)	(323·9)	(− 0·6)	(17)	(75)	(315)
152·308	AB, AS	6989	0·905	262·1	19·0	− 7·4	10	86	} 196*c*
		6990	0·873	258·8	14·7	−10·0	17	80	
G.			0·871	82·1	254·4	+ 6·6			172
June 1				(−15·5)	(314·5)	(− 0·5)	(27)	(166)	(368)
153·599	AB, AS	6989	0·992	263·2	19·9	− 6·8	0	171	} 306*c*
G.		6990	0·970	258·7	13·0	−11·1	21	112	
June 2				(−15·0)	(297·4)	(− 0·4)	(21)	(283)	(306)
154·307	AB, AS		0·861	267·2	347·2	− 2·6			114
		6990	0·995	258·9	12·0	−11·1	0	71	
G.			0·851	110·4	231·5	−17·4			152
June 3				(−14·7)	(288·0)	(− 0·3)	(0)	(71)	(266)
155·452	AB, AS		0·907	271·0	337·8	+ 0·9			225
			0·786	255·2	323·6	−11·6			359
G.			0·886	101·1	211·2	− 9·9			114
June 4				(−14·3)	(272·9)	(− 0·1)	(0)	(0)	(698)
156·419	AB, AS		0·905	259·0	324·3	− 9·9			543
			0·861	276·3	319·2	+ 5·4			135
G.			0·863	297·7	316·4	+23·6			157
			0·743	256·7	307·1	− 9·8			190
June 5				(−13·9)	(260·1)	(0·0)	(0)	(0)	(1025)
157·313	AB, AS		0·899	258·3	311·6	−10·4			506
G.									
June 6				(−13·5)	(248·3)	(+ 0·1)	(0)	(0)	(506)
158·516	AB, AS		0·912	256·9	297·3	−11·9			432
C.			0·753	249·4	279·0	−15·2			238
June 7				(−13·1)	(232·3)	(+ 0·2)	(0)	(0)	(670)
159·465	AB, AS		0·945	248·9	289·2	−19·8			237
C.			0·936	94·7	150·7	− 4·3			250
June 8				(−12·7)	(219·8)	(+ 0·3)	(0)	(0)	(487)
160·596	AB, AS		0·805	98·2	151·7	− 6·3			294
G.									
June 9				(−12·2)	(204·8)	(+ 0·5)	(0)	(0)	(294)
June 11 to June 15			No Spots or Faculæ.						
167·513	AB, AS		0·780	261·7	163·9	− 5·6			128
		6991	0·119	216·9	117·4	− 4·2	1	4	
G.			0·878	94·7	52·3	− 3·5			155
			0·894	108·9	51·8	−16·2			153
June 16				(−9·3)	(113·3)	(+ 1·3)	(1)	(4)	(436)

Group 6989, May 31-June 2. Cluster of spots, forming near the West limb.
Group 6990, May 31-June 3. A double spot, south of Group 6989.
Group 6991, June 16. Very small spot.

Measures of Positions and Areas of Sun Spots and Faculæ on Photographs—*continued.*

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	Heliographic Longitude.	Heliographic Latitude.	Spots. Area of UMBRA for each Spot (and for Day).	Spots. Area of WHOLE for each Spot (and for Day).	Faculæ. Area for each Group (and for Day).
1912.				°	°	°			
168·354	AB, AS		0·749	261·1	149·9	− 5·7			121
G.		6992*a*	0·968	97·0	27·0	− 6·5	42	204	209*c*
			0·851	110·5	46·1	−16·5			162
June 17				(−8·9)	(102·1)	(+1·4)	(42)	(204)	(492)
169·446	AB, AS		0·889	263·8	150·0	− 4·8			173
G.		6991*	0·261	304·3	100·3	+ 9·9	2	24	
		6992*a*	0·877	97·9	27·0	− 6·2	31	172	424*f*
June 18				(−8·5)	(87·7)	(+1·5)	(33)	(196)	(597)
170·353	AB, AS		0·888	267·5	138·0	− 1·5			138
G.		6992*a*	0·761	99·6	26·9	− 6·2	26	189	458*f*
June 19				(−8·1)	(75·7)	(+1·6)	(26)	(189)	(596)
171·310	AB, AS	6992*a*	0·598	102·4	27·2	− 5·9	34	173	} 279*f*
G.		6992	0·636	103·4	24·6	− 7·1	0	10	
June 20				(−7·6)	(63·0)	(+1·8)	(34)	(183)	(279)
172·316	AB, AS		0·785	285·1	100·6	+13·0			138
G.		6992*a*	0·407	109·0	27·0	− 5·9	34	169	
			0·982	103·6	331·6	−13·0			414
June 21				(−7·2)	(49·7)	(+1·9)	(34)	(169)	(552)
173·306	AB, AS		0·887	280·2	98·8	+10·0			109
		6992*a*	0·212	130·0	27·2	− 5·9	32	155	
G.			0·878	87·0	335·4	+ 3·6			133
			0·902	102·5	333·3	−10·4			368
June 22				(−6·7)	(36·6)	(+2·0)	(32)	(155)	(610)
174·474	AB, AS	6992*a*	0·177	219·1	27·5	− 5·8	34	162	
G.			0·803	107·9	329·6	−13·0			356
			0·916	99·9	315·6	− 8·2			197
June 23				(−6·2)	(21·1)	(+2·1)	(34)	(162)	(553)
175·332	AB, AS	6992*a*	0·336	246·0	27·7	− 5·8	29	154	
G.			0·835	89·0	313·4	+ 2·1			125
			0·905	105·1	306·4	−12·7			298
June 24				(−5·9)	(9·8)	(+2·2)	(29)	(154)	(423)
176·416	AB, AS	6992*a*	0·553	255·8	27·9	− 5·8	25	146	
C.		6993	0·462	130·4	334·1	−15·1	0	10	
176·416	AB, AS		0·804	103·0	303·1	− 8·9			188
C.			0·873	116·6	298.5	−21·7			171
June 25				(−5·4)	(355·4)	(+2·4)	(25)	(156)	(359)
177·322	AB, AS	6992*a*	0·714	259·5	28·1	− 5·7	30	144	
G.		6993	0·340	153·1	334·3	−15·1	0	6	
June 26				(−4·9)	(343·4)	(+2·5)	(30)	(150)	(0)
178·430	AB, AS	6992*a*	0·866	262·1	28·0	− 5·5	33	138	234*sf*
G.		6993	0·305	192·4	332·6	−14·7	0	4	
June 27				(−4·5)	(328·7)	(+2·6)	(33)	(142)	(234)
179·496	AB, AS	6992*a*	0·963	263·5	28·4	− 5·5	38	146	319*sf*
G.									
June 28				(−4·0)	(314·6)	(+2·7)	(38)	(146)	(319)
180·486	AB, AS		0·965	258·1	15·2	−10·7			237
G.									
June 29				(−3·5)	(301·5)	(+2·8)	(0)	(0)	(237)
181·599	AB, AS		0·768	247·8	334·0	−14·9			226
C.									
June 30				(−3·0)	(286·8)	(+2·9)	(0)	(0)	(226)
182·412	AB, AS		0·863	252·5	333·6	−13·4			209
C.			0·983	103·8	197·7	−13·0			283
July 1				(−2·6)	(276·0)	(+3·0)	(0)	(0)	(492)
183·452	AB, AS		0·925	251·1	327·8	−16·2			262
C.		6994*	0·834	100·2	206·8	− 6·7	0	4	72*f*
		6994	0·934	105·0	194·9	−12·8	0	9	392*p*
July 2				(−2·2)	(262·3)	(+3·1)	(0)	(13)	(726)
184·394	AB, AS		0·893	253·5	311·1	−13·2			235
C.		6994	0·838	107·2	194·9	−12·5	2	8	205*p*
July 3				(−1·7)	(249·8)	(+3·2)	(2)	(8)	(440)
185·656	AB, AS	6994	0·622	113·4	197·6	−11·5	0	19	81*c*
G.			0·911	95·5	168·0	− 3·6			152
July 4				(−1·2)	(233·1)	(+3·4)	(0)	(19)	(233)

Group 6992, June 17–28. Return of Group 6989. A large regular spot, *a*, with two small companions on June 20.
Group 6991*, June 18. Cluster of small spots.
Group 6993, June 25–27. Two or three very small spots.
Group 6994, July 2–5. A few small spots.
Group 6994*, July 2. A small spot.

Measures of Positions and Areas of Sun Spots and Faculæ on Photographs—*continued.*

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	Heliographic Longitude.	Heliographic Latitude.	Spots. Area of UMBRA for each Spot (and for Day).	Spots. Area of WHOLE for each Spot (and for Day).	Faculæ. Area for each Group (and for Day).
1912.				°	°				
186·599	AB, AS	6994	0·459	123·9	197·8	−11·6	0	12	
G.		6995	0·691	99·1	177·6	− 3·7	2	8	51*c*
			0·868	96·8	161·1	− 4·1			158
July 5				(−0·7)	(220·6)	(+3·5)	(2)	(20)	(209)
187·327	AB, AS	6995	0·582	99·2	176·0	− 2·5	6	21	
G.			0·797	98·1	158·9	− 4·3			138
July 6				(−0·4)	(211·0)	(+3·5)	(6)	(21)	(138)
188·504	AB, AS	6995	0·327	111·0	177·7	− 3·2	8	27	
G.		6995	0·355	106·5	175·6	− 2·3	3	11	
		6995	0·391	107·2	173·5	− 3·2	0	2	
July 7				(+0·1)	(195·4)	(+3·7)	(11)	(40)	(0)
189·336	AB, AS	6995	0·171	136·7	177·7	− 3·4	4	18	
G.		6995	0·188	130·5	176·2	− 3·2	0	9	
		6995	0·205	121·7	174·4	− 2·4	0	13	
July 8				(+0·5)	(184·4)	(+3·8)	(4)	(40)	(0)
190·314	AB, AS	6995	0·196	213·8	177·8	− 5·5	0	3	
G.		6995	0·163	220·3	177·5	− 3·2	8	33	
		6995	0·129	203·6	174·5	− 2·9	4	18	
July 9				(+1·0)	(171·5)	(+3·9)	(12)	(54)	(0)
191·486	AB, AS	6995	0·377	251·2	176·9	− 3·2	5	18	
G.		6995	0·345	246·1	174·4	− 4·2	2	11	
July 10				(+1·5)	(156·0)	(+4·0)	(7)	(29)	(0)
192·298	AB, AS		0·822	252·6	198·3	−11·8			212
		6995	0·535	259·3	176·8	− 2·2	0	8	
G.		6995	0·536	257·3	176·6	− 3·3	3	14	
		6995	0·505	256·1	174·5	− 3·4	0	4	
			0·927	82·7	77·1	+ 8·3			139
July 11				(+1·9)	(145·2)	(+4·1)	(3)	(26)	(351)
193·350	AB, AS		0·924	257·9	197·4	− 9·5			231
G.		6995	0·728	261·7	177·3	− 3·1	0	5	122*c*
July 12				(+2·3)	(131·3)	(+4·2)	(0)	(5)	(353)
194·369	AB, AS	6995	0·854	265·0	175·9	− 2·0	0	6	158*sf*
G.									
July 13				(+2·8)	(117·8)	(+4·3)	(0)	(6)	(158)

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	Heliographic Longitude.	Heliographic Latitude.	Spots. Area of UMBRA for each Spot (and for Day).	Spots. Area of WHOLE for each Spot (and for Day).	Faculæ. Area for each Group (and for Day).
1912.				°	°	°			
195·508	AB, AS		0·862	262·7	161·5	− 4·0			155
G.			0·967	98·1	28·4	− 6·7			153
July 14				(+3·3)	(102·7)	(+4·4)	(0)	(0)	(308)
196·308	AB, AS		0·882	262·1	153·1	− 4·8			177
G.			0·903	101·3	28·9	− 8·2			242
July 15				(+3·7)	(92·1)	(+4·5)	(0)	(0)	(419)
197·308	AB, AS		0·851	104·7	22·4	−10·0			179
G.									
July 16				(+4·1)	(78·9)	(+4·5)	(0)	(0)	(179)
198·313	AB, AS	6996	0·645	104·2	26·8	− 5·5	0	5	82*c*
G.			0·807	104·4	13·5	− 8·8			159
July 17				(+4·6)	(65·6)	(+4·6)	(0)	(5)	(241)
199·529	AB, AS	6996	0·398	116·7	28·7	− 5·9	0	9	
G.			0·877	81·5	348·1	+ 9·8			141
			0·930	102·7	342·7	−10·0			198
July 18				(+5·1)	(49·5)	(+4·7)	(0)	(9)	(339)
200·448	AB, AS		0·889	105·7	336·7	−11·6			304
C.									
July 19				(+5·5)	(37·4)	(+4·8)	(0)	(0)	(304)
July 20			No	Photo	graph.				
July 21 and July 22			No	Spots	or Fac	ulæ.			
204·553	AB, AS		0·745	255·3	29·5	− 7·3			118
C.									
July 23				(+7·3)	(343·1)	(+5·2)	(0)	(0)	(118)
205·350	AB, AS		0·807	253·3	24·1	−10·2			159
G.									
July 24				(+7·6)	(332·5)	(+5·2)	(0)	(0)	(159)

Group 6995, July 5–13. A small spot on July 5, expanding into a short stream ; only one spot remains by July 12 and 13.
Group 6996, July 17–18. Small faint spot.

Measures of Positions and Areas of Sun Spots and Faculæ on Photographs—*continued.*

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	Heliographic Longitude.	Heliographic Latitude.	Spots. Area of UMBRA for each Spot (and for Day).	Spots. Area of WHOLE for each Spot (and for Day).	Faculæ. Area for each Group (and for Day).
1912.				°	°	°			
206·341 G.	AB, AS		0·892	253·8	20·3	−11·9			230
July 25				(+8·0)	(319·4)	(+5·3)	(0)	(0)	(230)
207·319 G.	AB, AS		0·947	252·0	15·2	−15·1			129
			0·856	108·6	250·4	−12·8			101
July 26				(+8·4)	(306·5)	(+5·4)	(0)	(0)	(230)
July 27			No Spots or Faculæ.						
209·440 G.	AB, AS		0·861	252·1	335·2	−12·3			144
July 28				(+9·3)	(278·4)	(+5·6)	(0)	(0)	(144)
210·398 C.	AB, AS		0·918	255·0	330·2	−11·3			363
			0·836	88·2	209·0	+ 4·6			131
July 29				(+9·7)	(265·7)	(+5·7)	(0)	(0)	(494)
211·346 G.	AB, AS		0·845	251·2	308·1	−12·6			137
			0·880	95·7	192·2	− 2·3			99
July 30				(+10·1)	(253·2)	(+5·7)	(0)	(0)	(236)
July 31 to Aug. 9			No Spots or Faculæ.						
222·493 G.	AB, AS		0·952	101·4	35·3	− 8·8			152
Aug. 10				(+14·4)	(105·8)	(+6·5)	(0)	(0)	(152)
223·598 C.	AB, AS		0·894	104·4	30·0	− 9·8			172
Aug. 11				(+14·8)	(91·2)	(+6·5)	(0)	(0)	(172)
224·463 G.	AB, AS		0·837	107·5	25·7	−10·7			143
Aug. 12				(+15·1)	(79·8)	(+6·6)	(0)	(0)	(143)
Aug. 13			No Spots or Faculæ.						
1912.				°	°	°			
226·344 G.	AB, AS		0·940	104·6	347·1	−11·3			242
Aug. 14				(+15·8)	(54·9)	(+6·7)	(0)	(0)	(242)
227·509 C.	AB, AS		0·861	108·0	342·9	−11·8			304
Aug. 15				(+16·2)	(39·5)	(+6·7)	(0)	(0)	(304)
228·531 G.	AB, AS		0·734	112·4	342·4	−11·3			154
Aug. 16				(+16·5)	(26·0)	(+6·8)	(0)	(0)	(154)
229·580 C.	AB, AS		0·849	258·3	68·6	− 6·2			146
			0·921	104·6	307·3	−10·6			169
Aug. 17				(+16·9)	(12·1)	(+6·8)	(0)	(0)	(315)
230·544 G.	AB, AS		0·839	119·0	308·3	−19·8			163
Aug. 18				(+17·2)	(359·4)	(+6·8)	(0)	(0)	(163)
231·418 G.	AB, AS		0·898	281·1	52·3	+13·0			130
			0·756	71·7	298·9	+18·3			119
Aug. 19				(+17·5)	(347·8)	(+6·9)	(0)	(0)	(249)
232·441 G.	AB, AS		0·935	278·9	44·1	+10·7			110
			0·875	255·6	33·2	− 9·1			193
Aug. 20				(+17·8)	(334·3)	(+6·9)	(0)	(0)	(303)
233·316 G.	AB, AS		0·859	250·4	18·6	−12·9			101
Aug. 21				(+18·1)	(322·7)	(+6·9)	(0)	(0)	(101)
234·318 G.	AB, AS		0·908	255·7	12·5	− 9·8			136
			0·794	103·6	258·8	− 6·4			120
Aug. 22				(+18·4)	(309·5)	(+7·0)	(0)	(0)	(256)
235·454 C.	AB, AS		0·865	253·7	351·9	−10·3			153
Aug. 23				(+18·7)	(294·5)	(+7·0)	(0)	(0)	(153)

Measures of Positions and Areas of Sun Spots and Faculæ on Photographs—*continued.*

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	Heliographic Longitude.	Heliographic Latitude.	Spots: Area of UMBRA for each Spot (and for Day).	Spots: Area of WHOLE for each Spot (and for Day).	Faculæ: Area for each Group (and for Day).
1912.				°	°	°			
236·251	AB, AS		0·937	257·8	351·7	− 8·8			159
D.									
Aug. 24				(+19·0)	(284·0)	(+7·0)	(0)	(0)	(159)
Aug. 25			No	Spots	or Faculæ.				
238·519	AB, AS		0·854	262·8	311·8	− 2·4			137
C.									
Aug. 26				(+19·6)	(254·0)	(+7·1)	(0)	(0)	(137)
Aug. 27			No	Spots	or Faculæ.				
240·362	AB, AS	6997	0·751	101·8	182·3	− 4·0	0	8	138*f*
G.									
Aug. 28				(+20·2)	(229·6)	(+7·1)	(0)	(8)	(138)
Aug. 29 to Aug. 31			No	Spots	or Faculæ.				
Sept. 1 to Sept. 3			No	Spots	or Faculæ.				
247·457	AB, AS		0·948	100·0	65·9	− 7·1			225
G.									
Sept. 4				(+22·0)	(135·9)	(+7·2)	(0)	(0)	(225)
248·394	AB, AS		0·858	102·7	66·3	− 7·0			241
G.									
Sept. 5				(+22·2)	(123·5)	(+7·2)	(0)	(0)	(241)
249·356	AB, AS	6998	0·952	97·1	39·7	− 4·5	0	13	385*c*
G.			0·777	105·8	62·1	− 7·4			148
Sept. 6				(+22·4)	(110·8)	(+7·3)	(0)	(13)	(533)
250·352	AB, AS	6998*	0·869	259·0	156·5	− 5·8	0	9	85*s*
G.		6998	0·835	100·3	42·4	− 4·5	4	19	} 315*c*
		6998	0·884	99·7	36·9	− 5·0	4	24	
Sept. 7				(+22·6)	(97·7)	(+7·3)	(8)	(52)	(400)
1912.				°	°	°			
251·440	AB, AS	6998*	0·956	260·0	154·8	− 7·4	0	17	187*p*
		6998	0·671	104·9	42·9	− 4·5	7	34	} 298*c*
G.		6998	0·747	103·2	36·6	− 4·9	8	34	
Sept. 8				(+22·9)	(83·3)	(+7·2)	(15)	(85)	(485)
252·368	AB, AS	6998	0·487	112·2	44·3	− 4·2	6	26	
		6998	0·596	109·1	36·8	− 5·3	1	8	
G.			0·975	100·2	355·4	− 8·2			183
Sept. 9				(+23·1)	(71·1)	(+7·2)	(7)	(34)	(183)
253·087	AB, AS	6998	0·347	125·4	45·2	− 4·7	5	17	
		6998	0·370	121·8	43·3	− 4·4	2	13	
D.		6998	0·385	117·1	41·6	− 3·3	0	2	
			0·947	102·0	352·2	− 8·9			428
Sept. 10				(+23·2)	(61·6)	(+7·2)	(7)	(32)	(428)
254·506	AB, AS	6998	0·219	196·6	46·4	− 4·9	0	6	
		6998	0·216	185·6	44·0	− 5·2	0	12	
C.		6998	0·228	157·5	37·8	− 5·0	1	7	
			0·839	106·6	348·3	− 9·7			400
Sept. 11				(+23·5)	(42·8)	(+7·2)	(1)	(25)	(400)
255·417	AB, AS	6998	0·351	235·9	47·7	− 4·4	0	9	
		6998	0·318	230·3	45·0	− 4·7	0	11	
		6998	0·245	212·3	38·3	− 4·8	0	6	
G.		6999	0·659	111·1	352·6	− 8·1	3	16	176*f*
			0·890	110·0	331·4	− 14·1			134
Sept. 12				(+23·7)	(30·8)	(+7·2)	(3)	(42)	(310)
256·424	AB, AS		0·792	256·1	68·0	− 6·4			144
		6998	0·486	243·7	43·4	− 5·9	0	6	
		6998	0·436	243·9	40·5	− 4·4	0	4	
		6998	0·431	240·0	39·4	− 5·8	0	9	
C.		6999	0·474	124·7	354·4	− 9·0	0	4	
		6999	0·473	121·3	353·5	− 7·6	6	21	
		6999	0·506	120·3	351·4	− 8·3	0	3	
		6999	0·528	117·2	349·3	− 7·5	0	6	
Sept. 13				(+23·9)	(17·5)	(+7·2)	(6)	(53)	(144)
257·485	AB, AS		0·673	252·0	43·4	− 6·5			111
		7000	0·928	258·9	70·0	− 7·5	5	19	} 224*c*
G.		7000	0·911	256·5	67·1	− 9·2	5	20	
		6999	0·292	150·5	355·2	− 7·5	1	11	
		6999	0·304	147·4	354·0	− 7·7	6	27	

Group 6997, August 28. A small spot, apparently a revival of Group 6995.
Group 6998, September 6–13. Some small spots chiefly arranged in two clusters; the following cluster disappears before September 10.
Group 6998, *September 7–8. A small spot.
Group 6999, September 12–20. A number of spots in a straight stream. The spots undergo many changes.
Group 7000, September 14. A few scattered spots.

Measures of Positions and Areas of Sun Spots and Faculæ on Photographs—*continued.*

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	Heliographic Longitude.	Heliographic Latitude.	Spots. Area of UMBRA for each Spot (and for Day).	Spots. Area of WHOLE for each Spot (and for Day).	Faculæ. Area for each Group (and for Day).
1912.				°	°	°			
257·485	AB, AS	6999	0·334	145·8	352·6	− 8·9	0	2	
G.		6999	0·348	142·5	351·2	− 8·9	8	34	
Sept. 14				(+24·1)	(3·5)	(+7·2)	(25)	(113)	(335)
258·440	AB, AS		0·976	260·6	66·8	− 7·4			271
			0·781	256·0	40·4	− 6·2			264
C.		6999	0·270	195·4	355·0	− 7·8	9	47	
		6999	0·256	189·2	353·3	− 7·4	2	16	
		6999	0·276	180·0	350·9	− 8·8	11	43	
Sept. 15				(+24·2)	(350·9)	(+7·2)	(22)	(106)	(535)
259·117	AB, AS		0·869	259·1	40·8	− 5·8			278
		6999	0·359	223·0	356·3	− 8·2	6	26	
D.		6999	0·347	224·7	356·2	− 7·3	0	8	
		6999	0·327	217·9	353·6	− 7·8	8	28	
		6999	0·318	210·7	351·4	− 8·7	11	36	
Sept. 16				(+24·3)	(342·0)	(+7·2)	(25)	(98)	(278)
260·193	AB, AS		0·956	261·3	39·5	− 6·1			242
D.		6999	0·510	237·5	353·5	− 9·4	0	10	
		6999	0·476	236·2	351·3	− 8·8	13	50	
Sept. 17				(+24·5)	(327·8)	(+7·2)	(13)	(60)	(242)
261·389	AB, M	6999	0·724	250·6	355·5	− 8·8	13	38	
		6999	0·694	249·7	353·0	− 8·6	14	67	156*c*
G.		6999	0·671	248·9	351·1	− 8·5	10	50	
		6999	0·661	247·1	349·9	− 9·3	0	8	
Sept. 18				(+24·7)	(312·0)	(+7·1)	(37)	(163)	(156)
262·080	AB, AS	6999	0·833	254·1	356·9	− 9·1	10	46	
D.		6999	0·797	253·6	353·3	− 8·5	26	148	267*c*
		6999	0·773	252·9	351·0	− 8·4	23	68	
Sept. 19				(+24·8)	(302·9)	(+7·1)	(59)	(262)	(267)
263·444	AB, AS	6999	0·967	257·8	358·3	− 9·9	8	71	
		6999	0·955	258·6	355·9	− 8·6	0	9	
G.		6999	0·938	257·5	352·7	− 9·1	3	18	722*c*
		6999	0·924	258·0	350·6	− 8·2	9	61	
			0·923	80·4	216·9	+11·6			133
Sept. 20				(+25·0)	(284·9)	(+7·1)	(20)	(159)	(855)
264·359	AB, AS		0·975	259·1	348·4	− 8·9			295
G.									
Sept. 21				(+25·1)	(272·8)	(+7·0)	(0)	(0)	(295)
265·505	AB, AS		0·937	96·7	189·1	− 3·7			189
G.									
Sept. 22				(+25·3)	(257·7)	(+7·0)	(0)	(0)	(189)
266·370	AB, AS		0·847	98·7	189·4	− 3·6			115
G.									
Sept. 23				(+25·4)	(246·2)	(+7·0)	(0)	(0)	(115)
267·406	AB, AS		0·727	103·5	187·6	− 4·9			149
G.			0·934	100·3	165·0	− 7·1			142
Sept. 24				(+25·5)	(232·6)	(+6·9)	(0)	(0)	(291)
268·413	AB, AS	7001	0·784	102·4	169·2	− 5·3	7	21	101*f*
G.									
Sept. 25				(+25·6)	(219·3)	(+6·9)	(7)	(21)	(101)
269·358	AB, AS	7001	0·627	107·5	170·0	− 5·3	8	33	
		7001	0·637	106·1	169·1	− 4·7	0	6	
G.		7001	0·657	106·3	167·7	− 5·2	1	7	73*f*
		7001	0·678	107·3	166·3	− 6·3	4	19	
Sept. 26				(+25·7)	(206·8)	(+6·9)	(13)	(65)	(73)
270·361	AB, AS	7001	0·436	117·9	170·9	− 5·5	6	24	
G.		7001	0·506	115·9	166·4	− 6·7	1	5	
Sept. 27				(+25·8)	(193·6)	(+6·8)	(7)	(29)	(0)
271·388	AB, AS	7001	0·255	145·3	171·7	− 5·3	1	5	
G.									
Sept. 28				(+25·9)	(180·0)	(+6·8)	(1)	(5)	(0)
Sept. 29			No	Spots	or Faculæ.				
273·620	AB, AS		0·967	98·2	76·5	− 6·2			139
G.									
Sept. 30				(+26·1)	(150·5)	(+6·7)	(0)	(0)	(139)
274·488	AB, AS		0·910	100·9	75·1	− 7·1			147
G.									
Oct. 1				(+26·1)	(139·1)	(+6·6)	(0)	(0)	(147)

Group 7001, September 25–28. A short stream of spots.

Measures of Positions and Areas of Sun Spots and Faculæ on Photographs—*continued.*

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	Heliographic Longitude.	Heliographic Latitude.	Spots. Area of UMBRA for each Spot (and for Day).	Spots. Area of WHOLE for each Spot (and for Day).	Faculæ. Area for each Group (and for Day).
1912.				°	°	°			
275·097	AB, AS		0·968	97·1	56·5	− 5·2			237
D.									
Oct. 2				(+26·2)	(131·0)	(+6·6)	(0)	(0)	(237)
276·418	AB, AS		0·855	260·2	171·1	− 4·9			157
			0·633	105·9	76·1	− 4·8			73
G.			0·879	100·8	53·5	− 6·3			212
Oct. 3				(+26·2)	(113·6)	(+6·5)	(0)	(0)	(442)
277·453	AB, AS		0·931	258·1	166·9	− 8·5			207
			0·791	102·0	49·2	− 5·4			249
G.			0·868	82·7	39·4	+ 9·6			82
Oct. 4				(+26·3)	(100·0)	(+6·5)	(0)	(0)	(538)
278·471	AB, AS	7002	0·243	161·3	82·0	− 6·9	6	31	
		7002	0·260	157·5	80·8	− 7·5	0	6	
G.		7002	0·254	150·3	79·3	− 6·3	13	34	
Oct. 5				(+26·3)	(86·5)	(+6·4)	(19)	(71)	(0)
279·545	AB, AS	7002*a*	0·302	214·4	82·3	− 8·1	35	103	
		7002	0·282	216·0	82·0	− 6·9	2	11	
		7002	0·288	207·6	80·1	− 8·4	0	2	
G.		7002	0·243	210·2	79·4	− 5·8	7	23	
		7002*b*	0·256	206·6	79·0	− 6·8	26	91	
			0·936	100·4	4·5	− 7·4			400
Oct. 6				(+26·4)	(72·4)	(+6·4)	(70)	(230)	(400)
280·508	AB, AS	7002	0·454	240·6	83·1	− 7·1	0	2	
		7002*a*	0·462	237·4	82·8	− 8·6	32	204	
		7002	0·421	237·1	80·5	− 7·3	6	27	
G.		7002	0·414	234·0	79·4	− 8·1	1	6	
		7002	0·396	237·9	79·3	− 6·2	4	21	
		7002*b*	0·394	233·8	78·3	− 7·4	27	102	
			0·867	105·0	1·7	− 9·7			388
Oct. 7				(+26·4)	(59·7)	(+6·3)	(70)	(362)	(388)
281·479	AB, AS	7002*a*	0·638	248·0	83·5	− 8·8	32	157	
		7002	0·623	249·9	82·9	− 7·3	7	48	
		7002	0·598	249·4	81·1	− 6·9	0	6	118*c*
G.		7002	0·610	245·6	81·0	− 9·4	0	7	
		7002	0·568	249·8	79·2	− 6·0	4	16	
		7002*b*	0·577	247·0	79·2	− 7·7	24	152	
			0·762	107·7	359·8	− 9·2			283
Oct. 8				(+26·4)	(46·9)	(+6·3)	(67)	(386)	(401)

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	Heliographic Longitude.	Heliographic Latitude.	Spots. Area of UMBRA for each Spot (and for Day).	Spots. Area of WHOLE for each Spot (and for Day).	Faculæ. Area for each Group (and for Day).
1912.				°	°	°			
282·462	AB, AS	7002*a*	0·798	253·9	84·6	− 8·9	29	138	
		7002	0·785	254·9	83·6	− 7·8	6	20	
		7002	0·752	255·0	80·7	− 7·0	0	3	304*c*
G.		7002	0·744	251·8	79·4	− 9·1	2	22	
		7002*b*	0·736	253·6	79·2	− 7·7	11	90	
			0·645	110·8	356·5	− 8·3			106
Oct. 9				(+26·4)	(33·9)	(+6·2)	(48)	(273)	(410)
283·440	AB, AS	7002*a*	0·914	257·2	85·3	− 9·1	26	129	
		7002	0·903	258·2	83·9	− 7·9	7	28	540*c*
G.		7002	0·868	257·0	79·5	− 8·1	4	24	
Oct. 10				(+26·4)	(21·0)	(+6·1)	(37)	(181)	(540)
284·508	AB, AS	7002*a*	0·985	259·8	85·6	− 8·9	23	164	459*f*
G.			0·802	257·2	58·6	− 6·5			135
Oct. 11				(+26·4)	(6·9)	(+6·0)	(23)	(164)	(594)
285·451	AB, AS		0·891	259·3	56·1	− 6·7			178
G.									
Oct. 12				(+26·4)	(354·5)	(+6·0)	(0)	(0)	(178)
286·490	AB, AS		0·922	259·6	46·6	− 7·2			183
G.									
Oct. 13				(+26·4)	(340·8)	(+5·9)	(0)	(0)	(183)
Oct. 14			No	Spots	or Faculæ.				
288·480	AB, AS		0·793	254·7	4·9	− 8·4			108
G.									
Oct. 15				(+26·3)	(314·5)	(+5·8)	(0)	(0)	(108)
289·437	AB, AS		0·874	255·5	0·8	− 9·7			259
G.									
Oct. 16				(+26·3)	(301·9)	(+5·7)	(0)	(0)	(259)
290·466	AB, AS		0·926	257·3	354·4	− 9·5			133
G.									
Oct. 17				(+26·3)	(288·3)	(+5·6)	(0)	(0)	(133)
291·420	AB, AS	7003	0·935	97·0	207·3	− 4·6	0	20	171*f*
G.			0·838	69·1	219·2	+20·5			111
Oct. 18				(+26·2)	(275·7)	(+5·5)	(0)	(20)	(282)

Group 7002, October 5–11. A considerable stream of normal type, appearing suddenly near the Central Meridian. The first and last spots on October 6, *a* and *b*, are much the largest and best defined members of the group. *a* develops into a regular spot; *b* breaks up after October 8, and *a* alone remains on October 11.
Group 7003, October 18–20. A few small spots.

Measures of Positions and Areas of Sun Spots and Faculæ on Photographs—*continued.*

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	Heliographic Longitude.	Heliographic Latitude.	Spots. Area of UMBRA for each Spot (and for Day).	Spots. Area of WHOLE for each Spot (and for Day).	Faculæ. Area for each Group (and for Day).
1912.				°	°	°			
292·432	AB, AS	7003	0·826	100·1	207·9	− 5·2	2	9	159*f*
G.									
Oct. 19				(+26·1)	(262·4)	(+ 5·4)	(2)	(9)	(159)
293·415	AB, AS	7003	0·684	102·8	207·6	− 4·7	0	8	110*f*
G.			0·965	97·0	175·4	− 5·3			378
Oct. 20				(+26·0)	(249·4)	(+ 5·4)	(0)	(8)	(488)
294·439	AB, AS		0·883	99·4	175·0	− 5·7			321
G.									
Oct. 21				(+26·0)	(235·9)	(+ 5·3)	(0)	(0)	(321)
295·525	AB, AS		0·778	101·3	171·8	− 5·4			170
C.									
Oct. 22				(+25·9)	(221·6)	(+ 5·2)	(0)	(0)	(170)
Oct. 23 to Oct. 26	}		No	Spots	or Faculæ.				
300·402	AB, AS		0·779	261·4	207·6	− 3·6			128
C.			0·865	80·8	97·3	+10·3			127
			0·953	101·8	86·3	− 9·8			209
Oct. 27				(+25·4)	(157·3)	(+ 4·7)	(0)	(0)	(464)
301·502	AB, AS		0·916	264·0	208·5	− 3·6			185
C.			0·866	103·0	84·4	− 8·8			212
Oct. 28				(+25·2)	(142·8)	(+ 4·6)	(0)	(0)	(397)
302·425	AB, AS		0·825	262·3	185·4	− 3·7			133
G.			0·833	101·7	75·5	− 7·1			172
Oct. 29				(+25·1)	(130·6)	(+ 4·5)	(0)	(0)	(305)
303·417	AB, AS		0·833	260·9	172·9	− 5·1			290
G.			0·858	101·3	59·7	− 7·3			166
Oct. 30				(+24·9)	(117·5)	(+ 4·4)	(0)	(0)	(456)
304·388	AB, AS		0·936	263·2	173·3	− 4·8			164
C.									
Oct. 31				(+24·8)	(104·7)	(+ 4·3)	(0)	(0)	(164)

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	Heliographic Longitude.	Heliographic Latitude.	Spots. Area of UMBRA for each Spot (and for Day).	Spots. Area of WHOLE for each Spot (and for Day).	Faculæ. Area for each Group (and for Day)
1912.				°	°	°			
Nov. 1			No	Spots	or Faculæ.				
306·451	AB, AS		0·930	101·2	10·4	− 8·8			135
G.									
Nov. 2				(+24·4)	(77·5)	(+ 4·1)	(0)	(0)	(135)
307·402	AB, AS		0·750	94·3	16·8	− 0·6			192
C.			0·883	107·6	5·3	−13·5			337
Nov. 3				(+24·2)	(65·0)	(+ 4·0)	(0)	(0)	(529)
308·397	AB, AS		0·845	100·1	355·3	− 6·3			228
C.									
Nov. 4				(+24·0)	(51·9)	(+ 3·9)	(0)	(0)	(228)
309·438	AB, AS		0·784	255·9	88·2	− 8·6			162
C.									
Nov. 5				(+23·8)	(38·1)	(+ 3·8)	(0)	(0)	(162)
310·411	AB, AS		0·900	259·1	88·3	− 8·2			145
C.									
Nov. 6				(+23·7)	(25·3)	(+ 3·7)	(0)	(0)	(145)
Nov. 7			No	Spots	or Faculæ.				
312·562	AB, AS		0·913	75·1	291·2	+15·0			231
C.									
Nov. 8				(+23·2)	(356·9)	(+ 3·5)	(0)	(0)	(231)
313·496	AB, AS		0·856	101·2	286·9	− 7·8			135
G.									
Nov. 9				(+23·0)	(344·6)	(+ 3·4)	(0)	(0)	(135)
314·415	AB, AS		0·858	98·7	274·3	− 5·7			144
C.									
Nov. 10				(+22·7)	(332·5)	(+ 3·3)	(0)	(0)	(144)
315·483	AB, AS		0·780	257·9	8·5	− 7·4			119
G.									
Nov. 11				(+22·5)	(318·4)	(+ 3·2)	(0)	(0)	(119)

Measures of Positions and Areas of Sun Spots and Faculæ on Photographs—*continued.*

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	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).
1912.				°	°	°			
316·431	AB, AS		0·922	258·7	12·0	− 9·2			163
C.									
Nov. 12				(+22·2)	(305·9)	(+3·0)	(0)	(0)	(163)
317·555	AB, AS		0·941	256·8	0·0	−11·4			185
C.			0·716	280·5	336·5	+ 9·5			128
Nov. 13				(+21·9)	(291·1)	(+2·9)	(0)	(0)	(313)
Nov. 14			No	Spots	or Faculæ.				
319·504	AB, AS		0·947	91·0	194·4	− 0·1			195
C.									
Nov. 15				(+21·4)	(265·4)	(+2·7)	(0)	(0)	(195)
320·407	AB, AS	7004	0·897	94·0	190·1	− 2·4	0	8	198*f*
C.									
Nov. 16				(+21·2)	(253·5)	(+2·6)	(0)	(8)	(198)
321·406	AB, AS	7004	0·774	95·9	190·2	− 2·9	6	22	130*c*
C.		7004	0·812	95·6	186·6	− 3·0	0	5	
Nov. 17				(+20·9)	(240·4)	(+2·5)	(6)	(27)	(130)
322·506	AB, AS	7004	0·577	98·3	191·2	− 2·8	4	15	113*c*
C.		7004	0·629	96·4	187·3	− 2·3	0	5	
Nov. 18				(+20·5)	(225·9)	(+2·3)	(4)	(20)	(113)
323·426	AB, AS		0·703	265·9	258·1	− 1·3			105
		7004	0·381	101·9	191·9	− 2·5	2	9	
G.		7004	0·407	99·8	190·1	− 2·0	0	4	
		7004	0·445	99·9	187·8	− 2·4	3	18	
Nov. 19				(+20·3)	(213·7)	(+2·2)	(5)	(31)	(105)
Nov. 20 to Nov. 24			No	Spots	or Faculæ.				
329·179	AB, AS		0·772	264·0	188·0	− 3·6			118
D.									
Nov. 25				(+18·4)	(137·9)	(+1·5)	(0)	(0)	(118)
1912.				°	°	°			
330·375	AB, AS		0·929	266·7	190·0	− 2·5			141
C.									
Nov. 26				(+18·0)	(122·1)	(+1·4)	(0)	(0)	(141)
Nov. 27 and Nov. 28			No	Spots	or Faculæ.				
333·329	AB, AS		0·920	98·5	16·9	− 7·4			214
C.									
Nov. 29				(+16·9)	(83·2)	(+1·0)	(0)	(0)	(214)
334·311	AB, AS		0·928	308·9	133·3	+36·0			154
			0·857	121·2	15·9	−25·9			132
C.			0·831	105·7	15·5	−12·5			188
Nov. 30				(+16·5)	(70·3)	(+0·8)	(0)	(0)	(474)
335·411	AB, RP		0·794	106·8	4·8	−12·8			121
C.									
Dec. 1				(+16·1)	(55·8)	(+0·7)	(0)	(0)	(121)
Dec. 2 to Dec. 5			No	Spots	or Faculæ.				
340·310	RP, AB		0·888	262·8	53·4	− 6·3			148
C.			0·848	117·2	296·6	−22·7			168
Dec. 6				(+14·1)	(351·2)	(+0·1)	(0)	(0)	(316)
341·325	RP, AB		0·858	102·3	279·5	−10·5			41
C.									
Dec. 7				(+13·7)	(337·8)	(0·0)	(0)	(0)	(41)
Dec. 8			No	Spots	or Faculæ.				
343·379	AB, AS		0·917	263·4	16·8	− 6·2			236
C.			0·906	102·4	246·5	−11·3			123
Dec. 9				(+12·8)	(310·7)	(−0·3)	(0)	(0)	(359)

Group 7004, November 16–19. One or two small spots.

Measures of Positions and Areas of Sun Spots and Faculæ on Photographs—*continued.*

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Heliographic: Position Angle from Sun's Axis.	Heliographic: Longitude.	Heliographic: Latitude.	Spots: Area of UMBRA for each Spot (and for Day).	Spots: Area of WHOLE for each Spot (and for Day).	Faculæ: Area for each Group (and for Day).
1912.				°	°	°			
344·374	AB, AS		0·914	254·2	4·8	−14·6			218
C.			0·710	132·0	260·9	−28·6			96
Dec. 10				(+12·4)	(297·7)	(−0·4)	(0)	(0)	(314)
345·409	AB, AS		0·711	111·8	240·9	−15·7			119
C.			0·884	103·5	222·7	−12·2			190
Dec. 11				(+11·9)	(284·0)	(−0·6)	(0)	(0)	(309)
346·475	AB, AS	7005	0·952	91·0	198·1	− 1·2	0	6	161*p*
G.		7006*a*	0·960	91·3	196·5	− 1·5	17	56	
			0·861	97·8	210·9	− 7·1			97
Dec. 12				(+11·5)	(270·0)	(−0·7)	(17)	(62)	(258)
347·324	AB, AS	7005	0·846	92·3	201·2	− 2·4	2	21	228*c*
C.		7005	0·869	90·0	198·7	− 0·4	2	15	
		7006*a*	0·892	91·5	195·9	− 1·7	32	176	
Dec. 13				(+11·1)	(258·8)	(−0·8)	(36)	(212)	(228)
348·336	AB, AS	7005	0·678	92·5	203·0	− 2·4	1	18	175*c*
		7005	0·711	90·6	200·4	− 1·1	10	37	
C.		7006*a*	0·763	91·4	196·0	− 1·7	32	193	
			0·911	81·0	180·5	+ 7·8			114
Dec. 14				(+10·6)	(245·5)	(−1·0)	(43)	(248)	(289)
349·405	AB, AS	7005	0·453	92·8	204·6	− 2·3	0	17	88*c*
		7005	0·490	91·2	202·2	− 1·6	12	41	
C.		7005	0·539	91·8	198·9	− 1·9	4	30	
		7006*a*	0·585	91·4	195·7	− 1·7	34	185	
Dec. 15				(+10·2)	(231·4)	(−1·1)	(50)	(273)	(88)
350·518	AB, AS	7007	0·411	334·2	227·7	+20·4	0	6	
		7007	0·397	336·7	226·3	+20·1	0	11	
		7005	0·185	92·3	206·1	− 1·6	2	10	
		7005	0·207	101·3	205·0	− 3·5	2	7	
		7005	0·213	91·3	204·5	− 1·5	9	57	
G.		7005	0·233	94·3	203·3	− 2·1	0	12	
		7005	0·265	94·3	201·4	− 2·3	0	4	
		7005	0·290	94·3	199·9	− 2·4	0	8	
		7006	0·328	90·1	197·6	− 1·2	2	23	
		7006*a*	0·355	92·1	196·0	− 1·9	19	87	
Dec. 16				(+9·7)	(216·7)	(−1·2)	(34)	(225)	(0)
351·427	AB, AS	7007	0·535	312·2	229·5	+19·8	6	22	
		7007	0·515	314·3	227·7	+19·8	1	7	
		7007	0·503	316·9	226·1	+20·3	7	40	
		7005*a*	0·022	266·8	206·0	− 1·4	15	49	
G.		7005	0·016	191·7	204·9	− 2·3	5	25	
		7005	0·026	114·4	203·3	− 2·0	1	8	
		7005*b*	0·056	112·9	201·8	− 2·6	1	18	
		7006	0·124	81·3	197·7	− 0·2	0	4	
		7006*a*	0·152	94·7	196·0	− 2·0	12	55	
Dec. 17				(+9·2)	(204·7)	(−1·3)	(48)	(228)	(0)
352·375	AB, AS	7007	0·681	302·5	229·8	+20·3	6	19	96*c*
		7007	0·664	303·4	228·2	+20·1	1	6	
		7007	0·644	305·4	226·2	+20·6	1	9	
		7005*a*	0·240	270·2	206·0	− 1·4	17	79	
C.		7005	0·219	268·7	204·8	− 1·8	2	6	
		7005	0·186	267·2	202·9	− 2·0	0	9	
		7005*b*	0·162	263·0	201·4	− 2·7	13	33	
		7006	0·099	275·2	197·8	− 1·0	0	4	
		7006*a*	0·069	266·6	196·1	− 1·7	5	22	
Dec. 18				(+8·8)	(192·2)	(−1·5)	(45)	(187)	(96)
353·473	AB, AS		0·811	297·0	228·1	+20·6			125
		7005*a*	0·466	269·1	205·5	− 1·9	34	159	
G.		7005*b*	0·403	266·7	201·5	− 2·8	15	96	
		7005	0·376	268·3	199·8	− 2·1	0	4	
		7005	0·348	273·2	198·0	− 0·4	0	20	
Dec. 19				(+8·3)	(177·8)	(−1·6)	(49)	(279)	(125)
354·357	AB, AS		0·908	293·6	228·6	+20·5			211
		7005*a*	0·643	269·1	206·0	− 1·9	33	185	100*c*
C.		7005	0·619	268·0	204·2	− 2·6	1	12	
		7005*b*	0·582	267·7	201·5	− 2·7	15	103	
		7005	0·546	269·4	199·1	− 1·8	0	18	
Dec. 20				(+7·8)	(166·1)	(−1·7)	(49)	(318)	(311)
355·560	AB, AS		0·979	292·1	226·8	+21·2			177
		7005*a*	0·829	269·1	206·1	− 1·8	37	133	428*c*
C.		7005	0·813	268·5	204·5	− 2·3	0	13	
		7005*b*	0·787	268·2	202·0	− 2·5	18	86	
		7005	0·764	271·0	199·9	− 0·4	2	18	
Dec. 21				(+7·3)	(150·3)	(−1·8)	(57)	(250)	(605)
356·542	AB, AS	7005*a*	0·933	268·8	206·0	− 1·9	19	106	405*c*
G.		7005*b*	0·903	267·8	201·7	− 2·9	2	30	
Dec. 22				(+6·8)	(137·3)	(−2·0)	(21)	(136)	(405)

Group 7005, December 12–22. A few small spots in an irregular cluster. The leader, *a*, increases rapidly after December 17 to form a large compact spot crossed by many bridges, and several of its companions coalesce to form a similar spot, *b*, following it.
Group 7006, December 12–18. A large regular spot, *a*, with a few small companions, closely following Group 7005, and making up with it a broken stream.
Group 7007, December 16–18. Several small spots.

Measures of Positions and Areas of Sun Spots and Faculæ on Photographs—*continued.*

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	Heliographic Longitude.	Heliographic Latitude.	Spots. Area of UMBRA for each Spot (and for Day).	Spots. Area of WHOLE for each Spot (and for Day).	Faculæ. Area for each Group (and for Day).
1912.				°	°	°			
357·435	AB, AS		0·965	269·1	200·2	− 1·5			241
G.									
Dec. 23				(+6·4)	(125·6)	(−2·1)	(0)	(0)	(241)
358·321	AB, AS		0·922	61·9	50·6	+24·7			114
C.									
Dec. 24				(+6·0)	(113·9)	(−2·2)	(0)	(0)	(114)
359·387	AB, AS		0·771	58·8	54·8	+21·9			114
C.									
Dec. 25				(+5·4)	(99·9)	(−2·3)	(0)	(0)	(114)
360·348	AB, AS		0·757	55·6	44·4	+23·5			103
C.			0·892	90·8	24·3	− 1·8			161
Dec. 26				(+5·0)	(87·2)	(−2·4)	(0)	(0)	(264)
361·373	AB, AS		0·863	48·1	23·5	+33·5			113
C.			0·798	107·4	21·7	−15·4			121
Dec. 27				(+4·5)	(73·7)	(−2·6)	(0)	(0)	(234)

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	Heliographic Longitude.	Heliographic Latitude.	Spots. Area of UMBRA for each Spot (and for Day).	Spots. Area of WHOLE for each Spot (and for Day).	Faculæ. Area for each Group (and for Day).
1912.				°	°	°			
362·306	AB, AS		0·883	92·2	359·5	− 3·2			155
C.									
Dec. 28				(+4·0)	(61·4)	(−2·7)	(0)	(0)	(155)
363·508	AB, AS	7008	0·521	337·8	58·2	+26·0	0	13	
G.		7008	0·507	340·0	56·6	+25·6	1	7	
		7008	0·518	342·0	55·9	+26·6	5	17	
Dec. 29				(+3·5)	(45·6)	(−2·8)	(6)	(37)	(0)
364·448	AB, AS	7008	0·609	321·5	58·0	+25·7	3	12	} 43c
G.		7008	0·591	326·5	54·5	+26·7	2	19	
Dec. 30				(+3·0)	(33·2)	(−2·9)	(5)	(31)	(43)
365·521	AB, AS	7008	0·743	308·6	58·9	+25·2	3	21	} 86c
G.		7008	0·710	312·4	54·7	+26·1	6	22	
			0·855	70·0	322·9	+15·3			142
Dec. 31				(+2·5)	(19·1)	(−3·1)	(9)	(43)	(228)

Group 7008, 1912 December 29–1913 January 2. A short stream of spots.

ROYAL OBSERVATORY, GREENWICH.

LEDGERS

OF

AREAS AND POSITIONS OF GROUPS OF SUN SPOTS

DEDUCED FROM THE MEASUREMENT

OF THE

SOLAR PHOTOGRAPHS

FOR EACH DAY IN THE YEAR

1912.

AREAS and HELIOGRAPHIC POSITIONS of GROUPS of SUN SPOTS DEDUCED FOR EACH DAY from the MEASUREMENTS of the PHOTOGRAPHS taken at the ROYAL OBSERVATORIES of GREENWICH and of THE CAPE, and IN INDIA, at the OBSERVATORY, KODAIKÁNAL, and at DEHRA DÛN, in the YEAR 1912.

NOTE.—The Greenwich Civil Time at which the photograph was taken is expressed by the month, day of the month (civil reckoning), and decimal of a day, reckoned from Greenwich Mean Midnight.

The place where the photograph was taken is also indicated in the first Column. A photograph taken at Greenwich is indicated by the letter G, one taken at the Cape by the letter C, one taken at Kodaikánal by the letter K, and one taken at Dehra Dûn by the letter D.

The Projected Area of the Umbræ and Whole Spots is the area as it is measured on the photograph, uncorrected for the effect of foreshortening, and expressed in millionths of the Sun's apparent disk.

The Columns "Mean Longitude of Group" give the Mean heliographic longitude of the group as computed upon two different systems. In System I. the daily sidereal motion due to the Sun's rotation is assumed to be 851′·07 for all spots, whatever their latitude; this corresponds to Carrington's assumed rotation period of 25·38 days. In System II. the daily sidereal motion is assumed to vary with the latitude in accordance with the formula

$$866'{\cdot}6 - 128' \sin^2 l.$$

In both systems the longitude of the centre of the Sun's disc is adopted as 163°·53 for 1912 Jan. 1^{d}·0; the longitudes given under System I. being thus rendered uniform with those given in preceding volumes of the Greenwich Photo-Heliographic Results.

The Column "Longitude from the Central Meridian" gives the Mean heliographic longitude of the group, reckoned from the meridian passing through the centre of the Sun's disk at the moment of observation; longitudes west of the centre being reckoned as positive.

Date. Greenwich Civil Time, and Where taken.	Projected Area of		Area Corrected for Foreshortening of		Mean Longitude of Group.		Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.	System I.	System II.		
Group 6977.* March 4. Very small spot.								
1912.$_{d}$ 63·515 C	0	4	0	3	° 94·0	° 79·1	° − 6·2	° +46·9
Means ...	...	...	0	3	94·0	79·1	− 6·2	...
Group 6977. March 7–18. A large regular spot, *a*, followed by several very unstable companions. The leader is well-defined and steady in its position, and slowly diminishes in size; the companions are short-lived, and their number and distribution alter quickly from day to day.								
66·417 G	12	102	22	188	293·5	282·9	−12·0	−75·4
67·459 C	33	265	36	292	291·5	280·8	−12·4	−63·7
68·415 G	54	252	41	193	292·9	282·0	−12·2	−49·7
69·470 G	57	325	35	199	293·9	282·9	−12·2	−34·8
70·602 G	57	327	30	175	293·9	282·7	−12·6	−19·8
71·431 C	47	273	23	140	293·8	282·4	−12·8	− 9·0
72·445 C	54	270	26	135	295·3	283·8	−12·5	+ 5·9
73·605 G	38	189	20	101	295·8	284·1	−12·4	+21·6
74·554 C	42	203	25	123	295·3	283·4	−12·6	+33·7
75·417 G	35	156	24	113	296·3	284·3	−12·3	+46·0
76·384 C	18	73	17	70	296·6	284·5	−12·7	+59·1
77·455 C	9	28	14	47	297·4	285·1	−13·6	+74·0
Means ...	...	...	26	148	294·68	283·24	−12·53	...

Date. Greenwich Civil Time, and Where taken.	Projected Area of		Area Corrected for Foreshortening of		Mean Longitude of Group.		Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.	System I.	System II.		
Group 6978. April 1. Very small spot.								
1912.$_{d}$ 91·355 G	0	8	0	5	° 68·0	° 52·7	° +11·9	° +27·9
Means ...	...	...	0	5	68·0	52·7	+11·9	...
Group 6979. April 7–9. Pair of small spots.								
97·508 G	0	9	0	5	310·0	288·6	− 7·4	− 8·9
98·383 C	0	35	0	17	310·2	288·7	− 8·5	+ 2·9
99·367 G	4	25	2	13	310·3	288·6	− 7·7	+16·0
Means ...	...	...	1	12	310·17	288·63	− 7·87	...
Group 6980. April 8–14. A revival, not a return, of Group 6977. A few small spots which rapidly increase in size, forming by April 10, a stream with two large well-defined spots, *a* and *b*, in the front and rear of the Group, with a number of small unstable spots between them.								
98·383 C	9	63	4	31	303·1	285·2	−11·6	− 4·2
99·367 G	21	157	10	80	303·6	285·5	−11·2	+ 9·3
100·362 G	135	536	73	293	304·4	286·1	−10·6	+23·2

AREAS and HELIOGRAPHIC POSITIONS of GROUPS of SUN SPOTS—*continued.*

Date. Greenwich Civil Time, and Where taken.	Projected Area of		Area Corrected for Foreshortening of		Mean Longitude of Group.		Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.	System I.	System II.		
Group 6980—*continued.*								
1912. d					°	°	°	°
101·358 G	132	516	83	325	305·5	287·0	−10·6	+37·4
102·356 G	131	664	102	518	305·2	286·6	−10·7	+50·3
103·408 G	120	522	134	596	305·5	286·7	−10·9	+64·5
104·092 D	64	402	107	685	305·8	286·9	−11·2	+73·8
Means ...	...	...	73	361	304·73	286·29	−10·97	...
Group 6981. April 21. A few small spots.								
111·520 G	2	29	1	18	164·5	146·4	+12·3	+30·6
Means ...	...	...	1	18	164·5	146·4	+12·3	...
Group 6982. April 30–May 9. Return of Group 6980. A number of small unstable spots clustered together.								
120·341 G	5	27	9	47	303·5	282·1	−10·3	−73·8
121·330 G	8	55	9	56	302·9	281·3	−11·2	−61·4
122·343 G	19	134	14	98	304·2	282·4	−10·7	−46·7
123·529 C	17	90	10	52	304·2	282·2	−11·4	−31·0
124·466 C	2	52	1	27	304·2	282·0	−11·6	−18·6
125·412 C	4	69	2	35	303·1	280·8	−11·8	− 7·2
126·664 G	0	21	0	11	304·9	282·4	−11·1	+11·2
127·427 C	2	60	1	32	306·8	284·1	−10·7	+23·2
128·418 G	8	42	5	26	305·7	282·8	−12·1	+35·1
129·338 G	0	7	0	5	304·6	281·6	−11·6	+46·2
Means ...	...	...	5	39	304·41	282·17	−11·25	...
Group 6983. April 30–May 1. Small faint spot.								
120·341 G	0	10	0	14	308·5	282·7	− 8·6	−68·8
121·330 G	0	7	0	6	309·5	283·5	− 8·2	−54·8
Means ...	...	...	0	10	309·00	283·10	− 8·40	...
Group 6982*. May 4. Very small spot.								
124·466 C	2	10	1	5	316·8	293·5	−10·6	− 6·0
Means ...	...	...	1	5	316·8	293·5	−10·6	...

Date. Greenwich Civil Time, and Where taken.	Projected Area of		Area Corrected for Foreshortening of		Mean Longitude of Group.		Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.	System I.	System II.		
Group 6982.† May 4. Two small spots.								
1912. d					°	°	°	°
124·466 C	0	31	0	17	304·5	290·1	−15·0	−18·3
Means ...	...	...	0	17	304·5	290·1	−15·0	...
Group 6984. May 7. Small faint spot.								
127·427 C	0	22	0	12	309·0	278·5	− 5·6	+25·4
Means ...	...	...	0	12	309·0	278·5	− 5·6	...
Group 6985. May 9–10. Small spot.								
129·338 G	4	17	2	9	273·2	256·8	−15·0	+14·8
130·320 G	0	9	0	5	273·6	257·0	−13·8	+28·2
Means ...	...	...	1	7	273·40	256·90	−14·40	...
Group 6986. May 13. Very small spot.								
133·322 G	2	14	1	8	183·7	156·9	+ 9·5	−22·0
Means ...	...	...	1	8	183·7	156·9	+ 9·5	...
Group 6987. May 13. Very small spot.								
133·322 G	0	11	0	7	161·3	131·2	− 7·2	−44·4
Means ...	...	...	0	7	161·3	131·2	− 7·2	...
Group 6987.* May 14. Very small spot.								
134·315 G	0	8	0	5	179·8	161·8	+14·0	−12·8
Means ...	...	...	0	5	179·8	161·8	+14·0	...

AREAS and HELIOGRAPHIC POSITIONS of GROUPS of SUN SPOTS—*continued.*

Group 6988.

May 26–31. Cluster of faint spots.

Date. Greenwich Civil Time, and Where taken.	Projected Area of Umbra.	Projected Area of Whole Spot.	Area Corrected for Foreshortening of Umbra.	Area Corrected for Foreshortening of Whole Spot.	Mean Longitude of Group. System I.	Mean Longitude of Group. System II.	Mean Latitude of Group.	Longitude from Central Meridian.
1912.$_d$					°	°	°	°
146·486 G	2	8	3	12	321·9	291·0	− 8·1	−69·6
147·429 G	7	53	7	49	321·8	290·7	− 7·9	−57·3
148·353 G	8	73	6	54	320·9	289·6	− 8·3	−45·9
149·492 G	8	73	5	43	321·5	290·0	− 8·4	−30·3
150·431 G	0	28	0	14	323·0	291·3	−10·1	−16·4
151·600 G	0	25	0	12	319·5	287·5	− 8·9	− 4·4
Means ...	...	...	4	31	321·43	290·02	− 8·62	...

Group 6989.

May 31–June 2. Cluster of spots forming near the West limb.

151·600 G	12	36	10	31	18·4	344·6	− 8·2	+54·5
152·308 G	8	74	10	86	19·0	345·0	− 7·4	+64·5
153·599 G	0	45	0	171	19·9	345·6	− 6·8	+82·5
Means ...	...	...	7	96	19·10	345·07	− 7·47	...

Group 6990.

May 31–June 3. A double spot, south of Group 6989.

151·600 G	8	38	7	32	15·7	346·9	− 9·3	+51·8
152·308 G	17	78	17	80	14·7	345·8	−10·0	+60·2
153·599 G	11	55	21	112	13·0	343·8	−11·1	+75·6
154·307 G	0	15	0	71	12·0	342·7	−11·1	+84·0
Means ...	...	...	11	74	13·85	344·80	−10·38	...

Group 6991.

June 16. Very small spot.

167·513 G	2	9	1	4	117·4	75·8	− 4·2	+ 4·1
Means ...	...	...	1	4	117·4	75·8	− 4·2	...

Group 6992.

June 17–28. Return of Group 6989. A large regular spot, *a*, with two small companions on June 20.

168·354 G	21	104	42	204	27·0	347·3	− 6·5	−75·1
169·446 G	30	166	31	172	27·0	347·0	− 6·2	−60·7
170·353 G	34	245	26	189	26·9	346·7	− 6·2	−48·8
171·310 G	54	293	34	183	27·1	346·7	− 6·0	−35·9

Group 6992—*continued.*

1912.$_d$					°	°	°	°
172·316 G	62	311	34	169	27·0	346·3	− 5·9	−22·7
173·306 G	62	302	32	155	27·2	346·3	− 5·9	− 9·4
174·474 G	66	317	34	162	27·5	346·3	− 5·8	+ 6·4
175·332 G	55	290	29	154	27·7	346·3	− 5·8	+17·9
176·416 C	41	242	25	146	27·9	346·3	− 5·8	+32·5
177·322 G	43	202	30	144	28·1	346·2	− 5·7	+44·7
178·430 G	34	139	33	138	28·0	345·9	− 5·5	+59·3
179·496 G	21	80	38	146	28·4	346·0	− 5·5	+73·8
Means ..	...	...	32	164	27·48	346·44	− 5·90	...

Group 6991*.

June 18. Cluster of small spots.

169·446 G	4	47	2	24	100·3	67·1	+ 9·9	+12·6
Means ...	...	...	2	24	100·3	67·1	+ 9·9	...

Group 6993.

June 25–27. Two or three very small spots.

176·416 C	0	18	0	10	334·1	313·5	−15·1	−21·3
177·322 G	0	11	0	6	334·3	313·6	−15·1	− 9·1
178·430 G	0	7	0	4	332·6	311·7	−14·7	+ 3·9
Means ...	...	...	0	7	333·67	312·93	−14·97	...

Group 6994.

July 2–5. A few small spots.

183·452 C	0	7	0	9	194·9	164·6	−12·8	−67·4
184·394 C	2	9	2	8	194·9	164·5	−12·5	−54·9
185·656 G	0	29	0	19	197·6	166·0	−11·5	−35·5
186·599 G	0	21	0	12	197·8	167·0	−11·6	−22·8
Means ...	...	...	1	12	196·30	165·53	−12·10	...

Group 6994.*

July 2. A small spot.

183·452 C	0	5	0	4	206·8	164·7	− 6·7	−55·5
Means ...	...	...	0	4	206·8	164·7	− 6·7	...

AREAS and HELIOGRAPHIC POSITIONS of GROUPS of SUN SPOTS—*continued.*

Date. Greenwich Civil Time, and Where taken.	Projected Area of		Area Corrected for Foreshortening of		Mean Longitude of Group.		Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.	System I.	System II.		
Group 6995. July 5–13. A small spot on July 5, expanding into a short stream; only one spot remains by July 12 and 13.								
1912. d					°	°	°	°
186·599 G	3	12	2	8	177·6	130·4	− 3·7	−43·0
187·327 G	11	34	6	21	176·0	128·6	− 2·5	−35·0
188·504 G	20	76	11	40	176·9	129·2	− 3·0	−18·5
189·336 G	8	78	4	40	176·3	128·4	− 3·0	− 8·1
190·314 G	25	107	12	54	176·5	128·3	− 3·2	+ 5·0
191·486 G	12	55	7	29	176·0	127·5	− 3·6	+20·0
192·298 G	5	42	3	26	176·3	127·6	− 3·0	+31·1
193·350 G	0	6	0	5	177·3	128·4	− 3·1	+46·0
194·369 G	0	6	0	6	175·9	126·7	− 2·0	+58·1
Means ...	...	...	5	25	176·53	128·34	− 3·01	...
Group 6996. July 17–18. Small faint spot.								
198·313 G	0	8	0	5	26·8	339·6	− 5·5	−38·8
199·529 G	0	17	0	9	28·7	341·2	− 5·9	−20·8
Means ...	...	...	0	7	27·75	340·40	− 5·70	...
Group 6997. August 28. A small spot, apparently a revival of Group 6995.								
240·362 G	0	10	0	8	182·3	122·5	− 4·0	−47·3
Means ...	...	...	0	8	182·3	122·5	− 4·0	...
Group 6998. September 6–13. Some small spots, chiefly arranged in two clusters; the following cluster disappears before September 10.								
249·356 G	0	8	0	13	39·7	338·9	− 4·5	−71·1
250·352 G	8	43	8	43	39·3	338·2	− 4·8	−58·4
251·440 G	21	95	15	68	39·8	338·4	− 4·7	−43·5
252·368 G	12	59	7	34	42·5	340·9	− 4·5	−28·6
253·087 D	14	60	7	32	44·2	342·4	− 4·5	−17·4
254·506 C	2	51	1	25	42·8	340·7	− 5·1	0·0
255·417 G	0	48	0	26	44·4	342·1	− 4·6	+13·6
256·424 C	0	33	0	19	40·9	338·3	− 5·5	+23·4
Means ...	...	...	5	33	41·70	339·99	− 4·78	...

Date. Greenwich Civil Time, and Where taken.	Projected Area of		Area Corrected for Foreshortening of		Mean Longitude of Group.		Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.	System I.	System II.		
Group 6998*. September 7–8. A small spot.								
1912. d					°	°	°	°
250·352 G	0	9	0	9	156·5	98·7	− 5·8	+58·8
251·440 G	0	10	0	17	154·8	96·7	− 7·4	+71·5
Means ...	...	...	0	13	155·65	97·70	− 6·60	...
Group 6999. September 12–20. A number of spots in a straight stream. The spots undergo many changes.								
255·417 G	4	25	3	16	352·6	298·2	− 8·1	−38·2
256·424 C	10	59	6	34	352·7	298·1	− 7·8	−24·8
257·485 G	29	141	15	74	352·9	298·0	− 8·3	−10·6
258·440 C	42	204	22	106	353·1	298·0	− 8·1	+ 2·2
259·117 D	48	185	25	98	353·7	298·5	− 8·2	+11·7
260·193 D	22	107	13	60	351·7	296·3	− 8·9	+23·9
261·389 G	53	236	37	163	352·8	297·1	− 8·7	+40·8
262·080 D	71	316	59	262	353·3	297·5	− 8·6	+50·4
263·444 G	13	101	20	159	354·6	298·5	− 9·1	+69·7
Means ...	...	...	22	108	353·04	297·80	− 8·42	...
Group 7000. September 14. A few scattered spots.								
257·485 G	8	31	10	39	68·5	13·7	− 8·4	+65·0
Means ...	...	...	10	39	68·5	13·7	− 8·4	...
Group 7001. September 25–28. A short stream of spots.								
268·413 G	8	26	7	21	169·2	104·8	− 5·3	−50·1
269·358 G	21	99	13	65	168·6	103·9	− 5·5	−38·2
270·361 G	12	51	7	29	170·1	105·2	− 5·7	−23·5
271·388 G	2	10	1	6	171·7	106·6	− 5·3	− 8·3
Means ...	...	...	7	30	169·90	105·13	− 5·45	...

AREAS and HELIOGRAPHIC POSITIONS of GROUPS of SUN SPOTS—*continued.*

Date. Greenwich Civil Time, and Where taken.	Projected Area of		Area Corrected for Foreshortening of		Mean Longitude of Group.		Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.	System I.	System II.		
Group 7002.								
October 5–11. A considerable stream of normal type, appearing suddenly near the Central Meridian. The first and last spots on October 6, *a* and *b*, are much the largest and best defined members of the group. *a* develops into a regular spot; *b* breaks up after October 8, and *a* alone remains on October 11.								
1912. d					°	°	°	°
278·471 G	38	135	19	71	80·6	19·9	− 6·7	− 5·9
279·545 G	136	446	70	230	80·7	19·7	− 7·3	+ 8·3
280·508 G	126	652	70	362	81·1	19·9	− 8·0	+21·4
281·479 G	105	613	67	386	81·5	20·1	− 8·0	+34·6
282·462 G	58	348	48	273	82·3	20·7	− 8·4	+48·4
283·440 G	31	154	37	181	84·3	22·5	− 8·8	+63·3
284·508 G	8	58	23	164	85·6	23·6	− 8·9	+78·7
Means ...	....	....	48	238	82·30	20·91	− 8·01	...
Group 7003.								
October 18–20. A few small spots.								
291·420 G	0	14	0	20	207·3	136·2	− 4·6	−68·4
292·432 G	2	10	2	9	207·9	136·5	− 5·2	−54·5
293·415 G	0	11	0	8	207·6	136·0	− 4·7	−41·8
Means ...	...	...	1	12	207·60	136·23	− 4·83	...
Group 7004.								
November 16–19. One or two small spots.								
320·407 C	0	7	0	8	190·1	108·7	− 2·4	−63·4
321·406 C	7	35	6	27	189·5	107·9	− 2·9	−50·9
322·506 C	6	33	4	20	190·2	108·3	− 2·7	−35·7
323·426 G	10	55	5	31	189·3	107·2	− 2·4	−24·4
Means ...	...	...	4	22	189·78	108·02	− 2·60	...
Group 7005.								
December 12–22. A few small spots in an irregular cluster. The leader, *a*, increases rapidly after December 17 to form a large compact spot crossed by many bridges, and several of its companions coalesce to form a similar spot, *b*, following it.								
346·475 G	0	4	0	6	198·1	109·1	− 1·2	−71·9
347·324 C	4	37	4	36	200·2	110·9	− 1·6	−58·6
348·336 C	16	78	11	55	201·3	111·8	− 1·5	−44·2
349·405 C	28	151	16	88	201·5	111·7	− 1·8	−29·9
350·518 G	26	189	13	98	204·0	113·9	− 1·8	−12·7
351·427 G	45	199	22	100	204·8	114·5	− 1·9	+ 0·1

Date. Greenwich Civil Time, and Where taken.	Projected Area of		Area Corrected for Foreshortening of		Mean Longitude of Group.		Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.	System I.	System II.		
Group 7005—*continued.*								
1912. d					°	°	°	°
352·375 C	63	250	32	127	204·5	113·9	− 1·8	+12·3
353·473 G	87	501	49	279	203·5	112·7	− 2·1	+25·7
354·357 C	78	502	49	318	204·1	113·0	− 2·2	+38·0
355·560 C	67	294	57	250	204·2	112·8	− 2·0	+53·9
356·542 G	16	102	21	136	205·1	113·5	− 2·1	+67·8
Means ...	...	...	25	136	202·85	112·53	− 1·82	...
Group 7006.								
December 12–18. A large regular spot, *a*, with a few small companions, closely following Group 7005, and making up with it a broken stream.								
346·475 G	10	32	17	56	196·5	107·5	− 1·5	−73·5
347·324 C	29	160	32	176	195·9	106·6	− 1·7	−62·9
348·336 C	42	250	32	193	196·0	106·5	− 1·7	−49·5
349·405 C	55	298	34	185	195·7	105·9	− 1·7	−35·7
350·518 G	39	207	21	110	196·3	106·2	− 1·8	−20·4
351·427 G	24	116	12	59	196·1	105·8	− 1·9	− 8·6
352·375 C	9	53	5	26	196·4	105·8	− 1·6	+ 4·2
Means ...	...	...	22	115	196·13	106·33	− 1·70	...
Group 7007.								
December 16–18. Several small spots.								
350·518 G	0	32	0	17	226·8	225·2	+20·2	+10·1
351·427 G	26	118	14	69	227·3	225·7	+20·1	+22·6
352·375 C	13	50	8	34	228·6	227·0	+20·3	+36·4
Means ...	...	...	7	40	227·57	225·97	+20·20	...
Group 7008.								
1912 December 29–1913 January 2. A short stream of spots.								
363·508 G	10	62	6	37	56·8	113·5	+26·2	+11·2
364·448 G	9	50	5	31	55·9	112·7	+26·3	+22·7
365·521 G	12	60	9	43	56·8	113·8	+25·7	+37·7
1913.								
0·374 C	19	81	16	68	54·4	111·5	+26·2	+46·5
1·429 G	28	119	31	138	53·5	110·8	+26·5	+59·5
Means ...	...	...	13	63	55·48	112·46	+26·18	...

ROYAL OBSERVATORY, GREENWICH.

CATALOGUE

OF

RECURRENT GROUPS OF SUN SPOTS

COMPILED FROM THE

LEDGERS OF GROUPS OF SUN SPOTS

FOR THE YEAR

1912.

CATALOGUE of RECURRENT GROUPS of SUN SPOTS, COMPILED from the LEDGERS of AREAS and POSITIONS of GROUPS of SUN SPOTS deduced from the MEASUREMENT of the SOLAR PHOTOGRAPHS at the ROYAL OBSERVATORY, GREENWICH, for the YEAR 1912.

NOTE.—Groups of Sun Spots observed uninterruptedly in two or more consecutive Rotations of the Sun, are classified as "Recurrent." Cases where the continuity of the group is doubtful are enclosed in brackets.

The reference Numbers in the following Table are in continuation of those given in previous "Catalogues of Recurrent Groups of Sun Spots."

The numeration of the Spot Groups is the same as in the two preceding Sections.

The numeration of the Rotations is the same as in the following Section.

The Columns "Longitude from Central Meridian" give, for the date on which each group was first seen and last seen respectively, its heliographic longitude from the meridian passing through the centre of the Sun's disc at the moment of observation; longitude west of the centre being reckoned as positive.

The Mean Areas for Umbra and for Whole Spot are corrected for the effect of foreshortening and are expressed in millionths of the Sun's visible hemisphere.

Reference Number.	No. of Group.	Rotation.	First Seen.		Last Seen.		No. of Days Photographed.	Mean Area for		Mean Longitude of Group.		Mean Latitude of Group.	REMARKS.
			Date.	Longitude from Central Meridian.	Date.	Longitude from Central Meridian.		Umbra.	Whole Spot.	System I.	System II.		
			1912.		1912.								
719	(6977	782	Mar. 7	−75°·4	Mar. 18	+74°·0	12	26	148	294°·68	283°·24	−12°·53)	A large regular spot, with companions.
	6980	783	Apr. 8	− 4·2	Apr. 14	+73·8	7	73	361	304·73	286·29	−10·97	A few small spots developing into a stream of normal type.
	6982	784	Apr. 30	−73·8	May 9	+46·2	10	5	39	304·41	282·17	−11·25	A few small unstable spots. *Note.*—6980 is a revival, not a return of 6977.
720	6989	784	May 31	+54·5	June 2	+82·5	3	7	96	19·10	345·07	− 7·47	A cluster of small spots.
	6992	785	June 17	−75·1	June 28	+73·8	12	32	164	27·48	346·44	− 5·90	A large regular spot.

ROYAL OBSERVATORY, GREENWICH.

TOTAL AREAS OF SUN SPOTS AND FACULÆ

PROJECTED AND CORRECTED FOR FORESHORTENING

FOR EACH DAY,

AND

MEAN AREAS AND MEAN HELIOGRAPHIC LATITUDE

OF

SUN SPOTS AND FACULÆ

FOR EACH ROTATION OF THE SUN

AND FOR THE YEAR

1912.

TOTAL AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1912.

NOTE.—The Greenwich Civil Time at which the photograph was taken is expressed by the month, day of the month (civil reckoning), and decimal of a day, reckoned from Greenwich Mean Midnight.

The decimal of a day is not given for 1912 July 20, as no photographic Record is at present available for that day. The Areas given for that day are enclosed in brackets, and are obtained by interpolation from the measures of photographs taken on the days immediately preceding and following.

The place where the photograph was taken is indicated in the second Column. A photograph taken at Greenwich is indicated by the letter G, one taken at the Cape by the letter C, one taken at Kodaikánal by the letter K, and one taken at Dehra Dûn by the letter D.

The Projected Area is the Area as it is measured on the photograph, uncorrected for the effect of foreshortening, and expressed in millionths of the Sun's apparent disk.

The Area Corrected for the effect of Foreshortening is expressed in millionths of the Sun's visible hemisphere.

Greenwich Civil Time.		Where taken.	Projected Area.			Area Corrected for Foreshortening.		
			Umbræ.	Whole Spots.	Faculæ.	Umbræ.	Whole Spots.	Faculæ.
1912.	d							
January	1·368	C	0	0	293	0	0	363
	2·445	G	0	0	90	0	0	107
	3·162	D	0	0	0	0	0	0
	4·415	C	0	0	282	0	0	313
	5·446	G	0	0	269	0	0	291
	6·454	C	0	0	334	0	0	383
	7·410	C	0	0	146	0	0	150
	8·439	C	0	0	136	0	0	149
	9·416	G	0	0	259	0	0	208
	10·472	G	0	0	239	0	0	232
	11·160	D	0	0	0	0	0	0
	12·452	C	0	0	272	0	0	267
	13·167	D	0	0	0	0	0	0
	14·288	D	0	0	276	0	0	365
	15·455	C	0	0	473	0	0	535
	16·445	C	0	0	567	0	0	533
	17·456	C	0	0	578	0	0	443
	18·520	C	0	0	294	0	0	272
	19·453	C	0	0	137	0	0	168
	20·457	C	0	0	0	0	0	0
	21·411	C	0	0	0	0	0	0
	22·442	C	0	0	0	0	0	0
	23·308	D	0	0	0	0	0	0
	24·546	G	0	0	90	0	0	78
	25·519	C	0	0	536	0	0	603
	26·288	D	0	0	298	0	0	318
	27·473	G	0	0	230	0	0	228
	28·524	G	0	0	120	0	0	100
	29·451	G	0	0	290	0	0	253
	30·427	C	0	0	252	0	0	341
	31·606	G	0	0	120	0	0	103
February	1·170	D	0	0	394	0	0	600
	2·483	G	0	0	362	0	0	368
	3·499	G	0	0	302	0	0	277
	4·406	C	0	0	294	0	0	273
	5·521	C	0	0	0	0	0	0
	6·648	G	0	0	0	0	0	0
	7·440	G	0	0	80	0	0	78
	8·455	C	0	0	284	0	0	317
1912.	d							
February	9·599	G	0	0	0	0	0	0
	10·494	G	0	0	101	0	0	136
	11·522	G	0	0	206	0	0	207
	12·236	D	0	0	514	0	0	553
	13·448	C	0	0	243	0	0	254
	14·510	C	0	0	253	0	0	341
	15·469	G	0	0	0	0	0	0
	16·417	C	0	0	0	0	0	0
	17·425	G	0	0	55	0	0	79
	18·667	G	0	0	222	0	0	239
	19·546	C	0	0	285	0	0	259
	20·173	D	0	0	300	0	0	336
	21·449	C	0	0	433	0	0	466
	22·169	D	0	0	151	0	0	173
	23·455	C	0	0	0	0	0	0
	24·426	G	0	0	213	0	0	179
	25·473	G	0	0	101	0	0	136
	26·453	G	0	0	91	0	0	95
	27·496	G	0	0	91	0	0	99
	28·521	G	0	0	101	0	0	126
	29·618	G	0	0	111	0	0	140
March	1·262	D	0	0	172	0	0	176
	2·505	G	0	0	0	0	0	0
	3·514	G	0	0	233	0	0	246
	4·515	C	0	4	266	0	3	245
	5·412	G	0	0	91	0	0	117
	6·498	G	0	0	122	0	0	124
	7·417	G	12	102	203	22	188	386
	8·459	C	33	265	610	36	292	679
	9·415	G	54	252	335	41	193	293
	10·470	G	57	325	132	35	199	88
	11·602	G	57	327	122	30	175	130
	12·431	C	47	273	139	23	140	193
	13·445	C	54	270	139	26	135	166
	14·605	G	38	189	102	20	101	126
	15·554	C	42	203	150	25	123	154
	16·417	G	35	156	530	24	113	464
	17·384	C	18	73	471	17	70	405
	18·455	C	9	28	407	14	47	519

TOTAL AREAS of SUN SPOTS and FACULÆ—*continued.*

Greenwich Civil Time.		Where taken.	Projected Area.			Area Corrected for Foreshortening.			Greenwich Civil Time.		Where taken.	Projected Area.			Area Corrected for Foreshortening.		
			Umbræ.	Whole Spots.	Faculæ.	Umbræ.	Whole Spots.	Faculæ.				Umbræ.	Whole Spots.	Faculæ.	Umbræ.	Whole Spots.	Faculæ.
1912.	d								1912.	d							
March	19·511	G	0	0	92	0	0	151	May	15·407	G	0	0	0	0	0	0
	20·433	G	0	0	0	0	0	0		16·430	G	0	0	0	0	0	0
	21·451	G	0	0	0	0	0	0		17·311	G	0	0	0	0	0	0
	22·517	G	0	0	0	0	0	0		18·334	G	0	0	0	0	0	0
	23·460	C	0	0	0	0	0	0		19·409	G	0	0	0	0	0	0
	24·507	G	0	0	0	0	0	0		20·468	G	0	0	137	0	0	145
	25·453	C	0	0	0	0	0	0		21·326	G	0	0	317	0	0	300
	26·439	G	0	0	246	0	0	257		22·448	G	0	0	0	0	0	0
	27·420	G	0	0	123	0	0	115		23·344	G	0	0	0	0	0	0
	28·449	G	0	0	124	0	0	136		24·649	G	0	0	169	0	0	174
	29·418	G	0	0	124	0	0	133		25·304	G	0	0	254	0	0	264
	30·429	G	0	0	0	0	0	0		26·486	G	2	8	827	3	12	935
	31·408	C	0	0	0	0	0	0		27·429	G	7	53	530	7	49	553
										28·353	G	8	73	890	6	54	756
										29·492	G	8	73	403	5	43	299
April	1·355	G	0	8	113	0	5	96		30·431	G	0	28	307	0	14	257
	2·541	C	0	0	162	0	0	358		31·600	G	20	100	339	17	75	315
	3·361	G	0	0	144	0	0	175									
	4·566	C	0	0	282	0	0	256									
	5·176	D	0	0	385	0	0	341	June	1·308	G	25	153	350	27	166	368
	6·354	G	0	0	124	0	0	140		2·599	G	11	100	127	21	283	306
	7·508	G	0	9	155	0	5	161		3·307	G	0	15	276	0	71	266
	8·383	C	9	98	141	4	48	170		4·452	G	0	0	742	0	0	698
	9·367	G	25	182	0	12	93	0		5·419	G	0	0	1018	0	0	1025
	10·362	G	135	536	0	73	293	0		6·313	G	0	0	447	0	0	506
	11·358	G	132	516	0	83	325	0		7·516	C	0	0	672	0	0	670
	12·356	G	131	664	704	102	518	547		8·465	C	0	0	336	0	0	487
	13·408	G	120	522	499	134	596	559		9·596	G	0	0	351	0	0	294
	14·092	D	64	402	453	107	685	610		10·339	G	0	0	511	0	0	428
	15·533	G	0	0	281	0	0	417		11·323	G	0	0	0	0	0	0
	16·415	G	0	0	447	0	0	422		12·213	K	0	0	0	0	0	0
	17·376	G	0	0	0	0	0	0		13·307	G	0	0	0	0	0	0
	18·376	G	0	0	0	0	0	0		14·477	G	0	0	0	0	0	0
	19·362	G	0	0	0	0	0	0		15·357	G	0	0	0	0	0	0
	20·359	G	0	0	0	0	0	0		16·513	G	2	9	447	1	4	436
	21·520	G	2	29	83	1	18	51		17·354	G	21	104	437	42	204	492
	22·360	G	0	0	281	0	0	243		18·446	G	34	213	501	33	196	597
	23·374	G	0	0	0	0	0	0		19·353	G	34	245	639	26	189	596
	24·352	G	0	0	0	0	0	0		20·310	G	54	293	383	34	183	279
	25·351	G	0	0	0	0	0	0		21·316	G	62	311	330	34	169	552
	26·520	G	0	0	0	0	0	0		22·306	G	62	302	548	32	155	610
	27·513	G	0	0	0	0	0	0		23·474	G	66	317	586	34	162	553
	28·446	G	0	0	0	0	0	0		24·332	G	55	290	394	29	154	423
	29·399	G	0	0	230	0	0	387		25·416	C	41	260	392	25	156	359
	30·341	G	5	38	606	9	61	705		26·322	G	43	213	0	30	150	0
										27·430	G	34	146	273	33	142	234
May	1·330	G	8	62	609	9	62	554		28·496	G	21	80	252	38	146	319
	2·343	G	19	134	588	14	98	437		29·486	G	0	0	126	0	0	237
	3·529	C	17	90	0	10	52	0		30·599	C	0	0	291	0	0	226
	4·466	C	4	93	0	2	49	0									
	5·412	C	4	69	155	2	35	159	July	1·412	C	0	0	319	0	0	492
	6·664	G	0	21	0	0	11	0		2·452	C	0	11	596	0	13	726
	7·427	C	2	82	0	1	44	0		3·394	C	2	9	450	2	8	440
	8·418	G	8	42	630	5	26	426		4·656	G	0	29	252	0	19	233
	9·338	G	4	24	735	2	14	599		5·599	G	3	33	231	2	20	209
	10·320	G	0	9	546	0	5	564		6·327	G	11	34	168	6	21	138
	11·311	G	0	0	515	0	0	656		7·504	G	20	76	0	11	40	0
	12·442	G	0	0	357	0	0	305		8·336	G	8	78	0	4	40	0
	13·322	G	2	24	179	1	15	156		9·314	G	25	107	0	12	54	0
	14·315	G	0	8	127	0	5	131		10·486	G	12	55	0	7	29	0

TOTAL AREAS of SUN SPOTS and FACULÆ—*continued.*

Greenwich Civil Time.		Where taken.	Projected Area.			Area Corrected for Foreshortening.		
			Umbræ.	Whole Spots.	Faculæ.	Umbræ.	Whole Spots.	Faculæ.
1912.	d							
July	11·298	G	5	42	347	3	26	351
	12·350	G	0	6	347	0	5	353
	13·369	G	0	6	168	0	6	158
	14·508	G	0	0	236	0	0	308
	15·308	G	0	0	378	0	0	419
	16·308	G	0	0	189	0	0	179
	17·313	G	0	8	315	0	5	241
	18·529	G	0	17	284	0	9	339
	19·448	C	0	0	280	0	0	304
	20· ...	...	(0	0	140	0	0	152)
	21·407	C	0	0	0	0	0	0
	22·665	G	0	0	0	0	0	0
	23·553	C	0	0	157	0	0	118
	24·350	G	0	0	189	0	0	159
	25·341	G	0	0	210	0	0	230
	26·319	G	0	0	189	0	0	230
	27·350	G	0	0	0	0	0	0
	28·440	G	0	0	147	0	0	144
	29·398	C	0	0	437	0	0	494
	30·346	G	0	0	242	0	0	236
	31·112	K	0	0	0	0	0	0
August	1·310	G	0	0	0	0	0	0
	2·346	G	0	0	0	0	0	0
	3·361	G	0	0	0	0	0	0
	4·538	G	0	0	0	0	0	0
	5·428	G	0	0	0	0	0	0
	6·356	G	0	0	0	0	0	0
	7·430	G	0	0	0	0	0	0
	8·326	G	0	0	0	0	0	0
	9·323	G	0	0	0	0	0	0
	10·493	G	0	0	94	0	0	152
	11·598	C	0	0	156	0	0	172
	12·463	G	0	0	157	0	0	143
	13·429	G	0	0	0	0	0	0
	14·344	G	0	0	167	0	0	242
	15·509	C	0	0	311	0	0	304
	16·531	G	0	0	209	0	0	154
	17·580	C	0	0	289	0	0	315
	18·544	G	0	0	178	0	0	163
	19·418	G	0	0	272	0	0	249
	20·441	G	0	0	265	0	0	303
	21·316	G	0	0	104	0	0	101
	22·318	G	0	0	260	0	0	256
	23·454	C	0	0	155	0	0	153
	24·251	D	0	0	113	0	0	159
	25·588	G	0	0	0	0	0	0
	26·519	C	0	0	144	0	0	137
	27·448	G	0	0	0	0	0	0
	28·362	G	0	10	166	0	8	138
	29·544	G	0	0	0	0	0	0
	30·351	G	0	0	0	0	0	0
	31·322	G	0	0	0	0	0	0
September	1·135	K	0	0	0	0	0	0
	2·489	G	0	0	0	0	0	0
	3·365	G	0	0	0	0	0	0
September	4·457	G	0	0	145	0	0	225
	5·394	G	0	0	248	0	0	241
	6·356	G	0	8	424	0	13	533
	7·352	G	8	53	409	8	52	400
	8·440	G	21	106	518	15	85	485
	9·368	G	12	59	83	7	34	183
	10·087	D	14	60	279	7	32	428
	11·506	C	2	51	440	1	25	400
	12·417	G	4	73	371	3	42	310
	13·424	C	10	92	176	6	53	144
	14·485	G	37	172	340	25	113	335
	15·440	C	42	204	449	22	106	535
	16·117	D	48	185	278	25	98	278
	17·193	D	22	107	144	13	60	242
	18·389	G	53	236	226	37	163	156
	19·080	D	71	316	320	59	262	267
	20·444	G	13	101	595	20	159	855
	21·359	G	0	0	133	0	0	295
	22·505	G	0	0	133	0	0	189
	23·370	G	0	0	123	0	0	115
	24·406	G	0	0	308	0	0	291
	25·413	G	8	26	113	7	21	101
	26·358	G	21	99	103	13	65	73
	27·361	G	12	51	0	7	29	0
	28·388	G	2	10	0	1	6	0
	29·489	G	0	0	0	0	0	0
	30·620	G	0	0	72	0	0	139
October	1·488	G	0	0	123	0	0	147
	2·097	D	0	0	121	0	0	237
	3·418	G	0	0	479	0	0	442
	4·453	G	0	0	541	0	0	538
	5·471	G	38	135	0	19	71	0
	6·545	G	136	446	286	70	230	400
	7·508	G	126	652	388	70	362	388
	8·479	G	105	613	551	67	386	401
	9·462	G	58	348	551	48	273	410
	10·440	G	31	154	508	37	181	540
	11·508	G	8	58	396	23	164	594
	12·451	G	0	0	162	0	0	178
	13·490	G	0	0	142	0	0	183
	14·272	D	0	0	0	0	0	0
	15·480	G	0	0	132	0	0	108
	16·437	G	0	0	254	0	0	259
	17·466	G	0	0	102	0	0	133
	18·420	G	0	14	233	0	20	282
	19·432	G	2	10	172	2	9	159
	20·415	G	0	11	354	0	8	488
	21·439	G	0	0	303	0	0	321
	22·525	C	0	0	214	0	0	170
	23·468	G	0	0	0	0	0	0
	24·455	G	0	0	0	0	0	0
	25·473	G	0	0	0	0	0	0
	26·257	D	0	0	0	0	0	0
	27·402	C	0	0	417	0	0	464
	28·502	C	0	0	364	0	0	397
	29·425	G	0	0	342	0	0	305
	30·417	G	0	0	492	0	0	456
	31·388	C	0	0	117	0	0	164

TOTAL AREAS of SUN SPOTS and FACULÆ—*concluded.*

Greenwich Civil Time.	Where taken.	Projected Area.			Area Corrected for Foreshortening.		
		Umbræ.	Whole Spots.	Faculæ.	Umbræ.	Whole Spots.	Faculæ.
1912. d							
November 1·459	G	0	0	0	0	0	0
2·451	G	0	0	101	0	0	135
3·402	C	0	0	575	0	0	529
4·397	C	0	0	245	0	0	228
5·438	C	0	0	202	0	0	162
6·411	C	0	0	128	0	0	145
7·601	G	0	0	0	0	0	0
8·562	C	0	0	191	0	0	231
9·496	G	0	0	140	0	0	135
10·415	C	0	0	148	0	0	144
11·483	G	0	0	150	0	0	119
12·431	C	0	0	127	0	0	163
13·555	C	0	0	307	0	0	313
14·512	C	0	0	0	0	0	0
15·504	C	0	0	127	0	0	195
16·407	C	0	7	158	0	8	198
17·406	C	7	35	158	6	27	130
18·506	C	6	33	179	4	20	113
19·426	G	10	55	149	5	31	105
20·292	D	0	0	0	0	0	0
21·358	C	0	0	0	0	0	0
22·481	G	0	0	0	0	0	0
23·158	K	0	0	0	0	0	0
24·481	G	0	0	0	0	0	0
25·179	D	0	0	149	0	0	118
26·375	C	0	0	105	0	0	141
27·437	G	0	0	0	0	0	0
28·545	G	0	0	0	0	0	0
29·329	C	0	0	168	0	0	214
30·311	C	0	0	462	0	0	474
1912. d							
December 1·411	C	0	0	147	0	0	121
2·447	G	0	0	0	0	0	0
3·369	C	0	0	0	0	0	0
4·413	C	0	0	0	0	0	0
5·328	C	0	0	0	0	0	0
6·310	C	0	0	315	0	0	316
7·325	C	0	0	42	0	0	41
8·134	D	0	0	0	0	0	0
9·379	C	0	0	294	0	0	359
10·374	C	0	0	315	0	0	314
11·409	C	0	0	347	0	0	309
12·475	G	10	35	197	17	62	258
13·324	C	34	196	221	36	212	228
14·336	C	58	328	336	43	248	289
15·405	C	83	449	147	50	273	88
16·518	G	65	427	0	34	225	0
17·427	G	95	433	0	48	228	0
18·375	C	85	353	147	45	187	96
19·473	G	87	501	148	49	279	125
20·357	C	78	502	336	49	318	311
21·560	C	67	294	599	57	250	605
22·542	G	16	102	335	21	136	405
23·435	G	0	0	128	0	0	241
24·321	C	0	0	89	0	0	114
25·387	C	0	0	147	0	0	114
26·348	C	0	0	284	0	0	264
27·373	C	0	0	263	0	0	234
28·306	C	0	0	147	0	0	155
29·508	G	10	62	0	6	37	0
30·448	G	9	50	69	5	31	43
31·521	G	12	60	266	9	43	228

MEAN AREAS of SUN SPOTS and FACULÆ, as measured on PHOTOGRAPHS taken at the ROYAL OBSERVATORIES of GREENWICH and of the CAPE, and in INDIA, for each ROTATION of the SUN, from 1912 January 13 to 1913 January 2.

The Mean Areas have been formed by taking the Means of the Areas for each day of observation throughout each Rotation of the Sun, the Projected Areas being the Areas as measured on the photographs and expressed in millionths of the Sun's apparent disk, and the Areas Corrected for Foreshortening being expressed in millionths of the Sun's visible hemisphere.

The Rotations adopted in the following table (which is in continuation of those for the years 1873–1911 printed in the Greenwich Observations for 1884 and succeeding years) correspond to the synodic rotation of the Sun, and the commencement of each is defined by the coincidence of the assumed prime meridian with the central meridian, the assumed prime meridian being that meridian which passed through the ascending node at mean noon on January 1, 1854, and the assumed period of the Sun's sidereal rotation being 25·38 days. The numeration of the rotations is in continuation of Carrington's series (*Observations of Solar Spots made at Redhill* by R. C. Carrington, F.R.S.), No. 1 being the rotation commencing 1853 November 9. The dates of commencement of the rotations are given in GREENWICH CIVIL TIME, reckoning from midnight.

No. of Rotation.	Date of Commencement of each Rotation.			No. of Days on which Photographs were taken.	Mean of Daily Areas.					
					Projected.			Corrected for Foreshortening.		
					Umbræ.	Whole Spots.	Faculæ.	Umbræ.	Whole Spots.	Faculæ.
			d							
780	1912	January	13·42	27	0	0	221	0	0	232
781		February	9·76	27	0	4	169	1	7	189
782		March	8·09	27	16	88	158	11	59	172
783		April	4·39	28	23	109	189	19	97	199
784		May	1·65	27	3	27	258	2	17	243
785		May	28·87	27	17	95	376	12	77	387
786		June	25·07	26	8	45	223	6	33	238
787		July	22·27	27	0	0	109	0	0	115
788		August	18·50	28	4	24	182	3	16	191
789		September	14·75	27	29	139	257	20	98	283
790		October	12·03	27	0	1	187	0	1	195
791		November	8·33	28	1	5	102	1	3	104
792		December	5·64	27	27	143	204	18	96	201

MEAN AREAS of SUN SPOTS and FACULÆ, as measured on PHOTOGRAPHS taken at the ROYAL OBSERVATORIES of GREENWICH and of the CAPE, and in INDIA, for the YEAR 1912.

The Mean Projected Areas are expressed in millionths of the Sun's apparent disk.

The Mean Areas Corrected for Foreshortening are expressed in millionths of the Sun's visible hemisphere.

YEAR.	No. of Days on which Photographs were taken.	Mean of Daily Areas.					
		Projected.			Corrected for Foreshortening.		
		Umbræ.	Whole Spots.	Faculæ.	Umbræ.	Whole Spots.	Faculæ.
1912	365	10	50	201	7	37	210

MEAN HELIOGRAPHIC LATITUDE of SUN SPOTS, as measured on PHOTOGRAPHS taken at the ROYAL OBSERVATORIES of GREENWICH and of the CAPE, and in INDIA, for each ROTATION of the SUN, from 1912 January 13 to 1913 January 2.

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 (corrected for foreshortening), and the sum of the products, for Spots North of the 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 (corrected for foreshortening) 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.		
	d			°		°	°	°
780	1912 Jan. 13·42	27	0·0	...	0·0	...	...	...
781	Feb. 9·76	27	0·0	...	7·1	11·91	−11·91	11·91
782	Mar. 8·09	27	0·2	11·90	58·8	12·47	−12·40	12·47
783	Apr. 4·39	28	0·6	12·30	95·9	10·83	−10·67	10·84
784	May 1·65	27	0·5	11·23	16·9	10·45	− 9·85	10·48
785	May 28·87	27	0·8	9·90	75·7	6·95	− 6·76	6·99
786	June 25·07	26	0·0	...	32·9	5·53	− 5·53	5·53
787	July 22·27	27	0·0	...	0·0	...	...	...
788	Aug. 18·50	28	0·0	...	16·3	6·08	− 6·08	6·08
789	Sept. 14·75	27	0·0	...	97·6	8·14	− 8·14	8·14
790	Oct. 12·03	27	0·0	...	1·4	4·77	− 4·77	4·77
791	Nov. 8·33	28	0·0	...	3·1	2·63	− 2·63	2·63
792	Dec. 5·64	27	11·1	23·72	85·1	1·89	+ 1·06	4·40

MEAN HELIOGRAPHIC LATITUDE of SUN SPOTS, as measured on PHOTOGRAPHS taken at the ROYAL OBSERVATORIES of GREENWICH and of the CAPE, and in INDIA, for the YEAR 1912.

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.		
			°		°	°	°
1912	365	0·8	20·53	36·5	7·78	−7·18	8·06