GREENWICH PHOTO-HELIOGRAPHIC RESULTS.

1923.

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RESULTS OF MEASURES

MADE AT THE

ROYAL OBSERVATORY, GREENWICH

UNDER THE DIRECTION OF

SIR FRANK 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

1923.

PUBLISHED BY ORDER OF THE BOARD OF ADMIRALTY, IN OBEDIENCE TO HIS MAJESTY'S COMMAND.

LONDON:
PRINTED AND PUBLISHED BY HIS MAJESTY'S STATIONERY OFFICE
To be purchased directly from H.M. STATIONERY OFFICE at the following addresses:
Adastral House, Kingsway, London, W.C.2; 28, Abingdon Street, London, S.W.1;
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1925.

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GREENWICH PHOTO-HELIOGRAPHIC RESULTS, 1923.

INTRODUCTION.

§ 1. *Positions and Areas of Sun Spots and Faculæ for each Day in the Year* 1923.

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 obtained at Greenwich were taken with the Dallmeyer Photo-heliograph, of 4 inches aperture, usually stopped down to 2·9 inches, giving a solar image of about 10-centimetre radius.

The photographs from the Cape Observatory were taken under the superintendence of His Majesty's Astronomer at the Cape, Mr. S. S. Hough and his successor Mr. H. Spencer Jones, and those from Kodaikánal under the superintendence of the Director, Mr. John Evershed and his successor Dr. T. Royds. 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 three of the observatories the instrument employed was a Dallmeyer Photo-heliograph giving an image of the Sun about 10 centimetres in radius ; at Kodaikánal a Cooke photo-visual object-glass of 6 inches aperture was used, the image of the Sun being on about the same 10-centimetre scale.

Photographs of the Sun were available for measurement upon each day in 1923, those finally selected for measurement being supplied by the different observatories as under :—

Greenwich	199
Cape	153
Kodaikánal	12
Dehra Dûn	1
Total	365

(16428) Wt. 18281/134/1276 150 5/25 Harrow G 69

The names of those persons who measured the photographs for the year 1923 are as follows :—

H. W. Newton	Andrina M. Crommelin
H. Barton	H. Finch

At the principal focus of the Photo-heliographs, excepting that at Kodaikánal, two spider-lines are fixed by which the zero of position-angles on the photographs can be determined. These lines are respectively perpendicular and parallel to the equator in the Photo-heliographs at the Cape and at Dehra Dûn, but are inclined to it at an angle of about 45° in that at Greenwich. In the Kodaikánal Photo-heliograph there is one wire fixed parallel to the equator.

The zero of position-angles for the Greenwich, Cape, and Kodaikánal Photo-heliographs has been determined by the measurement of plates which have been exposed twice, with an interval of about 100 seconds between the two exposures, the instrument being firmly clamped. Two images of the Sun, overlapping each other by about a fifth part of the Sun's diameter, were therefore produced upon the plates, and the exposures having been so given that the line joining the cusps passed approximately through the centre of the plates, the inclination of the wires of the photo-heliograph to this line was measured with the position-micrometer, and a small correction for the inclination of the Sun's path was then applied. The following tables give the correction for zero of position for the mean of the two wires as thus determined for the Greenwich and Cape Photo-heliographs.

The adjustment of the wires in the Dehra Dûn Photo-heliograph was usually tested by stopping the driving clock immediately after a photograph had been taken and making a second exposure some two minutes after the first, a portion of a second image of the Sun, just intersecting the first, being thus obtained upon the plate.

At Greenwich, 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.

The zero-corrections used during the year 1923 in the reduction of the photographs taken at Greenwich were as follows :—

January 1 to May 31, +2°·7; June 1 to August 31, +2°·6; September 1 to December 31, +2°·7.

DALLMEYER PHOTO-HELIOGRAPH, GREENWICH.

Photographic Determination of the Zero of Position-Angles.

Date. Greenwich Civil Time.			Correction for Zero.	Date. Greenwich Civil Time.			Correction for Zero.
	d	h	° ′		d	h	° ′
1923 April	4.	10	+ 2. 41	1923 August	11.	9	+ 2. 31
,,	4.	11	+ 2. 45	September	1.	9	+ 2. 42
May	26.	9	+ 2. 40	,,	1.	9	+ 2. 34
June	23.	9	+ 2. 36	,,	13.	9	+ 2. 39
,,	23.	9	+ 2. 35	October	15.	10	+ 2. 39
July	9.	9	+ 2. 29	,,	15.	10	+ 2. 41
,,	9.	9	+ 2. 37	November	2.	11	+ 2. 38

Visual Determination of the Zero of Position-Angles.

Date. Greenwich Civil Time.			Correction for Zero.	Date. Greenwich Civil Time.			Correction for Zero.
	d	h	° ′		d	h	° ′
1923 January	23.	12	+ 2. 42	1923 August	24.	11	+ 2. 41
February	3.	11	+ 2. 43	September	1.	10	+ 2. 41
,,	12.	11	+ 2. 42	,,	13.	9	+ 2. 43
,,	22.	11	+ 2. 43	,,	24.	10	+ 2. 42
March	19.	11	+ 2. 42	October	14.	11	+ 2. 45
,,	27.	12	+ 2. 43	,,	15.	10	+ 2. 45
April	12.	12	+ 2. 44	November	6.	13	+ 2. 46
May	2.	9	+ 2. 39	,,	7.	11	+ 2. 43
,,	3.	14	+ 2. 41	,,	18.	12	+ 2. 47
June	23.	9	+ 2. 37	December	14.	12	+ 2. 47
July	9.	9	+ 2. 37	,,	25.	11	+ 2. 47
August	4.	9	+ 2. 41				

DALLMEYER PHOTO-HELIOGRAPH, CAPE OF GOOD HOPE.

Photographic Determination of the Zero of Position-Angles.

Date. Greenwich Civil Time.			Correction for Zero.	Date. Greenwich Civil Time.			Correction for Zero.
	d	h	° ′		d	h	° ′
1923 January	11.	8	− 0. 35	1923 July	15.	10	− 0. 22
,,	27.	8	− 0. 52	,,	30.	8	− 0. 30
February	12.	8	− 0. 41	August	14.	8	− 0. 43
,,	27.	8	− 0. 29	,,	31.	9	− 0. 20
March	14.	10	− 0. 34	September	15.	8	− 0. 32
,,	29.	8	− 0. 34	October	4.	10	− 0. 30
April	13.	8	− 0. 35	,,	19.	8	− 0. 30
,,	30.	9	− 0. 29	November	6.	9	− 0. 28
May	15.	10	− 0. 35	December	1.	11	− 0. 32
,,	29.	12	− 0. 29	,,	15.	8	− 0. 41
June	13.	9	− 0. 33	,,	31.	8	− 0. 38
July	5.	12	− 0. 26				

The zero-corrections used in the reductions of the photographs taken at the Cape Observatory were as follows :—

January 1 to March 31, $-0^\circ\cdot6$; April 1 to December 31, $-0^\circ\cdot5$.

The zero-corrections adopted during 1923 for the Kodaikánal photographs were :—

January 1 to June 30, $+0^\circ\cdot2$; July 1 to December 31, $+0^\circ\cdot1$.

The measures of the photographs were made with a large position-micrometer constructed by Messrs. Troughton and Simms for the measurement of photographs of the Sun up to 12 inches in diameter. In this micrometer the photograph is held with its film-side uppermost on three pillars fixed on a circular plate, which can be turned through a small angle, about a pivot in its circumference, by means of a screw and antagonistic spring acting at the opposite extremity of the diameter. The pivot of this plate is mounted on the circumference of another circular plate, which can be turned by screw-action about a pivot in its circumference, 90° distant from that of the upper plate, this pivot being mounted on a circular plate with a position-circle which rotates about its centre. By this means small movements in two directions at right angles to each other can be readily given, and the photograph can be accurately centred with respect to the position-circle. When this has been done, a positive eyepiece, having at its focus a glass diaphragm ruled with cross-lines into squares, with sides of one-hundredth of an inch (for measurement of areas), is moved along a slide diametrically across the photograph, the diaphragm being nearly in contact with the photographic film, so that parallax is avoided. The distance of a spot or facula from the centre of the Sun is read off by means of a scale and vernier to 1-250th of an inch (corresponding to 0·001 of the Sun's radius for photographs having a solar diameter of 8 inches). The position-angle is read

off on the large position-circle which rotates with the photographic plate. The photograph is illuminated by diffused light reflected from white paper placed at an angle of 45° between the photograph and the plate below.

All photographs are measured independently by two persons, and the means taken.

In the case of large or complex groups of spots, the positions of the chief components are measured individually, and also for groups so near the east or west limbs of the Sun that the effects of foreshortening are appreciable. In other cases the position of the centre of a group is estimated in the micrometer. In this respect a difference has been made in the practice during years previous to 1916, where in this section components of groups are given separately and combined into groups in the Ledgers.

When required, corrections are applied to the measured distances and position-angles for differential refraction. The formula is given in the *Introduction* for 1909. It is seldom necessary, however, to apply this correction except to a few photographs taken at Greenwich in mid-winter.

The calculations of heliographic longitude and latitude are made by use of the formulæ given in "Researches on Solar Physics: Heliographical Positions and Areas of Sun Spots observed with the Kew Photo-heliograph during the years 1862 and 1863" by W. De La Rue, B. Stewart, and B. Loewy. *Phil. Trans.*, 1869. If r be the measured distance of a spot from the centre of the Sun's apparent disc, R the measured radius of the Sun on the photograph, (R) the tabular semi-diameter of the Sun in arc, and ρ, ρ' the angular distances of a spot from the centre of the apparent disc as viewed from the Sun's centre and from the Earth respectively, ρ is obtained from the equations :—

$$\rho' = \frac{r}{R}(R)\ ;\ \text{and}\ \sin(\rho + \rho') = \frac{r}{R}.$$

If D and ϕ are the heliographic latitudes of the Earth and the spot respectively, referred to the Sun's equator, and l the heliographic longitude of the spot from the solar meridian passing through the centre of the disc, longitudes west of the centre being reckoned as positive, and χ the position-angle from the Sun's axis,

$$\sin\phi = \cos\rho \sin D + \sin\rho \cos D \cos\chi$$
$$\sin l = -\sin\chi \sin\rho \sec\phi.$$

The position-angle χ is found from the position-angle from the North Point by subtracting P, the position-angle of the N end of the Sun's axis, measured eastward from the North Point of the disc. The heliographic longitude of the spot is l+L,

where L is the heliographic longitude of the centre of the disc. The three quantities P, D, and L for the time of the exposure of each photograph are derived from the Ephemeris for Physical Observations of the Sun given on p. 552 of the *Nautical Almanac* for 1923.

The inclination of the Sun's axis to the ecliptic is assumed to be 82° 45′, the longitude of the ascending node for 1923·0 to be 74° 41′·1, 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. *General Catalogue of Groups of Sun Spots for* 1923.

The Catalogue contains every group of spots which lasted for two or more days, and the group numbers are in continuation of those given in 1922 and previous years. Groups seen only once are not included, but appear in the Daily Results with a distinctive numeration.

During the year 1923, a number of groups of spots have been noted in the Catalogue as "Revivals." These have been tabulated in series in a table following the Catalogue. The respective groups of each series are in the same heliographic position, and are seen in consecutive rotations but with definite breaks in their history between each rotation. The latter feature excludes them from being classed as "Recurrent" groups; they differ from "Intermittent" groups in their being of long period intermittency. When a "Recurrent" series forms part of a "Revival" series, a reference is made in the last column of the table. Other groups which are given in detail in Ledger II are also indicated.

§ 3. *Ledgers of the Areas and Heliographic Positions of Groups of Sun Spots for* 1923.

Ledger I.—Recurrent Groups.—This Ledger supersedes the Catalogue of Recurrent Groups of Sun Spots given in years previous to 1916 of the *Greenwich Photo-Heliographic Results*, and the reference numbers of the series are in continuation of those given therein. The groups forming this Ledger have been abstracted from a general Ledger of all spot groups seen throughout the year, and were selected upon the following plan, reference being made to the General Catalogue:—If any spot group when first seen was 60° or more to the east of the Central Meridian, then the Catalogue, and, if necessary, the Daily Results also, were searched some fifteen or sixteen days earlier, to ascertain whether a spot group of similar heliographic longitude and latitude was then near the west limb of the Sun. Similarly, if any spot group when last seen was 60° or more to the west of the Central Meridian, then the Catalogue was searched some fifteen or sixteen days

later, to ascertain whether a spot group of similar heliographic longitude and latitude was then near the east limb of the Sun. Both the search forward and the search backward have been made in the case of every spot group that was observed close to both the east and west limbs, in order that no possible case of identity might be overlooked. When there appeared to be a case of probable identity between spot groups observed in two consecutive rotations of the Sun, the character of the second group has been carefully compared with that of the first in each of the three elements—area, longitude, and latitude. In cases where the evidence appeared to render probable the continued existence of the spot, it has been numbered in the Ledger, and where there has been some uncertainty a note has been added. If, on the other hand, the evidence appeared to go in the other direction, but was not quite decisive, the series has been printed in the Ledger but a separate number has not been given it. It has been distinguished by the number of the preceding series, placed in brackets and marked with an asterisk. In cases where a well-defined series has been recorded, there have sometimes been included in brackets spot groups undoubtedly belonging to the same general disturbance, but for which the evidence of continuity was not sufficient.

Besides the Ledgers of the groups, there have been printed in a similar manner important components of the principal groups. This has been done in all cases where it appeared probable that an individual component lasted to the second or third rotation after its first appearance.

Ledger II.—Non-Recurrent Groups.—This Ledger contains the most important of those groups which do not last to a second rotation. Individual components are also given after their respective groups, where they are large and distinctive.

§ 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* 1923.

Particulars relating to this section are given in the headings on pages D 36, 40, and 41.

F. W. DYSON.

Royal Observatory, Greenwich,
1925, *February* 6.

ROYAL OBSERVATORY, GREENWICH.

POSITIONS AND AREAS

OF

SUN SPOTS AND FACULÆ.

FOR EACH DAY IN THE YEAR

1923.

Positions and Areas of Sun Spots and Faculæ for each Day in the Year 1923.

Col. 1. (1) Time when photograph was taken expressed in days and decimals of a day reckoning from midnight at commencement of year. (2) Place of observatory—Greenwich (G), Cape of Good Hope (C), Kodaikánal (K), Dehra Dûn (D). (3) Date of photograph (Civil reckoning).

Col. 2. Number of Spot Group in order of appearance and in continuation of the Group-numbers given in previous years. Groups seen on one day only are distinguished by the number of the Rotation during which they were observed and by a letter given in the order of their appearance. When there is no number in the second column, it is to be understood that there is a Facula unaccompanied by a Spot.

Col. 3. Distance of Spot Group or Faculæ from Sun's centre in terms of the Sun's radius.

Col. 4. Position Angle of Spot Group or Faculæ measured from the North pole of the Sun's axis in the direction N., E., S., W., N.

Col. 5. Heliographic Longitude of the Spot Group derived from the measures.

Col. 6. Heliographic Latitude of the Spot Group similarly derived.

Col. 7. Area of Umbræ corrected for foreshortening in millionths of the Sun's visible hemisphere.

Col. 8. Area of Whole Spots composing the Group similarly expressed.

Col. 9. Area of each group of Faculæ similarly expressed. 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.

In line with the date of each day is given in brackets the position angle of the Sun's axis from the north point: the heliographic longitude and latitude of the centre of the disc; the total areas of Spots and Faculæ for the day.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1923.

G.M.T. (Civil.)	Group No.	Measures. Dist.	Measures. Pos. Angle.	Position. Long.	Position. Lat.	Area. Umbræ.	Area. Whole Spots.	Area. Faculæ.
1923.			°	°	°			
0·502		·844	262·0					79
	9484	·752	280·5	92·0	+ 5·8	159	831	364*c*
G	9485	·446	296·4	67·9	+ 8·5	15	50	
	9486	·203	264·2	55·8	− 4·2	7	10	
Jan. 1			(+2·2)	(44·2)	(−3·1)	(181)	(891)	(443)
1·661	9484	·897	278·6	91·8	+ 6·3	110	755	716*c*
C	9486	·456	267·0	56·0	− 4·2	0	7	
Jan. 2			(+1·7)	(28·9)	(−3·2)	(110)	(762)	(716)
2·444		·984	261·1					47
		·799	284·3					124
G	9484	·961	277·6	91·9	+ 6·2	103	779	853*c*
	926d	·677	282·7	60·0	+ 6·1	0	2	
	9486	·613	267·5	56·3	− 4·2	1	3	
Jan. 3			(+1·3)	(18·6)	(−3·3)	(104)	(784)	(1024)
3·330		·809	283·0					170
	9484	·980	278·0	84·6	+ 7·1	27	229	322*c*
C	9485	·893	281·4	68·9	+ 8·5	2	12	216*c*
	9486	·763	268·0	56·5	− 3·7	1	3	158*f*
		·926	82·9					45
Jan. 4			(+0·8)	(6·9)	(−3·4)	(30)	(244)	(911)
4·331		·975	279·8					270
		·889	282·0					178
C		·838	267·9					256
		·838	79·6					53
Jan. 5			(+0·4)	(353·8)	(−3·5)	(0)	(0)	(757)
5·325		·970	280·2					160
C		·933	266·5					203
Jan. 6			(−0·1)	(340·7)	(−3·7)	(0)	(0)	(363)
6·349		·985	266·0					73
C		·748	260·0					134
Jan. 7			(−0·6)	(327·2)	(− 3·8)	(0)	(0)	(207)

G.M.T. (Civil.)	Group No.	Measures. Dist.	Measures. Pos. Angle.	Position. Long.	Position. Lat.	Area. Umbræ.	Area. Whole Spots.	Area. Faculæ.
1923.			°	°	°			
7·342		·877	260·1					152
C								
Jan. 8			(−1·1)	(314·1)	(−3·9)	(0)	(0)	(152)
8·336		·957	260·8					104
C		·854	261·2					86
Jan. 9			(−1·6)	(301·0)	(−4·0)	(0)	(0)	(190)
9·335		·940	262·0					122
C								
Jan. 10			(−2·1)	(287·9)	(−4·1)	(0)	(0)	(122)
Jan. 11 and Jan. 12		No	spots or	faculæ.				
12·343		·947	82·9					308
C								
Jan. 13			(−3·5)	(248·3)	(− 4·4)	(0)	(0)	(308
13·343		·863	82·5					248
C								
Jan. 14			(−4·0)	(235·1)	(−4·5)	(0)	(0)	(248)
14·328		·738	78·9					164
C								
Jan. 15			(−4·5)	(222·1)	(−4·6)	(0)	(0)	(164)
Jan. 16 and Jan. 17		No	spots or	faculæ.				
17·549		·969	83·0					360
G								
Jan. 18			(−6·0)	(179·7)	(−4·9)	(0)	(0)	(360)

Group 9484. 1922, Dec. 22–1923, Jan. 4. A very large spot group, of "bipolar" type of the Mt. Wilson classification and corresponding generally to the stream of "normal type" in these publications. The leader spot at maximum development is, however, unusually large compared with the following component, and its structure is more complex than in the typical "stream." It is remarkable that so large a group does not return in the following rotation, although the related faculæ remains visible until 1923, May.

Group 9485. 1922, Dec. 25–1923, Jan. 4. A small decreasing regular spot. A few very small spots appear following it on Dec. 28, and the group remains as an unstable cluster until Jan. 1. Nothing is then seen until Jan. 4, when a small double spot is visible.

Group 9486. 1922, Dec. 25–1923, Jan. 4. Return of Group 9482. A small regular spot traced to its extinction as a mere dot on Jan. 3 and 4.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1923.

G.M.T. (Civil.)	Group No.	Measures. Dist.	Measures. Pos. Angle.	Position. Long.	Position. Lat.	Area. Umbræ.	Area. Whole Spots.	Area. Faculæ.
1923.			°	°	°			
18·494		·893	81·5					363
G		·962	88·2					211
		·980	79·6					157
Jan. 19			(−6·4)	(167·3)	(−5·0)	(0)	(0)	(731)
19·554		·790	76·4					319
		·856	86·3					204
G		·903	77·1					343
		·971	84·9					98
Jan. 20			(−6·9)	(153·3)	(−5·1)	(0)	(0)	(964)
20·349		·688	71·5					124
		·761	86·6					126
		·821	75·1					321
C		·942	77·7					187
		·967	96·3					91
	9488	·984	90·5	63·3	− 1·5	0	11	82c
Jan. 21			(−7·3)	(142·8)	(−5·2)	(0)	(11)	(931)
21·449		·808	279·5					76
	9488	·908	89·6	63·4	− 1·9	4	17	164f
G		·815	76·8					229
		·911	97·6					58
		·925	77·2					146
Jan. 22			(−7·8)	(128·4)	(−5·3)	(4)	(17)	(673)
22·484		·909	277·8					177
	927a	·328	81·8	95·8	− 2·5	1	2	
G	*927b*	·666	75·0	74·6	+ 5·8	5	14	
		·816	86·4					156
Jan. 23			(−8·2)	(114·7)	(−5·4)	(6)	(16)	(333)
23·544		·964	278·0					83
C								
Jan. 24			(−8·7)	(100·8)	(−5·5)	(0)	(0)	(83)
Jan. 25 and Jan. 26		No spots or faculæ.						

G.M.T. (Civil.)	Group No.	Measures. Dist.	Measures. Pos. Angle.	Position. Long.	Position. Lat.	Area. Umbræ.	Area. Whole Spots.	Area. Faculæ.
1923.			°	°	°			
26·319		·717	284·8					188
C								
Jan. 27			(−9·9)	(64·2)	(− 5·7)	(0)	(0)	(188)
27·340		·853	280·7					363
		·733	272·7					97
C		·721	287·0					168
	9489	·559	290·7	82·4	+ 6·4	4	16	
		·958	76·7					64
Jan. 28			(−10·3)	(50·8)	(− 5·8)	(4)	(16)	(692)
28·336		·944	279·1					302
		·852	286·2					237
C		·849	272·8					149
	9489	·724	284·0	82·4	+ 6·0	13	37	83c
		·891	72·0					46
Jan. 29			(−10·8)	(37·7)	(− 5·8)	(13)	(37)	(817)
29·331		·948	271·4					189
C		·945	283·0					352
	9489	·881	280·3	85·0	+ 6·1	7	51	135f
Jan. 30			(−11·2)	(24·6)	(− 5·9)	(7)	(51)	(676)
30·316		·980	284·0					118
		·828	289·2					94
C		·800	273·0					132
	9489	·972	277·0	87·1	+ 5·3	15	71	174nf
Jan. 31			(−11·6)	(11·6)	(− 6·0)	(15)	(71)	(518)
31·346		·994	276·4					70
		·928	281·7					106
C		·921	260·8					74
		·908	271·0					131
		·914	53·0					33
Feb. 1			(−12·0)	(358·0)	(− 6·1)	(0)	(0)	(414)
32·337		·958	283·0					83
C		·948	271·2					132
		·819	48·6					74
Feb. 2			(−12·4)	(345·0)	(− 6·1)	(0)	(0)	(289)

Group 9488. Jan. 21–22. Revival near Group 8486. A single small spot.
Group 9489. Jan. 28–31. A small but definite spot with one or two very small followers.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1923.

G.M.T. (Civil.)	Group No.	Measures. Dist.	Measures. Pos. Angle.	Position. Long.	Position. Lat.	Area. Umbræ.	Area. Whole Spots.	Area. Faculæ.
1923.			°	°	°			
33·436		·955	181·5					61
G								
Feb. 3			(−12·9)	(330·5)	(− 6·2)	(0)	(0)	(61)
Feb. 4 and Feb. 5		No	spots or	faculæ.				
36·532		·805	265·7					50
G								
Feb. 6			(−14·1)	(289·8)	(−6·4)	(0)	(0)	(50)
37·398		·902	265·0					55
C								
Feb. 7			(−14·4)	(278·4)	(−6·5)	(0)	(0)	(55)
38·407		·972	263·6					88
C								
Feb. 8			(−14·8)	(265·1)	(−6.5)	(0)	(0)	(88)
39·467		·913	74·2					71
G		·930	83·4					50
Feb. 9			(−15·2)	(251·1)	(−6·6)	(0)	(0)	(121)
40·408		·876	69·0					109
C		·925	80·4					83
Feb. 10			(−15·6)	(238·7)	(−6·6)	(0)	(0)	(192)
41·447		·829	78·6					77
G								
Feb. 11			(−16·0)	(225·0)	(−6·7)	(0)	(0)	(77)
42·439	*928a*	·924	265·2	279·8	− 7·0	3	11	109c
G	9490	·559	56·3	183·7	+12·1	1	2	
Feb. 12			(−16·3)	(212·0)	(−6·7)	(4)	(13)	(109)

G.M.T. (Civil.)	Group No.	Measures. Dist.	Measures. Pos. Angle.	Position. Long.	Position. Lat.	Area. Umbræ.	Area. Whole Spots.	Area. Faculæ.
1923.			°	°	°			
43·337		·975	264·2					141
C	9490	·420	41·9	183·6	+11·6	2	8	
Feb. 13			(−16·6)	(200·2)	(−6·8)	(2)	(8)	(141)
44·338	9490	·326	7·0	184·7	+12·0	1	5	
C		·964	81·0					246
		·990	92·2					79
Feb. 14			(−17·0)	(187·0)	(−6·8)	(1)	(5)	(325)
45·350	9490	·360	328·3	184·8	+11·0	4	12	
		·889	77·9					311
C		·938	44·3					23
		·945	89·7					121
		·975	82·1					177
Feb. 15			(−17·3)	(173·7)	(−6·9)	(4)	(12)	(632)
46·419	9490	·490	305·3	183·4	+10·1	1	3	
		·785	70·6					128
		·833	92·9					96
G		·878	38·2					21
		·894	79·7					184
		·971	84·1					88
Feb. 16			(−17·7)	(159·6)	(−6·9)	(1)	(3)	(517)
47·487		·787	73·5					173
G		·873	81·7					109
		·941	100·8					126
Feb. 17			(−18·0)	(145·5)	(−6·9)	(0)	(0)	(408)
48·541		·826	285·6					104
C		·733	75·0					110
		·898	99·8					133
Feb. 18			(−18·4)	(131·6)	(−7·0)	(0)	(0)	(347)
49·310		·904	287·4					99
C	*928b*	·327	4·6	120·0	+11·9	0	4	
		·889	71·2					69
Feb. 19			(−18·6)	(121·5)	(−7·0)	(0)	(4)	(168)

Group 9490. Feb. 12–16. Two or three very small but distinct spots.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1923.

G.M.T. (Civil.)	Group No.	Measures. Dist.	Measures. Pos. Angle.	Position. Long.	Position. Lat.	Area. Umbræ.	Area. Whole Spots.	Area. Faculæ.
			°	°	°			
1923. 50·395 C Feb. 20	928c	·976 ·253	283·8 338·0 (−19·0)	112·7 (107·2)	+6·6 (−7·0)	1 (1)	3 (3)	144 (144)
Feb. 21 and Feb. 22		No spots or faculæ						
53·325 C Feb. 23	928d	·754 ·431 ·987	290·4 32·8 75·8 (−19·8)	54·7 (68·6)	+14·2 (−7·1)	1 (1)	3 (3)	163 48 (211)
54·315 C Feb. 24		·866 ·817 ·928	283·7 296·1 72·4 (−20·1)	(55·6)	(−7·1)	(0)	(0)	196 69 93 (358)
55·350 C Feb. 25		·969 ·946 ·890 ·854 ·734 ·827	273·4 284·7 271·8 284·2 288·2 69·9 (−20·4)	(42·0)	(−7·2)	(0)	(0)	54 301 169 66 93 56 (739)
56·488 G Feb. 26		·974 ·910 ·893	269·8 282·8 294·3 (−20·8)	(27·0)	(−7·2)	(0)	(0)	93 134 53 (280)
57·310 C Feb. 27		·954	279·3 (−21·0)	(16·1)	(−7·2)	(0)	(0)	167 (167)
58·413 G Feb. 28		·963	95·7 (−21·3)	(1·6)	(−7·2)	(0)	(0)	157 (157)

G.M.T. (Civil.)	Group No.	Measures. Dist.	Measures. Pos. Angle.	Position. Long.	Position. Lat.	Area. Umbræ.	Area. Whole Spots.	Area. Faculæ.
			°	°	°			
1923. 59·522 C Mar. 1		·885	94·0 (−21·6)	(347·0)	(− 7·2)	(0)	(0)	126 126
60·400 G Mar. 2		·797	93·0 (−21·8)	(335·4)	(− 7·2)	(0)	(0)	80 (80)
Mar. 3 to Mar. 5		No spots or faculæ.						
64·342 C Mar. 6		·925	180·9 (−22·7)	(283·5)	(−7·2)	(0)	(0)	26 (26)
Mar 7.		No spots or faculæ.						
66·579 G Mar. 8		·886 ·898	235·8 69·6 (−23·2)	(254·0)	(−7·2)	(0)	(0)	20 86 (106)
67·340 C Mar. 9		·810 ·888	66·9 74·3 (−23·3)	(244·0)	(−7·2)	(0)	(0)	87 46 (133)
68·339 C Mar. 10		·953 ·857	310·3 263·3 (−23·5)	(230·8)	(−7·2)	(0)	(0)	41 93 (134)
69·526 C Mar. 11		·940	264·6 (−23·8)	(215·2)	(−7·2)	(0)	(0)	117 (117)
Mar. 12		No spots or faculæ.						

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1923.

G.M.T. (Civil.)	Group No.	Measures. Dist.	Measures. Pos. Angle.	Position. Long.	Position. Lat.	Area. Umbræ.	Area. Whole Spots.	Area. Faculæ.
1923.			°	°	°			
71·402		·930	181·1					88
		·910	160·8					70
C		·916	169·8					73
		·949	80·2					322
Mar. 13			(−24·1)	(190·5)	(−7·2)	(0)	(0)	(553)
72·398		·876	76·1					234
C		·921	90·5					97
		·982	84·1					62
Mar. 14			(−24·3)	(177·3)	(−7·2)	(0)	(0)	(393)
73·336	9491	·913	81·9	100·3	+ 4·3	5	21	86c
		·785	72·9					198
C		·959	74·5					103
		·959	85·2					75
Mar. 15			(−24·5)	(165·0)	(−7·2)	(5)	(21)	(462)
74·328	9491	·798	79·0	100·3	+ 4·4	6	13	
C		·800	78·6					108
		·914	76·7					138
Mar. 16			(−24·6)	(151·9)	(−7·1)	(6)	(13)	(246)
75·505		·866	293·0					59
G	929a	·425	160·1	126·8	−30·5	2	7	
		·801	72·4					85
Mar. 17			(−24·8)	(136·4)	(− 7·1)	(2)	(7)	(144)
Mar. 18 and Mar. 19			No	spots or	faculæ.			
78·640	929b	·440	258·5	121·1	−11·3	1	2	
G								
Mar. 20			(−25·2)	(95·1)	(−7·0)	(1)	(2)	(0)
Mar. 21			No	spots or	faculæ.			

G.M.T. (Civil.)	Group No.	Measures. Dist.	Measures. Pos. Angle.	Position. Long.	Position. Lat.	Area. Umbræ.	Area. Whole Spots.	Area. Faculæ.
1923.			°	°	°			
80·339		·739	289·4					265
C	9492	·335	312·7	87·0	+ 6·3	14	55	
Mar. 22			(−25·5)	(72·7)	(−7·0)	(14)	(55)	(265)
81·374		·880	283·3					260
C	9492	·515	293·6	87·2	+ 5·8	7	28	
Mar. 23			(−25·6)	(59·0)	(−6·9)	(7)	(28)	(260)
82·457		·950	277·2					284
		·940	289·1					103
G		·842	279·5					80
	9492	·734	285·3	89·9	+ 6·3	3	9	77c
Mar. 24			(−25·7)	(44·7)	(−6·9)	(3)	(9)	(544)
83·641		·944	278·4					90
G		·835	307·7					44
	9492	·878	282·0	88·8	+ 7·1	18	29	156c
Mar. 25			(−25·8)	(29·1)	(−6·8)	(18)	(29)	(290)
84·675		·925	300·8					57
G	9492	·964	279·5	88·6	+ 7·2	2	16	195c
Mar. 26			(−25·9)	(15·5)	(−6·8)	(2)	(16)	(252)
85·493		·994	277·8					145
G		·963	297·4					48
		·947	98·2					68
Mar. 27			(−26·0)	(4·7)	(− 6·8)	(0)	(0)	(261)
86·428		·861	98·6					48
G		·941	89·6					32
Mar. 28			(−26·0)	(352·4)	(− 6·7)	(0)	(0)	(80)
87·476	9493	·707	76·3	295·1	+ 4·7	15	57	66c
G								
Mar. 29			(−26·1)	(338·5)	(− 6·7)	(15)	(57)	(66)

Group 9491. Mar. 15–16. A pair of small spots.
Group 9492. Mar. 22–26. A pair of diminutive composite spots.
Group 9493. Mar. 29–Apr. 3. A moderate sized stream showing the usual separation in longitude of the preceding and following components. The latter is the more stable and appears alone as a dot on Apr. 3.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1923.

G.M.T. (Civil.)	Group No.	Measures.		Position.		Area.		
		Dist.	Pos. Angle.	Long.	Lat.	Umbræ.	Whole Spots.	Faculæ.
1923.			°	°	°			
88·390	9493	·548	70·8	295·4	+ 4·7	45	144	
G								
Mar. 30			(−26·2)	(326·5)	(− 6·6)	(45)	(144)	(0)
89·332	9493	·368	59·2	295·7	+ 4·5	25	116	
C								
Mar. 31			(−26·2)	(314·1)	(−6·6)	(25)	(116)	(0)
90·497	9493	·192	5·5	297·6	+ 4·5	22	75	
G								
Apr. 1			(−26·3)	(298·7)	(− 6·5)	(22)	(75)	(0)
91·439	9493	·252	316·1	296·3	+ 4·0	7	37	
G								
Apr. 2			(−26·3)	(286·3)	(− 6·5)	(7)	(37)	(0)
92·596	9493	·438	295·2	294·3	+ 4·9	0	1	
G		·961	170·6					37
Apr. 3			(−26·4)	(271·0)	(− 6·4)	(0)	(1)	(37)
93·388		·631	284·4					253
G		·860	99·0					15
Apr. 4			(−26·4)	(260·5)	(− 6·3)	(0)	(0)	(268)
94·419		·935	283·0					83
G		·798	280·2					183
Apr. 5			(−26·4)	(246·9)	(− 6·3)	(0)	(0)	(266)
95·339		·893	278·0					289
C		·819	265·1					57
		·937	176·4					20
Apr. 6			(−26·4)	(234·8)	(− 6·2)	(0)	(0)	(366)
96·525		·970	275·8					168
G		·962	262·9					25
Apr. 7			(−26·4)	(219·1)	(− 6·1)	(0)	(0)	(193)
Apr. 8			No	spots or	faculæ.			

G.M.T. (Civil.)	Group No.	Measures.		Position.		Area.		
		Dist.	Pos. Angle.	Long.	Lat.	Umbræ.	Whole Spots.	Faculæ.
1923.			°	°	°			
98·365		·913	258·7					64
C		·946	80·6					216
Apr. 9			(−26·4)	(194·9)	(− 6·0)	(0)	(0)	(280)
99·341	*930a*	·911	61·0	122·1	+23·2	0	7	54c
C		·891	76·5					150
Apr. 10			(−26·4)	(182·0)	(−6·0)	(0)	(7)	(204)
100·369		·872	81·4					105
C		·965	84·0					248
Apr. 11			(−26·4)	(168·4)	(−5·9)	(0)	(0)	(353)
101·462		·948	186·9					68
G		·902	81·7					228
Apr. 12			(−26·3)	(154·0)	(−5·8)	(0)	(0)	(296)
102·400		·789	79·1					196
G								
Apr. 13			(−26·3)	(141·6)	(−5·7)	(0)	(0)	(196)
103·387	9494	·329	268·6	147·8	—5·8	4	12	
G								
Apr. 14			(−26·3)	(128·6)	(−5·6)	(4)	(12)	(0)
104·365	9494	·547	266·7	148·8	− 6·5	2	7	
	930b	·199	18·4	112·0	+ 5·2	2	5	
G		·920	85·2					38
		·973	77·8					77
Apr. 15			(−26·2)	(115·6)	(−5·6)	(4)	(12)	(115)
Apr. 16			No	spots or	faculæ.			
106·393		·860	264·7					75
G	9495	·477	291·5	115·2	+ 5·2	11	36	
Apr. 17			(−26·1)	(88·9)	(−5·4)	(11)	(36)	(75)

Group 9494. Apr. 14–15. A cluster of tiny spots.
Group 9495. Apr. 17–19. A cluster of small spots soon disappearing.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1923.

G.M.T. (Civil.)	Group No.	Measures. Dist.	Measures. Pos. Angle.	Position. Long.	Position. Lat.	Area. Umbræ.	Area. Whole Spots.	Area. Faculæ.
1923.			°	°	°			
107·301		·780	309·8					83
C	9495	·653	283·8	116·3	+ 4·9	6	19	
		·969	96·0					163
Apr. 18			(−26·0)	(76·9)	(− 5·3)	(6)	(19)	(246)
108·331		·896	282·9					104
		·886	296·5					94
C	9496	·878	93·9	1·8	− 6·0	4	26	139c
	9495	·828	278·1	118·3	+ 3·6	0	5	90n
Apr. 19			(−25·9)	(63·3)	(− 5·3)	(4)	(31)	(427)
109·481		·964	284·8					154
		·962	296·9					50
G		·934	277·0					87
		·906	268·4					77
	9496	·724	93·1	1·7	− 5·8	23	82	89c
Apr. 20			(−25·8)	(48·1)	(− 5·2)	(23)	(82)	(457)
110·466		·855	281·1					159
G	9496	·546	93·1	2·0	− 6·0	39	126	
Apr. 21			(−25·7)	(35·1)	(− 5·1)	(39)	(126)	(159)
111·115		·912	278·1					76
K	9496	·419	93·1	1·7	− 5·8	22	130	
		·967	82·7					46
Apr. 22			(−25·7)	(26·5)	(− 5·0)	(22)	(130)	(122)
112·383		·967	277·3					85
C	9496	·131	99·3	2·4	− 6·1	10	42	
		·913	81·6					100
Apr. 23			(−25·5)	(9·8)	(− 4·9)	(10)	(42)	(185)
113·346	9496	·092	250·0	2·0	− 6·6	14	42	
G		·819	80·0					102
Apr. 24			(−25·4)	(357·0)	(− 4·8)	(14)	(42)	(102)
114·103	9496	·271	264·9	2·7	− 5·9	8	41	
K								
Apr. 25			(−25·3)	(347·0)	(− 4·7)	(8)	(41)	(0)

G.M.T. (Civil.)	Group No.	Measures. Dist.	Measures. Pos. Angle.	Position. Long.	Position. Lat.	Area. Umbræ.	Area. Whole Spots.	Area. Faculæ.
1923.			°	°	°			
115·559	9496	·581	266·5	3·3	− 5·8	8	37	
G								
Apr. 26			(−25·1)	(327·8)	(−4·6)	(8)	(37)	(0)
116·358	9496	·728	266·2	3·9	− 5·8	16	38	155f
G								
Apr. 27			(−25·0)	(317·2)	(−4·5)	(16)	(38)	(155)
117·361	9496	·868	267·1	4·2	− 4·7	26	92	319c
G								
Apr. 28			(−24·9)	(304·0)	(−4·4)	(26)	(92)	(319)
118·114	9496	·948	266·7	5·4	− 4·5	8	45	240c
K								
Apr. 29			(−24·7)	(294·0)	(− 4·3)	(8)	(45)	(240)
119·359		·994	266·1					193
C	931a	·713	81·5	232·9	+ 3·1	0	8	
		·698	79·3					35
Apr. 30			(−24·5)	(277·6)	(− 4·2)	(0)	(8)	(228)
120·359		·958	84·9					67
C								
May 1			(−24·4)	(264·4)	(− 4·1)	(0)	(0)	(67)
121·472		·914	280·0					116
G		·804	279·2					103
		·923	178·4					43
May 2			(−24·2)	(249·6)	(− 4·0)	(0)	(0)	(262)
122·558		·924	276·7					215
G								
May 3			(−24·0)	(235·3)	(− 3·9)	(0)	(0)	(215)
123·339		·974	275·9					85
G								
May 4			(−23·8)	(225·0)	(− 3·8)	(0)	(0)	(85)

Group 9496. Apr. 19–29. A small stream showing continued activity. The leader only is stable and can be followed on successive days.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1923.

G.M.T. (Civil.)	Group No.	Measures. Dist.	Measures. Pos. Angle.	Position. Long.	Position. Lat.	Area. Umbræ.	Area. Whole Spots.	Area. Faculæ.
			°	°	°			
1923.								
124·511		·942	174·2					98
C								
May 5			(−23·6)	(209·5)	(− 3·7)	(0)	(0)	(98)
125·423		·927	76·7					191
G		·933	87·4					107
May 6			(−23·4)	(197·4)	(− 3·6)	(0)	(0)	(298)
126·357		·851	79·0					127
G		·869	66·7					145
May 7			(−23·2)	(185·1)	(− 3·5)	(0)	(0)	(272)
127·577		·958	81·3					115
G		·958	174·6					43
May 8			(−22·9)	(168·9)	(− 3·4)	(0)	(0)	(158)
128·664		·938	186·3					27
G		·935	177·7					22
May 9			(−22·7)	(154·6)	(− 3·3)	(0)	(0)	(49)
129·598		·949	189·4					35
G								
May 10			(−22·4)	(142·2)	(− 3·1)	(0)	(0)	(35)
130·577		·958	191·8					22
G		·943	183·8					19
	9497	·331	56·4	113·2	+ 7·7	1	2	
May 11			(−22·2)	(129·3)	(− 3·0)	(1)	(2)	(41)
131·405		·961	193·8					51
G	9497	·206	24·5	113·4	+ 7·7	8	21	
May 12			(−22·0)	(118·3)	(− 3·0)	(8)	(21)	(51)
132·498		·937	278·7					31
G	9497	·248	316·5	113·8	+ 7·6	5	15	
May 13			(−21·7)	(103·9)	(−2·8)	(5)	(15	(31)
133·562	9497	·478	290·0	116·6	+ 7·0	0	5	
G		·972	96·6					54
May 14			(−21·4)	(89·8)	(− 2·7)	(0)	(5)	(54)

G.M.T. (Civil.)	Group No.	Measures. Dist.	Measures. Pos. Angle.	Position. Long.	Position. Lat.	Area. Umbræ.	Area. Whole Spots.	Area. Faculæ
			°	°	°			
1923.								
134·414		·819	289·8					176
		·904	97·9					143
G		·930	1·3					23
		·964	92·5					115
May 15			(−21·2)	(78·5)	(− 2·6)	(0)	(0)	(457)
135·446		·938	357·5					34
		·910	282·0					240
G		·745	280·8					142
		·820	101·7					64
		·865	92·0					155
May 16			(−20·9)	(64·9)	(− 2·5)	(0)	(0)	(635)
136·400		·979	277·9					67
		·928	292·4					66
G		·886	279·4					102
		·723	92·6					137
May 17			(−20·7)	(52·3)	(− 2·4)	(0)	(0)	(372)
137·598		·930	273·6					99
C								
May 18			(−20·3)	(36·4)	(− 2·2)	(0)	(0)	(99)
138·331		·928	275·9					104
C								
May 19			(−20·1)	(26·7)	(−2·2)	(0)	(0)	(104)
139·374	9498	·753	77·6	325·2	+ 8·0	3	8	61f
C		·924	81·6					130
May 20			(−19·8)	(12·9)	(−2·0)	(3)	(8)	(191)
140·396		·949	184·1					41
C	9498	·567	73·9	326·2	+7·4	1	4	
		·987	99·9					170
May 21			(−19·5)	(359·4)	(−1·9)	(1)	(4)	(211)
141·632		·899	100·7					191
G								
May 22			(−19·1)	(343·1)	(−1·8)	(0)	(0)	(191)

Group 9497. May 11–14. A single minute spot on May 11; two on May 12 which have separated considerably by the following day. The leader alone remains on May 14.
Group 9498. May 20–21. One very small but definite spot.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1923.

G.M.T. (Civil.)	Group No.	Measures. Dist.	Measures. Pos. Angle.	Position. Long.	Position. Lat.	Area. Umbræ.	Area. Whole Spots.	Area. Faculæ.
1923.			°	°	°			
142·617	9499	·775	101·8	279·8	−10·2	5	44	132*c*
C								
May 23			(−18·8)	(330·0)	(−1·7)	(5)	(44)	(132)
143·347	9499	·665	103·7	279·5	−10·2	21	51	
G								
May 24			(−18·5)	(320·4)	(−1·6)	(21)	(51)	(0)
144·507		·864	265·9					45
G		·919	261·5					45
	9499	·450	109·9	279·7	−10·1	12	41	
May 25			(−18·1)	(305·0)	(− 1·4)	(12)	(41)	(90)
145·349		·950	266·5					71
G	*932a*	·190	82·4	283·1	+ 0·2	1	1	
May 26			(−17·9)	(293·9)	(− 1·3)	(1)	(1)	(71)
146·364		·921	183·6					23
	932b	·803	305·0	327·5	+26·5	2	6	44*p*
C	9500	·995	80·3	196·8	+ 9·6	5	81	
		·937	175·1					30
May 27			(−17·5)	(280·4)	(− 1·2)	(7)	(87)	(97)
147·354		·905	300·0					111
C	9500	·946	79·6	196·9	+ 9·4	17	108	335*f*
May 28			(−17·2)	(267·3)	(− 1·1)	(17)	(108)	(446)
148·422		·976	297·2					115
C		·943	277·2					71
	9500	·843	78·2	196·7	+ 9·4	15	93	347*f*
May 29			(−16·8)	(253·2)	(− 1·0)	(15)	(93)	(533)
149·561	9500	·671	74·8	197·2	+ 9·5	13	75	234*f*
G		·857	81·0					33
		·963	97·2					82
May 30			(−16·4)	(238·1)	(− 0·8)	(13)	(75)	(349)

G.M.T. (Civil.)	Group No.	Measures. Dist.	Measures. Pos. Angle.	Position. Long.	Position. Lat.	Area. Umbræ.	Area. Whole Spots.	Area. Faculæ.
1923.			°	°	°			
150·459		·809	258·6					139
C	9500	·512	69·9	197·3	+ 9·5	10	48	
		·886	98·0					133
May 31			(−16·1)	(226·3)	(− 0·7)	(10)	(48)	(272)
151·118		·901	259·9					157
K	9500	·387	63·0	197·1	+ 9·5	11	26	
	9501	·803	97·6	164·5	− 6·4	2	8	112*c*
June 1			(−15·8)	(217·5)	(− 0·6)	(13)	(34)	(269)
152·337		·981	260·0					78
	9500	·184	24·2	197·0	+ 9·1	2	4	
C	*932c*	·267	46·4	190·1	+10·1	1	4	
	9501	·595	101·1	165·5	− 6·9	15	52	
		·947	77·4					129
		·961	5·9					97
June 2			(−15·4)	(201·4)	(− 0·5)	(18)	(60)	(304)
153·396	9501	·384	107·8	165·9	− 7·1	11	27	
C	*932d*	·739	74·8	141·0	+10·8	0	4	
		·751	74·2					34
June 3			(−15·0)	(187·4)	(− 0·4)	(11)	(31)	(34)
154·372	9501	·227	121·7	163·3	− 7·0	0	4	
C								
June 4			(−14·6)	(174·5)	(− 0·2)	(0)	(4)	(0)
155·579		·929	190·7					20
G	*932e*	·302	249·1	174·9	− 6·3	0	3	
June 5			(−14·1)	(158·5)	(− 0·1)	(0)	(3)	(20)
June 6			No spots or faculæ.					
157·458		·867	284·0					181
C								
June 7			(−13·4)	(133·6)	(+0·1)	(0)	(0)	(181)

Group 9499. May 23–25. A short stream of unimportant spots.
Group 9500. May 27–June 2. A small regular spot.
Group 9501. June 1–4. A small stream.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1923.

G.M.T. (Civil.)	Group No.	Measures. Dist.	Measures. Pos. Angle.	Position. Long.	Position. Lat.	Area. Umbræ.	Area. Whole Spots.	Area. Faculæ.
			°	°	°			
1923.								
158·412		·958	283·2					263
C		·716	257·9					97
June 8			(−13·0)	(121·0)	(+ 0·2)	(0)	(0)	(360)
159·115		·990	281·4					99
K		·818	259·9					124
June 9			(−12·7)	(111·7)	(+ 0·3)	(0)	(0)	(223)
160·572		·957	261·5					105
G								
June 10			(−12·1)	(92·4)	(+ 0·5)	(0)	(0)	(105)
June 11		No spots or faculæ						
162·370		·875	281·6					105
C								
June 12			(−11·4)	(68·6)	(+ 0·7)	(0)	(0)	(105)
June 13		No spots or faculæ.						
164·351		·903	5·1					18
C		·957	62·7					34
		·974	2·3					35
June 14			(−10·5)	(42·4)	(+1·0)	(0)	(0)	(87)
165·371		·955	347·7					33
		·948	358·5					28
C		·906	276·9					32
		·960	11·9					33
		·993	93·8					37
June 15			(−10·1)	(28·9)	(+ 1·1)	(0)	(0)	(163)
166·348		·979	276·9					67
C		·946	94·5					120
June 16			(− 9·7)	(16·0)	(+ 1·2)	(0)	(0)	(187)
167·328		·845	95·5					79
G								
June 17			(− 9·3)	(3·0)	(+ 1·3)	(0)	(0)	(79)

G.M.T. (Civil.)	Group No.	Measures. Dist.	Measures. Pos. Angle.	Position. Long.	Position. Lat.	Area. Umbræ.	Area. Whole Spots.	Area. Faculæ.
			°	°	°			
1923.								
168·352	9502	·683	96·4	306·8	− 3·3	6	34	
C		·949	82·4					204
June 18			(− 8·8)	(349·4)	(+ 1·4)	(6)	(34)	(204)
169·357	9502	·505	99·4	306·3	− 3·4	10	57	
C		·862	82·0					155
June 19			(− 8·4)	(336·1)	(+ 1·5)	(10)	(57)	(155)
170·449	9502	·269	109·0	307·0	− 3·3	10	26	
G		·750	81·9					89
June 20			(− 7·9)	(321·7)	(+ 1·7)	(10)	(26)	(89)
171·354	*933a*	·900	302·7	10·4	+29·9	0	7	74*p*
C	9502	·095	156·7	307·6	− 3·2	10	32	
June 21			(− 7·5)	(309·7)	(+1·8)	(10)	(39)	(74)
172·518		·974	300·5					50
G	9502	·258	250·6	308·3	− 3·1	8	46	
June 22			(− 7·0)	(294·3)	(+ 1·9)	(8)	(46)	(50)
173·351		·933	213·1					41
G	9502	·447	259·6	309·3	− 2·8	7	23	
		·942	57·6					141
June 23			(− 6·6)	(283·3)	(+ 2·0)	(7)	(23)	(182)
174·447	9502	·669	263·5	310·3	− 2·8	4	15	
	933b	·223	294·0	280·6	+ 7·2	0	3	
C		·859	54·4					82
		·939	77·9					98
June 24			(− 6·1)	(268·8)	(+ 2·1)	(4)	(18)	(180)
175·419		·958	356·7					53
	9503	·832	273·2	312·0	+ 3·9	20	101	146*c*
	9502	·826	265·3	311·2	− 2·6	7	13	113*c*
C	9504	·591	79·4	220·1	+ 8·0	27	114	
		·858	75·2					93
		·936	11·3					24
June 25			(−5·7)	(255·9)	(+ 2·2)	(54)	(228)	(429)

Group 9502. June 18–25. A pair of spots of which the leader alone remains after June 22.
Group 9503. June 25–26. A small group appearing near the west limb.
Group 9504. June 25–July 3. An active group first seen as a regular spot with a train of very small followers. On June 29, this train develops considerably, and a composite spot with several nuclei is formed. This dies away, however, as rapidly as it appeared and is represented only by a small spot at the west limb as a companion to the original leader, which meanwhile has been slowly diminishing.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1923.

G.M.T. (Civil.)	Group No.	Measures.		Position.		Area.		
		Dist.	Pos. Angle.	Long.	Lat.	Umbræ.	Whole Spots.	Faculæ.
1923.			°	°	°			
176·637		·922	265·2					109
G	9503	·963	273·6	314·0	+ 4·1	19	129	388*f*
	9504	·347	72·1	220·4	+ 8·3	30	164	
June 26			(−5·1)	(239·8)	(+ 2·4)	(49)	(293)	(497)
177·427		·994	273·8					299
C		·981	266·6					63
	9504	·197	57·6	219·7	+ 8·5	31	169	
June 27			(−4·8)	(229·3)	(+ 2·5)	(31)	(169)	(362)
178·430		·873	279·7					121
C	9504	·128	321·1	220·6	+ 8·3	34	131	
June 28			(−4·3)	(216·0)	(+ 2·6)	(34)	(131)	(121)
179·379		·931	280·2					130
G	9504	·281	290·9	218·8	+ 8·3	93	400	
June 29			(−3·9)	(203·5)	(+ 2·7)	(93)	(400)	(130)
180·353	9504	·487	282·4	219·2	+ 8·5	86	611	
G								
June 30			(−3·4)	(190·6)	(+ 2·8)	(86)	(611)	(0)
181·107	9504	·640	279·9	220·0	+ 8·5	65	509	
K								
July 1			(−3·1)	(180·6)	(+ 2·9)	(65)	(509)	(0)
182·516	9504	·860	278·1	221·1	+ 8·5	26	166	242*c*
C								
July 2			(−2·5)	(161·9)	(+ 3·0)	(26)	(166)	(242)
183·370	9504	·953	277·5	223·0	+ 8·1	17	65	441*f*
G								
July 3			(−2·1)	(150·6)	(+ 3·1)	(17)	(65)	(441)
184·343		·986	277·9					596
G								
July 4			(−1·6)	(137·8)	(+ 3·2)	(0)	(0)	(596)
1923.			°	°	°			
185·453		·927	12·0					25
G		·960	97·1					190
July 5			(−1·1)	(123·1)	(+3·4)	(0)	(0)	(215)
186·340		·899	98·9					218
G								
July 6			(−0·7)	(111·3)	(+3·5)	(0)	(0)	(218)
187·423		·779	100·6					165
C								
July 7			(−0·2)	(97·0)	(+3·6)	(0)	(0)	(165)
July 8	No	spots	or facul	æ.				
189·357		·893	283·9					63
G								
July 9			(+0·7)	(71·4)	(+3·8)	(0)	(0)	(63)
190·445		·964	84·4					35
C								
July 10			(+1·2)	(57·0)	(+3·9)	(0)	(0)	(35)
191·371	933*c*	·861	85·1	345·3	+ 6·2	1	5	95*sf*
G		·963	96·0					93
		·984	85·1					77
July 11			(+1·6)	(44·7)	(+4·0)	(1)	(5)	(265)
192·350		·948	84·6					256
G								
July 12			(+2·0)	(31·8)	(+4·1)	(0)	(0)	(256)
193·349		·858	85·1					210
G								
July 13			(+2·5)	(18·6)	(+4·2)	(0)	(0)	(210)

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1923.

G.M.T. (Civil.)	Group No.	Measures. Dist.	Measures. Pos. Angle.	Position. Long.	Position. Lat.	Area. Umbræ.	Area. Whole Spots.	Area. Faculæ.
			°	°	°			
1923.								
194·366		·932	346·6					31
C								
July 14			(+2·9)	(5·1)	(+4·3)	(0)	(0)	(31)
195·339		·879	261·0					136
G								
July 15			(+3·4)	(352·2)	(+4·4)	(0)	(0)	(136)
July 16		No spots or faculæ.						
197·440		·957	117·9					87
C								
July 17			(+4·3)	(324·4)	(+4·6)	(0)	(0)	(87)
198·351		·891	121·5					155
G		·983	83·1					61
July 18			(+4·7)	(312·4)	(+ 4·7)	(0)	(0)	(216)
199·337		·775	128·9					148
G		·948	84·5					343
July 19			(+5·1)	(299·3)	(+ 4·7)	(0)	(0)	(491)
200·432		·963	359·4					15
		·923	349·8					21
C		·858	84·3					252
		·902	4·9					46
July 20			(+5·6)	(284·9)	(+ 4·8)	(0)	(0)	(334)
201·350		·932	347·4					31
		·778	270·6					144
G		·728	83·9					274
		·980	84·8					62
July 21			(+6·0)	(272·7)	(+ 4·9)	(0)	(0)	(511)
202·391		·958	344·7					69
		·866	272·2					218
	9505	·432	83·7	233·4	+ 7·2	6	24	
C		·899	85·5					134
		·940	2·2					29
		·970	67·1					370
July 22			(+6·5)	(258·9)	(+ 5·0)	(6)	(24)	(820)

G.M.T. (Civil.)	Group No.	Measures. Dist.	Measures. Pos. Angle.	Position. Long.	Position. Lat.	Area. Umbræ.	Area. Whole Spots.	Area. Faculæ.
			°	°	°			
1923.								
203·391		·942	273·1					116
	9505	·182	79·7	235·4	+ 6·9	5	12	
G		·815	85·5					78
		·903	66·1					248
July 23			(+6·9)	(245·7)	(+ 5·1)	(5)	(12)	(442)
204·366	9505	·078	293·6	236·9	+ 6·9	3	8	
G		·805	63·3					265
July 24			(+7·3)	(232·8)	(+ 5·2)	(3)	(8)	(265)
205·325	9505	·309	276·9	238·0	+ 7·2	4	9	
C		·645	58·5					132
July 25			(+7·7)	(220·1)	(+ 5·3)	(4)	(9)	(132)
206·344	9505	·532	275·2	238·8	+ 7·4	2	4	
G								
July 26			(+8·2)	(206·6)	(+ 5·4)	(2)	(4)	(0)
207·384		·918	237·7					85
G	9506	·179	256·9	202·9	+ 3·1	1	3	
July 27			(+8·6)	(192·9)	(+ 5·4)	(1)	(3)	(85)
208·512		·825	272·3					219
C	9506	·428	269·1	203·3	+ 4·6	1	3	
July 28			(+ 9·1)	(178·0)	(+ 5·5)	(1)	(3)	(219)
209·329		·851	275·2					354
G	9506	·605	270·9	204·4	+ 5·0	12	26	
		·981	116·5					156
July 29			(+ 9·4)	(167·2)	(+ 5·6)	(12)	(26)	(510)
210·450		·946	276·1					172
G	9506	·793	271·7	204·8	+ 4·8	4	16	136c
	9507	·958	119·2	84·2	−25·8	10	41	294sp
July 30			(+ 9·9)	(152·3)	(+ 5·7)	(14)	(57)	(602)
211·532		·713	298·8					144
C	9506	·910	272·1	203·5	+ 4·3	2	8	188np
	9507	·880	123·7	83·7	−25·9	5	10	254sp
July 31			(+10·3)	(138·0)	(+ 5·8)	(7)	(18)	(586)

Group 9505. July 22–26. A small but definite spot with a follower on July 22.
Group 9506. July 27–31. One or two small spots.
Group 9507. July 30–Aug. 4. A small spot, not seen on Aug. 2, in the following part of a distinctive area of faculæ in which Group *934a* is seen on Aug. 7. This is the longest lived high latitude spot observed since the year 1919, and evidently belongs to the new cycle.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1923.

G.M.T. (Civil.)	Group No.	Measures. Dist.	Measures. Pos. Angle.	Position. Long.	Position. Lat.	Area. Umbræ.	Area. Whole Spots.	Area. Faculæ.
1923.			°	°	°			
212·354		·971	274·0					244
		·878	273·7					76
G		·804	295·4					265
	9507	·803	129·2	83·3	−26·3	2	7	235*p*
		·940	100·0					49
Aug. 1			(+10·6)	(127·1)	(+ 5·8)	(2)	(7)	(869)
213·362		·893	295·1					267
G		·898	103·0					77
Aug. 2			(+11·0)	(113·8)	(+ 5·9)	(0)	(0)	(344)
214·388		·962	293·2					203
		·953	352·5					33
G	9507	·585	155·1	84·3	−26·1	1	17	
		·984	97·4					233
Aug. 3			(+11·4)	(100·2)	(+ 6·0)	(1)	(17)	(469)
215·350	9507	·536	174·6	84·3	−26·1	1	3	
G		·930	99·2					305
Aug. 4			(+11·8)	(87·5)	(+ 6·0)	(1)	(3)	(305)
216·327		·890	284·3					86
G		·834	101·4					173
Aug. 5			(+12·2)	(74·6)	(+ 6·1)	(0)	(0)	(259)
217·334		·625	210·8					217
G		·937	86·4					87
Aug. 6			(+12·6)	(61·3)	(+ 6·2)	(0)	(0)	(304)
218·347	*934a*	·795	229·9	90·4	−26·2	0	6	192*f*
G								
Aug. 7			(+13·0)	(47·9)	(+ 6·2)	(0)	(6)	(192)
219·346		·843	232·4					218
G		·884	84·4					90
		·965	83·0					53
Aug. 8			(+13·4)	(34·7)	(+ 6·3)	(0)	(0)	(361)

G.M.T. (Civil.)	Group No.	Measures. Dist.	Measures. Pos. Angle.	Position. Long.	Position. Lat.	Area. Umbræ.	Area. Whole Spots.	Area. Faculæ.
1923.			°	°	°			
220·344		·933	237·8					301
G		·886	83·5					91
Aug. 9			(+13·7)	(21·5)	(+ 6·3)	(0)	(0)	(392)
221·435		·981	241·1					78
G								
Aug. 10			(+14·1)	(7·1)	(+ 6·4)	(0)	(0)	(78)
222·353		·950	341·1					30
G								
Aug. 11			(+14·5)	(354·9)	(+ 6·5)	(0)	(0)	(30)
Aug. 12 and Aug. 13		No	spots or	faculæ				
225·339		·906	257·7					73
G		·957	81·1					124
Aug. 14			(+15·5)	(315·4)	(+ 6·6)	(0)	(0)	(197)
226·485		·859	83·3					54
G		·916	91·3					90
Aug. 15			(+15·9)	(300·3)	(+ 6·7)	(0)	(0)	(144)
227·487		·949	350·7					78
	935a	·285	56·5	272·9	+15·6	2	12	
		·807	88·4					61
		·901	75·3					51
C		·928	93·5					74
		·943	83·1					133
		·944	8·5					58
Aug. 16			(+16·3)	(287·1)	(+ 6·7)	(2)	(12)	(455)
228·117		·836	84·9					77
K		·939	83·9					60
Aug. 17			(+16·5)	(278·7)	(+ 6·7)	(0)	(0)	(137)

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1923.

G.M.T. (Civil.)	Group No.	Measures. Dist.	Measures. Pos. Angle.	Position. Long.	Position. Lat.	Area. Umbræ.	Area. Whole Spots.	Area. Faculæ.
			°	°	°			
1923. 229·390 G Aug. 18		·808	86·4					160
			(+16·9)	(261·9)	(+ 6·8)	(0)	(0)	(160)
230·401 G Aug. 19		·936	250·2					42
		·921	3·1					71
			(+17·2)	(248·5)	(+ 6·8)	(0)	(0)	(113)
231·349 C Aug. 20	*935b*	·422	351·9	240·0	+31·5	1	3	
	935c	·573	179·5	235·7	−27·9	1	4	
		·945	1·1					127
		·946	11·5					94
			(+17·5)	(236·0)	(+ 6·9)	(2)	(7)	(221)
232·652 G Aug. 21	*935d*	·502	336·2	232·9	+33·9	0	2	
		·953	12·8					49
			(+18·0)	(218·8)	(+ 6·9)	(0)	(2)	(49)
Aug. 22 and Aug. 23		No	spots or	faculæ.				
235·455 G Aug. 24		·861	303·0					82
		·850	269·6					132
			(+18·8)	(181·7)	(+ 7·0)	(0)	(0)	(214)
236·343 C Aug. 25		·944	354·3					97
		·930	301·5					53
		·852	277·8					58
		·924	5·7					67
			(+19·1)	(170·0)	(+ 7·0)	(0)	(0)	(275)
237·572 G Aug. 26		·950	122·2					88
			(+19·4)	(153·8)	(+ 7·1)	(0)	(0)	(88)

G.M.T. (Civil.)	Group No.	Measures. Dist.	Measures. Pos. Angle.	Position. Long.	Position. Lat.	Area. Umbræ.	Area. Whole Spots.	Area. Faculæ.
			°	°	°			
1923. 238·370 G Aug. 27		·913	125·3					109
			(+19·7)	(143·2)	(+ 7·1)	(0)	(0)	(109)
Aug. 28		No	spots or	faculæ.				
240·359 C Aug. 29		·897	47·9					56
		·986	119·2					137
			(+20·2)	(117·0)	(+ 7·1)	(0)	(0)	(193)
241·351 G Aug. 30		·956	122·1					319
			(+20·5)	(103·9)	(+ 7·2)	(0)	(0)	(319)
242·383 G Aug. 31		·886	126·6					251
			(+20·8)	(90·2)	(+7·2)	(0)	(0)	(251)
243·380 G Sept. 1	9508	·815	133·6	34·9	−28·9	17	57	175c
			(+21·0)	(77·1)	(+ 7·2)	(17)	(57)	(175)
244·335 G Sept. 2	9508	·699	144·7	37·2	−28·3	26	71	145c
		·972	99·9					88
			(+21·3)	(64·4)	(+ 7·2)	(26)	(71)	(233)
245·360 G Sept. 3	9508	·607	161·4	38·3	−28·0	60	218	
		·899	102·5					56
		·942	94·5					37
			(+21·5)	(50·9)	(+ 7·2)	(60)	(218)	(93)

Group 9508. Sept. 1–9. A stream made up of a regular spot and a train of small unstable components.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1923.

G.M.T. (Civil.)	Group No.	Measures. Dist.	Measures. Pos. Angle.	Position. Long.	Position. Lat.	Area. Umbræ.	Area. Whole Spots.	Area. Faculæ.
1923.			°	°	°			
246·509		·946	359·3					109
	9508	·574	184·0	38·3	−27·6	55	277	
C		·945	8·0					71
		·946	80·6					84
Sept. 4			(+21·8)	(35·7)	(+ 7·2)	(55)	(277)	(264)
247·448		·884	235·8					63
G	9508	·610	202·6	38·5	−27·2	45	228	
Sept. 5			(+22·0)	(23·3)	(+ 7·2)	(45)	(228)	(63)
248·559		·954	236·5					59
G	9508	·713	219·7	39·3	−27·1	33	183	
Sept. 6			(+22·3)	(8·7)	(+ 7·2)	(33)	(183)	(59)
249·623	9508	·824	229·8	39·4	−27·1	24	192	274*sf*
G	9509	·957	68·5	280·2	+22·7	3	31	133*sp*
Sept. 7			(+22·5)	(354·6)	(+ 7·2)	(27)	(223)	(407)
250·435	9508	·895	234·9	39·0	−27·0	22	171	516*sf*
G	*936a*	·516	179·3	340·0	−23·7	5	10	
	9509	·869	68·7	283·4	+22·0	21	134	161*c*
Sept. 8			(+22·7)	(343·9)	(+ 7·2)	(48)	(315)	(677)
251·363		·927	356·4					44
	9508	·959	239·1	38·7	−26·9	28	148	612*sf*
C	9509	·747	67·1	283·9	+21·8	23	152	
Sept. 9			(+22·9)	(331·6)	(+ 7·2)	(51)	(300)	(656)
252·569		·985	236·2					296
G	9509	·533	60·2	286·0	+21·6	37	158	
Sept. 10			(+23·2)	(315·7)	(+ 7·2)	(37)	(158)	(296)
G								
253·505	9509	·368	45·4	287·0	+21·8	22	115	
G		·915	11·9					68
Sept. 11			(+23·3)	(303·3)	(+ 7·2)	(22)	(115)	(68)
1923.			°	°	°			
254·357		·852	236·9					42
G	9509	·266	16·3	287·5	+21·9	23	97	
		·935	63·9					42
Sept. 12			(+23·5)	(292·1)	(+ 7·2)	(23)	(97)	(84)
255·360		·930	240·3					76
G	9509	·281	334·7	286·2	+21·8	19	111	
Sept. 13			(+23·7)	(278·8)	(+ 7·2)	(19)	(111)	(76)
256·429	9509	·414	308·7	285·0	+21·7	15	106	
G		·969	13·7					60
Sept. 14			(+23·9)	(264·7)	(+ 7·2)	(15)	(106)	(60)
257·370	9509	·562	298·7	284·2	+21·8	16	112	
G								
Sept. 15			(+24·1)	(252·3)	(+ 7·2)	(16)	(112)	(0)
258·359	9509	·733	293·0	285·7	+21·7	13	83	
G								
Sept. 16			(+24·2)	(239·3)	(+ 7·2)	(13)	(83)	(0)
259·396	9509	·870	290·8	286·4	+21·6	8	72	193*f*
G								
Sept. 17			(+24·4)	(225·6)	(+ 7·2)	(8)	(72)	(193)
260·396	9509	·955	290·4	286·0	+21·5	13	41	265*f*
G	9510	·272	277·8	228·2	+ 8·9	4	13	
		·927	6·6					44
Sept. 18			(+24·6)	(212·4)	(+ 7·1)	(17)	(54)	(309)
261·399		·969	291·7					231
G	9510	·492	275·4	228·7	+ 8·8	1	10	
		·908	3·5					52
Sept. 19			(+24·7)	(199·1)	(+ 7·1)	(1)	(10)	(283)
Sept. 20		No	spots or	faculæ.				

Group 9509. Sept. 7–18. At first, a few spot nuclei clustering about two centres. The leading cluster becomes a regular spot by Sept. 11, whilst the following spots are barely visible after Sept. 10.
Group 9510. Sept. 18–19. A single small but definite spot.

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POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1923.

G.M.T. (Civil.)	Group No.	Measures. Dist.	Measures. Pos. Angle.	Position. Long.	Position. Lat.	Area. Umbræ.	Area. Whole Spots.	Area. Faculæ.
			°	°	°			
1923. 263·614 G Sept. 21		·844	274·5 (+25·1)	(169·9)	(+ 7·1)	(0)	(0)	67 (67)
264·389 C Sept. 22		·936 ·906	276·1 288·4 (+25·2)	(159·7)	(+ 7·0)	(0)	(0)	108 57 (165)
Sept. 23		No	spots or	faculæ.				
266·397 G Sept. 24	9511	·979 ·904	109·8 109·0 (+25·4)	58·1 (133·1)	−17·7 (+ 7·0)	14 (14)	53 (53)	346*f* 102 (448)
267·395 G Sept. 25	9511	·914 ·806	112·6 111·9 (+25·5)	58·1 (120·0)	−17·4 (+ 7·0)	40 (40)	247 (247)	257*c* 74 (331)
268·357 C Sept. 26	9511	·814 ·972	116·7 120·0 (+25·6)	58·0 (107·3)	−17·0 (+ 6·9)	45 (45)	251 (251)	206*c* 115 (321)
269·578 G Sept. 27	9511	·650 ·901 ·970	126·8 126·6 124·9 (+25·8)	58·3 (91·2)	−17·1 (+ 6·9)	36 (36)	188 (188)	170 222 (392)
270·399 G Sept. 28	9511 9512	·524 ·829 ·931	140·0 130·4 129·7 (+25·8)	59·7 35·0 (80·3)	−17·2 −27·7 (+ 6·8)	28 5 (33)	147 17 (164)	78*c* 238 (316)
271·138 K Sept. 29	9511 9512	·438 ·744 ·879	155·9 135·3 131·8 (+25·9)	59·9 35·0 (70·6)	−16·8 −26·4 (+ 6·8)	27 0 (27)	162 10 (172)	72*sf* 162 (234)
1923. 272·645 G Sept. 30	9511	·425 ·761	199·4 145·6 (+26·0)	59·1 (50·7)	−16·8 (+ 6·7)	30 (30)	168 (168)	131 (131)
273·111 K Oct. 1	9511	·465	212·0 (+26·0)	59·3 (44·5)	−16·7 (+ 6·7)	34 (34)	175 (175)	(0)
274·414 G Oct. 2	9511	·630	233·0 (+26·1)	58·9 (27·4)	−16·6 (+ 6·6)	38 (38)	166 (166)	(0)
275·156 K Oct. 3	9511	·730	240·2 (+26·2)	58·7 (17·6)	−16·2 (+ 6·6)	28 (28)	156 (156)	(0)
276·513 G Oct. 4	9511	·746 ·892 ·955	224·7 247·3 66·0 (+26·3)	58·7 (359·7)	−16·8 (+ 6·5)	32 (32)	146 (146)	82 264*f* 110 (456)
277·330 C Oct. 5	9511 *937a*	·826 ·761 ·957 ·922	232·2 216·5 250·3 62·6 (+26·3)	58·8 281·6 (348·9)	−16·7 +27·7 (+ 6·5)	37 0 (37)	160 6 (166)	97 59 240*f* 173*c* (569)
278·323 C Oct. 6	9511	·920 ·832 ·999 ·837	238·8 224·7 252·5 62·9 (+26·3)	60·9 (335·8)	−17·1 (+ 6·4)	30 (30)	264 (264)	179 98 243*f* 129 (649)
279·462 G Oct. 7		·983 ·915	241·5 229·2 (+26·4)	(320·7)	(+ 6·4)	(0)	(0)	160 189 (349)

Group 9511. Sept. 24–Oct. 6. A well-defined regular spot with a small cluster of spots following until Sept. 28, and reappearing temporarily on Sept. 30.
Group 9512. Sept. 28–29. Revival of Group 9508. Two or three very small spots.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1923.

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			°	°	°			
1923. 280·550 G Oct. 8		·957	229·2 (+26·4)	(306·4)	(+ 6·3)	(0)	(0)	158 (158)
281·460 G Oct. 9	9513	·952 ·991	88·4 83·8 (+26·4)	222·2 (294·4)	+ 3·5 (+ 6·3)	18 (18)	124 (124)	192*f* 238 (430)
282·347 C Oct. 10	9513	·870 ·947	89·6 83·7 (+26·4)	222·3 (282·7)	+ 3·4 (+ 6·2)	20 (20)	107 (107)	125*f* 302 (427)
283·330 C Oct. 11	9513	·733 ·852	90·9 85·3 (+26·4)	222·7 (269·7)	+ 3·6 (+ 6·1)	19 (19)	104 (104)	74*f* 218 (292)
284·328 C Oct. 12	9513	·552 ·720	92·6 86·0 (+26·4)	223·2 (256·6)	+ 3·6 (+ 6·1)	23 (23)	108 (108)	58*f* 149 (207)
285·399 G Oct. 13	9513	·325 ·542	96·0 85·2 (+26·4)	223·6 (242·4)	+ 3·7 (+ 6·0)	17 (17)	98 (98)	116 (116)
286·431 G Oct. 14	9513	·093	115·1 (+26·4)	224·0 (228·8)	+ 3·6 (+ 5·9)	17 (17)	84 (84)	(0)
287·393 G Oct. 15	9513	·147	255·0 (+26·4)	224·2 (216·1)	+ 3·6 (+ 5·8)	17 (17)	90 (90)	(0)
288·449 G Oct. 16	9513 *937b*	·373 ·228	264·5 276·8 (+26·3)	223·9 215·3 (202·2)	+ 3·4 + 7·2 (+ 5·8)	19 0 (19)	78 2 (80)	(0)
1923. 289·414 G Oct. 17	9513	·573	267·5 (+26·3)	224·3 (189·5)	+ 3·3 (+ 5·7)	10 (10)	58 (58)	(0)
290·358 C Oct. 18	9513	·733 ·930	269·5 2·8 (+26·2)	224·1 (177·0)	+ 3·5 (+ 5·6)	7 (7)	31 (31)	66 (66)
291·346 C Oct. 19	9513	·724 ·862	276·6 271·0 (+26·2)	223·5 (164·0)	+ 3·6 (+ 5·5)	7 (7)	28 (28)	219 180*c* (399)
292·428 G Oct. 20	9513	·877 ·956	276·3 272·2 (+26·1)	222·7 (149·7)	+ 3·6 (+ 5·4)	4 (4)	28 (28)	236 170*c* (406)
293·364 C Oct. 21	9514	·950 ·986	276·0 108·3 (+26·0)	59·4 (137·4)	− 17·0 (+ 5·4)	12 (12)	55 (55)	264 (264)
294·396 G Oct. 22	9515 9514	·518 ·928 ·910	109·5 110·9 140·0 (+25·9)	94·6 58·9 (123·8)	− 5·3 −17·1 (+ 5·3)	10 11 (21)	48 37 (85)	147*f* 29 (176)
295·207 K Oct. 23	9515 9514	·354 ·854	120·4 113·5 (+25·9)	95·3 58·4 (113·1)	− 5·3 −16·9 (+ 5·2)	25 10 (35)	226 66 (292)	78*f* (78)
296·396 G Oct. 24	*937c* 9515 9514	·690 ·189 ·704 ·924	229·4 168·5 120·4 123·9 (+25·8)	131·8 95·2 58·2 (97·4)	−22·4 − 5·5 −16·9 (+ 5·1)	1 58 8 (67)	3 262 47 (312)	94*f* 104 (198)

Group 9513. Oct. 9–20. A regular spot, somewhat imperfectly formed, with one or two very small followers after Oct. 14. A faint spot—*937b*—appears in the faculæ following this group.
Group 9514. Oct. 21–Nov. 1. Return of Group 9511. A small regular spot slowly disappearing and showing retrograde movement in longitude.
Group 9515. Oct. 22–Oct. 29. A stream with rapid formation and dissolution. Considerable changes are also shown by individual components. When fully developed near the central meridian, the leader is by far the most important spot.

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POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1923.

G.M.T. (Civil.)	Group No.	Measures. Dist.	Measures. Pos. Angle.	Position. Long.	Position. Lat.	Area. Umbræ.	Area. Whole Spots.	Area. Faculæ.
			°	°	°			
1923. 297·396 G Oct. 25	9515 9514	·959 ·268 ·561 ·864	358·1 226·7 130·9 128·5 (+25·7)	95·5 58·0 (84·2)	− 5·6 −17·0 (+ 5·0)	39 11 (50)	249 43 (292)	45 91 (136)
298·402 G Oct. 26	9515 9514	·463 ·432 ·771 ·950	247·1 149·9 136·9 128·4 (+25·5)	96·2 57·9 (70·9)	− 5·9 −17·1 (+ 4·9)	37 17 (54)	171 43 (214)	127 68 (195)
299·471 G Oct. 27	9515 9514	·657 ·373 ·923	254·8 181·5 131·4 (+25·4)	96·2 57·4 (56·8)	− 6·2 −17·0 (+ 4·8)	17 10 (27)	129 30 (159)	224 (224)
300·477 G Oct. 28	9515 9514	·838 ·433 ·819	258·4 211·5 138·7 (+25·3)	99·2 57·2 (43·6)	− 7·0 −17·0 (+ 4·7)	14 6 (20)	59 32 (91)	230*f* 165 (395)
301·480 G Oct. 29	9515 9514	·938 ·561	261·4 230·0 (+25·2)	99·0 56·9 (30·3)	− 6·4 −16·9 (+ 4·6)	6 6 (12)	21 19 (40)	350*f* (350)
302·360 C Oct. 30	9514	·971 ·689 ·802	264·0 239·4 128·9 (+25·0)	56·9 (18·7)	−17·0 (+ 4·5)	9 (9)	17 (17)	410 71 (481)
303·596 G Oct. 31	9514 9516	·844 ·683	246·7 141·5 (+24·8)	56·3 333·6 (2·4)	−16·9 −28·3 (+ 4·4)	5 13 (18)	11 51 (62)	70*f* (70)
304·394 C Nov. 1	6514 9516	·699 ·917 ·604	233·7 249·9 153·1 (+24·7)	55·6 333·9 (351·9)	−16·5 −28·3 (+ 4·3)	1 21 (22)	14 166 (180)	57 128*s* (185)
1923. 305·438 G Nov. 2	9516	·938 ·877 ·550	245·2 232·6 171·7 (+24·5)	332·9 (338·1)	−28·7 (+ 4·2)	60 (60)	254 (254)	84 72 (156)
306·618 C Nov. 3	9516	·933 ·566	232·8 194·9 (+24·3)	332·1 (322·6)	−29·0 (+ 4·1)	43 (43)	269 (269)	111 (111)
307·402 G Nov. 4	9516 9517	·620 ·986	210·6 60·2 (+24·2)	333·2 231·5 (312·3)	−28·3 +30·0 (+ 4·0)	34 32 (66)	184 228 (412)	267*c* (267)
308·479 C Nov. 5	9516 9517	·733 ·924 ·947	223·7 59·3 86·2 (+24·0)	333·1 232·0 (298·0)	−28·7 +29·8 (+ 3·9)	9 45 (54)	84 304 (388)	70*c* 391*f* 148 (609)
309·512 G Nov. 6	9516 9517	·949 ·847 ·820 ·841 ·930	227·2 233·6 56·2 89·0 83·6 (+23·8)	334·6 233·1 (284·4)	−27·7 +29·5 (+ 3·8)	5 39 (44)	14 276 (290)	50 263*f* 385*f* 109 73 (880)
310·472 G Nov. 7	9517	·901 ·702	234·3 50·9 (+23·6)	233·4 (271·8)	+29·1 (+ 3·7)	37 (37)	197 (197)	369 151*f* (520)
311·455 G Nov. 8	9517	·964 ·574	237·3 40·6 (+23·3)	233·6 (258·8)	+29·0 (+ 3·6)	39 (39)	173 (173)	340 116*f* (456)
312·440 C Nov. 9	9517	·994 ·468	237·5 22·9 (+23·1)	233·8 (245·8)	+28·9 (+ 3·5)	23 (23)	189 (189)	259 (259)

Group 9516. Oct. 31–Nov. 6. Two small clusters of spots, each becoming temporarily an unstable whole spot. The rear cluster has died out by Nov. 6, but its position is marked by conspicuous faculæ.

Group 9517. Nov. 4–16. A spot of some importance showing change of structure both in umbra and penumbra. There are usually small sporadic followers.

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G.M.T. (Civil.)	Group No.	Measures. Dist.	Measures. Pos. Angle.	Position. Long.	Position. Lat.	Area. Umbræ.	Area. Whole Spots.	Area. Faculæ.
			°	°	°			
1923. 313·450 G Nov. 10	9517	·444	356·5	234·3	+29·6	27	211	
			(+22·9)	(232·5)	(+ 3·4)	(27)	(211)	(0)
314·435 G Nov. 11	9517	·491 ·960	335·0 58·3	233·2	+29·5	18	201	37
			(+22·7)	(219·5)	(+ 3·3)	(18)	(201)	(37)
315·393 G Nov. 12	9517	·599	319·6	233·4	+29·8	17	158	
			(+22·4)	(206·9)	(+ 3·1)	(17)	(158)	(0)
316·257 D Nov. 13	9517	·713	310·8	234·0	+30·1	13	88	111*f*
			(+22·2)	(195·6)	(+ 3·0)	(13)	(88)	(111)
317·482 G Nov. 14	9517	·755 ·840 ·971	274·7 304·3 99·1	232·5	+30·0	17	68	110 229*f* 78
			(+21·9)	(179·4)	(+ 2·9)	(17)	(68)	(417)
318·353 C Nov. 15	9517	·836 ·915 ·930	273·8 301·9 98·2	231·6	+30·1	7	63	97 399*f* 188
			(+21·6)	(167·9)	(+ 2·8)	(7)	(63)	(684)
319·487 G Nov. 16	9517	·909 ·979 ·829	276·7 300·0 100·3	230·8	+29·9	7	41	70 258*f* 81
			(+21·3)	(152·9)	(+ 2·7)	(7)	(41)	(409)
320·407 G Nov. 17		·974	299·9					232
			(+21·1)	(140·8)	(+ 2·6)	(0)	(0)	(232)
1923. 321·364 C Nov. 18		·944	109·4					64
			(+20·8)	(128·2)	(+ 2·4)	(0)	(0)	(64)
322·311 C Nov. 19		·875	112·9					49
			(+20·5)	(115·7)	(+ 2·3)	(0)	(0)	(49)
323·353 C Nov. 20		·810	103·0					50
			(+20·2)	(102·0)	(+ 2·2)	(0)	(0)	(50)
Nov. 21		No	spots or	faculæ.				
325·497 C Nov. 22		·926	310·6					42
			(+19·5)	(73·7)	(+ 1·9)	(0)	(0)	(42)
326·504 C Nov. 23		·899	313·2					42
			(+19·2)	(60·4)	(+ 1·8)	(0)	(0)	(42)
327·361 C Nov. 24	9518	·821 ·970	258·1 114·1	335·5	−22·8	8	57	60 174*f*
			(+18·9)	(49·1)	(+ 1·7)	(8)	(57)	(234)
328·367 C Nov. 25	9518	·909 ·897 ·923	260·4 116·2 133·6	335·5	−22·5	17	73	164 449*f* 55
			(+18·6)	(35·9)	(+ 1·6)	(17)	(73)	(668)
329·533 C Nov. 26	9518	·768 ·890 ·937	121·5 124·0 97·7	335·5	−22·6	12	37	143*f* 325 48
			(+18·1)	(20·5)	(+ 1·4)	(12)	(37)	(516)

Group 9518. Nov. 24–29. An outbreak near Group 9516 seen in the previous rotation. A small diminishing regular spot seen last as a well-defined dot on Nov. 29. A minute companion follows on Nov. 27, and another (spot *939a*) appears after the disappearance of the regular spot.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1923.

G.M.T. (Civil.)	Group No.	Measures. Dist.	Measures. Pos. Angle.	Position. Long.	Position. Lat.	Area. Umbræ.	Area. Whole Spots.	Area. Faculæ.
1923.			°	°	°			
330·516	9518	·633	129·7	335·8	−22·7	8	20	
G		·803	128·9					284
		·831	98·8					67
Nov. 27			(+17·8)	(7·5)	(+ 1·3)	(8)	(20)	(351)
331·309	9518	·518	141·1	336·6	−22·5	4	7	
C		·757	133·3					129
Nov. 28			(+17·5)	(357·1)	(+ 1·2)	(4)	(7)	(129)
332·316	9518	·421	163·7	336·5	−22·7	2	5	
C								
Nov. 29			(+17·1)	(343·8)	(+ 1·1)	(2)	(5)	(0)
Nov. 30		No	spots or	faculæ.				
334·435		·991	82·4					76
C								
Dec. 1			(+16·4)	(315·9)	(+ 0·8)	(0)	(0)	(76)
335·352		·965	282·8					39
C		·931	79·8					100
		·986	56·2					108
Dec. 2			(+16·0)	(303·8)	(+ 0·7)	(0)	(0)	(247)
336·344	*939a*	·745	240·8	334·6	−20·8	0	2	99*f*
		·841	82·0					68
C		·940	82·5					77
		·948	55·2					181
		·988	59·7					101
Dec. 3			(+15·6)	(290·7)	(+ 0·6)	(0)	(2)	(526)
337·326		·856	242·8					122
		·757	229·3					145
C		·887	51·7					113
		·940	58·6					138
Dec. 4			(+15·2)	(277·8)	(+ 0·5)	(0)	(0)	(518)

G.M.T. (Civil.)	Group No.	Measures Dist.	Measures Pos. Angle.	Position. Long.	Position. Lat.	Area. Umbræ.	Area. Whole Spots.	Area. Faculæ.
1923.			°	°	°			
338·308		·937	246·4					179
		·864	234·3					210
C		·815	45·5					68
		·871	54·4					75
Dec. 5			(+14·8)	(264·9)	(+ 0·3)	(0)	(0)	(532)
339·523		·992	246·1					69
G		·946	238·1					211
		·767	46·5					55
Dec. 6			(+14·3)	(248·9)	(+ 0·2)	(0)	(0)	(335)
340·316		·975	236·6					175
C								
Dec. 7			(+14·0)	(238·4)	(+ 0·1)	(0)	(0)	(175)
Dec. 8 to Dec. 10		No	spots or	faculæ.				
344·407		·890	180·4					35
C		·970	54·6					42
Dec. 11			(+12·2)	(184·5)	(− 0·5)	(0)	(0)	(77)
345·343		·802	315·0					75
C		·919	52·2					47
		·957	101·3					63
Dec. 12			(+11·8)	172·2	(− 0·6)	(0)	(0)	(185)
346·341		·969	281·6					64
		·899	284·6					60
C		·856	310·2					178
		·831	48·2					61
		·890	103·8					63
Dec. 13			(+11·4)	(159·0)	(− 0·7)	(0)	(0)	(426)
347·509		·959	305·7					103
G								
Dec. 14			(+10·9)	(143·6)	(− 0·9)	(0)	(0)	(103)

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1923.

G.M.T. (Civil.)	Group No.	Measures. Dist.	Measures. Pos. Angle.	Position. Long.	Position. Lat.	Area. Umbræ.	Area. Whole Spots.	Area. Faculæ.
1923.			°	°	°			
348·557		·956	303·8					35
G								
Dec. 15			(+10·4)	(129·8)	(− 1·0)	(0)	(0)	(35)
Dec. 16		No spots or faculæ.						
350·369		·882	56·0					29
C								
Dec. 17			(+ 9·6)	(106·0)	(−1·2)	(0)	(0)	(29)
351·476	9519	·906	56·5	31·6	+29·3	1	5	94 *f*
G								
Dec. 18			(+ 9·1)	(91·4)	(−1·4)	(1)	(5)	(94)
352·342	9519	·847	53·1	29·0	+29·5	2	6	100 *f*
C								
Dec. 19			(+ 8·7)	(80·0)	(−1·5)	(2)	(6)	(100)
353·438	9519	·725	45·3	29·4	+29·3	26	73	81*c*
C								
Dec. 20			(+ 8·1)	(65·5)	(−1·6)	(26)	(73)	(81)
354·311	9519	·610	33·8	31·3	+28·7	32	161	
C		·982	111·3					104
Dec. 21			(+ 7·7)	(54·0)	(−1·7)	(32)	(161)	(104)
355·456	9519	·513	10·8	32·7	+28·3	22	157	
C		·910	55·1					50
		·919	116·2					193
Dec. 22			(+ 7·2)	(38·9)	(− 1·9)	(22)	(157)	(243)
356·476	9519	·512	346·7	33·1	+27·8	27	156	
G		·808	116·8					125
		·933	118·6					95
Dec. 23			(+6·7)	(25·5)	(− 2·0)	(27)	(156)	(220)
1923.			°	°	°			
357·339	9519	·573	330·3	32·7	+27·7	14	93	
C		·851	120·1					80
		·954	123·5					156
Dec. 24			(+ 6·3)	(14·1)	(−2·1)	(14)	(93)	(236)
358·466	9519	·687	314·6	32·4	+26·9	7	30	
	9520	·648	38·4	332·1	+28·5	2	12	
G		·755	125·4					61
		·890	126·0					145
Dec. 25			(+5·8)	359·3	(− 2·2)	(9)	(42)	(206)
359·356	9519	·792	308·9	31·7	+28·0	6	23	214*nf*
	9520	·544	24·5	333·0	+27·3	2	5	
C		·794	131·5					112
		·942	63·9					78
Dec. 26			(+ 5·3)	(347·6)	(−2·3)	(8)	(28)	(404)
360·361	9519	·898	303·7	32·4	+28·6	9	49	338*nf*
	9520	·487	3·6	332·3	+26·5	1	3	
C		·954	90·2					69
		·981	110·4					60
Dec. 27			(+ 4·8)	(334·3)	(−2·5)	(10)	(52)	(467)
361·328	9519	·960	300·5	31·2	+28·2	5	25	433*nf*
C		·845	89·4					39
Dec. 28			(+ 4·4)	(321·6)	(−2·6)	(5)	(25)	(472)
362·343		·986	302·2					245
C								
Dec. 29			(+ 3·9)	(308·2)	(−2·7)	(0)	(0)	(245)
Dec. 30		No spots or faculæ.						
364·333		·804	242·0					168
C		·884	71·4					39
		·972	55·9					77
Dec. 31			(+ 2·9)	(282·0)	(−2·9)	(0)	(0)	(284)

Group 9519. Dec. 18–28. A group of the "stream" type originating from a small spot on Dec. 18. The following part of the disturbance is but slightly represented by a small unstable cluster lasting until Dec. 23. Two spots on Dec. 20 coalesce to make a regular spot as the leader, but this spot, contrary to the behaviour of its type, rapidly disappears.

Group 9520. Dec. 25–27. Three very small spots on Dec. 25; one only is visible on the two following days.

ROYAL OBSERVATORY, GREENWICH.

GENERAL CATALOGUE

OF

GROUPS OF SUN SPOTS.

FOR THE YEAR

1923.

GENERAL CATALOGUE of GROUPS of SUN SPOTS for the YEAR 1923.

NOTE.—Groups of Sun Spots, lasting for two or more days, are numbered in the *first* column in continuation of the Group-numbers given in 1922 and the previous years. Groups seen only once are not included in this Catalogue.

The *second* column gives the duration of each group in days. Intermittent Groups, *i.e.* groups which are not seen upon the photographs of every day between their first and last appearances, are indicated by a fraction, the numerator of which represents the number of days on which they are actually observed; the denominator being the interval in days between the extreme limits of observation.

The *fourth* and *sixth* columns, headed "Longitude from Central Meridian," give, for the days on which each Group was first and last seen respectively, the mean heliographic longitude from the meridian passing through the centre of the Sun's disc at the observation; longitudes west of the centre being reckoned as positive.

The Mean Areas for Umbræ and Whole Spots entered in the *seventh* and *eighth* columns are corrected for the effect of foreshortening and are expressed in millionths of the Sun's visible hemisphere.

The *ninth* and *tenth* columns give, under the heading "Mean Longitude of Group," 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 $851'\cdot07$ 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 (ϕ) in accordance with the formula

$$866'\cdot6 - 128' \sin^2 \phi.$$

In both systems the longitude of the centre of the Sun's disc is adopted as $50^\circ\cdot80$ for 1923 Jan. $1^{d}\cdot0$, the longitudes given under System I. being thus rendered uniform with those given in preceding volumes of the Greenwich Photo-Heliographic Results. The longitude according to System II. for Group 9484–86 are computed here from 1923·0 instead of from 1922·0, as in the volume for 1922.

The *twelfth* column gives reference to all Groups contained in Ledgers I. and II.; for a Group in Ledger I. both its recurrent series number and its order in the series are also given.

GENERAL CATALOGUE of SUN SPOTS—*continued.*

No. of Group.	Duration.	First Seen.		Last Seen.		Mean Area Corrected for Foreshortening.		Mean Longitude of Group.		Mean Latitude of Group.	Reference to Ledger.	NOTES.
		Date.	Long. from C.M.	Date.	Long. from C.M.	Umbræ.	Whole Spots.	System I.	System II.			
		1922.		1923.								
9484	12/14	Dec. 22	−84·5	Jan. 4	+77·7	189	1116	91·6	92·3	+ 5·9	II.	*See* Ledgers for 1922.
5	9/11	25	−72·3	4	+62·0	8	30	67·4	67·9	+ 8·7	II.	*See* Ledgers for 1922.
6	10/11	25	−82·7	4	+49·6	6	32	55·5	55·8	− 4·2	I. 955 (2)	*See* Ledgers for 1922.
		1923.										
9488	2	Jan. 21	−79·5	Jan. 22	−65·0	2	14	63·4	58·0	− 1·7		Feeble revival near Group 9486.
9	4	28	+31·6	31	+75·5	10	44	84·2	77·4	+ 6·0		Revives as Group 9492.
9490	5	Feb. 12	−28·3	Feb. 16	+23·8	2	6	184·0	176·2	+11·4		
1	2	Mar. 15	−64·7	Mar. 16	−51·6	6	17	100·3	82·0	+ 4·4		
2	5	22	+14·3	26	+73·1	9	27	88·3	69·2	+ 6·5		Revival of Group 9489.
3	6	29	−43·4	Apr. 3	+23·3	19	72	295·7	273·6	+ 4·6	II.	
4	2	Apr. 14	+19·2	15	+33·2	3	10	148·3	123·9	− 6·2		
5	3	17	+26·3	19	+55·0	6	20	116·6	90·3	+ 4·6		Revival near Group 9491.
6	11	19	−61·5	29	+71·4	16	64	2·8	335·8	− 5·7	II.	
7	4	May 11	−16·1	May 14	+26·8	3	11	114·2	84·8	+ 7·5		Revival near Group 9495.
8	2	20	−47·7	21	−33·2	2	6	325·7	294·8	+ 7·7		
9	3	23	−50·2	25	−25·3	13	45	279·7	252·0	−10·2		
9500	7	27	−83·6	June 2	− 4·4	10	62	197·0	166·8	+ 9·4	II.	
1	4	June 1	−53·0	4	−11·2	7	23	164·8	129·8	− 6·8		
2	8	18	−42·6	25	+55·3	8	31	308·4	264·9	− 3·1	II.	
3	2	25	+56·1	26	+74·2	20	115	313·0	269·2	+ 4·0		
4	9	25	−35·8	July 3	+72·4	45	259	220·3	181·9	+ 8·3	II.	
5	5	July 22	−25·5	26	+32·2	4	11	236·5	190·3	+ 7·1		
6	5	27	+10·0	31	+65·5	4	11	203·8	152·1	+ 4·4		
7	5/6	30	−68·1	Aug. 4	− 3·2	3	13	84·0	116·3	−26·0	II.	
8	9	Sept. 1	−42·2	Sept. 9	+67·1	34	172	38·2	87·2	−27·6	II.	Revives as Group 9512.
9	12	Sept. 7	−74·4	Sept. 18	+73·6	18	101	285·1	294·3	+21·8	II.	
9510	2	18	+15·8	19	+29·6	2	12	228·4	174·2	+ 8·8		
1	12/13	24	−75·0	Oct. 6	+85·1	32	168	58·8	37·6	−16·9	I. 956 (1)	
2	2	28	−45·3	Sept. 29	−35·6	3	14	35·0	84·2	−27·0		Revival of Group 9508.
3	12	Oct. 9	−72·2	Oct. 20	+73·0	15	78	223·4	151·4	+ 3·5	II.	
4	12	21	−78·0	Nov. 1	+63·7	9	35	57·6	34·3	−16·9	I. 956 (2)	
5	8	22	−29·2	Oct. 29	+68·7	26	146	96·4	26·1	− 5·9	II.	
6	7	31	−28·8	Nov. 6	+50·2	26	146	333·3	42·3	−28·4	II.	
7	13	Nov. 4	−80·8	16	+77·9	25	169	232·9	315·3	+29·6	II.	
8	6	24	−73·6	29	− 7·3	9	33	335·9	354·7	−22·6	II.	
9	11	Dec. 18	−59·8	Dec. 28	+69·6	14	71	31·6	111·1	+28·4	II.	
9520	3	25	−27·2	27	− 2·0	2	7	332·5	41·8	+27·4		

GENERAL CATALOGUE of SUN SPOTS—*continued*.

REVIVAL GROUPS of SUN SPOTS, 1923.

Groups of spots, noted in the preceding Catalogue as "Revivals," have been tabulated in series in the following table. The respective groups of each series are in the same heliographic position, and are seen in consecutive rotations but with definite breaks in their history between each rotation. The latter feature excludes them from being classed as "Recurrent" groups; they differ from "Intermittent" groups in their being of long period intermittency. When a "Recurrent" series forms part of a "Revival" series, a reference is made in the last column of the table. Other groups which are given in detail in Ledger II are also indicated.

Reference No. of Series.	Group No.	No. of Rotation.	Duration.	First Seen.		Last Seen.		Mean Area.	Mean Position.			Reference to Ledger.
				Date.	Longitude from C.M.	Date.	Longitude from C.M.		Longitude System I.	Longitude System II.	Latitude.	
			d	1922–23	°	1923	°		°	°	°	
1	9484	926	12/14	Dec. 22	−85	Jan. 4	+78	1116	92	92	+ 6	II.
	9491	929	2	Mar. 15	−65	Mar. 16	−52	17	100	82	+ 4	
	9495	930	3	Apr. 17	+26	Apr. 19	+55	20	117	90	+ 5	
	9497	931	4	May 11	−16	May 14	+27	11	114	85	+ 7	
2	9486	926	10/11	Dec. 25	−83	Jan. 4	+50	32	56	56	− 4	I. 955
	9488	927	2	Jan. 21	−80	Jan. 22	−65	14	63	58	− 2	
3	9489	927	4	Jan. 28	+32	Jan. 31	+76	44	84	77	+ 6	
	9492	929	5	Mar. 22	+14	Mar. 26	+73	27	88	69	+ 7	
4	9508	935	9	Sept. 1	−42	Sept. 9	+67	172	38	87	−28	II.
	9512	936	2	Sept. 28	−45	Sept. 29	−36	14	35	84	−27	

ROYAL OBSERVATORY, GREENWICH.

LEDGERS

OF

GROUPS OF SUN SPOTS

FOR THE YEAR

1923.

LEDGER I.—RECURRENT GROUPS.

GREENWICH PHOTO-HELIOGRAPHIC RESULTS, 1923.

LEDGER I.—RECURRENT GROUPS of SUN SPOTS for the YEAR 1923.

NOTE.—The Greenwich Civil Time at which the photograph was taken is expressed in the *first* column by the Day of the Year (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, and those taken at the Cape, Kodaikánal, Dehra Dûn, by the letters C, K, and D respectively.

The Projected Area of the Umbræ and Whole Spots, given in the *second* and *third* columns, 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 disc.

The area corrected for foreshortening given in the *fourth* and *fifth* columns is expressed in millionths of the Sun's visible hemisphere.

The remaining columns correspond to those with similar headings in the preceding Section.

When a group is near the East or the West limb of the Sun on any particular day, and in consequence is only visible in part, the measures for that day are marked with an asterisk and are not included in taking the mean area, longitude, and latitude of the group.

RECURRENT SERIES 956.

Group 9511 seen in Rotation 936.
" 9514 " " " 937.

Group 9511.—September 24–October 6. A well-defined regular spot with a small cluster of spots following until September 28 and reappearing temporarily on September 30.

Date. G.M.T. (Civil) Place.	Projected Area. Umbræ.	Projected Area. Whole Spots.	Corrected Area. Umbræ.	Corrected Area. Whole Spots.	Longitude. System I.	Longitude. System II.	Latitude.	Long. from C.M.
					°	°	°	°
266·397 G	6	22	14	53	58·1	37·3	−17·7	−75·0
267·395 G	33	202	40	247	58·1	37·2	−17·4	−61·9
268·357 C	53	292	45	251	58·0	37·1	−17·0	−49·3
269·578 G	57	288	36	188	58·3	37·3	−17·1	−32·9
270·399 G	48	254	28	147	59·7	38·6	−17·2	−20·6
271·138 K	49	290	27	162	59·9	38·8	−16·8	−10·7
272·645 G	55	307	30	168	59·1	37·8	−16·8	+ 8·4
273·111 K	61	313	34	175	59·3	38·0	−16·7	+14·8
274·414 G	60	260	38	166	58·9	37·5	−16·6	+31·5
275·156 K	39	214	28	156	58·7	37·2	−16·2	+41·1
276·513 G	29	133	32	146	58·7	37·1	−16·8	+59·0
277·330 C	22	94	37	160	58·8	37·2	−16·7	+69·9
278·323 C	3	26	(30	264	60·9	39·2	−17·1)*	+85·1
Means	..	..	32	168	58·80	37·59	−16·92	..

Group 9514.—October 21–November 1. A small regular spot slowly disappearing and showing retrograde movement in longitude.

Date. G.M.T. (Civil) Place.	Projected Area. Umbræ.	Projected Area. Whole Spots.	Corrected Area. Umbræ.	Corrected Area. Whole Spots.	Longitude. System I.	Longitude. System II.	Latitude.	Long. from C.M.
					°	°	°	°
293·364 C	4	19	12	55	59·4	36·5	−17·0	−78·0
294·396 G	8	28	11	37	58·9	35·9	−17·1	−64·9
295·207 K	11	69	10	66	58·4	35·4	−16·9	−54·7
296·396 G	12	67	8	47	58·2	35·1	−16·9	−39·2
297·396 G	18	72	11	43	58·0	34·8	−17·0	−26·2
298·402 G	31	78	17	43	57·9	34·6	−17·1	−13·0
299·471 G	18	55	10	30	57·4	34·0	−17·0	+ 0·6
300·477 G	11	59	6	32	57·2	33·8	−17·0	+13·6
301·480 G	10	32	6	19	56·9	33·4	−16·9	+26·6
302·360 C	13	25	9	17	56·9	33·3	−17·0	+38·2
303·596 G	5	12	5	11	56·3	32·6	−16·9	+53·9
304·394 C	1	11	1	14	55·6	31·9	−16·5	+63·7
Means	..	..	9	35	57·59	34·28	−16·94	..

ROYAL OBSERVATORY, GREENWICH.

LEDGERS

OF

GROUPS OF SUN SPOTS

FOR THE YEAR

1923.

LEDGER II.—NON-RECURRENT GROUPS.

GREENWICH PHOTO-HELIOGRAPHIC RESULTS, 1923.

LEDGER II.—NON-RECURRENT GROUPS of SUN SPOTS for the YEAR 1923.

NOTE.—The Greenwich Civil Time at which the photograph was taken is expressed in the *first* column by the Day of the Year (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, and those taken at the Cape, Kodaikánal, Dehra Dûn, by the letters C, K, and D respectively.

The Projected Area of the Umbræ and Whole Spots, given in the *second* and *third* columns, 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 disc.

The area corrected for foreshortening given in the *fourth* and *fifth* columns is expressed in millionths of the Sun's visible hemisphere.

The remaining columns correspond to those with similar headings in the preceding Section.

When a group is near the East or the West limb of the Sun on any particular day, and in consequence is only visible in part, the measures for that day are marked with an asterisk and are not included in taking the mean area, longitude and latitude of the group.

Group 9493.

March 29–April 3. A moderate-sized stream showing the usual separation in longitude of the preceding and following components. The latter is the more stable and appears alone as a dot on April 3.

Date. G.M.T. (Civil) Place.	Projected Area. Umbræ.	Projected Area. Whole Spots.	Corrected Area. Umbræ.	Corrected Area. Whole Spots.	Longitude. System I.	Longitude. System II.	Latitude.	Long. from C.M.
					°	°	°	°
87·476 G	22	81	15	57	295·1	273·6	+ 4·7	−43·4
88·390 G	76	239	45	144	295·4	273·7	+ 4·7	−31·1
89·332 C	47	214	25	116	295·7	273·7	+ 4·5	−18·4
90·497 G	43	147	22	75	297·6	275·3	+ 4·5	− 1·1
91·439 G	14	72	7	37	296·3	273·8	+ 4·0	+10·0
92·596 G	0	2	0	1	294·3	271·5	+ 4·9	+23·3
Means ..	..	..	19	72	295·73	273·60	+ 4·55	..

Group 9496.

April 19–29. A small stream showing continued activity. The leader only is stable and can be followed on successive days.

Date. G.M.T. (Civil) Place.	Projected Area. Umbræ.	Projected Area. Whole Spots.	Corrected Area. Umbræ.	Corrected Area. Whole Spots.	Longitude. System I.	Longitude. System II.	Latitude.	Long. from C.M.
108·331 C	4	25	4	26	1·8	336·0	− 6·0	−61·5
109·481 G	33	113	23	82	1·7	335·6	− 5·8	−46·4
110·466 G	65	212	39	126	2·0	335·7	− 6·0	−33·1
111·115 K	41	235	22	130	1·7	335·3	− 5·8	−24·8
112·383 C	21	84	10	42	2·4	335·6	− 6·1	− 7·4
113·346 G	28	86	14	42	2·0	335·0	− 6·6	+ 5·0
114·103 K	15	79	8	41	2·7	335·5	− 5·9	+15·7
115·559 G	13	59	8	37	3·3	335·8	− 5·8	+35·5
116·358 G	24	52	16	38	3·9	336·2	− 5·8	+46·7
117·361 G	26	91	26	92	4·2	336·3	− 4·7	+60·2
118·114 K	5	29	8	45	5·4	337·3	− 4·5	+71·4
Means ..	..	..	16	64	2·83	335·85	− 5·73	..

Group 9500.

May 27–June 2. A small regular spot.

Date. G.M.T. (Civil) Place.	Projected Area. Umbræ.	Projected Area. Whole Spots.	Corrected Area. Umbræ.	Corrected Area. Whole Spots.	Longitude. System I.	Longitude. System II.	Latitude.	Long. from C.M.
					°	°	°	°
146·364 C	1	17	5	81	196·8	167·2	+ 9·6	−83·6
147·354 C	11	71	17	108	196·9	167·1	+ 9·4	−70·4
148·422 C	16	101	15	93	196·7	166·7	+ 9·4	−56·5
149·561 G	20	112	13	75	197·2	167·0	+ 9·5	−40·9
150·459 C	17	83	10	48	197·3	166·9	+ 9·5	−29·0
151·118 K	20	49	11	26	197·1	166·6	+ 9·5	−20·4
152·337 C	4	8	2	4	197·0	166·2	+ 9·1	− 4·4
Means ..	..	..	10	62	197·00	166·81	+ 9·43	..

Group 9502.

June 18–25. A pair of spots, of which the leader alone remains after June 22.

Date. G.M.T. (Civil) Place.	Projected Area. Umbræ.	Projected Area. Whole Spots.	Corrected Area. Umbræ.	Corrected Area. Whole Spots.	Longitude. System I.	Longitude. System II.	Latitude.	Long. from C.M.
168·352 C	9	50	6	34	306·8	264·2	− 3·3	−42·6
169·357 C	18	99	10	57	306·3	263·5	− 3·4	−29·8
170·449 G	19	49	10	26	307·0	263·9	− 3·3	−14·7
171·354 C	21	62	10	32	307·6	264·3	− 3·2	− 2·1
172·518 G	16	87	8	46	308·3	264·7	− 3·1	+14·0
173·351 G	12	41	7	23	309·3	265·4	− 2·8	+26·0
174·447 C	6	23	4	15	310·3	266·2	− 2·8	+41·5
175·419 C	8	15	7	13	311·2	266·8	− 2·6	+55·3
Means ..	..	..	8	31	308·35	264·88	− 3·06	..

LEDGER II.—NON-RECURRENT GROUPS of SUN SPOTS for the YEAR 1923—*continued.*

Group 9504.

June 25–July 3. An active group first seen as a regular spot with a train of very small followers. On June 29, this train develops considerably and a composite spot with several nuclei is formed. This dies away, however, as rapidly as it appeared and is represented only by a small spot at the west limb as a companion to the original leader, which meanwhile has been slowly diminishing.

Date. G.M.T. (Civil) Place.	Projected Area. Umbræ.	Projected Area. Whole Spots.	Corrected Area. Umbræ.	Corrected Area. Whole Spots.	Longitude. System I.	Longitude. System II.	Latitude.	Long. from C.M.
					°	°	°	°
175·419 C	43	186	27	114	220·1	182·6	+ 8·0	−35·8
176·637 G	56	304	30	164	220·4	182·6	+ 8·3	−19·4
177·427 C	60	331	31	169	219·7	181·7	+ 8·5	− 9·6
178·430 C	65	257	34	131	220·6	182·4	+ 8·3	+ 4·6
179·379 G	178	764	93	400	218·8	180·4	+ 8·3	+15·3
180·353 G	151	1071	86	611	219·2	180·6	+ 8·5	+28·6
181·107 K	100	785	65	509	220·0	181·2	+ 8·5	+39·4
182·516 C	25	169	26	166	221·1	182·0	+ 8·5	+59·2
183·370 G	10	40	17	65	223·0	183·8	+ 8·1	+72·4
Means ..	..	..	45	259	220·32	181·92	+ 8·33	..

Group 9507.

July 30–August 4. A small spot, not seen on August 2, in the following part of a distinctive area of faculæ, in which Group *934a* is seen on August 7. This is the longest lived high latitude spot since the year 1919 and evidently belongs to the new cycle.

Date. G.M.T. (Civil) Place.	Projected Area. Umbræ.	Projected Area. Whole Spots.	Corrected Area. Umbræ.	Corrected Area. Whole Spots.	Longitude. System I.	Longitude. System II.	Latitude.	Long. from C.M.
210·450 G	6	24	10	41	84·2	116·2	−25·8	−68·1
211·532 C	5	10	5	10	83·7	115·9	−25·9	−54·3
212·354 G	2	9	2	7	83·3	115·6	−26·3	−43·8
213·362 G	0	0	0	0	..	..	..	..
214·388 G	1	27	1	17	84·3	116·9	−26·1	−15·9
215·350 G	1	5	1	3	84·3	117·0	−26·1	− 3·2
Means ..	..	..	3	13	83·96	116·32	−26·04	..

Group 9508.

September 1–9. A stream made up of a regular spot and a train of small unstable components.

Date. G.M.T. (Civil) Place.	Projected Area. Umbræ.	Projected Area. Whole Spots.	Corrected Area. Umbræ.	Corrected Area. Whole Spots.	Longitude. System I.	Longitude. System II.	Latitude.	Long. from C.M.
243·380 G	20	66	17	57	34·9	83·1	−28·9	−42·2
244·335 G	39	101	26	71	37·2	85·6	−28·3	−27·2
245·360 G	95	345	60	218	38·3	86·9	−28·0	−12·6
246·509 C	91	451	55	277	38·3	87·1	−27·6	+ 2·6
247·448 G	71	361	45	228	38·5	87·5	−27·2	+15·2
248·559 G	46	258	33	183	39·3	88·5	−27·1	+30·6
249·623 G	28	219	24	192	39·4	88·8	−27·1	+44·8
250·435 G	20	154	22	171	39·0	88·6	−27·0	+55·1
251·363 C	16	85	28	148	38·7	88·5	−26·9	+67·1
Means ..	..	..	34	172	38·18	87·18	−27·57	..

Group 9509.

September 7–18. At first a few spot nuclei clustering about two centres. The leading cluster becomes a regular spot by September 11, whilst the following spots are barely visible after September 10.

Date. G.M.T. (Civil) Place.	Projected Area. Umbræ.	Projected Area. Whole Spots.	Corrected Area. Umbræ.	Corrected Area. Whole Spots.	Longitude. System I.	Longitude. System II.	Latitude.	Long. from C.M.
					°	°	°	°
249·623 G	2	18	3	31	280·2	289·2	+22·7	−74·4
250·435 G	21	131	21	134	283·4	292·4	+22·0	−60·5
251·363 C	31	201	23	152	283·9	292·9	+21·8	−47·7
252·569 G	63	267	37	158	286·0	295·1	+21·6	−29·7
253·505 G	41	211	22	115	287·0	296·1	+21·8	−16·3
254·357 G	44	187	23	97	287·5	296·7	+21·9	− 4·6
255·360 G	35	213	19	111	286·2	295·4	+21·8	+ 7·4
256·429 G	28	192	15	106	285·0	294·2	+21·7	+20·3
257·370 G	26	183	16	112	284·2	293·5	+21·8	+31·9
258·359 G	18	112	13	83	285·7	295·0	+21·7	+46·4
259·396 G	8	71	8	72	286·4	295·7	+21·6	+60·8
260·396 G	8	25	13	41	286·0	295·4	+21·5	+73·6
Means ..	..	..	18	101	285·12	294·30	+21·83	..

Group 9513.

October 9–20. A regular spot, somewhat imperfectly formed, with one or two very small followers after October 14. A faint spot—*937b*—appears in the faculæ following this group.

Date. G.M.T. (Civil) Place.	Projected Area. Umbræ.	Projected Area. Whole Spots.	Corrected Area. Umbræ.	Corrected Area. Whole Spots.	Longitude. System I.	Longitude. System II.	Latitude.	Long. from C.M.
281·460 G	11	77	18	124	222·2	151·6	+ 3·5	−72·2
282·347 C	20	106	20	107	222·3	151·4	+ 3·4	−60·4
283·330 C	26	142	19	104	222·7	151·6	+ 3·6	−47·0
284·328 C	39	180	23	108	223·2	151·8	+ 3·6	−33·4
285·399 G	33	185	17	98	223·6	152·0	+ 3·7	−18·8
286·431 G	34	169	17	84	224·0	152·1	+ 3·6	− 4·8
287·393 G	33	177	17	90	224·2	152·1	+ 3·6	+ 8·1
288·449 G	35	146	19	78	223·9	151·5	+ 3·4	+21·7
289·414 G	15	95	10	58	224·3	151·7	+ 3·3	+34·8
290·358 C	9	42	7	31	224·1	151·2	+ 3·5	+47·1
291·346 C	7	29	7	28	223·5	150·4	+ 3·6	+59·5
292·428 G	2	17	4	28	222·7	149·3	+ 3·6	+73·0
Means ..	..	..	15	78	223·39	151·39	+ 3·53	..

Group 9515.

October 22–29. A stream with rapid formation and dissolution; considerable changes are also shown by individual components. When fully developed near the central meridian the leader is by far the most important spot.

Date. G.M.T. (Civil) Place.	Projected Area. Umbræ.	Projected Area. Whole Spots.	Corrected Area. Umbræ.	Corrected Area. Whole Spots.	Longitude. System I.	Longitude. System II.	Latitude.	Long. from C.M.
294·396 G	18	82	10	48	94·6	25·1	− 5·3	−29·2
295·207 K	46	425	25	226	95·3	25·6	− 5·3	−17·8
296·396 G	115	515	58	262	95·2	25·3	− 5·5	− 2·2
297·396 G	77	484	39	249	95·5	25·3	− 5·6	+11·3

(16428)

LEDGER II.—NON-RECURRENT GROUPS of SUN SPOTS for the YEAR 1923—*continued.*

Group 9515—*continued.*

Date. G.M.T. (Civil) Place.	Projected Area. Umbræ.	Projected Area. Whole Spots.	Corrected Area. Umbræ.	Corrected Area. Whole Spots.	Longitude. System I.	Longitude. System II.	Latitude.	Long. from C.M.
					°	°	°	°
298·402 G	66	303	37	171	96·2	25·8	− 5·9	+25·3
299·471 G	25	192	17	129	96·2	25·5	− 6·2	+39·4
300·477 G	16	65	14	59	99·2	28·3	− 7·0	+55·6
301·480 G	4	15	6	21	99·0	27·9	− 6·4	+68·7
Means ..	..	..	26	146	96·40	26·10	− 5·90	..

Group 9516.

October 31–November 6. Two small clusters of spots each becoming temporarily an unstable whole spot. The rear cluster has died out by November 6, but its position is marked by conspicuous faculæ.

303·596 G	20	76	13	51	333·6	41·9	−28·3	−28·8
304·394 C	34	267	21	166	333·9	42·4	−28·3	−18·0
305·438 G	100	222	60	254	332·9	41·6	−28·7	− 5·2
306·618 C	71	444	43	269	332·1	41·1	−29·0	+ 9·5
307·402 G	53	289	34	184	333·2	42·4	−28·3	+20·9
308·479 C	13	115	9	84	333·1	42·5	−28·7	+35·1
309·512 G	5	15	5	14	334·6	44·2	−27·7	+50·2
Means ..	..	..	26	146	333·34	42·30	−28·43	..

Group 9517.

November 4–16. A spot of some importance showing change of structure both in umbra and penumbra. There are usually small sporadic followers.

307·402 G	11	78	32	228	231·5	312·3	+30·0	−80·8
308·479 C	35	234	45	304	232·0	313·1	+29·8	−66·0
309·512 G	45	315	39	276	233·1	314·5	+29·5	−51·3
310·472 G	53	280	37	197	233·4	315·1	+29·1	−38·4
311·455 G	65	284	39	173	233·6	315·5	+29·0	−25·2
312·440 C	41	332	23	189	233·8	316·0	+28·9	−12·0
313·450 G	49	376	27	211	234·3	316·7	+29·6	+ 1·8
314·435 G	31	348	18	201	233·2	315·9	+29·5	+13·7
315·393 G	27	251	17	158	233·4	316·3	+29·8	+26·5
316·257 D	19	124	13	88	234·0	317·2	+30·1	+38·4
317·482 G	19	74	17	68	232·5	316·0	+30·0	+53·1
318·353 C	6	51	7	63	231·6	315·3	+30·1	+63·7
319·487 G	3	17	7	41	230·8	314·8	+29·9	+77·9
Means ..	..	..	25	169	232·86	315·28	+29·64	..

Group 9518.

November 24–29. An outbreak near Group 9516 seen in the previous rotation. A small diminishing regular spot seen last as a well-defined dot on November 29. A minute companion follows on November 27 and another (spot *939a*) appears after the disappearance of the regular spot.

					°	°	°	°
327·361 C	4	28	8	57	335·5	354·2	−22·8	−73·6
328·367 C	15	65	17	73	335·5	354·2	−22·5	−60·4
329·533 C	16	47	12	37	335·5	354·3	−22·6	−45·0
330·516 G	13	30	8	20	335·8	354·6	−22·7	−31·7
331·309 C	7	12	4	7	336·6	355·5	−22·5	−20·5
332·316 C	3	10	2	5	336·5	355·4	−22·7	− 7·3
Means ..	..	..	9	33	335·90	354·70	−22·63	..

Group 9519.

December 18–28. A group of the "stream" type originating from a small spot on December 18. The following part of the disturbance is but slightly represented by a small unstable cluster lasting until December 23. Two spots on December 20 coalesce to make a regular spot as the leader, but this spot, contrary to its type, rapidly disappears.

351·476 G	1	4	1	5	31·6	110·0	+29·3	−59·8
352·342 C	2	6	2	6	29·0	107·6	+29·5	−51·0
353·438 C	37	102	26	73	29·4	108·2	+29·3	−36·1
354·311 C	51	256	32	161	31·3	110·3	+28·7	−22·7
355·456 C	37	270	22	157	32·7	112·0	+28·3	− 6·2
356·476 G	45	269	27	156	33·1	112·6	+27·8	+ 7·6
357·339 C	23	153	14	93	32·7	112·4	+27·7	+18·6
358·466 G	11	44	7	30	32·4	112·3	+26·9	+33·1
359·356 C	7	28	6	23	31·7	111·8	+28·0	+44·1
360·361 C	8	44	9	49	32·4	112·8	+28·6	+58·1
361·328 C	3	14	5	25	31·2	111·8	+28·2	+69·6
Means ..	..	..	14	71	31·59	111·07	+28·39	..

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

1923.

TOTAL AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1923.

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

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

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 disc.

The area corrected for the effect of foreshortening is expressed in millionths of the Sun's visible hemisphere.

Greenwich Civil Time.	Place.	Projected Area.			Area Corrected for Foreshortening.		
		Umbræ.	Whole Spots.	Faculæ.	Umbræ.	Whole Spots.	Faculæ.
1923 d							
January 1·502	G	249	1201	564	181	891	443
2·661	C	102	681	675	110	762	716
3·444	G	57	441	709	104	784	1024
4·330	C	14	108	788	30	244	911
5·331	C	0	0	626	0	0	757
6·325	C	0	0	227	0	0	363
7·349	C	0	0	205	0	0	207
8·342	C	0	0	148	0	0	152
9·336	C	0	0	151	0	0	190
10·335	C	0	0	84	0	0	122
11·337	C	0	0	0	0	0	0
12·547	G	0	0	0	0	0	0
13·343	C	0	0	200	0	0	308
14·343	C	0	0	253	0	0	248
15·328	C	0	0	222	0	0	164
16·322	C	0	0	0	0	0	0
17·536	G	0	0	0	0	0	0
18·549	G	0	0	181	0	0	360
19·494	G	0	0	511	0	0	731
20·554	G	0	0	953	0	0	964
21·349	C	0	4	928	0	11	931
22·449	G	3	14	645	4	17	673
23·484	G	9	25	330	6	16	333
24·544	C	0	0	45	0	0	83
25·477	G	0	0	0	0	0	0
26·343	C	0	0	0	0	0	0
27·319	C	0	0	265	0	0	188
28·340	C	6	27	785	4	16	692
29·336	C	18	51	768	13	37	817
30·331	C	7	48	514	7	51	676
31·316	C	7	34	435	15	71	518
February 1·346	C	0	0	292	0	0	414
2·337	C	0	0	218	0	0	289
3·436	G	0	0	37	0	0	61
4·436	G	0	0	0	0	0	0
5·440	G	0	0	0	0	0	0
6·532	G	0	0	59	0	0	50
7·398	C	0	0	48	0	0	55
1923 d							
February 8·407	C	0	0	42	0	0	88
9·467	G	0	0	96	0	0	121
10·408	C	0	0	170	0	0	192
11·447	G	0	0	86	0	0	77
12·439	G	4	13	91	4	13	109
13·337	C	3	14	64	2	8	141
14·338	C	2	10	156	1	5	325
15·350	C	8	23	464	4	12	632
16·419	G	2	5	496	1	3	517
17·487	G	0	0	407	0	0	408
18·541	C	0	0	386	0	0	347
19·310	C	0	7	150	0	4	168
20·395	C	2	6	64	1	3	144
21·505	G	0	0	0	0	0	0
22·437	G	0	0	0	0	0	0
23·325	C	1	6	230	1	3	211
24·315	C	0	0	348	0	0	358
25·350	C	0	0	642	0	0	739
26·488	G	0	0	204	0	0	280
27·310	C	0	0	102	0	0	167
28·413	G	0	0	86	0	0	157
March 1·522	C	0	0	118	0	0	126
2·400	G	0	0	97	0	0	80
3·477	G	0	0	0	0	0	0
4·347	C	0	0	0	0	0	0
5·401	C	0	0	0	0	0	0
6·342	C	0	0	20	0	0	26
7·548	G	0	0	0	0	0	0
8·579	G	0	0	95	0	0	106
9·340	C	0	0	145	0	0	133
10·339	C	0	0	122	0	0	134
11·526	C	0	0	81	0	0	117
12·439	G	0	0	0	0	0	0
13·402	C	0	0	388	0	0	553
14·398	C	0	0	327	0	0	393
15·336	C	4	17	420	5	21	462
16·328	C	7	16	243	6	13	246
17·505	G	4	12	163	2	7	144

TOTAL AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1923—*continued.*

Greenwich Civil Time.		Place.	Projected Area.			Area Corrected for Foreshortening.		
			Umbræ.	Whole Spots.	Faculæ.	Umbræ.	Whole Spots.	Faculæ.
1923	d							
March	18·442	G	0	0	0	0	0	0
	19·444	G	0	0	0	0	0	0
	20·640	G	1	4	0	1	2	0
	21·506	G	0	0	0	0	0	0
	22·339	C	26	105	358	14	55	265
	23·374	C	13	47	250	7	28	260
	24·457	G	5	13	447	3	9	544
	25·641	G	17	28	268	18	29	290
	26·675	G	1	8	154	2	16	252
	27·493	G	0	0	103	0	0	261
	28·428	G	0	0	71	0	0	80
	29·476	G	22	81	93	15	57	66
	30·390	G	76	239	0	45	144	0
	31·332	C	47	214	0	25	116	0
April	1·497	G	43	147	0	22	75	0
	2·439	G	14	72	0	7	37	0
	3·596	G	0	2	21	0	1	37
	4·388	G	0	0	411	0	0	268
	5·419	G	0	0	280	0	0	266
	6·339	C	0	0	343	0	0	366
	7·525	G	0	0	97	0	0	193
	8·614	G	0	0	0	0	0	0
	9·365	C	0	0	195	0	0	280
	10·341	C	0	6	184	0	7	204
	11·369	C	0	0	236	0	0	353
	12·462	G	0	0	242	0	0	296
	13·400	G	0	0	242	0	0	196
	14·387	G	7	22	0	4	12	0
	15·365	G	8	22	66	4	12	115
	16·341	C	0	0	0	0	0	0
	17·393	G	20	64	77	11	36	75
	18·301	C	10	28	186	6	19	246
	19·331	C	4	31	423	4	31	427
	20·481	G	33	113	362	23	82	457
	21·466	G	65	212	166	39	126	159
	22·115	K	41	235	87	22	130	122
	23·383	C	21	84	127	10	42	185
	24·346	G	28	86	117	14	42	102
	25·103	K	15	79	0	8	41	0
	26·559	G	13	59	0	8	37	0
	27·358	G	24	52	222	16	38	155
	28·361	G	26	91	322	26	92	319
	29·114	K	5	29	168	8	45	240
	30·359	C	0	11	94	0	8	228
May	1·359	C	0	0	39	0	0	67
	2·472	G	0	0	251	0	0	262
	3·558	G	0	0	167	0	0	215
	4·339	G	0	0	39	0	0	85
	5·511	C	0	0	67	0	0	98
	6·423	G	0	0	223	0	0	298
	7·357	G	0	0	279	0	0	272
	8·577	G	0	0	92	0	0	158

Greenwich Civil Time.		Place.	Projected Area.			Area Corrected for Foreshortening.		
			Umbræ.	Whole Spots.	Faculæ.	Umbræ.	Whole Spots.	Faculæ.
1923	d							
May	9·664	G	0	0	35	0	0	49
	10·598	G	0	0	22	0	0	35
	11·577	G	2	4	26	1	2	41
	12·405	G	16	41	29	8	21	51
	13·498	G	10	30	22	5	15	31
	14·562	G	0	8	26	0	5	54
	15·414	G	0	0	404	0	0	457
	16·446	G	0	0	646	0	0	635
	17·400	G	0	0	363	0	0	372
	18·598	C	0	0	73	0	0	99
	19·331	C	0	0	78	0	0	104
	20·374	C	4	10	179	3	8	191
	21·396	C	1	7	82	1	4	211
	22·632	G	0	0	169	0	0	191
	23·617	C	7	56	163	5	44	132
	24·347	G	31	76	0	21	51	0
	25·507	G	22	73	81	12	41	90
	26·349	G	2	2	45	1	1	71
	27·364	C	3	24	90	7	87	97
	28·354	C	11	71	282	17	108	446
	29·422	C	16	101	436	15	93	533
	30·561	G	20	112	395	13	75	349
	31·459	C	17	83	287	10	48	272
June	1·118	K	22	59	271	13	34	269
	2·337	C	30	99	170	18	60	304
	3·396	C	20	55	45	11	31	34
	4·372	C	0	8	0	0	4	0
	5·579	G	0	6	15	0	3	20
	6·231	K	0	0	0	0	0	0
	7·458	C	0	0	181	0	0	181
	8·412	C	0	0	289	0	0	360
	9·115	K	0	0	173	0	0	223
	10·572	G	0	0	62	0	0	105
	11·351	G	0	0	0	0	0	0
	12·370	C	0	0	102	0	0	105
	13·366	C	0	0	0	0	0	0
	14·351	C	0	0	52	0	0	87
	15·371	C	0	0	93	0	0	163
	16·348	C	0	0	107	0	0	187
	17·328	G	0	0	85	0	0	79
	18·352	C	9	50	130	6	34	204
	19·357	C	18	99	158	10	57	155
	20·449	G	19	49	119	10	26	89
	21·354	C	21	68	62	10	39	74
	22·518	G	16	87	23	8	46	50
	23·351	G	12	41	126	7	23	182
	24·447	C	6	28	153	4	18	180
	25·419	C	74	313	444	54	228	429
	26·637	G	67	374	323	49	293	497
	27·427	C	60	331	93	31	169	362
	28·430	C	65	257	119	34	131	121
	29·379	G	178	764	96	93	400	130
	30·353	G	151	1071	0	86	611	0

TOTAL AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1923—*continued.*

Greenwich Civil Time.		Place.	Projected Area.			Area Corrected for Foreshortening.		
			Umbræ.	Whole Spots.	Faculæ.	Umbræ.	Whole Spots.	Faculæ.
1923	d							
July	1·107	K	100	785	0	65	509	0
	2·516	C	25	169	260	26	166	242
	3·370	G	10	40	334	17	65	441
	4·343	G	0	0	204	0	0	596
	5·453	G	0	0	127	0	0	215
	6·340	G	0	0	193	0	0	218
	7·423	C	0	0	209	0	0	165
	8·475	G	0	0	0	0	0	0
	9·357	G	0	0	57	0	0	63
	10·445	C	0	0	19	0	0	35
	11·371	G	1	5	170	1	5	265
	12·350	G	0	0	165	0	0	256
	13·349	G	0	0	216	0	0	210
	14·366	C	0	0	23	0	0	31
	15·339	G	0	0	131	0	0	136
	16·570	G	0	0	0	0	0	0
	17·440	C	0	0	51	0	0	87
	18·351	G	0	0	165	0	0	216
	19·337	G	0	0	408	0	0	491
	20·432	C	0	0	324	0	0	334
	21·350	G	0	0	605	0	0	511
	22·391	C	10	42	582	6	24	820
	23·391	G	10	23	386	5	12	442
	24·366	G	5	16	316	3	8	265
	25·325	C	7	17	203	4	9	132
	26·344	G	3	7	0	2	4	0
	27·384	G	2	6	68	1	3	85
	28·512	C	2	6	249	1	3	219
	29·329	G	19	41	435	12	26	510
	30·450	G	11	43	486	14	57	602
	31·532	C	7	17	619	7	18	586
August	1·354	G	2	9	847	2	7	869
	2·362	G	0	0	311	0	0	344
	3·388	G	1	27	218	1	17	469
	4·350	G	1	5	226	1	3	305
	5·327	G	0	0	271	0	0	259
	6·334	G	0	0	401	0	0	304
	7·347	G	0	7	249	0	6	192
	8·346	G	0	0	350	0	0	361
	9·344	G	0	0	305	0	0	392
	10·435	G	0	0	31	0	0	78
	11·353	G	0	0	19	0	0	30
	12·380	G	0	0	0	0	0	0
	13·349	G	0	0	0	0	0	0
	14·339	G	0	0	135	0	0	197
	15·485	G	0	0	129	0	0	144
	16·487	C	4	24	353	2	12	455
	17·117	K	0	0	127	0	0	137
	18·390	G	0	0	191	0	0	160
	19·401	G	0	0	86	0	0	113
	20·349	C	4	13	146	2	7	221
	21·652	G	0	4	30	0	2	49
	22·344	G	0	0	0	0	0	0
	23·344	G	0	0	0	0	0	0

Greenwich Civil Time.		Place.	Projected Area.			Area Corrected for Foreshortening.		
			Umbræ.	Whole Spots.	Faculæ.	Umbræ.	Whole Spots.	Faculæ.
1923	d							
August	24·455	G	0	0	224	0	0	214
	25·343	C	0	0	217	0	0	275
	26·572	G	0	0	56	0	0	88
	27·370	G	0	0	90	0	0	109
	28·553	G	0	0	0	0	0	0
	29·359	C	0	0	97	0	0	193
	30·351	G	0	0	190	0	0	319
	31·383	G	0	0	235	0	0	251
September	1·380	G	20	66	201	17	57	175
	2·335	G	39	101	243	26	71	233
	3·360	G	95	345	75	60	218	93
	4·509	C	91	451	174	55	277	264
	5·448	G	71	361	59	45	228	63
	6·559	G	46	258	36	33	183	59
	7·623	G	30	237	423	27	223	407
	8·435	G	50	303	672	48	315	677
	9·363	C	47	286	455	51	300	656
	10·569	G	63	267	105	37	158	296
	11·505	G	41	211	55	22	115	68
	12·357	G	44	187	74	23	97	84
	13·360	G	35	213	56	19	111	76
	14·429	G	28	192	30	15	106	60
	15·370	G	26	183	0	16	112	0
	16·359	G	18	112	0	13	83	0
	17·396	G	8	71	210	8	72	193
	18·396	G	16	50	232	17	54	309
	19·399	G	2	17	160	1	10	283
	20·398	G	0	0	0	0	0	0
	21·614	G	0	0	72	0	0	67
	22·389	C	0	0	126	0	0	165
	23·490	G	0	0	0	0	0	0
	24·397	G	6	22	198	14	53	448
	25·395	G	33	202	281	40	247	331
	26·357	C	53	292	286	45	251	321
	27·578	G	57	288	259	36	188	392
	28·399	G	54	273	264	33	164	316
	29·138	K	49	304	250	27	172	234
	30·645	G	55	307	170	30	168	131
October	1·111	K	61	313	0	34	175	0
	2·414	G	60	260	0	38	166	0
	3·156	K	39	214	0	28	156	0
	4·513	G	29	133	451	32	146	456
	5·330	C	22	99	499	37	166	569
	6·323	C	3	26	470	30	264	649
	7·462	G	0	0	214	0	0	349
	8·550	G	0	0	93	0	0	158
	9·460	G	11	77	175	18	124	430
	10·347	C	20	106	316	20	107	427
	11·330	C	26	142	327	19	104	292
	12·328	C	39	180	300	23	108	207
	13·399	G	33	185	197	17	98	116
	14·431	G	34	169	0	17	84	0

TOTAL AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1923—*continued.*

Greenwich Civil Time.	Place.	Projected Area.			Area Corrected for Foreshortening.		
		Umbræ.	Whole Spots.	Faculæ.	Umbræ.	Whole Spots.	Faculæ.
1923 d							
October 15·393	G	33	177	0	17	90	0
16·449	G	35	150	0	19	80	0
17·414	G	15	95	0	10	58	0
18·358	C	9	42	49	7	31	66
19·346	C	7	29	494	7	28	399
20·428	G	2	17	333	4	28	406
21·364	C	4	19	167	12	55	264
22·396	G	26	110	122	21	85	176
23·207	K	57	494	72	35	292	78
24·396	G	129	586	211	67	312	198
25·396	G	95	556	118	50	292	136
26·402	G	97	381	206	54	214	195
27·471	G	43	247	174	27	159	224
28·477	G	27	124	461	20	91	395
29·480	G	14	47	292	12	40	350
30·360	C	13	25	286	9	17	481
31·596	G	25	88	81	18	62	70
November 1·394	C	35	278	188	22	180	185
2·438	G	100	222	129	60	254	156
3·618	C	71	444	81	43	269	111
4·402	G	64	367	70	66	412	267
5·479	C	48	349	449	54	388	609
6·512	G	50	330	896	44	290	880
7·472	G	53	280	513	37	197	520
8·455	G	65	284	357	39	173	456
9·440	C	41	332	59	23	189	259
10·450	G	49	376	0	27	211	0
11·435	G	31	348	21	18	201	37
12·393	G	27	251	0	17	158	0
13·257	D	19	124	161	13	88	111
14·482	G	19	74	473	17	68	417
15·353	C	6	51	653	7	63	684
16·487	G	3	17	327	7	41	409
17·407	G	0	0	107	0	0	232
18·364	C	0	0	43	0	0	64
19·311	C	0	0	48	0	0	49
20·353	C	0	0	59	0	0	50
21·323	C	0	0	0	0	0	0
22·497	C	0	0	32	0	0	42

Greenwich Civil Time	Place.	Projected Area.			Area Corrected for Foreshortening.		
		Umbræ.	Whole Spots.	Faculæ.	Umbræ.	Whole Spots.	Faculæ.
1923 d							
November 23·504	C	0	0	37	0	0	42
24·361	C	4	28	154	8	57	234
25·367	C	15	65	500	17	73	668
26·533	C	16	47	508	12	37	516
27·516	G	13	30	417	8	20	351
28·309	C	7	12	170	4	7	129
29·316	C	3	10	0	2	5	0
30·489	G	0	0	0	0	0	0
December 1·435	C	0	0	21	0	0	76
2·352	C	0	0	132	0	0	247
3·344	C	0	3	414	0	2	526
4·326	C	0	0	519	0	0	518
5·308	C	0	0	492	0	0	532
6·523	G	0	0	227	0	0	335
7·316	C	0	0	79	0	0	175
8·333	C	0	0	0	0	0	0
9·474	G	0	0	0	0	0	0
10·330	C	0	0	0	0	0	0
11·407	C	0	0	53	0	0	77
12·343	C	0	0	164	0	0	185
13·341	C	0	0	397	0	0	426
14·509	G	0	0	59	0	0	103
15·557	G	0	0	21	0	0	35
16·492	G	0	0	0	0	0	0
17·369	C	0	0	28	0	0	29
18·476	G	1	4	75	1	5	94
19·342	C	2	6	105	2	6	100
20·438	C	37	102	111	26	73	81
21·311	C	51	256	40	32	161	104
22·456	C	37	270	195	22	157	243
23·476	G	45	269	218	27	156	220
24·339	C	23	153	179	14	93	236
25·466	G	15	61	213	9	42	206
26·356	C	11	36	464	8	28	404
27·361	C	10	50	404	10	52	467
28·328	C	3	14	327	5	25	472
29·343	C	0	0	84	0	0	245
30·328	C	0	0	0	0	0	0
31·333	C	0	0	274	0	0	284

MEAN AREAS of SUN SPOTS and FACULÆ for each ROTATION of the SUN, from 1923 January 4 to 1923 December 25.

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 disc, 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 1873–1922 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							
927	1923	January	4·86	27	2	8	314	2	8	351
928		February	1·20	28	1	3	176	1	2	216
929		,,	28·54	27	3	9	141	2	7	163
930		March	27·85	27	15	58	145	9	34	163
931		April	24·12	27	5	19	148	4	13	171
932		May	21·35	28	7	30	131	5	24	161
933		June	17·55	27	31	168	142	19	104	193
934		July	14·75	27	3	10	305	2	7	334
935		August	10·97	27	14	60	115	9	39	142
936		September	7·21	27	32	178	162	23	129	204
937		October	4·49	28	30	154	218	21	112	253
938		,,	31·78	27	27	159	233	20	125	272
939		November	28·09	27	8	40	137	5	25	166

MEAN AREAS of SUN SPOTS and FACULÆ for the YEAR 1923.

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

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.
1923	365	15	74	189	10	55	222

MEAN HELIOGRAPHIC LATITUDE of SUN SPOTS for each ROTATION of the SUN, from 1923 January 4 to 1923 December 25.

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			°		°	°	°
927	1923	January	4·86	27	7	5·80	1	1·77	+ 4·76	5·25
928		February	1·20	28	1	11·23	0·4	7·00	+ 7·29	10·31
929		,,	28·54	27	6	6·06	0·3	26·22	+ 4·45	7·07
930		March	27·85	27	19	4·91	16	5·91	− 0·05	5·37
931		April	24·12	27	2	7·05	11	5·40	− 3·32	5·68
932		May	21·35	28	16	9·70	8	8·84	+ 3·47	9·42
933		June	17·55	27	95	8·06	9	3·20	+ 7·08	7·64
934		July	14·75	27	4	5·91	3	25·92	− 7·66	14·44
935		August	10·97	27	1	20·59	38	27·60	− 26·82	27·49
936		September	7·21	27	46	21·56	84	19·34	− 4·89	20·12
937		October	4·49	28	34	3·66	78	11·23	− 6·74	8·95
938		,,	31·78	27	81	29·60	43	27·50	+ 9·74	28·87
939		November	28·09	27	24	28·30	1	22·36	+ 27·23	28·17

MEAN HELIOGRAPHIC LATITUDE of SUN SPOTS for the YEAR 1923.

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.		
1923	365	33	13°·88	22	17°·32	+ 1°·34	15°·26

(16428)