

**GREENWICH
PHOTO-HELIOGRAPHIC
RESULTS.**

1921.

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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
1921.

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GREENWICH PHOTO-HELIOGRAPHIC RESULTS, 1921.

INTRODUCTION.

§ 1. *Positions and Areas of Sun Spots and Faculæ for each Day in the Year 1921.*

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

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

The photographs from the Cape Observatory were taken under the superintendence of Mr. S. S. Hough, His Majesty's Astronomer at the Cape, and those from Kodaikānal under the superintendence of Mr. John Evershed, Director of that Observatory. The photographs from Dehra Dûn, which have been forwarded by the Solar Physics Committee to fill the gaps in the combined series, were taken under the superintendence of the Deputy Surveyor-General, Trigonometrical Survey of India. At three of the observatories the instrument employed was a Dallmeyer Photo-heliograph giving an image of the Sun about 10 centimetres in radius ; at Kodaikānal a Cooke photo-visual object-glass of 6 inches aperture was used, the image of the Sun being on about the same 10-centimetre scale.

Photographs of the Sun were available for measurement upon each day in 1921, those finally selected for measurement being supplied by the different observatories as under :—

Greenwich	..	..	..	..	..	..	..	..	215
Cape	..	..	..	..	..	..	..	..	139
Kodaikānal	..	..	..	..	..	..	..	..	6
Dehra Dûn	..	..	..	..	..	..	..	..	5
Total	..	..	..	..	..	..	..	..	365

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The names of those persons who measured the photographs for the year 1921 are as follows :—

H. W. Newton
H. Barton

Andrina M. Crommelin
H. F. Finch

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

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

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

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

The zero-corrections used throughout the year 1921 in the reduction of the photographs taken at Greenwich were—

Jan. 1 to April 30, $+ 2^\circ 45'$; May 1 to Aug. 31, $+ 2^\circ 39'$; Sept. 1 to Dec. 31, $+ 2^\circ 42'$.

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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	° ' "
1921 March	24.	11	+ 2. 48	1921 July	9.	9	+ 2. 27
"	24.	11	+ 2. 44	"	18.	11	+ 2. 54
April	20.	9	+ 2. 47	August	16.	9	+ 2. 37
May	2.	10	+ 2. 34	"	20.	9	+ 2. 36
"	22.	9	+ 2. 40	September	7.	11	+ 2. 43
June	17.	15	+ 2. 34	"	22.	9	+ 2. 34
"	24.	11	+ 2. 30				

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	° ' "
1921 January	3.	12	+ 2. 47	1921 July	6.	9	+ 2. 36
"	15.	12	+ 2. 47	"	24.	10	+ 2. 39
February	1.	12	+ 2. 45	"	31.	16	+ 2. 42
"	20.	11	+ 2. 45	August	6.	11	+ 2. 43
March	10.	11	+ 2. 46	"	16.	9	+ 2. 38
"	17.	9	+ 2. 44	September	22.	9	+ 2. 42
"	24.	12	+ 2. 42	"	25.	9	+ 2. 45
April	4.	9	+ 2. 43	"	25.	12	+ 2. 46
"	8.	10	+ 2. 43	"	26.	15	+ 2. 45
"	20.	9	+ 2. 41	October	5.	12	+ 2. 44
"	30.	17	+ 2. 43	"	13.	10	+ 2. 42
May	2.	9	+ 2. 37	November	8.	12	+ 2. 46
"	10.	9	+ 2. 37	"	10.	10	+ 2. 43
"	22.	9	+ 2. 34	"	24.	12	+ 2. 44
June	7.	8	+ 2. 37	December	8.	11	+ 2. 45
"	25.	11	+ 2. 43				

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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	o		d	h	o
1921 January	12.	8	— 0. 28	1921 July	16.	8	— 0. 32
February	2.	8	— 0. 43	August	3.	10	— 0. 32
"	18.	8	— 0. 30	"	18.	8	— 0. 24
March	4.	8	— 0. 22	September	3.	8	— 0. 34
"	18.	8	— 0. 26	"	17.	9	— 0. 27
April	5.	8	— 0. 25	October	4.	8	— 0. 44
"	20.	8	— 0. 30	"	19.	8	— 0. 24
May	4.	8	— 0. 29	November	4.	8	— 0. 37
"	20.	9	— 0. 29	"	18.	8	— 0. 40
June	3.	8	— 0. 32	December	2.	8	— 0. 37
"	17.	9	— 0. 21	"	17.	9	— 0. 36
July	2.	9	— 0. 30				

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

Jan. 1 to Oct. 31, — 0°·5; Nov. 1 to Dec. 31, — 0°·6.

The zero-correction adopted during the year 1921 for the Kodaikáanal photographs was +0·3.

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

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

The position-angle z 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 $l+L$,

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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. 506 of the *Nautical Almanac* for 1921.

The inclination of the Sun's axis to the ecliptic is assumed to be $82^{\circ} 45'$, the longitude of the ascending node for 1921.0 to be $74^{\circ} 39' \cdot 5$, 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 1921.*

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 1920 and previous years. Groups seen only once are not included, but appear in the Daily Results with a distinctive numeration.

During the year 1921, 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 1921.*

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

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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 Faculae for each day, and Mean Areas and Mean Heliographic Latitude of Sun Spots and Faculae for each Rotation of the Sun, and for the year 1921.*

Particulars relating to this section are given in the headings on pages D 63-69.

F. W. DYSON.

*Royal Observatory, Greenwich,
1924, February 1.*



ROYAL OBSERVATORY, GREENWICH.

POSITIONS AND AREAS

OF

SUN SPOTS AND FACULÆ.

FOR EACH DAY IN THE YEAR

1921.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1921.

- 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 Umbræ corrected for foreshortening in millionths of the Sun's visible hemisphere.
- Col. 8. Area of Whole Spots composing the Group similarly expressed.
- Col. 9. Area of each group of Faculæ similarly expressed. The positions of Faculæ relative to the Spots with which they are associated are indicated by the letters *n, s, p, f, c*, denoting respectively north, south, preceding, following, concentric.
- In line with the date of each day is given in brackets the position angle of the Sun's axis from the North point: the heliographic longitude and latitude of the centre of the disc; the total areas of Spots and Faculæ for the day.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1921.

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.
1921. 0.407		.961 .946	292.0 256.0					65 257 308f	1921. 5.338 C Jan. 6	9282	.127 .739	245.3 100.4 (-0.4)	262.2 (255.6)	- 6.7 (- 3.7)	36 (36)	187 (187)	266 (956)
C	9278 9280 9281 9282	.979 .479 .430 .881	279.7 250.0 330.2 97.3	37.9 347.9 333.6 258.9	+ 8.8 - 12.2 + 18.8 - 8.0	29 33 5 36	197 152 16 230	299c 45	6.305 C Jan. 7	9282	.856 .378	282.2 263.0 (-0.8)	265.0 (242.9)	- 6.1 (- 3.8)	21 (21)	112 (112)	243 (243)
Jan. 1		.854	108.4 (+2.0)	(320.6)	(- 3.1)	(103)	(595)	(974)									
1.330		.964 .807	253.5 259.4					117 364									
C	9280 9282	.657 .753	254.4 97.6 (+1.6)	348.7 259.7 (308.4)	- 12.7 - 7.9 (- 3.3)	16 44 (60)	93 237 (330)	131p 187c (799)	7.304	9282 9283	.938 .572 .996 .930 .971 .980	280.7 264.9 98.1 175.1 108.9 78.1 (-1.3)	264.5 144.6 (229.7)	- 6.1 - 8.4 (- 3.9)	21 5 (26)	89 112 (201)	196 (611)
Jan. 2																	
2.474		.933 .772	259.8 294.8					197 150 411f	Jan. 8								
G	9280 9282	.836 .548 .985	256.8 98.8 97.8 (+1.0)	349.7 260.3 (293.3)	- 12.9 - 7.7 (- 3.4)	17 89 (106)	80 285 (365)	166 (924)	8.329	9282 900b 9283	.779 .140 .968 .911 .929	266.4 125.0 99.0 109.0 72.6 (-1.8)	267.3 209.6 140.4 (216.2)	- 5.3 - 8.5 - 9.7 (- 4.0)	10 1 (105)	25 6 (812)	169c (1057)
Jan. 3																	
3.395		.980 .858	258.6 292.0					207 461 58p	Jan. 9								
C	900a 9280 9282	.974 .932 .336 .935	277.6 256.9 101.0 98.9 (+0.6)	357.4 349.9 261.9 (281.2)	+ 6.6 - 13.5 - 7.0 (- 3.5)	0 20 75 (95)	9 79 267 (355)	439 (2027)	9.347	9282 900c 9284 9283	.842 .906 .284 .181 .889 .816 .862	288.3 265.6 251.5 198.5 99.1 111.6 68.5 (-2.3)	267.8 218.6 206.2 140.0 (202.8)	- 5.8 - 9.1 - 13.9 - 9.9 (- 4.1)	0 1 5 113 (119)	5 9 19 719 (752)	53 407f (1144)
Jan. 4																	
4.332		.922 .987	291.1 256.7					297 498f	Jan. 10								
C	9280 9282	.135 .845	114.1 99.3 (+0.1)	349.9 261.8 (268.9)	- 13.6 - 6.7 (- 3.6)	15 63 (78)	52 303 (355)	491 (1286)									
Jan. 5																	
5.338		.973 .896	289.3 252.1					326 106	10.442	900d 9284	.880 .357	260.2 242.6 64.4	250.1 207.3 156.9	- 10.7 - 13.5 + 10.5	0 83 4	5 329 10	343p
C		.740	285.2					258	G	900e	.571						

Group 9278. 1920, Dec. 20-1921, Jan. 1. A large spot apparently breaking up on Dec. 24, but assuming within a few days the stable appearance of a regular spot.

Group 9280. 1920, Dec. 24-1921, Jan. 5. A stream developing somewhat irregularly into one of normal type by Dec. 28. The leader, however, is unstable and divides into two portions after Dec. 31, whilst the remnant of the group is fast disappearing.

Group 9281. 1920, Dec. 25-1921, Jan. 1. An irregular stream of generally unimportant spots.

Group 9282. 1920, Dec. 31-1921, Jan. 10. A regular spot followed by a long train of numerous components which have died out by Jan. 9.

Group 9283. Jan. 8-20. An active stream which contains three well-defined components by Jan. 11, two of them being leaders of the group. By Jan. 13, the follower has divided into two parts, and small companion spots have increased which give a complex appearance to the stream as it passes the central meridian. The train then dies away rather rapidly leaving the original leader by itself on Jan. 19.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1921.

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.
1921. 10.442	9285	.588	71.6	154.3	+ 7.1	1	4	219c	1921. 15.474	9284	.991	254.0	205.3	-16.5	3	111	428c
G	9283	.744	99.0	140.4	- 9.6	118	703	98	G	9285	.572	289.8	154.8	+ 7.1	5	13	
		.902	118.8					56		9283	.339	254.0	141.3	- 9.9	60	305	
		.906	94.6					154		9286	.341	65.2	104.1	+ 3.6	49	118	
		.927	106.0					(870)		9287	.466	99.4	94.5	- 8.6	5	9	
Jan. 11			(-2.8)	(188.4)	(-4.3)	(206)	(1051)				.823	98.2					80
											.940	104.8					139
											.964	93.9					54
											.985	79.6					82
11.341		.982	261.3					218	Jan. 16			(-5.2)	(122.1)	(-4.8)	(122)	(556)	(783)
C	9284	.555	251.5	209.3	-13.8	133	632		16.341		.865	260.2					73
	9285	.427	64.1	154.0	+ 6.6	15	62				.719	302.4					107
	9283	.592	100.5	140.6	- 9.7	116	565				.715	285.1					120
	9286	.959	85.3	103.7	+ 3.2	0	37	189sf		9283	.533	257.3	142.5	-10.8	48	229	
Jan. 12		.830	107.7					150	C	9286	.209	44.6	102.3	+ 3.6	38	278	
		.947	112.1					106		9287	.259	105.5	96.1	- 8.8	2	9	
		.974	69.8					76			.938	75.6					309
			(-3.3)	(176.6)	(-4.4)	(264)	(1296)	(739)			.958	101.2					163
12.342		.835	263.7					114	Jan. 17			(-5.6)	(110.7)	(-4.9)	(88)	(516)	(772)
C	9284	.717	254.1	208.6	-14.5	118	671	301p	17.466		.873	281.3					215
	9285	.258	41.1	153.6	+ 6.7	21	101				.826	251.6					139
	9283	.393	104.1	140.8	- 9.6	87	528				.825	295.7					149
	9286	.873	83.8	103.3	+ 3.1	6	26	153c		9283	.728	259.3	142.5	-11.2	28	178	162p
Jan. 13		.859	97.3					138	C	9286	.182	323.5	102.1	+ 3.4	53	290	
		.901	115.2					114		9287	.077	162.2	94.5	- 9.2	0	3	
		.924	68.1					191			.827	74.4					265
			(-3.7)	(163.4)	(-4.5)	(232)	(1326)	(1011)			.893	102.7					191
13.442		.939	263.4					85	Jan. 18		.938	76.8					99
G	9284	.875	255.3	209.9	-15.0	164	874	362c				(-6.2)	(95.9)	(-5.0)	(81)	(471)	(1220)
	9285	.230	327.4	156.0	+ 6.6	19	47										
	9283	.168	121.5	140.6	- 9.6	130	553										
	9286	.715	81.1	104.1	+ 3.1	21	74	124c									
Jan. 14		.821	63.5					139	18.506		.959	277.8					111
		.855	98.1					225			.903	291.5					140
			(-4.3)	(148.9)	(-4.6)	(334)	(1548)	(935)			.893	250.5					146
										9283	.879	259.6	143.9	-11.6	22	134	469f
14.509	9284	.963	255.9	209.6	-14.8	114	698	690c	G	9286	.364	292.2	101.8	+ 3.1	59	291	
G	9285	.404	298.6	155.7	+ 6.7	9	27			9287	.285	261.6	98.6	- 7.2	1	4	
	9283	.141	230.6	141.2	- 9.8	86	370			9288	.987	99.0	1.0	- 9.7	6	106	137c
	9286	.535	76.4	103.7	+ 3.2	26	89				.903	100.8					55
Jan. 15		.810	99.6					90	Jan. 19		.964	80.8					59
			(-4.8)	(134.9)	(-4.7)	(235)	(1184)	(780)				(-6.6)	(82.2)	(-5.1)	(88)	(535)	(1117)

Group 9284. Jan. 10-16. A large stream of normal type developing rapidly from three very small spots seen on Jan. 10.

Group 9285. Jan. 11-16. A small stream.

Group 9286. Jan. 12-24. At first a small stream led by a small regular spot. Between January 16 and 17, a moderately large composite spot suddenly appears in the following part of the stream whose other components disappear within a few days.

Group 9287. Jan. 16-24. A disturbed area of some extent showing feeble but sustained activity.

Group 9288. Jan. 19-25. A small regular spot in the preceding portion of extensive faculae in which Groups 9289 and 9290 are situated. A pair of faint markings follows on Jan. 24 and 25.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1921.

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.
1921. 29:340 C Jan. 30	9289 9294	.841 .992	259.6 104.0 (-11.4)	357.1 215.6 (299.6)	-12.0 -14.7 (-6.0)	3 53 (56)	11 172 (183)	1040c 455np (1495)	1921. 35:459 G Feb. 5	9295 9294 901e 9297	.874 .193 .186 .354 .955 .905	264.8 185.5 146.3 109.9 99.8 106.8 (-13.9)	220.1 -17.4 -15.3 199.1 145.6 (219.0)	-17.4 -15.3 -12.9 -11.3 (-6.4)	14 35 4 8 (61)	58 174 7 35 (274)	104 232c 148 (484)
30:321 C Jan. 31	9289 9295 9294 971	.869 .936 .927 .949 .971	292.7 259.8 106.6 103.3 74.4 (-11.8)	356.6 218.2 214.4 (286.7)	-11.6 -17.7 -14.5 (-6.0)	1 6 25 (32)	11 42 223 (276)	191 992c 810c 72 (2065)	Feb. 6 36:356 C Feb. 7	9295 9294 9297 802	.273 .187 .888 .802	263.8 224.2 212.5 99.0 107.9 (-14.2)	218.7 213.2 144.2 (207.2)	-17.5 -15.4 -11.0 (-6.4)	11 32 7 (50)	49 183 41 (273)	198 351c 105 (654)
31:470 G Feb. 1	9292 9295 9294 9296 925	.945 .877 .971 .798 .842 .924 .925	286.2 297.5 261.4 106.9 103.9 79.1 180.1 (-12.3)	348.2 218.7 213.9 205.5 (271.5)	-9.8 -17.1 -15.0 +7.6 (-6.1)	0 18 38 5 (61)	8 46 216 23 (293)	113 142 512sf 731c 125f 131 (1754)	37:401 C Feb. 8	9295 9294 9297 9298 949	.427 .366 .733 .790 .949	263.0 242.2 243.5 99.9 96.4 105.7 (-14.6)	216.7 213.3 146.2 141.0 (193.5)	-17.4 -15.5 -11.6 -9.1 (-6.5)	1 27 2 22 (52)	10 144 8 91 (253)	188 90c 329c 184 (791)
32:529 G Feb. 2	9291 9295 9294 9296 901c 829	.952 .944 .796 .624 .699 .814 .829	244.7 290.3 289.4 109.1 105.1 76.2 71.9 (-12.7)	307.4 219.8 213.5 205.0 204.4 (257.6)	+11.3 -16.7 -14.9 +7.4 +11.2 (-6.2)	0 30 27 5 0 (62)	2 110 185 22 4 (323)	77 96 135c 394f 148c (850)	38:443 C Feb. 9	9294 9297 9298 9299	.564 .553 .589 .635 .869 .931 .955	251.7 101.6 96.0 110.2 106.7 97.6 83.8 (-15.0)	213.3 146.3 143.5 141.1 (179.7)	-15.6 -11.8 -8.8 -17.7 (-6.5)	31 2 23 15 (71)	155 8 112 47 (322)	95 186 229 (510)
33:494 G Feb. 3	9295 9294 9296 934	.878 .456 .538 .661 .934	287.7 115.7 108.5 71.3 190.7 (-13.1)	219.6 213.1 205.9 (244.9)	-17.0 -15.0 +7.4 (-6.2)	34 33 7 (74)	122 166 11 (299)	223 66 (289)	39:321 C Feb. 4	9294 9297 9299	.812 .800 .710 .412 .474 .870 .896 .921	263.2 251.0 254.8 97.1 115.8 97.0 82.3 115.1 (-15.4)	213.3 -15.3 -8.9 143.9 141.7 (168.2)	-15.3 -8.9 -17.7 (-6.6)	17 16 8 (41)	115 107 31 (253)	199 173 247 233 122 (974)
34:475 G Feb. 4	9295 9294 9296	.158 .276 .355 .488	282.1 98.9 134.0 117.2 62.5 (-13.5)	223.0 220.1 213.0 206.2 (232.0)	-7.6 -17.2 -15.3 +7.3 (-6.3)	0 17 34 1 (52)	9 101 172 5 (287)	208 (208)	Feb. 9								

Group 9294. Jan. 30-Feb. 12. Return of Group 9284. A stable regular spot slightly diminishing with one or two very small companions until Feb. 6.
 Group 9295. Jan. 31-Feb. 7. A small stream seen to develop and die out *sp* Group 9294 in the same general area of faculae.
 Group 9296. Feb. 1-4. A single very small spot with two close companions on Feb. 3.
 Group 9297. Feb. 5-15. Return of Group 9283. A small stream led by a regular spot. Excepting this spot, the components are very small and faint and have died out completely by Feb. 14.
 Group 9298. Feb. 7-8. A small single spot seen on each day *sp* Group 9297.
 Group 9299. Feb. 8-11. A short stream of very small spots.

POSITIONS AND AREAS OF SUN SPOTS AND FACULÆ FOR EACH DAY IN THE YEAR 1921.																		
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.	
1921. 40°473		.920	263·4	°	°			263	1921. 45°326		.897	251·7	°	°			179	
		.827	287·2					80			.784	247·3					123	
	9294	.866	255·8	213·4	-15·6	26	160	366sf		9297	.833	262·5	145·9	-10·1	4	14	302f	
	9297	.152	108·8	144·7	-9·3	12	105		C	9302	.398	100·9	65·8	-10·6	6	23		
G	9299	.287	134·6	140·6	-18·0	4	24			9303	.666	95·1	47·1	-8·5	4	7	134f	
	9300	.409	111·0	129·9	-14·5	2	9				.806	105·3					108	
		.774	81·6					110			.972	102·2					389	
		.969	95·4					191	Feb. 15				(-17·5)	(89·1)	(-6·9)	(14)	(44)	(1235)
Feb. 10			(-15·8)	(153·0)	(-6·6)	(44)	(298)	(1010)										
										46·500	.938	250·3					144	
		.978	254·1					162			.920	260·7					496	
		.969	262·0					181		9302	.148	117·7	66·0	-10·8	4	7		
	9294	.943	255·9	213·3	-15·5	27	151	194sf	C	.901f	.155	61·7	65·8	-2·6	0	2		
	9301	.952	284·7	211·8	+11·8	5	23	135f		9303	.460	94·9	46·1	-8·4	4	10		
C	9297	.074	224·0	144·9	-9·7	16	104				.890	101·2					569	
	9299	.200	178·1	141·5	-18·2	0	12				.983	105·9					226	
		.902	94·3					147	Feb. 16				(-17·9)	(73·6)	(-6·9)	(8)	(19)	(1435)
		.979	93·7					127										
Feb. 11			(-16·1)	(141·9)	(-6·7)	(48)	(290)	(946)										
										47·323	.977	261·8					308	
	9294	.993	255·2	213·0	-15·4	41	212	237f			.945	247·2					154	
	9301	.980	282·8	208·2	+11·5	13	49	240p			.872	255·0					237	
	9297	.278	258·8	144·6	-9·5	19	100			9302	.083	221·1	66·0	-10·5	2	5		
C	9300	.126	189·0	129·8	-13·8	5	16		C	9303	.308	92·2	44·8	-7·2	6	15		
	9302	.916	99·2	61·7	-11·0	9	22	107c		.901g	.360	104·8	42·1	-11·7	2	4		
	9303	.992	97·6	45·2	-8·3	0	27	211sf		.901h	.782	103·4	11·2	-14·7	2	7	440c	
		.776	92·9					160			.938	105·6					452	
		.917	92·0					151	Feb. 17				(-18·2)	(62·8)	(-6·9)	(12)	(31)	(1591)
Feb. 12			(-16·4)	(128·6)	(-6·7)	(87)	(426)	(1106)										
										48·172	.901	247·6					154	
	9297	.489	262·3	144·5	-9·7	12												

Group 9300. Feb. 10-13. Two small spots not seen on Feb. 11.
 Group 9301. Feb. 11-12. A single spot seen each day, not identical with each other but in the same small disturbed area.
 Group 9302. Feb. 12-18. A diminutive stream of which only the leader remains after Feb. 14.
 Group 9303. Feb. 12-24. At first a small spot with a distant companion on Feb. 16 and 17. On Feb. 18 a large stream is quickly developing. The spots composing it are in continual change, though the leader becomes apparently stable by Feb. 22.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1921.

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.	
1921. 50.465 G	9303	.840	263.7	47.8 (21.4)	- 6.9 (-7.0)	158 (158)	864 (864)	50	1921. 56.458 G	9304	.929	252.3	12.7 (302.5)	-10.1 (-7.2)	16 (16)	56 (56)	145	
Feb. 20		.444	268.7					105	Feb. 26		.773	255.1					210	
		.926	73.5 (-19.1)					(155)			.937	261.9					271c	
											.904	97.3				586		
											.978	108.5 (-20.9)				127		
51.468 G	9303 901i	.951	263.3	48.0 343.7	- 6.6 -13.3	135 1	755 6	77	57.349 C	9305 9306	.986	259.7	217.3 213.1	+11.9 -15.0	20 13	129 46	485	
Feb. 21		.824	262.1					132			.972	250.5					123	
		.638	268.1					78			.857	254.5					514	
		.422	106.4	(136)	(761)	(287)		.969	75.7	20	129	475c						
		.897	76.5 (-19.5)	(8.2)	(-7.1)	(136)	(761)				.972	103.7	213.1	-15.0	13	46	206sp	
											.808	97.4 (-21.1)	(290.7)	(-7.2)	(33)	(175)	(2432)	
52.442 G	9303 9304	.919	259.1	49.1 11.5	- 6.8 -10.2	126 21	723 53	183	58.393 C	9305 9306	.919	252.8	217.5 213.1	+11.6 -15.3	20 7	106 48	445	
Feb. 22		.844	293.6					90			.886	72.7					420c	
		.804	266.8					247c			.893	103.5					2918f	
		.280	257.6	(355.4)	(-7.1)	(147)	(776)	98			.699	96.8 (-21.4)	(277.0)	(-7.2)	(27)	(154)	255	
		.912	94.2 (-19.7)					(618)	Feb. 28								(1411)	
53.321 C	9303 9304	.938	286.4	50.8 13.1	- 6.7 -10.2	102 11	602 76	146	59.452 G	9305 9306	.944	248.6	218.3 213.9	+11.3 -15.5	16 2	71 8	92	
Feb. 23		.918	265.7					671c			.748	67.7					61c	
		.488	261.7					141			.754	104.3					61c	
		.948	96.0 (-20.0)	(343.8)	(-7.1)	(113)	(678)	(958)	Mar. 1			(-21.7)	(263.0)	(-7.2)	(18)	(79)	(349)	
54.446 G	9303 9304 902a	.917	271.2	51.6 13.1	- 7.2 - 9.7	129 27	658 100	154	60.412 C	9305	.608	59.9	218.0 (250.4)	+11.6 (-7.2)	11 (11)	58 (58)	230f	
Feb. 24		.898	263.4					103				(-21.9)						(230)
		.991	263.7					591c										
		.693	263.4						61.327	9307	.155	128.9	231.2	-12.7	1	7		
		.295	278.9	345.9	- 4.2	2	3			902b	.376	45.2	222.7	+ 8.4	1	4		
		.853	95.9 (-20.3)	(329.0)	(-7.1)	(158)	(761)	(991)		9305	.481	48.1	216.9	+11.9	3	15		
											.985	108.6 (-22.1)	(238.3)	(-7.2)	(5)	(26)	211	
55.205 D	9304	.979	259.5	13.6	- 9.9	28	113	221	62.330 C	9305	.898	263.4	216.7	+14.5	2	8	85	
Feb. 25		.773	249.9					126			.396	20.9					272	
		.811	262.9					254c			.936	108.2					134	
		.738	97.3					476			.955	96.8 (-22.4)	(225.1)	(-7.2)	(2)	(8)	(491)	
		.981	97.9 (-20.5)	(319.0)	(-7.2)	(28)	(113)	(1205)	Mar. 4									

Group 9304. Feb. 22-26. A small stream of unstable components.

Group 9305. Feb. 27-Mar. 4. Possible return of Group 9301. A small regular spot dying out with one or two companions preceding it.

Group 9306. Feb. 27-Mar. 1. A small regular spot fast disappearing. A companion closely follows it on Feb. 28.

Group 9307. Mar. 3-5. A small ephemeral spot on Mar. 3. Another has appeared near its position on Mar. 5.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1921.

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.			
1921. 63.325	9307	.868	262.5	229.8	-11.1	1	7	188	1921. 69.313	9309	.977	286.1	111.8	-4.8	9	34	124			
C		.310	256.0						.973		253.8	47								
Mar. 5		.820	108.9						.365		84.8									
		.903	97.4						.568		72.0									
		(-22.6)	(212.0)	(-7.2)	(1)	(7)	(946)	Mar. 11	9310	.958	95.9	59.3	-7.7	15	65	512c 96				
											.920	118.5	(-23.8)	(133.1)	(-7.2)	(66)	(310)	(779)		
64.473	9307	.946	259.7	(196.9)	(-7.2)	(0)	(0)	123	70.309	9309	.129	72.3	112.9	-4.9	3	17	781c			
G		.701	260.7								.371	57.6						7		
		.733	113.0								.864	95.2								
Mar. 6		.818	99.4								.953	94.9							47.2	-6.9
		(-22.9)	(196.9)	(-7.2)	(0)	(0)	(826)	Mar. 12	9311	.992	101.2	36.3	-11.9	19	340	145c (926)				
											(-24.0)	(120.0)	(-7.2)	(84)	(649)					
65.474	902c	.822	261.9	159.7	-18.3	1	5	442	71.616	9308	.822	251.1	103.7	+4.8	44	199	179			
G		.438	117.7								.210	355.8						8		
		.552	115.1								.605	90.9								
Mar. 7		.727	107.1								.681	93.9							59.7	-8.0
	.898	107.9	.997	99.7	36.5	-11.8	31	193	Mar. 13	9311	.911	(-24.3)	(102.8)	(-7.2)	(86)	(438)	(1149)			
		(-23.1)	(183.7)	(-7.2)	(3)	(10)	(656)				(-24.3)	(102.8)	(-7.2)	(86)	(438)					
66.612	9308	.917	261.7	97.5	+5.3	10	40	455	72.513	9308	.903	252.6	104.1	+4.7	24	129	224			
G		.824	291.5								.768	262.6						76		
		.796	249.5								.306	311.9								
Mar. 8		.953	82.1								.419	90.7							66.0	-6.9
	.880	88.7	.511	93.2	60.0	-7.8	8	18	G	9310	.511	93.2	60.0	-7.8	8	18	280f			
		(-23.3)	(168.7)	(-7.2)	(10)	(40)	(1132)				.808	99.2	36.6	-11.6	22	154	448f			
67.412	9308	.958	261.6	97.8	+5.0	45	153	325	73.413	9308	.943	76.4	104.1	+5.0	18	130	125			
G		.898	249.8								.947	100.3						141		
		.885	288.6								(-24.4)	(90.9)							(-7.2)	(56)
Mar. 9		.797	255.7								.467	295.1							66.6	-7.2
	.881	80.3	.511	93.2	60.0	-7.8	8	18	G	9310	.330	93.1	59.8	-7.7	6	36	293f			
		(-23.5)	(158.2)	(-7.2)	(45)	(153)	(1201)				.671	99.2	36.8	-11.4	24	146	417f			
68.463	9308	.970	249.7	113.1	-4.5	1	2	103	73.413	9308	.960	261.0	104.1	+5.0	18	130	125			
G		.944	288.5								.959	248.8						193		
		.905	255.3								.866	257.6								
Mar. 10		.519	86.9								.467	295.1							66.6	-7.2
	.726	76.4	.511	93.2	60.0	-7.8	8	18	G	9310	.330	93.1	59.8	-7.7	6	36	293f			
	.994	96.9	.60.0	-7.6	0	26	186p	192c	Mar. 15	9311	.856	98.5	36.8	-11.4	24	146	417f			
		(-23.7)	(144.3)	(-7.2)	(58)	(308)	(975)				.923	108.6	(-24.6)	(79.1)	(-7.1)	(48)	(314)	286f		
											(-24.6)	(79.1)	(-7.1)	(48)	(314)		(1455)			

Group 9308. Mar. 8-17. A stream of spots seen to develop from two small components near the east limb on Mar. 8. The train is never prominent and the leader, though tending for a few days to the "regular" type, is unstable.

Group 9309. Mar. 10-12. A few minute spots.

Group 9310. Mar. 10-18. Return of Group 9303. A small regular spot followed by extensive faculae. One or two small companions appear after Mar. 12.

Group 9311. Mar. 12-21. A regular spot with two or three very small distant followers after Mar. 14.

Group 9312. Mar. 13-18. Some very small but persistent spots *p* Group 9310.

Group 9313. Mar. 17-20. A small stream appearing near the west limb but apparently of brief activity.
Group 9314. Mar. 21-23. A regular spot preceded by a few small companions.
Group 9315. Mar. 21-Apr. 2. A long stream, about 15° in length, of normal type but in which the train is of minor importance and only visible after Mar. 27 as a faint cluster. The leader of the stream is a large well-defined regular spot.
Group 9316. Mar. 24-Apr. 4. A stream showing the usual development but with a rapid decrease in the following components. A minute spot on Apr. 2 temporarily marks the position of the rear component.

POSITIONS AND AREAS OF SUN SPOTS AND FACULÆ FOR EACH DAY IN THE YEAR 1921.

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.	Faculae.			Dist.	Pos. Angle.	Long.	Lat.	Umbre.	Whole Spots.	Faculae.	
1921. 84.318			°	°	°				1921. 90.382			°	°	°				
		.949	249.2					179			.871	259.3					205	
		.798	256.3					86			.770	246.7					73	
C	9315	.363	39.7	281.8	+ 9.6	112	528			9319	.983	255.0	295.8	-15.9	5	21	103	
	9316	.824	95.6	239.5	- 8.5	41	225	226 ^c	G	9315	.930	283.3	281.8	+ 9.8	69	409	441	
Mar. 26		.944	74.1	(-25.9)	(295.3)	(- 6.8)	(153)	(753)		9316	.486	264.9	244.5	- 8.2	39	199		
								(588)		9320	.824	104.1	159.6	-15.3	2	9	132 ^s	
									Apr. 1		.935	99.7	(-26.3)	(215.3)	(-6.5)	(115)	(638)	(1061)
85.469		.917	247.6					170										
		.909	259.2					79										
	9315	.280	353.4	282.0	+ 9.4	121	547			91.462							128	
G	9316	.634	95.6	240.6	- 8.7	58	345	139 ^c			.940	257.7					91	
	9317	.904	79.5	216.9	+ 6.5	9	37	65 ^c	G	9315	.992	280.7	282.4	+ 9.7	46	401	391 ^f	
Mar. 27		.838	68.2	(-26.0)	(280.1)	(- 6.7)	(188)	(929)		9316	.682	264.3	244.2	- 8.5	38	234		
								(548)	Apr. 2	9320	.661	105.9	160.0	-15.3	1	8		
86.356		.909	245.1					130					(-26.3)	(201.1)	(-6.4)	(85)	(643)	(610)
C	9315	.355	322.3	281.1	+ 9.7	104	508											
	9316	.458	95.7	241.1	- 8.5	52	297			9316	.822	263.9	244.3	- 8.7	36	230	101	
	9317	.793	76.4	217.7	+ 6.6	8	32	122 ^c		9321	.548	295.8	218.6	+ 8.2	0	6	240 ^f	
Mar. 28		.931	68.9	(-26.1)	(268.4)	(- 6.7)	(164)	(837)		9322	.087	187.3	189.4	-11.3	1	3		
								66	G	903c	.339	7.0	186.4	+13.2	2	6		
87.400	903b	.599	296.5	287.5	+ 9.9	0	2			9320	.530	115.9	158.7	-18.9	2	10		
	9315	.515	301.5	281.0	+ 9.6	108	511				.940	97.4					80	
G	9316	.196	98.7	243.5	- 8.2	39	232				.982	84.3	(-26.4)	(188.8)	(-6.4)	(41)	(255)	57
	9317	.632	71.5	217.8	+ 6.3	1	6		Apr. 3								(478)	
	9318	.938	73.0	187.7	+13.4	6	16	187 ^f										
Mar. 29				(-26.1)	(254.7)	(- 6.6)	(154)	(767)										
88.397	9319	.818	254.4	296.5	-16.5	7	24	45 ^p		9316	.857	288.6					116	
	9315	.686	291.8	281.6	+ 9.7	95	437	106 ^p		9321	.733	288.2	219.6	+ 8.8	2	9	444 ^f	
	9316	.046	239.8	243.8	- 8.0	44	236		G	9322	.272	253.8	190.3	-10.4	8	54	77 ^f	
G	9317	.456	61.5	217.8	+ 6.5	1	5				.837	98.2					55	
	9318	.844	69.2	187.4	+13.6	3	10	175 ^f			.915	81.0	(-26.4)	(175.0)	(-6.3)	(30)	(327)	149
Mar. 30		.968	109.3	(-26.2)	(241.5)	(- 6.6)	(150)	(712)	Apr. 4								(841)	
								(412)										
89.503		.792	258.9					171		9321	.966	261.4					376	
	9319	.930	255.0	296.0	-16.3	4	15	128 ^p			.931	287.2					104	
	9315	.842	286.1	281.9	+ 9.8	98	457	261 ^f		9322	.869	284.0	220.3	+ 8.9	2	8	101 ^f	
	9316	.301	264.1	244.4	- 8.0	38	220		G	903d	.515	259.1	192.8	-10.9	12	59		
	9318	.701	62.7	187.2	+13.7	0	3			9323	.689	99.4	118.3	-11.0	1	6		
Mar. 31		.914	106.7	(-26.3)	(226.9)	(- 6.5)	(140)	(695)	Apr. 5		.981	71.7	85.8	+16.5	13	121	242 ⁿ	
								(667)			.764	79.0					63	
											.883	78.5	(-26.4)	(161.9)	(-6.2)	(28)	(194)	82
																	(968)	

Group 9317. Mar. 27-30. A very small short-lived stream of spots.

Group 9318. Mar. 29-31. A single very small spot.

Group 9319. Mar. 30-Apr. 1. A small spot.

Group 9320. Apr. 1-3. One or two very small ephemeral spots.

Group 9321. Apr. 3-5. One or two very faint spots.

Group 9322. Apr. 3-8. A small regular spot with a distant follower forming from a tiny spot on Apr. 3.

Group 9323. Apr. 5-16. Return or revival of Group 9313. A regular spot seen at the east limb preceded by a companion. The former becomes composite and breaks up within a few days into a cluster. The companion grows and shows the same instability. By Apr. 14 three small spots represent the extent of the disturbances, and of these the preceding one alone remains by the following day.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1921.

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.
1921. 95.334			°	°	°			216	1921. 100.314			°	°	°			
C	9322	.937	282.0	193.9	-11.0	25	136	3900	C	9324	.933	77.0	17.1	+9.9	52	303	649f
	9323	.692	260.6	87.1	+17.0	50	393	189	Apr. 11		.881	101.9	(-26.4)	(84.2)	(-5.8)	(74)	(438)
Apr. 6		.917	68.4	(150.0)	(-6.2)	(75)	(529)	(795)									(1078)
		.944	97.8						101.410	9323	.493	320.7	88.8	+16.8	23	108	
									G	9325	.361	23.3	61.4	+13.6	0	4	
96.381		.799	293.4	194.8	-10.8	14	83	77		903h	.626	101.9	31.2	-11.9	1	4	
	9322	.851	261.0	87.8	+17.1	48	398	138f	Apr. 12	9324	.816	73.7	17.4	+9.7	48	295	404f
G	9323	.803	63.2					259c			.953	101.9	(-26.3)	(69.8)	(-5.8)	(72)	(411)
		.841	99.0					177									54
		.932	94.6					143									(458)
Apr. 7		.946	73.8	(136.2)	(-6.1)	(62)	(481)	184	102.337		.886	261.5					112
		.988	97.8					120	G	9323	.886	277.6	89.8	+17.2	28	90	108
								(1098)		9324	.635	306.3	16.9	+9.7	50	304	160c
											.688	69.3					383f
97.368		.917	288.2	195.2	-10.6	13	47	95	Apr. 13		.890	103.5	(-26.3)	(57.5)	(-5.7)	(78)	(394)
	9322	.949	260.8	101.0	+1.4	1	11	188f									(889)
C	903e	.396	72.2	87.2	+17.2	48	278	180c	103.348		.978	261.4					155
	9323	.677	56.2	65.9	+15.0	0	7	290f			.930	276.8	91.2	+17.4	13	50	170
	903f	.872	69.0					305	C	9323	.790	297.2	36.4	+16.8	0	4	108
Apr. 8		.764	96.1	(123.1)	(-6.0)	(62)	(343)	326		903i	.404	18.8	17.1	+9.8	44	336	252c
		.934	97.8					(1384)		9324	.518	60.3					46
98.400		.973	260.0	86.5	+17.0	44	167	98	Apr. 14		.953	188.6	(-26.2)	(44.2)	(-5.6)	(57)	(390)
	9323	.537	44.4					179									(731)
G		.826	65.4					249									
		.828	94.7					140	104.337		.935	282.8					76
Apr. 9		.861	105.0	(109.5)	(-6.0)	(44)	(167)	207	G	9323	.788	263.6	94.3	+18.0	8	26	58
		.945	102.8					(873)		9325	.920	292.4	62.9	+13.3	2	14	445nf
99.410		.911	253.4	86.4	+17.1	31	101	192		9324	.600	301.0	17.0	+9.5	53	327	
G	9323	.425	22.7	17.0	+10.0	42	427	114c	Apr. 15		.352	43.1	(-26.2)	(31.1)	(-5.5)	(63)	(367)
	9324	.987	78.8					214									(579)
		.851	102.4					114	105.339		.851	263.3					200
Apr. 10		.958	104.6	(96.2)	(-5.9)	(73)	(528)	(634)		9323	.983	290.1	94.5	+18.6	21	72	374nf
									G	9325	.733	294.5	61.1	+13.7	6	17	161c
100.314		.974	251.7	150.1	+11.9	1	9	106		9326	.444	304.5	39.6	+9.4	33	133	
C	903g	.878	263.8	85.8	+17.3	21	126	114		9324	.262	4.1	16.8	+9.6	52	288	
	9323	.395	356.0					47s	Apr. 16	9327	.482	38.6	359.7	+16.8	0	2	
										9328	.972	105.2	300.8	-16.1	28	129	155c
												(-26.1)	(17.9)	(-5.5)	(140)	(641)	(890)

Group 9324. Apr. 10-21. A spot followed by bright faculae, which, when seen near the east limb is nearly of regular type, but in a few days becoming elongated and diminishing at the same time. There are a few very small companion spots until Apr. 20.

Group 9325. Apr. 12-16. Intermittent. A small very faint ephemeral spot on Apr. 12; a tiny cluster on Apr. 15, and three scattered spots in faculae on Apr. 16.

Group 9326. Apr. 16-20. Not a particularly large but a very active stream of spots appearing within 24 hours.

Group 9327. Apr. 16-17. A single very small spot.

Group 9328. Apr. 16-28. Probable return of Group 9319. A stream of few spots with a prominent regular spot as leader. A revival of activity in the following part of the group takes place after Apr. 24.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1921.																		
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.	
1921. 106°374		°991	290°8	°	°			278	1921. 110°343		°995	281°5	°	°			67	
		°870	290°4					260			°937	256°7					148	
		°795	263°8					144			°922	282°5	17°4	+ 9°4	17	116	623f	
C	903j	°976	262°8	82°0	- 8°2	2	14	273f	G	9324	°253	140°4	302°2	-16°1	30	166		
	9326	°620	291°6	39°7	+ 8°8	40	219			9328	°501	62°5	285°2	+ 8°8	48	200		
	9324	°338	320°0	16°9	+ 9°7	38	246			9329	°743	95°2	263°8	- 7°2	8	53	125c	
	9327	°366	15°6	358°4	+15°1	1	5			9330	°904	99°3					258	
	9328	°890	104°8	301°2	-15°6	30	105	156c	Apr. 21			(-25°7)	(311°8)	(-5°0)	(103)	(535)	(1221)	
	9329	°987	79°0	284°9	+ 9°9	58	297	120c										
Apr. 17			(-26°0)	(4°2)	(-5°4)	(169)	(886)	(1231)										
107°347		°986	265°0					114			°974	282°2					467	
		°946	288°4					378			°208	202°6	301°7	-15°9	26	163		
		°876	261°6					461	C	9329	°318	40°2	285°1	+ 9°2	41	212		
	904a	°912	281°6	55°7	+ 8°3	6	26	52c		9330	°562	96°0	262°8	- 7°4	8	42	209	
	9326	°776	286°3	40°2	+ 9°1	51	299	198c	Apr. 22		°842	101°8					121	
G	9324	°496	300°0	17°1	+ 9°6	42	226				°941	70°2					(797)	
	9328	°760	106°1	302°3	-15°6	36	149	124c										
	9329	°927	77°4	285°1	+ 9°6	46	238	314f										
		°823	95°1					68									178	
Apr. 18		°927	104°1					168			°910	254°7						
			(-26°0)	(351°4)	(-5°3)	(181)	(938)	(1877)	G	9328	°372	238°0	300°6	-15°9	31	150		
										9329	°252	345°0	285°3	+ 9°2	40	203		
										9330	°337	96°6	261°9	- 6°7	1	14	98	
									Apr. 23		°971	97°6					(276)	
												(-25°4)	(281°5)	(-4°8)	(72)	(367)		
108°344		°982	288°1					137										

Group 9329. Apr. 17-29. Return of Group 9315. A well-formed regular spot with occasional very small companions following it.
Group 9330. Apr. 19-26. Intermittent. A small stream disappearing on Apr. 23. On Apr. 25 a small cluster has formed in the position of the preceding portion of the original group.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1921.

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.
1921. 116.577	9328	.937	255.6	299.2	-15.0	18	151	387c	1921. 122.375		.843	285.9					164
	9329	.845	284.1	285.4	+9.4	32	163	313f		9333	.957	282.5	224.5	+10.7	53	284	221c
	9331	.336	43.5	215.9	+9.7	8	21			G	.899	65.8					328
		.908	72.5					118			.915	98.5					199
		.965	71.7					241	May 3			(-23.9)	(152.8)	(-3.9)	(53)	(284)	(912)
Apr. 27			(-24.9)	(229.4)	(-4.5)	(58)	(335)	(1059)									
									123.348		.943	283.9					99
	117.337	.848	253.7					110		9333	.915	260.7					109
	9328	.984	255.2	299.6	-15.3	16	68	278f			.997	281.5	224.3	+11.1	37	287	176c
	9329	.923	281.8	285.4	+9.1	25	141	302f		C	.809	98.3					161
	9331	.252	11.6	216.5	+9.9	6	14				.828	62.3					267
		.824	70.8					128			.968	96.2					184
		.915	70.6					210	May 4		.977	74.5					76
	938	.183.6						64				(-23.7)	(139.9)	(-3.8)	(37)	(287)	(1072)
Apr. 28			(-24.8)	(219.4)	(-4.4)	(47)	(223)	(1092)									
	118.351	.939	251.2					112			.945	260.9					160
		.859	265.3					210	124.339		.624	99.5					115
		.739	255.6					144		G	.899	71.7					136
	G	9329	.985	279.9	285.0	+9.0	28	197			.907	99.3					310
			.809	66.1				237			.989	81.1					256
		.963	98.5					35	May 5			(-23.5)	(126.8)	(-3.7)	(0)	(0)	(977)
Apr. 29			(-24.6)	(206.0)	(-4.3)	(28)	(197)	(1150)									
	119.344	.957	264.5					199			.808	68.3					98
		.882	256.9					187	125.345		.945	78.1					378
	G	.767	257.1					157		C		(-23.3)	(113.5)	(-3.6)	(0)	(0)	(476)
		.874	98.4					40	May 6								
Apr. 30			(-24.5)	(192.9)	(-4.2)	(0)	(0)	(583)									
	120.557	.971	258.6					102			.938	286.5					143
G		.902	259.2					269	126.393		.933	251.6					114
	9332	.574	292.0	209.3	+8.9	1	4			C	.844	291.9					217
May 1			(-24.2)	(176.8)	(-4.1)	(1)	(4)	(371)			.839	75.3					278
									May 7		.980	80.7					246
												(-23.1)	(99.7)	(-3.4)	(0)	(0)	(998)
	121.341	.935	257.3					247									
		.923	292.9					144									
	9333	.874	284.2	225.7	+10.3	27	125	116c			.937	285.0					285
	9332	.702	288.7	208.8	+10.0	3	11		127.433		.995	89.2	1.9	+0.4	43	493	512c
	904b	.499	49.5	143.5	+15.1	1	2			G	.749	70.0					151
		.957	193.9					104			.908	78.4					231
		.962	68.1					171			.957	76.4					180
		.974	100.3					132	May 8			(-22.8)	(85.9)	(-3.3)	(43)	(493)	(1359)
May 2			(-24.1)	(166.5)	(-4.0)	(31)	(138)	(914)									

Group 9331. Apr. 27-28. A pair of small spots.

Group 9332. May 1-2. A minute spot on May 1; a pair on May 2.

Group 9333. May 2-4. A regular spot preceded by two companions developing near the west limb.

Group 9334. May 8-21. At first an extremely large and composite spot $11\frac{1}{2}^{\circ}$ in length with several umbre. By May 12, it is dividing into two large components with a small cluster of unstable spots. The leading component is duplex and apparently tends to break into two portions; the follower is more stable and tends to the regular type. A comparison of the group when near the east and west limbs of the Sun shows the surrounding faculæ to be increasing considerably both in extent, north and southwards, and in brightness. This is the largest group as yet photographed at Greenwich on the solar equator.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1921.

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.	
1921. 128.611		900	263.7	°	°			147	1921. 134.424		955	287.4	°	°			148	
	9335	835	76.2	15.3	+ 9.6	2	7	190m			925	259.9					363	
G	9334	935	88.7	1.4	+ 0.1	200	1558	420c			854	288.9					154	
		756	76.2					196	C		722	288.5					112	
May 9			(-22.6)	(70.4)	(-3.2)	(202)	(1565)	(953)		9334	180	289.1	3.2	+ 0.8	204	1155		
									May 15		935	79.9	(-21.1)	(353.5)	(-2.6)	(204)	(1155)	334
																	(1111)	
129.348	9334	858	88.4	1.8	- 0.2	211	1695	417c			962	258.8					131	
		643	77.0					80	135.332		874	284.2					263	
G		978	70.0					289			795	256.6					87	
May 10			(-22.4)	(60.6)	(-3.1)	(211)	(1695)	(786)		G	9334	685	285.5				214	
											387	278.6	3.9	+ 1.0	266	1177		
130.344		814	303.2					126			781	75.2					202	
	904c	231	0.3	47.4	+ 10.3	1	6		May 16		887	79.4					156	
G	9334	716	87.3	2.0	- 0.2	269	1709	323c			915	110.4	(-20.8)	(341.5)	(-2.5)	(266)	(1177)	
		904	98.7					78									111	
May 11			(-22.1)	(47.5)	(-3.0)	(270)	(1715)	(527)									(1164)	
131.362		883	295.2					183	136.341		940	283.8					178	
		831	261.7					129			899	258.5					139	
C	904d	491	261.0	63.1	- 6.9	1	5		G	9334	801	283.3					261	
	9334	522	84.9	2.8	+ 0.2	280	1391				587	274.7	3.8	+ 0.9	223	1169		
May 12		988	84.0					176			931	176.6					76	
			(-21.9)	(34.0)	(-2.9)	(281)	(1396)	(488)	May 17		979	101.5	(-20.5)	(328.1)	(-2.3)	(223)	(1169)	
																	94	
132.375		942	293.2					156									(748)	
		937	243.4					63	137.349		914	279.8					316	
		927	260.6					236			815	293.9					122	
G	9335	768	292.5					158		9337	771	284.9	3.7	+ 9.9	2	8	108c	
	9334	254	16.1	16.5	+ 11.3	1	5		G	9334	758	273.3	3.9	+ 1.0	221	1021	548c	
	9336	302	80.1	3.4	+ 0.3	287	1367			9338	521	256.7	345.5	- 8.8	3	13		
May 13		929	83.5	312.9	+ 5.0	2	22	226c		9339	994	78.9	231.8	+ 10.8	0	154	63c	
		946	95.6					88			926	101.7					162	
		977	106.2					115	May 18			(-20.3)	(314.8)	(-2.2)	(226)	(1196)	(1319)	
			(-21.6)	(20.6)	(-2.8)	(290)	(1394)	(1042)										
133.435		864	289.5					188	138.343		956	285.0					292	
		822	262.0					127		9334	890	272.5	4.2	+ 1.2	206	1003	1194c	
	9334	077	46.9	3.4	+ 0.3	272	1384			9337	876	284.2	1.5	+ 11.3	0	5	93m	
G	9336	800	81.4	314.2	+ 5.2	1	7	174c		9338	712	260.2	346.7	- 8.5	4	7		
		904	97.5					90	G	9339	946	77.8	231.7	+ 10.8	27	112	222c	
May 14		906	107.6					171			838	103.8					102	
		964	80.3					115	May 19		977	101.4	(-20.0)	(301.7)	(-2.1)	(237)	(1127)	
			(-21.3)	(6.6)	(-2.7)	(273)	(1391)	(865)									(1954)	

Group 9335. May 9-13. Intermittent. A very small ephemeral spot on May 9; a close pair on May 13.

Group 9336. May 13-14. A pair of small spots on May 13, one of which remains on the following day.

Group 9337. May 18-19. A close pair of very small ephemeral spots on May 18; one on the following day.

Group 9338. May 18-19. Two or three very small spots.

Group 9339. May 18-28. Return of Group 9333. A small regular spot gradually dying out. A few very small followers appear occasionally in the faculae which follow.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1921.

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.	
1921. 139°418		.974	282.4	°	°			122	1921. 145°361		.956	278.9	°	°			104	
		.924	247.0					102		9339	.449	298.5	232.4	+11.1	4	22		
		.860	261.8					125	G		.857	70.3					162	
G	9334	.978	271.3	5.1	+ 0.8	201	1261	1154c			.938	100.1					120	
	9339	.832	75.6	232.5	+10.8	26	94	254f			.960	83.7					69	
May 20		.884	101.7	(-19.6)	(287.4)	(-2.0)	(227)	(1355)	May 26			(-17.7)	(208.8)	(- 1.3)	(4)	(22)	(455)	
								(1823)										
140°344		.935	262.5					93	146°441		.827	251.1	°	°			198	
		.862	255.6					55		9339	.640	289.1	232.4	+11.2	4	13	102c	
		.995	271.1	359.2	+ 0.9	86	388	366c		9341	.945	106.0	124.3	-15.4	6	23	150f	
G	9334	.439	67.0	251.2	+ 8.1	5	18		G	9342	.994	96.5	110.9	- 6.6	4	119	356np	
	9340	.702	72.3	232.5	+10.9	18	82	156f			.821	102.1					123	
May 21	9339		(-19.3)	(275.2)	(-1.9)	(109)	(488)	(670)	May 27		.839	83.4	(-17.3)	(194.5)	(- 1.1)	(14)	(155)	97
																	(1026)	
141°359		.955	257.1					78	147°347		.921	255.7					144	
		.805	277.2					128		9339	.744	286.0	229.1	+11.0	1	9	229c	
		.223	40.3	253.5	+ 8.0	1	5		G	9341	.857	107.3	124.7	-15.3	5	14	171f	
G	9340	.529	65.6	232.5	+11.1	21	70			9342	.950	96.6	111.0	- 6.6	11	85	315np	
May 22	9339		(-19.0)	(261.8)	(- 1.7)	(22)	(75)	(206)	May 28			(-17.0)	(182.5)	(- 1.0)	(17)	(108)	(859)	
142°375		.923	276.0					174	148°439		.863	286.0					211	
G		.365	51.6	231.4	+11.6	20	96			9341	.704	110.7	125.3	-15.0	1	3	126f	
May 23	9339		(-18.7)	(248.3)	(- 1.6)	(20)	(96)	(174)	G	9342	.842	97.3	111.1	- 6.6	19	72	194np	
									May 29		.947	98.0	(-16.6)	(168.1)	(- 0.9)	(20)	(75)	139
																	(670)	
143°392		.881	248.2					207										
	905a	.809	281.4	287.9	+ 8.3	0	3	130p	149°356		.954	283.9					341	
	9339	.221	8.4	232.9	+11.0	15	68			9341	.552	116.3	125.2	-14.8	4	17		
G	905b	.328	31.2	224.7	+14.7	0	3		C	9342	.712	98.9	111.0	- 6.9	10	45	84np	
		.897	71.6					144			.871	101.9					204	
May 24		.996	74.7	(-18.4)	(234.8)	(- 1.5)	(15)	(74)	May 30			(-16.3)	(155.9)	(- 0.8)	(14)	(62)	(629)	
144°347		.939	251.0					219	150°359	9343	.790	285.3	193.5	+11.6	2	4		
		.908	281.4					306		905c	.318	69.6	125.4	+ 5.6	1	3		
		.285	320.6	232.8	+11.3	9	18		G	905d	.381	97.7	120.6	- 3.6	1	4		
		.801	70.6					93			.921	165.8					51	
May 25	9339	.935	72.2	(-18.0)	(222.2)	(- 1.4)	(9)	(18)	May 31		.938	72.3					219	
								(758)			.947	95.3	(-15.9)	(142.7)	(- 0.7)	(4)	(11)	131
																	(401)	

Group 9340. May 21-22. A pair of small spots on May 21; a single spot on the following day.

Group 9341. May 27-30. A single small spot.

Group 9342. May 27-June 3. A small regular spot disappearing temporarily on May 31. On June 3, three tiny companions are also seen.

Group 9343. May 31-June 2. A small group appearing near the west limb.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1921.

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.	
1921. 151:507	9343	935	282.5	195.9	+11.5	9	42	251c	1921. 157:415		957	264.8					192	
	9342	285	111.4	112.1	-6.4	5	17				882	261.8					195	
G	9344	643	68.2	89.8	+13.3	15	57			9347	718	262.0	94.7	-5.6	0	4	91c	
		809	72.5					197	G	9344	685	289.2	90.7	+13.1	44	181		
June 1		962	80.3	(-15.5)	(127.5)	(-0.5)	(29)	(116)		9345	563	89.6	15.2	+0.4	28	131	} 650f	
								(560)	June 7	905e	656	75.4	9.4	+9.7	0	3		(1128)
												(-13.2)	(49.3)	(+0.2)	(72)	(319)		
152:333	9343	979	282.6	194.1	+12.2	5	26	266s	158:404		954	261.5					223	
	9342	136	141.0	111.6	-6.4	2	5				821	299.7					113	
C	9344	489	60.8	90.6	+13.4	21	74			9347	878	262.9	97.1	-6.0	5	15	142s	
June 2		935	74.3	(-15.2)	(116.5)	(-0.4)	(28)	(105)		9344	830	285.4	91.2	+12.9	27	139	412c	
								(501)	G	9348	168	205.2	40.3	-8.4	1	4		
153:346		919	284.4					100		9345	360	89.7	15.2	+0.4	26	127		
		804	290.0					132		9346	419	71.8	12.6	+7.7	8	46		
	9342	198	240.4	113.0	-5.8	3	18			905f	618	112.0	0.3	-13.1	3	4		
C	9344	325	43.2	89.9	+13.3	24	104			9349	690	70.6	354.4	+13.4	10	19		
		811	74.9					258	June 8		961	95.4	(-12.8)	(36.2)	(+0.3)	(80)	(354)	55
June 3		968	81.7	(-14.8)	(103.1)	(-0.3)	(27)	(122)									(945)	
								(733)										
154:395		914	286.9					199	159:734	9347	970	263.1	94.2	-6.6	14	38	245p	
	9344	231	356.6	90.1	+13.1	12	46			9344	950	282.5	89.8	+12.0	15	71	473c	
C	9345	968	89.2	14.0	+0.7	22	149	863c		9348	435	249.1	42.8	-8.5	10	33		
June 4		864	79.6	(-14.4)	(89.3)	(-0.2)	(34)	(195)		9345	054	86.7	15.5	+0.7	26	137		
								(1212)	G	9346	142	34.1	14.0	+7.2	22	167		
155:526		717	264.9					152		9349	424	58.9	356.8	+13.0	4	9		
	9344	354	309.5	90.5	+13.0	10	31		June 9		922	100.2	(-12.3)	(18.6)	(+0.5)	(91)	(455)	107
C	9345	864	80.1	14.8	+0.8	18	142	864f									79	
June 5	9346	892	81.5	11.7	+7.6	0	8	521f	160:347	9344	981	282.6	88.9	+12.5	3	25	319h	
		898	104.7	(-13.9)	(74.3)	(0.0)	(28)	(181)		9348	567	253.8	43.8	-8.7	1	25		
								(1658)	G	9345	086	271.6	15.4	+0.7	34	129		
156:411		856	266.4					211	June 10	9346	125	340.0	13.0	+7.2	47	234		
		727	259.8					107					(-12.0)	(10.5)	(+0.5)	(85)	(413)	(319)
G	9344	497	298.3	89.3	+13.7	18	72	} 1247f	161:383	9348	781	257.2	47.1	-9.5	2	6	90f	
	9345	741	89.6	15.0	+0.4	26	143				9345	323	270.6	15.6	+0.9	29	126	
	9346	774	80.2	12.5	+7.6	1	7		G	9346	314	291.2	13.9	+7.2	28	162		
June 6		826	67.9						94		9350	296	333.6	4.6	+16.0	8	32	
	914	105.0	(-13.6)	(62.6)	(+0.1)	(45)	(222)	(1714)	June 11	9351	245	189.2	359.1	-13.3	1	10		
												(-11.6)	(356.8)	(+0.7)	(68)	(336)	(90)	

Group 9344. June 1-10. A stream of small and unstable components grouped about two centres.
 Group 9345. June 4-15. Return of Group 9334. A stable regular spot followed by an extensive area of faculae. Group 9346 develops later just northwards.
 Group 9346. June 5-15. One or two very small ephemeral spots on June 5 and 6, a Group 9345. On June 8 these commence to multiply and increase in size. The group is unstable, however, and shrinks to a small cluster by June 14.
 Group 9347. June 7-9. A small spot increasing near the west limb.
 Group 9348. June 8-11. A small unstable group of few spots.
 Group 9349. June 8-9. A diminutive short-lived stream.
 Group 9350. June 11-12. A pair of small spots.
 Group 9351. June 11-14. A very small stream of spots.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1921.

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.
1921. 162.361		.870	259.2					223	1921. 168.131		.869	263.1					144
		.725	286.0					212	K	9353	.892	79.5 (-8.7)	204.7 (267.4)	+10.0 (+ 1.5)	21 (21)	129 (129)	505/ (649)
	G	9345	.528	270.2	15.5	+ 0.8	35	154	June 18								
		9346	.528	281.9	15.0	+ 6.9	24	128									
		9350	.435	307.1	4.9	+15.9	4	12									148
		9351	.359	227.5	359.5	-13.2	12	44	169.395	9353	.959	263.4	205.1	+10.4	27	176	301/ 175
June 12			(-11.2)	(343.8)	(+ 0.8)	(75)	(338)	(435)	C		.723	77.1	205.1	+10.4	27	176	301/ 175
									June 19		.990	102.5 (-8.1)	(250.7)	(+ 1.6)	(27)	(176)	(624)
163.341		.955	260.1					149									
		.884	283.3					156									
		.642	293.5					51									
	G	9346	.712	279.8	15.7	+ 7.6	16	83	170.156	9353	.594	74.8	205.1	+10.3	27	155	137/ 111
		9345	.708	270.5	15.7	+ 1.0	24	141	D		.926	73.8	205.1	+10.3	27	155	137/ 111
		9351	.522	241.9	358.9	-13.4	4	14			.958	104.0 (-7.8)	(240.6)	(+ 1.7)	(27)	(155)	334 (582)
		9352	.159	139.4	324.9	- 6.0	5	10	June 20								
June 13			.962	102.7	(-10.7)	(330.8)	(+ 0.9)	(49)	(248)								
								101 (902)									
164.367		.958	281.1					155	171.522	9353	.332	61.6	205.3	+10.8	36	226	309
		.859	270.7	16.3	+ 1.1	25	129	1254c	G		.837	107.6	205.3	+10.8	36	226	141
		.851	278.7	15.2	+ 7.9	19	140	103c	June 21		.983	99.8 (-7.2)	(222.5)	(+ 1.9)	(36)	(226)	(450)
	C	9346	.720	248.9	1.0	-14.2	4	10									
		9351	.192	228.1	325.5	- 6.4	4	9									
		9352	.924	102.7	(-10.3)	(317.3)	(+ 1.0)	(52)	(288)								
June 14								116 (1628)	172.370	9353	.927	283.6	205.0	+11.4	37	214	119
								207	C		.197	33.0	205.0	+11.4	37	214	196
165.344		.837	252.1					207			.761	109.1	205.0	+11.4	37	214	96
	G	9346	.961	278.3	18.0	+ 8.3	14	159	June 22		.927	100.6 (-6.8)	(211.3)	(+ 2.0)	(37)	(214)	(411)
		9345	.951	270.9	16.0	+ 1.2	29	152									
June 15			.914	74.3	(- 9.9)	(304.3)	(+ 1.1)	(43)	(311)								
								215 (2284)	173.549	9353	.231	315.3	205.2	+11.5	47	239	200/ 101
166.548		.969	268.6					452	G	9354	.918	77.5	129.4	+12.3	11	40	189
		.949	254.6					267			.811	103.7	129.4	+12.3	11	40	189
		.932	282.6					409	June 23		.935	94.7 (-6.3)	(195.7)	(+ 2.1)	(58)	(279)	(490)
	G	9353	.995	80.0	204.2	+10.1	34	129									
June 16			.865	74.1	(- 9.4)	(288.4)	(+ 1.3)	(34)	(129)								
								292 (1420)	174.339	9353	.373	296.3	205.2	+11.6	37	207	
167.380		.983	269.7					74			.440	130.3	165.1	-14.4	0	16	
		.983	254.4					120	G	9354	.689	108.7	143.8	-11.0	0	3	
		.981	280.6					113		9355	.837	76.7	129.0	+12.3	11	28	243/ 96c
		.747	259.0					111			.994	76.9	101.6	+13.3	9	119	154
June 17			.956	80.0	204.8	+ 9.9	20	158	June 24		.879	95.6	108.4	+13.3	9	119	77
								356f (774)			.918	108.4	108.4	+13.3	9	119	236
											.982	96.7 (-5.9)	(185.3)	(+ 2.2)	(57)	(373)	(806)

Group 9352. June 13-14. A widely separated pair of small spots.

Group 9353. June 16-28. Return of Group 9343. A regular spot.

Group 9354. June 23-27. A small but distinct spot with an ephemeral follower on June 24.

Group 9355. June 24-July 4. A small double spot, dividing completely on July 1. The preceding portion lasts for a few days.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1921.

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.
1921. 175°336		°23	283.4	°	°			139	1921. 180°585	9358	°828	103.9	48.2	— 9.7	16	35	111c
		°22	284.2					114		9359	°985	81.1	22.6	+ 9.3	35	159	467c
		°564	287.4	205.3	+ 11.6	40	184		G	9360	°987	85.9	21.8	+ 4.5	49	291	286c
G	9354	°694	74.7	129.1	+ 12.2	6	10	27f			°973	94.9					121
	9356	°908	98.6	107.6	— 6.8	0	6	536f	June 30			(— 3.1)	(102.6)	(+ 2.9)	(278)	(1645)	(1302)
	9355	°944	76.9	101.6	+ 13.0	29	127	480c									
June 25			(— 5.5)	(172.1)	(+ 2.3)	(75)	(327)	(1296)									
176°655	9353	°781	282.7	205.4	+ 11.4	28	196	158f	181°342	9356	°335	238.2	109.2	— 7.3	109	645	
	9354	°463	68.1	128.6	+ 12.2	4	8			9355	°241	325.8	100.6	+ 14.4	16	47	
	9356	°739	102.7	108.1	— 7.7	82	313	323c		9357	°180	12.7	90.3	+ 13.0	47	269	
G	9355	°806	74.9	101.6	+ 13.6	15	98	273c		9358	°717	107.2	48.7	— 10.0	12	37	
	9357	°901	75.7	90.7	+ 13.9	29	88	512c	G	9359	°942	81.4	22.2	+ 9.1	36	144	823p
June 26			(— 4.9)	(154.6)	(+ 2.5)	(158)	(703)	(1266)		9360	°948	86.6	21.2	+ 4.2	62	287	423c
										9361	°998	78.8	6.0	+ 11.3	66	324	155p
									July 1		°943	99.8					352
												(— 2.8)	(92.6)	(+ 3.0)	(348)	(1753)	(1753)
177°356	9353	°874	281.8	205.9	+ 11.5	28	183	265f									
	9356	°451	230.6	166.3	— 14.2	1	4		182°341	9356	°530	251.3	109.6	— 7.1	82	547	
	9354	°330	59.4	128.5	+ 12.0	3	7			9355	°405	298.7	100.7	+ 14.0	8	17	
C	9356	°624	106.1	108.2	— 8.0	84	429			9357	°262	311.9	90.8	+ 13.0	35	193	
	9355	°706	73.0	101.5	+ 13.7	10	89	84c		9358	°525	115.5	50.6	— 10.3	5	11	
	9357	°831	75.2	89.8	+ 13.6	27	180	268c		9362	°791	79.5	27.3	+ 10.2	2	12	221p
June 27			(— 4.6)	(145.3)	(+ 2.5)	(153)	(892)	(617)	G	9359	°840	80.7	22.3	+ 9.5	11	92	315c
										9360	°841	86.9	22.2	+ 4.2	51	289	315c
178°358	9353	°962	280.9	206.2	+ 11.3	34	160	276f		9361	°951	78.1	7.3	+ 12.3	82	578	600f
	9356	°433	114.3	108.7	— 7.8	111	711				°886	102.3					164
C	9355	°534	67.4	101.7	+ 14.0	15	79				°929	91.6					236
	9357	°674	72.5	90.9	+ 13.6	30	150				°933	82.7					140
June 28			(— 4.1)	(132.1)	(+ 2.6)	(190)	(1100)	(340)	July 2			(— 2.3)	(79.3)	(+ 3.1)	(276)	(1739)	(1991)
179°340		°985	280.2					144	183°358		°897	284.8					64
		°778	250.4					215			°876	262.4					116
		°258	133.5	108.3	— 7.4	141	817			9356	°712	257.2	110.1	— 6.8	95	428	274c
G	9355	°360	56.1	101.2	+ 14.2	15	73			9355	°590	289.4	100.7	+ 13.9	7	12	
	9357	°495	67.7	91.2	+ 13.3	54	222			9357	°449	294.3	90.7	+ 13.6	28	183	
		°878	102.1					95		9358	°325	138.5	53.3	— 10.9	1	2	
June 29		°959	101.3					78		9362	°622	79.9	27.8	+ 8.8	1	6	
			(— 3.7)	(119.1)	(+ 2.8)	(210)	(1112)	(532)	G	9359	°690	79.0	22.7	+ 9.9	5	35	139c
180°585		°923	254.1					183		9360	°698	87.2	21.7	+ 4.2	64	294	
		°910	287.9					134		9363	°828	83.3	10.1	+ 7.3	8	20	84c
	9356	°210	213.4	109.3	— 7.2	130	803			9361	°858	77.2	7.1	+ 12.6	115	570	591c
G	9355	°199	7.3	101.1	+ 14.2	13	44			9364	°926	79.0	358.2	+ 11.3	1	7	163
	9357	°269	48.0	90.8	+ 13.2	35	313		July 3		°780	104.6					190
											°818	93.0					1621
												(— 1.8)	(65.9)	(+ 3.2)	(325)	(1557)	

Group 9356. June 25–July 6. A stream of normal type developing rapidly from a small spot seen in faculae near the east limb on June 25. The leader is never quite of regular formation and appears at times elongated with a small subsidiary umbra.

Group 9357. June 26–July 5. Revival of Group 9344. A short lived but fairly conspicuous stream of spots in which both the preceding and following components are double spots for several days. Group 9355 closely precedes this group.

Group 9358. June 30–July 3. A small group of "stream" formation of which the leading component alone remains on July 3.

Group 9359. June 30–July 4. Return or revival of Group 9346. A small composite spot just disappearing.

Group 9360. June 30–July 12. Return of Group 9345; third apparition. A small but stable regular spot (the actual return of the regular spot of Group 9345) north-preceded by a larger spot of the same type. These might have been taken as two separate disturbances, but within a few days other spots make their appearance and constitute a duplex stream which apparently is an entity.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1921.

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.	
1921. 184.399		.953	281.7	110.7	- 6.6	67	369	60	1921. 188.429		.797	253.5					157	
	9356	.862	260.3	110.7	- 6.6	67	369	457 ^c		907a	.502	281.7	28.5	+ 9.1	1	5		
	9355	.756	285.8	100.5	+14.1	2	5	219 ^p		9367	.467	287.1	25.7	+11.1	1	4		
	9357	.643	287.8	91.0	+13.9	13	56			9360	.394	270.2	21.9	+ 3.4	66	283		
	9362	.408	75.0	28.7	+ 9.1	0	3		C	9361	.222	314.6	8.1	+12.6	69	358		
	9365	.441	82.0	26.1	+ 6.5	2	7			9364	.155	346.7	0.9	+12.4	1	15		
	9359	.494	75.8	23.1	+ 9.8	1	4			9368	.315	167.3	354.7	-14.1	3	8		
	9360	.517	87.8	21.0	+ 3.9	60	300			9369	.762	89.9	309.3	+ 2.5	24	58		
	9363	.661	82.6	10.9	+ 7.4	24	59		July 8			(+0.5)	(358.8)	(+ 3.7)	(165)	(731)	(157)	
	9361	.718	75.4	6.9	+12.7	102	599	416 ^f										
		.671	93.4					117										
July 4			(-1.4)	(52.1)	(+ 3.3)	(271)	(1402)	(1269)		189.343		.892	257.4				131	
										9366	.732	282.3	33.4	+11.6	1	4	188 ^c	
										9360	.579	270.0	22.0	+ 3.1	66	254		
185.411		.883	285.9	111.5	- 6.8	46	366	475		9361	.393	292.1	8.5	+12.0	58	307		
	9356	.960	261.8	91.4	+13.7	8	27	818 ^c		907b	.374	303.3	5.5	+15.4	0	3		
	9357	.801	284.6	91.4	+13.7	8	27	346 ^f	G	9364	.219	300.2	357.7	+10.0	0	3		
	9366	.161	23.7	34.9	+11.9	2	18			9368	.353	204.7	355.4	-14.9	19	83		
	9365	.202	67.0	27.9	+ 7.8	0	3			9369	.613	90.5	309.0	+ 2.7	27	105		
	9367	.301	58.9	23.5	+12.2	1	6		July 9			(+0.9)	(346.7)	(+ 3.8)	(171)	(759)	(319)	
	9360	.310	89.7	20.7	+ 3.3	72	360											
	9363	.464	80.4	11.3	+ 7.4	8	29			190.294		.837	281.3				558	
	9361	.546	71.3	6.8	+13.0	129	609					.831	264.1				157	
	9364	.633	77.1	0.0	+10.8	2	19					.767	252.2				186	
July 5			(-0.9)	(38.7)	(+ 3.4)	(268)	(1437)	(1639)				.705	281.1				239	
										9360	.751	271.1	22.7	+ 3.4	40	182	174 ^c	
										G	907c	.593	274.9	10.4	+ 6.0	1	2	
										9361	.579	285.2	8.8	+11.9	49	281		
186.355		.960	285.9					400		9364	.464	285.9	1.0	+10.7	0	8		
	9356	.886	284.3					449		9368	.484	228.3	356.0	-15.0	25	96		
	9366	.982	261.1	104.4	- 8.0	0	85	428 ^p		9369	.423	91.8	309.2	+ 2.8	26	78		
	9367	.221	312.1	35.8	+11.9	3	5		July 10			(+1.3)	(334.1)	(+ 3.9)	(141)	(647)	(1314)	
	9360	.159	14.3	23.9	+12.3	0	7											
	9363	.097	93.7	20.7	+ 3.1	65	317			191.394		.948	281.8				333	
	9361	.217	64.6	14.8	+ 8.8	3	9					.939	262.6				171	
	9364	.367	62.9	6.7	+12.9	109	627					.865	280.9				135	
July 6		.454	72.9	0.1	+10.8	13	39					.848	258.1				180	
			(-0.5)	(26.2)	(+ 3.5)	(193)	(1089)	(1277)				.760	267.4				105	
										C	9360	.899	272.0	23.4	+ 3.6	30	127	466 ^c
187.109		.956	283.1					188		9361	.761	282.6	8.7	+12.1	34	232	406 ^c	
	9360	.088	267.0	21.2	+ 3.3	53	316			9368	.650	241.8	355.6	-14.6	31	124		
	9361	.218	43.7	7.4	+12.6	88	508			9370	.623	247.4	355.2	-10.5	1	6		
	9364	.302	63.8	0.2	+11.0	1	12			9369	.194	96.4	308.4	+ 2.7	16	69		
July 7			(-0.1)	(16.2)	(+ 3.6)	(142)	(836)	(188)	July 11			(+1.8)	(319.5)	(+ 4.0)	(112)	(558)	(1796)	

Group 9361. July 1-13. A large spot with two umbrae which become the centres of two regular spots which then separate completely and move apart in latitude. Meanwhile an elongated portion of the original spot also separates and dies out as a cluster of very small markings.

Group 9362. July 2-4. Two or three extremely small spots *p* Group 9359.

Group 9363. July 3-6. A small stream situated between Groups 9360 and 9361. Only the preceding component is represented on July 6.

Group 9364. July 3-10. Two very small ephemeral spots in the faculae following Group 9361. On July 5 a small cluster and one or two single spots appear on successive days.

Group 9365. July 4-5. Two or three spotlets *np* Group 9360.

Group 9366. July 5-9. Intermittent. A diminutive cluster on July 5; a small double spot on July 6, and a single one on July 9.

Group 9367. July 5-8. Intermittent. A small spot seen on each day except July 7.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1921.

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.
1921. 192-336			°	°	°				1921. 198-380			°	°	°			
		.973	280.8					204			.991	272.9					123
		.926	259.2					223			.276	234.1	240.0	- 4.7	12	50	
		.892	268.1					93	July 18	9371		(+4.9)	(227.1)	(+ 4.7)	(12)	(50)	(123)
	G	9360	.972	272.8	23.5	+ 3.6	32	127									
		9361	.881	281.4	8.8	+11.9	37	230									
		9368	.788	248.1	355.9	-14.4	29	97									
		9370	.767	253.0	355.1	-10.2	14	53									
		9369	.030	207.0	307.9	+ 2.5	14	73	199-372	9371	.518	254.2	243.8	- 3.9	5	21	
		9371	.925	96.2	240.1	- 4.2	13	53	G	9372	.647	113.6	177.0	-11.1	5	19	
July 12			(+2.2)	(307.1)	(+ 4.1)	(139)	(633)	(2051)		907e	.841	76.6	156.8	+13.9	2	9	67c
									July 19		.975	96.0					99
												(+5.4)	(214.0)	(+ 4.8)	(12)	(49)	(166)
193-343		.975	269.4					99	200-363	9371	.694	258.6	243.7	- 4.2	5	17	
		.966	281.5	9.0	+12.2	53	224	934c		9372	.451	124.4	178.8	-10.2	6	33	
		.906	251.9	356.3	-14.4	18	79	141c			.901	97.2					78
G		9370	.893	256.1	355.3	-10.4	25	123	G		.940	107.0					132
		9369	.251	264.5	308.1	+ 2.7	12	52			.947	76.0					105
		9371	.815	98.5	240.0	- 4.4	19	74			.987	97.6					121
July 13			(+2.7)	(293.7)	(+ 4.2)	(127)	(552)	(1477)	July 20			(+5.8)	(200.9)	(+ 4.9)	(11)	(50)	(436)
194-347		.974	282.5					271	201-343	9371	.837	261.8	243.8	- 4.1	1	8	187f
		.977	253.9	356.3	-14.7	12	57	221c		9372	.282	151.0	180.0	- 9.3	1	6	
		.970	258.0	355.1	-10.5	28	155	256c	G	9373	.933	97.4	119.9	- 5.0	3	7	328s
G		9369	.454	267.9	307.4	+ 2.8	5	8			.828	75.3					141
		907d	.228	318.7	289.4	+14.1	1	3			.947	91.6					95
		9371	.688	102.1	238.2	- 5.0	28	137	July 21			(+6.2)	(187.9)	(+ 5.0)	(5)	(21)	(751)
		.958	79.2					136									
July 14			(+3.1)	(280.5)	(+ 4.3)	(74)	(360)	(884)	202-386		.923	262.7					335
										9373	.818	100.0	120.3	- 5.2	6	16	375f
195-398		.686	268.8	309.7	+ 2.4	0	5	81p	G		.856	92.3					163
G		.511	108.2	237.4	- 5.3	36	142				.912	77.6					137
		.880	79.0					201			.984	77.9					140
July 15			(+3.6)	(266.5)	(+ 4.4)	(36)	(147)	(282)	July 22			(+6.7)	(174.1)	(+ 5.1)	(6)	(16)	(1150)
196-400		.846	272.1					164	203-430		.904	281.7					59
G		.301	122.5	238.6	- 5.0	16	81				.735	280.9					215
		.738	78.8					243			.977	263.1					99
July 16			(+4.1)	(253.3)	(+ 4.5)	(16)	(81)	(407)	G	9373	.659	104.6	120.6	- 5.5	4	7	269f
											.797	75.8					166
								187			.831	110.5					116
197-528		.954	273.0								.916	77.7					292
G		.164	197.1	241.2	- 4.4	8	55				.969	111.1					80
July 17			(+4.6)	(238.4)	(+ 4.6)	(8)	(55)	(187)	July 23			(+7.1)	(160.3)	(+ 5.2)	(4)	(7)	(1296)

Group 9368. July 8-14. A small group of the stream type. Group 9370 develops just northwards.

Group 9369. July 8-15. A stream with the following component of regular type and the fore portion disappearing first.

Group 9370. July 12-14. A small group of the stream type appearing n of Group 9368.

Group 9371. July 11-21. An isolated disturbance, the whole development of which is seen. A ring of faculae containing three spots which become a stream. The following component is the largest, but it is ultimately shorter lived than the leader which survives on July 19, as a small and rapidly dying spot.

Group 9372. July 19-21. A pair of small spots.

Group 9373. July 21-24. A small spot, with a companion on July 22 and 23.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1921.

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.
1921. 204.415		.859	279.9	°	°			132	1921. 209.478		.792	103.7	°	°			213
G	9374	.589	231.1	175.7	-17.1	5	16		G		.838	88.6					324
	9373	.492	110.9	119.8	-5.5	3	8				.895	103.2					138
		.652	79.5					119			.921	91.1					100
		.815	77.1					162			.938	75.9					380
July 24			(+ 7.5)	(147.2)	(+ 5.2)	(8)	(24)	(413)	July 29			(+ 9.7)	(80.3)	(+ 5.6)	(133)	(547)	(1330)
205.427		.954	280.0					120			.789	255.0					202
G	9374	.770	251.8					101	210.342		.768	267.5					48
		.746	242.0	177.1	-16.6	7	25	67c		9375	.339	295.0	87.1	+13.6	4	12	
	9375	.757	76.1	84.9	+13.9	5	14		G	9376	.264	158.5	63.2	-8.5	117	603	
July 25	9376	.973	101.0	58.7	-9.4	36	140	319c			.757	92.2					206
			(+ 8.0)	(133.9)	(+ 5.3)	(48)	(179)	(607)			.875	76.6					384
											.929	103.8					129
206.570		.885	256.5					169	July 30			(+10.0)	(68.8)	(+ 5.7)	(121)	(615)	(969)
G	9374	.910	249.8	181.1	-15.9	1	10	215f			.937	258.6					439
	9375	.578	74.2	84.0	+13.5	10	37				.925	269.5					117
	9376	.867	104.4	60.5	-9.6	51	392	268c			.816	283.8					156
July 26		.985	77.4					113	211.662		.329	222.4	64.3	-8.3	70	527	
			(+ 8.4)	(118.7)	(+ 5.4)	(62)	(439)	(765)	G	9376	.754	73.9					258
207.487		.962	257.4					81			.809	109.2					288
G	9375	.956	250.6					247	July 31			(+10.6)	(51.4)	(+ 5.8)	(70)	(527)	(1258)
		.406	68.8	83.8	+13.6	7	23				.952	258.1					145
	9376	.740	108.3	61.3	-9.6	96	435	381c			.914	283.7					96
		.932	77.2					261			.773	281.8					211
July 27		.938	83.4					82	212.673		.515	242.1	65.3	-8.7	78	439	
			(+ 8.8)	(106.6)	(+ 5.5)	(103)	(458)	(1052)	G			(+11.0)	(38.0)	(+ 5.9)	(78)	(439)	(452)
208.355		.948	352.6					70	Aug. 1								
G	9375	.205	45.5	86.5	+13.6	3	14				.979	284.3					108
	9376	.593	114.2	62.0	-9.4	84	567	241			.870	282.1					257
		.853	78.6					215	213.444		.651	248.9	65.6	-8.8	54	333	
		.916	97.7					115	G	9376	.617	61.7	2.7	+17.9	1	3	
		.940	80.0					257			.461	(+11.3)	(27.8)	(+ 5.9)	(55)	(336)	(365)
July 28		.946	89.0					155	Aug. 2								
		.987	77.9					(1053)			.957	283.3					211
			(+ 9.2)	(95.1)	(+ 5.5)	(87)	(581)		214.510		.810	254.3	65.6	-8.9	40	237	
209.478	907f	.254	293.9	93.9	+11.3	1	3		G	9376		(+11.7)	(13.7)	(+ 6.0)	(40)	(237)	(541)
G	9375	.179	324.1	86.5	+13.8	10	21		Aug. 3								
	9376	.388	129.6	62.8	-8.9	122	522										
	907g	.711	77.1	35.1	+13.0	0	1	175f									

Group 9374. July 24-26. A small stream of feeble activity.

Group 9375. July 25-30. A small stream.

Group 9376. July 25-Aug. 5. A pair of spots seen near the east limb which are the nuclei of a "stream." The leading spot becomes large and is of regular type until July 29, after which it becomes very elongated and is breaking up on Aug. 1. Meanwhile the following spot has become a cluster and with other small spots which develop, it becomes the "train" to the leader.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1921.

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.
1921. 215:399 G	9376	.985	283.6					79	1921. 221:385 G	9377	.967	286.7					141
		.915	276.0					63									
Aug. 4		.915	257.2 (+12.0)	66.4 (2.0)	- 9.1 (+ 6.1)	22 (22)	177 (177)	547f (689)	Aug. 10			(+14.3)	(282.8)	(+ 6.4)	(0)	(0)	(141)
216:355 C	9376	.980	259.5	66.4	- 8.9	15	64	615f	222:477 G	9377	.343	114.3	250.3	- 2.0	24	79	(0)
												(+14.7)	(268.4)	(+ 6.5)	(24)	(79)	
Aug. 5			(+12.4)	(349.3)	(+ 6.1)	(15)	(64)	(615)	Aug. 11								
217:352 G		.978	261.2					94	223:490 G	9377	.153	152.6	251.0	- 1.2	27	114	
		.865	280.6					291			.968	107.4					122
		.840	258.4					155	Aug. 12			(+15.0)	(255.0)	(+ 6.5)	(27)	(114)	(122)
Aug. 6		.719	272.6					122	224:364 C	9378	.190	228.5	251.5	- 0.7	20	114	
		.969	103.6					80			.964	87.1	168.8	+ 4.5	0	17	122f
			(+12.8)	(336.1)	(+ 6.2)	(0)	(0)	(742)	Aug. 13		.912	111.0					143
218:393 G		.945	285.1					222		9378	.814	114.9					87
		.942	262.2					141			.967	9.0					70
		.934	275.3					77			.971	78.1	(+15.4)	(243.4)	(+ 6.6)	(20)	(131)
Aug. 7		.860	255.0					143	225:323 G	9377	.390	252.7	252.6	- 0.5	12	79	
		.855	272.5					152			.878	88.9	169.4	+ 4.2	2	7	91f
		.787	284.4					128	Aug. 14		.919	78.1					199
		.723	266.4					122		9378		(+15.7)	(230.8)	(+ 6.6)	(14)	(86)	92
		.889	106.2					92									(382)
		.965	96.6					117									
219:350 G		.952	275.3					118	226:666 G	9377	.947	260.4	282.9	- 6.9	0	12	1115f
		.933	262.5					108			.672	262.2	254.6	- 0.2	12	71	
		.870	279.5					188	Aug. 15		.723	90.4					122
Aug. 8		.869	292.5					73		9379	.982	260.6					111
		.782	287.5					113	227:372 G		.791	264.8	255.5	+ 0.1	7	46	125f
		.890	99.7					135			.969	96.7	129.0	- 4.7	34	193	398f
220:342 G	908a	.956	284.3					114	Aug. 16	9379		(+16.4)	(203.7)	(+ 6.7)	(41)	(239)	(634)
		.915	252.6					69									
		.883	284.2					144	228:477 G		.920	267.2	255.6	+ 0.1	11	53	207f
Aug. 9		.354	282.9	317.0 (296.6)	+10.5 (+ 6.4)	3 (3)	7 (7)	(327)	Aug. 17	9379	.876	99.2	129.1	- 4.7	34	196	673f
											.969	75.9					133
			(+13.9)									(+16.8)	(189.1)	(+ 6.8)	(45)	(249)	(1013)

Group 9377. Aug. 11-18. A regular spot followed by a small cluster last represented by a tiny spot on Aug. 15.

Group 9378. Aug. 13-14. A small but distinct spot.

Group 9379. Aug. 16-25. A spot developing a double umbra and tending to divide into two parts. Partial separation takes place on Aug. 23, after which the components soon disappear.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1921.

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.	
1921. 229.345	9377	.979	269.2	255.6	+ 0.7	0	48	203f	1921. 235.364	9383	.658	247.1	135.8	- 9.3	23	76		
	9380	.481	216.2	194.7	-16.2	9	31			9379	.569	252.4	130.9	- 4.0	7	70		
G	9379	.767	102.2	129.0	- 4.8	30	191	319f		9381	.159	62.7	89.9	+11.0	4	14		
		.911	75.8					115	C	9382	.715	81.0	52.2	+11.3	20	95		
		.955	83.2					71			.850	76.4					220	
Aug. 18			(+17.0)	(177.6)	(+ 6.8)	(39)	(270)	(708)			.895	103.2					105	
									Aug. 24		.969	85.9	(+18.9)	(98.1)	(+ 7.0)	(54)	(255)	149
230.346	9380	.631	233.6	196.2	-16.1	37	160											
	9379	.602	107.2	129.3	- 4.6	28	178											
G		.800	73.0					103										
		.854	83.0					112	236.313	9383	.810	253.6	137.1	- 8.8	6	16	197c	
		.921	75.8					65		9379	.727	257.6	130.7	- 4.0	6	44	112c	
Aug. 19			(+17.4)	(164.4)	(+ 6.9)	(65)	(338)	(280)		908c	.637	251.1	122.6	- 6.3	4	11		
									C	9382	.546	79.8	52.4	+11.6	79	296		
											.850	103.6					152	
231.342	9380	.768	242.5	196.1	-15.9	34	183	128c			.913	86.4					196	
G	9379	.418	117.3	129.4	- 4.6	25	148				.936	65.2					101	
Aug. 20			(+17.7)	(151.2)	(+ 6.9)	(59)	(331)	(128)	Aug. 25		.944	74.6	(+19.2)	(85.5)	(+ 7.1)	(95)	(367)	159
																	(917)	
232.158	9380	.869	246.8	196.5	-16.2	40	192	236c	237.378		.926	257.1					191	
K	9379	.274	136.9	129.6	- 4.7	30	139				.834	256.3					343	
	9381	.806	81.0	86.4	+11.3	3	14	52c		9384	.606	279.7	108.8	+11.6	3	16		
Aug. 21			(+18.0)	(140.4)	(+ 6.9)	(73)	(345)	(288)		G	9381	.313	284.5	89.3	+11.2	1	6	
										9382	.312	76.2	53.5	+11.0	102	659		
											.856	68.7					129	
233.477		.885	245.2					83			.889	87.1					103	
	9380	.980	252.2	198.6	-15.8	27	186	307sf	Aug. 26		.934	75.4	(+19.5)	(71.4)	(+ 7.1)	(106)	(681)	92
	9379	.238	211.2	130.1	- 4.7	20	99										(858)	
G	9381	.578	80.8	87.6	+11.0	10	39	275f										
	9382	.911	81.8	56.8	+10.4	2	19	286										
		.894	103.6						238.347		.946	260.0					474	
Aug. 22			(+18.4)	(123.0)	(+ 7.0)	(59)	(343)	(951)		9384	.769	279.2	109.2	+11.6	52	187	125c	
									C	9382	.120	54.2	52.9	+11.0	70	680		
									Aug. 27			(+19.8)	(58.6)	(+ 7.1)	(122)	(867)	(599)	
234.395		.938	246.7					129										
	9383	.497	236.1	135.5	- 9.7	15	66											
	9379	.386	239.9	130.4	- 4.5	22	107											
	9384	.108	57.4	105.6	+10.3	1	3		239.423		.981	262.3					154	
	9381	.407	78.0	87.1	+11.3	3	32			9384	.917	279.4	111.5	+11.4	57	288	278c	
	9382	.814	82.4	56.1	+10.2	4	16	349f	C	9382	.174	294.5	53.6	+11.1	95	440		
		.783	108.5					197		908d	.157	75.4	35.6	+ 9.3	2	5		
		.935	78.3					85	Aug. 28		.892	4.9	(+20.1)	(44.4)	(+ 7.1)	(154)	(733)	52
Aug. 23		.966	100.4					(957)									(580)	

Group 9380: Aug. 18-22. A stream of spots developing quickly. The leader, a regular spot, is the only important member.

Group 9381: Aug. 21-26. One or two small indefinite spots. Nothing is seen on Aug. 25.

Group 9382: Aug. 22-Sept. 2. Two large composite spots in stream formation developing rapidly from two small nuclei near the east limb. The leader becomes of regular type by Aug. 29, and then disappears in a few days after dividing into two parts. The other spot splits into two irregular portions on Aug. 28, which diminish rapidly.

Group 9383: Aug. 23-25. A short stream of small ill-formed spots.

Group 9384: Aug. 23-29. Intermittent. A very small ephemeral spot on Aug. 23. Nothing is then seen until Aug. 26 when a stream of normal type begins to develop.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1921.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1921.																		
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.	
1921. 240°354		°962	289°6	°	°			65	1921. 247°392		°938	287°1	°	°			64	
C	9384	°844	279°0					129	G		°878	280°3					104	
Aug. 29	9382	°982	280°1	112°0	+11°3	109	412	354 ^c	Sept. 5		°944	110°7	(+22°1)	(299°2)	(+7°2)	(0)	91	
		°387	281°9	54°7	+11°3	66	365	(548)									(259)	
			(+20°4)	(32°1)	(+7°2)	(175)	(777)											
241°436		°938	280°3					192	248°353		°955	281°4					55	
G	9382	°607	278°1	55°3	+10°7	66	299	(192)	Sept. 6		°850	114°5	(+22°4)	(286°5)	(+7°2)	(0)	68	
Aug. 30			(+20°7)	(17°8)	(+7°2)	(66)	(299)										(123)	
242°340		°868	254°5					146	249°338	9387	°641	117°1	238°1	-11°1	1	3	57	
G	9382	°763	277°4	55°9	+10°2	45	273	265 ^c	Sept. 7		°940	77°7					249	
Aug. 31	9385	°621	244°4	40°4	-9°6	13	51	(506)			°958	106°0	(+22°6)	(273°5)	(+7°2)	(1)	306	
		°966	101°3	(5°9)	(+7°2)	(58)	(324)											
			(+20°9)															
243°474		°967	260°0					129	250°356		°880	110°4					179	
G	9382	°909	278°2	56°8	+10°4	12	67	516 ^f	Sept. 8		°936	86°2	(+22°8)	(260°0)	(+7°2)	(0)	77	
Sept. 1	9385	°805	252°4	41°8	-9°6	16	60	179 ^c									(256)	
		°897	103°9					169	251°354		°836	88°3					81	
		°966	79°6	(+21°2)	(350°9)	(+7°2)	(28)	(127)	Sept. 9				(+23°0)	(246°9)	(+7°2)	(0)	(81)	
								(1058)										
244°176		°966	279°7	57°4	+11°2	4	13	605 ^f	252°500		°912	255°3					67	
D	9382	°891	256°0	42°5	-9°0	11	51	142 ^c	G	9387	°834	254°0	240°3	-11°2	5	17	75	
Sept. 2	9385	°822	106°6					165	Sept. 10		°348	205°0	(+23°2)	(231°7)	(+7°2)	(5)	(142)	
		°924	82°8	(+21°4)	(341°6)	(+7°2)	(15)	(64)										
								(1006)	253°366		°974	257°4					78	
245°405		°962	279°8					70	G	9387	°914	259°0	240°1	-11°2	27	95	61	
G	9385	°967	257°7	38°7	-9°9	2	41	328 ^p	Sept. 11		°455	227°2					111	
Sept. 3	9386	°606	281°5	2°7	+12°7	13	37	(530)			°969	95°9	(+23°4)	(220°3)	(+7°2)	(27)	76	
		°899	93°1	(+21°7)	(325°4)	(+7°2)	(15)	(78)			°977	102°8					(326)	
									254°563		°865	267°6					48	
246°343		°916	273°6					55	G	9387	°676	244°7	242°9	-11°1	38	174		
G	9386	°828	287°5	2°5	+12°5	3	14	94	Sept. 12	9388	°998	80°3	117°0	+10°2	0	346	230	
Sept. 4		°757	280°3	(+21°9)	(313°0)	(+7°2)	(3)	(14)			°924	97°7					205	
								(213)			°927	106°9					196	
											°942	76°1	(+23°7)	(204°5)	(+7°2)	(38)	(520)	(679)

Group 9385. Aug. 31-Sept. 3. A very small stream.

Group 9386. Sept. 3-4. A pair of small spots.

Group 9387. Sept. 7-15. A minute spot discernible 1½ hrs. later on the Cape photographs. Nothing is then visible until Sept. 10, when a stream makes its appearance and quickly passes through its phases.

Group 9388. Sept. 12-25. Return of Group 9384. A very large and stable regular spot usually with a few very small followers.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1921.

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.
1921. 255.347	C 9387 9388	.910	265.8	°	°			62	1921. 261.110	9390	.458	221.8	°	°	14	31	
Sept. 13		.795	250.2	243.5	-11.0	52	231	115c	K Sept. 19	9388	.052	17.0	117.1	+ 9.9	92	463	
		.972	81.2	117.0	+10.2	96	568	443c		9389	.266	146.6	109.6	- 5.8	14	32	
		.852	110.6					168			.813	80.5					354
		.877	101.2					273			.955	102.9					362
		.881	76.2	(+23.8)	(194.1)	(+7.2)	(148)	(799)		(1299)		(+24.8)	(118.0)	(+7.1)	(120)	(526)	(716)
256.326	C 9387 9388	.961	267.4					39	262.358	C 9388 9389	.682	255.9					165
Sept. 14		.913	254.5	244.7	-11.0	30	171	232c	Sept. 20		.682	241.2					150
		.895	82.4	117.2	+ 9.9	95	495	451nf			.272	281.5	117.2	+ 9.9	92	431	
		.744	76.6					91			.281	222.0	112.4	- 5.0	20	66	
		.747	116.4					120			.863	107.6					458
		.788	104.8					143			(+25.0)	(101.6)	(+7.1)	(112)	(497)	(773)	
257.636	G 9387 9388 9389	.996	258.6	247.0	-10.5	11	64	193f	263.625	G 9388 9389	.866	261.9					93
Sept. 15		.725	83.2	117.2	+ 9.9	118	508	364nf	Sept. 21		.823	246.9					185
		.850	100.6	107.1	- 5.1	8	72	190c			.534	276.9	117.3	+ 9.6	97	403	
			(+24.2)	(163.9)	(+7.2)	(137)	(644)	(747)			.559	250.1	116.6	- 5.0	20	121	
											.713	112.5					329
											.937	107.3					234
258.358	G 9388 9389	.810	248.1					76	264.341	G 9389 9388	.926	263.9					189
Sept. 16		.603	83.1	117.2	+ 9.9	107	492	326f	Sept. 22		.892	250.6					207
		.762	103.3	106.5	- 5.3	36	148	110c			.807	284.7					116
			(+24.3)	(154.4)	(+7.2)	(143)	(640)	(512)			.691	255.0	117.3	- 5.1	35	144	
											.662	276.8	117.1	+ 9.8	91	399	
											.886	108.4					225
259.367	C 9388 9389	.951	350.1					80	265.429	G 909a 9389 9388	.914	285.9					74
Sept. 17		.926	251.7					101	Sept. 23		.925	259.3	127.1	- 7.1	0	3	224p
		.408	81.8	117.0	+ 9.9	91	484	.861			259.4	119.0	- 5.5	26	130	190c	
		.579	109.9	108.1	- 5.3	21	83	.828			276.9	117.3	+ 9.7	73	344	332c	
		.975	80.1	(+24.5)	(141.1)	(+7.2)	(112)	(567)			114.8					198	
											(+25.4)	(61.0)	(+7.0)	(99)	(477)	(1018)	
260.175	D 9390 9388 9389	.367	195.4	136.1	-13.6	27	55		266.463	C 9389 9388 9391	.960	262.3	120.0	- 5.3	33	100	273f
Sept. 18		.234	77.1	117.1	+ 9.9	122	507		Sept. 24		.934	277.6	117.0	+ 9.6	58	339	385f
		.451	118.3	107.0	- 5.8	27	80	333			.101	289.1	52.9	+ 8.8	5	17	
		.928	79.8	(+24.6)	(130.4)	(+7.1)	(176)	(642)			(333)	(+25.5)	(47.4)	(+7.0)	(96)	(456)	(658)

Group 9389. Sept. 15-24. A small spot and a cluster which separate in longitude. After Sept. 20 the spot dies out and the cluster is represented by a small regular spot and two or three very small followers.

Group 9390. Sept. 18-19. A small short lived stream.

Group 9391. Sept. 24-30. A stream of spots composed, when fully formed on Sept. 28, of two regular spots followed by one composite spot.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1921.

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.
1921. 267.373 G	9388	.967	262.4	117.6	+ 9.6	82	430	191	1921. 274.437		.986	277.2					70
	9391	.989	278.7	54.1	+ 8.8	24	71	261f			.958	250.3					103
Sept. 25		.320	277.2 (+25.6)	(35.4)	(+6.9)	(106)	(501)	(452)			.932	356.2					120
									Oct. 2		.843	109.3 (+26.2)	(302.2)	(+ 6.6)	(0)	(0)	161 (454)
268.346 G	9391	.986	283.1	55.5	+ 8.5	44	167	88	275.410 G		.735	113.5	(+26.2)	(289.3)	(+ 6.6)	(0)	128
Sept. 26		.543	275.1 (+25.7)	(22.5)	(+ 6.9)	(44)	(167)	(88)	Oct. 3								(128)
269.334 C	9391	.841	278.1	55.9	+ 8.0	56	280	126	276.386 G		.948	109.4	(+26.3)	(276.5)	(+ 6.5)	(0)	78
		.688	245.6					152	Oct. 4								(78)
		.722	274.5					69c									
		.929	4.4					67	Oct. 5								
Sept. 27		.951	15.2 (+25.8)	(9.5)	(+ 6.8)	(56)	(280)	(494)									
									278.383 G		.985	92.5	(+26.3)	(250.1)	(+ 6.4)	(0)	169
270.364 G	9391	.913	284.5	55.0	+ 8.2	74	418	167	Oct. 6								(169)
		.825	250.9					152									
		.855	275.5					378c									
Sept. 28		.919	2.3 (+25.9)	(355.9)	(+ 6.8)	(74)	(418)	(1020)	279.390 G		.918	93.7	(+26.4)	(236.8)	(+ 6.3)	(0)	212
									Oct. 7								(212)
271.362 G	9391	.955	287.0	54.9	+ 8.0	91	560	83	280.505	910b	.510	233.6	246.8	-11.9	6	15	
		.925	254.6					386	G	910c	.375	85.6	200.0	+ 7.4	1	5	
Sept. 29		.949	276.2 (+26.0)	(342.8)	(+ 6.8)	(91)	(560)	(870)		9392	.755	95.8	173.6	- 0.2	11	29	158c
									Oct. 8		.916	102.0 (+26.4)	(221.1)	(+ 6.3)	(18)	(49)	161 (319)
272.349 G	9391	.979	256.3	50.7	+ 8.2	15	161	185	281.428	910d	.544	125.8	183.1	-13.0	5	15	
		.795	245.2					180	G	9392	.601	98.0	173.5	+ 0.2	5	21	
Sept. 30		.986	277.2 (+26.0)	(329.7)	(+ 6.7)	(15)	(161)	(697)	Oct. 9		.857	100.1 (+26.4)	(209.9)	(+ 6.2)	(10)	(36)	179 (179)
273.391 G	910a	.934	275.5	311.4	+34.0	1	3	83	282.439	9393	.817	251.0	117.4	+11.3	12	81	122
		.902	250.3					221	G		.980	79.7					163m
		.467	8.3					207			.872	108.8					161
Oct. 1		.944	105.7 (+26.1)	(316.0)	(+ 6.7)	(1)	(3)	(511)	Oct. 10		.922	97.8 (+26.4)	(196.6)	(+ 6.2)	(12)	(81)	154 (600)

Group 9392. Oct. 8-15. A small stream of feebly sustained activity, not visible on Oct. 10.

Group 9393. Oct. 10-19. Return of Group 9388; third apparition. A small regular spot diminishing to a dot before dying out completely. A minute cluster of spots appears near its position on Oct. 16.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1921.

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.	
1921. 283.412			°	°	°			185	1921. 288.440			°	°	°			243	
	9392	.912	253.4	174.2	+ 0.1	7	37			9393	.851	265.3	114.8	+14.2	1	20		
	9394	.108	121.8	148.9	-17.2	5	8			9395	.155	16.5	60.5	+ 7.2	31	157	291n	
G	9393	.667	124.6	117.2	+11.4	17	59	318n	G		.836	85.1				68		
	9395	.915	80.2					134			.771	81.3				149		
		.863	99.1					226			.901	107.5				53		
		.943	99.0					(863)			.979	81.3				(804)		
Oct. 11			(+26.4)	(183.8)	(+ 6.1)	(29)	(104)		Oct. 16			(+26.3)	(117.4)	(+ 5.7)	(32)	(177)		
284.334		.979	255.8	174.4	+ 0.1	23	62	103	289.383		.936	267.1	114.9	+14.4	0	17	259	
	9392	.114	205.4	147.8	-17.1	3	13			9393	.228	313.1	60.9	+ 7.4	28	141	130n	
	9394	.547	135.0	116.9	+11.6	11	28	187n	G	9395	.695	85.1				256		
C	9393	.814	80.1					150			.786	109.9				149		
		.692	106.0					140	Oct. 17		.901	81.4	(+26.3)	(105.0)	(+ 5.6)	(28)	(158)	(794)
		.855	99.4					159										
Oct. 12		.906	78.1	(+26.4)	(171.6)	(+ 6.0)	(37)	(103)										
285.395	9392	.315	251.5	174.9	- 0.1	15	72			9393	.974	267.0	114.9	+15.0	1	27	41	
	9394	.395	159.6	149.4	-15.8	1	4		G	9395	.922	261.5	60.9	+ 7.5	31	147	125	
	9393	.654	79.0	116.8	+11.6	10	36	77			.867	244.2				109		
		.800	79.5					70			.417	294.4						
Oct. 13		.963	9.6	(+26.4)	(157.6)	(+ 5.9)	(26)	(112)			.514	84.7						
								(147)	Oct. 18		.798	82.7	(+26.2)	(91.8)	(+ 5.6)	(32)	(174)	(756)
											.903	111.2						
											.942	81.7						
											.970	10.6						
286.470	9392	.530	260.4	174.8	- 0.1	2	7		291.543		.912	253.9	115.5	+14.4	2	5	138	
	9393	.463	74.0	116.4	+12.5	10	24		G	9395	.637	286.0	60.9	+ 7.2	21	118		
	910e	.879	83.5	81.6	+ 8.5	2	12	700			.270	82.8						
G	9395	.992	83.3	60.2	+ 7.4	46	222	128p	Oct. 19		.823	83.4	(+26.1)	(76.5)	(+ 5.5)	(23)	(123)	(195)
		.942	75.6					129										
		.950	93.2					112										
Oct. 14		.957	7.7	(+26.4)	(143.4)	(+ 5.9)	(60)	(265)	292.397		.960	258.7						
									C		.882	260.1						
										9395	.795	285.2	60.9	+ 7.1	20	100	86	
									Oct. 20	9396	.081	68.6						
											.547	81.5	(+26.1)	(65.2)	(+ 5.4)	(21)	(105)	(451)
287.384	9392	.644	266.5	171.3	+ 2.3	0	3	143p										
	9393	.272	66.7	116.7	+11.8	2	5				.938	260.8						
G	9395	.942	84.3	60.8	+ 7.3	32	176	430n	293.400		.898	284.8						
		.855	79.9					188	C	9395	.156	280.6	60.8	+ 6.9	18	85	84	
Oct. 15		.929	3.1	(+26.3)	(131.4)	(+ 5.8)	(34)	(184)	Oct. 21			(+26.0)	(52.0)	(+ 5.3)	(18)	(85)	(328)	

Group 9394. Oct. 11-13. Two or three minute spots.

Group 9395. Oct. 14-25. Return of Group 9391. A regular spot diminishing rapidly after Oct. 22.

Group 9396. Oct. 20-28. One very small ephemeral spot on Oct. 20, appearing in a small area of faculae previously seen at the east limb. On Oct. 23 a small cluster makes its appearance which evolves within two days into a stream differing in detail from one of the normal type but of the same general development.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1921.

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.
1921. 294.392			°	°	°				1921. 301.485			°	°	°			
G	9395	.931	286.5	61.0	+ 6.6	18	78	192	301.485	9397	.377	268.9	327.5	+ 3.9	81	335	
	9397	.937	274.9	61.0	+ 3.9	3	16	183f	G	9398	.334	67.6	287.1	+11.6	12	45	
	910f	.973	93.0	322.8	- 1.7	0	26	94c	Oct. 29			(+25.1)	(305.4)	(+ 4.6)	(93)	(380)	(0)
Oct. 22			(+25.9)	(38.9)	(+ 5.2)	(21)	(120)	(469)									
									302.455	9397	.591	270.8	328.8	+ 4.1	67	289	
295.429	9395	.584	273.8	61.0	+ 6.3	10	40		C	911a	.161	40.7	292.0	+11.4	0	10	
	910g	.418	288.4	49.1	+12.2	2	5		Oct. 30			(+24.9)	(292.6)	(+ 4.5)	(67)	(299)	(0)
G	9396	.188	285.2	35.8	+ 7.8	7	33										
	9397	.853	89.0	326.8	+ 3.6	105	446	269c	303.330	9397	.742	271.4	328.9	+ 4.0	58	241	255c
		.879	94.5					74	C		.930	7.4					101
Oct. 23			(+25.8)	(25.3)	(+ 5.1)	(124)	(524)	(343)	Oct. 31			(+24.8)	(281.1)	(+ 4.4)	(58)	(241)	(356)
296.384		.837	282.0					65									
G	9395	.747	274.0	61.1	+ 6.4	6	17	180n	304.341	9397	.881	272.6	329.5	+ 4.4	41	201	370c
	9396	.402	278.3	36.3	+ 8.0	74	278		C	911b	.738	256.0	313.7	- 7.2	2	9	
	9397	.714	89.7	327.2	+ 3.8	109	679	297c	Nov. 1			(+24.6)	(267.7)	(+ 4.3)	(43)	(210)	(370)
		.777	97.5					107									
Oct. 24			(+25.7)	(12.7)	(+ 5.1)	(189)	(974)	(649)									
									305.338		.908	259.3					70
297.385	9395	.880	274.4	61.2	+ 6.3	5	12	200n	C	9397	.964	273.4	329.2	+ 4.4	26	157	433f
G	9396	.608	276.4	36.9	+ 7.8	116	477				.950	91.6					126
	9397	.536	90.8	327.1	+ 3.9	113	625		Nov. 2			(+24.5)	(254.6)	(+ 4.2)	(26)	(157)	(629)
Oct. 25			(+25.6)	(359.5)	(+ 5.0)	(234)	(1114)	(200)									
									306.345		.986	273.1					219
298.304		.948	278.9					352	C								
		.938	251.4					116	Nov. 3			(+24.3)	(241.3)	(+ 4.1)	(0)	(0)	(219)
C	9396	.766	276.1	37.3	+ 7.8	125	746	142c									
	9397	.353	92.8	326.7	+ 3.6	105	657										
		.966	5.6					93			.942	275.3					110
Oct. 26			(+25.5)	(347.3)	(+ 4.9)	(230)	(1403)	(703)	307.315		.859	281.2					68
									C		.940	12.1					101
299.324	9396	.906	276.5	39.1	+ 7.9	127	799	347c	Nov. 4		.967	104.5					102
C	9397	.127	99.8	326.7	+ 3.6	109	512					(+24.1)	(228.5)	(+ 4.0)	(0)	(0)	(381)
	9398	.748	79.8	285.5	+10.8	0	3										
Oct. 27			(+25.4)	(333.9)	(+ 4.8)	(236)	(1314)	(347)	308.407		.885	109.1					63
									G		.931	7.3					51
									Nov. 5			(+23.9)	(214.1)	(+ 3.9)	(0)	(0)	(114)
300.363	9396	.981	277.3	39.3	+ 8.1	184	991	492c									198
C	9397	.119	260.2	326.9	+ 3.5	85	485		309.530		.977	78.2					
	9398	.557	77.5	286.7	+10.8	5	25		G			(+23.7)	(199.3)	(+ 3.7)	(0)	(0)	(198)
Oct. 28			(+25.2)	(320.2)	(+ 4.7)	(274)	(1501)	(492)	Nov. 6								

Group 9397. Oct. 22-Nov. 2. A large stream of normal type about 10° in length when fully developed. Its growth is rapid from a small spot seen near the east limb on Oct. 22, and its decline is relatively of short duration for so large a group. The leader spot, however, passes over the west limb and is seen again as Group 9400.

Group 9398. Oct. 27-29. A single very small spot on Oct. 27; a diminutive stream on the two following days.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1921.

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.
1921. 310.536 G Nov. 7		.916 .928	° 75.9 102.7 (+23.5)	° (186.1)	° (+ 3.6)	(o)	(o)	476 100 (576)	1921. 319.329 C Nov. 16	9399	.448	° 78.6 (+21.2)	° 43.9 (70.1)	° + 7.4 (+ 2.6)	90 (90)	535 (535)	(o)
311.391 G Nov. 8		.829 .855	80.0 70.0 (+23.3)	(174.8)	(+ 3.5)	(o)	(o)	96 134 (230)	320.390 C Nov. 17	9399 9400	.232 .993 .865	67.5 85.7 71.5 (+20.9)	43.7 333.0 (56.1)	+ 7.4 + 4.5 (+ 2.5)	94 20 (114)	476 224 (700)	93p 74 (167)
Nov. 9		No spots or faculae															
313.392 G Nov. 10	911c	.277	31.4 (+22.8)	139.8 (148.4)	+16.8 (+ 3.3)	1 (1)	4 (4)	(o)	321.317 C Nov. 18	9399 911f 9400	.089 .243 .948	4.2 27.9 86.2 (+20.7)	43.5 37.2 332.6 (43.9)	+ 7.4 +14.8 + 4.4 (+ 2.4)	87 2 20 (109)	480 5 121 (606)	268c (268)
314.408 G Nov. 11		.862 .932 .963	71.8 83.8 74.2 (+22.6)	(135.0)	(+ 3.2)	(o)	(o)	95 80 108 (283)	322.324 C Nov. 19	9399 9400 9401	.239 .851 .965	293.9 86.2 97.1 (+20.4)	43.3 332.4 316.5 (30.6)	+ 7.7 + 4.4 - 6.2 (+ 2.3)	69 16 100 (185)	463 122 655 (1240)	251f 376c (627)
315.326 C Nov. 12	911d 9399	.711 .978 .880	246.3 83.3 72.5 (+22.3)	164.9 45.0 (122.9)	-14.2 + 7.2 (+ 3.1)	1 68 (69)	3 456 (459)	320c 139 (459)	323.382 C Nov. 20	9399 911g 9400 9401	.452 .337 .705 .874 .948	283.4 301.6 85.4 98.1 83.8 (+20.0)	42.9 33.7 332.0 316.5 (16.7)	+ 7.9 +12.1 + 4.7 - 6.0 (+2.1)	96 0 26 106 (228)	482 3 111 647 (1243)	154f 470c 141 (765)
316.424 G Nov. 13	911e 9399	.927 .783 .451 .899	272.9 247.4 59.0 83.4 (+22.0)	84.8 44.5 (108.4)	+16.2 + 7.2 (+ 3.0)	1 108 (109)	2 505 (507)	63 146 711f (920)	324.339 C Nov. 21	9399 911h 9400 9401	.950 .634 .488 .527 .744 .859	280.5 280.4 279.1 85.1 100.0 80.5 (+19.7)	43.0 33.0 332.5 316.8 (4.1)	+ 8.1 + 6.1 + 4.3 - 6.1 (+ 2.0)	64 0 25 128 (217)	414 4 117 627 (1162)	101 349c 93 (543)
317.325 C Nov. 14	9399	.899 .794	252.8 82.9 (+21.8)	44.1 (96.5)	+ 7.4 (+ 2.9)	91 (91)	514 (514)	108 731f (839)	325.345 C Nov. 22	9399 9400 9401	.794 .320 .563	279.0 82.3 103.4 (+19.4)	43.0 332.3 317.5 (350.8)	+ 8.3 + 4.2 - 5.9 (+ 1.9)	53 19 101 (173)	326 102 655 (1083)	443f 95c (538)
318.097 K Nov. 15	9399	.679	82.4 (+21.6)	43.9 (86.4)	+ 7.2 (+ 2.8)	113 (113)	527 (527)	404f (404)									

Group 9399. Nov. 12-24. Return of Group 9396. A large regular spot usually accompanied by a few very small companions.
 Group 9400. Nov. 17-29. Return of Group 9397. A stable regular spot slowly contracting to a very small dark nucleus on Nov. 29, when close to the west limb.
 Group 9401. Nov. 19-30. A large regular spot with an unstable cluster 10° following in longitude. Another small cluster appears for two days on Nov. 23 and 24, closely following the regular spot.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1921.

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.
1921. 326-324 C Nov. 23	9399 9400 9401	.903 .105 .375	278.3 69.7 111.5 (+19.1)	42.2 332.3 317.4 (337.9)	+ 8.3 + 3.9 - 6.2 (+1.8)	61 22 144 (227)	385 100 696 (1181)	653 ^c	1921. 334-366 C Dec. 1	9402	.987 .498 .896 .894	261.8 291.8 106.2 95.4 (+16.2)	259.9 +11.3 (231.9)	+11.3 (+0.8)	2 (2)	10 (10)	482 77 100 (659)
327-475 G Nov. 24	9399 9400 9401	.984 .171 .151	278.1 281.7 150.3 (+18.7)	42.3 332.4 318.5 (322.8)	+ 8.2 + 3.5 - 5.8 (+1.6)	67 17 135 (219)	382 112 689 (1183)	568 ^c	335-331 C Dec. 2	9402 9403	.678 .482 .732	285.6 257.1 113.2 (+15.8)	260.7 247.2 (219.2)	+11.0 - 5.6 (+0.6)	2 3 (5)	9 11 (20)	124 (124)
328-316 C Nov. 25	9400 9401	.988 .356 .174	277.9 275.8 225.0 (+18.4)	332.4 318.8 (311.7)	+ 3.4 - 5.5 (+1.5)	15 116 (131)	86 592 (678)	359	336-327 C Dec. 3	9402 9403	.827 .655	282.0 260.2 (+15.4)	261.2 246.4 (206.1)	+10.2 - 6.0 (+0.5)	4 1 (5)	16 7 (23)	110 ^c (110)
329-378 C Nov. 26	9400 9401	.575 .374	273.8 251.0 (+18.0)	332.6 318.4 (297.7)	+ 3.3 - 5.6 (+ 1.4)	14 112 (126)	90 555 (645)	(0)	337-366 C Dec. 4		.938 .830	281.2 263.4 (+15.0)	(192.4)	(+0.4)	(0)	(0)	76 57 (133)
330-447 C Nov. 27	9400 9401	.758 .591	272.7 258.5 (+17.7)	332.7 319.0 (283.6)	+ 2.9 - 5.7 (+1.3)	14 112 (126)	71 515 (586)	229 ^c (229)	338-443 C Dec. 5		.929 .941	263.7 104.4 (+14.6)	(178.2)	(+ 0.2)	(0)	(0)	78 61 (139)
331-471 G Nov. 28	9400 9401	.892 .762	272.5 261.6 (+17.3)	333.0 319.2 (270.1)	+ 2.8 - 5.7 (+1.1)	16 122 (138)	75 604 (679)	233 ^c 201 ^c (434)	339-449 G Dec. 6	912a	.812	105.4 (+14.2)	111.9 (165.0)	-12.4 (+ 0.1)	1 (1)	14 (14)	58 ^f (58)
332-335 C Nov. 29	9400 9401	.962 .872	272.6 263.2 (+17.0)	332.7 318.9 (258.7)	+ 2.8 - 5.4 (+1.0)	7 92 (99)	18 536 (554)	221 ^c 576 ^f (797)	Dec. 7		No spots or faculae.						
333-541 G Nov. 30	9401	.882 .975 .950	277.7 264.2 103.5 (+16.5)	319.5 (242.8)	- 5.4 (+0.9)	82 (82)	709 (709)	67 445 ^f 101 (613)	341-407 C Dec. 8		.980	83.0 (+13.3)	(139.2)	(- 0.1)	(0)	(0)	170 (170)
									342-584 C Dec. 9	9404	.985 .923	82.2 81.6 (+12.8)	44.0 (123.7)	+ 7.7 (- 0.3)	51 (51)	248 (248)	255 ^c 328 (583)

Group 9402. Dec. 1-3. Two or three very small faint spots.

Group 9403. Dec. 2-3. One very small spot on Dec. 2; two on Dec. 3.

Group 9404. Dec. 9-21. Return of Group 9399; third apparition. An active group. Two small regular spots seen near the east limb separated by 41° in latitude, but in the same area of faculae. Within a few days a composite spot begins to develop, and by Dec. 15 the group is a large condensed cluster of irregular spots. The group is very unstable and is fast disappearing as it approaches the west limb.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1921.

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.
1921. 343·334 C Dec. 10	9404	·939 ·849 (+12·5)	81·7 80·7 (113·8)	44·4 (113·8)	+ 7·7 (- 0·4)	47 (47)	218 (218)	391c 259 (650)	1921. 349·411 C Dec. 16	9406 9404 9407	·953 ·341 ·264 ·941 ·902 (+ 9·8)	279·8 292·8 307·2 95·8 79·0 (33·7)	52·1 + 6·4 + 8·0 - 5·8 (- 1·2)	11 89 74 (174)	78 693 480 (1251)	171 625c 128 (924)	
344·398 C Dec. 11	9405 9404	·950 ·190 ·819 ·686 (+12·0)	255·6 328·4 80·2 79·2 (99·8)	105·6 45·5 (- 0·5)	+ 8·8 + 7·7	17 54 (71)	59 327 (386)	76 426c 278 (780)	350·488 G Dec. 17	9406 9404 9408 9407	·581 ·471 ·337 ·829 (+ 9·3)	283·5 289·9 44·9 96·2 (19·5)	54·0 + 6·7 + 8·0 +12·5 - 5·8 (- 1·3)	5 106 2 71 (184)	27 651 6 493 (1177)	554c (554)	
345·368 C Dec. 12	9405 9406 9404	·363 ·596 ·675 ·940 (+11·6)	296·4 76·8 77·6 78·2 (87·0)	106·1 51·3 45·5 (- 0·6)	+ 8·7 + 7·4 + 7·8	19 9 60 (88)	58 22 332 (412)	368f 70 (438)	351·470 G Dec. 18	9406 9404 9408 9407	·762 ·648 ·241 ·680 (+ 8·8)	280·0 284·2 3·2 96·6 (6·6)	55·5 + 6·6 + 8·0 +12·5 - 5·5 (- 1·4)	9 124 22 76 (231)	28 735 95 488 (1346)	284c 282f (566)	
346·314 C Dec. 13	9405 912b 9406 9404	·564 ·298 ·395 ·499 ·838 ·941 (+11·2)	286·4 72·6 69·1 72·9 75·2 75·0 (74·5)	107·5 58·0 52·8 45·9 (- 0·8)	+ 8·5 + 4·4 + 7·3 + 7·7	11 0 6 89 (106)	29 3 17 512 (561)	48 108 (156)	352·330 C Dec. 19	9406 9404 9408 9407	·869 ·776 ·308 ·523 (+ 8·4)	278·2 282·6 324·0 97·6 (355·3)	55·0 + 6·4 + 8·8 6·0 - 5·2 (- 1·5)	7 96 23 71 (197)	31 516 83 464 (1094)	670c 544c (1214)	
347·325 C Dec. 14	9405 9406 9404	·922 ·757 ·212 ·313 (+10·7)	288·9 281·5 50·1 59·9 (61·2)	109·5 51·8 + 6·9 45·4 (- 0·9)	+ 8·0 + 6·9 + 8·1	12 13 91 (116)	31 50 585 (666)	95 126c (221)	353·461 G Dec. 20	9406 9404 9408 9407	·790 ·972 ·914 ·465 ·282 (+ 7·9)	284·4 276·8 279·9 301·3 103·7 (340·3)	56·1 + 6·2 + 8·3 4·2 - 5·4 (- 1·7)	8 33 18 83 (142)	50 269 57 416 (792)	130 461c 849c (1440)	
348·414 C Dec. 15	9406 9404 9407	·861 ·176 ·160 ·993 ·924 ·976 (+10·2)	281·2 328·2 7·6 96·5 86·4 80·3 (46·8)	52·1 45·6 323·8 (- 1·0)	+ 7·6 + 8·1 - 6·6	9 91 81 (181)	35 725 379 (1139)	223 273c 110 108 (714)	354·338 C Dec. 21	9404 9408 9407	·892 ·981 ·613 ·096 (+ 7·5)	283·7 280·2 293·4 132·4 (328·8)	47·0 + 9·7 +12·6 - 5·5 (- 1·8)	18 32 70 (120)	175 80 430 (685)	156 1323c (1479)	

Group 9405. Dec. 11-14. A pair of small spots.

Group 9406. Dec. 12-20. A few small spots immediately preceding Group 9404.

Group 9407. Dec. 15-27. Return of Group 9401. A large spot with double and later with triple umbra. On Dec. 22 the following portion of the spot separates from the main part. A few small companions are usually visible.

Group 9408. Dec. 17-24. A stream of small spots in continual change.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1921.

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.
1921. 355.329			°	°	°			223	1921. 360.435			°	°	°			82
	9408	.953	281.6					185c		9407	.986	277.3					326
	9407	.763	287.6	3.7	+12.1	17	37			9409	.923	258.2					303c
	913a	.170	249.3	324.9	-5.3	69	400			9410	.977	265.1	326.1	-5.3	55	276	
Dec. 22		.219	179.3	315.6	-14.5	9	35			9411	.437	261.2	274.1	-6.1	0	2	
			(+7.0)	(315.8)	(-1.9)	(95)	(472)	(408)			.574	66.4	216.2	+11.1	15	56	
											.939	103.2					213
												(+4.6)	(248.5)	(-2.5)	(70)	(334)	(924)
356.451	9408	.906	283.1	4.7	+10.9	5	20	138c		9410	.980	258.6					130
G	9407	.416	261.0	325.3	-5.6	79	375			9411	.375	51.0	216.7	+11.0	10	44	
Dec. 23			(+6.5)	(301.0)	(-2.1)	(84)	(395)	(138)			.950	96.8	162.2	-7.3	0	9	48f
											.831	106.0					133
												(+4.0)	(233.9)	(-2.7)	(10)	(53)	(311)
357.315	9408	.972	281.9	5.1	+11.0	4	23	234c		9410	.252	17.5	217.3	+11.0	4	14	
C	9407	.587	263.5	325.3	-5.5	61	363			9411	.850	96.8	163.6	-7.2	0	4	59f
Dec. 24			(+6.1)	(289.6)	(-2.2)	(65)	(386)	(234)				(+3.6)	(221.7)	(-2.8)	(4)	(18)	(59)
358.320		.852	262.2					75		9410	.715	97.2	165.0	-7.1	0	3	
		.809	281.4					63				(+3.2)	(210.4)	(-2.9)	(0)	(3)	(0)
		.702	254.8					133									
	9407	.759	264.6	325.5	-5.5	65	314										
	913b	.432	302.6	298.0	+11.3	1	2	280c									
Dec. 25			(+5.6)	(276.3)	(-2.3)	(66)	(316)	(551)									
359.496		.949	277.2					83		9411	.865	276.6					74
		.825	258.2					253			.261	220.2	204.2	-14.4	1	7	
	9407	.907	265.2	325.8	-5.4	35	262	302c				(+2.6)	(194.2)	(-3.0)	(1)	(7)	(74)
G	9409	.252	254.8	274.9	-6.1	2	20										
Dec. 26			(+5.0)	(260.8)	(-2.4)	(37)	(282)	(638)									

Group 9409. Dec. 26-27. A pair of small spots on Dec. 26; a single spot on Dec. 27.

Group 9410. Dec. 27-29. A small stream.

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



ROYAL OBSERVATORY, GREENWICH.

GENERAL CATALOGUE

OF

GROUPS OF SUN SPOTS.

FOR THE YEAR

1921.

GREENWICH PHOTO-HELIOGRAPHIC RESULTS, 1921.

GENERAL CATALOGUE OF GROUPS OF SUN SPOTS for the YEAR 1921.

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 1920 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 $851^{\circ}07'$ 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

$$866^{\circ}06' - 128' \sin^2 \phi.$$

In both systems the longitude of the centre of the Sun's disc is adopted as $325^{\circ}92'$ for 1921 Jan. 1st 0, the longitudes given under System I. being thus rendered uniform with those given in preceding volumes of the Greenwich Photo-Heliographic Results. The longitudes according to System II. for Groups 9278, 9280, 9281, and 9282 are computed here from 1921.0 instead of from 1920.0, as in the volume for 1920.

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.			
9278	d 13	1920. Dec. 20	° -82.6	1921. Jan. 1	° +77.3	44	283	° 36.9	° 38.1	+ 8.5	II.	See Ledger for 1920.
9280	13	24	-77.8	5	+81.0	41	232	347.8	348.1	-12.9	I. 932 (1)	See Ledger for 1920.
1	8	25	-74.6	1	+13.0	25	110	335.9	336.1	+17.9	II.	Revives as Group 9293.
2	11	31	-77.8	10	+65.0	39	175	262.4	261.4	- 6.8	II.	
		1921. Jan. 8	-85.1	20	+72.1	78	435	141.5	138.8	-10.2	I. 933 (1)	Revival of Group 9274.
3	13	10	+ 3.4	16	+83.2	103	537	208.5	207.0	-14.2	I. 934 (1)	Revival of Group 9273.
4	7	11	-34.1	16	+32.7	12	42	154.7	151.8	+ 6.8	II.	
5	6	12	-72.9	24	+82.6	32	164	102.7	98.4	+ 3.2	II.	Revives as Group 9308.
6	13	16	-27.6	24	+77.8	6	29	97.8	93.6	- 7.9	II.	
7	9	19	-81.2	25	- 4.8	9	51	1.0	356.8	-10.1	} I. 932 (2)	
8	7	20	-76.7	31	+69.9	9	25	356.0	351.8	-11.8		
9	12	20	-81.3	26	- 4.7	6	30	349.9	346.5	-13.0	} II.	
9290	7	20	-71.9	Feb. 2	+49.8	2	7	307.4	303.2	+12.6		
1	6/10	24	-71.9	1	+76.7	0	4	348.5	342.9	-10.2		Revival of Group 9282.
2	3/5	28	+23.8	Jan. 29	-52.6	0	8	261.4	256.0	- 9.9		
3	2	28	-63.7	Feb. 12	+84.4	32	173	213.5	209.5	-15.2	I. 934 (2)	
4	14	30	-84.0	7	+23.2	16	67	219.0	216.6	-17.2	II.	
5	8	31	-68.5	4	-25.8	4	15	205.6	198.3	+ 7.4		
6	4	Feb. 1	-66.0	15	+56.8	10	52	145.2	137.4	-10.2	I. 933 (2)	
7	11	5	-73.4	8	-36.2	22	101	142.2	134.4	- 9.0		
8	2	7	-52.5	11	- 0.4	7	28	141.2	139.0	-17.9		
9	4	8	-38.6	13	+14.8	3	8	129.9	124.4	-14.2		
9300	3/4	10	-23.1	12	+79.6	9	36	210.0	202.8	+11.6	I. 935 (1)	
1	2	11	+69.9	18	+14.9	9	27	64.6	56.2	-10.7	II.	
2	7	12	-66.9	24	+82.6	61	334	47.2	36.4	- 7.5	I. 936 (1)	
	13	12	-83.4	26	+70.2	21	80	12.8	2.3	-10.0	II.	
4	5	22	+16.1									

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.	Umbrae.	Whole Spots.	System I.	System II.			
9305	4	1921.	°	1921.	°							
	6	Feb. 27	-73.4	Mar. 4	- 8.4	12	65	217.4	207.6	+12.1	I. 935 (2)	
	3	27	-77.6	1	-49.1	7	34	213.4	206.9	-15.3	I. 934 (3)	
7	2/3	Mar. 3	- 7.1	5	+17.8	1	5	230.5	220.0	-11.9		
8	10	8	-71.2	17	+51.8	31	146	101.6	84.3	+ 4.8	II.	Revival of Group 9286.
9	3	10	-31.2	12	- 7.1	4	18	112.6	95.7	- 4.7		
9310	9	10	-84.3	18	+20.9	7	34	59.9	43.9	- 7.7	I. 936 (2)	
1	10	12	-83.7	21	+36.2	18	125	36.9	24.1	-11.7	II.	
2	6	13	-37.3	18	+26.5	1	6	66.2	49.2	- 6.9	II.	
3	4	17	+36.7	20	+76.0	17	95	89.6	85.9	+18.4	I. 937 (1)	
4	3	21	+57.3	23	+82.7	38	197	56.2	45.9	+14.3	II.	Revives as Group 9325.
5	13	21	-77.7	Apr. 2	+81.3	104	530	281.0	263.6	+ 9.4	I. 938 (1)	
6	12	24	-80.2	4	+70.3	36	221	242.5	223.7	- 8.4	II.	
7	4	27	-63.2	Mar. 30	-23.7	5	20	217.6	197.4	+ 6.5		
8	3	29	-67.0	31	-39.7	3	10	187.4	174.9	+13.6		Revives as Group 9343.
9	3	30	+55.0	Apr. 1	+80.5	5	20	296.1	287.9	-16.2	I. 939 (1)	
9320	3	Apr. 1	-55.7	3	-30.1	2	9	159.4	151.5	-16.5		
1	3	3	+29.8	5	+58.4	1	8	219.5	199.8	+ 8.6		
2	6	3	+ 0.6	8	+72.1	12	64	192.7	175.3	-10.8	II.	
3	12	5	-76.1	16	+76.6	29	161	88.8	81.7	+17.3	I. 937 (2)	
4	12	10	-79.2	21	+65.6	41	264	17.1	356.2	+ 9.6	II.	Revives as Group 9335
5	3/5	12	- 8.4	16	+43.2	2	7	61.8	47.1	+13.5		Revival of Group 9314.
6	5	16	+21.7	20	+75.6	40	237	40.1	18.3	+ 9.3	II.	
7	2	16	-18.2	17	- 5.8	1	4	359.0	348.7	+16.0		
8	13	16	-77.1	28	+80.2	33	151	300.9	289.3	-15.6	I. 939 (2)	
9	13	17	-79.3	29	+79.0	41	203	285.2	262.4	+ 9.3	I. 938 (2)	
9330	7/8	19	-75.3	26	+24.1	6	27	263.9	238.5	- 7.1	II.	
1	2	27	-13.5	28	- 2.9	7	17	216.2	193.2	+ 9.8		
2	2	May 1	+32.5	May 2	+42.3	2	7	209.0	184.6	+ 9.4		
3	3	2	+59.2	4	+84.4	39	232	224.8	202.2	+10.7	I. 940 (1)	
4	14	8	-84.0	21	+84.0	237	1324	3.2	328.6	+ 0.5	I. 941 (1)	
5	2/5	9	-55.1	13	- 4.1	1	2	15.9	351.2	+10.4		Revival of Group 9324.
6	2	13	-67.7	14	-52.4	1	14	313.6	281.4	+ 5.1		
7	2	18	+48.9	19	+59.8	1	6	2.6	336.8	+10.6		
8	2	18	+30.7	19	+45.0	3	10	346.1	317.0	- 8.6		
9	11	18	-83.0	28	+46.6	13	67	232.0	206.2	+11.0	I. 940 (2)	
9340	2	21	-24.0	22	- 8.3	3	11	252.4	221.8	+ 8.0		
1	4	27	-70.2	30	-30.7	4	14	124.9	108.0	-15.1		
2	7/8	27	-83.6	June 3	+ 9.9	7	45	111.5	76.8	- 6.5	II.	
3	3	31	+50.8	2	+77.6	5	24	194.5	168.7	+11.8	I. 942 (1)	Revival of Group 9318.
4	10	June 1	-37.7	10	+78.4	19	80	90.1	66.5	+13.0	II.	Revives as Group 9357.
5	12	4	-75.3	15	+71.7	27	138	15.4	334.1	+ 0.8	I. 941 (2)	
6	10/11	5	-62.6	15	+73.7	16	103	14.2	338.5	+ 7.5	I. 943 (1)	
7	3	7	+45.4	9	+75.6	6	19	95.3	58.1	- 6.1		Revives as Group 9356.
8	4	8	+ 4.1	11	+50.3	4	17	43.5	10.1	- 8.8		Revives as Group 9358.
9	2	8	-41.8	9	-21.8	7	14	355.6	332.1	+13.2		Revives as Group 9364.
9350	2	11	+ 7.8	12	+21.1	6	22	4.8	348.9	+16.0		
1	4	11	+ 2.3	14	+43.7	5	19	359.6	336.5	-13.5		Revives as Group 9368.
2	2	13	- 5.9	14	+ 8.2	4	9	325.2	286.8	- 6.2		
3	13	16	-84.2	28	+74.1	32	181	205.2	173.6	+10.9	I. 942 (2)	
4	5	23	-66.3	27	-16.8	7	19	128.9	100.1	+12.2	II.	
5	11	24	-83.7	July 4	+48.4	13	65	101.2	76.6	+13.8	II.	Revival of Group 9347.
6	12	25	-64.5	6	+78.2	86	494	109.2	68.6	- 7.2	II.	Revival of Group 9344.
7	10	26	-63.9	5	+52.7	31	168	90.8	64.9	+13.5	II.	Revival of Group 9348.
8	4	30	-54.4	3	-12.6	9	21	50.2	15.3	-10.2		
9	5	30	-80.0	4	-29.0	18	87	22.6	345.9	+ 9.5	I. 943 (2)	
9360	13	30	-80.8	12	+76.4	55	264	21.8	335.3	+ 3.7	I. 941 (3)	
1	13	July 1	-86.6	13	+75.3	77	427	7.8	337.6	+12.4	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.	Umbrae.	Whole Spots.	System I.	System II.			
9362	d 3	1921. July 2	° -52.0	1921. July 4	° -23.4	1	7	27.9	350.9	+ 9.4		
3	4	3	-55.8	6	-11.4	11	39	11.8	330.9	+ 7.7		
4	7/8	3	-67.7	10	+26.9	2	13	359.7	325.8	+11.0	II.	Revival of Group 9349.
5	2	4	-26.0	5	-10.8	1	5	27.0	345.2	+ 7.2		
6	3/5	5	- 3.8	9	+46.7	1	5	34.7	2.9	+11.8		
7	3/4	5	-15.2	8	+26.9	0	4	24.4	352.8	+11.9		Feeble Revival of Group 9359.
8	7	8	- 4.1	14	+75.8	20	78	355.7	332.2	-14.6	II.	Revival of Group 9351.
9	8	8	-49.5	15	+43.2	15	56	308.6	259.9	+ 2.6	II.	
9370	4	11	+35.7	14	+74.6	17	84	355.2	318.5	-10.4		
1	10	12	-67.0	21	+55.9	14	64	240.7	192.2	- 4.5	II.	
2	3	19	-37.0	21	- 7.9	4	19	178.6	140.1	-10.2		
3	4	21	-68.0	24	-27.4	4	9	120.2	71.2	- 5.3		Revival near Group 9356.
4	3	24	+28.5	26	+62.4	4	17	178.0	160.3	-16.5		
5	6	25	-49.0	30	+18.3	6	20	85.5	56.4	+13.7	II.	Revives as Group 9381.
6	12	25	-75.2	Aug. 5	+77.1	65	370	63.5	19.8	- 9.0	II.	Revival of Group 9358.
7	8	Aug. 11	-18.1	18	+78.0	14	75	253.3	194.8	- 0.5	II.	
8	2	13	-74.6	14	-61.4	1	12	169.1	113.6	+ 4.4		
9	10	16	-74.7	25	+45.2	24	136	129.8	72.7	- 4.5	II.	Revival of Group 9373.
9380	5	18	+17.1	22	+75.6	29	150	196.4	174.2	-16.0		
1	5/6	21	-54.0	26	+17.9	4	18	88.1	46.1	+11.2	II.	Revival of Group 9375.
2	12	22	-66.2	Sept. 2	+75.8	47	269	54.8	11.1	+10.9	II.	Revives as Group 9391.
3	3	23	+24.6	Aug. 25	+51.6	15	53	136.1	88.1	- 9.3		
4	5/7	23	- 5.3	29	+79.9	32	129	109.4	67.1	+11.2	I. 944 (1)	
5	4	31	+34.5	Sept. 3	+73.3	10	51	40.8	351.8	- 9.5		
6	2	Sept. 3	+37.3	4	+49.5	8	25	2.6	324.0	+12.6		Revival of Group 9364.
7	7/9	7	-35.4	15	+83.1	18	84	242.4	196.4	-11.0	II.	
8	14	12	-87.5	25	+82.2	87	443	117.2	66.0	+ 9.9	I. 944 (2)	
9	10	15	-56.8	24	+72.6	24	98	112.4	49.2	- 5.3	II.	
9390	2	18	+ 5.7	19	+18.2	20	43	136.2	98.4	-13.4		
1	7	24	+ 5.5	30	+81.0	49	252	54.7	357.2	+ 8.4	I. 945 (1)	Revival of Group 9382.
2	7/8	Oct. 8	-48.5	Oct. 15	+39.9	8	29	173.8	100.2	+ 0.3	II.	
3	10	10	-79.2	19	+39.0	7	30	116.2	72.0	+12.8	I. 944 (3)	
4	3	11	-34.9	13	- 8.2	3	8	148.7	125.1	-16.7		
5	12	14	-83.2	25	+61.7	22	108	60.8	354.3	+ 7.0	I. 945 (2)	
6	7/9	20	-33.1	28	+79.1	70	370	36.7	332.2	+ 8.1	I. 946 (1)	
7	12	22	-69.5	Nov. 2	+74.6	75	387	327.9	253.2	+ 3.9	I. 947 (1)	
8	3	27	-48.4	Oct. 29	-18.3	6	24	286.4	232.3	+11.1		
9	13	Nov. 12	-77.9	Nov. 24	+79.5	82	457	43.5	332.4	+ 7.7	I. 946 (2)	
9400	13	17	-83.1	29	+74.0	18	104	332.5	250.9	+ 3.8	I. 947 (2)	
1	12	19	-74.1	30	+76.7	112	623	318.1	240.4	- 5.8	I. 948 (1)	
2	3	Dec. 1	+28.0	Dec. 3	+55.1	3	12	260.6	198.9	+10.8		
3	2	2	+28.0	3	+40.3	2	9	246.8	167.2	- 5.8		
4	13	9	-79.7	21	+78.2	73	460	45.5	330.3	+ 8.1	I. 946 (3)	
5	4	11	+ 5.8	14	+48.3	15	44	107.2	33.9	+ 8.5		
6	9	12	-35.7	20	+75.8	9	38	53.4	333.4	+ 6.8	II.	
7	13	15	-83.0	27	+77.6	68	395	324.7	240.0	- 5.6	I. 948 (2)	
8	8	17	-14.0	24	+75.5	15	50	4.9	306.5	+12.1	II.	Revives as Group 9414.
9	2	26	+14.1	27	+25.6	1	11	274.5	189.9	- 6.1		
9410	3	27	-32.3	29	- 4.4	10	38	216.7	151.3	+11.0		
1	9/12	28	-71.7	1922. Jan. 8	+80.3	5	25	166.4	83.4	- 7.2	II.	

GENERAL CATALOGUE of SUN SPOTS—*continued*.

REVIVAL GROUPS of SUN SPOTS, 1921.

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	9273	899	d	1920-21	°	1920-21	°		°	°	°	II. } I. 934
	9284	900	10/12	Dec. 7	-83	Dec. 18	+59	74	207	210	-11	
	9294	901	7	Jan. 10	+3	Jan. 16	+83	537	208	207	-14	
	9306	902	14	Feb. 30	-84	Feb. 12	+84	173	213	209	-15	
2	9274	899	3	Feb. 27	-78	Mar. 1	-49	34	213	207	-15	II. } I. 933
	9283	900	5	Dec. 12	-83	Dec. 16	-35	59	140	143	-9	
	9297	901	13	Jan. 8	-85	Jan. 20	+72	435	141	139	-10	
	9297	901	11	Feb. 5	-73	Feb. 15	+57	52	145	137	-10	
3	9282	900	11	Dec. 31	-78	Jan. 10	+65	175	262	261	-7	II.
	9293	901	2	Jan. 28	-64	Jan. 29	-53	8	261	256	-10	
4	9286	900	13	Jan. 12	-73	Jan. 24	+83	164	103	98	+3	II.
	9308	902	10	Mar. 8	-71	Mar. 17	+52	146	102	84	+5	
5	9314	902	3	Mar. 21	+57	Mar. 23	+83	197	56	46	+14	II.
	9325	903	3/5	Apr. 12	-8	Apr. 16	+43	7	62	47	+14	
6	9318	903	3	Mar. 29	-67	Mar. 31	-40	10	187	175	+14	II. } I. 942
	9343	905	3	May 31	+51	June 2	+78	24	194	169	+12	
	9353	906	13	June 16	-84	June 28	+74	181	205	174	+11	
7	9324	903	12	Apr. 10	-79	Apr. 21	+66	264	17	356	+10	II.
	9335	904	2/5	May 9	-55	May 13	-4	2	16	351	+10	
8	9344	905	10	June 1	-38	June 10	+78	80	90	67	+13	II.
	9357	906	10	June 26	-64	July 5	+53	168	91	65	+13	
9	9347	905	3	June 7	+45	June 9	+76	19	95	58	-6	II.
	9356	906	12	June 25	-64	July 6	+78	494	109	69	-7	
	9373	907	4	July 21	-68	July 24	-27	9	120	71	-5	
	9379	908	10	Aug. 16	-75	Aug. 25	+45	136	130	73	-5	
10	9348	905	4	June 8	+4	June 11	+50	17	43	10	-9	II.
	9358	906	4	July 30	-54	July 3	-13	21	50	15	-10	
	9376	907	12	July 25	-75	Aug. 5	+77	370	63	20	-9	
11	9349	906	2	June 8	-42	June 9	-22	14	356	332	+13	II.
	9364	907	7/8	July 3	-68	July 10	+27	13	0	326	+11	
	9386	909	2	Sept. 3	+37	Sept. 4	+50	25	3	324	+13	

GENERAL CATALOGUE of SUN SPOTS—*continued*. (REVIVAL GROUPS).

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.	
12	9351 9368	906 907	d	1921-22.	°	1921-22.	°		°	°	°	II.
			4	June 11	+ 2	June 14	+44	19	0	337	-14	
			7	July 8	- 4	July 14	+76	78	356	332	-15	
13	9375 9381	907 908	6	July 25	-49	July 30	+18	20	86	56	+14	II.
			5/6	Aug. 21	-54	Aug. 26	+18	18	88	46	+11	II.
14	9382 9391 9395	908 909 910	12	Aug. 22	-66	Sept. 2	+76	269	55	11	+11	II. } I. 945
			7	Sept. 24	+ 6	30	+81	252	55	357	+ 8	
			12	Oct. 14	-83	Oct. 25	+62	108	61	354	+ 7	
15	9408 9414	912 913	8	Dec. 17	-14	Dec. 24	+76	50	5	307	+12	II.
			5	Jan. 8	-77	Jan. 12	-24	41	15	304	+10	

ROYAL OBSERVATORY, GREENWICH.

LEDGERS

OF

GROUPS OF SUN SPOTS

FOR THE YEAR

1921.

LEDGER I.—RECURRENT GROUPS.

LEDGER I.—RECURRENT GROUPS of SUN SPOTS for the YEAR 1921.

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 Dun, by the letters C, K, and D respectively.

The Projected Area of the Umbra 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.
	Umbrae.	Whole Spots.	Umbrae.	Whole Spots.	System I.	System II.		
RECURRENT SERIES 932.								
Group 9280 seen in Rotation 900.								
" 9290 (and 9288, 9289) seen in Rotation 901.								
Group 9280—1920. December 24—1921, January 5. A stream developing somewhat irregularly into one of normal type by December 28. The leader, however, is unstable and divides into two portions after December 31, whilst the remnant of the group is fast disappearing.								
1921. d					°	°	°	°
8.370 C	4	30	9	70	348.6	349.8	-14.4	-77.8
7.338 C	9	62	10	75	348.3	349.3	-13.7	-65.4
6.465 G	91	469	76	398	345.6	346.4	-12.7	-53.2
5.452 G	100	592	66	396	345.3	346.0	-12.7	-40.5
4.351 C	146	1067	84	615	345.8	346.4	-12.4	-28.2
3.325 C	136	815	71	427	346.7	347.1	-12.4	-14.4
2.443 G	117	568	60	289	347.7	347.9	-12.2	+1.3
1.312 C	107	554	55	287	348.0	348.1	-11.9	+13.0
0.407 C	57	265	33	152	347.9	347.8	-12.2	+27.3
1.330 C	24	140	16	93	348.7	348.5	-12.7	+40.3
2.474 G	19	88	17	80	349.7	349.3	-12.9	+56.4
3.395 C	15	58	20	79	349.9	349.4	-13.5	+68.7
4.332 C	5	17	15	52	349.9	349.2	-13.6	+81.0
Means ..	..	..	41	232	347.85	348.09	-12.87	..
Group 9288—January 19-25. A small regular spot in the preceding portion of extensive faculae in which Groups 9289 and 9290 are situated. A pair of faint markings follows on January 24 and 25.								
18.506 G	2	35	6	106	1.0	357.4	-9.7	-81.2
19.310 C	7	38	10	55	1.5	357.8	-9.7	-70.2
20.499 G	18	84	15	72	1.4	357.4	-9.8	-54.6
21.324 C	15	76	10	52	1.1	357.0	-9.9	-44.0

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.		
Group 9288—continued.								
1921. d					°	°	°	°
22.329 C	16	44	9	26	0.8	356.5	-10.2	-31.1
23.318 C	15	63	8	33	0.5	356.0	-11.1	-18.4
24.348 C	6	31	3	16	0.5	355.8	-10.5	-4.8
Means ..	..	..	9	51	0.97	356.84	-10.13	..
Group 9289—January 20-31. A small but long-lived spot f Group 9288. A small companion follows on January 20.								
19.310 C	6	34	12	70	355.0	351.7	-11.9	-76.7
20.499 G	16	36	16	36	355.1	351.6	-11.8	-60.9
21.324 C	6	17	5	13	355.5	351.9	-11.6	-49.6
22.329 C	12	22	7	14	355.5	351.7	-11.9	-36.4
23.318 C	13	18	7	10	355.5	351.6	-11.8	-23.4
24.348 C	14	19	7	10	356.0	351.9	-11.9	-9.3
25.170 D	31	58	16	29	355.5	351.2	-11.8	+1.0
26.391 C	13	75	7	40	356.1	351.6	-11.9	+17.7
27.331 C	20	50	12	29	356.7	352.1	-11.9	+30.7
28.316 C	16	34	11	23	356.9	352.1	-11.9	+43.8
29.340 C	3	12	3	11	357.1	352.1	-12.0	+57.5
30.321 C	1	8	1	11	356.6	351.5	-11.6	+69.9
Means ..	..	..	9	25	355.96	351.75	-11.83	..
Group 9290—January 20-26. A small spot, with two or three companions on January 20, 21, and 22, f Group 9289.								
19.310 C	4	33	12	100	350.4	347.5	-13.2	-81.3
20.499 G	9	47	11	58	349.6	346.5	-12.7	-66.4
21.324 C	9	30	8	26	349.7	346.5	-12.9	-55.4
22.329 C	7	16	5	11	349.7	346.3	-12.7	-42.2
23.318 C	7	12	4	7	349.9	346.4	-12.7	-29.0
24.348 C	4	8	2	4	349.9	346.2	-13.2	-15.4
25.170 D	5	9	3	5	349.8	346.0	-13.3	-4.7
Means ..	..	..	6	30	349.86	346.49	-12.96	..

LEDGER I.—RECURRENT GROUPS OF SUN SPOTS for the YEAR 1921—*continued*.

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.		
RECURRENT SERIES 933.								
Group 9283 seen in Rotation 900.								
" 9297 " " 901.								
Group 9283—January 8–20. An active stream which contains three well-defined components, <i>a</i> , <i>b</i> , and <i>c</i> by January 11. <i>a</i> and <i>b</i> are leaders of the group. By January 13, the follower, <i>c</i> , has divided into two parts, and small companion spots have increased which give a complete appearance to the stream as it passes the central meridian. The train then dies away rather rapidly, leaving the original leader by itself on January 19.								
1921. d								
7:304 C	1	21	(5	112	144.6	143.2	— 8.4*	— 85.1
8:329 C	51	394	94	781	140.4	138.8	— 9.7	— 75.8
9:347 C	104	657	113	719	140.0	138.2	— 9.9	— 62.8
10:442 G	155	931	118	703	140.4	138.4	— 9.6	— 48.0
11:341 C	186	911	116	565	140.6	138.4	— 9.7	— 36.0
12:342 C	162	971	87	528	140.8	138.4	— 9.6	— 22.6
13:442 G	258	1096	130	553	140.6	138.0	— 9.6	— 8.3
14:509 G	169	732	86	370	141.2	138.4	— 9.8	+ 6.3
15:474 G	114	574	60	305	141.3	138.3	— 9.9	+ 19.2
16:341 C	82	389	48	229	142.5	139.4	— 10.8	+ 31.8
17:466 C	39	244	28	178	142.5	139.1	— 11.2	+ 46.6
18:506 G	21	129	22	134	143.9	140.3	— 11.6	+ 61.7
19:310 C	19	100	30	158	143.8	140.1	— 11.6	+ 72.1
Means ..	..	..	78	435	141.50	138.82	— 10.25	..
Spot <i>a</i> .								
7:304 C	1	21	5	112	144.6	143.2	— 8.4	— 85.1
8:329 C	28	158	41	234	145.6	144.0	— 9.2	— 70.6
9:347 C	39	227	36	211	145.1	143.3	— 9.3	— 57.7
10:442 G	49	285	34	197	144.8	142.8	— 9.4	— 43.6
11:341 C	57	294	34	173	144.8	142.6	— 9.7	— 31.8
12:342 C	46	335	24	178	144.5	142.1	— 9.7	— 18.9
13:442 G	82	354	41	177	144.6	142.0	— 10.5	— 4.3
14:509 G	64	266	33	136	144.4	141.6	— 10.5	+ 9.5
15:474 G	60	249	32	134	144.4	141.4	— 10.8	+ 22.3
16:341 C	42	207	25	124	144.3	141.2	— 11.0	+ 33.6
17:466 C	27	165	20	124	144.0	140.6	— 11.2	+ 48.1
18:506 G	21	129	22	134	143.9	140.3	— 11.6	+ 61.7
19:310 C	19	100	30	158	143.8	140.1	— 11.6	+ 72.1
Spot <i>b</i> .								
8:329 C	6	58	11	109	141.2	139.4	— 7.8	— 75.0
9:347 C	13	98	13	100	141.8	139.8	— 8.0	— 61.0
10:442 G	21	167	15	120	142.6	140.3	— 7.7	— 45.8
11:341 C	41	177	25	106	143.0	140.5	— 7.5	— 33.6
12:342 C	30	114	16	60	143.2	140.5	— 7.5	— 20.2
13:442 G	29	89	14	44	143.2	140.3	— 8.3	— 5.7
14:509 G	14	35	7	18	143.2	140.0	— 8.3	+ 8.3

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.		
Group 9283—continued.								
Spot <i>c</i> .								
1921. d								
8:329 C	17	178	42	438	137.4	135.8	— 10.4	— 78.8
9:347 C	52	332	64	408	136.4	134.6	— 10.6	— 66.4
10:442 G	70	410	57	332	136.4	134.4	— 10.6	— 52.0
11:341 C	85	424	55	276	136.7	134.5	— 10.5	— 39.9
12:342 C	66	368	37	206	136.6	134.2	— 10.2	— 26.8
13:442 G	88	373	45	190	136.6	134.0	— 9.5	— 12.3
14:509 G	61	234	30	117	136.8	134.0	— 8.8	+ 1.9
15:474 G	27	157	14	82	136.2	133.2	— 9.2	+ 14.1
16:341 C	23	79	13	44	136.9	133.7	— 9.5	+ 26.2
17:466 C	8	37	5	24	136.1	132.7	— 9.8	+ 40.2
Group 9297—February 5–15. A small stream led by a regular spot. Excepting this spot, the components are very small and faint, and have died out completely by February 14.								
35:459 G	5	21	8	35	145.6	138.8	— 11.3	— 73.4
36:356 C	7	38	7	41	144.2	137.2	— 11.0	— 63.0
37:401 C	3	11	2	8	146.2	139.0	— 11.6	— 47.3
38:443 C	4	14	2	8	146.3	138.9	— 11.8	— 33.4
39:321 C	29	194	16	107	143.9	136.4	— 8.9	— 24.3
40:473 G	23	210	12	105	144.7	136.9	— 9.3	— 8.3
41:313 C	31	208	16	104	144.9	137.0	— 9.7	+ 3.0
42:325 C	36	190	19	100	144.6	136.5	— 9.5	+ 16.0
43:344 C	20	53	12	30	144.5	136.2	— 9.7	+ 29.3
44:304 C	16	36	11	25	146.1	137.6	— 9.9	+ 43.5
45:326 C	4	16	4	14	145.9	137.2	— 10.1	+ 56.8
Means ..	..	..	10	52	145.17	137.43	— 10.25	..
RECURRENT SERIES 934.								
Group 9284 seen in Rotation 900.								
" 9294 " " 901.								
" 9306 " " 902								
Group 9284—January 10–16. A large stream of normal type developing rapidly from three very small spots seen on January 10. <i>a</i> is the leading component of the stream.								
9:347 C	9	37	5	19	206.2	205.0	— 13.9	+ 3.4
10:442 G	155	615	83	329	207.3	206.0	— 13.5	+ 18.9
11:341 C	221	1049	133	632	209.3	207.8	— 13.8	+ 32.7
12:342 C	161	935	118	671	208.6	207.0	— 14.5	+ 45.2
13:442 G	160	845	164	874	209.9	208.2	— 15.0	+ 61.0
14:509 G	61	384	114	698	209.6	207.7	— 14.8	+ 74.7
15:474 G	1	28	(3	111	205.3	203.3	— 16.5)*	+ 83.2
Means ..	..	..	103	537	208.48	206.95	— 14.25	..

LEDGER I.—RECURRENT GROUPS of SUN SPOTS for the YEAR 1921—*continued*.

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.		
RECURRENT SERIES 934. Group 9284—continued.								
Spot a.								
1921. d								
10.442 G	71	281	38	152	209.9	208.6	-14.2	+21.5
11.341 C	123	601	76	373	211.7	210.3	-14.2	+35.1
12.342 C	123	498	93	378	211.9	210.4	-15.0	+48.5
13.442 G	98	567	108	624	211.9	210.3	-15.2	+63.0
14.509 G	38	211	82	458	212.3	210.5	-15.0	+77.4
Group 9294—January 30–February 12. A stable regular spot, a of Group 9284, slightly diminishing with one or two very small companions until February 6.								
29.340 C	14	45	53	172	215.6	212.3	-14.7	-84.0
30.321 C	16	142	25	223	214.4	211.0	-14.5	-72.3
31.470 G	41	235	38	216	213.9	210.4	-15.0	-57.6
32.529 G	39	264	27	185	213.5	209.9	-14.9	-44.1
33.494 G	56	282	33	166	213.1	209.3	-15.0	-31.8
34.475 G	64	324	34	172	213.0	209.1	-15.3	-19.0
35.459 G	66	339	35	174	212.9	208.9	-15.3	-6.1
36.356 C	63	358	32	183	213.2	209.1	-15.4	+6.0
37.401 C	50	266	27	144	213.3	209.1	-15.5	+19.8
38.443 C	51	259	31	155	213.3	209.0	-15.6	+33.6
39.321 C	24	162	17	115	213.3	208.9	-15.3	+45.1
40.473 G	26	162	26	160	213.4	208.9	-15.6	+60.4
41.313 C	18	102	27	151	213.3	208.7	-15.5	+71.4
42.325 C	10	52	41	212	213.0	208.3	-15.4	+84.4
Means ..	..	..	32	173	213.51	209.49	-15.21	..
Group 9306—February 27–March 1. A small regular spot, a of Group 9284, fast disappearing. A companion closely follows on February 28.								
57.349 C	6	22	13	46	213.1	206.7	-15.0	-77.6
58.393 C	6	44	7	48	213.1	206.6	-15.3	-63.9
59.452 G	3	10	2	8	213.9	207.3	-15.5	-49.1
Means ..	..	..	7	34	213.37	206.87	-15.27	..
RECURRENT SERIES 935.								
Group 9301 seen in Rotation 901.								
" 9305 " " 902.								
Group 9301—February 11–12. A single spot seen each day, not identical with each other but in the same small disturbed area.								
41.313 C	3	14	5	23	211.8	204.7	+11.8	+69.9
42.325 C	4	15	13	49	208.2	200.9	+11.5	+79.6
Means ..	..	..	9	36	210.00	202.80	+11.65	..
Group 9305—February 27–March 4. Probable return of Group 9301, but possibly a revival only. A small regular spot dying out with one or two companions preceding it.								
1921. d								
57.349 C	10	65	20	129	217.3	207.8	+11.9	-73.4
58.393 C	19	98	20	106	217.5	207.9	+11.6	-59.5
59.452 G	21	95	16	71	218.3	208.5	+11.3	-44.7
60.412 C	18	92	11	58	218.0	208.0	+11.6	-32.4
61.327 C	6	27	3	15	216.9	206.8	+11.9	-21.4
62.330 C	4	15	2	8	216.7	206.4	+14.5	-8.4
Means ..	..	..	12	65	217.45	207.57	+12.13	..
RECURRENT SERIES 936.								
Group 9303 seen in Rotation 901.								
" 9310 " " 902.								
Group 9303—February 12–24. At first a small spot with a distant companion on February 16 and 17. On February 18 a large stream is quickly developing. The spots composing it are in continual change, though the leader, a, becomes apparently stable by February 22.								
42.325 C	0	7	0	27	45.2	35.8	-8.3	-83.4
43.344 C	3	6	4	8	45.9	36.2	-8.5	-69.3
44.304 C	5	11	4	10	46.6	36.7	-8.5	-56.0
45.326 C	6	11	4	7	47.1	37.0	-8.5	-42.0
46.500 C	8	18	4	10	46.1	35.7	-8.4	-27.5
47.323 C	11	29	6	15	44.8	34.3	-7.2	-18.0
48.172 D	86	320	44	162	44.2	33.5	-7.0	-7.4
49.638 C	151	978	78	507	47.0	35.9	-6.5	+14.7
50.465 G	284	1550	158	864	47.8	36.5	-6.9	+26.4
51.468 G	205	1153	135	755	48.0	36.5	-6.6	+39.8
52.442 G	150	852	126	723	49.1	37.4	-6.8	+53.7
53.321 C	80	479	102	602	50.8	38.9	-6.7	+67.0
54.446 G	40	188	129	658	51.6	39.5	-7.2	+82.6
Means ..	..	..	61	334	47.25	36.45	-7.47	..
Spot a.								
51.468 G	87	501	61	351	52.8	40.9	-6.6	+44.6
52.442 G	58	359	55	341	53.9	41.8	-6.4	+58.5
53.321 C	36	215	54	325	55.1	42.8	-6.5	+71.3
54.446 G	9	49	66	361	56.0	43.4	-6.8	+87.0
Group 9310—March 10–18. A small regular spot, evidently a of Group 9303, followed by extensive faculae. One or two small companions appear after March 12.								
68.463 G	0	6	0	26	60.0	44.9	-7.6	-84.3
69.313 C	9	38	15	65	59.3	44.0	-7.7	-73.8
70.309 C	11	71	11	70	59.9	44.4	-8.2	-60.1
71.616 G	13	56	9	38	59.7	43.9	-8.0	-43.1

LEDGER I.—RECURRENT GROUPS of SUN SPOTS for the YEAR 1921—continued.

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.		
RECURRENT SERIES 936. Group 9310—continued.								
1921. d					°	°	°	°
72.513 G	14	30	8	18	60.0	44.0	- 7.8	-30.9
73.413 G	10	69	6	36	59.8	43.6	- 7.7	-19.3
74.315 C	9	53	5	27	60.5	44.1	- 7.5	- 6.7
75.412 G	19	43	9	22	59.0	42.3	- 6.7	+ 6.3
76.380 G	2	9	1	5	60.9	44.0	- 7.7	+20.9
Means ..	..	..	7	34	59.90	43.91	- 7.66	..
RECURRENT SERIES 937.								
Group 9313 seen in Rotation 902.								
" 9323 " " 903.								
Group 9313—March 17-20. A small stream appearing near the west limb but apparently of brief activity.								
75.412 G	6	11	4	7	89.4	85.8	+17.7	+36.7
76.380 G	35	125	30	107	88.7	85.0	+18.0	+48.7
77.476 G	14	121	20	168	90.2	86.5	+18.9	+64.7
78.334 C	6	35	15	99	90.2	86.4	+18.8	+76.0
Means ..	..	..	17	95	89.62	85.92	+18.35	..
Group 9323—April 5-16. Probably a return, but possibly a revival only of Group 9313. A regular spot seen at the east limb, preceded by a companion. The former becomes composite and breaks up within a few days into a cluster. The companion grows but shows the same instability. By April 14, three small spots represent the extent of the disturbance, and of these the preceding one alone remains by the following day.								
94.430 G	5	48	13	121	85.8	79.1	+16.5	-76.1
95.334 C	40	308	50	393	87.1	80.3	+17.0	-62.9
96.381 G	56	470	48	398	87.8	81.0	+17.1	-48.4
97.368 C	71	404	48	278	87.2	80.3	+17.2	-35.9
98.400 G	74	280	44	167	86.5	79.5	+17.0	-23.0
99.410 G	54	183	31	101	86.4	79.3	+17.1	- 9.8
100.314 C	38	233	21	126	85.8	78.7	+17.3	+ 1.6
101.410 G	41	187	23	108	88.8	81.6	+16.8	+19.0
102.337 G	42	139	28	90	89.8	82.5	+17.2	+32.3
103.348 C	15	61	13	50	91.2	83.9	+17.4	+47.2
104.337 G	6	21	8	26	94.3	86.9	+18.0	+63.2
105.339 G	8	27	21	72	94.5	87.0	+18.6	+76.6
Means ..	..	..	29	161	88.77	81.68	+17.27	..

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.		
RECURRENT SERIES 938.								
Group 9315 seen in Rotation 903.								
" 9329 " " 904.								
Group 9315—March 21-April 2. A long stream, about 15° in length, of normal type but in which the train is of minor importance and only visible after March 27 as a faint cluster. The leader of the stream is a large well-defined regular spot, a.								
1921. d					°	°	°	°
79.486 G	23	171	(61	455	281.3	265.2	+ 9.6)*	-77.7
80.621 G	95	490	122	643	278.3	262.0	+ 8.9	-65.8
81.421 G	149	781	141	740	277.5	261.1	+ 8.8	-56.0
82.406 G	182	901	125	621	280.0	263.4	+ 8.9	-40.5
83.338 C	176	961	104	563	282.1	265.3	+ 9.1	-26.1
84.318 C	210	988	112	528	281.8	264.8	+ 9.6	-13.5
85.469 G	231	1051	121	547	282.0	264.7	+ 9.4	+ 1.9
86.356 C	192	943	104	508	281.1	263.7	+ 9.7	+12.7
87.400 G	182	872	108	511	281.0	263.3	+ 9.6	+26.3
88.397 G	137	636	95	437	281.6	263.7	+ 9.7	+40.1
89.503 G	107	497	98	457	281.9	263.8	+ 9.8	+55.0
90.382 G	51	303	69	409	281.8	263.5	+ 9.8	+66.5
91.462 G	12	105	46	401	282.4	263.9	+ 9.7	+81.3
Means ..	..	..	104	530	280.96	263.60	+ 9.42	..
Spot a.								
79.486 G	23	171	61	455	281.3	265.2	+ 9.6	-77.7
80.621 G	73	371	82	416	282.5	266.2	+ 9.0	-61.6
81.421 G	106	561	88	466	282.6	266.2	+ 8.9	-50.9
82.406 G	146	735	96	485	282.6	266.0	+ 9.0	-37.9
83.338 C	157	890	91	516	282.9	266.1	+ 9.1	-25.3
84.318 C	178	846	94	448	282.8	265.8	+ 9.3	-12.5
85.469 G	226	1002	118	521	282.4	265.1	+ 9.4	+ 2.3
86.356 C	183	867	99	468	282.2	264.8	+ 9.7	+13.8
87.400 G	176	745	104	440	281.9	264.2	+ 9.6	+27.2
88.397 G	136	618	94	426	281.8	263.9	+ 9.7	+40.3
89.503 G	107	497	98	457	281.9	263.8	+ 9.8	+55.0
90.382 G	51	303	69	409	281.8	263.5	+ 9.8	+66.5
91.462 G	12	105	46	401	282.4	263.9	+ 9.7	+81.3
Group 9329—April 17-29. A well-formed regular spot, a of Group 9315, with occasional very small companions following it.								
106.374 C	19	98	58	297	284.9	263.3	+ 9.9	-79.3
107.347 G	35	180	46	238	285.1	263.3	+ 9.6	-66.3
108.344 G	57	257	50	224	285.1	263.1	+ 9.3	-53.1
109.337 G	72	310	49	211	285.3	263.1	+ 9.2	-39.8
110.343 G	83	345	48	200	285.2	262.8	+ 8.8	-26.6
111.403 C	77	400	41	212	285.1	262.5	+ 9.2	-11.9
112.637 G	77	391	40	203	285.3	262.5	+ 9.2	+ 3.8
113.370 C	88	388	47	206	285.3	262.3	+ 9.3	+13.5

LEDGER I.—RECURRENT GROUPS OF SUN SPOTS for the YEAR 1921—*continued.*

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.		
RECURRENT SERIES 938. Group 9329—continued.								
1921. d					°	°	°	°
114.561 G	63	296	37	174	285.3	262.1	+ 9.4	+29.2
115.634 G	46	245	33	173	285.4	262.0	+ 9.4	+43.5
116.577 G	34	176	32	163	285.4	261.8	+ 9.4	+56.0
117.337 G	19	109	25	141	285.4	261.6	+ 9.1	+66.0
118.351 G	10	70	28	197	285.0	260.9	+ 9.0	+79.0
Means ..	..	..	41	203	285.22	262.41	+ 9.29	..
RECURRENT SERIES 939.								
Group 9319 seen in Rotation 903.								
" 9328 " " 904.								
Group 9319—March 30—April 1. A small spot.								
88.397 G	8	28	7	24	296.5	288.4	—16.5	+55.0
89.503 G	3	11	4	15	296.0	287.8	—16.3	+69.1
90.382 G	2	8	5	21	295.8	287.5	—15.9	+80.5
Means ..	..	..	5	20	296.13	287.90	—16.23	..
Group 9328—April 16—28. A stream of few spots with a prominent regular spot, <i>a</i> , as leader. A revival of activity in the following part of the group takes place after April 24.								
105.339 G	14	62	28	129	300.8	289.8	—16.1	—77.1
106.374 C	28	96	30	105	301.2	290.1	—15.6	—63.0
107.347 G	45	194	36	149	302.3	291.1	—15.6	—49.1
108.344 G	72	402	46	253	301.4	290.1	—15.8	—36.8
109.337 G	78	349	44	193	302.3	290.9	—15.9	—22.8
110.343 G	56	318	30	166	302.2	290.7	—16.1	— 9.6
111.463 C	52	320	26	163	301.7	290.1	—15.9	+ 4.7
112.637 G	57	281	31	150	300.6	288.9	—15.9	+19.1
113.370 C	58	245	34	143	301.0	289.2	—15.9	+29.2
114.561 G	46	190	33	134	300.4	288.5	—15.5	+44.3
115.634 G	56	173	51	160	298.9	286.9	—14.8	+57.0
116.577 G	13	107	18	151	299.2	287.1	—15.0	+69.8
117.337 G	6	25	16	68	299.6	287.4	—15.3	+80.2
Means ..	..	..	33	151	300.89	289.29	—15.65	..
Spot <i>a</i> .								
105.339 G	14	56	28	111	301.5	291.1	—16.2	—76.4
106.374 C	24	78	25	82	302.3	291.8	—15.6	—61.9
107.347 G	34	172	26	131	302.9	292.3	—15.6	—48.5
108.344 G	53	303	33	188	302.4	291.7	—15.9	—35.8
109.337 G	61	289	34	159	302.7	291.9	—15.9	—22.4
110.343 G	53	276	28	144	302.6	291.7	—16.0	— 9.2
111.463 C	42	287	21	146	302.4	291.4	—16.0	+ 5.4
112.637 G	46	219	25	118	302.0	290.8	—16.2	+20.5
113.370 C	39	191	23	113	302.3	291.1	—16.2	+30.5
114.561 G	23	89	17	65	302.5	291.2	—15.6	+46.4

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.		
RECURRENT SERIES 940.								
Group 9333 seen in Rotation 904.								
" 9339 " " 905.								
Group 9333—May 2–4. A regular spot preceded by two companions developing near the west limb.								
1921. d					°	°	°	°
121.341 G	26	122	27	125	225.7	203.3	+10.3	+59.2
122.375 G	31	162	53	284	224.5	201.9	+10.7	+71.7
123.348 C	6	47	37	287	224.3	201.4	+11.1	+84.4
Means ..	..	..	39	232	224.83	202.20	+10.70	..
Group 9339—May 18–28. A small regular spot gradually dying out. A few very small followers appear occasionally in the faculae which follows.								
137.349 G	0	35	0	154	231.8	206.9	+10.8	—83.0
138.343 G	18	73	27	112	231.7	206.7	+10.8	—70.0
139.418 G	29	104	26	94	232.5	207.3	+10.8	—54.9
140.344 G	25	117	18	82	232.5	207.1	+10.9	—42.7
141.359 G	36	119	21	70	232.5	206.9	+11.1	—29.3
142.375 G	36	180	20	96	231.4	205.6	+11.6	—16.9
143.392 G	29	133	15	68	232.9	206.9	+11.0	— 1.9
144.347 C	18	34	9	18	232.8	206.7	+11.3	+10.6
145.361 G	8	39	4	22	232.4	206.1	+11.1	+23.6
146.441 G	6	20	4	13	232.4	205.9	+11.2	+37.9
147.347 G	1	12	1	9	229.1	202.4	+11.0	+46.6
Means ..	..	..	13	67	232.00	206.23	+11.05	..
RECURRENT SERIES 941.								
Group 9334 seen in Rotation 904.								
" 9345 " " 905.								
" 9360 " " 906.								
Group 9334—May 8–21. At first an extremely large and composite spot $11\frac{1}{2}$ in length with several umbrae. By May 12, it is dividing into two large components with a small cluster of unstable spots. The leading component, <i>a</i> , is duplex and apparently tends to break into two portions, the follower, <i>b</i> , is more stable and tends to the regular type. A comparison of the group when near the east and west limbs of the Sun, shows the surrounding faculae to be increasing considerably both in extent, north and southwards, and in brightness. This is the largest group as yet photographed at Greenwich on the solar equator.								
127.433 G	9	103	(43)	493	1.9	328.9	+ 0.4*	—84.0
128.611 G	141	1115	200	1558	1.4	328.2	+ 0.1	—69.0
129.348 G	218	1747	211	1695	1.8	328.2	— 0.2	—58.8
130.344 G	379	2407	269	1709	2.0	328.2	— 0.2	—45.5
131.362 C	477	2364	280	1391	2.8	328.8	+ 0.2	—31.2
132.375 G	540	2584	287	1367	3.4	329.1	+ 0.3	—17.2
133.435 G	544	2768	272	1384	3.4	328.9	+ 0.3	— 3.2
134.424 C	406	2284	204	1155	3.2	328.4	+ 0.8	+ 9.7

LEDGER I.—RECURRENT GROUPS of SUN SPOTS for the YEAR 1921—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 941. Group 9334—continued.								
1921. d					°	°	°	°
135°332 G	500	2188	266	1177	3°9	328°8	+ 1°0	+22°4
136°341 G	367	1896	223	1169	3°8	328°5	+ 0°9	+35°7
137°349 G	296	1327	221	1021	3°9	328°3	+ 1°0	+49°1
138°343 G	196	918	206	1003	4°2	328°3	+ 1°2	+62°5
139°418 G	98	534	201	1261	5°1	329°0	+ 0°8	+77°7
140°344 G	18	81	(86)	388	359°2	322°8	+ 0°9)*	+84°0
Means ..	..	..	237	1324	3°24	328°56	+ 0°52	..
Spot a.								
131°362 C	239	1027	136	585	6°2	332°3	+ 0°9	-27°8
132°375 G	278	1224	145	636	6°4	332°3	+ 0°8	-14°2
133°435 G	263	1508	131	754	6°7	332°3	+ 0°9	+ 0°1
134°424 C	197	1321	100	674	6°8	332°1	+ 1°3	+13°3
135°332 G	213	1285	117	707	6°7	331°7	+ 1°5	+25°2
136°341 G	149	988	97	642	7°4	332°2	+ 1°2	+39°3
137°349 G	100	657	84	552	8°2	332°8	+ 1°3	+53°4
138°343 G	73	453	92	571	8°1	332°3	+ 1°5	+66°4
139°418 G	27	245	89	804	8°6	332°7	+ 0°9	+81°2
Spot b.								
131°362 C	190	862	116	526	359°2	325°2	- 0°7	-34°8
132°375 G	240	1071	130	578	359°3	325°0	- 0°7	-21°3
133°435 G	265	1142	133	571	359°0	324°5	- 0°7	- 7°6
134°424 C	209	963	104	481	358°8	324°0	0°0	+ 5°3
135°332 G	287	903	149	470	358°9	323°8	- 0°1	+17°4
136°341 G	218	908	126	527	358°8	323°5	+ 0°2	+30°7
137°349 G	196	670	137	469	358°9	323°3	+ 0°7	+44°1
138°343 G	123	465	114	432	359°0	323°1	+ 0°7	+57°3
139°418 G	71	289	112	457	358°9	322°8	+ 0°7	+71°5
140°344 G	18	81	86	388	359°2	322°8	+ 0°9	+84°0
Group 9345—June 4-15. A stable regular spot, a of Group 9334, followed by an extensive area of faculae. Group 9346 develops later just northwards.								
154°395 C	11	76	22	149	14°0	334°2	+ 0°7	-75°3
155°526 C	18	143	18	142	14°8	334°7	+ 0°8	-59°5
156°411 G	35	193	26	143	15°0	334°6	+ 0°4	-47°6
157°415 G	46	218	28	131	15°2	334°6	+ 0°4	-34°1
158°404 G	49	236	26	127	15°2	334°3	+ 0°4	-21°0
159°734 G	53	274	26	137	15°5	334°3	+ 0°7	- 3°1
160°347 G	68	258	34	129	15°4	334°0	+ 0°7	+ 4°9
161°383 G	54	238	29	126	15°6	334°0	+ 0°9	+18°8
162°361 G	59	261	35	154	15°5	333°6	+ 0°8	+31°7
163°341 C	34	198	24	141	15°7	333°6	+ 1°0	+44°9
164°367 C	26	133	25	129	16°3	333°9	+ 1°1	+59°0
165°344 G	18	95	29	152	16°0	333°3	+ 1°2	+71°7
Means ..	..	..	27	138	15°35	334°09	+ 0°76	..
Group 9360—June 30-July 12. A small but stable regular spot, b (a of Group 9334) north preceded by a larger spot, a, of the same type. These might have been taken as two separate disturbances, but within a few days other spots make their appearance and constitute a duplex stream which apparently is an entity.								
1921. d					°	°	°	°
180°585 G	18	95	49	291	21°8	336°7	+ 4°5	-80°8
181°342 G	41	186	62	287	21°2	335°9	+ 4°2	-71°4
182°341 G	55	312	51	289	22°2	336°6	+ 4°2	-57°1
183°358 G	91	419	64	294	21°7	335°9	+ 4°2	-44°2
184°399 C	102	513	60	300	21°0	334°9	+ 3°9	-31°1
185°411 G	138	685	72	360	20°7	334°3	+ 3°3	-18°0
186°355 G	133	635	65	317	20°7	334°1	+ 3°1	- 5°5
187°109 K	107	633	53	316	21°2	334°4	+ 3°3	+ 5°0
188°429 C	122	519	66	283	21°9	334°8	+ 3°4	+23°1
189°343 G	107	412	66	254	22°0	334°7	+ 3°1	+35°3
190°294 G	54	241	40	182	22°7	335°1	+ 3°4	+48°6
191°394 C	27	112	30	127	23°4	335°6	+ 3°6	+63°9
192°336 G	15	59	32	127	23°5	335°4	+ 3°6	+76°4
Means ..	..	..	55	264	21°85	335°26	+ 3°68	..
Spot a.								
180°585 G	18	72	49	197	22°9	339°4	+ 5°9	-79°7
181°342 G	35	141	51	206	22°5	338°8	+ 5°3	-70°1
182°341 G	37	228	33	205	23°1	339°2	+ 5°3	-56°2
183°358 G	49	260	33	177	23°1	338°9	+ 5°3	-42°8
184°399 C	40	245	23	140	23°1	338°7	+ 5°4	-29°0
185°411 G	44	236	23	123	22°9	338°2	+ 5°0	-15°8
186°355 G	35	209	17	104	22°9	338°0	+ 5°0	- 3°3
187°109 K	28	227	14	113	23°0	337°9	+ 5°2	+ 6°8
188°429 C	33	174	18	96	22°9	337°5	+ 5°3	+24°1
189°343 G	34	148	21	92	22°7	337°1	+ 5°0	+36°0
190°294 G	17	96	13	73	22°9	337°0	+ 5°0	+48°8
191°394 C	12	52	13	58	23°2	337°1	+ 4°8	+63°7
192°336 G	6	24	12	49	23°2	336°8	+ 5°1	+76°1
Spot b.								
180°585 G	0	23	0	94	19°6	333°0	+ 1°6	-83°0
181°342 G	6	45	11	81	18°6	331°8	+ 1°0	-74°0
182°341 G	18	81	18	81	19°4	332°4	+ 1°1	-59°9
183°358 G	16	90	12	66	19°5	332°2	+ 0°9	-46°4
184°399 C	12	79	7	47	19°5	331°9	+ 0°8	-32°6
185°411 G	19	109	10	58	19°6	331°8	+ 0°7	-19°1
186°355 G	24	78	12	39	19°8	331°7	+ 0°7	- 6°4
187°109 K	19	79	9	40	20°2	331°9	+ 0°9	+ 4°0
188°429 C	20	77	11	42	20°6	332°0	+ 1°0	+21°8
189°343 G	25	65	15	39	20°5	331°6	+ 0°7	+33°8
190°294 G	10	34	7	25	20°6	331°5	+ 0°7	+46°5
191°394 C	5	9	5	9	20°9	331°5	+ 0°9	+61°4
192°336 G	2	7	4	12	20°9	331°3	+ 1°3	+73°8

LEDGER I.—RECURRENT GROUPS OF SUN SPOTS for the YEAR 1921—continued.

Date, G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.
	Umbra.	Whole Spots.	Umbra.	Whole Spots.	System I.	System II.		
RECURRENT SERIES 942.								
Group 9343 seen in Rotation 905.								
" 9353 " " 906.								
Group 9343—May 31—June 2. A small group appearing near the west limb.								
1921. d					°	°	°	°
150°359 G	2	5	2	4	193°5	167°9	+11°6	+50°8
151°507 G	6	31	9	42	195°9	170°1	+11°5	+68°4
152°333 C	2	11	5	26	194°1	168°2	+12°2	+77°6
Means ..	..	..	5	24	194°50	168°73	+11°77	..
Group 9353—June 16-28. A regular spot.								
166°548 G	7	27	34	129	204°2	173°7	+10°1	-84°2
167°380 G	12	94	20	158	204°8	174°2	+9°9	-72°6
168°131 K	19	117	21	129	204°7	173°9	+10°0	-62°7
169°395 C	37	244	27	176	205°1	174°1	+10°4	-45°6
170°156 D	43	250	27	155	205°1	174°0	+10°3	-35°5
171°522 G	68	427	36	226	205°3	173°9	+10°8	-17°2
172°370 C	72	420	37	214	205°0	173°5	+11°4	-6°3
173°549 G	92	469	47	239	205°2	173°4	+11°5	+9°5
174°339 G	68	384	37	207	205°2	173°3	+11°6	+19°9
175°336 G	66	306	40	184	205°3	173°2	+11°6	+33°2
176°655 G	35	245	28	196	205°4	173°1	+11°4	+50°8
177°356 C	27	179	28	183	205°9	173°4	+11°5	+60°6
178°358 C	19	89	34	160	206°2	173°6	+11°3	+74°1
Means ..	..	..	32	181	205°18	173°64	+10°91	..
RECURRENT SERIES 943.								
Group 9346 seen in Rotation 905.								
" 9359 " " 906.								
Group 9346—June 5-15. One or two very small ephemeral spots on June 5 and 6 " Group 9345. On June 8, these commence to multiply and increase in size. The group is unstable, however, and shrinks to a small cluster by June 14.								
155°526 C	0	7	0	8	11°7	337°2	+7°6	-62°6
156°411 G	1	9	1	7	12°5	337°8	+7°6	-50°1
157°415 G	0	0	0	0	..	..	..	..
158°404 G	15	84	8	46	12°6	337°4	+7°7	-23°6
159°734 G	43	327	22	167	14°0	338°5	+7°2	-4°6
160°347 G	94	467	47	234	13°0	337°4	+7°2	+2°5
161°383 G	54	310	28	162	13°9	338°1	+7°2	+17°1
162°361 G	40	218	24	128	15°0	339°0	+6°9	+31°2
163°341 C	23	115	16	83	15°7	339°4	+7°6	+44°9
164°367 C	20	147	19	140	15°2	338°7	+7°9	+57°9
165°344 G	8	90	14	159	18°0	341°3	+8°3	+73°7
Means ..	..	..	16	103	14°16	338°48	+7°52	..
Group 9359—June 30—July 4. A small composite spot just disappearing.								
1921. d					°	°	°	°
180°585 G	12	55	35	159	22°6	346°3	+9°3	-80°0
181°342 G	24	96	36	144	22°2	345°8	+9°1	-70°4
182°341 G	12	100	11	92	22°3	345°7	+9°5	-57°0
183°358 G	7	50	5	35	22°7	345°8	+9°9	-43°2
184°399 C	2	7	1	4	23°1	346°0	+9°8	-29°0
Means ..	..	..	18	87	22°58	345°92	+9°52	..
RECURRENT SERIES 944.								
Group 9384 seen in Rotation 908.								
" 9388 " " 909.								
" 9393 " " 910.								
Group 9384—August 23-29. Intermittent. A very small ephemeral spot on August 23. Nothing is then seen until August 26, when a stream of normal type begins to develop with <i>a</i> as the leader.								
234°395 C	1	6	1	3	105°6	63°9	+10°3	-5°3
235°364 C	0	0	0	0	..	..	..	..
236°313 C	0	0	0	0	..	..	..	..
237°378 G	4	25	3	16	108°8	66°5	+11°6	+37°4
238°347 C	67	240	52	187	109°2	66°8	+11°6	+50°6
239°423 C	46	232	57	288	111°5	68°9	+11°4	+67°1
240°354 C	44	162	109	412	112°0	69°2	+11°3	+79°9
Means ..	..	..	32	129	109°42	67°06	+11°24	..
Spot <i>a</i> .								
238°347 C	26	106	21	87	111°6	68°9	+11°1	+53°0
239°423 C	25	123	35	171	114°3	71°4	+11°3	+69°9
240°354 C	23	93	70	282	113°9	70°9	+11°2	+81°8
Group 9388—September 12-25. A very large and stable regular spot, <i>a</i> of Group 9384, usually with a few very small followers.								
254°563 G	0	47	0	346	117°0	67°1	+10°2	-87°5
255°347 C	46	272	96	568	117°0	67°0	+10°2	-77°1
256°326 C	86	446	95	495	117°2	67°0	+9°9	-64°0
257°636 G	164	706	118	508	117°2	66°7	+9°9	-46°7
258°358 G	169	780	107	492	117°2	66°6	+9°9	-37°2
259°367 C	166	880	91	484	117°0	66°2	+9°9	-24°1
260°175 D	239	993	122	507	117°1	66°1	+9°9	-13°3
261°110 K	184	927	92	463	117°1	65°9	+9°9	-0°9
262°358 C	177	830	92	431	117°2	65°8	+9°9	+15°6
263°625 G	164	683	97	403	117°3	65°6	+9°6	+32°4

LEDGER I.—RECURRENT GROUPS OF SUN SPOTS for the YEAR 1921—*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 944. Group 9388—continued.								
1921. d					°	°	°	°
264.341 G	137	596	91	399	117.1	65.3	+ 9.8	+41.7
265.429 G	82	387	73	344	117.3	65.3	+ 9.7	+56.3
266.463 C	42	246	58	339	117.0	64.8	+ 9.6	+69.6
267.373 G	25	131	82	430	117.6	65.2	+ 9.6	+82.2
Means ..	..	..	87	443	117.16	66.04	+ 9.86	..
Group 9393—October 10-19. A small regular spot (<i>a</i> of Group 9384) diminishing to a dot before dying out completely. A minute cluster of spots appears near its position on October 16.								
282.439 G	5	33	12	81	117.4	73.9	+11.3	-79.2
283.412 G	14	48	17	59	117.2	73.6	+11.4	-66.6
284.334 C	13	33	11	28	116.9	73.1	+11.6	-54.7
285.395 G	15	54	10	36	116.8	72.9	+11.6	-40.8
286.470 G	19	44	10	24	116.4	72.3	+12.5	-27.0
287.384 G	4	10	2	5	116.7	72.4	+11.8	-14.7
288.440 G	2	40	1	20	114.8	70.4	+14.2	-2.6
289.383 G	0	34	0	17	114.9	70.3	+14.4	+ 9.9
290.382 G	2	49	1	27	114.9	70.2	+15.0	+23.1
291.543 G	3	8	2	5	115.5	70.6	+14.4	+39.0
Means ..	..	..	7	30	116.15	71.97	+12.82	..
RECURRENT SERIES 945.								
Group 9391 seen in Rotation 909.								
.. 9395 910.								
Group 9391—September 24-30. A stream of spots composed, when fully formed on September 28, of two regular spots, <i>a</i> and <i>b</i> , followed by one composite spot.								
266.463 C	9	33	5	17	52.9	355.9	+ 8.8	+ 5.5
267.373 G	45	136	24	71	54.1	356.8	+ 8.8	+18.7
268.346 G	75	280	44	167	55.5	358.1	+ 8.5	+33.0
269.334 C	78	386	56	280	55.9	358.3	+ 8.0	+46.4
270.364 G	77	434	74	418	55.0	357.1	+ 8.2	+59.1
271.362 G	58	355	91	560	54.9	356.8	+ 8.0	+72.1
272.349 G	5	55	(15)	161	50.7	352.4	+ 8.2)*	+81.0
Means ..	..	..	49	252	54.72	357.17	+ 8.38	..
Spot <i>a</i> .								
268.346 G	45	181	27	110	57.4	358.6	+ 8.3	+34.9
269.334 C	25	200	19	152	58.5	359.5	+ 7.7	+49.0
270.364 G	18	114	19	123	58.9	359.7	+ 7.7	+63.0
271.362 G	8	48	16	98	59.4	360.0	+ 7.7	+76.6

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 9391—continued.								
Spot <i>b</i> .								
1921. d					°	°	°	°
269.334 C	43	146	30	102	54.4	356.5	+ 8.2	+44.9
270.364 G	41	236	39	222	54.3	356.2	+ 8.3	+58.4
271.362 G	25	165	41	271	55.8	357.5	+ 8.3	+73.0
Group 9395—October 14-25. A regular spot diminishing rapidly after October 22.								
286.470 G	12	58	46	222	60.2	354.9	+ 7.4	-83.2
287.384 G	22	120	32	176	60.8	355.3	+ 7.3	-70.6
288.440 G	34	173	31	157	60.5	354.7	+ 7.2	-56.9
289.383 G	40	205	28	141	60.9	354.9	+ 7.4	-44.1
290.382 G	54	254	31	147	60.9	354.7	+ 7.5	-30.9
291.543 G	41	226	21	118	60.9	354.5	+ 7.2	-15.6
292.397 C	40	201	20	100	60.9	354.2	+ 7.1	-4.3
293.400 C	36	167	18	85	60.8	353.9	+ 6.9	+ 8.8
294.392 G	34	144	18	78	61.0	353.9	+ 6.6	+22.1
295.429 G	17	66	10	40	61.0	353.6	+ 6.3	+35.7
296.384 G	8	23	6	17	61.1	353.5	+ 6.4	+48.4
297.385 G	5	12	5	12	61.2	353.4	+ 6.3	+61.7
Means ..	..	..	22	108	60.85	354.29	+ 6.97	..
RECURRENT SERIES 946.								
Group 9396 seen in Rotation 910.								
.. 9399 911.								
.. 9404 912.								
Group 9396—October 20-28. One very small ephemeral spot on October 20 appearing in a small area of faculae previously seen at the east limb. On October 23 a small cluster makes its appearance which evolves within two days into a stream differing in details from one of the normal type but of the same general development. <i>a</i> is the leading spot of composite formation.								
292.397 C	2	9	1	5	32.1	328.6	+ 9.1	-33.1
293.400 C	0	0	0	0	..	..	..	..
294.392 G	0	0	0	0	..	..	..	..
295.429 G	13	65	7	33	35.8	331.7	+ 7.8	+10.5
296.384 G	137	510	74	278	36.3	332.0	+ 8.0	+23.6
297.385 G	185	756	116	477	36.9	332.4	+ 7.8	+37.4
298.304 C	158	957	125	746	37.3	332.6	+ 7.8	+50.0
299.324 C	104	671	127	799	39.1	334.1	+ 7.9	+65.2
300.363 C	79	390	184	991	39.3	334.1	+ 8.1	+79.1
Means ..	..	..	70	370	36.69	332.21	+ 8.07	..

LEDGER I.—RECURRENT GROUPS of SUN SPOTS for the YEAR 1921—*continued.*

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.		
RECURRENT SERIES 946. Group 9396—continued.								
Spot a.								
1921. d					°	°	°	°
297.385 G	61	325	40	214	40.4	335.3	+ 7.7	+40.9
298.304 C	95	480	79	398	40.6	335.3	+ 7.7	+53.3
299.324 C	72	413	96	549	42.2	336.6	+ 8.0	+68.3
300.363 C	32	203	110	696	42.3	336.5	+ 8.0	+82.1
Group 9399—November 12–24. A large regular spot, <i>a</i> of Group 9396, usually accompanied by a few very small companions.								
315.326 C	29	194	68	456	45.0	335.3	+ 7.2	–77.9
316.424 G	96	445	108	505	44.5	334.6	+ 7.2	–63.9
317.325 C	111	627	91	514	44.1	334.0	+ 7.4	–52.4
318.097 K	166	774	113	527	43.9	333.5	+ 7.2	–42.5
319.329 C	160	955	90	535	43.9	333.3	+ 7.4	–26.2
320.390 C	184	933	94	476	43.7	332.9	+ 7.4	–12.4
321.317 C	174	960	87	480	43.5	332.5	+ 7.4	– 0.4
322.324 C	136	907	69	463	43.3	332.0	+ 7.7	+12.7
323.382 C	171	861	96	482	42.9	331.4	+ 7.9	+26.2
324.339 C	99	637	64	414	43.0	331.3	+ 8.1	+38.9
325.345 C	65	398	53	326	43.0	331.1	+ 8.3	+52.2
326.324 C	54	331	61	385	42.2	330.1	+ 8.3	+64.3
327.475 G	22	132	67	382	42.3	329.9	+ 8.2	+79.5
Means ..	..	..	82	457	43.48	332.45	+ 7.67	..
Group 9404—December 9–21. An active group. Two small regular spots, <i>a</i> and <i>b</i> , separated by $4\frac{1}{2}^{\circ}$ in latitude, but in the same area of faculae. Within a few days a composite spot begins to develop, and by December 15 the group is a large condensed cluster of irregular spots. The group is very unstable and is fast disappearing as it approaches the west limb.								
342.584 C	18	88	51	248	44.0	330.0	+ 7.7	–79.7
343.334 C	32	152	47	218	44.4	330.2	+ 7.7	–69.4
344.398 C	61	377	54	327	45.5	331.1	+ 7.7	–54.3
345.368 C	89	493	60	332	45.5	330.9	+ 7.8	–41.5
346.314 C	153	891	89	512	45.9	331.1	+ 7.7	–28.6
347.325 C	175	1116	91	585	45.4	330.4	+ 8.1	–15.8
348.414 C	178	1425	91	725	45.6	330.3	+ 8.1	– 1.2
349.411 C	171	1335	89	693	45.9	330.4	+ 8.0	+12.2
350.488 G	185	1143	106	651	46.0	330.3	+ 8.0	+26.5
351.470 G	190	1120	124	735	45.8	329.9	+ 8.0	+39.2
352.330 C	123	655	96	516	45.1	329.0	+ 8.8	+49.8
353.461 G	26	216	33	269	45.6	329.3	+ 8.3	+65.3
354.338 C	7	70	18	175	47.0	330.5	+ 9.7	+78.2
Means ..	..	..	73	460	45.52	330.26	+ 8.12	..
Spot a.								
342.584 C	11	46	31	130	44.2	338.8	+ 9.9	–79.5
343.334 C	12	63	18	92	44.3	338.7	+10.2	–69.5
344.398 C	24	130	22	117	44.4	338.6	+10.2	–55.4

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.		
Group 9404—Spot <i>a</i> —continued.								
1921. d					°	°	°	°
345.368 C	32	146	22	101	44.4	338.4	+10.2	–42.6
346.314 C	30	143	18	84	44.1	338.0	+10.2	–30.4
347.325 C	32	181	17	96	44.1	337.8	+10.5	–17.1
348.414 C	16	181	8	92	43.9	337.4	+11.0	– 2.9
Spot <i>b</i> .								
342.584 C	7	42	20	118	44.0	323.2	+ 5.5	–79.7
343.334 C	17	78	25	113	44.2	323.2	+ 5.8	–69.6
344.398 C	21	109	19	97	44.2	322.9	+ 5.8	–55.6
345.368 C	24	127	16	86	44.5	323.0	+ 5.9	–42.5
346.314 C	21	132	12	77	44.5	322.8	+ 5.9	–30.0
347.325 C	32	143	17	76	44.7	322.7	+ 6.0	–16.5
348.414 C	36	137	18	69	44.7	322.5	+ 6.1	– 2.1
349.411 C	21	150	11	76	44.6	322.1	+ 6.4	+10.9
350.488 G	11	76	6	43	44.4	321.7	+ 6.3	+24.9
RECURRENT SERIES 947.								
Group 9397 seen in Rotation 911.								
.. 9400 912.								
Group 9397—October 22–November 2. A large stream of normal type about 10° in length when fully formed. Its growth is rapid from a small spot seen near the east limb on October 22, and its decline is relatively of short duration for so large a group. The leader spot, <i>a</i> , however, passes over the west limb and is seen again as Group 9400.								
294.392 G	2	11	3	16	329.4	256.1	+ 3.9	–69.5
295.429 G	109	464	105	446	326.8	253.2	+ 3.6	–58.5
296.384 G	155	953	109	679	327.2	253.4	+ 3.8	–45.5
297.385 G	191	1053	113	625	327.1	253.1	+ 3.9	–32.4
298.304 C	198	1229	105	657	326.7	252.4	+ 3.6	–20.6
299.324 C	214	1015	109	512	326.7	252.2	+ 3.6	– 7.2
300.363 C	170	959	85	485	326.9	252.1	+ 3.5	+ 6.7
301.485 G	150	619	81	335	327.5	252.4	+ 3.9	+22.1
302.455 C	109	467	67	289	328.8	253.5	+ 4.1	+36.2
303.330 C	79	322	58	241	328.9	253.4	+ 4.0	+47.8
304.341 C	38	190	41	201	329.5	253.7	+ 4.4	+61.8
305.338 C	14	85	26	157	329.2	253.2	+ 4.4	+74.6
Means ..	..	..	75	387	327.89	253.22	+ 3.89	..
Spot <i>a</i> .								
295.429 G	24	126	21	108	330.6	257.3	+ 3.6	–54.7
296.384 G	82	452	55	303	330.9	257.4	+ 3.7	–41.8
297.385 G	98	527	56	300	331.1	257.4	+ 3.9	–28.4
298.304 C	99	585	51	304	330.9	256.9	+ 3.9	–16.4
299.324 C	117	531	59	265	330.8	256.6	+ 3.7	– 3.1

LEDGER I.—RECURRENT GROUPS OF SUN SPOTS for the YEAR 1921—continued.

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.		
RECURRENT SERIES 947. Group 9397—Spot a—continued.								
1921. a								
300.363 C	92	579	47	295	330.5	256.0	+ 3.9	+10.3
301.485 G	102	411	56	226	330.3	255.5	+ 4.1	+24.9
302.455 C	83	376	52	237	330.4	255.4	+ 4.5	+37.8
303.330 C	65	288	49	219	330.1	254.9	+ 4.4	+49.0
304.341 C	36	180	39	193	329.9	254.4	+ 4.5	+62.2
305.338 C	14	85	26	157	329.2	253.5	+ 4.4	+74.6
Spot b.								
295.429 G	44	214	46	223	323.9	249.5	+ 3.5	-61.4
296.384 G	46	305	35	235	322.9	248.2	+ 3.6	-49.8
297.385 G	89	488	55	303	322.8	247.9	+ 3.6	-36.7
298.304 C	71	476	39	262	322.0	246.8	+ 3.1	-25.3
299.324 C	70	392	36	200	321.6	246.2	+ 3.2	-12.3
300.363 C	61	299	30	150	321.3	245.6	+ 2.9	+ 1.1
301.485 G	40	163	21	85	321.3	245.3	+ 3.3	+15.9
Group 9400—November 17-29. A stable regular spot, a of Group 9397, slowly contracting to a very small dark nucleus on November 29 when close to the west limb.								
320.390 C	5	55	20	224	333.0	252.9	+ 4.5	-83.1
321.317 C	13	78	20	121	332.6	252.3	+ 4.4	-71.3
322.324 C	17	128	16	122	332.4	251.8	+ 4.4	-58.2
323.382 C	38	158	26	111	332.0	251.2	+ 4.7	-44.7
324.339 C	42	198	25	117	332.5	251.4	+ 4.3	-31.6
325.345 C	36	193	19	102	332.3	251.0	+ 4.2	-18.5
326.324 C	45	200	22	100	332.3	250.7	+ 3.9	-5.6
327.475 G	34	219	17	112	332.4	250.5	+ 3.5	+ 9.6
328.316 C	29	162	15	86	332.4	250.3	+ 3.4	+20.7
329.378 C	23	148	14	90	332.6	250.2	+ 3.3	+34.9
330.447 C	18	93	14	71	332.7	250.1	+ 2.9	+49.1
331.471 G	15	68	16	75	333.0	250.2	+ 2.8	+62.9
332.335 C	4	10	7	18	332.7	249.6	+ 2.8	+74.0
Means ..	..	..	18	104	332.53	250.94	+ 3.78	..
RECURRENT SERIES 948.								
Group 9401 seen in Rotation 912.								
" 9407 "	"	"	"	913.				
" 9415 "	"	"	"	914.				
" 9421 "	"	"	"	915.				
Group 9401—November 19-30. A large regular spot, a, with an unstable cluster 10° following in longitude. Another small cluster appears for two days on November 23 and 24 closely following the regular spot.								
322.324 C	50	318	100	655	316.5	240.1	- 6.2	-74.1
323.382 C	100	611	106	647	316.5	239.9	- 6.0	-60.2
324.339 C	173	835	128	627	316.8	239.9	- 6.1	-47.3
Group 9401—continued								
1921. a								
325.345 C	166	1078	101	655	317.5	240.4	- 5.9	-33.3
326.324 C	268	1295	144	696	317.4	240.1	- 6.2	-20.5
327.475 G	265	1348	135	689	318.5	240.9	- 5.8	-4.3
328.316 C	227	1161	116	592	318.8	240.9	- 5.5	+ 7.1
329.378 C	208	1031	112	555	318.4	240.3	- 5.6	+20.7
330.447 C	181	830	112	515	319.0	240.7	- 5.7	+35.4
331.471 G	158	785	122	604	319.2	240.7	- 5.7	+49.1
332.335 C	91	531	92	536	318.9	240.1	- 5.4	+60.2
333.541 G	37	321	82	709	319.5	240.5	- 5.4	+76.7
Means ..	..	..	112	623	318.08	240.37	- 5.79	..
Spot a.								
322.324 C	45	274	80	485	317.3	240.5	- 6.3	-73.3
323.382 C	79	476	77	462	318.3	241.3	- 5.9	-58.4
324.339 C	140	636	99	452	319.2	242.0	- 5.8	-44.9
325.345 C	137	867	81	512	319.3	241.9	- 5.8	-31.5
326.324 C	200	948	106	502	319.4	241.7	- 5.8	-18.5
327.475 G	240	1152	122	588	319.6	241.7	- 5.8	-3.2
328.316 C	222	1076	113	549	319.2	241.0	- 5.5	+ 7.5
329.378 C	204	946	110	511	319.1	240.7	- 5.7	+21.4
330.447 C	181	830	112	515	319.0	240.4	- 5.7	+35.4
331.471 G	158	785	122	604	319.2	240.3	- 5.7	+49.1
332.335 C	91	531	92	536	318.9	239.8	- 5.4	+60.2
333.541 G	37	321	82	709	319.5	240.2	- 5.4	+76.7
Group 9407—December 15-27. A large spot, a of Group 9401, with double and later with triple umbra. On December 22 the following portion of the spot separates from the main part. A few small companions are usually visible.								
348.414 C	20	93	81	379	323.8	240.5	- 6.6	-83.0
349.411 C	51	329	74	480	323.7	240.2	- 5.8	-70.0
350.488 G	80	553	71	493	323.8	240.0	- 5.8	-55.7
351.470 G	112	718	76	488	324.1	240.1	- 5.5	-42.5
352.330 C	120	786	71	464	324.1	239.9	- 5.2	-31.2
353.461 G	159	800	83	416	324.4	239.9	- 5.4	-15.9
354.338 C	140	860	70	430	324.7	240.0	- 5.5	-4.1
355.329 C	136	785	69	400	324.9	240.0	- 5.3	+ 9.1
356.451 G	143	682	79	375	325.3	240.1	- 5.6	+24.3
357.315 C	99	586	61	363	325.3	239.9	- 5.5	+35.7
358.320 C	85	413	65	314	325.5	239.9	- 5.5	+49.2
359.496 G	30	222	35	262	325.8	239.9	- 5.4	+65.0
360.435 C	24	120	55	276	326.1	240.0	- 5.3	+77.6
Means ..	..	..	68	395	324.73	240.03	- 5.57	..

LEDGER I.—RECURRENT GROUPS of SUN SPOTS for the YEAR 1921—*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.		
RECURRENT SERIES 948—continued.																	
Group 9415.—1922 January, 11-23. A regular spot, <i>a</i> of Group 9401, with occasional very small companions.									Group 9421.—1922, February 7-19. A small regular spot, <i>a</i> of Group 9401, gradually diminishing. Group 9422 develops immediately southwards in the same area of faculae.								
1921. d					°	°	°	°	1921. d					°	°	°	°
375.470 G	5	66	20	269	327.1	238.9	— 5.0	—83.4	402.548 G	11	43	28	108	334.8	237.4	— 6.1	—79.1
376.325 C	11	93	16	138	328.6	240.2	— 5.3	—70.6	403.443 G	17	75	22	95	334.9	237.3	— 6.0	—67.3
377.325 C	24	140	22	129	328.9	240.2	— 5.4	—57.1	404.470 G	21	135	18	113	334.9	237.0	— 5.6	—53.7
378.506 G	52	264	34	178	328.9	239.9	— 5.9	—41.6	405.441 G	22	135	15	89	335.3	237.2	— 5.5	—40.6
379.361 C	41	248	23	144	328.9	239.7	— 6.0	—30.3	406.458 G	27	139	15	78	335.5	237.1	— 5.2	—27.0
380.457 G	49	289	26	151	329.2	239.8	— 6.1	—15.6	407.433 G	33	162	17	84	335.4	236.8	— 4.9	—14.2
381.463 C	34	272	17	136	329.6	240.0	— 5.9	— 2.0	408.440 G	39	128	20	64	335.6	236.8	— 5.0	— 0.8
382.437 C	54	258	28	132	329.8	239.9	— 6.3	+11.1	409.329 C	33	132	17	67	335.4	236.3	— 5.2	+10.7
383.327 C	46	229	25	124	329.8	239.7	— 6.4	+22.8	410.432 C	20	93	11	51	335.3	236.0	— 4.8	+25.2
384.487 G	42	194	27	124	330.1	239.7	— 6.4	+38.3	411.344 C	19	73	12	46	335.5	236.0	— 4.8	+37.4
385.315 C	23	147	17	112	330.0	239.4	— 6.6	+49.2	412.339 C	17	72	13	56	335.6	235.8	— 4.8	+50.6
386.340 C	16	100	17	109	330.3	239.5	— 6.8	+63.0	413.434 G	4	28	5	33	335.7	235.7	— 4.7	+65.1
387.596 C	7	39	20	110	331.1	240.0	— 6.6	+80.3	414.378 C	0	14	0	31	335.6	235.3	— 4.8	+77.4
Means ..	..	..	22	143	329.46	239.76	— 6.05	..	Means ..	..	..	15	70	335.35	236.52	— 5.18	..

ROYAL OBSERVATORY, GREENWICH.

LEDGERS

OF

GROUPS OF SUN SPOTS

FOR THE YEAR

1921.

LEDGER II.—NON-RECURRENT GROUPS.

LEDGER II.—NON-RECURRENT GROUPS of SUN SPOTS for the YEAR 1921.

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, Kodaikānal, Dehra Dūn, by the letters C, K, and D respectively.

The Projected Area of the Umbra 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.
	Umbrae.	Whole Spots.	Umbrae.	Whole Spots.	System I.	System II.		
Group 9282.								
1920.—December 31—1921 January 10. A regular spot, <i>a</i> , followed by a long train of numerous components which have died out by January 9.								
1921. d					°	°	°	°
1.312 C	13	78	29	188	257.2	257.4	— 8.0	—77.8
0.407 C	34	217	36	230	258.9	258.8	— 8.0	—61.7
1.330 C	58	311	44	237	259.7	259.4	— 7.9	—48.7
2.474 G	147	472	89	285	260.3	259.7	— 7.7	—33.0
3.395 C	140	501	75	267	261.9	261.1	— 7.0	—19.3
4.332 C	125	602	63	303	261.8	260.8	— 6.7	— 7.1
5.338 C	72	371	36	187	262.2	261.0	— 6.7	+ 6.6
6.305 C	39	209	21	112	265.0	263.6	— 6.1	+22.1
7.304 C	34	147	21	89	264.5	262.8	— 6.1	+34.8
8.329 C	12	32	10	25	267.3	265.4	— 5.3	+51.1
9.347 C	0	4	0	5	267.8	265.7	— 5.8	+65.0
Means ..	..	..	39	175	262.42	261.43	— 6.85	..
Spot <i>a</i> .								
1.312 C	9	46	16	83	260.9	261.1	— 7.4	—74.1
0.407 C	22	140	21	133	262.1	262.0	— 7.1	—58.5
1.330 C	34	161	24	114	262.9	262.6	— 6.7	—45.5
2.474 G	58	201	34	117	263.7	263.1	— 6.3	—29.6
3.395 C	54	205	28	107	264.9	264.1	— 5.6	—16.3
4.332 C	47	179	24	89	265.9	264.9	— 5.3	— 3.0
5.338 C	22	135	11	69	266.9	265.6	— 5.4	+11.3
6.305 C	17	73	9	40	267.6	266.1	— 5.3	+24.7
7.304 C	12	44	8	28	268.2	266.5	— 5.0	+38.5
Group 9285.								
January 11—16. A small stream.								
10.442 G	2	6	1	4	154.3	151.9	+ 7.1	—34.1
11.341 C	28	112	15	62	154.0	151.4	+ 6.6	—22.6
12.342 C	41	196	21	101	153.6	150.8	+ 6.7	— 9.8
13.442 G	37	92	19	47	156.0	152.9	+ 6.6	+ 7.1
14.509 G	16	50	9	27	155.7	152.4	+ 6.7	+20.8
15.474 G	9	21	5	13	154.8	151.3	+ 7.1	+32.7
Means ..	..	..	12	42	154.73	151.78	+ 6.80	..
Group 9286.								
January 12—24. At first a small stream led by a small regular spot. Between January 16 and 17, a moderately large composite spot suddenly appears in the following part of the stream whose other components disappear within a few days.								
1921. d					°	°	°	°
11.341 C	0	21	0	37	103.7	100.9	+ 3.2	—72.9
12.342 C	6	25	6	26	103.3	100.2	+ 3.1	—60.1
13.442 G	30	104	21	74	104.1	100.7	+ 3.1	—44.8
14.509 G	44	151	26	89	103.7	100.1	+ 3.2	—31.2
15.474 G	92	222	49	118	104.1	100.2	+ 3.6	—18.0
16.341 C	73	545	38	278	102.3	98.2	+ 3.6	— 8.4
17.466 C	105	568	53	290	102.1	97.7	+ 3.4	+ 6.2
18.506 G	109	538	59	291	101.8	97.1	+ 3.1	+19.6
19.310 C	87	408	51	241	102.1	97.2	+ 3.1	+30.4
20.499 G	47	296	34	216	102.1	96.9	+ 3.1	+46.1
21.324 C	39	209	36	194	102.2	96.8	+ 3.3	+57.1
22.329 C	19	94	29	145	102.5	96.9	+ 3.1	+70.6
23.318 C	4	34	16	138	101.5	95.6	+ 2.6	+82.6
Means ..	..	..	32	164	102.73	98.35	+ 3.19	..
Group 9287.								
January 16—24. A disturbed area of some extent showing feeble but sustained activity.								
15.474 G	9	16	5	9	94.5	91.1	— 8.6	—27.6
16.341 C	4	17	2	9	96.1	92.5	— 8.8	—14.6
17.466 C	0	6	0	3	94.5	90.7	— 9.2	— 1.4
18.506 G	2	7	1	4	98.6	94.5	— 7.2	+16.4
19.310 C	24	56	13	31	99.1	94.9	— 7.1	+27.4
20.499 G	15	106	10	74	100.5	96.0	— 7.1	+44.5
21.324 C	11	68	10	58	99.3	94.6	— 7.2	+54.2
22.329 C	7	44	10	60	101.1	96.2	— 7.7	+69.2
23.318 C	0	5	0	11	96.7	91.6	— 8.2	+77.8
Means ..	..	..	6	29	97.82	93.57	— 7.90	..

LEDGER II.—NON-RECURRENT GROUPS OF SUN SPOTS for the YEAR 1921—continued.

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.		
Group 9291.								
January 24-February 2. Intermittent. One very small spot with companions on January 27-28. Nothing is seen after January 28 until February 2, when a minute spot makes its appearance.								
1921. d					°	°	°	°
23.318 C	2	6	4	11	307.0	303.3	+12.4	-71.9
24.348 C	8	22	8	22	307.7	303.9	+12.1	-57.6
25.170 D	2	4	2	3	307.5	303.5	+12.3	-47.0
26.391 C	8	43	5	27	307.2	303.1	+14.2	-31.2
27.331 C	2	13	1	7	307.7	303.4	+13.3	-18.3
28.316 C	0	0	0	0	..	..	..	..
29.340 C	0	0	0	0	..	..	..	..
30.321 C	0	0	0	0	..	..	..	..
31.470 G	0	0	0	0	..	..	..	..
32.529 G	0	3	0	2	307.4	302.3	+11.3	+49.8
Means ..	..	..	2	7	307.42	303.25	+12.60	..

Group 9295.								
January 31–February 7. A small stream seen to develop and die out, s p Group 9294 in the same general area of faculae.								
30.321 C	5	32	6	42	218.2	216.0	−17.7	−68.5
31.470 G	22	56	18	46	218.7	216.5	−17.1	−52.8
32.529 G	47	172	30	110	219.8	217.5	−16.7	−37.8
33.494 G	62	219	34	122	219.6	217.2	−17.0	−25.3
34.475 G	33	193	17	101	220.1	217.7	−17.2	−11.9
35.459 G	28	115	14	58	220.1	217.6	−17.4	+1.1
36.356 C	22	94	11	49	218.7	216.1	−17.5	+11.5
37.401 C	2	19	1	10	216.7	214.0	−17.4	+23.2
Means ..	..	..	16	67	218.99	216.58	−17.25	..

Group 9302.								
February 12–18. A diminutive stream of which only the leader remains after February 14.								
42.325 C	7	18	9	22	61.7	53.9	−11.0	−66.9
43.344 C	23	81	19	66	62.3	54.3	−11.0	−52.9
44.304 C	31	86	20	55	63.6	55.4	−10.8	−39.0
45.326 C	12	43	6	23	65.8	57.4	−10.6	−23.3
46.500 C	7	14	4	7	66.0	57.4	−10.8	−7.6
47.323 C	3	9	2	5	66.0	57.2	−10.5	+3.2
48.172 D	6	18	3	9	66.5	57.6	−10.3	+14.9
Means ..	..	..	9	27	64.56	56.17	−10.71	..

Group 9304.								
February 22–26. A small stream of unstable components.								
1921. d					°	°	°	°
52.442 G	41	102	21	53	11.5	1.3	−10.2	+16.1
53.321 C	20	132	11	76	13.1	2.8	−10.2	+29.3
54.446 G	39	144	27	100	13.1	2.5	−9.7	+44.1
55.205 D	33	133	28	113	13.6	2.9	−9.9	+54.6
56.458 G	11	40	16	56	12.7	1.8	−10.1	+70.2
Means ..	..	..	21	80	12.80	2.26	−10.02	..

Group 9308.								
March 8–17. A stream of spots seen to develop from two small components near the east limb on March 8. The train is never prominent and the leader, though tending for a few days to the "regular" type, is unstable.								
66.612 G	6	24	10	40	97.5	81.3	+5.3	−71.2
67.412 G	44	146	45	153	97.8	81.4	+5.0	−60.4
68.463 G	78	387	57	280	99.4	82.7	+4.7	−44.9
69.313 C	68	349	42	211	100.4	83.5	+4.1	−32.7
70.309 C	95	400	51	215	101.8	84.6	+4.6	−18.2
71.616 G	85	391	44	199	103.7	86.2	+4.8	+0.9
72.513 G	44	243	24	129	104.1	86.4	+4.7	+13.2
73.413 G	31	230	18	130	104.1	86.2	+5.0	+25.0
74.315 C	22	121	14	77	102.9	84.8	+5.0	+35.7
75.412 G	4	26	3	22	104.5	86.1	+4.6	+51.8
Means ..	..	..	31	146	101.62	84.32	+4.78	..

Group 9311.								
March 12–21. A regular spot with two or three very small distant followers after March 14.								
70.309 C	5	89	19	340	36.3	24.3	−11.9	−83.7
71.616 G	26	161	31	193	36.5	24.3	−11.8	−66.3
72.513 G	26	183	22	154	36.6	24.2	−11.6	−54.3
73.413 G	35	216	24	146	36.8	24.2	−11.4	−42.3
74.315 C	42	221	24	128	37.1	24.4	−11.6	−30.1
75.412 G	41	212	21	111	37.1	24.2	−11.5	−15.6
76.380 G	35	139	17	69	37.5	24.4	−11.9	−2.5
77.476 G	28	120	14	61	37.8	24.5	−11.4	+12.3
78.334 C	10	74	5	41	38.0	24.6	−11.3	+23.8
79.486 G	0	16	0	10	35.2	21.6	−13.0	+36.2
Means ..	..	..	18	125	36.89	24.07	−11.74	..

LEDGER II.—NON-RECURRENT GROUPS of SUN SPOTS for the YEAR 1921—*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.		
Group 9312.								
March 13-18. Some very small but persistent spots <i>p</i> Group 9310.								
1921. d					°	°	°	°
71.616 G	3	12	2	8	65.5	49.1	-6.3	-37.3
72.513 G	4	22	2	12	66.0	49.4	-6.9	-24.9
73.413 G	0	4	0	2	66.6	49.8	-7.2	-12.5
74.315 C	1	15	1	8	66.6	49.6	-6.7	-0.6
75.412 G	2	7	1	4	65.8	48.5	-6.5	+13.1
76.380 G	0	4	0	2	66.5	49.0	-7.6	+26.5
Means ..	..	..	1	6	66.17	49.23	-6.87	..
Group 9314.								
March 21-23. A regular spot preceded by a few small companions.								
79.486 G	26	104	27	107	56.3	46.1	+14.1	+57.3
80.621 G	24	125	45	234	56.1	45.8	+14.4	+72.0
81.421 G	8	47	43	250	56.2	45.8	+14.5	+82.7
Means ..	..	..	38	197	56.20	45.90	+14.33	..
Group 9316.								
March 24-April 4. A stream showing the usual development but with a rapid decrease in the following components. A minute spot on April 2 temporarily marks the position of the rear component.								
82.406 G	0	12	0	33	240.3	222.7	-8.0	-80.2
83.338 C	17	96	25	135	238.6	220.8	-8.5	-69.6
84.318 C	45	254	41	225	239.5	221.5	-8.5	-55.8
85.469 G	89	533	58	345	240.6	222.3	-8.7	-39.5
86.356 C	94	528	52	297	241.1	222.6	-8.5	-27.3
87.400 G	77	453	39	232	243.5	224.8	-8.2	-11.2
88.397 G	87	471	44	236	243.8	224.9	-8.0	+2.3
89.503 G	74	424	38	220	244.4	225.2	-8.0	+17.5
90.382 G	69	349	39	199	244.5	225.2	-8.2	+29.2
91.462 G	56	345	38	234	244.2	224.6	-8.5	+43.1
92.392 G	41	264	36	230	244.3	224.5	-8.7	+55.5
9.439 G	14	183	20	264	245.3	225.3	-8.5	+70.3
Means ..	..	..	36	221	242.51	223.70	-8.36	..
Group 9322.								
April 3-8. A small regular spot with a distant follower forming from a tiny spot on April 3.								
92.392 G	1	5	1	3	189.4	172.4	-11.3	+0.6
93.439 G	15	106	8	54	190.3	173.1	-10.4	+15.3
94.430 G	21	99	12	59	192.8	175.4	-10.9	+30.9
Group 9322—continued.								
9121. d					°	°	°	°
95.334 C	35	195	25	136	193.9	176.4	-11.0	+43.9
96.381 G	15	87	14	83	194.8	177.1	-10.8	+58.6
97.368 C	8	30	13	47	195.2	177.3	-10.6	+72.1
Means ..	..	..	12	64	192.73	175.28	-10.83	..
Group 9324.								
April 10-21. A spot followed by bright faculæ which, when seen near the east limb, is nearly of regular type, but which in a few days becomes elongated and diminishes at the same time. There are a few very small companion spots until April 20.								
99.410 G	14	141	42	427	17.0	357.2	+10.0	-79.2
100.314 C	38	221	52	303	17.1	357.1	+9.9	-67.1
101.410 G	56	343	48	295	17.4	357.2	+9.7	-52.4
102.337 G	73	440	50	304	16.9	356.5	+9.7	-40.6
103.348 C	76	579	44	336	17.1	356.5	+9.8	-27.1
104.337 G	99	617	53	327	17.0	356.2	+9.5	-14.1
105.339 G	99	553	52	288	16.8	355.8	+9.6	-1.1
106.374 C	71	465	38	246	16.9	355.7	+9.7	+12.7
107.347 G	72	389	42	226	17.1	355.7	+9.6	+25.7
108.344 G	50	249	33	167	17.3	355.7	+9.4	+39.1
109.337 G	23	159	20	135	17.4	355.6	+9.3	+52.3
110.343 G	13	91	17	116	17.4	355.4	+9.4	+65.6
Means ..	..	..	41	264	17.12	356.22	+9.63	..
Group 9326.								
April 16-20. Not a particularly large but a very active stream of spots appearing within 24 hours.								
105.339 G	60	239	33	133	39.6	18.2	+9.4	+21.7
106.374 C	63	345	40	219	39.7	18.1	+8.8	+35.5
107.347 G	65	379	51	299	40.2	18.4	+9.1	+48.8
108.344 G	33	267	37	301	40.1	18.1	+9.6	+61.9
109.337 G	18	107	38	234	40.7	18.5	+9.7	+75.6
Means ..	..	..	40	237	40.06	18.26	+9.32	..
Group 9330.								
April 19-26. Intermittent. A small stream disappearing on April 23. On April 25 a small cluster has formed in the position of the preceding portion of the original group.								
108.344 G	3	8	6	15	262.9	238.3	-7.8	-75.3
109.337 G	11	33	11	34	263.9	239.0	-7.1	-61.2
110.343 G	11	71	8	53	263.8	238.7	-7.2	-48.0
111.463 C	13	70	8	42	262.8	237.5	-7.4	-34.2
112.637 G	1	26	1	14	261.9	236.4	-6.7	-19.6

LEDGER II.—NON-RECURRENT GROUPS of SUN SPOTS for the YEAR 1921—continued.

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.		
Group 9330—continued.								
1921. d					°	°	°	°
113.370 C	0	0	0	0	..	..	..	..
114.561 G	16	64	8	33	265.7	239.7	- 6.6	+ 9.6
115.634 G	7	41	4	23	266.0	239.8	- 6.6	+ 24.1
Means ..	..	..	6	27	263.86	238.49	- 7.06	..
Group 9342.								
May 27-June 3. A small regular spot disappearing temporarily on May 31. On June 3 three tiny companions are also seen.								
146.441 G	1	27	4	119	110.9	76.9	- 6.6	- 83.6
147.347 G	7	54	11	85	111.0	76.8	- 6.6	- 71.5
148.439 G	20	78	19	72	111.1	76.7	- 6.6	- 57.0
149.356 C	14	64	10	45	111.0	76.3	- 6.9	- 44.9
150.359 G	0	0	0	0	..	..	..	..
151.507 G	10	32	5	17	112.1	77.0	- 6.4	- 15.4
152.333 C	4	10	2	5	111.6	76.3	- 6.4	- 4.9
153.346 C	6	36	3	18	113.0	77.4	- 5.8	+ 9.9
Means ..	..	..	7	45	111.53	76.77	- 6.47	..
Group 9344.								
June 1-10. A stream of small and unstable components grouped about two centres.								
151.507 G	23	89	15	57	89.8	66.9	+ 13.3	- 37.7
152.333 C	37	128	21	74	90.6	67.6	+ 13.4	- 25.9
153.346 C	45	195	24	104	89.9	66.7	+ 13.3	- 13.2
154.395 C	24	90	12	46	90.1	66.8	+ 13.1	+ 0.8
155.526 C	20	56	10	31	90.5	67.0	+ 13.0	+ 16.2
156.411 G	32	126	18	72	89.3	65.7	+ 13.7	+ 26.7
157.415 G	63	263	44	181	90.7	66.9	+ 13.1	+ 41.4
158.404 G	30	155	27	139	91.2	67.3	+ 12.9	+ 55.0
159.734 G	10	44	15	71	89.8	65.7	+ 12.0	+ 71.2
160.347 G	1	10	3	25	88.9	64.7	+ 12.5	+ 78.4
Means ..	..	..	19	80	90.08	66.53	+ 13.03	..
Group 9354.								
June 23-27. A small but distinct spot with an ephemeral follower on June 24.								
173.549 G	9	32	11	40	129.4	100.9	+ 12.3	- 66.3
174.339 G	12	31	11	28	129.0	100.4	+ 12.3	- 56.3
175.336 G	9	15	6	10	129.1	100.3	+ 12.2	- 43.0
176.655 G	7	14	4	8	128.6	99.6	+ 12.2	- 26.0
177.356 C	6	14	3	7	128.5	99.4	+ 12.0	- 16.8
Means ..	..	..	7	19	128.92	100.12	+ 12.20	..
Group 9355.								
June 24-July 4. A small double spot, dividing completely on July 1. The preceding portion lasts for a few days.								
1921. d					°	°	°	°
174.339 G	2	27	9	119	101.6	77.7	+ 13.3	- 83.7
175.336 G	19	85	29	127	101.6	77.6	+ 13.0	- 70.5
176.655 G	18	117	15	98	101.6	77.4	+ 13.6	- 53.0
177.356 C	14	128	10	89	101.5	77.2	+ 13.7	- 43.8
178.358 C	26	134	15	79	101.7	77.3	+ 14.0	- 30.4
179.340 G	27	135	15	73	101.2	76.6	+ 14.2	- 17.9
180.585 G	25	86	13	44	101.1	76.4	+ 14.2	- 1.5
181.342 G	32	93	16	47	100.6	75.8	+ 14.4	+ 8.0
182.341 G	15	31	8	17	100.7	75.7	+ 14.0	+ 21.4
183.358 G	12	19	7	12	100.7	75.6	+ 13.9	+ 34.8
184.399 C	2	7	2	5	100.5	75.2	+ 14.1	+ 48.4
Means ..	..	..	13	65	101.16	76.59	+ 13.85	..
Group 9356.								
June 25-July 6. A stream of normal type developing rapidly from a small spot seen in faculae near the east limb on June 25. The leader, a, is never quite of regular formation, and appears at times elongated with a small subsidiary umbra.								
175.336 G	0	5	0	6	107.6	68.1	- 6.8	- 64.5
176.655 G	111	422	82	313	108.1	68.4	- 7.7	- 46.5
177.356 C	131	674	84	429	108.2	68.3	- 8.0	- 37.1
178.358 C	199	1274	111	711	108.7	68.6	- 7.8	- 23.4
179.340 G	273	1587	141	817	108.3	68.0	- 7.4	- 10.8
180.585 G	254	1573	130	803	109.3	68.7	- 7.2	+ 6.7
181.342 G	205	1210	109	645	109.2	68.4	- 7.3	+ 16.6
182.341 G	137	925	82	547	109.6	68.6	- 7.1	+ 30.3
183.358 G	133	597	95	428	110.1	68.8	- 6.8	+ 44.2
184.399 C	69	371	67	369	110.7	69.2	- 6.6	+ 58.6
185.411 G	25	209	46	366	111.5	69.8	- 6.8	+ 72.8
186.355 G	0	33	(0	85	104.4	62.5	- 8.0)*	+ 78.2
Means ..	..	..	86	494	109.21	68.63	- 7.23	..
Spot a.								
176.655 G	75	276	54	199	109.5	69.4	- 7.5	- 45.1
177.356 C	84	433	52	268	109.9	69.6	- 7.7	- 35.4
178.358 C	136	678	75	373	110.5	70.0	- 7.7	- 21.6
179.340 G	168	748	86	381	111.1	70.4	- 7.3	- 8.0
180.585 G	187	874	95	446	111.8	70.8	- 7.1	+ 9.2
181.342 G	144	688	78	372	111.9	70.7	- 6.9	+ 19.3
182.341 G	101	538	62	328	112.3	70.9	- 6.8	+ 33.0
183.358 G	85	400	63	296	112.7	71.0	- 6.5	+ 46.8
184.399 C	45	260	47	273	112.9	71.0	- 6.5	+ 60.8
185.411 G	22	154	42	297	113.1	71.0	- 6.6	+ 74.4

LEDGER II.—NON-RECURRENT GROUPS of SUN SPOTS for the YEAR 1921—continued.

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.		
Group 9357								
June 26–July 5. A short but fairly conspicuous stream of spots in which for several days both the preceding and following components are double spots. Group 9355 closely precedes this group.								
1921. d								
176.655 G	24	76	29	88	90.7	65.4	+13.9	-63.9
177.356 C	31	201	27	180	89.8	64.4	+13.6	-55.5
178.358 C	45	220	30	150	90.9	65.4	+13.6	-41.2
179.340 G	93	383	54	222	91.2	65.6	+13.3	-27.9
180.585 G	67	603	35	313	90.8	65.0	+13.2	-11.8
181.342 G	91	527	47	269	90.3	64.4	+13.0	-2.3
182.341 G	67	371	35	193	90.8	64.7	+13.0	+11.5
183.358 G	51	329	28	183	90.7	64.5	+13.6	+24.8
184.399 C	20	85	13	56	91.0	64.6	+13.9	+38.9
185.411 G	10	32	8	27	91.4	64.9	+13.7	+52.7
Means ..	..	..	31	168	90.76	64.89	+13.48	..
Group 9361.								
July 1–13. A large spot with two umbrae which become the centres of two regular spots, <i>a</i> and <i>b</i> , which then separate completely and move apart in latitude. Meanwhile an elongated portion of the original spot also separates and dies out as a cluster of very small markings.								
181.342 G	9	44	(66	324	6.0	336.8	+11.3)*	-86.6
182.341 G	51	361	82	578	7.3	337.9	+12.3	-72.0
183.358 G	119	588	115	570	7.1	337.6	+12.6	-58.8
184.399 C	142	832	102	599	6.9	337.2	+12.7	-45.2
185.411 G	218	1026	129	609	6.8	336.9	+13.0	-31.9
186.355 G	205	1173	109	627	6.7	336.7	+12.9	-19.5
187.109 K	174	993	88	508	7.4	337.3	+12.6	-8.8
188.429 C	134	702	69	358	8.1	337.8	+12.6	+9.3
189.343 G	106	564	58	307	8.5	338.0	+12.0	+21.8
190.294 G	80	461	49	281	8.8	338.2	+11.9	+34.7
191.394 C	44	303	34	232	8.7	337.9	+12.1	+49.2
192.336 G	35	219	37	230	8.8	337.8	+11.9	+61.7
193.343 G	28	118	53	224	9.0	337.9	+12.2	+75.3
Means ..	..	..	77	427	7.84	337.60	+12.40	..
Spot <i>a</i> .								
182.341 G					7.9	335.4	+11.9	-71.4
183.358 G					7.5	334.9	+11.9	-58.4
184.399 C					7.4	334.6	+12.2	-44.7
185.411 G					7.5	334.5	+11.9	-31.2
186.355 G					7.9	334.7	+11.5	-18.3
187.109 K					8.1	334.8	+11.5	-8.1
188.429 C	66	336	34	171	8.5	335.0	+11.3	+9.7
189.343 G	53	320	29	173	8.6	334.9	+10.7	+21.9
190.294 G	39	257	24	157	9.0	335.1	+10.8	+34.9
191.394 C	26	158	20	122	9.0	334.9	+10.5	+49.5
192.336 G	17	119	18	126	9.2	335.0	+10.5	+62.1
193.343 G	10	51	20	101	9.6	335.2	+10.2	+75.9
Position of nucleus before the formation of the separate spot.								
182.341 G					7.2	341.1	+12.8	-72.1
183.358 G					7.1	340.9	+12.9	-58.8
184.399 C					7.2	340.8	+13.3	-44.9
185.411 G					7.1	340.6	+13.4	-31.6
186.355 G					7.4	340.8	+13.3	-18.8
187.109 K					7.5	340.7	+13.4	-8.7
188.429 C	52	251	27	128	8.4	341.5	+13.7	+9.6
189.343 G	53	244	29	134	8.4	341.3	+13.5	+21.7
190.294 G	41	204	25	124	8.4	341.2	+13.6	+34.3
191.394 C	18	145	14	110	8.4	341.0	+13.9	+48.9
192.336 G	18	100	19	104	8.5	341.0	+13.9	+61.4
193.343 G	18	67	33	123	8.4	340.8	+13.9	+74.7
Group 9364.								
July 3–10. Two very small ephemeral spots in the faculae following Group 9361. On July 5 a small cluster and one or two single spots appear on successive days.								
183.358 G	1	5	1	7	358.2	325.0	+11.3	-67.7
184.399 C	0	0	0	0	..	..	..	..
185.411 G	3	30	2	19	0.0	326.4	+10.8	-38.7
186.355 G	24	69	13	39	0.1	326.4	+10.8	-26.1
187.109 K	2	24	1	12	0.2	326.3	+11.0	-16.0
188.429 C	2	29	1	15	0.9	326.8	+12.4	+2.1
189.343 G	0	5	0	3	357.7	323.4	+10.0	+11.0
190.294 G	0	14	0	8	1.0	326.6	+10.7	+26.9
Means ..	..	..	2	13	359.73	325.84	+11.00	..
Group 9368.								
July 8–14. A small group of the stream type. Group 9370 develops just northwards.								
188.429 C	5	15	3	8	354.7	331.5	-14.1	-4.1
189.343 G	36	155	19	83	355.4	332.1	-14.9	+8.7
190.294 G	43	168	25	96	356.0	332.6	-15.0	+21.9
191.394 C	46	187	31	124	355.6	332.1	-14.6	+36.1
192.336 G	36	119	29	97	355.9	332.2	-14.4	+48.8
193.343 G	16	67	18	79	356.3	332.5	-14.4	+62.6
194.347 G	5	25	12	57	356.3	332.4	-14.7	+75.8
Means ..	..	..	20	78	355.74	332.20	-14.59	..
Group 9369.								
July 8–15. A stream with the following component of regular type and the fore portion disappearing first.								
188.429 C	30	76	24	58	309.3	261.4	+2.5	-49.5
189.343 G	41	164	27	105	309.0	260.9	+2.7	-37.7
190.294 G	45	139	26	78	309.2	260.9	+2.8	-24.9

LEDGER II.—NON-RECURRENT GROUPS OF SUN SPOTS for the YEAR 1921—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.		
Group 9369—continued.								
1921. d								
191.394 C	32	136	16	69	308.4	259.8	+ 2.7	- 11.1
192.336 G	29	147	14	73	307.9	259.0	+ 2.5	+ 0.8
193.343 G	24	100	12	52	308.1	259.0	+ 2.7	+ 14.4
194.347 G	9	14	5	8	307.4	258.0	+ 2.8	+ 26.9
195.398 G	0	7	0	5	309.7	260.1	+ 2.4	+ 43.2
Means ..	..	..	15	56	308.63	259.89	+ 2.64	..
Group 9371.								
July 12-21. An isolated disturbance of which the whole development is seen. A ring of faculæ contains three spots which become a stream. The following component is the largest, but it is ultimately shorter lived than the leader, which survives on July 19 as a small and rapidly dying spot.								
192.336 G	10	41	13	53	240.1	192.8	- 4.2	- 67.0
193.343 G	22	85	19	74	240.0	192.4	- 4.4	- 53.7
194.347 G	42	200	28	137	238.2	190.4	- 5.0	- 42.3
195.398 G	63	244	36	142	237.4	189.3	- 5.3	- 29.1
196.400 G	31	154	16	81	238.6	190.3	- 5.0	- 14.7
197.528 G	15	107	8	55	241.2	192.6	- 4.4	+ 2.8
198.380 G	22	96	12	50	240.0	191.2	- 4.7	+ 12.9
199.372 G	8	36	5	21	243.8	194.8	- 3.9	+ 29.8
200.363 G	7	25	5	17	243.7	194.4	- 4.2	+ 42.8
201.343 G	1	9	1	8	243.8	194.3	- 4.1	+ 55.9
Means ..	..	..	14	64	240.68	192.25	- 4.52	..
Group 9375.								
July 25-30. A small stream.								
205.427 G	6	18	5	14	84.9	56.1	+ 13.9	- 49.0
206.570 G	17	61	10	37	84.0	55.1	+ 13.5	- 34.7
207.487 G	13	41	7	23	83.8	54.8	+ 13.6	- 22.8
208.355 G	6	27	3	14	86.5	57.3	+ 13.6	- 8.6
209.478 G	18	41	10	21	86.5	57.2	+ 13.8	+ 6.2
210.342 G	8	22	4	12	87.1	57.7	+ 13.6	+ 18.3
Means ..	..	..	6	20	85.47	56.37	+ 13.67	..
Group 9376.								
July 25-August 5. A pair of spots seen near the east limb, which are the nuclei of a "stream." The leading spot, <i>a</i> , becomes large and is of regular type until July 29, after which it becomes very elongated, and is breaking up on August 1. Meanwhile the following spot has become a cluster, and with other small spots which develop, it becomes the "train" to the leader.								
205.427 G	18	68	36	140	58.7	16.2	- 9.4	- 75.2
206.570 G	52	391	51	392	60.5	17.7	- 9.6	- 58.2
207.487 G	130	586	96	435	61.3	18.3	- 9.6	- 45.3
208.355 G	135	909	84	567	62.0	18.9	- 9.4	- 33.1
209.478 G	224	958	122	522	62.8	19.4	- 8.9	- 17.5
210.342 G	225	1,157	117	603	63.2	19.7	- 8.5	- 5.6
Group 9377.								
August 11-18. A regular spot, followed by a small cluster, last represented by a tiny spot on August 15.								
222.477 G	46	148	24	79	250.3	192.7	- 2.0	- 18.1
223.490 G	53	228	27	114	251.0	193.1	- 1.2	- 4.0
224.304 C	39	224	20	114	251.5	193.4	- 0.7	+ 8.1
225.323 G	22	145	12	79	252.6	194.2	- 0.5	+ 21.8
226.666 G	18	105	12	71	254.6	195.9	- 0.2	+ 41.6
227.372 G	9	57	7	46	255.5	196.6	+ 0.1	+ 51.8
228.477 G	9	42	11	53	255.6	196.4	+ 0.1	+ 66.5
229.345 G	0	20	0	48	255.6	196.2	+ 0.7	+ 78.0
Means ..	..	..	14	75	253.34	194.81	- 0.46	..
Group 9379.								
August 16-25. A spot developing a double umbra and tending to divide into two parts. Partial separation takes place on August 23, after which the components soon disappear.								
227.372 G	17	97	34	193	129.0	73.1	- 4.7	- 74.7
228.477 G	33	190	34	196	129.1	72.9	- 4.7	- 60.0
229.345 G	37	246	30	191	129.0	72.6	- 4.8	- 48.6
230.346 G	46	288	28	178	129.3	72.6	- 4.6	- 35.1
231.342 G	45	270	25	148	129.4	72.5	- 4.6	- 21.8
232.158 K	58	267	30	139	129.6	72.5	- 4.7	- 10.8

LEDGER II.—NON-RECURRENT GROUPS of SUN SPOTS for the YEAR 1921—*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.		
Group 9379—continued.								
1921. d					°	°	°	°
233.477 G	40	195	20	99	130.1	72.7	− 4.7	+ 7.1
234.395 C	40	199	22	107	130.4	72.7	− 4.5	+ 19.5
235.364 C	12	114	7	70	130.9	73.0	− 4.0	+ 32.8
236.313 C	8	60	6	44	130.7	72.6	− 4.0	+ 45.2
Means ..	..	..	24	136	129.75	72.72	− 4.53	..
Group 9381.								
August 21–26. One or two small indefinite spots. Nothing is seen on August 25.								
232.158 K	3	17	3	14	86.4	44.8	+ 11.3	− 54.0
233.477 G	16	63	10	39	87.6	45.8	+ 11.0	− 35.4
234.395 C	6	59	3	32	87.1	45.1	+ 11.3	− 23.8
235.364 C	7	27	4	14	89.9	47.8	+ 11.0	− 8.2
236.313 C	0	0	0	0	..	..	..	..
237.378 G	1	11	1	6	89.3	46.8	+ 11.2	+ 17.9
Means ..	..	..	4	18	88.06	46.06	+ 11.16	..
Group 9382.								
August 22–September 2. Two large composite spots, <i>a</i> and <i>b</i> , in stream formation developing rapidly from two small nuclei near the east limb. The leader, <i>a</i> , becomes of regular type by August 29 and then disappears in a few days after dividing into two parts. The other spot, <i>b</i> , splits into two irregular portions on August 28, which diminish rapidly.								
233.477 G	2	16	2	19	56.8	14.1	+ 10.4	− 66.2
234.395 C	5	19	4	16	56.1	13.2	+ 10.2	− 54.8
235.364 C	28	133	20	95	52.2	9.1	+ 11.3	− 45.9
236.313 C	132	495	79	296	52.4	9.2	+ 11.6	− 33.1
237.378 G	191	1245	102	659	53.5	10.1	+ 11.0	− 17.9
238.347 C	139	1346	70	680	52.9	9.3	+ 11.0	− 5.7
239.423 C	191	872	95	440	53.6	9.8	+ 11.1	+ 9.2
240.354 C	124	673	66	365	54.7	10.7	+ 11.3	+ 22.6
241.436 G	105	471	66	299	55.3	11.1	+ 10.7	+ 37.5
242.340 G	59	353	45	273	55.9	11.6	+ 10.2	+ 50.0
243.474 G	10	54	12	67	56.8	12.2	+ 10.4	+ 65.9
244.176 D	2	7	4	13	57.4	12.7	+ 11.2	+ 75.8
Means ..	..	..	47	269	54.80	11.09	+ 10.87	..
Spot <i>a</i> .								
236.313 C	52	217	30	126	54.8	10.6	+ 11.0	− 30.7
237.378 G	76	675	40	351	55.8	11.4	+ 10.7	− 15.6
238.347 C	72	598	36	299	56.6	12.0	+ 10.8	− 2.0
239.423 C	97	407	49	208	56.9	12.1	+ 10.4	+ 12.5
240.354 C	70	416	38	229	57.5	12.6	+ 10.4	+ 25.4

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 9382. Spot <i>a</i> —continued.								
1921. d					°	°	°	°
241.436 G	80	342	52	222	57.3	12.2	+ 10.3	+ 39.5
242.340 G	47	288	37	228	57.4	12.1	+ 10.2	+ 51.5
243.474 G	10	50	12	63	58.0	12.5	+ 10.3	+ 67.1
244.176 D	2	7	4	13	57.4	11.7	+ 11.2	+ 75.8
Spot <i>b</i> .								
235.364 C	19	67	14	49	51.2	10.7	+ 12.1	− 46.9
236.313 C	80	278	49	170	50.8	10.2	+ 11.9	− 34.7
237.378 G	115	570	62	308	50.4	9.6	+ 11.6	− 21.0
238.347 C	67	748	34	381	50.3	9.3	+ 11.4	− 8.3
239.423 C	94	465	46	232	50.3	9.1	+ 11.2	+ 5.9
Group 9387.								
September 7–15. A minute spot discernible 1½ h. later on the Cape photographs. Nothing is then visible until September 10, when a stream makes its appearance and quickly passes through its phases.								
249.338 G	1	4	1	3	238.1	193.0	− 11.1	− 35.4
250.356 G	0	0	0	0	..	..	..	..
251.354 G	0	0	0	0	..	..	..	..
252.500 G	10	32	5	17	240.3	194.6	− 11.2	+ 8.6
253.366 G	48	171	27	95	240.1	194.2	− 11.2	+ 19.8
254.563 G	55	258	38	174	242.9	196.8	− 11.1	+ 38.4
255.347 C	63	279	52	231	243.5	197.3	− 11.0	+ 49.4
256.326 C	24	139	30	171	244.7	198.3	− 11.0	+ 63.5
257.636 G	2	12	11	64	247.0	200.4	− 10.5	+ 83.1
Means ..	..	..	18	84	242.37	196.37	− 11.01	..
Group 9389.								
September 15–24. A small spot and a cluster which separate in longitude. After September 20 the spot dies out and the cluster is represented by a small regular spot and two or three very small followers.								
257.636 G	9	77	8	72	107.1	45.1	− 5.1	− 56.8
258.358 G	47	193	36	148	106.5	44.2	− 5.3	− 47.9
259.367 C	38	146	21	83	108.1	45.6	− 5.3	− 33.0
260.175 D	47	142	27	80	107.0	44.3	− 5.8	− 23.4
261.110 K	27	61	14	32	109.6	46.6	− 5.8	− 8.4
262.358 C	38	125	20	66	112.4	49.2	− 5.0	+ 10.8
263.625 G	34	201	20	121	116.6	53.1	− 5.0	+ 31.7
264.341 G	51	209	35	144	117.3	53.6	− 5.1	+ 41.9
265.429 G	27	132	26	130	119.0	55.0	− 5.5	+ 58.0
266.463 C	19	57	33	100	120.0	55.8	− 5.3	+ 72.6
Means ..	..	..	24	98	112.36	49.25	− 5.32	..

LEDGER II.—NON-RECURRENT GROUPS of SUN SPOTS for the YEAR 1921—*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.		
Group 9392.								
October 8-15. A small stream of feebly sustained activity, not visible on October 10.								
1921. d								
280.505 G	15	38	11	29	173.6	101.0	- 0.2	-48.5
281.428 G	7	33	5	21	173.5	100.6	+ 0.2	-36.4
282.439 G	0	0	0	0	..	..	..	..
283.412 G	13	72	7	37	174.2	100.8	+ 0.1	- 9.6
284.334 C	44	123	23	62	174.4	100.7	+ 0.1	+ 2.8
285.395 G	28	138	15	72	174.9	101.0	- 0.1	+17.3
286.470 G	4	12	2	7	174.8	100.6	- 0.1	+31.4
287.384 G	0	5	0	3	171.3	96.8	+ 2.3	+39.9
Means ..	..	..	8	29	173.81	100.21	+ 0.33	..
Group 9406.								
December 12-20. A few small spots immediately preceding Group 9404.								
345.368 C	15	36	9	22	51.3	332.2	+ 7.4	-35.7
346.314 C	11	31	6	17	52.8	333.5	+ 7.3	-21.7
347.325 C	25	99	13	50	51.8	332.3	+ 6.9	- 9.4
348.414 C	18	68	9	35	52.1	332.3	+ 7.6	+ 5.3
349.411 C	21	146	11	78	52.1	332.1	+ 6.4	+18.4
350.488 G	9	44	5	27	54.0	333.7	+ 6.7	+34.5
351.470 G	11	37	9	28	55.5	335.0	+ 6.6	+48.9
352.330 C	7	31	7	31	55.0	334.3	+ 6.4	+59.7
353.461 G	4	24	8	50	56.1	335.2	+ 6.2	+75.8
Means ..	..	..	9	38	53.41	333.40	+ 6.83	..
Group 9408.								
December 17-24. A stream of small spots in continual change.								
1921. d								
350.488 G	3	11	2	6	5.5	307.7	+12.5	-14.0
351.470 G	44	184	22	95	5.8	307.8	+12.5	- 0.8
352.330 C	45	159	23	83	6.0	307.9	+12.9	+10.7
353.461 G	31	100	18	57	4.2	305.9	+12.4	+23.9
354.338 C	49	125	32	80	3.9	305.4	+12.6	+35.1
355.329 C	21	47	17	37	3.7	305.1	+12.1	+47.9
356.451 G	4	17	5	20	4.7	305.9	+10.9	+63.7
357.315 C	2	11	4	23	5.1	306.1	+11.0	+75.5
Means ..	..	..	15	50	4.86	306.48	+12.11	..
Group 9411.								
1921.—December 28-1922 January 8. Intermittent. A single small spot disappearing by December 31. On January 3 a stream of a few very small spots has appeared in its place.								
361.543 G	0	6	0	9	162.2	80.5	- 7.3	-71.7
362.469 G	0	4	0	4	163.6	81.7	- 7.2	-58.1
363.325 C	0	4	0	3	165.0	82.9	- 7.1	-45.4
364.555 G	0	0	0	0	..	..	..	..
365.336 C	0	0	0	0	..	..	..	..
366.335 C	0	0	0	0	..	..	..	..
367.329 C	18	64	9	32	164.7	81.7	- 6.9	+ 7.0
368.338 C	6	32	4	17	164.5	81.3	- 6.9	+20.1
369.334 C	24	95	15	59	168.2	84.7	- 7.7	+36.9
370.516 G	13	34	11	28	168.6	84.9	- 7.9	+52.9
371.310 C	9	74	10	83	168.8	84.9	- 7.0	+63.5
372.324 C	3	23	8	65	172.2	88.1	- 6.8	+80.3
Means ..	..	..	5	25	166.42	83.41	- 7.20	..



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

1921.

TOTAL AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1921.

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, Kodaikānal and Dehra Dūn, 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.		
1921	d							1921	d								
January	1.407	C	112	593	701	103	595	974	February	11.313	C	52	346	597	48	290	946
	2.330	C	82	451	928	60	330	799		12.325	C	67	313	617	87	426	1106
	3.474	G	166	560	896	106	365	924		13.344	C	51	156	692	38	112	852
	4.395	C	155	563	1669	95	355	2027		14.304	C	52	133	602	35	90	551
	5.332	C	130	619	1071	78	355	1286		15.326	C	22	70	1182	14	44	1235
	6.338	C	72	371	955	36	187	956		16.500	C	15	36	1102	8	19	1435
	7.305	C	39	209	253	21	112	243		17.323	C	20	54	1311	12	31	1591
	8.304	C	35	168	349	26	201	611		18.172	D	92	338	1788	47	171	1737
	9.329	C	65	437	833	105	812	1057		19.638	C	151	978	214	78	507	211
	10.347	C	114	715	1149	119	752	1144		20.465	G	284	1550	134	158	864	155
	11.442	G	318	1573	751	206	1051	870		21.468	G	207	1164	268	136	761	287
	12.341	C	435	2093	452	264	1296	739		22.442	G	191	954	624	147	776	618
	13.342	C	370	2127	1060	232	1326	1011		23.321	C	100	611	792	113	678	958
	14.442	G	485	2137	985	334	1548	935		24.446	G	83	338	671	158	761	991
	15.509	G	290	1317	543	235	1184	780		25.205	D	33	133	918	28	113	1205
	16.474	G	225	861	357	122	556	783		26.458	G	11	40	1135	16	56	1339
	17.341	C	159	951	702	88	516	772		27.349	C	16	87	1905	33	175	2432
	18.466	C	144	818	1304	81	471	1220		28.393	C	25	142	1402	27	154	1411
	19.506	G	134	709	1001	88	535	1117									
	20.310	C	147	669	1514	128	655	2005									
	21.499	G	105	569	1929	86	456	2399	March	1.452	G	24	105	378	18	79	349
	22.324	C	80	400	2294	69	343	2164		2.412	C	18	92	333	11	58	230
	23.329	C	65	239	1551	62	266	1558		3.327	C	9	48	75	5	26	211
	24.318	C	43	168	318	40	226	789		4.330	C	4	15	350	2	8	491
	25.348	C	32	80	191	20	52	222		5.325	C	1	14	962	1	7	946
	26.170	D	41	87	425	23	45	405		6.473	G	0	0	1020	0	0	826
	27.391	C	21	118	583	12	67	699		7.474	G	4	17	697	3	10	656
	28.331	C	26	108	276	15	67	362		8.612	G	6	24	1064	10	40	1132
	29.316	C	16	42	625	11	28	544		9.412	G	44	146	1037	45	153	1201
	30.340	C	17	57	1372	56	183	1495		10.463	G	80	397	747	58	308	975
	31.321	C	22	182	1599	32	276	2065		11.313	C	93	450	476	66	310	779
										12.309	C	116	597	729	84	649	926
										13.616	G	127	620	1167	86	438	1149
February	1.470	G	67	313	1587	61	293	1754		14.513	G	88	478	1494	56	313	1522
	2.529	G	92	468	979	62	323	850		15.413	G	76	519	1404	48	314	1455
	3.494	G	128	518	262	74	299	289		16.315	C	74	416	571	44	244	614
	4.475	G	99	543	155	52	287	208		17.412	G	72	299	894	38	166	854
	5.459	G	106	489	374	61	274	484		18.380	G	72	277	642	48	183	685
	6.356	C	92	490	625	50	273	654		19.476	G	42	241	627	34	229	823
	7.401	C	82	406	733	52	253	791		20.334	C	17	119	559	21	149	576
	8.443	C	116	528	371	71	322	510		21.486	G	49	291	1008	88	572	1106
	9.321	C	67	411	991	41	253	974		22.621	G	119	615	1319	167	877	1534
	10.473	G	61	436	920	44	298	1010		23.421	G	159	832	1940	186	993	2039

TOTAL AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1921.

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.	
1921 March	d							1921 May	d							
24.406	G	182	913	1324	125	654	1477	15.424	C	406	2284	926	204	1155	1111	
25.338	C	193	1057	786	129	698	1054	16.332	G	500	2188	1239	266	1177	1164	
26.318	C	255	1242	523	153	753	588	17.341	G	367	1896	655	223	1169	748	
27.469	G	328	1616	570	188	929	548	18.349	G	305	1394	1416	226	1196	1319	
28.356	C	296	1511	300	164	837	318	19.343	G	219	1006	1686	237	1127	1954	
29.400	G	265	1350	115	154	767	187	20.418	G	127	638	1237	227	1355	1823	
30.397	G	236	1155	423	150	712	412	21.344	G	52	230	416	109	488	670	
31.503	G	184	936	702	140	695	667	22.359	G	38	128	199	22	75	206	
								23.375	G	36	180	135	20	96	174	
								24.392	G	29	143	500	15	74	630	
April								25.347	C	18	34	624	9	18	758	
1.382	G	124	670	965	115	638	1061	26.361	G	8	39	354	4	22	455	
2.462	G	70	463	423	85	643	610	27.441	G	11	62	867	14	155	1026	
3.392	G	48	307	472	41	255	478	28.347	G	13	81	820	17	108	859	
4.439	G	32	301	819	30	327	841	29.439	G	22	83	700	20	75	670	
5.430	G	30	164	654	28	194	968	30.356	C	21	93	534	14	62	629	
6.334	C	75	503	607	75	529	795	31.359	G	5	18	278	4	11	401	
7.381	G	71	557	1017	62	481	1098									
8.368	C	81	461	1380	62	343	1384									
9.400	G	74	280	809	44	167	873									
10.410	G	68	324	490	73	528	634	June	1.507	G	39	152	492	29	116	560
11.314	C	77	461	744	74	438	1078	2.333	C	43	149	287	28	105	501	
12.410	G	99	545	418	72	411	458	3.346	C	51	231	664	27	122	733	
13.337	G	115	579	1071	78	394	889	4.395	C	35	166	720	34	195	1212	
14.348	C	91	647	649	57	390	731	5.526	C	38	206	1553	28	181	1658	
15.337	G	109	660	547	63	367	579	6.411	G	68	328	1903	45	222	1714	
16.339	G	189	907	751	140	641	890	7.415	G	109	492	1327	72	319	1128	
17.374	C	184	1019	861	169	886	1231	8.404	G	119	531	901	80	354	945	
18.347	G	222	1163	1597	181	938	1877	9.734	G	138	740	584	91	455	904	
19.344	G	215	1183	1577	172	960	1929	10.347	G	164	777	113	85	413	319	
20.337	G	202	958	1871	162	807	1997	11.383	G	126	635	119	68	336	90	
21.343	G	163	825	1084	103	535	1221	12.361	G	130	582	516	75	338	435	
22.463	C	142	790	525	75	417	797	13.341	C	72	356	1027	49	248	902	
23.637	G	135	698	198	72	367	276	14.367	C	59	311	1740	52	288	1628	
24.370	C	146	633	146	81	349	208	15.344	G	26	185	1919	43	311	2284	
25.561	G	125	550	0	78	341	0	16.548	G	7	27	993	34	129	1420	
26.634	G	109	457	439	88	356	479	17.380	G	12	94	442	20	158	774	
27.577	G	63	323	894	58	335	1059	18.131	K	19	117	545	21	129	649	
28.337	G	35	161	896	47	223	1092	19.395	C	37	244	503	27	176	624	
29.351	G	10	70	1033	28	197	1150	20.156	D	43	250	484	27	155	582	
30.344	G	0	0	535	0	0	583	21.522	G	68	427	393	36	226	450	
								22.370	C	72	420	417	37	214	411	
								23.549	G	101	501	403	58	279	490	
May								24.339	G	82	475	596	57	373	806	
1.557	G	1	6	284	1	4	371	25.336	G	94	411	979	75	327	1296	
2.341	G	32	142	624	31	138	914	26.655	G	195	874	1430	158	703	1266	
3.375	G	31	162	753	53	284	912	27.356	C	211	1203	729	153	892	617	
4.348	C	6	47	805	37	287	1072	28.358	C	289	1717	237	190	1100	340	
5.339	G	0	0	746	0	0	977	29.340	G	393	2105	459	210	1112	532	
6.345	C	0	0	367	0	0	476	30.585	G	393	2452	834	278	1645	1302	
7.393	C	0	0	821	0	0	998									
8.433	G	9	103	840	43	493	1359									
9.611	G	143	1123	891	202	1565	953	July	1.342	G	420	2208	1259	348	1753	1753
10.348	G	218	1747	672	211	1695	786	2.341	G	347	2133	1685	276	1739	1991	
11.344	G	381	2419	661	270	1715	527	3.358	G	426	2041	1809	325	1557	1621	
12.362	C	479	2373	374	281	1396	488	4.399	C	376	1922	1517	271	1402	1269	
13.375	G	544	2609	814	290	1394	1042	5.411	G	412	2085	1459	268	1437	1639	
14.435	G	545	2776	829	273	1391	865									

TOTAL AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1921.

Greenwich Civil Time.	Place.	Projected Area.			Area Corrected for Foreshortening.			Greenwich Civil Time.	Place.	Projected Area.			Area Corrected for Foreshortening.		
		Umbra.	Whole Spots.	Facula.	Umbra.	Whole Spots.	Facula.			Umbra.	Whole Spots.	Facula.	Umbra.	Whole Spots.	Facula.
1921 October 18:382	G	56	303	578	32	174	756	1921 November 25:316	C	256	1323	114	131	678	359
19:543	G	44	234	179	23	123	195	26:378	C	231	1179	0	126	645	0
20:397	C	42	210	454	21	105	451	27:447	C	199	923	318	126	586	229
21:400	C	36	167	275	18	85	328	28:471	G	173	853	519	138	679	434
22:392	G	36	167	297	21	120	469	29:335	C	95	541	806	99	554	797
23:429	G	143	604	354	124	524	343	30:541	G	37	321	417	82	709	613
24:384	G	300	1486	869	189	974	649								
25:385	G	381	1821	206	234	1114	200								
26:304	C	356	2186	541	230	1403	703								
27:324	C	318	1690	313	236	1314	347	December 1:366	C	3	17	318	2	10	659
28:363	C	257	1391	269	274	1501	492	2:331	C	9	32	170	5	20	124
29:485	G	172	704	0	93	380	0	3:327	C	6	30	127	5	23	110
30:455	C	109	486	0	67	299	0	4:366	C	0	0	117	0	0	133
31:330	C	79	322	434	58	241	356	5:443	C	0	0	100	0	0	139
								6:449	G	1	16	64	1	14	58
November 1:341	C	41	202	407	43	210	370	7:336	C	0	0	0	0	0	0
2:338	C	14	85	460	26	157	629	8:407	C	0	0	69	0	0	170
3:345	C	0	0	75	0	0	219	9:584	C	18	88	355	51	248	583
4:315	C	0	0	268	0	0	381	10:334	C	32	152	530	47	218	650
5:407	G	0	0	97	0	0	114	11:398	C	95	491	881	71	386	780
6:530	G	0	0	86	0	0	198	12:368	C	140	638	514	88	412	438
7:536	G	0	0	462	0	0	576	13:314	C	183	975	127	106	561	156
8:391	G	0	0	248	0	0	230	14:325	C	216	1256	244	116	666	221
9:543	G	0	0	0	0	0	0	15:414	C	216	1586	451	181	1139	714
10:392	G	2	8	0	1	4	0	16:411	C	243	1810	627	174	1251	924
11:408	G	0	0	215	0	0	283	17:488	G	257	1751	554	184	1177	554
12:326	C	31	198	300	69	459	459	18:470	G	357	2059	713	231	1346	566
13:424	G	98	449	758	109	507	920	19:330	C	295	1631	1351	197	1094	1214
14:325	C	111	627	834	91	514	839	20:461	G	220	1140	1161	142	792	1440
15:097	K	166	774	505	113	527	404	21:338	C	196	1055	775	120	685	1479
16:329	C	160	955	0	90	535	0	22:329	C	174	901	380	95	472	408
17:390	C	189	988	112	114	700	167	23:451	G	147	699	122	84	395	138
18:317	C	190	1047	181	109	606	268	24:315	C	101	597	121	65	386	234
19:324	C	203	1353	384	185	1240	627	25:320	C	87	417	712	66	316	551
20:382	C	309	1636	698	228	1243	765	26:496	G	33	260	597	37	282	638
21:339	C	314	1677	586	217	1162	543	27:435	C	49	216	566	70	334	924
22:345	C	267	1669	756	173	1083	538	28:543	G	19	89	229	10	53	311
23:324	C	367	1826	660	227	1181	653	29:469	G	7	32	59	4	18	59
24:475	G	321	1699	321	219	1183	568	30:325	C	0	4	0	0	3	0
								31:555	G	2	12	75	1	7	74

MEAN AREAS of SUN SPOTS and FACULÆ for each ROTATION of the SUN, from 1920 December 30 to 1921 December 18.

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 1873-1920 printed in the Greenwich Observations for 1884 and succeeding years) correspond to the synodic rotation of the Sun, and the commencement of each is defined by the coincidence of the assumed prime meridian with the central meridian, the assumed prime meridian being that meridian which passed through the ascending node at mean noon on January 1, 1854, and the assumed period of the Sun's sidereal rotation being 25.38 days. The numeration of the rotations is in continuation of Carrington's series (*Observations of Solar Spots made at Redhill* by R. C. Carrington, F.R.S.), No. 1 being the rotation commencing 1853 November 9. The dates of commencement of the rotations are given in Greenwich Civil Time, reckoning from midnight.

No. of Rotation.	Date of Commencement of each Rotation.			No. of Days on which Photographs were taken.	Mean of Daily Areas.					
					Projected.			Corrected for Foreshortening.		
					Umbræ.	Whole Spots.	Faculæ.	Umbræ.	Whole Spots.	Faculæ.
			d							
900	1920	December	29.41	27	162	785	949	113	586	1094
901	1921	January	25.75	27	77	383	755	51	254	859
902		February	22.09	27	53	266	840	44	237	939
903		March	21.41	28	136	727	775	104	576	876
904		April	17.70	27	147	790	751	105	600	904
905		May	14.93	27	110	528	783	80	402	899
906		June	11.14	27	188	1014	866	129	702	987
907		July	8.34	28	99	492	734	67	331	796
908		August	4.55	27	73	391	463	51	267	539
909		August	31.79	27	95	423	512	68	328	567
910		September	28.06	27	42	200	426	33	167	485
911		October	25.34	28	125	664	301	92	504	360
912		November	21.65	27	138	786	366	96	547	414

MEAN AREAS of SUN SPOTS and FACULÆ for the YEAR 1921.

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

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

Year.	No. of Days on which Photographs were taken.	Mean of Daily Areas.					
		Projected.			Corrected for Foreshortening.		
		Umbræ.	Whole Spots.	Faculæ.	Umbræ.	Whole Spots.	Faculæ.
1921	365	110	571	647	79	420	739

MEAN HELIOGRAPHIC LATITUDE of SUN SPOTS for each ROTATION of the SUN, from 1920 December 30 to 1921 December 18.

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.		
900	1920	December 29 ^d 41	27	118	5 ^o 17	468	10 ^o 93	— 7 ^o 69	9 ^o 77
901	1921	January 25 ^d 75	27	7	10 ^o 64	247	11 ^o 57	— 11 ^o 00	11 ^o 55
902		February 22 ^d 09	27	83	8 ^o 30	154	8 ^o 92	— 2 ^o 92	8 ^o 70
903		March 21 ^d 41	28	455	10 ^o 89	121	9 ^o 41	+ 6 ^o 62	10 ^o 58
904		April 17 ^d 70	27	527	3 ^o 16	72	14 ^o 64	+ 1 ^o 02	4 ^o 54
905		May 14 ^d 93	27	381	2 ^o 98	21	7 ^o 77	+ 2 ^o 42	3 ^o 23
906		June 11 ^d 14	27	490	9 ^o 79	212	7 ^o 45	+ 4 ^o 58	9 ^o 09
907		July 8 ^d 34	28	116	8 ^o 24	216	9 ^o 20	— 3 ^o 11	8 ^o 87
908		August 4 ^d 55	27	155	11 ^o 05	112	7 ^o 08	+ 3 ^o 46	9 ^o 39
909		August 31 ^d 79	27	255	9 ^o 80	73	8 ^o 16	+ 5 ^o 80	9 ^o 44
910		September 28 ^d 06	27	164	6 ^o 58	3	10 ^o 38	+ 6 ^o 28	6 ^o 65
911		October 25 ^d 34	28	435	6 ^o 40	69	6 ^o 12	+ 4 ^o 68	6 ^o 36
912		November 21 ^d 65	27	272	7 ^o 62	275	5 ^o 76	+ 0 ^o 90	6 ^o 69

MEAN HELIOGRAPHIC LATITUDE of SUN SPOTS for the YEAR 1921.

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.		
1921	365	261	7 ^o 27	159	8 ^o 92	+ 1 ^o 13	7 ^o 90