

**GREENWICH
PHOTO-HELIOGRAPHIC
RESULTS.**

1922.

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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
1922.

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1924.

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D iv INTRODUCTION TO GREENWICH PHOTO-HELIOGRAPHIC RESULTS, 1922.

The names of those persons who measured the photographs for the year 1922 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 Dún, 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 Dún 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-correction used throughout the year 1922 in the reduction of the photographs taken at Greenwich was $+2^\circ.7$.

INTRODUCTION TO GREENWICH PHOTO-HELIOGRAPHIC RESULTS, 1922. D v

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	° '
1922 April	5. 9	+ 2. 38	1922 July	12. 11	+ 2. 39
"	29. 9	+ 2. 44	August	15. 9	+ 2. 26
May	20. 12	+ 2. 56	"	26. 10	+ 2. 36
"	24. 9	+ 2. 56	September	7. 9	+ 2. 45
June	5. 9	+ 2. 32	October	12. 10	+ 2. 43
July	10. 9	+ 2. 37	"	12. 10	+ 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	° '
1922 January	4. 11	+ 2. 46	1922 July	12. 11	+ 2. 45
"	20. 12	+ 2. 42	"	28. 10	+ 2. 42
February	6. 12	+ 2. 43	August	15. 9	+ 2. 43
"	20. 11	+ 2. 43	"	26. 9	+ 2. 39
March	2. 10	+ 2. 45	"	26. 10	+ 2. 44
"	27. 15	+ 2. 42	September	7. 10	+ 2. 44
April	2. 11	+ 2. 42	"	20. 16	+ 2. 45
"	27. 13	+ 2. 41	October	9. 10	+ 2. 44
May	5. 11	+ 2. 41	"	9. 10	+ 2. 46
"	20. 12	+ 2. 41	"	31. 10	+ 2. 45
"	30. 9	+ 2. 40	November	27. 11	+ 2. 43
June	5. 9	+ 2. 39	December	15. 13	+ 2. 47
July	7. 11	+ 2. 47	"	28. 11	+ 2. 43
"	10. 9	+ 2. 38			

D vi INTRODUCTION TO GREENWICH PHOTO-HELIOGRAPHIC RESULTS, 1922.

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	°	'
1922	January	4.	8	—	0.	40	
	"	19.	8	—	0.	41	
	February	4.	8	—	0.	31	
	"	18.	10	—	0.	27	
	March	6.	8	—	0.	37	
	"	20.	8	—	0.	32	
	April	4.	8	—	0.	35	
	"	19.	8	—	0.	25	
	May	4.	8	—	0.	29	
	"	19.	9	—	0.	35	
	June	6.	9	—	0.	35	
	"	18.	12	—	0.	23	
1922	July	8.	9	—	0.	37	
	"	24.	10	—	0.	30	
	August	8.	9	—	0.	33	
	"	23.	8	—	0.	18	
	September	8.	8	—	0.	30	
	"	23.	8	—	0.	30	
	October	10.	9	—	0.	22	
	"	25.	8	—	0.	25	
	November	11.	8	—	0.	34	
	"	25.	8	—	0.	29	
	December	13.	7	—	0.	36	
	"	27.	8	—	0.	40	

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

January 1 to March 31, $-0^{\circ}.6$; April 1 to December 31, $-0^{\circ}.5$.

The zero-corrections adopted during 1922 for the Kodaikánal photographs were $+0^{\circ}.2$ until November 14 and $0^{\circ}.0$ afterwards.

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 x the position-angle from the Sun's axis,

$$\begin{aligned} \sin \phi &= \cos \rho \sin D + \sin \rho \cos D \cos x \\ \sin l &= -\sin x \sin \rho \sec \phi. \end{aligned}$$

The position-angle x 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. 554 of the *Nautical Almanac* for 1922.

The inclination of the Sun's axis to the ecliptic is assumed to be $82^{\circ} 45'$, the longitude of the ascending node for 1922.0 to be $74^{\circ} 40' \cdot 3$, 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 1922.*

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 1921 and previous years. Groups seen only once are not included, but appear in the Daily Results with a distinctive numeration.

During the year 1922, 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 1922.*

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.

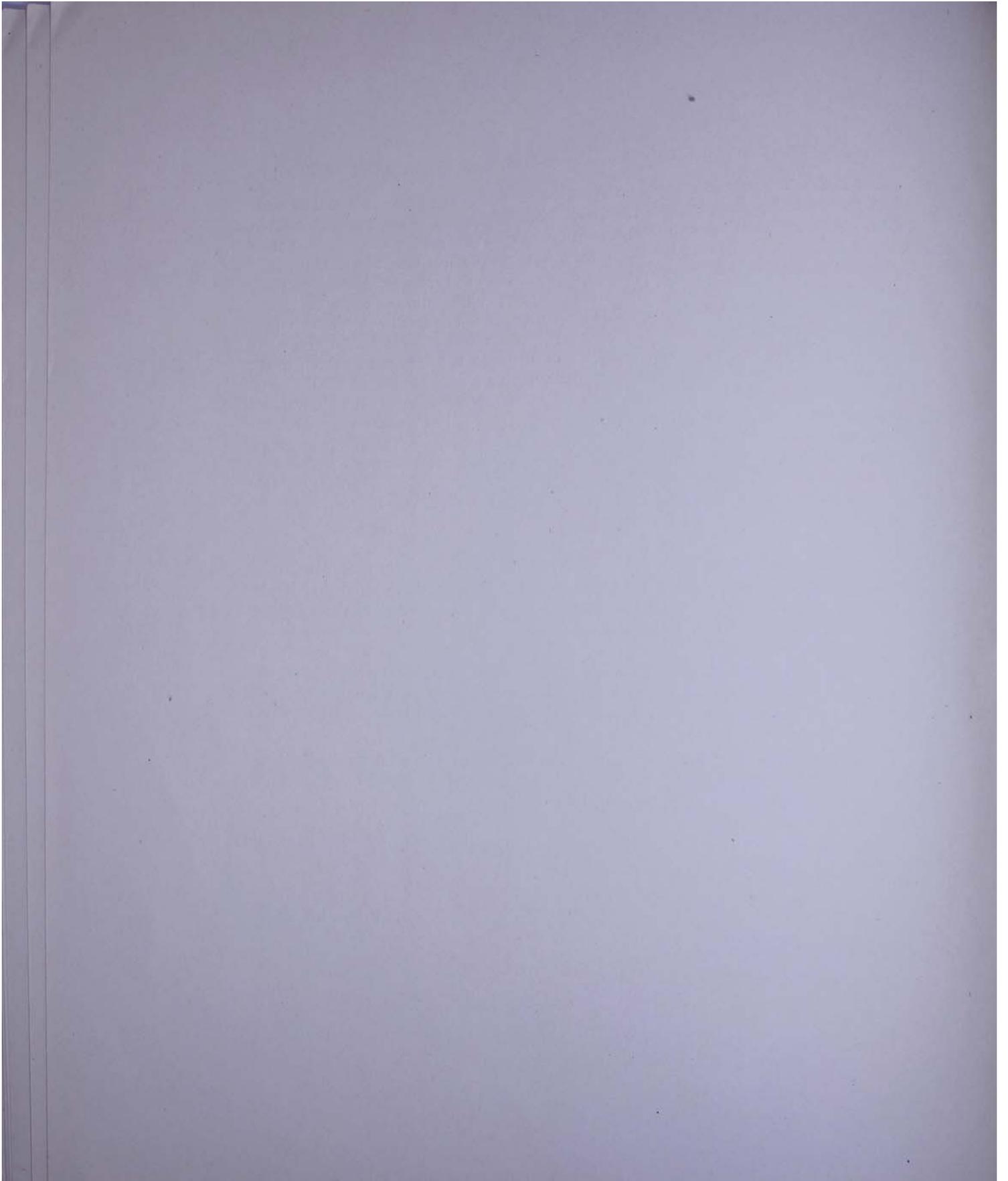
Ledger II.—Non-Recurrent Groups.—This Ledger contains the most important of those groups which do not last to a second rotation. Individual components are also given after their respective groups, where they are large and distinctive.

§ 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 1922.*

Particulars relating to this section are given in the headings on pages D 46, 50, 51.

F. W. DYSON.

Royal Observatory, Greenwich,
1924, June 18.



ROYAL OBSERVATORY, GREENWICH.

POSITIONS AND AREAS

OF

SUN SPOTS AND FACULÆ.

FOR EACH DAY IN THE YEAR

1922.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1922.

- 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), Kodaikānal (K), Dehra Dūn (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 Umbra 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 1922.

G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.			G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.			
		Dist.	Pos. Angle.	Long.	Lat.	Umbrae.	Whole Spots.	Faculae.			Dist.	Pos. Angle.	Long.	Lat.	Umbrae.	Whole Spots.	Faculae.	
1922. 0:336 C Jan. 1		.934	278.0 (+2.2)	0 (183.9)	0 (-3.1)			102 (102)	1922. 7:324 C Jan. 8	9411 9412 9414	.985 .416 .977 .786	263.8 63.7 78.5 76.1 (-1.2)	172.2 69.9 15.4 (91.9)	0 -6.8 +6.9 +10.3 (-3.9)	8 13 9 (30)	65 25 85 (175)	365f 282 401c (1048)	
Jan. 2		No spots on faculae.							8:322 C Jan. 9	9413 913f 9412 9414	.459 .323 .264 .907	302.7 227.2 41.5 76.5 (-1.7)	101.8 93.0 68.7 15.3 (78.8)	+10.6 -16.5 +7.4 +10.4 (-4.0)	2 5 17 11 (35)	6 11 52 41 (110)	370c (370)	
2:329 C Jan. 3	9411 913d	.896 .136 .146	283.2 242.8 107.0 (+1.2)	164.7 149.0 (157.7)	-6.9 -5.7 (-3.3)	9 0 (9)	32 3 (35)	166 (166)	9:530 G Jan. 10	9413 9412 9414	.646 .208 .767	292.1 334.8 72.7 (-2.3)	100.3 68.0 15.0 (62.9)	+10.8 +6.7 +10.4 (-4.1)	6 16 16 (38)	30 41 46 (117)	172f (172)	
3:338 C Jan. 4	9411 913e 9412	.970 .349 .976	281.9 259.5 80.7 (+0.7)	164.5 144.4 (144.4)	-6.9 -3.5 (-3.5)	4 (4)	17 (17)	139 (639)	10:470 G Jan. 11	9412 9414 9415	.801 .338 .627 .993 .892	285.9 305.5 67.1 94.5 100.3 (-2.7)	66.5 14.7 327.1 (50.5)	+7.2 +10.7 -5.0 (-4.2)	9 10 20 (39)	18 22 269 (309)	124 161n 169 (454)	
4:334 C Jan. 5	9411 913e 9412	.603 .335 .901 .981	261.8 83.8 80.6 82.6 (+0.2)	168.2 111.9 68.0 (131.3)	-7.7 -1.3 +6.9 (-3.6)	15 1 13 (29)	59 7 37 (103)	718c 146 (864)	11:325 C Jan. 12	9412 9414 9415	.906 .805 .468 .474 .943 .954 .975	283.9 250.9 292.9 58.5 94.1 72.5 102.1 (-3.1)	64.8 +6.6 15.0 +10.4 -5.3 (39.2)	7 5 16 (28)	31 10 138 (179)	149 76 324c 95 164 (808)		
5:516 G Jan. 6	9411 9412	.927 .798 .760 .926	257.8 262.9 77.3 79.7 (-0.3)	168.6 67.6 (115.7)	-7.9 +7.1 (-3.7)	11 18 (29)	28 38 (66)	154 121c 366c 552 (1193)	12:325 C Jan. 7	9411 9413 9412	.950 .895 .281 .617 .879	254.7 264.1 9.1 73.5 78.7 (-0.7)	168.8 +12.2 68.9 +7.0 (105.3)	-7.0 +12.2 +7.0 (-3.8)	10 2 17 (29)	83 10 49 (142)	251c 283c 548 (1207)	108 72 177

Group 9411. 1921 Dec. 28-1922 Jan. 8. Intermittent. A single small spot disappearing by Dec. 31. On Jan. 3, a stream of a few very small spots appears in its place.

Group 9412. Jan. 5-15. A few small spots in stream formation which change frequently. Nothing is seen on Jan. 13.

Group 9413. Jan. 7-10. A pair of small spots seen on Jan. 7 and 9; two tiny clusters on Jan. 10.

Group 9414. Jan. 8-12. Return or revival of Group 9408. A small spot fading out in a few days.

Group 9415. Jan. 11-23. Return of Group 9407; third appearance. A regular spot with occasional very small companions.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1922.

G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.			G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.		
		Dist.	Pos. Angle.	Long.	Lat.	Umbra.	Whole Spots.	Faculae.			Dist.	Pos. Angle.	Long.	Lat.	Umbra.	Whole Spots.	Faculae.
1922. 25.395 C Jan. 26		.882	99.8 (-9.6)	0 (214.0)	0 (-5.6)	0	0	69 (69)	1922. 34.322 C Feb. 4	9416	.974 .288 .782 .954	264.1 263.6 71.7 72.9 (-13.3)	0 113.1 (96.4)	0 -7.9 (-6.3)	1 (1)	6 (6)	195 306 156 (657)
Jan. 27 to Jan. 29		No spots or faculae							35.333 C Feb. 5	9417 914e	.752 .209 .864 .959	288.5 34.7 71.5 76.1 (-13.7)	129.2 76.3 (83.1)	+9.4 +3.6 (-6.3)	2 0 (2)	3 10 (13)	54f 183 129 (366)
29.517 G Jan. 30	914d	.319	207.4 (-11.4)	168.8 (159.7)	-22.3 (-6.0)	0 (0)	1 (1)	0 (0)	36.463 G Feb. 6	9417 9418 914f 9419 9420	.895 .263 .214 .256 .540	284.1 16.6 116.1 121.6 58.4 (-14.2)	129.6 63.9 56.9 55.3 40.4 (68.2)	+9.6 +8.1 -11.6 -13.9 +10.7 (-6.4)	4 1 0 8 1 (14)	20 5 14 12 2 (53)	93c 5 14 12 2 (93)
30.333 C Jan. 31		.966	82.5 (-11.7)	0 (148.9)	0 (-6.0)	0 (0)	0 (0)	351 (351)	37.548 G Feb. 7	9417 9418 9419 9420 9421	.895 .263 .214 .256 .540	284.1 16.6 116.1 121.6 58.4 (-14.2)	129.6 63.9 56.9 55.3 40.4 (68.2)	+9.6 +8.1 -11.6 -13.9 +10.7 (-6.4)	4 1 0 8 1 (14)	20 5 14 12 2 (53)	93c 5 14 12 2 (93)
31.502 G Feb. 1	9416	.741 .305 .869 .952	267.6 92.8 77.6 75.6 (-12.2)	115.8 (133.6)	-6.6 (-6.1)	3 (3)	10 (10)	134 447 103 (684)	38.443 G Feb. 8	9418 9419 9420 9421	.976 .891 .300 .131 .378 .981	281.8 267.2 325.0 186.3 36.0 95.0 (-14.6)	63.9 54.7 40.9 334.8 (53.9)	+7.7 -13.9 +11.4 -6.1 (-6.5)	1 2 24 28 (55)	2 7 96 108 (213)	112 116 88s (316)
32.346 C Feb. 2	9416	.836 .137 .761 .894 .974	263.9 91.1 78.1 76.4 79.7 (-12.5)	114.5 (122.4)	-6.2 (-6.1)	9 (9)	22 (22)	338 302 212 139 (991)	39.470 G Feb. 9	9420 9421	.963 .309 .921	265.9 4.5 93.7 (-14.9)	40.8 334.9 (42.2)	+11.3 -6.0 (-6.5)	43 22 (65)	200 95 (295)	137 106s (243)
33.482 C Feb. 3	9416	.939 .122 .769 .889	264.3 267.2 71.4 75.4 (-13.0)	114.5 (107.5)	-6.5 (-6.2)	3 (3)	12 (12)	275 161 200 (636)	9418 914g 9420 914h 9421	.759 .750 .606 .290 .370 .335 .805 .908	294.4 280.7 291.4 302.2 320.7 12.8 92.1 101.9 (-15.3)	63.1 42.8 42.3 24.3 334.9 (28.6)	+7.3 +2.5 +10.2 +12.4 -5.6 (-6.6)	1 1 37 1 18 (58)	3 5 164 5 113 (290)	85 201 173s 101 (560)	

Group 9416. Feb. 1-4. Two or three very small spots arranged in a stream.
 Group 9417. Feb. 5-6. One very small spot on Feb. 5, in a small area of faculae; two on Feb. 6.
 Group 9418. Feb. 6-9. A single small spot not seen on Feb. 8.
 Group 9419. Feb. 6-7. A small but very distinct spot.
 Group 9420. Feb. 6-14. An irregular stream developing from a minute spot on Feb. 6. By Feb. 12, the stream has simplified to two large and nearly regular spots, which apparently are still increasing as they pass round the west limb.
 Group 9421. Feb. 7-19. Return of Group 9415; fourth apparition. A small regular spot gradually diminishing. Group 9422 develops immediately southwards in the same area of faculae.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1922.

G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.			G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.			
		Dist.	Pos. Angle.	Long.	Lat.	Umbrae.	Whole Spots.	Faculae.			Dist.	Pos. Angle.	Long.	Lat.	Umbrae.	Whole Spots.	Faculae.	
1922. 40°44'I		.875	278.1	°	°			204	1922. 46°344	9422	.643	267.0	338.3	- 7.2	76	447		
		.872	287.9					87	C	9421	.608	271.1	335.5	- 4.8	12	46		
G	9420	.532	301.2	43.3	+ 10.1	54	208		Feb. 16			(-17.7)	(298.1)	(-6.9)	(88)	(493)	(0)	
	9421	.650	90.7	335.3	- 5.5	15	89											
Feb. 10	9422	.650	96.9	335.2	- 9.5	9	49											
			(-15.7)	(15.9)	(-6.6)	(78)	(346)	(291)										
									47°339		.900	268.0	°	°				
									C	9422	.799	266.0	338.2	- 7.4	66	386	104	
									Feb. 17	9421	.772	269.5	335.6	- 4.8	13	56	256c	
41°458		.967	284.8					71				(-18.1)	(285.0)	(-6.9)	(79)	(442)	(360)	
		.965	277.0					192										
		.893	285.9					100										
G		.833	261.6					43										
	9420	.687	291.8	42.7	+ 9.7	125	632		48°434		.988	266.2						
	9422	.435	95.1	336.6	- 8.2	58	223			9422	.925	265.1	338.6	- 7.2	26	313	101	
Feb. 11	9421	.454	88.4	335.5	- 5.2	15	78		G	9421	.906	268.0	335.7	- 4.7	5	33	457c	
			(-16.0)	(2.5)	(-6.7)	(198)	(933)	(406)	Feb. 18	9423	.992	95.5	187.4	- 6.3	4	168	1738d	
												(-18.4)	(270.6)	(-7.0)	(35)	(514)	(731)	
42°433		.954	279.4					184										
G	9420	.825	286.4	42.8	+ 9.5	207	932	448c	49°378	9422	.984	263.9	338.3	- 7.2	36	252	525c	
	9422	.218	93.2	337.0	- 7.2	131	689			9421	.975	266.7	335.6	- 4.8	0	31		
Feb. 12	9421	.246	83.5	335.4	- 4.9	17	84		C	9423	.947	94.5	186.6	- 6.6	25	154	492f	
			(-16.4)	(349.6)	(-6.7)	(355)	(1705)	(632)	Feb. 19		.905	95.6					124	
												(-18.7)	(258.2)	(-7.0)	(61)	(437)	(1141)	
43°440	9420	.939	283.0	44.3	+ 9.6	206	1478	512c										
	9422	.014	250.3	337.2	- 7.1	120	720											
G	9421	.035	24.3	335.6	- 5.0	20	64		50°462		.975	259.7						
Feb. 13		.931	80.2					73	G	9423	.837	93.0	186.9	- 6.3	27	154	71	
			(-16.7)	(336.4)	(-6.8)	(346)	(2262)	(585)	Feb. 20		.817	99.7					310f	
												(-19.1)	(243.9)	(-7.0)	(27)	(154)	157	
																	(538)	
44°329		.847	288.3					55										
C	9420	.989	281.0	44.6	+ 9.7	178	1365	734c										
	9422	.220	267.4	337.4	- 7.2	97	648		51°503		.682	91.8	187.1	- 6.4	22	124	266f	
Feb. 14	9421	.188	278.1	335.4	- 5.2	17	67		G	9423			187.1	- 6.4				
		.837	77.1					83	Feb. 21				(-19.4)	(230.2)	(-7.1)	(22)	(124)	(266)
			(-17.1)	(324.7)	(-6.8)	(292)	(2080)	(872)										
45°432	9422	.463	268.1	337.8	- 7.0	70	580		52°514		.491	90.9	187.4	- 6.6	23	118		
C	9421	.427	273.4	335.3	- 4.8	11	51		G	9423	.989	80.7						
Feb. 15			(-17.4)	(310.1)	(-6.9)	(81)	(631)	(0)	Feb. 22				(19.7)	(216.9)	(- 7.1)	(23)	(118)	105
																	(105)	

Group 9422. Feb. 10-19. A group showing the continued activity in the place occupied by Group 9421 and its previous appearances since 1921. Nov. 19. A few small spots seen on Feb. 10 growing rapidly to a very large spot with a composite and smaller follower. After rising to a maximum on Feb. 13, the group rapidly declines. The amount of the surrounding faculae is relatively small for so large and active a group of spots.

Group 9423. Feb. 18-Mar. 3. A small stable regular spot.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1922.

G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.			G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.			
		Dist.	Pos. Angle.	Long.	Lat.	Umbræ.	Whole Spots.	Faculæ.			Dist.	Pos. Angle.	Long.	Lat.	Umbræ.	Whole Spots.	Faculæ.	
1922. 53:442	9423	°298	89.2	187.2	- 6.6	24	122		1922. 58:460	9423	°757	267.1	187.9	- 6.9	21	107	184c	
G		°964	79.2						9428		°289	257.7	155.1	-10.4	4	12		
Feb. 23			(-20.0)	(204.6)	(- 7.1)	(24)	(122)	348 (348)		9427	°245	13.2	135.3	+ 6.6	33	129		
										9424	°438	45.7	120.0	+10.9	41	165		
									G	9425	°506	44.9	117.0	+14.2	22	78		
54:327	9423	°098	86.7	187.4	- 6.7	25	124		9426	°509	60.4	112.1	+ 8.0	123	515			
	9424	°970	77.0	119.1	+10.7	2	34	} 410c		°814	80.5					194		
C	9425	°977	72.9	118.0	+15.0	28	124			°878	91.3						118	
	9425	°903	77.2						455	°927	76.9						120	
Feb. 24		°994	81.7					127	Feb. 28	°992	80.1					183		
			(-20.2)	(193.0)	(-7.1)	(55)	(282)	(992)				(-21.3)	(138.5)	(-7.2)	(244)	(1006)	(799)	
55:421	9423	°155	271.8	187.5	- 6.9	21	112											
	9424	°878	74.1	119.7	+10.2	12	61	} 401c	59:343	9423	°878	266.1	188.5	- 6.9	15	106	248c	
G	9425	°897	69.5	118.5	+14.8	26	124			9428	°486	263.4	156.1	- 9.5	1	6		
	9426	°956	79.3	107.3	+ 8.0	5	35		202c	915a	°401	231.6	146.5	-21.1	1	16		
Feb. 25		°788	73.5					216		9427	°295	325.4	136.6	+ 6.9	25	110		
		°974	102.1					82	C	915b	°439	8.3	123.1	+18.4	0	3		
			(-20.5)	(178.5)	(-7.2)	(64)	(332)	(901)		9424	°343	21.8	119.5	+11.3	54	347		
56:375	9423	°367	269.1	187.6	- 7.1	20	106			9425	°396	22.7	117.9	+14.2	10	23		
	9427	°567	65.5	134.8	+ 7.4	4	15	} 805c		9426	°374	44.5	111.6	+ 8.5	161	790		
C	9424	°767	69.6	119.2	+10.5	10	42		181c		9429	°971	78.4	52.4	+ 9.4	97	534	
	9425	°794	65.2	118.0	+14.7	21	109		294c	Mar. 1	9430	°981	75.6	50.4	+12.5	81	575	
Feb. 26		°848	76.1	110.1	+ 7.7	17	81	216c			°855	67.0					185	
		°980	84.8					236			°927	171.0					106	
			(-20.8)	(166.0)	(-7.2)	(72)	(353)	(927)				(-21.6)	(126.9)	(-7.2)	(445)	(2510)	(1344)	
57:430	9423	°578	268.2	187.5	- 6.9	13	96		60:431	9423	°970	264.5	189.0	- 7.1	12	83	226f	
	9428	°068	203.3	153.7	-10.8	1	3			9427	°477	299.5	137.2	+ 7.0	17	76		
	9427	°383	51.5	134.6	+ 6.9	32	115			9424	°339	338.7	119.8	+11.2	127	648		
G	9424	°604	61.7	119.5	+10.5	25	105			9425	°376	346.5	117.8	+13.6	3	9		
Feb. 27		°648	57.7	117.8	+14.2	29	104		G	9426	°275	5.0	111.2	+ 8.6	267	1233		
		°684	70.5	111.7	+ 7.7	30	132			9429	°878	75.2	53.5	+ 9.3	107	684		
		°929	82.7					504	Mar. 2	9430	°905	72.6	50.6	+12.4	93	582		
			(-21.1)	(152.1)	(-7.2)	(130)	(555)	(504)			°962	77.8					657	
												(-21.8)	(112.6)	(-7.2)	(626)	(3315)	(1617)	

Group 9424. Feb. 24-Mar. 7. Two or three spots seen at the east limb which become a stream of increasing importance. By Mar. 2, the group consists of a small regular spot as leader, a cluster, and a large spot in close juxtaposition to the leader of Group 9426, with which it coalesces on March 4. On this date, the two groups might have been considered as one very extended disturbance, and the division of the compound spot is somewhat arbitrary, but the development of the two groups and the arrangement of the surrounding faculæ indicate two distinct centres of activity.

Group 9425. Feb. 24-Mar. 2. A small regular spot, just north of Group 9424, dividing into two portions on Feb. 28 which quickly disappear.

Group 9426. Feb. 25-Mar. 9. A very large stream developing from two small spots in a small area of faculæ seen close to the east limb on Feb. 25. On Feb. 28 and March 1, it appears as a stream of normal type, but rapid changes in the component spots and its proximity to Group 9424 give it a more composite character at its fullest development about March 3. The surrounding faculæ is not extensive for so large and active a group of spots.

Group 9427. Feb. 26-Mar. 4. A small group of the stream type. The leader alone remains on March 3, but a faint spot, which marks the following component, appears last on March 4.

Group 9428. Feb. 27-Mar. 1. A single small spot on Feb. 27; a pair on the following two days.

Group 9429. Mar. 1-12. A large composite spot preceded by a companion which breaks up into a cluster on March 4. The chief umbra in the following part of the composite spot becomes the nucleus of a small regular spot, which remains while the remainder of the parent spot disappears rapidly as a cluster. This group is closely associated with Group 9430.

Group 9430. Mar. 1-13. Return of Group 9420. A large spot of nearly regular formation, just north of Group 9429 with which it is evidently connected.

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G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.			G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.			
		Dist.	Pos. Angle.	Long.	Lat.	Umbra.	Whole Spots.	Faculae.			Dist.	Pos. Angle.	Long.	Lat.	Umbra.	Whole Spots.	Faculae.	
1922.			°		°				1922.			°		°				
61.102	9423	.997	263.4	189.8	- 7.1	12	104	121f	65.419	9424	.961	283.7	118.7	+11.0	39	428	} 803c	
	9427	.609	292.2	138.3	+ 7.3	8	18			9426	.920	282.9	111.9	+ 8.7	249	1070		
	9424	.419	319.6	119.8	+11.6	121	732			9429	.312	340.8	52.9	+ 9.9	73	597		
	K 9426	.306	330.8	112.4	+ 8.3	304	1384			9430	.357	348.1	51.2	+13.2	93	472		
	9429	.803	72.9	53.0	+ 9.1	120	730	} 705c	G	9431	.255	14.2	43.3	+ 7.1	24	122		
	9430	.836	69.9	50.5	+12.4	98	541				9432	.885	91.6	344.6	- 4.7	195	688	
Mar. 3		.916	76.5	(-22.0)	(103.8)	(-7.2)	(663)	(3509)			.762	86.0					496c	
								(1633)	Mar. 7		.961	71.0	(-23.0)	(46.9)	(-7.2)	(673)	(3377)	149
																	191	
																		(1639)
	62.567	.986	285.6					64	66.325	9426	.808	279.8						207
		.922	263.6					145		9429	.978	280.5	111.2	+ 8.5	183	939	909c	
	9427	.773	285.8	132.8	+ 7.4	1	5	225p		9429	.432	312.7	53.6	+10.2	74	547		
	9424	.629	298.2	118.7	+11.3	83	639		C	9430	.432	321.8	50.7	+12.8	69	411		
	G 9426	.526	300.3	111.7	+ 8.9	260	1145			6431	.283	325.9	44.0	+ 6.4	10	40		
	9429	.573	63.0	53.4	+ 8.8	105	749			9432	.770	90.4	344.5	- 4.9	131	712	669c	
	9430	.623	59.4	51.2	+12.5	84	410		Mar. 8	9433	.886	68.2	336.5	+15.5	4	11	188c	
	9431	.701	72.0	42.4	+ 7.1	4	15	263f				(-23.2)	(34.9)	(-7.2)	(471)	(2660)	(1973)	
Mar. 4		.797	63.0	(-22.4)	(84.4)	(-7.2)	(537)	(2963)										
									67.418		.915	277.0						205
											.871	290.4						169
										9426	.996	281.2	103.7	+10.4	53	399	81f	
										9429	.605	307.4	53.4	+10.1	61	483	104p	
	63.342	.893	282.7					414		G 9430	.593	303.6	50.8	+12.9	70	366		
	9424	.742	291.7	118.6	+10.8	59	649	} 261c		9431	.402	307.2	39.2	+ 7.2	6	38		
	9426	.648	292.6	111.4	+ 8.6	235	1098				9432	.586	88.7	344.6	- 5.1	120	770	83c
	9429	.441	51.4	53.9	+ 9.1	82	718		Mar. 9	9434	.788	75.4	330.5	+ 6.9	5	24	102	
	C 9430	.506	49.3	51.2	+12.6	82	440				.697	62.4	(-23.4)	(20.5)	(-7.2)	(315)	(2080)	(744)
	9431	.569	66.1	42.7	+ 7.2	35	106											
Mar. 5		.960	80.0					76										
		.973	89.7	(-22.5)	(74.2)	(-7.2)	(493)	(3011)										
								(968)	68.326		.984	276.2						293
	64.329	.966	280.0					369			.948	194.8						74
	9424	.867	286.9	118.6	+10.7	58	530	} 823c			.929	268.4						115
	9426	.800	286.7	111.8	+ 8.7	216	1011					.927	296.3					
	9429	.320	25.7	53.1	+ 9.6	66	495		C	9429	.924	284.8						139
	9430	.383	26.3	51.2	+12.9	80	447			9429	.754	290.3	54.3	+10.2	30	332	419c	
	9431	.387	51.6	43.5	+ 6.9	12	104			9430	.729	295.6	50.9	+13.0	65	315	231c	
	9432	.974	93.0	344.1	- 4.6	87	710	686c		9431	.559	294.9	39.2	+ 7.4	2	18		
Mar. 6		.899	88.3	(-22.8)	(61.2)	(-7.2)	(519)	(3297)		9432	.402	86.2	345.0	- 5.1	103	790		
								(2067)	Mar. 10	9433	.601	52.8	339.0	+15.0	3	10		
										9434	.638	69.8	331.7	+ 6.9	48	362		
											.943	175.8	(-23.6)	(8.6)	(-7.2)	(251)	(1827)	56
																		(1426)

Group 9431. Mar. 4-10. An extended area of disturbance *f* Groups 9429 and 9430, shown by faculae at the Sun's limb and later by small evanescent clusters of spots.

Group 9432. Mar. 6-17. Revival or return of Group 9422. A large complex spot becoming a cluster of numerous indefinite components in continual change and shrinking rapidly after March 13.

Group 9433. Mar. 8-10. Two small spots not seen on March 9.

Group 9434. Mar. 9-18. A regular spot with a train of small companions developing rapidly from a small cluster of tiny spots on March 9. The formation of the regular spot is from a larger compound spot, which develops from the small cluster within 24 hours.

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G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.			G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.		
		Dist.	Pos. Angle.	Long.	Lat.	Umbrae.	Whole Spots.	Faculae.			Dist.	Pos. Angle.	Long.	Lat.	Umbrae.	Whole Spots.	Faculae.
1922. 81.386	9438	.521	95.4	164.9	- 8.7	1	4		1922. 87.331	9440	.386	314.7	134.1	+ 9.2	6	21	
	9439	.975	80.2	120.7	+ 8.0	64	340	400n		9439	.266	340.0	123.2	+ 7.7	27	123	
	G	.830	72.1					136		9441	.356	45.6	103.2	+ 7.9	5	47	
		.919	77.0					309		9445	.404	45.3	101.1	+10.0	0	2	
Mar. 23			(-25.6)	(196.4)	(- 6.9)	(65)	(344)	(845)		916b	.910	71.3	55.6	+13.9	0	8	
									C	9444	.917	74.7	53.9	+11.1	24	134	253c
											.814	72.1					562
											.930	88.9					88
											.969	79.4					758
82.480	9440	.805	73.2	130.9	+ 9.1	2	7	179c			.978	68.9					63
G	9439	.898	77.7	119.9	+ 7.8	83	457	708n	Mar. 29			(-26.1)	(118.0)	(-6.7)	(62)	(335)	(1724)
	9441	.987	80.9	102.7	+ 7.7	12	88	425n									
Mar. 24			(-25.7)	(182.0)	(- 6.9)	(97)	(552)	(1312)									
83.451	9438	.120	112.6	162.8	- 9.4	1	10		88.372	9440	.564	297.4	134.7	+ 9.3	6	17	
	9440	.646	67.3	132.2	+ 9.0	7	21			9439	.412	306.0	123.9	+ 7.7	23	111	
	9439	.775	73.9	120.7	+ 8.0	61	306	367n		9441	.251	3.6	103.4	+ 7.9	7	40	
G	9441	.928	78.7	102.8	+ 7.7	17	96	429n		9445	.313	10.0	101.1	+11.3	1	4	
		.973	82.0					128	C	9444	.802	70.6	54.0	+11.3	26	129	335c
Mar. 25			(-25.8)	(169.2)	(- 6.8)	(86)	(433)	(924)			.695	64.6					301
											.830	82.4					101
											.897	76.3					494
											.919	65.2					123
84.562	9440	.447	52.9	133.4	+ 9.3	14	43		Mar. 30			(-26.2)	(104.3)	(-6.6)	(63)	(301)	(1354)
	9439	.588	65.4	121.9	+ 8.4	46	215	173c									
G	9441	.805	75.4	102.9	+ 7.4	13	65	368n									
		.878	78.8					154									
Mar. 26			(-25.9)	(154.5)	(- 6.8)	(73)	(323)	(695)									
									89.120		.790	287.6					67
										9440	.662	292.5	132.6	+ 9.5	1	5	
										9439	.546	295.2	124.2	+ 7.7	21	118	
85.631		.863	259.8					97	K	9441	.293	326.6	103.7	+ 7.6	11	40	
	9442	.279	348.6	143.6	+ 9.1	1	2			9444	.694	66.4	54.2	+11.0	20	110	
	9440	.296	21.2	134.2	+ 9.3	16	59				.812	70.4					53c
	9439	.398	51.0	122.3	+ 8.1	33	190		Mar. 31			(-26.2)	(94.4)	(-6.6)	(53)	(273)	(597)
G	9441	.644	69.7	103.0	+ 7.5	12	74	166n									
	9443	.735	79.4	94.3	+ 3.1	1	11	283n									
		.968	77.6					751									
Mar. 27			(-26.0)	(140.4)	(- 6.7)	(63)	(336)	(1297)									
									90.469		.936	283.4					108
											.861	287.3					269
86.344	9442	.356	321.4	144.0	+ 9.6	0	1			9439	.762	286.0	124.1	+ 7.7	17	85	239n
	9440	.281	348.2	134.3	+ 9.2	12	48			9441	.513	296.8	104.0	+ 7.6	8	13	
	9439	.294	29.0	122.8	+ 8.2	28	159		G	916c	.408	31.1	64.1	+14.1	0	4	
	9441	.525	63.0	102.9	+ 7.9	12	67			9444	.474	51.7	54.4	+11.0	21	101	
	9443	.616	76.4	94.3	+ 2.9	2	6			9446	.579	64.9	44.7	+ 8.6	0	2	
	9444	.983	77.0	53.6	+11.3	21	157	230c		9447	.939	76.1	8.8	+10.7	28	167	352c
		.919	75.2					682			.977	92.7					138
Mar. 28			(-26.0)	(131.0)	(- 6.7)	(75)	(438)	(912)	Apr. 1			(-26.3)	(-76.6)	(-6.5)	(74)	(372)	(1106)

Group 9439. Mar. 23-Apr. 3. Return of Groups 9424 and 9426. A regular spot, with several smaller followers until March 30.
 Group 9440. Mar. 24-31. A small stream *p* Group 9439.
 Group 9441. Mar. 24-Apr. 2. A small regular spot, gradually diminishing, which is probably the return of the following component of Group 9426.
 Group 9442. Mar. 27-28. A single minute but distinct spot.
 Group 9443. Mar. 27-28. A very small double spot.
 Group 9444. Mar. 28-Apr. 8. Return of Group 9430. A small but stable regular spot.
 Group 9445. Mar. 29-30. A very small spot *nf* Group 9441.
 Group 9446. Apr. 1-2. A very small spot *f* Group 9444.
 Group 9447. Apr. 1-7. A sparse stream of generally unimportant spots.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1922.

G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.			G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.		
		Dist.	Pos. Angle.	Long.	Lat.	Umbre.	Whole Spots.	Faculæ.			Dist.	Pos. Angle.	Long.	Lat.	Umbre.	Whole Spots.	Faculæ.
1922.			°		°				1922.			°		°			
91.354		.951	284.5					357	95.470	.958	292.6						218
		.916	274.5					41		.857	288.6						539
	9439	.870	282.8	123.6	+ 7.8	16	95	425 ⁿ	G	9444	.732	291.5	54.4	+11.0	14	87	125 ^p
	9441	.668	289.3	104.3	+ 7.8	3	9			9447	.282	5.6	9.0	+10.0	12	63	
	916d	.283	355.0	66.3	+ 9.9	0	6			916f	.363	113.3	350.6	-14.1	2	4	(882)
	C	9444	.350	31.0	54.4	+11.0	20	96	Apr. 6			(-26.4)	(10.6)	(-6.2)	(28)	(154)	
	9446	.425	53.5	44.8	+ 8.5	1	7										
	9447	.844	73.5	9.8	+10.2	32	132	277 ^c									
		.931	177.0					27									
	Apr. 2	.946	92.1					398	96.372	.940	286.3						555
			(-26.3)	(64.9)	(-6.4)	(72)	(345)	(1525)		.841	270.0						86
										.737	286.8						340
										C	.736	303.0					97
										9444	.853	286.9	54.7	+11.0	12	91	84 ^c
										9447	.329	330.2	8.2	+10.5	6	45	
	92.375	.839	288.2					399	Apr. 7			(-26.4)	(358.7)	(-6.1)	(18)	(136)	(1162)
		.709	289.1					140									
	9439	.958	280.2	123.4	+ 7.8	15	109	482 ⁿ									
	9444	.302	319.8	54.6	+10.8	23	103										
	C	9447	.705	68.4	9.9	+10.2	20	123	97.349	.990	282.7						340
			.866	90.6				379		.876	271.9						152
			.938	67.1				70		C	.850	285.9					494
			.965	84.5				130		.837	302.2						149
			.969	75.4				185		9444	.943	284.0	54.3	+11.0	16	80	181 ^c
	Apr. 3		(-26.4)	(51.5)	(-6.4)	(58)	(335)	(2001)	Apr. 8			(-26.4)	(345.8)	(-6.1)	(16)	(80)	(1316)
	93.404	.924	284.0					490	98.531	.950	293.7						87
		.494	300.4	63.3	+ 8.8	1	2			.949	279.0						524
	9444	.405	316.4	54.4	+11.0	20	90			C	.689	290.2					166
	9447	.538	59.4	9.9	+10.2	22	97			917a	.696	257.0	14.2	-13.3	1	6	
		.694	89.6					220		917b	.531	120.0	300.9	-20.6	1	6	
	G	.791	91.6					223	Apr. 9			(-26.4)	(330.2)	(-6.0)	(2)	(12)	(777)
		.826	63.0					53									
		.886	81.4					100									
		.888	73.0					137									
	Apr. 4	.922	98.4					70	99.564	.984	281.0						77
			(-26.4)	(37.9)	(-6.3)	(43)	(189)	(1293)	G	.804	288.2						379
									Apr. 10	9448	.965	98.0	241.3	- 9.2	0	8	258 ^{sf}
												(-26.4)	(316.6)	(-5.9)	(0)	(8)	(714)
	94.353	.951	282.1					344									
		.724	292.6					459									
	G	9444	.555	300.8	54.3	+11.0	20	86	100.362	.835	286.0						366
		9447	.373	42.5	10.6	+ 9.8	14	49	G	.767	270.4						125
			.845	97.4				51	Apr. 11	9448	.903	98.0	241.2	- 9.8	5	13	210 ^{sf}
	Apr. 5		(-26.4)	(25.4)	(-6.3)	(34)	(135)	(854)				(-26.4)	(306.1)	(-5.9)	(5)	(13)	(701)

Group 9448. Apr. 10-11. Two very small but well-defined spots.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1922.

G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.			G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.		
		Dist.	Pos. Angle.	Long.	Lat.	Umbrae.	Whole Spots.	Faculae.			Dist.	Pos. Angle.	Long.	Lat.	Umbrae.	Whole Spots.	Faculae.
1922. 101.533 C		.977 .883 .777	283.3 268.7 99.4	°	°			368 291 182 (841)	1922. 110.414 G		.910 .779 .904 .963	° 257.7 73.6 74.1 80.3	°	°			165 149 206 81 (601)
Apr. 12			(-26.3)	(290.6)	(-5.8)	(0)	(0)		Apr. 21			(-25.7)	(173.3)	(-5.0)	(0)	(0)	
102.368 G		.938 .871	267.5 288.4					197 106 (303)	111.312 C	9449	.859 .803 .985	79.0 70.6 81.3	103.5	+ 6.8	2	10	105f 198 110 (413)
Apr. 13			(-26.3)	(279.6)	(-5.7)	(0)	(0)		Apr. 22			(-25.6)	(161.4)	(-5.0)	(2)	(10)	
103.513 G		.981 .960 .930	267.2 276.8 287.4					71 49 104 (224)	112.316 G	9449	.720 .644 .929 .984	76.1 64.1 79.5 76.5	103.7	+ 6.5	15	45	67c 108 149 304 (628)
Apr. 14			(-26.2)	(264.4)	(-5.6)	(0)	(0)		Apr. 23			(-25.5)	(148.2)	(-4.9)	(15)	(45)	
Apr. 15 } and } Apr. 16 }		Nospots or faculae															
106.442 G		.974	76.3					132	G		.512 .972 .805 .902 .942 .979	69.5 83.0 77.0 72.6 62.6 75.2	104.6 57.7	+ 6.1 + 5.6	11 29	41 136	330c 102 306 122 67 (927)
Apr. 17			(-26.1)	(225.8)	(-5.4)	(0)	(0)	(132)	Apr. 24			(-25.4)	(133.3)	(-4.8)	(40)	(177)	
107.451 G	917c	.617 .921	89.3 74.3	174.5	- 3.8	3	7	133 (133)	114.440 G	9449 9450	.301 .890 .799 .909 .967	55.6 80.8 68.6 69.5 79.8	105.7 58.2	+ 5.2 + 6.0	7 15	19 117	314c 258 119 181 (872)
Apr. 18			(-26.0)	(212.5)	(-5.3)	(3)	(7)		Apr. 25			(-25.2)	(120.1)	(-4.7)	(22)	(136)	
108.449 G		.871 .967	72.9 78.9					234 288 (522)									
Apr. 19			(-25.9)	(199.7)	(-5.2)	(0)	(0)		115.550 G	9449 9450	.752 .221 .757 .896 .922	292.5 21.1 77.9 77.2 64.6	100.8 57.5	+ 7.3 + 6.0	2 10	11 81	93 230c 286 128 (737)
109.356 C		.811 .810 .890 .972	258.8 68.8 77.4 77.1					113 108 193 196 (610)	Apr. 26			(-25.1)	(105.4)	(-4.6)	(12)	(92)	
Apr. 20			(-25.8)	(187.3)	(-5.1)	(0)	(0)										

Group 9449. Apr. 22-30. A diminutive stream. The leader has disappeared on April 26.
Group 9450. Apr. 24-May 1. A small diminishing regular spot with two or three companions following.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1922.

G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.			G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.			
		Dist.	Pos. Angle.	Long.	Lat.	Umbræ.	Whole Spots.	Faculæ.			Dist.	Pos. Angle.	Long.	Lat.	Umbræ.	Whole Spots.	Faculæ.	
1922. 116.553		.877	286.5	°	°			80	1922. 120.438	9451	.487	63.7	14.8	+ 8.7	101	525		
	9449	.757	291.4					110	G		.840	93.0					175	
	917d	.254	318.3	101.9	+ 6.4	6	14		May 1		.878	70.3	(-24.3)	(40.9)	(-4.1)	(104)	(553)	(838)
	9450	.466	47.8	71.5	+14.0	1	5											
		.606	73.2	56.6	+ 6.4	9	27											
		.790	72.5					122										
		.852	61.7					117										
		.880	78.7					58	121.418		.976	277.9						200
		.971	80.1					195	G		.840	280.3						113
Apr. 27			(-24.9)	(92.2)	(-4.5)	(16)	(46)	(682)			.742	294.9						297
									May 2	9451	.316	46.9	14.5	+ 8.5	106	537		
										917e	.801	106.1	335.2	-15.3	1	3		
												(-24.1)	(27.9)	(-4.0)	(107)	(540)	(610)	
117.449		.879	289.2					162										
		.737	286.8					141										
	9449	.429	294.1	103.5	+ 6.0	7	23											
	9450	.436	66.8	56.8	+ 5.8	8	31											
		.906	77.8					241	122.354		.931	280.7						142
Apr. 28			(-24.8)	(80.4)	(-4.4)	(15)	(54)	(544)	C		.838	291.4						313
									May 3	9451	.220	5.5	14.3	+ 8.7	86	493		
												(-23.9)	(15.5)	(-3.9)	(86)	(493)	(455)	
118.355		.952	286.4					171										
		.856	285.9					177	123.486		.935	290.5						410
		.735	291.7					220	G		.804	284.1						365
	9449	.619	284.3	105.3	+ 5.3	3	16				.327	308.7	15.5	+ 8.0	73	394		
	9450	.296	51.1	55.1	+ 6.5	7	45		May 4	9451			(-23.7)	(0.6)	(-3.8)	(73)	(394)	(775)
		.772	68.9					61										
		.846	77.2					171										
		.935	93.9					139	124.510		.968	291.8						153
Apr. 29			(-24.7)	(68.4)	(-4.3)	(10)	(61)	(939)	G		.899	280.0						441
									May 5	9451	.847	294.9						151
											.512	293.1	15.3	+ 8.3	64	330		
												(-25.3)	(347.0)	(-3.7)	(64)	(330)	(745)	
119.110		.932	282.9					201										
		.827	286.6					195										
	9449	.732	280.9	104.4	+ 5.0	1	3											
	9450	.181	11.6	56.3	+ 6.0	8	30											
	9451	.730	73.1	13.5	+ 9.3	31	121											
		.856	95.7					167	125.342		.946	278.8						357
		.958	74.0					64	G		.905	293.8						150
		.969	93.7					125	May 6	9451	.676	286.6	16.7	+ 8.4	58	274		
Apr. 30			(-24.5)	(58.4)	(-4.2)	(40)	(154)	(752)				(-23.4)	(336.0)	(-3.6)	(58)	(274)	(243c)	
																	(750)	
120.438		.952	286.0					296	126.325	9451	.839	282.6	18.7	+ 8.5	63	266		744f
		.904	278.5					297	G									
	9450	.314	305.9	55.7	+ 6.6	3	28		May 7			(-23.1)	(323.0)	(-3.5)	(63)	(266)	(744)	

Group 9451. Apr. 30-May 9. A stream of normal type developing very rapidly from a few small spots seen on April 30. At first, the follower is the largest component, but it is shorter-lived than the leader which persists to the west limb.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1922.

G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.			G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.		
		Dist.	Pos. Angle.	Long.	Lat.	Umbræ.	Whole Spots.	Faculæ.			Dist.	Pos. Angle.	Long.	Lat.	Umbræ.	Whole Spots.	Faculæ.
1922. 127:345 G May 8	9451	.732	265.8	°	°			123	1922. 136:346 C May 17		.863	76.4	°	°			171
		.945	280.7 (-22.9)	19.4 (309.6)	+ 8.9 (-3.4)	33 (33)	236 (236)	707f (830)			.963	76.7 (-20.6)	190.5	(- 2.4)	(0)	(0)	(365)
128:353 G May 9	9451	.913	266.6					143	137:568 G May 18		.875	69.6					197
		.796	262.2					97			.917	81.2					84
		.995	279.4	19.6	+ 9.0	34	254	543f 42 (825)		.923	92.4 (-20.2)	174.4	(- 2.2)	(0)	(0)	124 (405)	
		.985	84.9 (-22.7)	296.2	(-3.3)	(34)	(254)										
129:372 C May 10		.983	265.3					120	138:547 G May 19		.789	79.0					78
		.882	263.2					141			.937	82.6 (-20.0)	161.4	(- 2.1)	(0)	(0)	182 (260)
		.926	83.0 (-22.4)	282.8	(-3.1)	(0)	(0)	73 (334)									
130:399 C May 11	918a	.954	263.4					138	139:344 G May 20		.863	80.5					171
		.163	334.6 (-22.2)	273.2 (269.2)	+ 5.4 (-3.0)	2 (2)	4 (4)	(138)			.938	69.4 (-19.7)	150.9	(- 2.0)	(0)	(0)	370 (541)
May 12 and May 13		No spots or faculæ.								140:287 G May 21		.742	78.2				133
												.905	71.8				
										.950	89.7					58	
										.979	83.2 (-19.4)	138.4	(- 1.9)	(0)	(0)	103 (699)	
133:317 G May 14		.947	80.2					163									
			(-21.4)	230.6	(- 2.7)	(0)	(0)	(163)									
134:354 G May 15		.956	74.4					264	141:346 G May 22		.763	70.4					173
			(-21.2)	216.9	(- 2.6)	(0)	(0)	(264)			.902	65.7					271
										.919	82.4 (-19.1)	124.4	(- 1.8)	(0)	(0)	397 (841)	
135:359 C May 16		.838	71.1					112	142:344 G May 23		.794	83.0					175
		.938	75.3 (-20.9)	203.6	(- 2.5)	(0)	(0)	249 (361)			.802	63.1					178
										.891	77.4					203	
										.944	64.6 (-18.8)	111.2	(- 1.7)	(0)	(0)	93 (649)	

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1922.

G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.			G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.		
		Dist.	Pos. Angle.	Long.	Lat.	Umbra.	Whole Spots.	Facula.			Dist.	Pos. Angle.	Long.	Lat.	Umbra.	Whole Spots.	Facula.
1922. 143.355 G	9452	.970	81.4	22.5	+ 8.0	18	127	277 ⁿ	1922. 150.354 G	9452	.925	289.1	22.8	+ 8.5	20	87	291
May 24		.776	76.2	(97.8)	(- 1.5)	(18)	(127)	178	150.354 G		.819	280.3	(5.2)	(- 0.7)	(20)	(87)	150
		.876	65.4					192	May 31	.339	297.9						(441)
			(-18.4)					(647)			(-16.0)						
144.474 G	9452	.870	291.2	22.6	+ 8.0	12	93	142	151.343 G	9452	.944	293.3	22.9	+ 6.4	5	9	204
May 25		.781	284.7	(83.0)	(- 1.4)	(12)	(93)	90	151.343 G		.888	276.8	(352.1)	(- 0.6)	(5)	(9)	341
		.876	80.1					496 ^{nf}	June 1	.525	283.4						(545)
			(-18.1)					(728)			(-15.6)						
145.492 G	9452	.915	286.9	22.4	+ 8.0	9	47	256	152.430 C	9452	.944	276.6	(337.7)	(- 0.5)	(0)	(0)	245
May 26		.744	77.9	(69.5)	(- 1.3)	(9)	(47)	326 ^f	152.430 C		.931	291.2					190
		.905	96.2					150	June 2	.751	283.8					202	
			(-17.7)					(732)			(-15.2)					(637)	
146.347 G	9452	.966	283.3	22.6	+ 7.8	17	57	215	153.441 G	9452	.922	286.5	(324.3)	(- 0.3)	(0)	(0)	109
May 27		.872	289.2	(58.2)	(- 1.2)	(17)	(57)	142	153.441 G		.799	283.5					343
		.599	75.1					169 ^f	June 3		(-14.9)					(452)	
		.913	97.4					62									
			(-17.5)					(588)									
147.328 G	9452	.944	287.2	22.3	+ 8.0	9	25	204	154.311 G	9452	.900	282.1	(312.8)	(- 0.2)	(0)	(0)	264
May 28		.417	67.9	(45.2)	(- 1.1)	(9)	(25)	100	154.311 G			(-14.5)					(264)
		.952	71.3					304	June 4								
			(-17.1)														
148.354 G	9452	.894	277.1	22.7	+ 8.0	7	25	113	155.365 G	9452	.965	281.2	(298.9)	(- 0.1)	(0)	(0)	192
May 29	.218	45.3	(31.7)	(- 0.9)	(8)	(33)	66	155.365 G			(-14.1)					(192)	
	9453	.336	50.3	16.5	+11.5	1	8	66	June 5								
		.859	67.6					179	June 6		No spots or	faculae					
			(-16.7)														
149.347 G	9452	.851	289.2	22.3	+ 8.4	5	15	269	157.342 G	9454	.701	77.5	229.0	+ 8.8	5	23	
May 30	.174	337.8	(18.5)	(- 0.8)	(5)	(25)	4	269	157.342 G			(-13.3)	(272.7)	(+ 0.1)	(5)	(23)	(0)
	9453	.210	16.2	15.1	+10.8	0	6		June 7								
	9186	.731	65.7	334.6	+16.8	0	4										
			(-16.4)	(18.5)	(- 0.8)	(5)	(25)	(269)									

Group 9452. May 24-June 1. Return of Group 9451. A small regular spot diminishing to a dot whilst a few small companions appear, making a small cluster on May 31.
 Group 9453. May 29-30. A faint spot *f* Group 9452.
 Group 9454. June 7-15. Intermittent. A small area of disturbance, shown by a few small unstable spots and accompanying faculae. The group is not seen on June 9 and 10.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1922.

G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		ARRA.			G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.		
		Dist.	Pos. Angle.	Long.	Lat.	Umbrae.	Whole Spots.	Faculae.			Dist.	Pos. Angle.	Long.	Lat.	Umbrae.	Whole Spots.	Faculae.
1922. 158:348 G June 8	9454	.503	72.5	230.5	+ 9.0	3	15		1922. 165:332 C June 15	9454 9457	.922 .526 .940 .975	280.2 253.1 82.8 99.4	233.7 197.3	+ 9.9 - 7.8	9 6	35 18	179c 90 88 (357)
159:461 G June 9	9455	.567	82.7	210.5	+ 4.5	2	14		166:343 G June 16	9457	.979 .854 .704 .905 .962	280.6 275.8 256.4 100.4 75.3	197.2	- 8.6	19	69	137 81 86 72 (376)
June 10	No spots		or faculae														
161:308 G June 11	9454 919a 9455 9456 9456	.255 .180 .199 .988 .939	304.3 347.9 62.4 81.5 74.6	232.4 222.4 210.0 139.4 (220.2)	+ 8.8 +10.7 + 5.8 + 8.5 (+ 0.6)	1 1 6 0 (8)	9 3 23 16 (51)		167:357 G June 17	9457	.852 .766 .892 .899 .948	258.7 101.9 61.5 71.7 81.5	197.6	- 8.8	10	43	97c 101 124 141 149 (612)
162:347 G June 12	9454 9455 9456	.455 .110 .932 .915	288.1 316.9 80.3 67.7	232.3 210.8 138.2 (206.5)	+ 8.8 + 5.3 + 9.3 (+ 0.7)	3 3 14 (20)	17 10 41 (68)		168:634 G June 18		.934 .877 .925	258.4 82.2 61.5	(123.2)	(+ 1.5)	(0)	(0)	164 269 125 (558)
163:362 C June 13	9454 9456	.625 .804 .835	184.2 79.4 65.6	230.7 140.1 (193.0)	+ 9.5 + 9.0 (+ 0.9)	5 11 (16)	10 25 (35)		169:389 G June 19	919b 919c	.971 .524 .406 .864 .870 .950	259.6 358.0 114.0 78.7 59.6 69.4	114.4 91.3	+33.0 - 8.0	0 2	1 8	92 157 86 71 (406)
164:362 C June 14	9454 9456	.797 .653 .934	280.6 77.4 71.6	232.1 139.8 (179.8)	+ 9.1 + 8.9 (+ 1.0)	4 5 (9)	26 20 (46)		170:552 G June 20		.923 .702 .893 .976	283.7 283.7 77.7 78.5	(97.8)	(+ 1.7)	(0)	(0)	48 238 200 115 (601)

Group 9455. June 9-12. A pair of small double spots not seen on June 10.
 Group 9456. June 11-14. A pair of small spots in faculae.
 Group 9457. June 15-17. A close pair of small but dark spots.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1922.

G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.			G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.				
		Dist.	Pos. Angle.	Long.	Lat.	Umbrae.	Whole Spots.	Faculae.			Dist.	Pos. Angle.	Long.	Lat.	Umbrae.	Whole Spots.	Faculae.		
1922. 171 ^h 40 ^m	G 9458	·909	283 ^h ·8	°	°				1922. 178 ^h 40 ^m	C	·972	349 ^h ·2	°	°					
		·823	280 ^h ·2								·960	294 ^h ·6							
		·778	293 ^h ·4								·916	277 ^h ·3							
		·201	217 ^h ·0	93 ^h ·6	- 7 ^h ·4	6	17		June 28		·847	296 ^h ·2	(-4 ^h ·2)	(353 ^h ·9)	(+ 2 ^h ·6)	(0)	(0)	(515)	
June 21		·900	77 ^h ·6	(-7 ^h ·4)	(86 ^h ·6)	(+ 1 ^h ·8)	(6)	(17)	304 (760)										
172 ^h 34 ^m	G 9458	·928	280 ^h ·1						179 ^h 35 ^m	G	·940	275 ^h ·6							
		·881	292 ^h ·3								·960	294 ^h ·6	(-3 ^h ·8)	(341 ^h ·4)	(+ 2 ^h ·7)	(0)	(0)	(132)	
June 22		·401	247 ^h ·9	96 ^h ·0	- 6 ^h ·9	4	13		June 29		·813	75 ^h ·3	(-6 ^h ·9)	(74 ^h ·1)	(+ 1 ^h ·9)	(4)	(13)	(483)	
		·813	75 ^h ·3	(-6 ^h ·9)	(74 ^h ·1)	(+ 1 ^h ·9)	(4)	(13)	106 (483)										
173 ^h 34 ^m	G 9458	·975	281 ^h ·1						180 ^h 34 ^m	G	·909	280 ^h ·2							
		·946	291 ^h ·4								·933	286 ^h ·5	(-3 ^h ·3)	(328 ^h ·2)	(+ 2 ^h ·8)	(0)	(0)	(134)	
June 23		·559	255 ^h ·3	93 ^h ·7	- 6 ^h ·4	0	1		June 30		·838	82 ^h ·3	(-6 ^h ·5)	(60 ^h ·9)	(+ 2 ^h ·0)	(0)	(1)	(262)	
		·559	255 ^h ·3	(-6 ^h ·5)	(60 ^h ·9)	(+ 2 ^h ·0)	(0)	(1)	150 112 (262)										
174 ^h 44 ^m	C 919d	·742	257 ^h ·4	93 ^h ·0	- 7 ^h ·7	1	7	107 ^f	181 ^h 40 ^m	C	·933	286 ^h ·5							
June 24		·515	17 ^h ·8	35 ^h ·7	+ 31 ^h ·4	1	4		July 1		·838	82 ^h ·3	(-7 ^h ·7)	(33 ^h ·6)	(+ 31 ^h ·4)	(1)	(4)	(107)	
		·515	17 ^h ·8	(-6 ^h ·0)	(46 ^h ·3)	(+ 2 ^h ·2)	(2)	(11)	182 ^h 18 ^m		·958	285 ^h ·5	(-2 ^h ·5)	(303 ^h ·9)	(+ 3 ^h ·0)	(0)	(0)	120 135 (255)	
175 ^h 40 ^m	G 9458	·920	279 ^h ·0	97 ^h ·3	- 8 ^h ·0	2	6	107 134 ^f (241)	183 ^h 59 ^m	G	·936	77 ^h ·7							
June 25		·903	260 ^h ·0	(-5 ^h ·6)	(33 ^h ·6)	(+ 2 ^h ·3)	(2)	(6)	July 3		·900	80 ^h ·1	(-8 ^h ·0)	(97 ^h ·3)	(- 8 ^h ·0)	(2)	(6)	(241)	
		·903	260 ^h ·0	(-5 ^h ·6)	(33 ^h ·6)	(+ 2 ^h ·3)	(2)	(6)	184 ^h 21 ^m		·573	76 ^h ·9	242 ^h ·5	+ 10 ^h ·1	5	10	80 (80)		
176 ^h 41 ^m	C 9459	·967	260 ^h ·7						July 4		·964	73 ^h ·1	242 ^h ·8	+ 8 ^h ·5	3	8			
June 26			·967	260 ^h ·7	(-5 ^h ·1)	(20 ^h ·2)	(+ 2 ^h ·4)	(0)	(0)	185 ^h 43 ^m		·964	101 ^h ·8	187 ^h ·5	- 10 ^h ·4	6	30	209 ^f (209)	
		·967	260 ^h ·7	(-5 ^h ·1)	(20 ^h ·2)	(+ 2 ^h ·4)	(0)	(0)	July 5		·964	101 ^h ·8	187 ^h ·5	- 10 ^h ·4	6	30	209 ^f (209)		
177 ^h 43 ^m	C 9460	·945	288 ^h ·8						185 ^h 43 ^m	C	·320	73 ^h ·1	242 ^h ·8	+ 8 ^h ·5	3	8			
June 27		·833	279 ^h ·1	(-4 ^h ·7)	(-6 ^h ·7)	(+ 2 ^h ·5)	(0)	(0)	July 5		·960	·964	101 ^h ·8	187 ^h ·5	- 10 ^h ·4	6	30	209 ^f (209)	
		·833	279 ^h ·1	(-4 ^h ·7)	(-6 ^h ·7)	(+ 2 ^h ·5)	(0)	(0)			·964	101 ^h ·8	187 ^h ·5	- 10 ^h ·4	6	30	209 ^f (209)		

Group 9458. June 21-25. A very small stream on June 21 of which a representative spot appears on the following days.
 Group 9459. July 4-9. A small stream of faint unstable spots.
 Group 9460. July 5-10. A small definite spot.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1922.

G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.			G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.		
		Dist.	Pos. Angle.	Long.	Lat.	Umbrae.	Whole Spots.	Faculae.			Dist.	Pos. Angle.	Long.	Lat.	Umbrae.	Whole Spots.	Faculae.
1922. 186°398 C July 6	9459 9460	.135 .883	42.8 103.6 (-0.6)	242.8 187.6 (248.1)	+ 9.1 -10.2 (+ 3.5)	22 9 (31)	110 33 (143)	282f (282)	1922. 192°357 C July 12	9461	.966 .131 .871 .924	280.1 29.3 82.3 104.3 (+2.1)	165.5 (169.2)	+10.6 (+ 4.1)	5 (5)	10 (10)	161 69 72 (302)
187°363 G July 7	9459 9460 9461	.188 .745 .979	303.9 106.2 78.9 (-0.1)	244.4 189.0 156.8 (235.3)	+ 9.6 - 9.5 +11.6 (+ 3.6)	10 9 0 (19)	48 25 14 (87)	266f 110n (376)	193°359 C July 13		.817	107.1 (+2.6)	(156.0)	(+ 4.2)	(0)	(0)	63 (63)
188°739 G July 8	9459 9460 9461	.469 .516 .847 .936	283.9 116.1 78.5 80.7 (+0.5)	244.5 189.2 159.4 (217.1)	+ 9.7 - 9.9 +11.7 (+ 3.7)	10 10 13 (33)	49 31 32 (112)	116f 79c 127 (322)	194°356 C July 14	920c	.734 .699 .918 .960	252.7 102.0 68.8 82.8 (+3.0)	99.6 (142.8)	- 5.2 (+ 4.3)	1 (1)	6 (6)	173 120 139 (432)
189°739 G July 9	9459 9460 9461	.660 .333 .676 .840 .904 .935	281.3 133.8 77.2 79.4 71.7 99.6 (+0.9)	244.9 189.9 161.8 (203.9)	+10.3 - 9.6 +11.4 (+ 3.8)	1 9 12 (22)	9 14 41 (64)	78 66 197 (341)	195°519 G July 15		.880 .825 .880 .885	257.2 246.5 83.8 63.3 (+3.6)	(127.4)	(+ 4.4)	(0)	(0)	106 65 130 79 (380)
190°345 G July 10	920a 9460 9461	.762 .157 .245 .567 .732 .807 .870 .878	278.8 5.5 158.8 75.6 74.2 82.6 70.4 100.8 (+ 1.2)	195.0 190.8 162.0 (195.9)	+12.8 - 9.3 +11.3 (+ 3.9)	1 9 8 (18)	7 23 25 (55)	122 66 57 80 130 (455)	196°292 G July 16		.962 .910 .816	259.5 250.7 82.1 (+3.9)	(117.2)	(+ 4.5)	(0)	(0)	167 209 78 (454)
191°358 G July 11	920b 9461	.884 .316 .337 .749 .954 .979	279.4 223.7 67.7 101.3 82.5 101.7 (+1.7)	195.2 164.1 (182.5)	- 9.3 +11.0 (+ 4.0)	1 4 (5)	11 10 (21)	72 93 77 (440)	197°435 G July 17		.875	281.2 (+4.4)	(102.2)	(+ 4.6)	(0)	(0)	129 (129)
									198°357 C July 18		.958 .921	281.3 99.7 (+4.8)	(89.8)	(+ 4.7)	(0)	(0)	107 57 (164)

Group 9461. July 7-12. Two small spots, 6° apart in longitude. The leader alone remains on July 12.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1922.

G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.			G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.		
		Dist.	Pos. Angle.	Long.	Lat.	Umbrae.	Whole Spots.	Faculae.			Dist.	Pos. Angle.	Long.	Lat.	Umbrae.	Whole Spots.	Faculae.
1922. 199:339 G July 19	9462	.804	101.4 (+5.2)	24.7 (76.9)	- 6.2 (+ 4.8)	77 (77)	302 (302)	140c (140)	1922. 206:450 G July 26	9462	.965 .748	285.0 257.5 (+8.3)	29.8 (342.8)	- 5.6 (+ 5.4)	32 (32)	209 (209)	75 213c (288)
200:386 G July 20	9462	.638	106.1 (+5.7)	25.1 (63.0)	- 6.3 (+ 4.9)	78 (78)	502 (502)	(0)	207:345 G July 27	9462	.943 .870	277.9 259.7 (+8.7)	30.1 (330.9)	- 6.2 (+ 5.4)	29 (29)	160 (160)	142 292f (434)
201:455 G July 21	9462	.438	115.0 (+6.2)	25.5 (48.9)	- 6.1 (+ 5.0)	78 (78)	449 (449)	(0)	208:343 G July 28	9462	.962 .912	261.7 80.7 (+9.1)	30.8 (317.7)	- 6.4 (+ 5.5)	27 (27)	108 (108)	405f 48 (453)
202:419 C July 22	920d 9462	.593 .265 .974	221.0 135.4 84.2 (+6.6)	60.8 25.4 (36.1)	-22.0 - 5.9 (+ 5.0)	1 75 (76)	4 367 (371)	98 (98)	209:345 G July 29	9462	.969 .804	263.4 260.5 (+ 9.5)	(304.5)	(+ 5.6)	(0)	(0)	271 95 (366)
203:241 K July 23	9462 9463	.850 .832 .186 .543 .925	261.1 288.0 184.4 111.9 84.7 (+6.9)	26.0 354.8 (25.2)	- 5.5 - 7.2 (+ 5.1)	77 2 (79)	394 8 (402)	90 77 (346)	210:130 K July 30	9462	.919	259.8 (+ 9.8)	(294.1)	(+ 5.7)	(0)	(0)	54 (54)
204:413 C July 24	9462 9463	.950 .892 .865 .802 .356 .301	284.1 294.4 271.8 283.6 239.1 132.2 (+7.4)	27.5 356.8 (9.7)	- 5.5 - 6.6 (+ 5.2)	58 3 (61)	287 7 (294)	81 75 168 71 (395)	211:339 G July 31	9462	.893	252.1 (+10.3)	(278.1)	(+ 5.8)	(0)	(0)	34 (34)
205:424 G July 25	9462 9463	.940 .893 .882 .560 .210	271.7 280.7 297.3 251.5 185.7 (+7.9)	28.4 357.5 (356.3)	- 5.7 - 6.7 (+ 5.3)	44 4 (48)	269 8 (277)	139 109 96 (344)	212:346 G Aug. 1	9462	.936 .938	101.3 86.3 (+10.7)	(264.8)	(+ 5.8)	(0)	(0)	63 60 (123)
									213:341 G Aug. 2	9464	.986 .832 .845 .938	80.9 86.9 105.6 105.5 (+11.1)	170.7 (251.6)	+ 9.9 (+ 5.9)	15 (15)	41 (41)	89n 61 79 84 (313)

Group 9462. July 19-28. A stream of normal type developing rapidly in the first 24 hours of its appearance. On July 26, the leader spot, which is the only significant survivor of the stream, divides into two unequal portions of which the following one rapidly disappears.
 Group 9463. July 23-25. Two or three very small spots.
 Group 9464. Aug. 2-6. A small regular spot dying out as a dot.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1922.

G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.			G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.		
		Dist.	Pos. Angle.	Long.	Lat.	Umbrae.	Whole Spots.	Faculae.			Dist.	Pos. Angle.	Long.	Lat.	Umbrae.	Whole Spots.	Faculae.
1922. 214.396 G Aug. 3	9464	.921 .702 .836	81.7 108.5 109.3 (+11.5)	170.3 (237.7)	+ 9.9 (+ 6.0)	10 (10)	44 (44)	212nf 79 77 (368)	1922. 223.354 C Aug. 12		.968 .935 .758	350.3 356.9 279.0 (+14.9)	119.2 (119.2)	+ 6.5 (+ 6.5)	(0)	(0)	65 47 128 (240)
215.110 K Aug. 4	9464	.849 .872	81.9 104.5 (+11.8)	169.8 (228.2)	+10.1 (+ 6.0)	9 (9)	38 (38)	309nf 81 (390)	224.470 C Aug. 13		.883 .951	280.2 100.3 (+15.3)	104.5 (104.5)	+ 6.6 (+ 6.6)	(0)	(0)	131 288 (419)
216.582 G Aug. 5	9464	.616	81.3 (+12.4)	170.7 (208.8)	+10.2 (+ 6.1)	5 (5)	9 (9)	156f (156)	225.360 C Aug. 14		.966 .896	280.4 101.2 (+15.6)	92.7 (92.7)	+ 6.6 (+ 6.6)	(0)	(0)	150 226 (376)
217.363 C Aug. 6	921a 9464	.308 .470	159.2 80.1 (+12.7)	192.1 170.6 (198.5)	-10.5 +10.1 (+ 6.2)	7 1 (8)	21 6 (27)	(0)	226.345 G Aug. 15		.805	103.4 (+15.9)	79.7 (79.7)	+ 6.7 (+ 6.7)	(0)	(0)	284 (284)
218.684 G Aug. 7	921b	.307	190.6 (+13.2)	184.3 (181.0)	-11.3 (+ 6.3)	1 (1)	4 (4)	(0)	227.367 G Aug. 16		.925	352.9 (+16.3)	66.2 (66.2)	+ 6.7 (+ 6.7)	(0)	(0)	38 (38)
219.557 G Aug. 8		.929 .949	351.5 8.9 (+13.5)	169.4 (169.4)	+ 6.3 (+ 6.3)	(0)	(0)	42 19 (61)	Aug. 17 to Aug. 20	No spots or faculae							
Aug. 9			No spots or faculae						232.346 G Aug. 21		.923 .649 .465 .442	272.7 294.7 277.4 131.8 (+17.9)	39.4 28.2 340.9 (0.4)	+21.1 + 9.5 -10.5 (+ 6.9)	1 1 1 (3)	1 1 3 (5)	50 (50)
221.567 G Aug. 10		.914 .941	66.7 86.3 (+14.3)	142.9 (142.9)	+ 6.4 (+ 6.4)	(0)	(0)	89 99 (188)			.754	255.4 (+18.3)	344.3 (344.3)	+ 7.0 (+ 7.0)	(0)	(0)	137 (137)
Aug. 11			No spots or faculae						233.562 G Aug. 22								

Group 9465. Aug. 21-28 A very small ephemeral spot on August 21. Two pairs of very small spots are seen on August 23. These multiply and become a stream in which the changes are rapid and considerable.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1922.

G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.			G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.		
		Dist.	Pos. Angle.	Long.	Lat.	Umbræ.	Whole Spots.	Faculæ.			Dist.	Pos. Angle.	Long.	Lat.	Umbræ.	Whole Spots.	Faculæ.
1922. 234-376 G Aug. 23	9465	.855 .326	256.4 196.8 (+18.6)	339.1 (333.6)	-11.1 (+ 7.0)	5 (5)	18 (18)	200 (200)	1922. 242-523 G Aug. 31	9466 9467	.937 .960 .929 .879 .943	351.6 272.1 274.7 83.7 12.7 (+20.9)	299.8 294.5 (225.9)	+ 4.1 + 7.0 (+ 7.2)	20 1 (21)	111 11 (122)	39 348c 52 41 (480)
235-370 C Aug. 24	9465	.946 .451	260.7 226.3 (+18.9)	339.8 (320.4)	-11.5 (+ 7.0)	42 (42)	144 (144)	222 (222)	243-359 G Sept. 1	9468	.985 .294 .931	273.9 284.1 11.1 (+21.1)	231.7 (214.9)	+11.0 (+ 7.2)	1 (1)	5 (5)	206 113 (319)
236-424 G Aug. 25	9465	.628	240.4 (+19.2)	340.3 (306.5)	-12.2 (+ 7.1)	90 (90)	415 (415)	(0)	244-341 C Sept. 2		.925	7.7 (+21.3)	(201.9)	(+ 7.2)	(0)	(0)	70 (70)
237-353 G Aug. 26	9465	.767	247.2 (+19.4)	340.4 (294.2)	-12.4 (+ 7.1)	72 (72)	503 (503)	(204)	245-543 G Sept. 3		.919	6.0 (+21.6)	(180.6)	(+ 7.2)	(0)	(0)	71 (71)
238-381 G Aug. 27	9465 9466	.896 .260	252.3 260.5 (+19.7)	341.3 295.4 (280.6)	-12.4 + 4.4 (+ 7.1)	65 2 (67)	359 5 (364)	392c (392)	246-381 C Sept. 4		.891 .958	3.9 8.0 (+21.9)	(175.0)	(+ 7.2)	(0)	(0)	85 105 (190)
239-416 C Aug. 28	9465 9466	.974 .503	256.1 265.6 (+20.7)	341.7 297.0 (267.0)	-11.7 + 3.9 (+ 7.1)	52 16 (68)	449 66 (515)	434c (434)	Sept. 5		No spots or faculæ.						
240-357 G Aug. 29	9466	.992 .680 .960	255.7 267.9 77.9 (+20.3)	297.2 (254.5)	+ 3.8 (+ 7.1)	58 (58)	215 (215)	355 118 (473)	248-366 G Sept. 6		.933	85.7 (+22.3)	(148.8)	(+ 7.2)	(0)	(0)	99 (99)
241-452 C Aug. 30	9466 9467 9468	.846 .792 .192 .956	270.0 274.1 56.6 15.4 (+20.6)	297.9 292.7 230.7 (240.1)	+ 3.9 + 7.7 +13.1 (+ 7.2)	40 6 0 (46)	193 23 5 (221)	251c (301)	249-358 G Sept. 7	922a	.330 .877	162.2 89.3 (+22.5)	129.8 (135.7)	-11.0 (+ 7.2)	1 (1)	3 (3)	109 (109)

Group 9466. Aug. 27-31. A small group of the "stream" type, consisting generally of two spots. Group 9467 appears *nf* in the same disturbed area.
 Group 9467. Aug. 30-31. A pair of small spots on August 30; one only on the following day.
 Group 9468. Aug. 30-Sept. 1. Two very small spots on August 30; one only on September 1, nothing being seen on the intermediate day.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1922.																		
G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.			G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.			
		Dist.	Pos. Angle.	Long.	Lat.	Umbrae.	Whole Spots.	Faculae			Dist.	Pos. Angle.	Long.	Lat.	Umbrae.	Whole Spots.	Faculae.	
1922. 250.422 G Sept. 8		.905	108.2 ° (+22.8)	° (121.6)	° (+ 7.2)	(0)	(0)	(65)	1922. 259.352 C Sept. 17	9469	.897 .450 .865	282.9 134.7 87.3 (+24.5)	° 344.7 (3.7)	° -11.6 (+ 7.2)	30 (30)	140 (140)	68 104 (172)	
251.605 G Sept. 9		.951 .933	282.8 101.4 (+23.0)	(106.0)	(+ 7.2)	(0)	(0)	(272)	260.353 G Sept. 18	9469	.938 .335	273.3 163.8 (+24.6)	345.0 (350.5)	-11.6 (+ 7.1)	26 (26)	119 (119)	79 (79)	
252.341 G Sept. 10		.815 .905	77.0 100.4 (+23.2)	(96.3)	(+ 7.2)	(0)	(0)	(220)	261.398 C Sept. 19	9469	.350	203.1 (+24.8)	344.7 (336.7)	-11.6 (+ 7.1)	23 (23)	124 (124)	(0)	
Sept. 11		No spots or faculae.								262.366 G Sept. 20	9469	.468	227.7 (+24.9)	344.5 (323.9)	-11.6 (+ 7.1)	16 (16)	117 (117)	(0)
254.360 G Sept. 12		.987	101.9 (+23.6)	(69.6)	(+ 7.2)	(0)	(0)	(67)	263.599 G Sept. 21	9469 923a	.658 .705	242.6 96.5 (+25.1)	344.1 263.3 (307.6)	-11.9 + 0.5 (+ 7.1)	22 1 (23)	113 3 (116)	(0)	
255.350 G Sept. 13	9469	.962	105.0 (+23.8)	344.8 (56.5)	-12.2 (+ 7.2)	35 (35)	231 (231)	528c (528)	264.360 G Sept. 22	9469	.766	247.8 (+25.2)	343.9 (297.6)	-11.9 (+ 7.0)	24 (24)	121 (121)	175c (175)	
256.553 G Sept. 14	9469	.851	108.4 (+24.0)	345.4 (40.7)	-11.6 (+ 7.2)	39 (39)	202 (202)	510f (510)	265.327 C Sept. 23	9469	.927 .882	282.1 252.1 (+25.3)	343.7 (284.8)	-12.1 (+ 7.0)	16 (16)	118 (118)	62 200c (262)	
257.408 G Sept. 15	9469	.743	112.8 (+24.1)	345.2 (29.4)	-11.6 (+ 7.2)	26 (26)	171 (171)	300f (300)	266.364 C Sept. 24	9469	.990 .965	282.7 255.3 (+25.4)	343.6 (271.1)	-12.2 (+ 7.0)	19 (19)	73 (73)	82 273f (355)	
258.341 G Sept. 16	9469	.603 .949	120.2 87.5 (+24.3)	345.0 (17.0)	-11.6 (+ 7.2)	25 (25)	140 (140)	122 (122)										

Group 9469. Sept. 13-24. Return of Group 9465. A regular spot slowly diminishing with a few small companions on September 13-15.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1922.

G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.			G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.		
		Dist.	Pos. Angle.	Long.	Lat.	Umbrae.	Whole Spots.	Faculae.			Dist.	Pos. Angle.	Long.	Lat.	Umbrae.	Whole Spots.	Faculae.
1922. 267.408 G Sept. 25		.770	273.7 (+25.5)	257.4 (257.4)	(+ 6.9)	(0)	(0)	(55)	1922. 275.347 G Oct. 3	9470	.723 .990	251.6 85.2 (+26.2)	196.3 (152.6)	- 8.4 (+6.6)	8 (8)	17 (17)	103c 75 (178)
268.355 C Sept. 26		.868	274.5 (+25.7)	244.9 (244.9)	(+ 6.9)	(0)	(0)	(99)	276.353 C Oct. 4	9470	.864 .948	256.1 85.7 (+26.3)	197.1 (139.3)	- 8.5 (+6.5)	5 (5)	21 (21)	127c 271 (398)
269.336 C Sept. 27	923b	.965 .171	275.2 111.8 (+25.8)	222.8 (231.9)	+ 3.1 (+ 6.9)	2 (2)	8 (8)	154 (154)	277.448 G Oct. 5	9470	.946 .836	258.4 86.5 (+26.3)	194.3 (124.9)	- 8.8 (+6.5)	2 (2)	6 (6)	198p 199 (397)
270.341 C Sept. 28		.936	4.0 (+25.8)	218.7 (218.7)	(+ 6.8)	(0)	(0)	(46)	278.112 K Oct. 6		.987 .753	259.5 86.2 (+26.3)	116.1 (116.1)	(+6.4)	(0)	(0)	188 204 (392)
									Oct. 7			No spots or faculae.					
271.418 G Sept. 29	9470	.323	149.1 (+25.9)	194.8 (204.4)	(+ 6.8)	1 (1)	4 (4)	(0)	280.368 C Oct. 8		.944	15.0 (+26.4)	(86.4)	(+6.3)	(0)	(0)	66 (66)
272.337 C Sept. 30	9470	.280	192.7 (+26.0)	195.9 (192.3)	(+6.7)	4 (4)	11 (11)	(0)	281.393 G Oct. 9	923d 9471	.083 .966	87.7 75.6 (+26.4)	68.0 356.9 (72.8)	+ 6.4 +15.5 (+6.2)	1 0 (1)	7 4 (11)	262s (262)
273.401 C Oct. 1	9470	.388	227.7 (+26.1)	195.1 (178.3)	(+6.7)	12 (12)	35 (35)	(0)	282.342 C Oct. 10	9471 9472	.880 .975 .927	76.8 103.6 105.4 (+26.4)	358.3 345.0 (60.3)	+14.5 -11.8 (+6.2)	35 7 (42)	148 24 (172)	215c 90c 115 (420)
274.371 C Oct. 2	9470 923c	.548 .141	243.2 342.5 (+26.2)	195.0 168.0 (165.5)	- 8.5 +14.3 (+6.6)	8 0 (8)	27 2 (29)	(0)	283.473 G Oct. 11	9471 9472	.742 .896 .828	75.6 106.6 107.6 (+26.4)	357.6 344.3 (45.4)	+14.8 -11.9 (+6.1)	30 3 (33)	120 12 (132)	144c 226f 190 (560)

Group 9470. Sept. 29-Oct. 5. A small spot on September 29 and 30, becoming a stream of minor importance.
 Group 9471. Oct. 9-16. A small stream of feeble activity. The following component is the largest and longest lived.
 Group 9472. Oct. 10-13. Return of Group 9469; third apparition. A single very small spot.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1922.

G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.			G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.		
		Dist.	Pos. Angle.	Long.	Lat.	Umbrae.	Whole Spots.	Faculae.			Dist.	Pos. Angle.	Long.	Lat.	Umbrae.	Whole Spots.	Faculae.
1922. 284.400	9471	.600	72.2	357.0	+15.4	17	65		1922. 291.450		.821	250.0					57
	9472	.791	110.0	344.0	-11.8	1	3	149f		9474	.877	281.5	1.7	+12.7	1	9	174f
G		.719	114.2					102	G	9475	.800	258.3	352.0	-5.9	21	114	87c
		.937	11.1					49		9473	.739	279.3	347.9	+10.6	3	7	47f
Oct. 12			(+26.4)	(33.2)	(+6.0)	(18)	(68)	(300)	Oct. 19			(+26.1)	(300.2)	(+5.5)	(25)	(130)	(365)
285.407	9471	.746	276.4					115	292.408		.945	282.9					285
	9472	.422	65.8	356.5	+15.4	8	22				.918	253.2					34
G		.650	116.3	343.5	-11.9	1	3				.818	251.4					60
		.940	83.2					135	C	9475	.915	260.8	352.6	-6.1	57	452	332c
Oct. 13			(+26.4)	(19.9)	(+6.0)	(9)	(25)	(250)	Oct. 20	9473	.811	283.1	341.6	+13.7	3	7	159p
												(+26.1)	(287.5)	(+5.4)	(60)	(459)	(870)
286.398	9471	.869	274.5	355.6	+15.1	1	5	99	293.439		.990	283.6					113
G		.249	49.2					72			.940	255.0					71
		.871	89.2						G	9475	.914	281.2					93
Oct. 14			(+26.4)	(6.8)	(+5.9)	(1)	(5)	(171)	Oct. 21		.983	262.5	352.3	-6.5	111	678	341c
												(+26.0)	(273.9)	(+5.3)	(111)	(678)	(618)
287.428		.959	276.8					132	294.545		.992	282.5					99
G									G		.971	249.1					100
Oct. 15			(+26.3)	(353.2)	(+5.8)	(0)	(0)	(132)	Oct. 22			(+25.9)	(259.4)	(+5.2)	(0)	(0)	(199)
288.391	9471	.320	297.5	357.4	+13.9	0	6		Oct. 23	No spots or faculae.							
G	9473	.121	342.5	342.6	+12.3	7	29	(0)	Oct. 25								
Oct. 16			(+26.3)	(340.5)	(+5.7)	(7)	(35)										
289.460	9473	.323	292.5	344.1	+12.5	9	40		298.442		.923	99.5					84
G									G			(+25.5)	(208.0)	(+4.9)	(0)	(0)	(84)
Oct. 17			(+26.3)	(326.4)	(+5.7)	(9)	(40)	(0)	Oct. 26								
290.451	9474	.740	282.6	1.0	+13.0	0	4	121c	Oct. 27	No spots or faculae.							
G	9473	.532	282.5	345.2	+11.3	10	20		Oct. 28								
Oct. 18		.964	64.4					54									
			(+26.2)	(313.3)	(+5.6)	(10)	(24)	(175)									

Group 9473. Oct. 16-20. A small stream of unstable components.
 Group 9474. Oct. 18-19. One small spot.
 Group 9475. Oct. 19-21. Two large double spots appearing near the west limb.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1922.

G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.			G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.		
		Dist.	Pos. Angle.	Long.	Lat.	Umbræ.	Whole Spots.	Faculæ.			Dist.	Pos. Angle.	Long.	Lat.	Umbræ.	Whole Spots.	Faculæ.
1922. 301.148 D Oct. 29	9476	.982	105.8 (+25.2)	95.1 (172.3)	-14.5 (+ 4.6)	3 (3)	16 (16)	111nf (111)	1922. 309.530 G Nov. 6	9477	.883 .836 .894	99.1 107.5 76.1 (+23.7)	0.8 (61.8)	- 6.2 (+ 3.8)	70 (70)	414 (414)	599f 137 95 (831)
302.350 C Oct. 30	9476	.902	108.1 (+25.0)	94.4 (156.4)	-14.2 (+4.5)	5 (5)	18 (18)	103f (103)	310.386 G Nov. 7	9477	.779 .817 .881	101.3 76.7 113.3 (+23.5)	0.5 (50.5)	- 6.4 (+ 3.7)	77 (77)	374 (374)	477f 130 90 (697)
303.408 G Oct. 31	9476	.803	110.9 (+24.8)	92.1 (142.5)	-13.8 (+ 4.4)	12 (12)	49 (49)	134c (134)	311.330 C Nov. 8	9477	.831 .625	250.3 104.1 (+23.3)	0.6 (38.0)	- 5.8 (+ 3.6)	49 (49)	299 (299)	100 289f (389)
304.366 C Nov. 1	9476	.673	115.5 (+24.7)	91.3 (129.8)	-13.4 (+ 4.3)	13 (13)	35 (35)	(0)	312.321 C Nov. 9	9477	.937 .924 .438	358.8 252.6 110.7 (+23.1)	0.8 (25.0)	- 5.7 (+ 3.5)	55 (55)	326 (326)	41 157 (198)
305.473 G Nov. 2	9476	.483	129.3 (+24.5)	92.6 (115.2)	-13.9 (+ 4.2)	6 (6)	21 (21)	(0)	313.363 C Nov. 10	9477	.241	129.9 (+22.9)	0.5 (11.2)	- 5.6 (+ 3.3)	61 (61)	296 (296)	(0)
306.537 C Nov. 3	9476	.336	159.4 (+24.3)	94.2 (101.2)	-14.2 (+ 4.1)	2 (2)	9 (9)	(0)	314.309 C Nov. 11	9477	.158 .925	192.8 96.8 (+22.6)	0.7 (358.7)	- 5.6 (+ 3.2)	58 (58)	282 (282)	62 (62)
307.394 G Nov. 4		.963	74.7 (+24.1)	(89.9)	(+ 4.0)	(0)	(0)	108 (108)	315.343 C Nov. 12	9477	.305	240.6 (+22.4)	0.5 (345.1)	- 5.5 (+ 3.1)	62 (62)	315 (315)	(0)
308.418 C Nov. 5	9477	.971 .892 .934	97.7 73.9 106.4 (+23.9)	1.0 (76.4)	- 6.5 (+ 3.9)	59 (59)	463 (463)	276f 82 103 (461)	316.454 C Nov. 13	9477 9478	.949 .521 .924 .930	351.5 254.0 86.5 10.9 (+22.1)	0.6 263.1 (330.5)	- 5.6 + 4.4 (+ 3.0)	51 3 (54)	274 9 (283)	50 324mf 46 (420)

Group 9476. Oct. 29-Nov. 3. A few very small spots arranged as a stream. The leader appears first and is less unstable than the other spots.
 Group 9477. Nov. 5-17. Return of Group 9475. A large regular spot with occasional very small companions.
 Group 9478. Nov. 13-15. A small spot.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1922.

G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.			G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.		
		Dist.	Pos. Angle.	Long.	Lat.	Umbrae.	Whole Spots.	Faculae.			Dist.	Pos. Angle.	Long.	Lat.	Umbrae.	Whole Spots.	Faculae.
1922. 317.364 C	9477 9479 9478	.684 .845 .816	° 258.4 145.0 86.8	° 0.7 278.3 263.9	° - 5.8 - 41.5 + 4.2	43 1 8	257 5 15	207c 52f 252f (511)	1922. 325.412 C	9480	.707	° 274.5 (+19.5)	° 257.2 (212.4)	° + 4.5 (+ 1.9)	4 (4)	39 (39)	122c (122)
Nov. 14			(+21.8)	(318.5)	(+ 2.9)	(52)	(277)		Nov. 22								
318.323 C	9477 9479 9478	.825 .825 .775 .666	247.6 260.8 152.6 86.6	0.5 277.8 264.2	- 5.9 - 40.8 + 4.4	51 0 2	242 3 8	52 240f 43f 139f (474)	326.459 C		.856	274.9 (+19.1)	(198.6)	(+ 1.8)	(0)	(0)	246 (246)
Nov. 15			(+21.6)	(305.8)	(+ 2.8)	(53)	(253)		Nov. 23								
319.517 C	9477	.948 .939 .837 .947	253.7 283.1 249.7 262.5	0.7 (290.1)	- 6.2 (+ 2.6)	37 (37)	233 (233)	91 69 44 450f (654)	327.361 C		.946	274.8 (+18.8)	(186.7)	(+ 1.7)	(0)	(0)	178 (178)
Nov. 16									Nov. 24								
320.326 C	9477	.921 .989	251.6 263.3	0.2 (279.4)	- 6.2 (+ 2.5)	39 (39)	207 (207)	61 435f (496)	328.309 C	9481	.988 .230 .944	274.2 35.5 104.9 (+18.5)	166.4 (174.2)	+12.3 (+ 1.6)	0 (0)	2 (2)	117 88 (205)
Nov. 17									Nov. 25								
Nov. 18		No spots or faculae.								Nov. 26		No spots or faculae.					
322.101 K	9477	.950	77.1 (+20.5)	(256.0)	(+ 2.3)	(0)	(0)	65 (65)	330.346 C	9481	.327	296.8 (+17.8)	167.1 (147.4)	+10.8 (+ 1.3)	0 (0)	2 (2)	2 (0)
Nov. 19									Nov. 27								
323.396 C	9480	.902 .304	357.9 278.1 (+20.1)	256.5 (239.0)	+ 4.6 (+ 2.2)	6 (6)	15 (15)	35 (35)	331.526 C	9482	.987	93.6 (+17.4)	51.4 (131.8)	- 3.4 (+ 1.2)	39 (39)	303 (303)	306c (306)
Nov. 20									Nov. 28								
324.320 C	9480	.501	275.6 (+19.8)	256.7 (226.8)	+ 4.5 (+ 2.0)	13 (13)	45 (45)	(0)	332.383 C	9482	.955	94.2 (+16.9)	48.2 (120.5)	- 3.7 (+ 1.1)	40 (40)	383 (383)	469c (469)
Nov. 21									Nov. 29								
									333.355 C	9482	.902 .880	284.3 94.6 (+16.7)	46.5 (107.7)	- 3.6 (+ 0.9)	75 (75)	413 (413)	74 523c (597)
Nov. 22									Nov. 30								

Group 9479. Nov. 14-15. A very small spot followed by a small but distinct area of faculae in high southern latitude.
 Group 9480. Nov. 20-22. A small short-lived stream.
 Group 9481. Nov. 25-27. A minute spot not seen on November 26.
 Group 9482. Nov. 28-Dec. 10. Evidently a stream in its later phases. A regular spot with a companion 10° f in longitude. A few very small spots appear sporadically on December 2-4.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1922.

G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.			G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.		
		Dist.	Pos. Angle.	Long.	Lat.	Umbrae.	Whole Spots.	Faculae.			Dist.	Pos. Angle.	Long.	Lat.	Umbrae.	Whole Spots.	Faculae.
1922. 334·421 G Dec. 1	9482	·717	95·5 (+16·3)	48·3 (93·7)	- 3·3 (+ 0·8)	43 (43)	294 (294)	325 ^c (325)	1922. 342·321 C Dec. 9	9482 9483	·887 ·243	267·6 248·3 (+13·0)	51·8 2·5 (349·5)	- 2·3 - 5·3 (- 0·2)	34 12 (46)	160 38 (198)	525 ^f (525)
335·353 C Dec. 2	9482 9483	·539 ·980	97·5 96·1 (+15·9)	49·2 3·4 (81·4)	- 3·4 - 5·8 (+ 0·7)	47 17 (64)	254 62 (316)	288 ^c (288)	343·349 C Dec. 10	9482 9483	·972 ·452 ·947	267·8 258·7 86·2 (+12·6)	52·2 2·3 (336·0)	- 2·3 - 5·4 (- 0·4)	40 4 (44)	161 18 (179)	517 ^f (606)
336·357 C Dec. 3	9482 9483	·316 ·908 ·939	102·5 96·5 111·4 (+15·5)	50·2 3·3 (68·1)	- 3·4 - 5·7 (+ 0·5)	28 17 (45)	199 68 (267)	396 ^c 69 (465)	344·348 C Dec. 11	9483	·985 ·644 ·875	266·0 260·8 85·6 (+12·2)	2·4 - 6·3 (322·8)	- 0·5	1 (1)	27 (27)	259 46 (305)
337·368 C Dec. 4	9482 9483	·099 ·784	132·1 97·2 (+15·1)	50·6 3·6 (54·8)	- 3·4 - 5·4 (+ 0·4)	36 13 (49)	239 58 (297)	341 ^f (341)	345·324 C Dec. 12		·883 ·863 ·767	268·4 244·7 258·2 (+11·7)	(310·0)	(- 0·6)	(0)	(0)	84 52 230 (366)
338·337 C Dec. 5	9482 9483	·171 ·625	249·6 99·1 (+14·7)	51·3 4·0 (42·1)	- 3·1 - 5·4 (+ 0·3)	33 13 (46)	199 70 (269)	282 ^f (282)	346·309 C Dec. 13		·902 ·887 ·869	259·8 245·4 273·9 (+11·3)	(297·0)	(- 0·7)	(0)	(0)	261 45 69 (375)
339·491 G Dec. 6	9482 9483	·426 ·395	262·8 103·6 (+14·2)	51·7 4·2 (26·8)	- 2·9 - 5·2 (+ 0·1)	30 9 (39)	163 43 (206)	(0)	347·342 C Dec. 14		·971	260·8 (+10·8)	(283·4)	(- 0·9)	(0)	(0)	217 (217)
340·357 C Dec. 7	9482 9483	·594 ·209	265·7 114·7 (+13·9)	51·6 4·5 (15·4)	- 2·5 - 5·0 (0·0)	32 6 (38)	195 46 (241)	(0)	Dec. 15 to Dec. 17		No spots or faculae.						
341·343 C Dec. 8	9482 9483	·768 ·094	266·9 199·3 (+13·5)	52·3 4·2 (2·4)	- 2·4 - 5·2 (- 0·1)	32 8 (40)	165 30 (195)	217 ^c (217)	351·344 C Dec. 18		·792	277·7 (+ 9·0)	(230·7)	(- 1·4)	(0)	(0)	57 (57)

Group 9483. Dec. 2-11. Return of Group 9477; third apparition. A small regular spot disappearing as a dot. A few very small spots appear near it after December 8.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1922.

G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.			G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.		
		Dist.	Pos. Angle.	Long.	Lat.	Umbræ.	Whole Spots.	Facula.			Dist.	Pos. Angle.	Long.	Lat.	Umbræ.	Whole Spots.	Facula.
1922. 352.408 C Dec. 19		.874 .937	277.7 86.7 (+ 8.5)	° (216.7)	° (- 1.5)	(0)	(0)	(122)	1922. 359.466 G Dec. 26	9484 9485 9486	.553 .843 .935	76.0 78.0 93.3 (+5.1)	91.2 67.4 54.6 (123.7)	+ 5.6 + 8.8 - 3.9 (-2.4)	269 10 18 (297)	1438 59 78 (1575)	437f 340c (777)
353.340 C Dec. 20	926a	.882 .821	275.7 85.3 (+ 8.1)	149.6 (204.4)	+ 2.9 (- 1.6)	2 (2)	5 (5)	(146)	360.346 C Dec. 27	9487 9484 9485 9486	.856 .381 .710 .842	275.7 68.0 74.9 93.7 (+4.7)	170.5 91.4 68.4 54.9 (112.1)	+ 3.6 + 5.9 + 8.8 - 4.5 (-2.5)	1 202 6 11 (220)	4 1234 19 66 (1323)	39f 333f 466f (838)
354.339 C Dec. 21		.950 .851	278.6 284.1 (+ 7.6)	(191.2)	(- 1.8)	(0)	(0)	(127)	361.330 C Dec. 28	9487 9484 9485 9486	.945 .203 .574 .695	275.2 40.7 70.4 93.5 (+4.2)	169.5 91.5 66.0 55.1 (99.1)	+ 4.0 + 6.2 + 8.9 - 4.3 (-2.6)	13 229 14 11 (267)	55 1262 31 63 (1411)	150c 316f (466)
355.434 G Dec. 22	9484	.996	83.7 (+7.1)	92.3 (176.8)	+ 6.1 (-1.9)	122 (122)	622 (622)	(0)	362.454 G Dec. 29	9484 926b 9485 9486	.202 .111 .339 .488	318.7 301.0 55.3 94.2 86.5 99.3 (+3.7)	92.0 89.7 68.0 55.2 (84.3)	+ 6.0 + 0.6 + 8.5 - 4.4	230 0 9 6 (245)	1197 9 53 43 (1302)	68 158 (226)
356.318 C Dec. 23	9484	.964	83.9 (+6.7)	91.1 (165.2)	+ 5.3 (-2.0)	177 (177)	1277 (1277)	521c (521)	363.451 G Dec. 30	926c 9484 9485 9486	.508 .388 .216 .274 .885	258.0 293.2 22.8 96.2 98.9 (+3.2)	101.2 92.1 66.4 55.4 (71.2)	- 8.5 + 6.0 + 8.5 - 4.5 (-2.9)	2 172 14 5 (193)	8 1004 38 26 (1076)	180 (180)
357.456 G Dec. 24	9484	.866	82.2 (+6.1)	90.8 (150.2)	+ 5.7 (-2.1)	239 (239)	1323 (1323)	373c (373)	364.343 C Dec. 31	9484 9485 9486	.555 .248 .077	285.8 328.9 106.4 (+2.8)	91.7 66.8 55.2 (59.4)	+ 6.1 + 9.2 - 4.2 (-3.0)	165 4 4 (173)	937 27 17 (981)	(0)

Group 9484. 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 faculae remains visible until 1923 May.

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

Group 9486. Dec. 25-1923 Jan. 4. Return of Group 9482. A small regular spot traced to its extinction as a dot on January 3 and 4. Its position on Dec. 25 is uncertain, owing to poor definition.

Group 9487. Dec. 27-28. A minute spot on December 27 and a pair on December 28 in a tiny area of faculae.

ROYAL OBSERVATORY, GREENWICH.

GENERAL CATALOGUE

OF

GROUPS OF SUN SPOTS.

FOR THE YEAR

1922.

GENERAL CATALOGUE of GROUPS of SUN SPOTS for the YEAR 1922.

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 1921 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 Umbrae 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'.07 for all spots, whatever their latitude; this corresponds to Carrington's assumed rotation period of 25.38 days. In System II, the daily sidereal motion is assumed to vary with the latitude (ϕ) in accordance with the formula

$$866.6 - 128' \sin^2 \phi.$$

In both systems the longitude of the centre of the Sun's disc is adopted as 188°.37 for 1922 Jan. 1^h.0, 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 9411 is computed here from 1922.0 instead of from 1921.0, as in the volume for 1921.

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.

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.	Umbrae.	Whole Spots.	System I.	System II.			
9411	d 9/12	1921. Dec. 28	° -71.7	1922. Jan. 8	° +80.3	5	25	166.4	165.9	° - 7.2	II.	See Ledger for 1921.
2	10/11	1922. Jan. 5	-63.3	15	+62.0	12	33	66.6	64.5	+ 6.8	II.	Revives as Group 9418.
3	3/4	7	- 2.6	10	+37.4	3	11	101.6	100.2	+11.2		
4	5	8	-76.5	12	-24.2	10	41	15.1	13.3	+10.4	II.	Revival of Group 9408.
5	13	11	-83.4	23	+80.3	22	143	329.5	325.5	- 6.0	I. 948 (3)	
6	4	Feb. 1	-17.8	Feb. 4	+16.7	4	12	114.5	106.9	- 6.8		Revives as Group 9427.
7	2	5	+46.1	6	+61.4	3	12	129.4	122.2	+ 9.5		Revival of Group 9412.
8	3/4	6	- 4.3	9	+34.5	1	3	63.6	55.3	+ 7.7		
9	2	6	-12.9	7	+ 0.8	5	9	55.0	50.0	-13.9		
9420	9	6	-27.8	14	+79.9	97	504	42.5	34.7	+10.2	I. 949 (1)	
1	13	7	-79.1	19	+77.4	15	70	335.4	324.8	- 5.2	I. 948 (4)	See Group 9422.
2	10	10	-40.7	19	+80.1	69	431	337.5	327.5	- 7.5	I. 950 (1)	New outburst near Group 9421.
3	14	18	-83.2	Mar. 3	+86.0	19	120	187.7	175.1	- 6.7	II.	
4	12	24	-73.9	7	+71.8	53	365	119.3	108.3	+10.9	I. 951 (1)	See also Group 9426.
5	7	24	-75.0	2	+ 5.2	20	82	117.9	110.6	+14.4	II.	
6	13	25	-71.3	9	+83.2	171	786	111.2	98.2	+ 8.4	I. 951 (1)	
7	7	26	-31.2	4	+48.4	17	67	135.7	122.2	+ 7.1	II.	Revival of Group 9417.
8	3	27	+ 1.6	1	+29.2	2	7	155.0	143.8	-10.2		Revives as Group 9438.
9	12	Mar. 1	-74.5	12	+72.9	72	517	53.4	40.5	+ 9.7	} I. 949 (2)	
9430	13	1	-76.5	13	+82.0	74	421	50.9	40.8	+12.8		
1	7	4	-42.0	10	+30.6	13	63	42.0	27.2	+ 7.0	II.	Revives as Group 9446.
2	12	6	-77.1	17	+68.0	78	566	345.5	328.6	- 5.1	I. 950 (2)	
3	2/3	8	-58.4	10	-29.6	2	7	337.8	330.2	+15.2		
4	10	9	-50.0	18	+72.3	30	177	333.3	317.4	+ 7.7	II.	

GENERAL CATALOGUE of GROUPS 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.	II.				
9435	d	1922.	°	1922-23.	°								
	4	Mar. 11	+31.0	Mar. 14	+70.9	19	87	25.2	20.3	-17.3			
	6	12	-2.1	15	+39.7	3	31	339.2	322.1	-5.8			
	7	3	+47.2	20	+73.5	13	60	310.4	297.3	-11.8			
	8	4/5	21	-60.3	25	-6.4	1	9	163.4	146.5	-8.9		Revival of Group 9428.
	9	12	23	-75.7	Apr. 3	+71.9	36	192	122.6	103.5	+7.9	I. 951 (2)	
	9440	8	24	-51.1	Mar. 31	+38.2	8	28	133.3	115.8	+9.2	II.	Revival near Group 9427.
	I	10	24	-79.3	Apr. 2	+39.4	10	54	103.3	84.1	+7.7	I. 951 (2)	Revives as Group 9449.
	2	2	27	+3.2	Mar. 28	+13.0	1	2	143.8	126.4	+9.4		
	3	2	27	-46.1	Mar. 28	-36.7	1	9	94.3	72.6	+3.0		
4	12	28	-77.4	Apr. 8	+68.5	20	105	54.3	37.6	+11.0	I. 949 (3)		
5	2	29	-16.9	Mar. 30	-3.2	0	3	101.1	84.8	+10.6			
6	2	Apr. 1	-31.9	Apr. 2	-20.1	1	4	44.8	25.4	+8.6		Revival of Group 9431.	
7	7	1	-67.8	7	+9.5	19	97	9.5	351.5	+10.2	II.	Revives as Recurrent Series 952.	
8	2	10	-75.3	11	-64.9	2	11	241.2	221.2	-9.5			
9	9	22	-57.9	30	+46.0	6	20	103.7	76.6	+6.1	II.	Revival of Group 9441.	
9450	8	24	-75.6	May 1	+14.8	11	62	56.7	29.3	+6.1	II.	Revival near Group 9446.	
I	10	30	-44.9	9	+83.4	65	343	16.2	350.1	+8.6	I. 952 (1)		
2	9	May 24	-75.3	June 1	+30.8	11	54	22.6	350.3	+7.9	I. 952 (2)		
3	2	29	-15.2	May 30	-3.4	0	7	15.8	349.2	+11.2			
4	7/9	June 7	-43.7	June 15	+66.8	3	15	231.5	198.3	+9.1	II.		
5	3/4	9	-34.2	12	+4.3	3	12	210.4	171.6	+5.2			
6	4	11	-80.8	14	-40.0	8	26	139.4	105.5	+8.9			
7	3	15	+30.4	17	+57.5	12	43	197.4	161.8	-8.4			
8	5	21	+7.0	25	+63.7	3	9	94.7	55.7	-7.3			
9	6	July 4	-34.4	July 9	+41.0	9	39	243.6	206.3	+9.6	II.		
9460	6	5	-73.3	10	-5.1	9	26	189.0	152.0	-9.8	II.		
I	6	7	-78.5	12	-3.7	7	22	161.6	127.8	+11.3	II.	Revives as Group 9464.	
2	10	19	-52.2	28	+73.1	58	305	27.3	339.2	-5.9	II.		
3	3	23	-30.4	25	+1.2	3	8	356.4	309.6	-6.8			
4	5	Aug. 2	-80.9	Aug. 6	-27.9	8	28	170.4	128.6	+10.0		Revival of Group 9461.	
5	7/8	21	-19.5	28	+74.7	41	236	340.5	300.1	-11.7	I. 953 (1)		
6	5	27	+14.8	31	+73.9	27	118	297.5	237.6	+4.0	II.		
7	2	30	+52.6	31	+68.6	4	17	293.6	239.4	+7.4			
8	2/3	30	-9.4	Sept. 1	+16.8	0	3	231.2	191.0	+12.0			
9	12	Sept. 13	-71.7	Oct. 24	+72.5	25	139	344.6	300.2	-11.8	I. 953 (2)		
9470	7	29	-9.6	Oct. 5	+69.4	6	17	195.5	137.9	-8.7	II.		
I	7/8	Oct. 9	-75.9	16	+16.9	11	46	357.0	323.8	+14.9	II.		
2	4	10	-75.3	13	-36.4	3	10	344.2	296.2	-11.8	I. 953 (3)		
3	5	16	+2.1	20	+54.1	6	21	344.3	296.4	+12.1			
4	2	18	+47.7	19	+61.5	0	7	1.4	316.6	+12.8			
5	3	19	+51.8	21	+78.4	63	415	352.3	283.9	-6.2	I. 954 (1)		
6	6	29	-77.2	Nov. 3	-7.0	7	25	93.3	52.6	-14.0	II.		
7	13	Nov. 5	-75.4	17	+80.8	55	306	0.6	286.4	-5.9	I. 954 (2)		
8	3	13	-67.4	15	-41.6	4	11	263.7	185.3	+4.3			
9	2	14	-40.2	15	-28.0	1	4	278.0	128.8	-41.2			
9480	3	20	+17.5	22	+44.8	8	33	256.8	177.0	+4.5			
I	2/3	25	-7.8	27	+19.7	0	1	166.8	109.8	+11.6			
2	13	28	-80.4	Dec. 10	+76.2	39	235	50.3	324.8	-3.0	I. 955 (1)		
3	10	Dec. 2	-78.0	11	+39.6	10	46	3.4	281.9	-5.5	I. 954 (3)		
4	14	22	-84.5	Jan. 4	+77.7	180	1116	91.6	5.8	+5.9	II.		
5	9/11	25	-72.3	4	+62.0	8	30	67.4	351.2	+8.7	II.		
6	11	25	-82.7	4	+49.6	6	35	55.5	325.6	-4.2	I. 955 (2)		
7	2	27	+58.4	Dec. 28	+70.4	7	29	170.0	79.8	+3.8			

GENERAL CATALOGUE of SUN SPOTS—*continued.*

REVIVAL GROUPS of SUN SPOTS, 1922.

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.			
1	9412	913	d	Jan.	5	-63	Jan.	15	+62	33	67	65	+7	II.
	9418	914	3/4	Feb.	6	-4	Feb.	9	+34	3	64	55	+8	
2	9413	913	3/4	Jan.	7	-3	Jan.	10	+37	11	102	100	+11	} I. 951
	9424	915	12	Feb.	24	-74	Mar.	7	+72	365	119	108	+11	
	9426	915	13		25	-71		9	+83	786	111	98	+8	
	9439	916	12	Mar.	23	-76	Apr.	3	+72	192	123	104	+8	
	9441	916	10		24	-79		2	+39	54	103	84	+8	
	9449	917	9	Apr.	22	-58		30	+46	20	104	77	+6	
3	9417	914	2	Feb.	5	+46	Feb.	6	+61	12	129	122	+10	II.
	9427	915	7		26	-31	Mar.	4	+48	67	136	122	+7	
	9440	916	8	Mar.	24	-51		31	+38	28	133	116	+9	
4	9428	915	3	Feb.	27	+2	Mar.	1	+29	7	155	144	-10	II.
	9438	916	4/5	Mar.	21	-60		25	-6	9	163	146	-9	
5	9431	915	7	Mar.	4	-42	Mar.	10	+31	63	42	27	+7	II.
	9446	916	2	Apr.	1	-32	Apr.	2	-20	4	45	25	+9	
	9450	917	8		24	-76	May	1	+15	62	57	29	+6	
6	9447	916	7	Apr.	1	-68	Apr.	7	+10	97	9	352	+10	} I. 952
	9451	917	10		30	-45	May	9	+83	343	16	350	+9	
	9452	918	9	May	24	-75	June	1	+31	54	23	350	+8	
7	9461	920	6	July	7	-79	July	12	-4	22	162	128	+11	II.
	9464	921	5	Aug.	2	-81	Aug.	6	-28	28	170	129	+10	

ROYAL OBSERVATORY, GREENWICH.

LEDGERS

OF

GROUPS OF SUN SPOTS

FOR THE YEAR

1922.

LEDGER I.—RECURRENT GROUPS.

LEDGER I.—RECURRENT GROUPS of SUN SPOTS for the YEAR 1922.

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 Umbrae 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.

Date. G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.	Date. G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.
	Umbrae.	Whole Spots.	Umbrae.	Whole Spots.	System I.	System II.				Umbrae.	Whole Spots.	Umbrae.	Whole Spots.	System I.	System II.		
RECURRENT SERIES 949.																	
Group 9420 seen in Rotation 914.									Group 9430.—March 1-13. A large spot of nearly regular formation just n of Group 9429 with which it is evidently connected.								
" 9429 (and 9430) seen in Rotation 915.																	
" 9444 seen in Rotation 916.																	
Group 9420.—February 6-14. An irregular stream developing from a minute spot on February 6. By February 12, the stream has simplified to two large and nearly regular spots which apparently are still increasing as they pass round the west limb.																	
1922. d					°	°	°	°						°	°	°	°
36.463 G	1	4	1	2	40.4	33.4	+10.7	-27.8	59.343 C	32	228	81	575	50.4	41.3	+12.5	-76.5
37.548 G	44	176	24	96	40.9	33.7	+11.4	-13.0	60.431 G	80	502	93	582	50.6	41.3	+12.4	-62.0
38.443 G	82	382	43	200	40.8	33.4	+11.3	-1.4	61.102 K	108	594	98	541	50.5	41.1	+12.4	-53.3
39.470 G	69	305	37	164	42.3	34.7	+10.2	+13.7	62.567 G	131	640	84	410	51.2	41.6	+12.5	-33.2
40.441 G	92	352	54	208	43.3	35.5	+10.1	+27.4	63.342 C	141	758	82	440	51.2	41.4	+12.6	-23.0
41.458 G	182	914	125	632	42.7	34.7	+9.7	+40.2	64.329 C	148	827	80	447	51.2	41.3	+12.9	-10.0
42.433 G	233	1058	207	932	42.8	34.7	+9.5	+53.2	65.419 G	175	886	93	472	51.2	41.1	+13.2	+4.3
43.440 G	143	1029	206	1478	44.3	36.0	+9.6	+67.9	66.325 C	126	747	69	411	50.7	40.5	+12.8	+15.8
44.329 C	53	407	178	1365	44.6	36.1	+9.7	+79.9	67.418 G	113	591	70	366	50.8	40.4	+12.9	+30.3
Means ..	..	..	97	564	42.46	34.69	+10.24	..	68.326 C	90	432	65	315	50.9	40.4	+13.0	+42.3
									69.422 G	63	310	63	310	51.0	40.3	+13.3	+56.9
									70.425 G	29	205	48	340	50.9	40.1	+13.3	+70.0
									71.342 C	8	55	38	263	50.8	39.8	+13.3	+82.0
									Means ..	..	..	74	421	50.88	40.82	+12.85	..
Group 9429.—March 1-12. A large composite spot preceded by a companion which breaks up into a cluster on March 4. The chief umbra in the following part of the composite spot becomes the nucleus of a small regular spot, which remains while the remainder of the parent spot disappears rapidly as a cluster. This group is closely associated with Group 9430.																	
59.343 C	47	257	97	534	52.4	40.6	+9.4	-74.5	86.344 C	8	59	21	157	53.6	38.0	+11.3	-77.4
60.431 G	105	653	107	684	53.5	41.5	+9.3	-59.1	87.331 C	19	108	24	134	53.9	38.1	+11.1	-64.1
61.102 K	144	874	120	730	53.0	40.8	+9.1	-50.8	88.372 C	31	156	26	129	54.0	38.0	+11.3	-50.3
62.567 G	173	1232	105	749	53.4	41.0	+8.8	-31.0	89.120 K	29	159	20	110	54.2	38.1	+11.0	-40.2
63.342 C	148	1292	82	718	53.9	41.3	+9.1	-20.3	90.469 G	36	178	21	101	54.4	38.0	+11.0	-22.2
64.329 C	124	937	66	495	53.1	40.3	+9.6	-8.1	91.354 C	38	182	20	96	54.4	37.9	+11.0	-10.5
65.419 G	137	1126	73	597	52.9	39.9	+9.9	+6.0	92.375 C	44	199	23	103	54.6	37.9	+10.8	+3.1
66.325 C	134	979	74	547	53.6	40.4	+10.2	+18.7	93.404 G	37	163	20	90	54.4	37.5	+11.0	+16.5
67.418 G	97	771	61	483	53.4	40.0	+10.1	+32.9	94.353 G	34	144	20	86	54.3	37.2	+11.0	+28.9
68.326 C	41	437	30	332	54.3	40.7	+10.2	+45.7	95.470 G	19	119	14	87	54.4	37.1	+11.0	+43.8
69.422 G	28	147	29	158	53.9	40.1	+10.2	+59.8	96.372 C	13	96	12	91	54.7	37.3	+11.0	+56.0
70.425 G	10	93	18	177	53.8	39.8	+10.2	+72.9	97.349 C	11	54	16	80	54.3	36.7	+11.0	+68.5
Means ..	..	..	72	517	53.43	40.53	+9.68	..	Means ..	..	..	20	105	54.27	37.65	+11.04	..

LEDGER I.—RECURRENT GROUPS OF SUN SPOTS for the YEAR 1922—*continued.*

Date. G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.	Date. G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.
	Umbræ.	Whole Spots.	Umbræ.	Whole Spots.	System I.	System II.				Umbræ.	Whole Spots.	Umbræ.	Whole Spots.	System I.	System II.		
<p>RECURRENT SERIES 950.</p> <p>Group 9422 seen in Rotation 915. " 9432 " " " 916.</p> <p>Group 9422—February 10—19. A group showing the continued activity in the place occupied by Group 9421 and its previous appearances since 1921 Nov. 19. A few small spots seen on February 10 growing rapidly to a very large spot with a composite and smaller follower. After rising to a maximum on February 13 the group rapidly declines. The amount of the surrounding faculæ is relatively small for so large and active a group of spots.</p>									<p>Group 9424—February 24—March 7. Two or three spots at the east limb which become a stream of increasing importance. By March 2, the group consists of a small regular spot as leader, a cluster, and a large spot, <i>b</i>, in close juxtaposition to the leader of Group 9426, with which it coalesces on March 4. On this date the two groups might have been considered as one very extended disturbance, and the division of the compound spot is somewhat arbitrary, but the early development of the two groups and the arrangement of the surrounding faculæ indicate two distinct centres of activity.</p>								
1922. d									1922. d								
40.441 G	14	75	9	49	335.2	326.2	- 9.5	-40.7	54.327 C	1	17	2	34	119.1	109.2	+10.7	-73.9
41.458 G	105	404	58	223	336.6	327.4	- 8.2	-25.9	55.421 G	12	59	12	61	119.7	109.6	+10.2	-58.9
42.433 G	255	1340	131	689	337.0	327.6	- 7.2	-12.6	56.375 C	13	54	10	42	119.2	108.9	+10.5	-46.8
43.440 G	240	1440	120	720	337.2	327.6	- 7.1	+ 0.8	57.430 G	39	170	25	105	119.5	109.0	+10.5	-32.6
44.329 C	187	1253	97	648	337.4	327.6	- 7.2	+12.7	58.460 G	74	298	41	165	120.0	109.3	+10.9	-18.5
45.432 C	124	1028	70	580	337.8	327.7	- 7.0	+27.7	59.343 C	102	655	54	347	119.5	108.6	+11.3	- 7.4
46.344 C	118	685	76	447	338.3	328.0	- 7.2	+40.2	60.431 G	240	1220	127	648	119.8	108.7	+11.2	+ 7.2
47.339 C	80	468	66	386	338.2	327.7	- 7.4	+53.2	61.102 K	222	1339	121	732	119.8	108.6	+11.6	+16.0
48.434 G	20	241	26	313	338.6	327.8	- 7.2	+68.0	62.567 G	127	994	83	639	118.7	107.3	+11.3	+34.3
49.378 C	13	92	36	252	338.2	327.3	- 7.2	+80.1	63.342 C	80	872	59	649	118.6	107.0	+10.8	+44.4
Means ..	..	..	69	431	337.46	327.49	- 7.52	..	64.329 C	57	528	58	530	118.6	106.8	+10.7	+57.4
									65.419 G	22	242	39	428	118.7	106.7	+11.0	+71.8
									Means ..	..	..	53	365	119.27	108.31	+10.89	..
									Spot <i>b</i> .								
									59.343 C	58	495	31	262	118.4	107.7	+11.3	- 8.5
									60.431 G	159	697	84	369	117.7	106.8	+11.3	+ 5.1
									61.102 K	151	785	82	424	117.8	106.8	+11.4	+14.0
									62.567 G	93	805	59	507	117.3	106.0	+11.2	+32.9
									63.342 C	69	778	50	568	117.6	106.2	+10.7	+43.4
									64.329 C	52	493	51	483	118.1	106.5	+10.9	+56.9
									65.419 G	22	242	39	428	118.7	106.9	+11.0	+71.8
64.329 C	40	327	87	710	344.1	328.5	- 4.6	-77.1	<p>Group 9426—February 25—March 9. A very large stream developing from two small spots in a small area of faculæ seen close to the east limb on February 25. On February 28 and March 1, it appears as a stream of normal type, but rapid changes in the component spots and its proximity to Group 9424 give it a more composite character at its fullest development about March 3. The surrounding faculæ is not extensive for so large and active a group of spots. Spot <i>a</i> is the original leader, which by March 3 has coalesced with a long irregular spot of rapid growth which immediately follows it. The compound spot is given below as <i>a</i>¹. Spot <i>b</i> represents the following portion of the stream, at first a pair of irregular spots and later a single large component.</p>								
65.419 G	183	646	195	688	344.6	328.8	- 4.7	-62.3	55.421 G	3	21	5	35	107.3	95.4	+ 8.0	-71.3
66.325 C	167	910	131	712	344.5	328.4	- 4.9	-50.4	56.375 C	18	86	17	81	110.1	98.0	+ 7.7	-55.9
67.418 G	193	1242	120	770	344.6	328.3	- 5.1	-35.9	57.430 G	44	193	30	132	111.7	99.4	+ 7.7	-40.4
68.326 C	188	1436	103	790	345.0	328.5	- 5.1	-23.6	58.460 G	208	882	123	515	112.1	99.6	+ 8.0	-26.4
69.422 G	175	1698	89	866	345.2	328.4	- 5.0	- 8.9	59.343 C	298	1464	161	790	111.6	98.9	+ 8.5	-15.3
70.425 G	130	1693	65	847	345.7	328.6	- 5.1	+ 4.8	60.431 G	514	2369	267	1233	111.2	98.3	+ 8.6	- 1.4
71.342 C	132	1182	69	615	346.0	328.7	- 5.2	+17.2	<p>RECURRENT SERIES 951.</p> <p>Group 9424 and 9426 seen in Rotation 915. " 9439 " 9441 " " " 916.</p>								
72.417 G	43	675	25	391	345.9	328.4	- 5.3	+31.2									
73.522 C	44	362	32	261	346.4	328.6	- 5.3	+46.3									
74.329 C	18	111	17	101	346.7	328.7	- 5.5	+57.3									
75.101 K	4	28	6	36	347.3	329.1	- 5.6	+68.0									
Means ..	..	..	78	566	345.50	328.58	- 5.12	..									

LEDGER I.—RECURRENT GROUPS of SUN SPOTS for the YEAR 1922—*continued.*

Date. G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.	Date. G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.
	Umbrae.	Whole Spots.	Umbrae.	Whole Spots.	System I.	System II.				Umbrae.	Whole Spots.	Umbrae.	Whole Spots.	System I.	System II.		
RECURRENT SERIES 951. Group 9426— <i>continued.</i>									Group 9439—March 23—April 3. A regular spot, probably <i>a</i> ¹ of Group 9426, with several small followers until March 30.								
1922. d									1922. d								
61.102 K	580	2632	304	1384	112.4	99.3	+ 8.3	+ 8.6	81.386 G	29	154	64	340	120.7	102.9	+ 8.0	-75.7
62.567 G	441	1931	260	1145	111.7	98.3	+ 8.9	+27.3	82.480 G	74	407	83	457	119.9	101.8	+ 7.8	-62.1
63.342 C	354	1661	235	1098	111.4	97.8	+ 8.6	+37.2	83.451 G	77	387	61	306	120.7	102.4	+ 8.0	-48.5
64.329 C	257	1207	216	1011	111.8	98.0	+ 8.7	+50.6	84.562 G	74	350	46	215	121.9	103.4	+ 8.4	-32.6
65.419 G	186	840	249	1070	111.9	97.9	+ 8.7	+65.0	85.631 G	60	349	33	190	122.3	103.5	+ 8.1	-18.1
66.325 C	74	399	183	939	111.2	97.0	+ 8.5	+76.3	86.344 C	52	305	28	159	122.8	103.9	+ 8.2	- 8.2
67.418 G	10	75	53	399	103.7	89.3	+10.4*	+83.2	87.331 C	53	238	27	123	123.2	104.1	+ 7.7	+ 5.2
Means ..	..	..	171	786	111.20	98.16	+ 8.35	..	88.372 C	41	201	23	111	123.9	104.5	+ 7.7	+19.6
									89.120 K	35	196	21	118	124.2	104.7	+ 7.7	+29.8
									90.469 G	22	112	17	85	124.1	104.3	+ 7.7	+47.5
									91.354 C	16	94	16	95	123.6	103.6	+ 7.8	+58.7
									92.375 C	9	63	15	109	123.4	103.2	+ 7.8	+71.9
									Means ..	..	..	36	192	122.56	103.53	+ 7.91	..
Spot <i>a</i> .									Group 9441—March 24—April 2. A small regular spot, gradually diminishing, which is probably <i>b</i> of Group 9426.								
57.430 G	20	127	13	84	113.5	100.7	+ 7.3	-38.6	82.480 G	4	29	12	88	102.7	84.5	+ 7.7	-79.3
58.460 G	112	562	64	320	114.3	101.3	+ 7.5	-24.2	83.451 G	13	72	17	96	102.8	84.4	+ 7.7	-66.4
59.343 C	142	633	75	335	115.6	102.4	+ 7.5	-11.3	84.562 G	16	77	13	65	102.9	84.2	+ 7.4	-51.6
60.431 G	170	636	88	331	116.9	103.4	+ 7.4	+ 4.3	85.631 G	18	114	12	74	103.0	84.1	+ 7.5	-37.4
									86.344 C	21	113	12	67	102.9	83.8	+ 7.9	-28.1
									87.331 C	9	88	5	47	103.2	83.9	+ 7.9	-14.8
									88.372 C	14	77	7	40	103.4	83.9	+ 7.9	- 0.9
									89.120 K	22	76	11	40	103.7	84.0	+ 7.6	+ 9.3
									90.469 G	13	22	8	13	104.0	84.0	+ 7.6	+27.4
									91.354 C	5	13	3	9	104.3	84.1	+ 7.8	+39.4
									Means ..	..	..	10	54	103.29	84.09	+ 7.70	..
									RECURRENT SERIES 952.								
									Group 9451 seen in Rotation 917.								
									" 9452 " " 918.								
									Group 9451—April 30—May 9. A stream of normal type developing very rapidly from a few small spots seen on April 30. At first, the follower, <i>b</i> , is the largest component, but it is shorter lived than the leader, <i>a</i> , which persists to the west limb.								
57.430 G	14	43	10	32	107.1	95.8	+ 8.8	-45.0	119.110 K	44	165	31	121	13.5	348.4	+ 9.3	-44.9
58.460 G	96	320	59	195	108.2	96.7	+ 9.1	-30.3	120.438 G	176	913	101	525	14.8	349.4	+ 8.7	-20.1
59.343 C	129	697	71	383	107.6	95.9	+ 9.6	-19.3	121.418 G	199	1012	106	537	14.5	348.9	+ 8.5	-13.4
60.431 G	190	976	99	508	107.1	95.2	+ 9.6	- 5.5	122.354 C	168	965	86	493	14.3	348.5	+ 8.7	- 1.2
61.102 K	216	930	112	484	106.0	94.0	+10.0	+ 2.2	123.486 G	137	742	73	394	15.5	349.5	+ 8.0	+14.9
62.567 G	216	823	121	461	104.9	92.6	+ 9.9	+20.5	124.510 G	109	564	64	330	15.3	349.0	+ 8.3	+28.3
63.342 C	161	779	98	475	104.6	92.1	+ 9.9	+30.4	125.342 G	84	401	58	274	16.7	350.3	+ 8.4	+40.7
64.329 C	127	613	93	447	104.5	91.8	+10.2	+43.3	126.325 G	69	292	63	266	18.7	352.1	+ 8.5	+55.7
65.419 G	90	491	90	491	104.6	91.7	+10.2	+57.7	127.345 G	22	156	33	236	19.4	352.6	+ 8.9	+69.8
66.325 C	50	288	78	452	104.4	91.3	+10.3	+69.5	128.353 G	7	53	34	254	19.6	352.5	+ 9.0	+83.4
67.418 G	10	75	53	399	103.7	90.4	+10.4	+83.2	Means ..	..	..	65	343	16.23	350.12	+ 8.63	..

LEDGER I.—RECURRENT GROUPS OF SUN SPOTS for the YEAR 1922—continued.

Date, G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.
	Umbræ.	Whole Spots.	Umbræ.	Whole Spots.	System I.	System II.		

RECURRENT SERIES 952. Group 9451—continued.

Spot a.

1922. d	Umbræ.	Whole Spots.	Umbræ.	Whole Spots.	System I.	System II.	Latitude.	Long. from C.M.
120.438 G	60	301	33	166	18.7	352.7	+ 7.9	-22.2
121.418 G	98	395	51	205	18.5	352.3	+ 7.6	- 9.4
122.354 C	74	417	38	213	18.5	352.1	+ 7.7	+ 3.0
123.486 G	77	417	42	225	18.7	352.0	+ 7.8	+18.1
124.510 G	76	345	46	207	18.9	352.0	+ 8.1	+31.9
125.342 G	67	311	47	218	18.6	351.5	+ 8.3	+42.6
126.325 G	69	292	63	226	18.7	351.4	+ 8.5	+55.7
127.345 G	22	156	33	236	19.4	351.9	+ 8.9	+69.8
128.353 G	7	53	34	254	19.6	351.9	+ 9.0	+83.4

Spot b.

120.438 G	93	502	55	296	11.9	346.6	+ 9.0	-29.0
121.418 G	83	520	45	281	11.4	345.9	+ 9.0	-16.5
122.354 C	75	405	38	207	10.4	344.7	+ 8.8	- 5.1
123.486 G	58	313	30	163	10.1	344.2	+ 8.5	+ 9.5
124.510 G	33	212	18	119	9.9	343.8	+ 8.7	+22.9
125.342 G	17	86	11	53	9.9	343.6	+ 8.5	+33.9

Group 9452—May 24—June 1. A small regular spot, a, of Group 9451, diminishing to a dot whilst a few small companions appear, making a small cluster on May 31.

143.555 G	9	63	18	127	22.5	351.1	+ 8.0	-75.3
144.474 G	12	90	12	93	22.6	351.0	+ 8.0	-60.4
145.492 G	12	63	9	47	22.4	350.5	+ 8.0	-47.1
146.347 G	28	91	17	57	22.6	350.5	+ 7.8	-35.6
147.328 G	17	46	9	25	22.3	350.0	+ 8.0	-22.9
148.354 G	14	50	7	25	22.7	350.2	+ 8.0	- 9.0
149.347 G	9	29	5	15	22.3	349.6	+ 8.4	+ 3.8
150.354 G	37	165	20	87	22.8	349.9	+ 8.5	+17.6
151.343 G	8	16	5	9	22.9	349.8	+ 6.4	+30.8
Means ..	..	..	11	54	22.57	350.29	+ 7.90	..

RECURRENT SERIES 953.

Group 9465 seen in Rotation 922.
 " 9469 " " 923.
 " 9472 " " 924.

Group 9465. August 21—28. A very small ephemeral spot on August 21. Two pairs of very small spots are seen on August 23. These multiply and become a stream in which the changes are rapid and considerable. a is the leader spot.

232.346 G	2	5	1	3	340.9	301.2	-10.5	-19.5
233.562 G	0	0	0	0	..	..	..	..
234.376 G	9	34	5	18	339.1	299.0	-11.1	+ 5.5
235.370 C	75	257	42	144	339.8	299.6	-11.5	+19.4

Date, G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.
	Umbræ.	Whole Spots.	Umbræ.	Whole Spots.	System I.	System II.		

Group 9465—continued.

1922. d	Umbræ.	Whole Spots.	Umbræ.	Whole Spots.	System I.	System II.	Latitude.	Long. from C.M.
236.424 G	142	650	90	415	340.3	299.9	-12.2	+33.8
237.353 G	92	643	72	503	340.4	299.8	-12.4	+46.2
238.381 G	58	319	65	359	341.3	300.5	-12.4	+60.7
239.416 C	22	198	52	449	341.7	300.8	-11.7	+74.7
Means ..	..	..	41	236	340.50	300.11	-11.69	..

Spot a.

236.424 G	67	301	44	199	343.2	302.5	-11.5	+36.7
237.353 G	52	371	43	304	343.2	302.4	-11.7	+49.0
238.381 G	37	234	44	276	343.1	302.1	-11.9	+62.5
239.416 C	22	174	52	409	342.8	301.6	-11.6	+75.8

Group 9469—September 13—24. A regular spot, a, of Group 9465, slowly diminishing with a few small companions on September 13—15.

255.350 G	19	126	35	231	344.8	301.4	-12.2	-71.7
256.553 G	41	213	39	202	345.4	301.8	-11.6	-55.3
257.408 G	35	229	26	171	345.2	301.4	-11.6	-44.2
258.341 G	40	222	25	140	345.0	301.1	-11.6	-32.0
259.352 C	54	250	30	140	344.7	300.6	-11.6	-19.0
260.353 G	49	224	26	119	345.0	300.7	-11.6	- 5.5
261.398 C	44	234	23	124	344.7	300.3	-11.6	+ 8.0
262.366 G	29	206	16	117	344.5	299.9	-11.6	+20.6
263.599 G	34	171	22	113	344.1	299.3	-11.9	+36.5
264.360 G	31	157	24	121	343.9	299.0	-11.9	+46.3
265.327 C	15	112	16	118	343.7	298.6	-12.1	+58.9
266.364 C	10	39	19	73	343.6	298.3	-12.2	+72.5
Means ..	..	..	25	139	344.55	300.20	-11.79	..

Group 9472—October 10—13. A single very small spot, a, of Group 9465.

282.342 C	3	11	7	24	345.0	297.3	-11.8	-75.3
283.473 G	3	11	3	12	344.3	296.4	-11.9	-61.1
284.400 G	1	4	1	3	344.0	295.9	-11.8	-49.2
285.407 G	2	5	1	3	343.5	295.3	-11.9	-36.4
Means ..	..	..	3	10	344.20	296.23	-11.85	..

RECURRENT SERIES 954.

Group 9475 seen in Rotation 924.
 " 9477 " " 925.
 " 9483 " " 926.

Group 9475—October 19—21. Two large double spots, a and b, appearing near the west limb.

291.450 G	25	136	21	114	352.0	283.8	-5.9	+51.8
292.408 C	48	365	57	452	352.6	284.2	-6.1	+65.1
293.439 G	42	255	111	678	352.3	283.6	-6.5	+78.4
Means ..	..	..	63	415	352.30	283.87	-6.17	..

LEDGER I.—RECURRENT GROUPS of SUN SPOTS for the YEAR 1922—continued.

Date, G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.	Date, G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.								
	Umbrae.	Whole Spots.	Umbrae.	Whole Spots.	System I.	System II.				Umbrae.	Whole Spots.	Umbrae.	Whole Spots.	System I.	System II.										
<p>RECURRENT SERIES 954. Group 9475—continued.</p> <p>Spot a.</p>									<p>RECURRENT SERIES 955.</p> <p>Group 9482 seen in Rotation 925.</p> <p>" 9486 " " 926.</p> <p>Group 9482—November 28—December 10. Evidently a stream in its later phases. A regular spot, a, with a companion 10° f in longitude. A few very small spots appear sporadically on December 2-4.</p>																
1922. d									1922. d																
291.450 G	15	80	13	70	353.8	285.9	-6.0	+53.6	331.526 C	13	100	(39	303	51.4	327.5	-3.4)*	-80.4								
292.408 C	19	205	26	279	355.1	287.0	-6.4	+67.6	332.383 C	22	231	40	383	48.2	324.1	-3.7	-72.3								
293.439 G	14	87	57	354	356.2	287.8	-6.5	+82.3	333.355 C	72	396	75	413	46.5	322.2	-3.6	-61.2								
<p>Spot b.</p>									<p>Means 39 235 50.33 324.85 - 3.03 ..</p>																
291.450 G	10	52	8	41	349.0	280.2	-5.6	+48.8	<p>Spot a.</p>																
292.408 C	29	160	31	173	349.1	280.1	-5.9	+61.6	331.526 C	13	100	39	303	51.4	327.5	-3.4	-80.4								
293.439 G	28	168	54	324	348.0	278.7	-6.4	+74.1	332.383 C	18	210	27	317	49.9	325.8	-3.6	-70.6								
<p>Group 9477—November 5-17. A large regular spot evidently a of Group 9475, with occasional very small companions.</p>									<p>Group 9486—December 25, 1923—January 4. A small regular spot, a of Group 9482, traced to its extinction as a dot on January 3 and 4. Its position on December 25 is uncertain owing to poor definition.</p>																
308.418 C	29	226	59	463	1.0	288.2	-6.5	-75.4	333.355 C	57	320	54	304	49.5	325.2	-3.6	-58.2								
309.530 G	66	391	70	414	0.8	287.8	-6.2	-61.0	334.421 G	39	347	27	239	50.2	325.6	-3.4	-43.5								
310.386 G	98	474	77	374	0.5	287.2	-6.4	-50.0	335.353 C	74	383	44	226	50.2	325.4	-3.4	-31.2								
311.330 C	77	467	49	299	0.6	287.1	-5.8	-37.4	336.357 C	53	352	28	187	50.3	325.2	-3.4	-17.8								
312.321 C	98	583	55	326	0.8	287.1	-5.7	-24.2	337.368 C	71	450	36	225	51.1	325.7	-3.3	-3.7								
313.363 C	119	579	61	296	0.5	286.5	-5.6	-10.7	338.337 C	65	379	33	193	51.6	326.0	-3.1	+9.5								
314.309 C	114	553	58	282	0.7	286.5	-5.6	+2.0	339.491 G	55	296	30	163	51.7	325.8	-2.9	+24.9								
315.343 C	117	595	62	315	0.5	286.1	-5.5	+15.4	340.357 C	52	315	32	195	51.6	325.5	-2.5	+36.2								
316.454 C	88	473	51	274	0.6	285.9	-5.6	+30.1	341.343 C	41	211	32	165	52.3	325.9	-2.4	+49.9								
317.364 C	63	378	43	257	0.7	285.8	-5.8	+42.2	342.321 C	32	150	34	160	51.8	325.2	-2.3	+62.3								
318.323 C	58	275	51	242	0.5	285.4	-5.9	+54.7	343.349 C	19	77	40	161	52.2	325.3	-2.3	+76.2								
319.517 C	24	151	37	233	0.7	285.3	-6.2	+70.6	<p>Means 6 35 55.50 325.60 - 4.21 ..</p>																
320.326 C	12	63	39	207	0.2	284.6	-6.2	+80.8	<p>Group 9483—December 2-11. A small regular spot (evidently a of Group 9477), disappearing as a dot. A few very small spots appear near it after December 8.</p>																
Means .. .. .	..	..	55	306	0.62	286.42	-5.92	..	335.353 C	7	25	17	62	3.4	282.9	-5.8	-78.0						
<p>Group 9483—December 2-11. A small regular spot (evidently a of Group 9477), disappearing as a dot. A few very small spots appear near it after December 8.</p>									<p>335.353 C</p>									7	25	17	62	3.4	282.9	-5.8	-78.0
308.418 C	29	226	59	463	1.0	288.2	-6.5	-75.4	336.357 C	14	58	17	68	3.3	282.6	-5.7	-64.8								
309.530 G	66	391	70	414	0.8	287.8	-6.2	-61.0	337.368 C	16	72	13	58	3.6	282.6	-5.4	-51.2								
310.386 G	98	474	77	374	0.5	287.2	-6.4	-50.0	338.337 C	20	110	13	70	4.0	282.8	-5.4	-38.1								
311.330 C	77	467	49	299	0.6	287.1	-5.8	-37.4	339.491 G	16	79	9	43	4.2	282.7	-5.2	-22.6								
312.321 C	98	583	55	326	0.8	287.1	-5.7	-24.2	340.357 C	12	91	6	46	4.5	282.8	-5.0	-10.9								
313.363 C	119	579	61	296	0.5	286.5	-5.6	-10.7	341.343 C	16	59	8	30	4.2	282.3	-5.2	+1.8								
314.309 C	114	553	58	282	0.7	286.5	-5.6	+2.0	342.321 C	23	73	12	38	2.5	280.3	-5.3	+13.0								
315.343 C	117	595	62	315	0.5	286.1	-5.5	+15.4	343.349 C	8	32	4	18	2.3	279.9	-5.4	+26.3								
316.454 C	88	473	51	274	0.6	285.9	-5.6	+30.1	344.348 C	1	41	1	27	2.4	279.7	-6.3	+39.6								
317.364 C	63	378	43	257	0.7	285.8	-5.8	+42.2	Means .. .. .	..	..	10	46	3.44	281.86	-5.47	..						
318.323 C	58	275	51	242	0.5	285.4	-5.9	+54.7	<p>Group 9486—December 25, 1923—January 4. A small regular spot, a of Group 9482, traced to its extinction as a dot on January 3 and 4. Its position on December 25 is uncertain owing to poor definition.</p>																
319.517 C	24	151	37	233	0.7	285.3	-6.2	+70.6	358.311 C	0	19	(0	73	56.2	327.7	-3.4)*	-82.7								
320.326 C	12	63	39	207	0.2	284.6	-6.2	+80.8	359.466 G	13	56	18	78	54.6	325.8	-3.9	-69.1								
Means .. .. .	..	..	55	306	0.62	286.42	-5.92	..	360.346 C	12	72	11	66	54.9	325.9	-4.5	-57.2						
<p>Group 9483—December 2-11. A small regular spot (evidently a of Group 9477), disappearing as a dot. A few very small spots appear near it after December 8.</p>									<p>360.346 C</p>									12	72	11	66	54.9	325.9	-4.5	-57.2
308.418 C	29	226	59	463	1.0	288.2	-6.5	-75.4	361.330 C	16	91	11	63	55.1	325.9	-4.3	-44.0								
309.530 G	66	391	70	414	0.8	287.8	-6.2	-61.0	362.454 G	11	76	6	43	55.2	325.7	-4.4	-29.1								
310.386 G	98	474	77	374	0.5	287.2	-6.4	-50.0	363.451 G	10	50	5	26	55.4	325.6	-4.5	-15.8								
311.330 C	77	467	49	299	0.6	287.1	-5.8	-37.4	364.343 C	8	33	4	17	55.2	325.2	-4.2	-4.2								
312.321 C	98	583	55	326	0.8	287.1	-5.7	-24.2	365.502 G	13	20	7	10	55.8	325.5	-4.2	+11.6								
313.363 C	119	579	61	296	0.5	286.5	-5.6	-10.7	366.661 C	0	13	0	7	56.0	325.4	-4.2	+27.1								
314.309 C	114	553	58	282	0.7	286.5	-5.6	+2.0	367.444 G	2	5	1	3	56.3	325.5	-4.2	+37.7								
315.343 C	117	595	62	315	0.5	286.1	-5.5	+15.4	368.330 C	1	4	1	3	56.5	325.5	-3.7	+49.6								
316.454 C	88	473	51	274	0.6	285.9	-5.6	+30.1	Means .. .. .	..	..	6	35	55.50	325.60	-4.21	..						
317.364 C	63	378	43	257	0.7	285.8	-5.8	+42.2	<p>Group 9486—December 25, 1923—January 4. A small regular spot, a of Group 9482, traced to its extinction as a dot on January 3 and 4. Its position on December 25 is uncertain owing to poor definition.</p>																
318.323 C	58	275	51	242	0.5	285.4	-5.9	+54.7	358.311 C	0	19	(0	73	56.2	327.7	-3.4)*	-82.7								
319.517 C	24	151	37	233	0.7	285.3	-6.2	+70.6	359.466 G	13	56	18	78	54.6	325.8	-3.9	-69.1								
320.326 C	12	63	39	207	0.2	284.6	-6.2	+80.8	360.346 C	12	72	11	66	54.9	325.9	-4.5	-57.2								
Means .. .. .	..	..	55	306	0.62	286.42	-5.92	..	361.330 C	16	91	11	63	55.1	325.9	-4.3	-44.0						
<p>Group 9483—December 2-11. A small regular spot (evidently a of Group 9477), disappearing as a dot. A few very small spots appear near it after December 8.</p>									<p>361.330 C</p>									16	91	11	63	55.1	325.9	-4.3	-44.0
308.418 C	29	226	59	463	1.0	288.2	-6.5	-75.4	362.454 G	11	76	6	43	55.2	325.7	-4.4	-29.1								
309.530 G	66	391	70	414	0.8	287.8	-6.2	-61.0	363.451 G	10	50	5	26	55.4	325.6	-4.5	-15.8								
310.386 G	98	474	77	374	0.5	287.2	-6.4	-50.0	364.343 C	8	33	4	17	55.2	325.2	-4.2	-4.2								
311.330 C	77	467	49	299	0.6	287.1	-5.8	-37.4	365.502 G	13	20	7	10	55.8	325.5	-4.2	+11.6								
312.321 C	98	583	55	326	0.8	287.1	-5.7	-24.2	366.661 C	0	13	0	7	56.0	325.4	-4.2	+27.1								
313.363 C	119	579	61	296	0.5	286.5	-5.6	-10.7	367.444 G	2	5	1	3	56.3	325.5	-4.2	+37.7								
314.309 C	114	553	58	282	0.7	286.5	-5.6	+2.0	368.330 C	1	4	1	3	56.5	325.5	-3.7	+49.6								
315.343 C	117	595	62	315	0.5	286.1	-5.5	+15.4	Means .. .. .	..	..	6	35	55.50	325.60	-4.21	..						
316.454 C	88	473	51	274	0.6	285.9	-5.6	+30.1	<p>Group 9486—December 25, 1923—January 4. A small regular spot, a of Group 9482, traced to its extinction as a dot on January 3 and 4. Its position on December 25 is uncertain owing to poor definition.</p>																
317.364 C	63	378	43	257	0.7	285.8	-5.8	+42.2	358.311 C	0	19	(0	73	56.2	327.7	-3.4)*	-82.7								
318.323 C	58	275	51	242	0.5	285.4	-5.9	+54.7	359.466 G	13	56	18	78	54.6	325.8	-3.9	-69.1								
319.517 C	24	151	37	233	0.7	285.3	-6.2	+70.6	360.346 C	12	72	11	66	54.9	325.9	-4.5	-57.2								
320.326 C	12	63	39	207	0.2	284.6	-6.2	+80.8	361.330 C	16	91	11	63	55.1	325.9	-4.3	-44.0								
Means .. .. .	..	..	55	306	0.62	286.42	-5.92	..	362.454 G	11	76	6	43	55.2	325.7	-4.4	-29.1						
<p>Group 9483—December 2-11. A small regular spot (evidently a of Group 9477), disappearing as a dot. A few very small spots appear near it after December 8.</p>									<p>362.454 G</p>									11	76	6	43	55.2	325.7	-4.4	-29.1
308.418 C	29	226	59	463	1.0	288.2	-6.5	-75.4	363.451 G	10	50	5	26	55.4	325.6	-4.5	-15.8								
309.530 G	66																								

ROYAL OBSERVATORY, GREENWICH.

LEDGERS

OF

GROUPS OF SUN SPOTS

FOR THE YEAR

1922.

LEDGER II.—NON-RECURRENT GROUPS.

LEDGER II.—NON-RECURRENT GROUPS of SUN SPOTS for the YEAR 1922.

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, Kodaikanal, Dehra Dûn, by the letters C, K, and D respectively.

The Projected Area of the Umbrae 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.

Date, G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.	Date, G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.
	Umbrae.	Whole Spots.	Umbrae.	Whole Spots.	System I.	System II.				Umbrae.	Whole Spots.	Umbrae.	Whole Spots.	System I.	System II.		
Group 9412.									Group 9423—continued.								
January 5-15. A few small spots which change frequently in stream formation. Nothing is seen on January 13.									1922. d								
1922. d					°	°	°	°	55.421 G	41	219	21	112	187.5	174.8	-6.9	+8.9
4.334 C	11	32	13	37	68.0	67.0	+6.9	-63.3	56.375 C	37	196	20	106	187.6	174.6	-7.1	+21.6
5.516 G	23	49	18	38	67.6	66.3	+7.1	-48.1	57.430 G	22	157	13	96	187.5	174.3	-6.9	+35.4
6.310 C	28	77	17	49	68.9	67.5	+7.0	-36.4	58.460 G	28	141	21	107	187.9	174.5	-6.9	+49.4
7.324 C	23	46	13	25	69.9	68.2	+6.9	-22.0	59.343 C	14	102	15	106	188.5	174.9	-6.9	+61.6
8.322 C	33	100	17	52	68.7	66.8	+7.4	-10.1	60.431 G	6	41	12	83	189.0	175.1	-7.1	+76.4
9.530 G	31	81	16	41	68.0	65.8	+6.7	+5.1	61.102 K	2	17	12	104	189.8	175.7	-7.1	+86.0
10.470 G	17	34	9	18	66.5	64.1	+7.2	+16.0	Means ..	..	..	19	120	187.70	175.08	-6.74	..
11.325 C	13	54	7	31	64.8	62.2	+6.6	+25.6	Group 9425.								
12.325 C	0	0	0	0	..	..	..	..	February 24-March 2. A small regular spot, just north of Group 9424, dividing into two portions on February 28 which quickly disappear.								
13.506 G	26	61	22	51	62.2	59.1	+5.9	+51.7	54.327 C	12	54	28	124	118.0	111.1	+15.0	-75.0
14.361 C	3	19	3	20	61.2	57.9	+6.2	+62.0	55.421 G	23	111	26	124	118.5	111.5	+14.8	-60.1
Means ..	..	..	12	33	66.58	64.49	+6.79	..	56.375 C	26	133	21	109	118.0	110.8	+14.7	-48.0
Group 9414.									Group 9427								
January 8-12. More probably a revival than a return of Group 9408. A small spot fading out in a few days.									February 26-March 4. A small group of the stream type. The leader alone remains on March 3, but a faint spot, which marks the following component, appears last on March 4.								
7.324 C	4	37	9	85	15.4	14.0	+10.3	-76.5	56.375 C	7	25	4	15	134.8	122.0	+7.4	-31.2
8.322 C	9	35	11	41	15.3	13.7	+10.4	-63.5	57.430 G	59	211	32	115	134.6	121.6	+6.9	-17.5
9.530 G	20	59	16	46	15.0	13.2	+10.4	-47.9	58.460 G	64	249	33	129	135.3	122.0	+6.6	-3.2
10.470 G	16	34	10	22	14.7	12.7	+10.7	-35.8	59.343 C	49	209	25	110	136.6	123.1	+6.9	+9.7
11.325 C	8	17	5	10	15.0	12.9	+10.4	-24.2	60.431 G	28	133	17	76	137.2	123.5	+7.0	+24.6
Means ..	..	..	10	41	15.08	13.30	+10.44	..	61.102 K	12	28	8	18	138.3	124.4	+7.3	+34.5
Group 9423.									Group 9428								
February 18-March 3. A small stable regular spot.									February 26-March 4. A small group of the stream type. The leader alone remains on March 3, but a faint spot, which marks the following component, appears last on March 4.								
48.434 G	1	44	4	168	187.4	176.3	-6.3	-83.2	56.375 C	7	25	4	15	134.8	122.0	+7.4	-31.2
49.378 C	16	100	25	154	186.6	175.2	-6.6	-71.6	57.430 G	59	211	32	115	134.6	121.6	+6.9	-17.5
50.462 G	30	169	27	154	186.9	175.3	-6.3	-57.0	58.460 G	64	249	33	129	135.3	122.0	+6.6	-3.2
51.503 G	32	183	22	124	187.1	175.3	-6.4	-43.1	59.343 C	49	209	25	110	136.6	123.1	+6.9	+9.7
52.514 G	40	207	23	118	187.4	175.3	-6.6	-29.5	60.431 G	28	133	17	76	137.2	123.5	+7.0	+24.6
53.442 G	46	234	24	122	187.2	174.9	-6.6	-17.4	61.102 K	12	28	8	18	138.3	124.4	+7.3	+34.5
54.327 C	50	248	25	124	187.4	174.9	-6.7	-5.6	62.567 G	1	6	1	5	132.8	118.6	+7.4	+48.4
Means ..	..	..	17	67	135.66	122.17	+7.07	..	Means ..	..	..	17	67	135.66	122.17	+7.07	..

LEDGER II.—NON-RECURRENT GROUPS of SUN SPOTS for the YEAR 1922—continued.

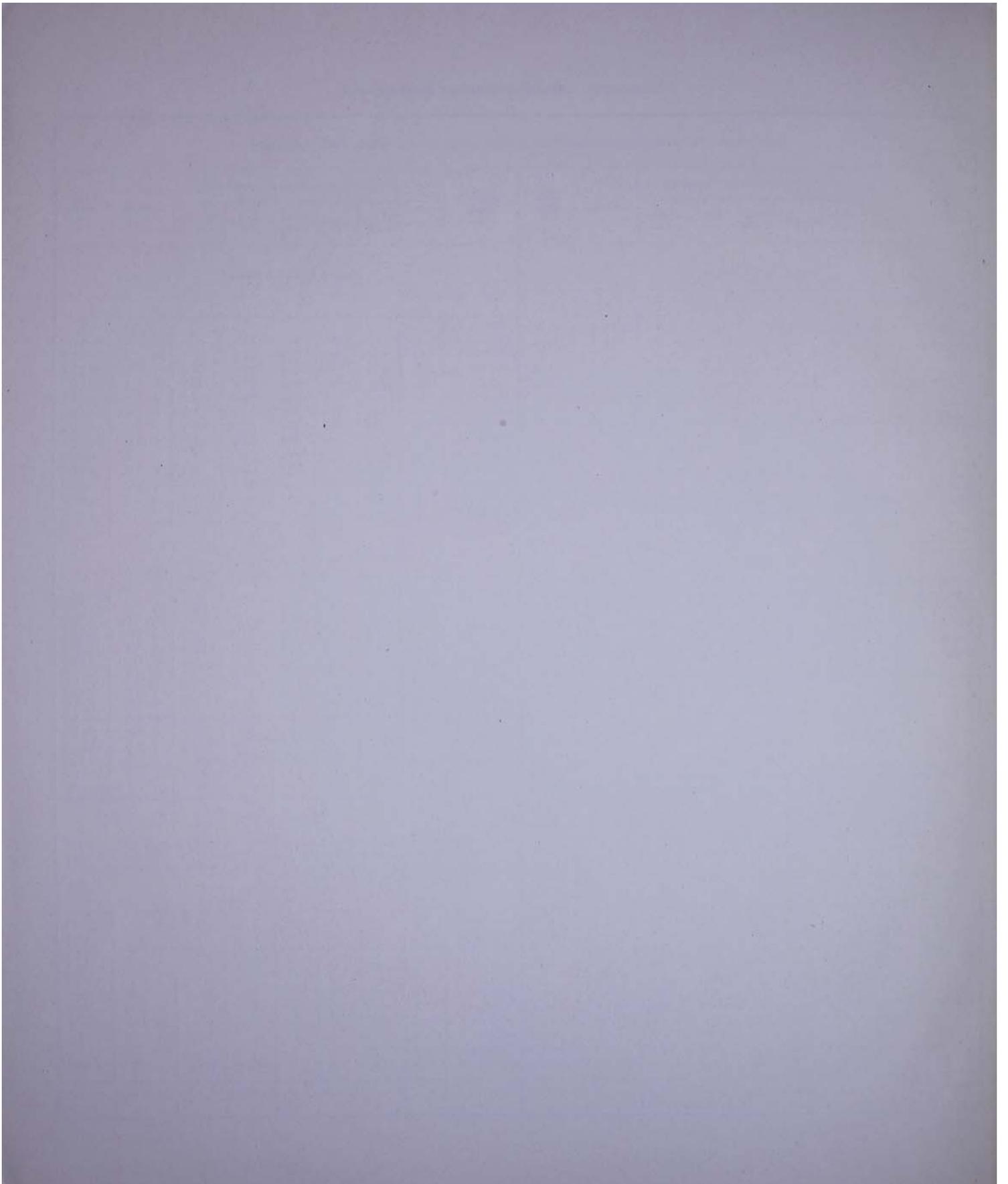
Date. G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.	Date. G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.
	Umbrae.	Whole Spots.	Umbrae.	Whole Spots.	System I.	System II.				Umbrae.	Whole Spots.	Umbrae.	Whole Spots.	System I.	System II.		
Group 9431.									Group 9447.								
March 4-10. An extended area of disturbance of Group 9429 and 9430 shown by faculae at the Sun's limb and later by small evanescent clusters of spots.									April 1-7. A sparse stream of generally unimportant spots.								
1922. d									1922. d								
62.567 G	6	21	4	15	42.4	28.2	+ 7.1	-42.0	90.469 G	21	116	28	167	8.8	351.4	+10.7	-67.8
63.342 C	57	174	35	106	42.7	28.3	+ 7.2	-31.5	91.354 C	33	139	32	132	9.8	352.3	+10.2	-55.1
64.329 G	23	192	12	104	43.5	28.9	+ 6.9	-17.7	92.375 C	28	172	20	123	9.9	352.2	+10.2	-41.6
65.419 G	45	235	24	122	43.3	28.5	+ 7.1	-3.6	93.404 G	36	164	22	97	9.9	352.0	+10.2	-28.0
66.325 C	18	77	10	40	44.0	28.9	+ 6.4	+ 9.1	94.353 G	26	89	14	49	10.6	352.5	+ 9.8	-14.8
67.418 G	12	71	6	38	39.2	23.9	+ 7.2	+18.7	95.470 G	22	120	12	63	9.0	350.7	+10.0	- 1.6
68.326 C	4	31	2	18	39.2	23.7	+ 7.4	+30.6	96.372 C	11	86	6	45	8.2	349.7	+10.5	+ 9.5
Means ..	..	..	13	63	42.04	27.20	+ 7.04	..	Means ..	..	..	19	97	9.46	351.54	+10.23	..
Group 9434.									Group 9449.								
March 9-18. A regular spot with a train of small companions developing rapidly from a small cluster of tiny spots on March 9. The formation of the regular spot is from a larger compound spot which develops from the small cluster within 24 hours.									April 22-30. A diminutive stream. The leader has disappeared on April 26.								
67.418 G	6	30	5	24	330.5	315.6	+ 6.9	-50.0	111.312 C	2	10	2	10	103.5	77.3	+ 6.8	-57.9
68.326 C	75	559	48	362	331.7	316.6	+ 6.9	-36.9	112.316 G	20	62	15	45	103.7	77.3	+ 6.5	-44.5
69.422 G	115	757	65	425	332.3	317.0	+ 6.9	-21.8	113.444 G	20	70	11	41	104.6	77.9	+ 6.1	-28.7
70.425 G	81	423	43	221	333.0	317.4	+ 7.4	- 7.9	114.440 G	13	35	7	19	105.7	78.8	+ 5.2	-14.4
71.342 C	64	307	33	159	333.0	317.2	+ 7.7	+ 4.2	115.550 G	3	21	2	11	100.8	73.6	+ 7.3	- 4.6
72.417 G	40	210	22	115	334.0	318.0	+ 8.3	+19.3	116.553 G	12	27	6	14	101.9	74.5	+ 6.4	+ 9.7
73.522 C	28	166	18	105	334.1	317.9	+ 8.0	+34.0	117.449 G	14	43	7	23	103.5	75.9	+ 6.0	+23.1
74.329 C	31	167	23	124	334.2	317.8	+ 8.2	+44.8	118.355 G	4	25	3	16	105.3	77.5	+ 5.3	+36.9
75.101 K	28	137	26	127	334.8	318.2	+ 8.1	+55.5	119.110 K	1	4	1	3	104.4	76.4	+ 5.0	+46.0
76.328 C	11	59	19	104	335.4	318.5	+ 8.2	+72.3	Means ..	..	..	6	20	103.71	76.58	+ 6.07	..
Means ..	..	..	30	177	333.30	317.42	+ 7.66	..									
Group 9440.									Group 9450.								
March 24-31. A small stream p Group 9439.									April 24-May 1. A small diminishing regular spot with two or three companions following.								
82.480 G	2	8	2	7	130.9	114.1	+ 9.1	-51.1	113.444 G	14	65	29	136	57.7	31.1	+ 5.6	-75.6
83.451 G	11	32	7	21	132.2	115.2	+ 9.0	-37.0	114.440 G	14	108	15	117	58.2	31.3	+ 6.0	-61.9
84.562 G	26	77	14	43	133.4	116.2	+ 9.3	-21.1	115.550 G	12	106	10	81	57.5	30.3	+ 6.0	-47.9
85.631 G	30	113	16	59	134.2	116.7	+ 9.3	- 6.2	116.553 G	16	43	9	27	56.6	29.2	+ 6.4	-35.6
86.344 C	23	93	12	48	134.3	116.7	+ 9.2	+ 3.3	117.449 G	15	57	8	31	56.8	29.2	+ 5.8	-23.6
87.331 C	12	40	6	21	134.1	116.3	+ 9.2	+16.1	118.355 G	14	84	7	45	55.1	27.3	+ 6.5	-13.3
88.372 C	9	28	6	17	134.7	116.7	+ 9.3	+30.4	119.110 K	15	60	8	30	56.3	28.3	+ 6.0	- 2.1
89.120 K	2	8	1	5	132.6	114.4	+ 9.5	+38.2	120.438 G	6	53	3	28	55.7	27.4	+ 6.6	+14.8
Means ..	..	..	8	28	133.30	115.79	+ 9.24	..	Means ..	..	..	11	62	56.74	29.26	+ 6.11	..

LEDGER II.—NON-RECURRENT GROUPS OF SUN SPOTS for the YEAR 1922—continued.

Date. G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.	Date. G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.								
	Umbrae.	Whole Spots.	Umbrae.	Whole Spots.	System I.	System II.				Umbrae.	Whole Spots.	Umbrae.	Whole Spots.	System I.	System II.										
<p>Group 9454. June 7-15. Intermittent. A small area of disturbance shown by a few small unstable spots and accompanying faculae. The group is not seen on June 9 and 10.</p>									<p>Group 9462. July 19-28. A stream of normal type developing rapidly in the first 24 hours of its appearance. On July 26 the leader spot, which is the only significant survivor of the stream, divides into two unequal portions of which the following one rapidly disappears.</p>																
1922. d									1922. d																
157.342 G	8	33	5	23	229.0	196.7	+ 8.8	-43.7	199.339 G	93	361	77	302	24.7	337.7	- 6.2	-52.2								
158.348 G	6	27	3	15	230.5	198.0	+ 9.0	-28.9	200.386 G	121	773	78	502	25.1	337.8	- 6.3	-37.9								
159.461 G	0	0	0	0	..	..	..	..	201.455 G	140	808	78	449	25.5	338.0	- 6.1	-23.4				
160.353 G	0	0	0	0	..	..	..	..	202.419 C	147	709	75	367	25.4	337.6	- 5.9	-10.7				
161.308 G	1	17	1	9	232.4	199.3	+ 8.8	+12.2	203.241 K	151	775	77	394	26.0	338.0	- 5.5	+ 0.8								
162.347 G	5	30	3	17	232.3	199.0	+ 8.8	+25.8	204.413 C	109	535	58	287	27.5	339.3	- 5.5	+17.8								
163.362 C	8	15	5	10	230.7	197.2	+ 9.5	+37.7	205.424 G	73	444	44	269	28.4	339.9	- 5.7	+32.1								
164.362 C	5	32	4	26	232.1	198.4	+ 9.1	+52.3	206.450 G	42	279	32	209	29.8	341.1	- 5.6	+47.0								
165.332 C	7	27	9	35	233.7	199.8	+ 9.9	+66.8	207.345 G	29	159	29	160	30.1	341.2	- 6.2	+59.2								
Means ..	..	..	3	15	231.53	198.34	+ 9.13	..	208.343 G	15	60	27	108	30.8	341.6	- 6.4	+73.1						
<p>Group 9459. July 4-9. A small stream of faint unstable spots.</p>									<p>Group 9466. August 27-31. A small group of the stream type consisting generally of two spots. Group 9467 appears <i>nf</i> in the same disturbed area.</p>																
184.219 D	8	17	5	10	242.5	205.7	+10.1	-34.4	238.381 G	3	9	2	5	295.4	236.0	+ 4.4	+14.8								
185.437 C	5	15	3	8	242.8	205.7	+ 8.5	-18.0	239.416 C	29	112	16	66	297.0	237.4	+ 3.9	+30.0								
186.398 C	44	220	22	110	242.8	205.5	+ 9.1	- 5.3	240.357 G	84	317	58	215	297.2	237.4	+ 3.8	+42.7								
187.363 G	20	94	10	48	244.4	206.9	+ 9.6	+ 9.1	241.452 C	41	204	40	193	297.9	237.8	+ 3.9	+57.8								
188.739 G	18	86	10	49	244.5	206.8	+ 9.7	+27.4	242.523 G	11	61	20	111	299.8	239.4	+ 4.1	+73.9								
189.739 G	2	13	1	9	244.9	207.0	+10.3	+41.0	Means ..	..	..	27	118	297.46	237.60	+ 4.02	..						
Means ..	..	..	9	39	243.65	206.27	+ 9.55	..	<p>Group 9470. September 29-October 5. A small spot on September 29 and 30, becoming a stream of minor importance.</p>														
<p>Group 9460. July 5-10. A small definite spot.</p>									<p>271.418 G</p>									2	7	1	4	194.8	137.8	- 9.3	- 9.6
185.437 C	3	16	6	30	187.5	151.0	-10.4	-73.3	272.337 C	8	21	4	11	195.9	138.7	- 9.1	+ 3.6								
186.398 C	9	31	9	33	187.6	150.9	-10.2	-60.5	273.401 C	23	65	12	35	195.1	137.7	- 8.6	+16.8								
187.363 G	12	34	9	25	189.0	152.1	- 9.5	-46.3	274.371 C	14	45	8	27	195.0	137.4	- 8.5	+29.5								
188.739 G	18	53	10	31	189.2	152.0	- 9.9	-27.9	275.347 G	11	24	8	17	196.3	138.5	- 8.4	+43.7								
189.739 G	17	26	9	14	189.9	152.5	- 9.6	-14.0	276.353 C	5	22	5	21	197.1	139.1	- 8.5	+57.8								
190.345 G	17	44	9	23	190.8	153.3	- 9.3	- 5.1	277.448 G	1	4	2	6	194.3	136.0	- 8.8	+69.4								
Means ..	..	..	9	26	189.00	151.97	- 9.82	..	Means ..	..	..	6	17	195.50	137.89	- 8.74	..				
<p>Group 9461. July 7-12. Two small spots, 6° apart in longitude. The leader alone remains on July 12.</p>									<p>Group 9471. October 9-16. A small stream of feeble activity. The following component is the largest and longest lived.</p>																
187.363 G	0	6	0	14	156.8	123.5	+11.6	-78.5	281.393 G	0	2	0	4	356.9	324.0	+15.5	-75.9								
188.739 G	14	34	13	32	159.4	125.8	+11.7	-57.7	282.342 C	33	140	35	148	358.3	325.3	+14.5	-62.0								
189.739 G	17	60	12	41	161.8	128.0	+11.4	-42.1	283.473 G	41	163	30	120	357.6	324.4	+14.8	-47.8								
190.345 G	14	42	8	25	162.0	128.1	+11.3	-33.9	284.400 G	28	104	17	65	357.0	323.7	+15.4	-36.2								
191.358 G	7	19	4	10	164.1	130.0	+11.0	-18.4	Means ..	..	..	7	22	161.60	127.78	+11.27	..						
192.357 C	10	21	5	10	165.5	131.3	+10.6	- 3.7																	

LEDGER II.—NON-RECURRENT GROUPS of SUN SPOTS for the YEAR 1922—continued.

Date. G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.	Date. G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.
	Umbræ.	Whole Spots.	Umbræ.	Whole Spots.	System I.	System II.				Umbræ.	Whole Spots.	Umbræ.	Whole Spots.	System I.	System II.		
Group 9471—continued.									Group 9484—continued.								
1922 d									Spot a.								
285.407 G	14	40	8	22	356.5	323.1	+15.4	-23.4	1922 d								
286.398 G	1	10	1	5	355.6	322.1	+15.1	-11.2	355.434 G	23	117	122	622	92.3	8.1	+ 6.1	-84.5
287.428 G	0	0	0	0	..	..	..	..	356.318 C	87	537	142	875	93.4	9.0	+ 5.5	-71.8
288.391 G	0	11	0	6	357.4	323.7	+13.9	+16.9	357.456 G	161	988	150	919	93.0	8.3	+ 5.7	-57.2
Means ..	..	..	11	46	357.04	323.76	+14.94	..	358.311 C	199	1333	143	960	93.4	8.5	+ 5.5	-45.5
Group 9476.									Spot b.								
October 29—November 3. A few very small spots arranged as a stream. The leader appears first and is less unstable than the other spots.									359.466 G	308	1757	179	1019	93.5	8.3	+ 5.5	-30.2
301.148 D	1	6	3	16	95.1	54.7	-14.5	-77.2	360.346 C	261	1644	138	871	93.7	8.3	+ 5.8	-18.4
302.350 C	4	16	5	18	94.4	53.9	-14.2	-62.0	361.330 C	321	1783	164	909	93.7	8.1	+ 6.0	- 5.4
303.408 G	14	58	12	49	92.1	51.4	-13.8	-50.4	362.454 G	301	1689	154	861	94.0	8.1	+ 5.7	+ 9.7
304.366 C	19	52	13	35	91.3	50.5	-13.4	-38.5	363.451 G	236	1403	130	772	94.3	8.2	+ 5.8	+23.1
305.473 G	11	36	6	21	92.6	51.7	-13.9	-22.6	364.343 C	210	1118	130	693	94.4	8.1	+ 6.1	+35.0
306.537 C	3	18	2	9	94.2	53.1	-14.2	- 7.0	365.502 G	148	737	118	590	94.8	8.2	+ 5.5	+50.6
Means ..	..	..	7	25	93.28	52.55	-14.00	..	366.661 C	50	418	63	527	94.9	8.0	+ 6.0	+66.0
Group 9484.									Group 9485.								
December 22, 1923—January 4. A very large spot group, of "bi-polar" type of the Mt. Wilson classification and corresponding generally to the stream of "normal type" in these publications. The leader spot, a, at maximum development is, however, unusually large compared with the following component b, and its structure is more complex than that of the leader 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.									1922.—December 25—1923 January 4. A small decreasing regular spot. A few very small spots appear following it on December 28, and the group remains as an unstable cluster until January 1. Nothing is then seen until January 4, when a small double spot is visible.								
355.434 G	23	117	(122	622	92.3	8.1	+ 6.1)*	-84.5	358.311 C	6	21	10	36	66.6	351.4	+ 8.5	-72.3
356.318 C	100	688	177	1277	91.1	6.7	+ 5.3	-74.1	359.466 G	11	64	10	59	67.4	351.9	+ 8.8	-56.3
357.456 G	237	1335	239	1323	90.8	6.1	+ 5.7	-59.4	360.346 C	8	27	6	19	68.4	352.7	+ 8.8	-43.7
358.311 C	289	1797	218	1349	91.2	6.3	+ 5.6	-47.7	361.330 C	24	51	14	31	66.0	350.1	+ 8.9	-33.1
359.466 G	447	2407	269	1438	91.2	6.0	+ 5.6	-32.5	362.454 G	17	100	9	53	68.0	351.9	+ 8.5	-16.3
360.346 C	373	2284	202	1234	91.4	6.0	+ 5.9	-20.7	363.451 G	28	75	14	38	66.4	350.1	+ 8.5	- 4.8
361.330 C	446	2463	229	1262	91.5	5.9	+ 6.2	- 7.6	364.343 C	8	52	4	27	66.8	350.3	+ 9.2	+ 7.4
362.454 G	450	2348	230	1197	92.0	6.1	+ 6.0	+ 7.7	365.502 G	27	89	15	50	67.9	351.1	+ 8.5	+23.7
363.451 G	316	1850	172	1004	92.1	6.0	+ 6.0	+20.9	366.661 C	0	0	0	0	..	..	..	..
364.343 C	273	1553	165	937	91.7	5.4	+ 6.1	+32.3	367.444 G	0	0	0	0	..	..	..	..
365.502 G	209	1092	159	831	92.0	5.4	+ 5.8	+47.8	368.330 C	2	11	2	12	68.9	351.6	+ 8.5	+62.0
366.661 C	102	668	110	755	91.8	4.9	+ 6.3	+62.9	Means ..	..	..	8	30	67.38	351.23	+ 8.69	..
367.444 G	55	433	103	779	91.9	4.8	+ 6.2	+73.3									
368.330 C	11	93	(27	229	84.6	357.3	+ 7.1)*	+77.7									



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

1922.

TOTAL AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1922.

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 Dún, 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 disk.

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.			Greenwich Civil Time.	Place.	Projected Area.			Area Corrected for Foreshortening.				
		Umbrae.	Whole Spots.	Faculae.	Umbrae.	Whole Spots.	Faculae.			Umbrae.	Whole Spots.	Faculae.	Umbrae.	Whole Spots.	Faculae.		
1922	d							1922	d								
January	1:336	C	0	0	74	0	0	102	February	11:458	G	314	1457	278	198	933	406
	2:335	C	0	0	0	0	0	0		12:433	G	521	2560	615	355	1705	632
	3:329	C	18	69	148	9	35	166		13:440	G	422	2597	445	346	2262	585
	4:338	C	6	32	291	4	17	639		14:329	C	273	1792	501	292	2080	872
	5:334	C	37	141	628	29	103	864		15:432	C	144	1121	0	81	631	0
	6:516	G	36	83	1140	29	66	1193		16:344	C	137	758	0	88	493	0
	7:310	C	40	171	1260	29	142	1207		17:339	C	97	540	411	79	442	360
	8:324	C	30	106	685	30	175	1048		18:434	G	25	313	481	35	514	731
	9:322	C	55	169	306	35	110	370		19:378	C	29	206	636	61	437	1141
	10:530	G	60	185	202	38	117	172		20:462	G	30	169	524	27	154	538
	11:470	G	38	134	367	39	309	454		21:503	G	32	183	374	22	124	266
	12:325	C	32	164	565	28	179	808		22:514	G	40	207	32	23	118	105
	13:325	C	28	155	864	24	137	954		23:442	G	46	234	188	24	122	348
	14:506	G	78	325	650	56	229	593		24:327	C	63	319	596	55	282	992
	15:361	C	44	267	1040	26	164	1164		25:421	G	79	410	788	64	332	901
	16:457	G	49	289	420	26	151	561		26:375	C	101	494	898	72	353	927
	17:463	C	34	272	564	17	136	582		27:430	G	210	897	376	130	555	504
	18:437	C	55	272	303	29	139	374		28:460	G	419	1726	714	244	1006	799
	19:327	C	46	229	280	25	124	344									
	20:487	G	42	194	107	27	124	215	March	1:343	C	564	3004	936	445	2510	1344
	21:315	C	36	165	100	24	122	127		2:431	G	979	4934	1214	626	3315	1617
	22:340	C	16	100	484	17	109	553		3:102	K	1068	5484	1524	663	3509	1633
	23:596	C	8	48	623	21	116	912		4:567	G	879	4824	973	537	2963	883
	24:330	C	0	0	498	0	0	646		5:342	C	780	4757	865	493	3011	968
	25:358	C	0	0	384	0	0	338		6:329	C	649	4018	1640	519	3297	2067
	26:395	C	0	0	66	0	0	69		7:419	G	748	3975	1382	673	3377	1639
	27:325	C	0	0	0	0	0	0		8:325	C	523	3122	1649	471	2660	1973
	28:499	G	0	0	0	0	0	0		9:418	G	431	3480	766	315	2080	744
	29:470	G	0	0	0	0	0	0		10:326	C	403	2911	1279	251	1827	1426
	30:517	G	0	2	0	0	1	0		11:422	G	399	2984	1268	257	1801	1235
	31:333	C	0	0	185	0	0	351		12:425	G	305	2708	912	211	1768	1237
										13:342	C	240	1777	740	171	1214	1125
February	1:502	G	6	19	692	3	10	684		14:417	G	92	958	103	56	574	139
	2:346	C	17	43	1018	9	22	991		15:522	C	73	532	913	51	369	716
	3:482	C	5	24	583	3	12	636		16:329	C	49	278	1426	40	225	1265
	4:322	C	2	12	567	1	6	657		17:101	K	32	165	1371	32	163	1495
	5:333	C	2	24	333	2	13	366		18:328	C	31	135	1004	34	159	1603
	6:463	G	23	82	85	14	53	93		19:332	C	13	76	225	13	77	349
	7:548	G	61	238	188	55	213	316		20:332	C	6	29	184	10	49	322
	8:443	G	99	457	155	65	295	243		21:445	G	2	24	126	2	23	210
	9:470	G	95	462	669	58	290	560		22:522	G	3	9	240	2	6	381
	10:441	G	128	562	284	78	346	291		23:386	G	30	161	572	65	344	845

TOTAL AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1922.

Greenwich Civil Time.	Place.	Projected Area.			Area Corrected for Foreshortening.			Greenwich Civil Time.	Place.	Projected Area.			Area Corrected for Foreshortening.		
		Umbrae.	Whole Spots.	Faculae.	Umbrae.	Whole Spots.	Faculae.			Umbrae.	Whole Spots.	Faculae.	Umbrae.	Whole Spots.	Faculae.
1922	d							1922	d						
March								May							
24.480	G	80	444	1041	97	552	1312	15.354	G	0	0	157	0	0	264
25.451	G	103	511	856	86	433	924	16.359	C	0	0	297	0	0	361
26.562	G	116	504	871	73	323	695	17.346	C	0	0	280	0	0	365
27.631	G	112	595	1106	63	336	1297	18.568	G	0	0	355	0	0	405
28.344	C	107	582	639	75	438	912	19.547	G	0	0	225	0	0	260
29.331	C	93	484	1345	62	335	1724	20.344	G	0	0	433	0	0	541
30.372	C	97	469	1503	63	301	1354	21.287	G	0	0	609	0	0	699
31.120	K	88	439	707	53	273	597	22.346	G	0	0	776	0	0	841
								23.344	G	0	0	676	0	0	649
April								24.355	G	9	63	574	18	127	647
1.469	G	92	439	964	74	372	1106	25.474	G	12	90	692	12	93	728
2.354	C	93	453	1268	72	345	1525	26.492	G	12	63	708	9	47	732
3.375	C	81	434	1826	58	335	2001	27.347	G	28	91	554	17	57	588
4.404	G	74	331	1309	43	189	1293	28.328	G	17	46	198	9	25	304
5.353	G	60	233	908	34	135	854	29.354	G	16	66	170	8	33	179
6.470	G	44	247	853	28	154	882	30.347	G	9	46	283	5	25	269
7.372	C	24	182	1155	18	136	1162	31.354	G	37	165	396	20	87	441
8.349	C	11	54	1063	16	80	1316								
9.531	C	4	19	630	2	12	777	June							
10.564	G	0	4	600	0	8	714	1.343	G	8	16	452	5	9	545
11.362	G	4	11	655	5	13	701	2.430	C	0	0	574	0	0	637
12.533	C	0	0	666	0	0	841	3.441	G	0	0	498	0	0	452
13.368	G	0	0	243	0	0	303	4.311	G	0	0	232	0	0	264
14.513	G	0	0	133	0	0	224	5.365	G	0	0	102	0	0	192
15.340	C	0	0	0	0	0	0	6.361	G	0	0	0	0	0	0
16.365	C	0	0	0	0	0	0	7.342	G	8	33	0	5	23	0
17.442	G	0	0	61	0	0	132	8.348	G	6	27	0	3	15	0
18.451	G	4	11	105	3	7	133	9.461	G	3	23	0	2	14	0
19.419	G	0	0	381	0	0	522	10.353	G	0	0	0	0	0	0
20.356	C	0	0	531	0	0	610	11.308	G	13	72	125	8	51	340
21.414	G	0	0	550	0	0	601	12.347	G	20	80	483	20	68	623
22.312	C	2	10	376	2	10	413	13.362	C	20	45	344	16	35	295
23.316	G	20	62	482	15	45	628	14.362	C	12	62	209	9	46	213
24.444	G	34	135	654	40	177	927	15.332	C	16	57	249	15	53	357
25.440	G	27	143	760	22	136	872	16.343	G	27	99	256	19	69	376
26.550	G	15	127	754	12	92	737	17.357	G	10	45	567	10	43	612
27.553	G	30	80	648	16	46	682	18.634	G	0	0	476	0	0	558
28.449	G	29	100	552	15	54	544	19.389	G	3	17	334	2	9	406
29.355	G	18	109	953	10	61	939	20.552	G	0	0	610	0	0	601
30.110	K	60	229	644	40	154	752	21.401	G	11	34	778	6	17	760
								22.349	G	7	23	432	4	13	483
May								23.343	G	0	2	142	0	1	262
1.438	G	182	966	697	104	553	838	24.447	C	4	17	136	2	11	107
2.418	G	200	1016	613	107	540	610	25.405	G	2	5	210	2	6	241
3.354	C	168	965	449	86	493	455	26.418	C	0	0	85	0	0	164
4.486	G	137	742	730	73	394	775	27.437	C	0	0	301	0	0	351
5.510	G	109	564	630	64	330	745	28.407	C	0	0	394	0	0	515
6.342	G	84	401	722	58	274	750	29.353	G	0	0	91	0	0	132
7.325	G	69	292	896	63	266	744	30.346	G	0	0	113	0	0	134
8.345	G	22	156	767	33	236	830								
9.353	G	7	53	537	34	254	825	July							
10.372	C	0	0	235	0	0	334	1.405	C	0	0	204	0	0	296
11.399	C	4	8	84	2	4	138	2.182	K	0	0	188	0	0	255
12.449	G	0	0	0	0	0	0	3.591	G	0	0	114	0	0	80
13.337	G	0	0	0	0	0	0	4.219	D	8	17	0	5	10	0
14.317	G	0	0	106	0	0	163	5.437	C	8	31	102	9	38	209

TOTAL AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1922.

Greenwich Civil Time.	Place.	Projected Area.			Area Corrected for Foreshortening.			Greenwich Civil Time.	Place.	Projected Area.			Area Corrected for Foreshortening.		
		Umbrae.	Whole Spots.	Faculae.	Umbrae.	Whole Spots.	Faculae.			Umbrae.	Whole Spots.	Faculae.	Umbrae.	Whole Spots.	Faculae.
1922 July	d							1922 August	d						
6:398	C	53	251	226	31	143	282	28:416	C	51	310	245	68	515	434
7:303	G	32	134	354	19	87	376	29:357	G	84	317	160	58	215	473
8:739	G	50	173	358	33	112	322	30:452	C	48	241	309	46	221	301
9:739	G	36	99	284	22	64	341	31:523	G	12	69	341	21	122	480
10:345	G	33	98	522	18	55	455								
11:358	G	9	39	372	5	21	440	September 1:359	G	2	9	157	1	5	319
12:357	C	10	21	209	5	10	302	2:341	C	0	0	54	0	0	70
13:359	C	0	0	73	0	0	63	3:543	G	0	0	56	0	0	71
14:356	C	1	9	412	1	6	432	4:381	C	0	0	139	0	0	190
15:519	G	0	0	375	0	0	380	5:557	G	0	0	0	0	0	0
16:292	G	0	0	360	0	0	454	6:366	G	0	0	72	0	0	99
17:435	G	0	0	125	0	0	129	7:358	G	1	6	106	1	3	109
18:357	C	0	0	107	0	0	164	8:422	G	0	0	56	0	0	65
19:339	G	93	361	165	77	302	140	9:605	G	0	0	184	0	0	272
20:386	G	121	773	0	78	502	0	10:341	G	0	0	212	0	0	220
21:455	G	140	808	0	78	449	0	11:413	G	0	0	0	0	0	0
22:419	C	148	715	45	76	371	98	12:360	G	0	0	22	0	0	67
23:241	K	154	789	319	79	402	346	13:350	G	19	126	300	35	231	528
24:413	C	115	549	374	61	294	395	14:553	G	41	213	477	39	202	510
25:424	G	80	458	286	48	277	344	15:408	G	35	229	366	26	171	300
26:450	G	42	279	358	32	209	288	16:341	G	40	222	78	25	140	122
27:345	G	29	159	448	29	160	434	17:352	C	54	250	166	30	140	172
28:343	G	15	60	375	27	108	453	18:353	G	49	224	55	26	119	79
29:345	G	0	0	249	0	0	366	19:398	C	44	234	0	23	124	0
30:130	K	0	0	43	0	0	54	20:366	G	29	206	0	16	117	0
31:339	G	0	0	31	0	0	34	21:599	G	35	175	0	23	116	0
								22:360	G	31	157	221	24	121	175
August 1:346	G	0	0	87	0	0	123	23:327	C	15	112	234	16	118	262
2:341	G	5	14	238	15	41	313	24:364	C	10	39	211	19	73	355
3:396	G	8	35	345	10	44	368	25:408	G	0	0	71	0	0	55
4:110	K	10	40	380	9	38	390	26:355	C	0	0	99	0	0	99
5:582	G	8	14	226	5	9	156	27:356	C	4	15	82	2	8	154
6:363	C	14	51	0	8	27	0	28:341	C	0	0	33	0	0	46
7:684	G	1	7	0	1	4	0	29:418	G	2	7	0	1	4	0
8:557	G	0	0	43	0	0	61	30:337	C	8	21	0	4	11	0
9:505	G	0	0	0	0	0	0								
10:567	G	0	0	141	0	0	188	October 1:401	C	23	65	0	12	35	0
11:544	C	0	0	0	0	0	0	2:371	C	14	49	0	8	29	0
12:354	C	0	0	236	0	0	240	3:347	G	11	24	165	8	17	178
13:470	C	0	0	304	0	0	419	4:353	C	5	22	306	5	21	398
14:360	C	0	0	281	0	0	376	5:448	G	1	4	334	2	6	397
15:345	G	0	0	338	0	0	284	6:112	K	0	0	331	0	0	392
16:367	G	0	0	29	0	0	38	7:350	G	0	0	0	0	0	0
17:674	G	0	0	0	0	0	0	8:368	C	0	0	44	0	0	66
18:368	G	0	0	0	0	0	0	9:393	G	1	16	164	1	11	262
19:345	G	0	0	0	0	0	0	10:342	C	36	151	338	42	172	420
20:352	G	0	0	0	0	0	0	11:473	G	44	174	592	33	132	560
21:346	G	4	9	39	3	5	50	12:400	G	29	108	341	18	68	300
22:562	G	0	0	180	0	0	137	13:407	G	16	45	246	9	25	250
23:376	G	9	34	208	5	18	200	14:398	G	1	10	170	1	5	171
24:370	C	75	257	146	42	144	222	15:428	G	0	0	76	0	0	132
25:424	G	142	650	0	90	415	0	16:391	G	14	69	0	7	35	0
26:353	G	92	643	260	72	503	204	17:460	G	18	77	0	9	40	0
27:381	G	61	328	370	67	364	392								

TOTAL AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1922.

Greenwich Civil Time.	Place.	Projected Area.			Area Corrected for Foreshortening.			Greenwich Civil Time.	Place.	Projected Area.			Area Corrected for Foreshortening.		
		Umbra.	Whole Spots.	Faculae.	Umbra.	Whole Spots.	Faculae.			Umbra.	Whole Spots.	Faculae.	Umbra.	Whole Spots.	Faculae.
1922	d							1922	d						
October 18:451	G	15	39	192	10	24	175	November 25:309	C	0	4	96	0	2	205
19:450	G	30	155	424	25	130	365	26:353	C	0	0	0	0	0	0
20:408	C	51	373	740	60	459	870	27:346	C	0	4	0	0	2	0
21:439	G	42	255	300	111	678	618	28:526	C	13	100	101	39	303	306
22:545	G	0	0	75	0	0	199	29:383	C	22	231	276	40	383	469
23:343	C	0	0	0	0	0	0	30:355	C	72	396	562	75	413	597
24:395	G	0	0	0	0	0	0	December 1:421	G	57	410	428	43	294	325
25:398	G	0	0	0	0	0	0	2:353	C	85	451	138	64	316	288
26:442	G	0	0	65	0	0	84	3:357	C	67	431	355	45	267	465
27:633	G	0	0	0	0	0	0	4:368	C	87	549	392	49	297	341
28:409	G	0	0	0	0	0	0	5:337	C	85	500	392	46	269	282
29:148	D	1	6	38	3	16	111	6:491	G	71	375	0	39	206	0
30:350	C	4	16	81	5	18	103	7:357	C	64	406	0	38	241	0
31:408	G	14	58	163	12	49	134	8:343	C	57	270	285	40	195	217
November 1:366	C	19	52	0	13	35	0	9:321	C	55	223	559	46	198	525
2:473	G	11	36	0	6	21	0	10:349	C	27	109	427	44	179	606
3:537	C	3	18	0	2	9	0	11:348	C	1	41	137	1	27	305
4:394	G	0	0	59	0	0	108	12:324	C	0	0	427	0	0	366
5:418	C	29	226	262	59	463	461	13:309	C	0	0	338	0	0	375
6:530	G	66	391	701	70	414	831	14:342	C	0	0	106	0	0	217
7:386	G	98	474	755	77	374	697	15:522	G	0	0	0	0	0	0
8:330	C	77	467	508	49	299	380	16:329	C	0	0	0	0	0	0
9:321	C	98	583	152	55	326	198	17:433	G	0	0	0	0	0	0
10:363	C	119	579	0	61	296	0	18:344	C	0	0	69	0	0	57
11:309	C	114	553	48	58	282	62	19:408	C	0	0	101	0	0	122
12:343	C	117	595	0	62	315	0	20:340	C	2	6	147	2	5	146
13:454	C	90	480	275	54	283	420	21:339	C	0	0	95	0	0	127
14:364	C	73	400	616	52	277	511	22:434	G	23	117	0	122	622	0
15:323	C	61	291	605	53	253	474	23:318	C	100	688	274	177	1277	521
16:517	C	24	151	540	37	233	654	24:456	G	237	1335	362	239	1323	373
17:326	C	12	63	283	39	207	496	25:311	C	295	1837	512	228	1458	587
18:101	K	0	0	0	0	0	0	26:466	G	471	2527	661	297	1575	777
19:101	K	0	0	41	0	0	65	27:346	C	394	2387	901	220	1323	838
20:396	C	11	29	30	6	15	35	28:330	C	494	2641	506	267	1411	466
21:320	C	23	78	0	13	45	0	29:454	G	478	2541	170	245	1302	226
22:412	C	6	55	170	4	39	122	30:451	G	357	1989	170	193	1076	180
23:459	C	0	0	256	0	0	246	31:343	C	288	1638	0	173	981	0
24:361	C	0	0	117	0	0	178								

MEAN AREAS of SUN SPOTS and FACULÆ for each ROTATION of the SUN, from 1921 December 19 to 1923 January 4.

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

The Rotations adopted in the following table (which is in continuation of those for the years 1873-1921 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.		
			Umbrae.	Whole Spots.	Faculae.	Umbrae.	Whole Spots.	Faculae.
913	1921 December	27	66	325	494	46	239	594
914	1922 January	28	39	186	354	25	121	410
915	February	27	359	2038	734	259	1487	889
916	March	27	93	593	899	68	418	1015
917	April	28	35	177	539	21	108	615
918	May	27	16	78	421	13	69	474
919	May	27	6	24	281	5	18	327
920	June	27	37	180	218	22	106	250
921	July	28	8	40	160	7	33	178
922	August	27	28	145	173	23	126	221
923	September	27	15	69	150	11	49	171
924	October	27	26	143	170	23	137	203
925	November	28	43	244	215	32	183	241
926	December	27	135	760	322	99	572	363

MEAN AREAS of SUN SPOTS and FACULÆ for the YEAR 1922.

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

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

Year.	No. of Days on which Photographs were taken.	Mean of Daily Areas.					
		Projected.			Corrected for Foreshortening.		
		Umbrae.	Whole Spots.	Faculae.	Umbrae.	Whole Spots.	Faculae.
1922	365	63	346	358	45	252	415

MEAN HELIOGRAPHIC LATITUDE of SUN SPOTS for each ROTATION of the SUN, from 1921 December 19 to 1923 January 4.

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.		
913	1921 December	27	76	9.22	163	5.64	— 0.93	6.78
914	1922 January	28	49	10.05	72	6.55	+ 0.20	7.97
915	February	27	1122	9.92	365	6.19	+ 5.97	9.01
916	March	27	277	9.31	141	6.69	+ 3.90	8.42
917	April	28	106	8.19	2	11.12	+ 7.91	8.23
918	May	27	69	8.50	0	—	+ 8.50	8.50
919	May	27	11	8.83	7	8.29	+ 2.38	8.63
920	June	27	14	10.17	92	6.20	— 4.07	6.71
921	July	28	5	10.08	28	6.08	— 3.62	6.69
922	August	27	23	4.22	103	12.00	— 8.99	10.56
923	September	27	14	14.29	35	11.39	— 3.99	12.23
924	October	27	5	12.34	132	6.49	— 5.87	6.69
925	November	28	5	4.67	179	4.42	— 4.18	4.43
926	December	27	542	5.95	30	3.50	+ 5.46	5.83

MEAN HELIOGRAPHIC LATITUDE of SUN SPOTS for the YEAR 1922.

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.		
1922	365	161	8.82	91	6.62	+ 3.23	8.02