

**GREENWICH
PHOTO-HELIOGRAPHIC
RESULTS.**

1919.

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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
1919.

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538.74723
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LONDON:
PRINTED & PUBLISHED BY HIS MAJESTY'S STATIONERY OFFICE

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1923.

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GREENWICH PHOTO-HELIOPHOTOGRAPHIC RESULTS, 1919.

INTRODUCTION.

§ 1. Positions and Areas of Sun Spots and Faculae for each Day in the Year 1919.

The photographs from which these measures were made were taken at the Royal Observatories of Greenwich or of the Cape ; at the Kodaikánal Observatory, Southern India ; or at Dehra Dún, 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 Kodaikánal under the superintendence of Mr. John Evershed, Director of that Observatory. The photographs from Dehra Dún, which have been forwarded by the Solar Physics Committee to fill the gaps in the combined series, were taken under the superintendence of the Deputy Surveyor-General, Trigonometrical Survey of India. At three of the observatories the instrument employed was a Dallmeyer Photo-heliograph giving an image of the Sun about 10 centimetres in radius ; at Kodaikánal a Cooke photo-visual object-glass of 6 inches aperture was used, the image of the Sun being on about the same 10-centimetre scale.

Photographs of the Sun were available for measurement upon each day in 1919, those finally selected for measurement being supplied by the different observatories as under :—

Greenwich	146
Cape	208
Kodaikánal	5
Dehra Dún	6
Total	365

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The names of those persons who measured the photographs for the year 1919 are as follows :—

Annie S. D. Maunder

H. W. Newton

S. Woolford

Andrina M. Crommelin

E. Martin

F. Jeffries

H. Barton

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

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

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

The zero-correction used throughout the year 1919 in the reduction of the photographs taken at Greenwich was $+2^{\circ}7$.

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DALLMEYER PHOTO-HELIOPHOTOGRAPH, 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 ° '
1919 March 25. 11	+ 2 35	1919 August 11. 15	+ 2 44
April 18. 9	+ 2 32	" 18. 10	+ 2 45
" 18. 10	+ 2 34	" 18. 11	+ 2 45
May 6. 11	+ 2 42	" 30. 9	+ 2 37
" 6. 11	+ 2 52	" 30. 9	+ 2 30
" 21. 9	+ 2 37	September 10. 9	+ 2 39
June 17. 11	+ 2 26	" 10. 9	+ 2 31
" 17. 11	+ 2 42	" 18. 8	+ 2 43
July 21. 9	+ 2 37	" 29. 10	+ 2 31
" 21. 9	+ 2 35	" 29. 10	+ 2 39
" 31. 8	+ 2 38	October 16. 9	+ 2 36
" 31. 9	+ 2 42	" 16. 9	+ 2 35
August 11. 9	+ 2 45	November 12. 10	+ 2 43

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 ° '
1919 May 14. 8 to 16	+ 2 42 (mean)	1919 September 29. 10	+ 2 48
" 15. 8 to 10	+ 2 36 (mean)	October 3. 10	+ 2 42
" 27. 9	+ 2 36	" 7. 12	+ 2 43
" 27. 14	+ 2 39	" 9. 10	+ 2 40
" 27. 17	+ 2 40	" 16. 13	+ 2 43
" 30. 10	+ 2 41	" 19. 11	+ 2 40
June 5. 14	+ 2 39	" 19. 11	+ 2 37
" 7. 17	+ 2 48	" 30. 10	+ 2 43
" 10. 11	+ 2 49	November 11. 10	+ 2 43
" 15. 16	+ 2 41	" 12. 11	+ 2 39
" 15. 16	+ 2 46	" 12. 11	+ 2 44
" 17. 11	+ 2 40	" 18. 10	+ 2 42
July 4. 9	+ 2 35	" 24. 10	+ 2 44
" 9. 8	+ 2 39	" 26. 10	+ 2 40
" 16. 10	+ 2 39	December 6. 11	+ 2 43
" 21. 9	+ 2 38	" 17. 12	+ 2 45
" 31. 9	+ 2 37	" 18. 11	+ 2 45
Sept. 10. 9	+ 2 40	" 24. 11	+ 2 46
" 18. 9	+ 2 40		

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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	° '	d h	° '
1919 January 3. 9	+ 0 16	1919 May 21. 9	+ 0 26
" 18. 8	+ 0 12	June 6. 9	+ 0 5
February 3. 10	+ 0 10	July 24. 9	+ 0 27
" 18. 9	+ 0 25	September 1. 10	+ 0 20
March 4. 8	+ 0 31	" 16. 9	+ 0 29
" 24. 10	+ 0 17	October 20. 11	- 0 30
April 4. 10	+ 0 22	November 20. 11	- 0 30
" 23. 11	+ 0 20	December 5. 9	- 0 40
May 7. 8	+ 0 21	" 19. 9	- 0 40

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

Jan. 1 to June 30, + 0°.3; July 1 to Oct. 2, + 0°.4; Oct. 5 to Dec. 31, - 0°.6.

The zero-correction adopted for the Kodaikánal photographs was + 0°.2.

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.

The zero-correction adopted for the Dehra Dûn photographs was—0°.9.

The measures of the photographs were made with a large position-micrometer constructed by Messrs. Troughton and Simms for the measurement of photographs of the Sun up to 12 inches in diameter. In this micrometer the photograph is held with its film-side uppermost on three pillars fixed on a circular plate, which can be turned through a small angle, about a pivot in its circumference, by means of a screw and antagonistic spring acting at the opposite extremity of the diameter. The pivot of this plate is mounted on the circumference of another circular plate, which can be turned by screw-action about a pivot in its circumference, 90° distant from that of the upper plate, this pivot being mounted on a circular plate with a position-circle which rotates about its centre. By this means small movements in two directions at right angles to each other can be readily given, and the photograph can be accurately centred with respect to the position-circle. When this has been done, a positive eyepiece, having at its focus a glass diaphragm ruled with

cross-lines into squares, with sides of one-hundredth of an inch (for measurement of areas), is moved along a slide diametrically across the photograph, the diaphragm being nearly in contact with the photographic film, so that parallax is avoided. The distance of a spot or facula from the centre of the Sun is read off by means of a scale and vernier to 1-250th of an inch (corresponding to 0.001 of the Sun's radius for photographs having a solar diameter of 8 inches). The position-angle is read off on the large position-circle which rotates with the photographic plate. The photograph is illuminated by diffused light reflected from white paper placed at an angle of 45° between the photograph and the plate below.

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

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

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

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

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

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

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

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The position-angle α is found from the position-angle from the North Point by subtracting P , the position-angle of the N end of the Sun's axis, measured eastward from the North Point of the disc. The heliographic longitude of the spot is $l+L$, where L is the heliographic longitude of the centre of the disc. The three quantities P , D , and L for the time of the exposure of each photograph are derived from the Ephemeris for Physical Observations of the Sun given on p. 512 of the *Nautical Almanac* for 1919.

The inclination of the Sun's axis to the ecliptic is assumed to be $82^\circ 45'$, the longitude of the ascending node for 1919·0 to be $74^\circ 37' 8$, 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 1919.

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 1918 and previous years. Groups seen only once are not included, but appear in the Daily Results with a distinctive numeration.

During the year 1919, 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 1919.

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

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Sun. Similarly, if any spot group when last seen was 60° or more to the west of the Central Meridian, then the Catalogue was searched some fifteen or sixteen days later, to ascertain whether a spot group of similar heliographic longitude and latitude was then near the east limb of the Sun. Both the search forward and the search backward have been made in the case of every spot group that was observed close to both the east and west limbs, in order that no possible case of identity might be overlooked. When there appeared to be a case of probable identity between spot groups observed in two consecutive rotations of the Sun, the character of the second group has been carefully compared with that of the first in each of the three elements—area, longitude, and latitude. In cases where the evidence appeared to render probable the continued existence of the spot, it has been numbered in the Ledger, and where there has been some uncertainty a note has been added. If, on the other hand, the evidence appeared to go in the other direction, but was not quite decisive, the series has been printed in the Ledger but a separate number has not been given it. It has been distinguished by the number of the preceding series, placed in brackets and marked with an asterisk. In cases where a well-defined series has been recorded, there have sometimes been included in brackets spot groups undoubtedly belonging to the same general disturbance, but for which the evidence of continuity was not sufficient.

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

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

§ 4. *Total Areas of Sun Spots and 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 1919.*

Particulars relating to this section are given in the headings on pages D 122-3.

F. W. DYSON.

Royal Observatory, Greenwich,
1923 February 15.

ROYAL OBSERVATORY, GREENWICH.

POSITIONS AND AREAS
OF
SUN SPOTS AND FACULÆ.

FOR EACH DAY IN THE YEAR

1919.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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), Kodaikanal (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 Faculae from Sun's centre in terms of the Sun's radius.

Col. 4. Position Angle of Spot Group or Faculae 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 Faculae similarly expressed. The positions of Faculae relative to the Spots with which they are associated are indicated by the letters *n*, *s*, *p*, *f*, *c*, denoting respectively north, south, preceding, following, concentric.

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 Faculae for the day.

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.	Faculae.			Dist.	Pos. Angle.	Long.	Lat.	Umbræ.	Whole Spots.	Faculae.
1919. 0·383	C	°	°	°			99		1919. 2·359	C	°	°	°				
		·992	292·3				252		·956	245·9						151	
		·979	252·3				86		·898	238·5						131	
		·963	301·1				102		·890	254·9						98	
		·943	236·5				64		·835	286·1						133	
		·919	271·0				71		8788	258·5	273·5	—11·0	5	14			163c
		·899	287·1				121		8783	602	242·9	257·5	—18·6	2	8		
		·867	245·6						8790	354	329·9	233·7	+14·5	2	12		
		·397	248·3	271·2	—11·3	17	57		8792	894	83·3	160·5	+4·5	3	10	4338f	
		·327	206·7	258·2	—19·9	2	14		8791	952	98·6	151·0	—9·2	48	224	369s	
		·8784	·291	335·1	256·4	+12·1	2	8		·813	123·8						102
Jan. 1	C	·873f	·195	190·0	251·2	—14·1	1	3		·861	60·3						129
		·403	43·3	232·7	+14·0	1	3		·929	119·7						134	
		·779	130·3						·972	87·7						98	
		·840	80·6							(+1·3)	(223·2)	(—3·3)	(60)	(268)	(1941)		
		·891	128·5													100	
		·986	65·3													141	
		(+2·3)	(249·2)	(—3·1)	(23)	(85)	(1250)	3·350								175	
																143	
																319	
																317	
																143	
																129	
I·404	C	·963	284·7				126		·747	287·6							858f
		·963	251·6				115		·725	244·4							
		·877	243·8				141		·826	306·7	258·1	+27·2	2	5			
		·8788	·618	256·0	273·2	—11·1	9	16	C	8793	569	101·6	175·9	—9·4	1	4	
		·8783	·435	231·9	256·8	—18·5	1	12		8792	734	82·7	163·5	+3·1	0	3	216f
		·8790	·298	7·0	233·6	+13·9	7	28		8791	856	98·5	151·3	—9·1	24	182	288sf
		·8791	·995	98·6	151·3	—8·8	53	216			·749	54·8					103
			·795	133·2							·917	83·4					170
			·867	98·2							·921	68·9					100
			·923	119·6							·923	57·2					123
			·945	63·5							·984	96·2					129
			·967	85·4							·993	67·8					171
			(+1·8)	(235·7)	(—3·2)	(70)	(272)	(1472)	Jan. 4		(+0·8)	(210·1)	(—3·4)	(27)	(194)	(2852)	

Group 8783, 1918, Dec. 25-1919, Jan. 3. A small regular spot gradually disappearing. Part of a large general disturbance with Groups 8782 and 8788.

Group 8784, 1918, Dec. 25-1919, Jan. 1. A possible return of Group 8762. A small spot followed by an extended area of faculae.

Group 8788, 1918, Dec. 26-1919, Jan. 3. A small spot, *not* Group 8782 in the same general area of faculae, from which develops a small stream. The only important component is the leader, a regular spot.

Group 8790, Jan. 1-3. A few small faint spots.

Group 8791, Jan. 2-12. Return of Group 8766; third apparition. A regular spot disappearing rapidly after Jan. 10.

Group 8792, Jan. 3-8. One or two small spots.

Group 8793, Jan. 4-9. Intermittent. A very small spot on Jan. 4; one or two ill-formed spots on Jan. 8 and 9.

GREENWICH PHOTO-HELIOPHOTOGRAPHIC RESULTS, 1919.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.			Dist.	Pos. Angle.	Long.	Lat.	Umbræ.	Whole Spots.	Faculæ.	
1919. 4·366	C	·988	256·6	°	°			161	1919. 7·355	·933	253·1	°	°			79	
		·971	288·1					195		·840	240·8					110	
		·939	257·1					851		·780	299·9					67	
		·923	300·5					143		·312	252·3	174·8	— 9·1	4	21		
		·856	285·1					228		·157	350·6	158·9	+ 5·0	1	4		
		·854	249·1					401		·144	124·9	150·6	— 8·5	35	160		
		·800	296·5					61		·8794	·535	64·0	128·3	+ 10·1	119	655	
		·564	79·7	163·1	+ 2·8	4	11			·8795	·724	63·9	115·1	+ 15·6	15	47	
		·716	99·0	151·2	— 8·8	26	165			·890	101·7					58	
		·933	78·6	129·0	+ 9·3	0	8			·895	85·1					182	
		·840	85·7							·919	71·9					87	
		·852	64·3							·924	58·3					75	
		·940	96·3							·971	101·6					152	
		·941	54·7							(—1·1)	(157·4)	(—3·9)	(174)	(887)	(810)		
Jan. 5		·945	65·9														
		·984	86·2														
		(+0·3)	(196·7)	(—3·5)	(30)	(184)	(3590)										
5·484	G	·991	254·3						8·423		·959	247·3					82
		·952	283·3								·897	292·2					101
		·951	250·8								·874	234·4					130
		·849	289·8								·8793	·561	258·4	177·0	— 9·8	2	19
		·354	73·0	162·3	+ 2·5	5	21				·8791	·149	234·4	150·3	— 8·9	21	141
		·791	101·0	150·8	— 8·8	35	156				·8794	·344	44·1	129·3	+ 10·3	106	627
		·8794	77·2	126·6	+ 8·5	28	133				·8795	·564	55·0	114·8	+ 15·3	46	187
		·837	62·2								·8796	·992	107·8	60·0	— 18·1	8	61
		·856	95·3									·775	77·5				290
		·866	82·8									·860	100·4				108
		·923	68·8									·955	52·2				108
		·946	96·8									·956	78·3				61
		·965	(—0·2)	(182·0)	(—3·7)	(68)	(310)	(2242)				(—1·6)	(143·3)	(—4·0)	(183)	(1035)	54
Jan. 6																(673)	
6·345	C	·988	251·2						9·361		·966	292·1					110
		·972	284·9								·934	234·2					204
		·890	249·4								·916	263·7					46
		·210	54·5	160·9	+ 3·2	1	18				·916	273·0					58
		·8791	·350	104·9	150·8	— 8·7	28	175			·870	284·5					91
		·719	71·8	126·9	+ 10·2	42	391				·836	227·5					53
		·762	57·2								·8791	·341	254·1	150·2	— 9·2	13	121
		·783	97·2								·8794	·262	5·3	129·5	+ 11·0	88	654
		·843	81·4								·8795	·433	41·0	113·9	+ 15·1	54	318
		·874	66·8								·8796	·949	108·1	59·2	— 18·5	29	139
		·927	94·8									·802	102·9				2650
		·960	81·3									·898	74·5				118
Jan. 7		(—0·6)	(170·7)	(—3·8)	(71)	(584)	(1645)	Jan. 10				·927	50·5				66
											·954	121·7				55	
											(—2·1)	(130·9)	(—4·1)	(184)	(1232)	69	
															(1135)		

Group 8794, Jan. 5-16. A large group of the "stream" type, whose components are very complex for several days. The group originates in the usual way from two spot nuclei at the east limb, but its early stages of development are not so clearly marked as in a typical stream of normal type.

Group 8795, Jan. 8-17. A stream of spots f Group 8794. The largest and most stable component is a partially formed regular spot at the rear, but this breaks up into two portions after Jan. 13.

Group 8796, Jan. 9-15. A regular spot quickly dying out. Numerous very small spots appear near its position on Jan. 14 and 15.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.	
1919. 10·370		°	°	°					54	12·493	8800	°	°	°	76	182c		
		·976	261·0						127			·953	752	19·2	+12·6	14	134	
		·952	286·0						153	C		·796	74·0				102	
		·952	231·7						56			·899	110·8				352	
		·830	262·2						129			·906	97·6				387	
		·822	303·8						146	Jan. 13		·993	99·3				(3541)	
		·746	278·0	171·9	-18·6	12	38		85c			(-3·6)	(89·7)	(-4·4)	(226)	(1528)		
	8797	·819	250·2									·977	299·4				97	
C	8791	·539	259·7	150·0	-9·1	9	84			13·426		·955	259·8				272	
	8794	·327	321·0	129·7	+10·5	145	892					·953	273·0				163	
	8795	·348	12·0	113·4	+15·6	54	305					·948	291·3				153	
	8796	·857	108·6	59·3	-18·0	25	135					·905	250·9				110	
	8798	·966	97·0	42·5	-7·8	61	258					·893	309·8				76	
		·933	61·2									·835	300·8				94	
		·983	79·1									·795	263·2				74	
Jan. 11		(-2·6)	(117·7)	(-4·2)	(306)	(1712)	(1924)											
11·386		·959	234·0						82	C	8794	·820	284·7	130·7	+9·3	93	680	221c
		·951	262·3						93		8795	·649	300·1	112·8	+15·3	29	164	
		·883	299·4						135		8796	·434	125·6	55·6	-18·8	6	34	
		·859	275·8						266		8798	·570	97·3	42·7	-7·9	49	277	
	8797	·925	251·9	171·9	-18·3	12	65		120c		8800	·866	72·4	19·8	+12·7	43	126	76c
	8791	·717	261·4	150·0	-9·1	5	12		90c		8801	·966	111·1	2·0	-21·5	6	11	139n
C	8794	·492	299·2	130·0	+9·9	84	843				8802	·993	95·6	354·0	-6·1	8	61	89c
	8795	·368	335·8	113·3	+15·3	46	247					·767	94·8				83	
	873h	·134	2·9	103·9	+3·4	1	3					·880	97·2				99	
	8799	·473	120·2	79·0	-17·6	3	10					·945	99·4				367	
	8796	·726	111·2	59·0	-18·3	16	60					·970	85·9				95	
	8798	·885	96·4	42·0	-7·7	50	287		540f	Jan. 14		(-4·0)	(77·4)	(-4·5)	(234)	(1353)	(2208)	
		·785	111·9						186									
		·914	77·6						173	14·334		·983	256·3				184	
		·946	110·2						71			·973	272·5				64	
		·980	97·4						234			·962	248·0				97	
Jan. 12		(-3·0)	(104·3)	(-4·3)	(217)	(1527)	(1990)					·922	297·5				140	
												·916	263·6				111	
												·846	264·5				196	
12·493		·987	253·5						321	C	8794	·801	280·4				70	
		·978	296·0						223		8795	·927	282·5	132·0	+9·8	79	635	952c
		·960	275·0						326		8796	·771	295·1	111·9	+15·9	28	183	441c
		·934	239·6						109		8797	·245	165·1	61·7	-18·3	1	9	
		·877	277·5						191		8798	·387	99·4	42·9	-7·9	48	266	
		·873	260·6						328		8803	·580	113·7	31·9	-17·3	4	7	
C	836	·297·2							96		8800	·751	68·7	19·9	+12·6	37	143	144c
	·807	252·6							107		8801	·901	111·7	1·7	-21·4	8	18	460c
	·728	304·9							81		8802	·947	95·7	354·1	-6·9	14	91	479s
	8794	·682	290·2	130·1	+10·2	107	911	103c				·857	98·7				345	
	8795	·497	312·2	112·1	+15·3	45	205					·896	87·3				101	
	8799	·291	144·0	79·4	-17·9	3	17					·949	120·7				99	
	8796	·546	117·6	59·2	-18·3	7	23					·974	62·1				119	
	8798	·735	96·9	42·4	-8·0	50	296	499f	Jan. 15			(-4·5)	(65·5)	(-4·6)	(219)	(1352)	(4002)	

Group 8797, Jan. 11-12. A small stream appearing near the west limb.
 Group 8798, Jan. 11-22. Return of Group 8773. A regular spot, dividing into two portions on Jan. 17. There are occasional very small companions.
 Group 8799, Jan. 12-13. One small spot on Jan. 12; a very small cluster on the following day.
 Group 8800, Jan. 13-22. A sparse stream of unimportant spots. Only the leader remains on Jan. 22.
 Group 8801, Jan. 14-17. Return of Group 8774; a small spot.
 Group 8802, Jan. 14-21. A small spot which has disappeared on Jan. 18. A very small spot appears near its position on Jan. 19, and two on Jan. 21.
 Group 8803, Jan. 15-19. A few very small spots.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.	
1919. 15·475			°	°	°				1919. 18·367			°	°	°				
	8794	·965	262·5							8805	·941	274·4					92	
		·924	278·0							8798	·931	262·3					135	
G	8795	·985	282·2	129·0	+11·0	126	575	330n ^f		8803	·892	286·1					92	
	8798	·893	289·8	110·8	+15·3	20	105	390c		8798	·517	254·2	75·5	-16·3	13	33		
	8803	·138	115·8	43·2	-8·1	50	272		C	8803	·413	263·5	43·5	-7·7	21	162		
	8800	·376	126·0	31·9	-17·1	7	24			873j	·457	238·5	33·9	-17·1	0	2		
	8801	·560	59·8	20·8	+12·2	14	66			8800	·332	316·7	31·2	+14·6	1	8		
	8802	·774	114·2	1·2	-21·5	4	16	47c		8808	·151	335·6	20·4	+12·4	15	60		
	8804	·838	94·8	353·4	-6·6	5	28	218s		8809	·127	340·4	15·3	+3·1	1	3		
		·946	69·0	342·4	+18·0	3	12	123f		8810	·995	343·9	6·3	-9·0	0	7		
		·918	60·8					136			·895	82·1	289·1	+7·3	0	43	61c	
Jan. 16		·946	108·0					233			·930	108·3	(-6·3)	(12·4)	(-5·0)	(51)	82	
			(-5·0)	(50·4)	(-4·7)	(229)	(1098)	(1816)	Jan. 19						(318)	93		
16·513		·914	262·7					96									73	
		·904	273·9					115									237	
	8795	·964	287·3	109·1	+15·2	22	83	250c	19·350		·948	282·7					158	
G	8805	·630	285·0	74·2	-18·0	1	5			8798	·874	248·2					167p	
	8798	·133	247·0	43·7	-8·2	50	235			8805	·791	245·9						
	8803	·229	243·5	32·9	-17·4	8	25			8798	·958	254·3	73·3	-16·5	2	12		
	8806	·072	163·5	32·8	-5·5	2	8		C	8800	·687	264·4	42·8	-7·6	14	99		
	8800	·359	32·8	23·7	+11·6	12	45			8800	·491	308·6	22·5	+13·0	13	38		
	8801	·620	119·5	1·5	-21·7	4	10			874a	·414	353·0	+18·4	3	14	287f		
	8807	·641	67·5	359·9	+10·4	2	8			8810	·947	80·8	289·3	+7·0	6	29		
G	8802	·684	95·0	353·6	-6·9	5	13	131f			·925	114·6					75	
	8804	·840	65·5	343·8	+17·4	3	14	136s			·946	75·2					71	
	873i	·901	100·8	332·3	-11·9	0	2				·967	97·1					112	
		·812	55·5					177			·976	104·4	(-6·8)	(359·4)	(-5·1)	(38)	189	
		·839	110·5					144									1369	
		·922	91·3					69										
Jan. 17		·938	117·5	(-5·5)	(36·8)	(-4·8)	(109)	(448)	(1399)	Jan. 20							231	
										20·355	·953	251·0					238	
17·509		·968	270·7					59			·898	247·3					43	
		·939	259·2					78			·874	285·2					97	
	8795	·903	277·9					57			·755	269·3					230f	
G	8806	·829	254·3					93			8798	·839	264·0	43·4	-7·9	17	65	
	8798	·351	260·8	44·1	-7·8	30	215			8800	·640	298·1	21·5	+13·2	11	36		
	8806	·180	263·2	34·0	-6·0	0	3			C	8809	·346	258·6	6·2	-8·8	1	3	
	8803	·269	215·3	33·0	-17·4	2	11			8802	·147	251·6	354·3	-7·8	1	10		
	8800	·290	360·1	23·5	+11·8	12	29			874b	·488	358·8	346·8	+23·9	1	7		
	8808	·204	49·3	14·8	+2·8	0	4			8810	·852	78·2	289·2	+7·2	6	19		
	8807	·486	56·7	359·4	+11·0	2	9			8811	·965	102·7	270·8	-13·6	26	139		
	8802	·485	100·7	354·9	-9·4	1	6				·879	99·4					567c	
	8804	·701	58·9	344·9	+17·4	2	6				·926	68·8					142	
Jan. 18			(-5·9)	(23·7)	(-4·9)	(49)	(283)	(287)	Jan. 21			·944	84·8	(-7·2)	(346·2)	(-5·2)	(63)	138
																	190	
																	190	
																	(2057)	

Group 8804, Jan. 16-18. A very small spot, appearing double on Jan. 17.

Group 8805, Jan. 17-20. A dot not seen on the following day; a small group has formed in its place on Jan. 19.

Group 8806, Jan. 17-18. A very small spot.

Group 8807, Jan. 17-18. A very small spot on Jan. 17; a pair on Jan. 18.

Group 8808, Jan. 18-19. A single small spot.

Group 8809, Jan. 19-21. A small spot not seen on Jan. 20.

Group 8810, Jan. 19-26. A small spot diminishing to a dot with an occasional faint companion.

Group 8811, Jan. 21-Feb. 1. Revival of Group 8788. A diminishing regular spot with occasional small companions.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.		
1919. 21.224		·969	250·0	°	°				179	24·339	·988	245·4	°	°					
		·951	282·8						64		·956	262·2					101		
		·882	270·1						79		·890	249·3					267		
		·830	251·4						76		·861	298·1					231		
		·809	262·1						102		·861	262·4					124		
K	8798	·925	264·4	42·5	— 7·2	13	29	290sf		8812	·656	251·4	333·9	— 16·3	2	8			
	8800	·823	287·6	27·6	+ 11·2	1	11	62f	C	8813	·625	300·6	327·2	+ 14·0	1	2			
	8810	·741	75·6	288·6	+ 6·9	1	6	98f		8810	·223	20·4	289·2	+ 6·6	0	4			
	8811	·896	102·8	270·8	— 13·8	27	127	494c		8811	·393	114·6	272·1	— 14·5	13	102			
		·861	83·0						93		874c	·569	115·0	260·9	— 18·5	1	10	172	
		·923	64·4						155			·902	105·4				55		
		·947	78·6						154			·930	71·7				100		
		·970	108·0						566			·968	116·8				31		
Jan. 22										Jan. 25							(1146)		
22.364		·982	257·1						246	25·379	·962	251·1					277		
		·979	266·2						367		·953	263·7					181		
		·937	262·6						298		·912	293·2					70		
		·931	251·3						113		·909	239·7					76		
		·882	287·3						382		·907	303·7					81		
C		·855	245·7						91		8813	·801	292·3	329·6	+ 14·0	3	12		
		·779	262·1						200		8810	·269	318·7	290·2	+ 6·1	2	7		
	8812	·290	224·3	331·9	— 17·2	1	4			C	8814	·155	218·1	285·6	— 12·6	1	3		
	8810	·535	66·8	290·1	+ 7·4	1	3				8815	·093	255·1	285·2	— 7·0	24	109		
	8811	·747	104·2	271·6	— 14·2	16	113	510f			874d	·152	24·8	276·4	+ 2·4	0	6		
		·835	60·7						81		8811	·204	140·6	272·3	— 14·6	16	101		
		·902	73·2						109			·791	64·7				39		
		·911	110·8						398			·876	114·5				66		
Jan. 23										Jan. 25							(1123)		
23.361		·965	260·8						158	26·486	·940	297·0					65		
		·960	284·8						380			·924	252·2				166		
		·942	246·8						85			·874	241·6				92		
		·876	261·4						250			8813	·926	286·8	330·9	+ 13·2	0	9	
		·786	248·2						133			874e	·898	260·4	329·7	— 11·1	9	28	
C		·748	266·9						59		G	8815	·359	264·9	286·5	— 7·2	97	403	
	8812	·469	244·4	332·7	— 16·5	1	5					8814	·373	247·2	286·1	— 13·6	0	3	
	8810	·368	56·2	288·7	+ 6·6	1	4					8811	·196	218·4	272·7	— 14·4	24	110	
	8811	·579	107·5	272·0	— 14·5	15	112					874f	·215	114·3	254·1	— 10·6	1	3	
		·791	69·6						68			874g	·696	63·8	225·7	+ 13·5	4	9	
		·805	53·6						53			·946	117·0						
		·810	112·2						207										
		·917	64·8						78										
Jan. 24										Jan. 27							(586)		

Group 8812, Jan. 23-25. A minute spot.

Group 8813, Jan. 25-27. A very small spot.

Group 8814, Jan. 26-30. A small group, & Group 8815, consisting at first of one and then of two small spots.

Group 8815, Jan. 26-Feb. 1. A stream of normal type passing rapidly through its first phases.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.	
1919. 27·418	C	·970	260·4	°	°	°			85	1919. 30·304	·946	257·6	°	°			318	
		·970	286·3						97		·934	277·4					155	
		·944	248·8						111		·763	250·8					387	
		8814	·592	255·0	289·1	-13·6	7	21			·662	243·6					165	
		8815	·569	266·6	287·9	-6·6	93	553			8815	·980	265·1	294·7	-5·9	45	352	
		8811	·363	244·4	272·9	-14·4	17	100			8811	·842	257·0	272·8	-14·2	10	52	
		8744	·436	152·6	240·1	-28·4	1	3		D	8817	·652	320·2	242·4	+24·6	14	50	
		·857	69·5						61		8744	·412	111·6	192·0	-14·2	0	3	
		·888	133·2						86		8818	·975	94·4	137·8	-5·6	48	121	
		·907	117·8						57		8819	·981	81·6	137·6	+7·0	27	145	
		·929	97·0						78		·801	79·3					98	
		·968	107·8						94		·862	99·4					168	
		·969	127·4						96		·976	67·8					133	
Jan. 28		·981	85·2						66	Jan. 31		(-11·6)	(215·2)	(-6·0)	(144)	(723)	(3203)	
28·359	C	·959	252·3						64	31·404	·935	294·2					103	
		·953	236·0						78		·904	283·6					93	
		·867	290·4						106		·845	247·2					326	
		·771	283·6						153		8815	·994	265·0	284·7	-5·6	0	39	
		8816	·877	252·3	302·2	-18·3	2	14	83f		8811	·946	256·8	272·4	-14·4	6	105s	
		8715	·750	266·5	289·5	-6·4	97	564	115c	C	8817	·776	308·6	242·3	+24·4	64	336c	
		8814	·747	257·4	289·1	-13·2	18	85	112c		8819	·866	77·8	142·4	+7·3	143	91c	
		8811	·536	252·4	272·5	-14·2	9	83			8818	·863	93·6	140·9	-6·2	25	610	
		·826	98·4						65		8820	·944	102·4	129·4	-13·7	19	489c	
		·913	126·7						109		8821	·990	75·5	120·9	+13·4	61	155f	
		·914	107·8						188		·924	63·3					130	
		·944	84·1						183			(-12·0)	(200·7)	(-6·1)	(318)	(1288)	(2510)	
Jan. 29		(-10·8)	(240·8)	(-5·8)	(126)	(746)	(1256)			Feb. 1								
29·337	C	·953	286·8						60	32·605	·937	250·6					389	
		·844	281·3						158		·920	284·6					107	
		8816	·965	252·8	303·5	-18·1	4	15	118f		·896	262·9					65	
		8815	·892	266·0	291·1	-6·3	94	503	221c		8817	·894	301·5	241·7	+24·4	65	286c	
		8814	·854	257·0	286·8	-14·2	5	36	144c		8822	·720	286·9	228·7	+7·6	22	321	
		8811	·706	255·8	272·6	-14·2	20	70		C	8818	·662	92·3	143·4	-6·1	64	547	
		8817	·545	336·8	241·5	+24·2	13	74			8819	·714	73·6	141·6	+7·2	96	206c	
		·815	109·0						101		8820	·818	102·4	129·8	-13·6	15	82	
		·857	81·7						102		8821	·932	72·5	118·9	+13·8	31	237	
		·920	90·1						103		8823	·938	75·3	117·3	+11·5	17	79	
		·940	61·5						104		8824	·970	73·7	111·4	+14·1	62	172	
		·941	102·3						105		·833	68·9					854c	
		·976	81·4						106		·874	84·1					672c	
Jan. 30		(-11·2)	(227·9)	(-5·9)	(136)	(698)	(1435)			Feb. 2		·945	96·5	(-12·5)	(184·9)	(-6·1)	(372)	(1719)	(3080)

Group 8816, Jan. 29-30. A small spot. Group 8817, Jan. 30-Feb. 4. Two spots on Jan. 30 which separate considerably on the following days and form a stream with other spots which appear after Jan. 31. Group 8818, Jan. 31-Feb. 8. A very long and sparse stream of imperfectly formed spots. The most stable component is the leader, generally seen as a small double spot.

Group 8819, Jan. 31-Feb. 11. Return of Group 8794. A very long stream containing at first four well-marked components. Changes take place, however, after Feb. 2, and the stream becomes complex. The fore portion is the first to disappear. On the same meridian as Group 8818.

Group 8820, Feb. 1-12. A small regular spot disappearing rapidly after Feb. 9. An ephemeral companion appears f on Feb. 3.

Group 8821, Feb. 1-11. A revival of Group 8795. A very composite spot breaking up on Feb. 8. It is preceded by a cluster of small spots from Feb. 4 to 8. Group 8822, Feb. 2-5. A small composite spot with one or two companions.

Group 8823, Feb. 2-13. A few small spots which develop into a regular spot followed by a cluster of penumbral markings. The two coalesce on Feb. 6 to make an extended and very composite spot, practically joining that of Group 8821. The group disperses rapidly after Feb. 10.

Group 8824, Feb. 2-13. A stream of normal type in which the leader and follower practically merge into each other. The follower then disappears whilst the leader becomes double. Groups 8821, 8823 and 8824 are closely connected in the same disturbed area.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.	
1919. 33·395		·976	247·8	°	°	°			1919.	35·362	·916	63·4	°	°			79	
		·961	257·7						Feb. 5			(-13·6)	(148·6)	(-6·3)	(321)	(1978)	(1205)	
		·873	244·5															
	8817	·943	299·3	239·6	+25·0	26	121	499c		36·412	8825	·945	285·5	203·4	+12·4	°	12	
C	8822	·839	283·3	229·8	+7·6	16	106	85c			8818	·173	267·9	144·8	-6·6	17	97	
	8819	·576	67·4	142·1	+7·4	80	502	48f			8819	·262	333·9	141·4	+7·2	65	489	
	8818	·527	92·1	142·6	-6·4	33	270				8820	·156	150·6	130·3	-14·1	19	98	
	8820	·705	103·5	129·8	-13·9	13	143				8821	·430	36·4	119·6	+14·0	42	259	
	8821	·854	69·4	119·2	+14·0	34	262				8823	·401	43·5	118·6	+10·7	86	651	
	8823	·861	72·7	117·7	+11·5	17	68				8824	·523	35·3	116·2	+19·1	2	10	
	8824	·907	71·5	112·3	+13·9	46	285	653c	C		8824	·504	46·3	112·8	+14·4	52	440	
		·924	97·9								8827	·765	105·5	84·9	-16·0	2	6	
Feb. 3		·936	85·9								8829	·992	77·0	53·9	+12·0	27	111	
		(-12·9)	(174·5)	(-6·2)		(265)	(1757)	(2683)				·945	106·0				108f	
												·990	97·0				88	
34·436		·973	242·5									·992	(-14·1)	(134·8)	(-6·4)	(312)	(2173)	(603)
		·929	353·3									45	28	Feb. 6			72	
		·868	243·0									80					50	
	8817	·989	297·1	237·9	+25·5	°	50	182c			8825	·997	282·8	204·1	+12·1	24	73	
C	8822	·948	280·1	230·8	+7·4	31	177	235n/	37·505		8818	·413	266·9	144·8	-7·2	7	52	
	8825	·697	291·9	201·7	+10·3	8	24				8819	·420	301·5	141·4	+6·6	59	508	
	8818	·315	92·4	142·4	--6·7	46	162				8830	·232	276·9	133·7	-4·7	1	5	
	8819	·398	54·3	141·9	+7·5	79	421				8820	·212	229·0	129·9	-14·4	20	77	
	8826	·532	59·0	133·3	+10·2	1	2				8823	·302	7·1	118·2	+10·8	38	593	
	8820	·523	106·5	129·8	-14·0	21	87				8821	·348	6·5	118·1	+13·6	22	225	
	8821	·721	63·7	119·2	+14·0	34	266	65c	C		8828	·462	12·1	114·5	+20·2	12	32	
	8823	·727	68·5	117·4	+10·8	73	344	78c			8824	·376	20·5	112·6	+14·0	40	343	
	8824	·796	66·5	112·1	+14·3	47	490	479c			8827	·677	110·2	78·6	-18·4	0	3	
	8827	·963	104·1	85·6	-15·2	°	7	347c			8831	·807	67·2	70·5	+14·0	2	7	
		·885	81·7								8832	·938	62·1	56·2	+23·2	0	11	
Feb. 4		·942	69·2								8829	·936	74·0	53·5	+12·5	25	197	
		·956	94·2									·883	111·1				191	
		(-13·3)	(160·8)	(-6·3)		(340)	(2030)	(1801)				·929	97·2				206	
												·979	104·3				62	
35·362		·932	243·4						Feb. 7								97	
	8822	·991	278·8	229·7	+7·8	11	94	124									94	
	8825	·808	287·0	200·0	+9·8	°	2	233n/									82	
C	8818	·100	96·0	142·9	--6·8	39	153	86p	38·383			·937	274·8				98	
	8819	·265	26·3	142·0	+7·4	91	458					·932	245·5				87	
	8826	·378	41·4	133·0	+10·3	°	5					·877	305·2					
	8820	·341	114·6	130·0	--14·1	19	101					·824	275·6					
	8821	·589	54·8	118·9	+14·3	24	261					·792	257·8					
	8823	·578	60·8	117·8	+10·9	73	475					·612	266·8	146·6	-7·1	6	35	
	8828	·669	50·3	115·5	+20·0	5	12	29c	C		8819	·600	290·7	143·1	+6·8	63	407	
	8824	·662	59·7	112·6	+14·4	57	407	78c			8830	·418	273·4	133·4	-4·5	0	12	
	8827	·891	104·0	85·2	-15·3	2	10	441c			8820	·377	247·8	129·8	-14·2	17	97	
		·776	55·1								8823	·348	330·6	118·8	+11·2	70	533	
		·900	92·4								8821	·385	334·5	118·5	+13·7	20	183	

Group 8825, Feb. 4-7. A pair of small nuclei on Feb. 4 of which only one remains on the following days.

Group 8826, Feb. 4-5. A minute spot *nf* Group 8819.

Group 8827, Feb. 4-8. A very small spot not seen on Feb. 7.

Group 8828, Feb. 5-12. An insignificant stream of very small spots until Feb. 9, when for two days it becomes prominent *n* Group 8824.

Group 8829, Feb. 6-17. A composite spot with a small follower, both breaking up after Feb. 8 into small but persistent components.

Group 8830, Feb. 7-10. A very small cluster of faint markings not seen on Feb. 9.

Group 8831, Feb. 7-8. A single small spot.

Group 8832, Feb. 7-8. A very small spot.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.	Faculae.			Dist.	Pos. Angle.	Long.	Lat.	Umbræ.	Whole Spots.	Faculae.	
1919. 38·383	8828	·463	349·8	113·8	+20·5	21	91		1919. 41·477		·977	263·8					308	
	8824	·362	348·2	113·2	+14·2	40	288				·943	249·4					59	
	8827	·440	114·1	84·2	-16·2	2	8				·925	285·6					233	
	8831	·683	60·6	71·1	+14·4	1	4	26f			·920	267·5					230	
	8832	·870	58·0	55·3	+23·6	3	9	100f			·895	298·6					94	
	8829	·850	70·9	53·6	+12·5	32	199	300c			·878	277·3					57	
	8833	·987	80·0	29·5	+ 8·7	68	317	418c		G	8819	278·5	148·7	+ 7·4	41	213	623f	
		·861	113·0					124			8820	257·2	129·4	-14·4	11	40	171c	
		·866	94·6					205			8823	288·8	120·2	+11·2	11	143	93c	
		·952	99·5					188			8821	291·8	119·1	+13·4	0	21	252c	
Feb. 8			(-14·8)	(108·8)	(-6·5)	(343)	(2183)	(1819)			8824	293·9	114·7	+13·7	34	254	131p	
										8828	304·7	111·2	+21·4	10	24	80c		
39·467		·933	300·6					89		8829	352	28·0	58·4	+11·4	13	24	53f	
		·933	276·0					129		8833	·688	69·6	27·5	+ 8·7	208	1375	118	
		·889	259·4					155			·853	99·4					242	
		·776	266·6					55			·935	109·2	(-16·0)	(68·1)	(-6·7)	(328)	(2094)	(2744)
	8819	·790	284·2	144·8	+ 7·0	42	299	127c	Feb. 11									
	8820	·581	254·2	129·6	-14·6	16	81				·991	279·5					235	
	8823	·507	305·0	119·4	+10·9	68	424				·981	265·8					189	
	8821	·515	310·6	118·1	+13·5	7	61				8820	256·7	129·8	-14·6	3	10	137f	
	8824	·474	317·0	113·9	+14·0	33	268				8823	285·6	119·4	+11·6	19	107	842c	
	8828	·548	325·8	113·6	+20·6	58	312				8824	288·7	115·5	+13·6	26	129		
	8829	·686	64·3	55·4	+12·2	15	44	108f			8828	298·3	111·5	+21·4	2	12	447c	
	8833	·939	78·1	26·4	+ 8·8	143	880	86cc			8829	326	344·9	59·4	+11·6	8	20	
		·797	87·4					41			8741	373	52·5	37·1	+ 6·7	0	5	
		·879	98·7					160			8833	·520	59·9	27·3	+ 9·1	194	1239	
Feb. 9		·987	100·3					121				·846	108·5					65
		(-15·2)	(94·5)	(-6·6)	(382)	(2369)	(1845)				·882	120·6					36	
40·389		·973	298·6					102	Feb. 12		·960	110·9					53	
		·961	255·7					150			·970	69·6					281	
		·951	273·6					94			(-16·3)	(54·4)	(-6·7)	(252)	(1522)	(2285)		
		·897	264·8					656										
		·887	292·0					165										
		·870	251·8					80			43·346	·981	255·4				254	
		·802	289·2					212				·916	262·2				85	
	8819	·917	281·0	147·4	+ 7·4	30	176	764c				·879	279·2				88	
	8830	·784	270·3	134·0	- 3·9	0	6	98c		C	8823	283·8	119·4	+11·9	3	45	750c	
	8820	·734	256·7	129·7	-14·2	17	76				8824	286·2	114·4	+13·4	15	51	846n	
C	8823	·657	295·9	119·3	+11·4	40	309				8829	411	321·6	58·6	+12·1	16	62	
	8821	·658	299·4	118·4	+13·5	8	22				8833	·387	45·6	27·4	+ 9·1	175	1356	
	8824	·618	302·8	114·6	+13·9	53	264				·928	69·0					524	
	8828	·658	313·0	113·3	+20·9	41	197				·937	42·0					30	
	8741	·192	191·6	84·7	-17·3	0	4				·986	105·9					172	
	8829	·518	54·1	57·1	+11·7	10	36				(-16·6)	(43·5)	(-6·8)	(209)	(1514)	(2749)		
	8833	·847	75·0	26·9	+ 9·0	154	1160	851c			·983	289·2						
		·947	98·6					237			·965	259·7						
		·969	109·6					127		44·343								
Feb. 10		(-15·6)	(82·4)	(-6·6)	(353)	(2250)	(3536)										354	
																60		

Group 8833, Feb. 8-20. A very large stream of normal type. The leader increases very considerably, but after Feb. 14 it commences to split into two portions. The follower, as usual, is composite and is smaller than the leader. The companion spots are few and small.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.	Faculæ.			Dist.	Pos. Angle.	Long.	Lat.	Umbrae.	Whole Spots.	Faculæ.	
1919. 44°34'	C	.918	279°1	°	°				66	1919. 47°109	.777	109°9	°	°			88	
.805		252°8							129	K	.896	70°6				165		
.565		302°8	59°2	+ 11°8	13	60					.949	101°9				287		
.278		7°9	28°1	+ 9°3	211	1224			72		(- 17°9)	(353°9)	(- 6°9)	(192)	(1301)	(1692)		
.753		58°6							189							274		
.888		66°9							226	48°344	.966	286°9				201		
.924		106°0							85		.966	261°7				47		
.989		108°6									.959	298°1				151		
		(- 17°0)	(30°3)	(- 6°8)	(224)	(1284)	(1181)				.924	311°7				121		
											.920	244°5				177		
Feb. 14											.861	260°5				291c		
45°45'	G	.926	263°6						72		.810	286°6	29°1	+ 9°2	159	899		
.915		253°4							159	C	.8833	338°9	347°3	+ 17°6	1	6		
.694		271°4	59°6	- 4°0	2	10					.8835	89°5	300°4	- 5°3	20	149		
874m		293°8	58°9	+ 12°2	17	46					.8834	282°9	+ 8°9	20	107	152c		
8829		322°0	28°4	+ 9°2	175	1111					.8837	74°5				115		
8833		94°0	300°2	- 5°6	27	156			94c		.784	63°5				269		
8834		773	61°4								.860	101°0				163		
		.818	107°0								.957	68°1				317		
		.938	107°8								.962	111°9						
Feb. 15		.978	75°6								(- 18°3)	(337°6)	(- 7°0)	(200)	(1161)	(2278)		
46°51'	C	.976	254°1						133	49°351	.985	268°1				121		
.844		250°3							94		.950	257°4				177		
.815		267°1							119		.921	306°1				108		
874n		902	277°3	65°3	+ 3°6	0	7	44f			.918	235°0				39		
8829		288°9	57°4	+ 12°2	20	65	431c				.749	261°5				104		
8833		528	300°6	29°1	+ 9°6	161	1179				.8833	282°8	30°2	+ 9°2	83	704	886c	
8835		467	33°7	346°2	+ 16°2	2	5			C	.8838	137°0	319°4	- 12°2	2	8		
8836		709	43°9	329°1	+ 24°9	1	11				.8834	399	300°9	- 5°4	23	157		
8834		874	92°3	300°8	- 5°4	29	157	216f			.8837	69°2	284°0	+ 8°8	10	50	89c	
8837		982	79°5	284°3	+ 8°8	21	114	179f				.741	104°6				138	
		.860	106°5								.878	61°6				83		
		.944	71°7								.917	112°6				435		
Feb. 16		.968	102°7								.939	98°8				76		
		(- 17°7)	(1°8)	(- 6°9)	(234)	(1538)	(1763)				.954	75°6				52		
											.988	64°0				135		
47°109	K	.955	276°9						85	Feb. 19.	(- 18°6)	(324°4)	(- 7°0)	(118)	(919)	(2443)		
.871		264°2							205	50°338	.981	258°7				146		
.870		249°7							138		.873	257°3				201		
.858		304°1							109		.745	247°6				115		
8829		910	287°3	56°6	+ 12°6	11	55	346c			8833	988	280°6	30°9	+ 9°2	54	392	1150c
8833		626	294°7	29°0	+ 9°5	113	927				8835	683	304°3	347°4	+ 17°0	1	3	
8835		414	16°3	347°0	+ 16°5	3	11			C	8838	149	236°5	318°7	- 11°6	3	15	
8836		646	36°1	329°1	+ 25°1	1	15				8834	182	81°6	301°0	- 5°4	28	158	
8834		800	91°5	300°7	- 5°3	30	177	144f			8837	524	60°7	284°0	+ 8°6	13	73	
8837		952	78°3	283°5	+ 8°8	34	116	125c				855	112°7				297	

Group 8834, Feb. 15-27. Return of Group 8815. A stable regular spot.
 Group 8835, Feb. 16-23. Intermittent. One or two very small spots not seen on Feb. 19, 21 and 22.
 Group 8836, Feb. 16-17. A few very small and faint spots.
 Group 8837, Feb. 16-25. A small regular spot with a few very small followers which disappear after Feb. 21.
 Group 8838, Feb. 19-21. Some tiny spots.

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G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.			G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.			
		Dist.	Pos. Angle.	Long.	Lat.	Umbræ.	Whole Spots.	Faculæ.			Dist.	Pos. Angle.	Long.	Lat.	Umbræ.	Whole Spots.	Faculæ.	
1919. 50°33'8		·938	61°3	°	°				1919. 54°16'6		·939	289°5	°	°				
C		·960	118°7								·882	257°1						
Feb. 20		·965	76°8								·811	248°7						
		·979	59°9	(-18°9)	(311°4)	(-7°0)	(99)	(641)		8834	·657	270°1	302°1	- 5°3	28	145	47°	
51°34'7		·975	281°3						D	8837	·507	303°3	286°4	+ 9°7	6	24		
		·955	260°1							875c	·264	158°8	255°1	- 21°2	1	5		
		·855	252°5							8840	·558	25°9	245°7	+ 23°2	11	74		
		·839	298°1							8841	·657	27°5	240°8	+ 28°9	0	14		
		·803	237°1							8839	·861	70°7	204°8	+ 12°6	40	214	164°	
		·694	306°9								·783	80°2					121	
C	8838	·372	258°3	319°8	- 11°0	6	24		Feb. 24		·912	117°3	(-20°1)	(261°0)	(-7°1)	(86)	(476)	85
	8834	·062	298°7	301°2	- 5°4	22	154											174
	8837	·355	40°1	284°8	+ 8°8	14	46											90
	875a	·465	115°7	272°1	- 18°0	0	8											82
		·750	115°3															46
		·861	57°5															41°
		·916	74°5															24
		·922	113°1															15
Feb. 21		·939	57°1	(-19°3)	(298°1)	(-7°1)	(42)	(232)										39
52°36'2		·947	251°6															34°
		·907	241°2															86
		·862	294°3															232°
C	875b	·676	255°6	327°2	- 14°9	1	7											180
	8834	·288	275°0	301°4	- 5°4	21	137											144
	8837	·276	357°2	285°5	+ 8°8	15	37											140
	8839	·986	75°9	206°5	+ 12°6	47	280	157c										245
		·761	52°0															151°
		·777	68°0															245
		·831	73°8															106
		·876	52°5															106
Feb. 22		·970	86°0	(-19°6)	(284°7)	(-7°1)	(84)	(461)	(1373)	C	8834	·956	266°5	302°4	- 5°4	17	126	151°
											8840	·564	330°4	246°7	+ 22°4	10	50	
											8839	·519	51°1	204°9	+ 12°4	38	195	
											875d	·618	94°6	190°8	- 8°5	2	6	
											8842	·856	76°4	172°4	+ 7°6	63	382	477°
											8843	·897	106°6	164°8	- 18°0	17	113	439°
											8844	·969	80°4	154°9	+ 7°4	2	11	441°
53°35'6		·915	294°1															272
		·810	253°9															317
C	8835	·981	288°5	347°5	+ 16°5	5	40	291°										128
	8834	·496	271°9	301°4	- 5°2	16	147											
	8837	·372	319°2	285°9	+ 9°4	18	30											
	8839	·933	73°3	205°5	+ 12°8	40	241	273c										
Feb. 23			·776	43°3														
			·884	84°0														
				(-19°9)	(271°7)	(-7°1)	(79)	(458)	(1161)									

Group 8839, Feb. 22-Mar. 6. Probable return of Group 8825. A regular spot with a few close companions *nf* on Mar. 2-4.

Group 8840, Feb. 24-Mar. 1. A feeble stream of small unstable spots.

Group 8841, Feb. 24-25. A pair of faint spots in high latitude.

Group 8842, Feb. 25-Mar. 8. A group seen at the east limb as a stream of normal type. By Mar. 3, the train of spots following the leader has disappeared.

Group 8843, Feb. 25-Mar. 6. A sparse stream of spots with the leader as the only important member. A small spot appears near its position on Mar. 6.

Group 8844, Feb. 26-Mar. 3. Return of Group 8819. A single small spot.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.	Faculæ.			Dist.	Pos. Angle.	Long.	Lat.	Umbrae.	Whole Spots.	Faculæ.
1919. 57·355	8834	·991	265·4	301·6	— 5·5	10	124	178f	1919. 59·355	8839	·393	329·8	204·2	+ 12·7	49	196	
	8840	·654	317·6	247·4	+ 22·4	5	24	37c		8845	·240	88·2	178·7	— 6·6	11	70	
	8839	·412	35·8	204·8	+ 12·5	41	193			8842	·393	52·9	174·3	+ 6·9	36	240	
	8842	·756	73·7	172·2	+ 7·4	63	422	243c		8843	·489	114·7	164·9	— 18·1	27	144	
	8843	·812	107·1	164·5	— 18·0	35	155	256c		8844	·650	68·8	155·0	+ 7·9	3	12	
	8844	·912	78·1	155·0	+ 7·7	5	25	183c			·751	67·5				75c	
		·861	95·9					110			·793	50·5				249	
		·923	94·4					255			·796	90·2				153	
		·924	57·5					70			·818	53·5				289	
		·928	131·3					121			·911	70·5				211	
		·943	70·8					175			·944	53·4				822	
		·966	81·2					234			·951	92·7				160	
		·974	94·2					208			·979	73·6				102	
Feb. 27			(—21·0)	(219·0)	(—7·2)	(159)	(943)	(2787)	Mar. 1			(—21·5)	(192·6)	(—7·2)	(128)	(667)	(3927)
58·348		·974	281·8					187	60·355		·954	249·8				254	
		·951	258·0					565			·948	297·7				423	
		·914	290·8					98			·895	308·9				119	
		·892	302·6					59			·889	247·4				127	
		·877	316·5					77			·878	290·4				78	
		·841	242·4					59			·527	310·3	203·7	+ 13·3	39	265	
		·789	253·6					78			·028	60·6	178·0	— 6·4	17	89	
		·729	323·8					109			·260	19·6	174·4	+ 7·0	19	174	
		·725	239·8					100			·301	131·6	165·7	— 18·6	9	70	
		8840	·759	309·2	245·5	+ 23·1	6	23			·471	58·3	155·7	+ 7·7	1	8	
		8839	·344	4·4	204·4	+ 12·8	34	214			·980	81·0	102·4	+ 7·2	0	9	
		8845	·474	89·9	177·6	— 6·2	32	111			·820	110·0				118/	
		8842	·589	66·8	173·0	+ 7·3	44	306	125f		·835	65·1			186		
		8843	·640	108·2	166·6	— 17·2	23	148	102f		·866	94·0			299		
		8844	·799	74·4	155·1	+ 7·8	2	13	291n		·915	69·5			101		
			·808	92·0				369		·915	85·1				354		
Feb. 28		·860	135·4					88		·965	66·8				73		
		·907	91·0					366	Mar. 2		(—21·8)	(179·4)	(—7·2)	(85)	(615)	(2525)	
		·909	75·1					483								70	
		·946	105·2					138			·982	296·4				120	
		·957	60·6					209			·965	245·4				69	
		·985	74·0					558			·952	287·2				118	
			(—21·2)	(205·9)	(—7·2)	(141)	(815)	(4242)			·950	304·8				65	
											·894	244·4				58	
											·769	283·3					
59·355		·969	298·5					149	C	8839	·677	298·6	203·3	+ 13·2	35	240	
		·962	251·1					230		8845	·226	268·6	178·9	— 7·3	6	37	
		·958	286·3					64		8842	·288	327·2	174·8	+ 6·9	37	239	
		·928	311·4					170		8843	·196	193·8	168·6	— 18·1	13	71	
		·898	256·4					115		8847	·301	361·6	165·3	+ 10·2	0	17	
		·857	246·2					247		8844	·317	35·8	155·1	+ 7·8	0	3	
		·824	303·4					113		8848	·449	59·6	143·0	+ 6·5	4	14	
	8840	·851	303·5	243·1	+ 23·5	2	5	444p		875e	·418	80·9	141·5	— 2·8	1	7	

Group 8845, Feb. 28-Mar. 3. A pair of small clusters.

Group 8846, Mar. 2-6. A very small spot with a companion on Mar. 3.

Group 8847, Mar. 3-4. A small cluster of faint markings.

Group 8848, Mar. 3-4. A pair of small spots on Mar. 3; one alone on Mar. 4.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.
1919. 61·390	C Mar. 3	8846	·918 ·698 ·790 ·877 ·947 ·954	78·9 57·4 63·1 63·2 64·8 106·4	100·8 + 7·2	2	18	247c	1919. 64·428		·873 127 225 495 140 115	106·8 118·3 95·1 72·7 159·7 102·8	◦	◦			126 71 111 328 53 89
62·327			·978 ·862 ·8849 ·650 ·8842 ·307 ·8843 ·362 ·8848 ·279 ·8846 ·795 ·8850	302·4 277·3 292·5 266·4 194·2 302·3 167·8 230·2 165·9 324·2 39·7 103·0 80·3 56·7 106·6 64·6	203·2 + 13·3 — 7·7 45 172 + 6·5 30 14 27 + 10·0 + 5·3 0 3 7 + 8·2	164 188	49	65·391		·989 ·926 ·912 ·799 ·252·1 8842 ·900 ·739 ·8851 ·279 ·344·5 8850 ·667 ·985 ·79·1 ·777 ·852 ·854 ·943 ·949	263·7 254·6 265·6 252·1 175·7 + 6·2 155·4 + 15·0 117·4 + 8·3 74·3 + 8·1 950 144 118 542	26	124	318 77 279 312 316n/ 37 · 53c			
63·360		8839 8849 ·833 8842 ·615 8843 ·476 8846 ·690 8850	·956 ·919 288·2 266·1 196·6 — 7·2 290·3 175·2 + 6·4 166·2 — 19·3 71·9 98·7 + 7·0 2 8 78·2 73·5 + 8·1	271·7 203·6 + 13·6 30 203 175 + 10·0 23 37 98·7 + 7·0 2 8 73·5 + 8·1	30 5 21 175 7 37 2 8 68	118 132c 27c	405	66·358		·979 ·912 ·898 ·870 ·799 ·265·6	264·4 268·2 252·3 287·1 176·8 + 6·6	16	85	206 65 571 249 107 262n/			
64·428		8839 8849 ·951 875f 8842 ·782 8843 ·700 8851 ·587 8446 ·472 8850	·856 ·809 ·984 285·1 264·7 198·2 — 7·3 3 14 267·9 192·0 — 4·9 16 46 284·0 175·3 + 6·2 28 154 170·2 — 15·6 1 4 308·3 154·1 + 14·8 6 50 101·8 + 7·3 1 3 74·3 74·0 + 8·2	253·6 266·4 285·1 203·1 + 13·3 — 7·3 175 3 14 275c 275c 85c	46 69 41 175 3 14 16 46 28 154 1 4 6 4 803	133c 275c 85c	246c	Mar. 8	·961 ·941 ·933 ·919 ·905 ·847 ·846	253·3 284·7 304·0 264·9 230·5 301·1 283·9	(— 23·2)	(100·4)	(— 7·2)	(296)	(1843)	(2423)	
Mar. 4			(— 22·2)	(153·5)	(— 7·2)	(113)	(640)	(1488)	Mar. 7		(— 22·9)	(113·1)	(— 7·3)	(290)	(1656)	(2572)	
Mar. 5			(— 22·5)	(139·9)	(— 7·2)	(135)	(849)	(1307)									

Group 8849, Mar. 4-6. A small spot with a companion on Mar. 5.

Group 8850, Mar. 4-15. A large stream with a large and nearly regular spot as leader and a complex train which has practically died out by 14th.

Group 8851, Mar. 6-7. A miniature stream of very small spots.

Group 8852, Mar. 7-8. Two or three very small spots.

Group 8853, Mar. 7-19. Return of Group 8833. A large stream consisting of two regular spots, an imperfectly formed spot between them, and a few very small attendants.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.	
1919. 67·343	C	·803	269·7	°	°				1919.	C	·923	250·2	°	°				
·735		302·5					314		70·357		·909	291·5					III	
·728		286·1					71				·884	304·1					180	
·349		40·5	74·2	+ 8·3	171	1015		360f			·824	286·9					206	
·799		73·1	36·9	+ 8·8	80	562		107			·524	297·1	75·6	+ 7·4	115	609	171	
·927		101·8									·320	32·5	37·7	+ 8·5	103	615		
·928		75·5						193			·649	100·7	7·1	- 12·4	1	10		
·940		51·4						85			·8855	·831	65·7	356·0	+ 15·6	83	769	410
(-23·3)		(87·4)	(-7·2)	(251)	(1577)	(3118)					·853	106·6	348·7	- 17·9	80	526	4670	
Mar. 9		(-23·3)	(87·4)	(-7·2)	(251)	(1577)	(3118)				·935	66·1					307	
68·347	C	·969	281·1					257		Mar. 12	·964	105·9	(-23·9)	(47·7)	(-7·2)	(382)	(2529)	(2262)
·968		260·9						210			·973	291·0					130	
·959		232·9						318			·955	300·7					110	
·941		299·1						181			·917	280·9					131	
·910		284·3						256			·864	252·3					75	
·907		266·9						342			·8850	·718	286·9	77·3	+ 6·8	128	583	
·855		311·3						113			·8853	·280	343·0	38·5	+ 8·4	106	537	
·855		294·9						506			·8857	·447	113·1	8·4	- 16·5	6	23	
·765		251·8						99			·8855	·701	58·0	355·6	+ 16·1	90	678	
·758		301·9						278			·8856	·710	108·0	348·8	- 17·9	88	471	
8850	G	·262	357·6	74·8	+ 8·0	152	998				·853	62·2					70f	
8853		67·2	37·6	+ 8·6	104	607					·875	103·0					154	
8854		100·3	5·7	- 12·2	4	20		67f			·959	72·7					125	
8855		72·4	356·0	+ 16·0	79	620		561c			(-24·1)	(33·7)	(-7·2)	(418)	(2292)	(927)	132	
8856		107·3	354·4	- 18·4	34	259		404c			·959	(-24·1)	(33·7)	(-7·2)	(418)	(2292)	(927)	
·836		72·7						245			·969	279·1					60	
·852		105·3						271			·948	252·9					70	
(-23·5)		(74·2)	(-7·2)	(373)	(2504)	(4108)					·928	266·3					81	
Mar. 10		(-23·5)	(74·2)	(-7·2)	(373)	(2504)					·8850	·870	282·1	79·6	+ 6·8	101	493	
69·336	C	·990	279·1					147			·8853	·402	310·8	38·9	+ 8·2	96	507	
·981		267·3						176			·8857	·236	134·5	10·8	- 16·6	2	11	
·947		289·7						761			·8855	·551	46·7	356·4	+ 15·6	104	639	
·919		306·7						271			·8856	·548	112·0	348·7	- 18·0	93	453	
·905		251·3						150			·8858	·974	95·0	303·6	- 6·5	30	104	
·867		293·3						419			·769	106·7					99c	
·793		303·9						282			·892	69·7					63	
8850		316·2	75·1	+ 7·4	140	714					·916	115·1					184	
8853		56·0	37·7	+ 8·8	87	665					·978	78·8					87	
8854		100·2	6·3	- 12·4	5	14		128f			(-24·3)	(20·9)	(-7·2)	(426)	(2207)	(1051)		
8855	Mar. 14	69·7	355·3	+ 16·1	92	873		1183c			·978	(-24·3)	(20·9)	(-7·2)	(426)	(2207)	(1051)	
8856		106·7	349·8	- 18·0	52	480		935c			·846	294·5					130	
·949		117·4						110			·8850	·958	279·5	80·1	+ 7·0	113	439	
(-23·7)		(61·1)	(-7·2)	(376)	(2746)	(4562)					·8853	·572	296·3	39·4	+ 8·4	96	520	
70·357	·974	306·7						152		C	·8857	·177	202·5	12·2	- 16·6	0	6	
·972		291·5						385			·8855	·452	26·9	355·9	+ 16·6	65	423	
·937		278·1						83										

Group 8854, Mar. 10-12. A single small spot.

Group 8855, Mar. 10-21. Return or revival of Group 8835. Two large spots seen at the east limb, both of which are unstable and break up after Mar. 13. The leader is then represented by one and the follower by two partially formed regular spots, whilst a few small companions have also appeared.

Group 8856, Mar. 10-22. A stable regular spot with a distant companion of composite type which has disappeared by Mar. 20. This group is probably a stream of normal type in its latter stages.

Group 8857, Mar. 13-15. One or two small unstable spots.

Group 8858, Mar. 14-25. Return of Group 8834; third apparition. A small regular spot diminishing to a dot at the west limb.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.	
1919. 73°35'3	8856	.364	122°3	349°4	-17°9	77	385		1919. 77°35'8	C	.862	57°7					53	
	8858	.895	93°6	304°4	-6°4	24	125	131p			.867	103°5					113	
	.804	64°1						172			.919	115°0					130	
	.935	74°7						157			.930	197°5					24	
	.981	104°9						55			.959	63°4					122	
	(-24°5)	(8°2)	(-7°2)	(375)	(1898)	(1316)					(-25°1)	(315°4)	(-7°1)	(122)	(729)	(1347)		
74°38'2		.965	280°2						78°41'4	C	.973	285°2					104	
		.920	290°1								.938	254°6					139	
	8853	.746	287°4	40°3	+8°1	69	592				.740	303°8					92	
	8855	.406	356°6	356°0	+16°7	52	339				8859	276°4	3°3	+2°4	2	9	234p	
	8856	.207	160°0	350°3	-18°2	57	357				8855	294°5	357°9	+17°4	15	103	530c	
	8858	.776	92°4	303°6	-6°3	11	81				8856	252°1	352°1	-18°2	17	199	190c	
	.814	70°6						89			8858	285°6	303°8	-6°4	12	80		
	.929	101°2						405			.780	113°4					95	
Mar. 16	.944	75°0						138	Mar. 20	C	.895	59°0					150	
	(-24°6)	(354°6)	(-7°1)	(189)	(1369)	(1455)					.915	112°1	(-25°2)	(301°5)	(-7°0)	(46)	(391)	(1620)
		.973	286°5					81			.985	253°1					90	
		.960	259°0					76			.976	274°2					218	
75°35'9	8853	.872	283°7	40°4	+8°3	93	512	703c	79°36'1	C	.925	265°1					77	
	8859	.418	294°0	4°1	+3°2	5	35				.858	299°4					194	
	8855	.469	330°8	355°5	+17°2	42	332				8855	290°9	0°2	+18°0	30	102	710c	
	8856	.253	219°2	351°3	-18°3	55	282				8856	252°8	351°8	-18°4	32	216	477c	
	8858	.615	91°0	303°7	-6°2	12	89				8858	271°3	304°0	-6°4	14	70		
	.832	100°4						160			8860	96°0	208°3	-7°0	4	119	170c	
	.915	104°7						172			.813	116°1					119	
	(-24°8)	(341°7)	(-7°1)	(207)	(1250)	(1192)					.838	55°2					103	
Mar. 17		.934	257°7						Mar. 21	C	.954	125°3					70	
	8853	.965	280°0	41°7	+7°8	75	594	142			.969	74°3					107	
	8859	.617	283°6	5°1	+2°6	29	117				(-25°3)	(289°0)	(-7°0)	(80)	(507)	(2335)		
	8855	.603	310°7	356°8	+16°8	43	261				.976	288°4					306	
	8856	.431	241°1	351°7	-18°6	35	244				.933	294°7					193	
	8858	.417	90°1	303°7	-6°5	10	83	99			.914	237°9					73	
Mar. 18	.798	107°4						149	80°31'9	C	.840	298°5					60	
	.940	110°3						(950)			8856	252°9	351°4	-18°3	23	157	458f	
	(-24°9)	(328°4)	(-7°1)	(192)	(1299)						8858	269°3	304°1	-6°6	7	39		
77°35'8		.969	364°7					28	Mar. 22	C	8860	93°9	209°5	-6°4	5	23	442c	
		.864	255°9					171			8861	73°5	204°5	+13°8	17	70	127c	
	8853	.978	281°6	31°6	+9°8	28	148	432p			.978	98°1					294	
	8859	.775	278°7	5°2	+2°2	17	86	77c			(-25°5)	(276°3)	(-7°0)	(52)	(289)	(1953)		
	8855	.735	301°5	356°1	+17°2	30	186	197c			81°51'4							
	8856	.607	248°9	351°9	-18°4	34	237				.973	251°8					230	
	8858	.200	87°9	303°8	-6°6	13	72				.925	290°0					162	

Group 8859, Mar. 17-20. A pair of very small clusters. One spot only is left on Mar. 20.
 Group 8860, Mar. 21-Apr. 1. Intermittent. An area of faculae in which one or two very small ephemeral spots appear. After Mar. 26, nothing is seen until Mar. 29, when a few small spots are again visible.
 Group 8861, Mar. 22-28. Return of Group 8839; third apparition. A small regular spot diminishing to a minute spot before disappearing.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.	Faculae.			Dist.	Pos. Angle.	Long.	Lat.	Umbræ.	Whole Spots.	Faculae.
1919. 81·514	8858	·820	289·0	°	°	5	20	99	1919. 84·382	8862	·671	112·2	181·6	-19·8	96	530	328c
	876a	·689	267·6	304·3	-6·6	0	4			8863	·762	106·8	173·2	-17·2	26	157	305c
	8860	·334	318·0	273·6	+7·6	2	6			8866	·851	78·5	166·0	+6·0	4	15	211f
	C	·786	93·2	208·6	-6·8			279c		·879	91·2					260	
	8861	·860	69·6	204·8	+13·6	7	42	138c		·922	70·2					138	
	8862	·975	109·1	182·1	-20·0	93	506			·965	88·5					133	
	8863	·995	107·0	174·4	-17·6	0	86			·984	81·3					90	
		·889	95·4					356		(-25·9)	(222·8)	(-6·8)	(140)	(744)	(1582)		
Mar. 23		·975	84·9					49									
		(-25·6)	(260·6)	(-6·9)	(107)	(664)	(1522)		Mar. 26	85·357	·956	257·0					183
										·940	280·4					142	
										·873	247·5					95	
										·8865	·092	99·4	204·7	-7·6	1	5	
										·8861	·366	377·6	203·4	+13·6	6	12	
										·8864	·406	65·8	188·2	+3·2	0	3	
										·8862	·504	118·4	181·9	-19·8	91	493	
82·374	8858	·816	266·9	304·2	-6·6	3	14	77c		·8863	·609	109·6	173·1	-17·2	26	112	
	8860	·638	91·5	209·6	-6·3	3	13	82f		·8868	·676	84·4	167·8	-1·3	2	8	
	C	·757	65·2	204·5	+13·6	8	23	81c		·8869	·964	109·8	134·1	-20·8	28	139	
	8864	·900	82·6	186·1	+3·6	3	15	52c		·756	74·8					268f	
	8862	·920	109·3	181·7	-20·4	89	542	501c		·780	111·7					149	
	8863	·962	105·9	174·1	-17·1	23	113	92c		·842	66·2					122	
		·792	94·9					258		·885	93·9					141	
		·926	104·2					35		·894	81·4					198	
Mar. 24		·966	77·8					124		·933	59·3					205	
		(-25·7)	(249·3)	(-6·9)	(129)	(720)	(1571)			·973	70·4					82	
										·978	81·0					115	
										(-26·0)	(209·9)	(-6·8)	(154)	(772)	(2043)	115	
																68	
																62	
																54p	
83·453	8858	·957	284·8					146	Mar. 27	86·614	·966	248·5					
		·951	254·0					98		·848	246·1						
		·933	265·8	304·2	-6·4	0	8	105c		876c	·822	303·7	240·9	+22·6	3	7	
		·175	323·0	241·0	+1·2	0	4			8861	·383	333·7	203·3	+13·4	0	4	
		·8860	418	93·2	210·2	-7·5	2	17		8862	·294	140·0	181·8	-19·6	90	442	
		·8865	498	90·1	205·1	-6·0	1	14		8863	·381	118·9	173·0	-16·8	16	85	
	G	·8861	602	56·4	204·1	+13·6	5	15		8868	·413	79·1	169·5	-1·6	12	31	
	8864	·752	79·0	187·5	+3·6	5	17	48f		8869	·855	110·1	134·5	-20·6	33	166	
Mar. 25	8862	·810	110·2	181·1	-20·3	103	560	644c		·865	58·6					200f	
	8863	·870	106·2	174·2	-17·4	8	126	183f		·872	75·4					81	
	8866	·941	81·2	166·1	+5·8	4	34	324f		·937	68·0					67	
	876c	·957	90·4	161·7	-3·9	0	12	331c		(-26·1)	(193·3)	(-6·7)	(154)	(735)	(899)	367	
		·871	80·6					113									
		·978	75·1					71									
		(-25·8)	(235·0)	(-6·8)	(128)	(807)	(2063)										
84·382	8860	·875	257·8					117	Mar. 28	87·480	·903	301·9					
		·224	87·6	209·9	-6·1	2	6			·887	246·3					129	
		·439	151·9	209·1	-29·3	1	4			8860	·477	264·8	210·5	-8·4	2	7	
	C	·8861	473	42·9	203·5	+13·8	6	11		876f	·541	305·9	208·5	+12·5	3	11	
	8867	·429	97·1	197·4	-9·2	4	14			8862	·218	182·3	182·4	-19·2	108	466	
	8864	·597	73·7	187·9	+4·1	1	7										

Group 8862, Mar. 23-Apr. 4. A large regular spot, followed at first by a distant companion which disappears as a small cluster, and then by a train of numerous very small spots which die out towards the west limb.

Group 8863, Mar. 23-31. A small regular spot *nf* Group 8862 in the same general area of faculae. Two companion spots appear on Mar. 26.

Group 8864, Mar. 24-27. A very small spot.

Group 8865, Mar. 25-27. Evidently connected with Group 8860. A small spot not seen on Mar. 26.

Group 8866, Mar. 25-Apr. 5. A small spot which has disappeared by Mar. 27. On Mar. 30 a small stream has appeared near its place.

Group 8867, Mar. 26-31. Intermittent. A tiny cluster on Mar. 26; three very small spots on Mar. 31.

Group 8868, Mar. 27-31. A small spot with two small followers on Mar. 28.

Group 8869, Mar. 27-Apr. 5. A regular spot dying away rapidly after Apr. 1.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.	Faculae.			Dist.	Pos. Angle.	Long.	Lat.	Umbræ.	Whole Spots.	Faculae.	
1919. 87·480	8870	·040	93·0	179·6	— 6·8	0	5		1919. 90·306	·941	285·5	0	0				71	
G	8863	·228	140·4	173·2	— 16·8	14	57			·865	294·6						76	
	8868	·211	67·1	170·7	— 1·9	8	22			·823	260·5						155	
	876g	·592	121·7	148·7	— 23·7	1	4			8860	·922	265·5	212·1	— 6·6	1	10	148c	
	8869	·746	111·8	134·4	— 20·6	31	143	131f		8862	·637	247·4	183·0	— 19·2	86	400		
	·838	65·4						260		8866	·411	301·5	165·2	+ 6·2	7	45		
	·888	53·2						77		8869	·304	143·2	133·4	— 20·4	13	79		
	·889	84·7						71		8871	·884	79·3	83·9	+ 6·3	61	320	204c	
	·924	67·7						204		8872	·872	102·9	83·5	— 14·4	3	19	45c	
	·991	84·3						54			·774	53·1					70	
		(—26·1)	(181·9)	(—6·7)	(167)	(715)	(1035)				·890	50·5					60	
Mar. 29											·950	76·1					139	
											·984	75·1					120	
88·489		·967	298·8						69	Apr. 1	(—26·3)	(144·6)	(—6·5)	(171)	(873)	(1088)		
G	8860	·952	246·2						66								254	
	8862	·926	288·3						60		·977	236·8					87	
	8860	·656	265·6	209·7	— 7·9	13	37			91·427	·986	264·9					122	
	8862	·315	223·0	181·7	— 19·7	98	481				·951	290·5					420	
	8870	·205	267·6	180·5	— 7·0	1	3				·928	262·6					128c	
	8863	·186	201·2	172·6	— 16·5	6	24				8862	·797	250·4	182·4	— 19·5	72	359	
	8868	·096	330·8	171·3	— 1·8	5	12				8866	·629	287·9	166·6	+ 5·9	10	36	
	8866	·254	27·4	161·9	+ 6·4	9	62				8869	·245	193·1	133·2	— 20·2	9	30	
	8869	·591	115·8	134·2	— 20·4	19	128				8871	·732	75·2	84·6	+ 6·2	56	291	81c
	8871	·997	83·1	84·3	+ 6·3	43	293				8872	·725	103·5	83·3	— 14·2	33	106	78c
G	·759	54·2						159			876i	·942	75·8	61·5	+ 11·0	0	18	644c
	·851	66·3						141			8873	·971	82·7	54·7	+ 5·4	0	23	
	·901	52·2						75			8874	·984	79·7	51·7	+ 8·8	0	11	253c
	·917	100·2						69				·853	73·3				274	
	·918	82·7						127				·908	85·3				32	
	·945	63·9						269				·923	97·6				134	
	·957	110·4						53				·951	115·6				61	
		(—26·2)	(168·6)	(—6·6)	(194)	(1040)	(1088)					(—26·3)	(129·8)	(—6·5)	(180)	(874)	(2568)	
Mar. 30										Apr. 2								
89·112		·894	313·0						58									
K	8860	·764	265·3	210·4	— 7·8	9	29	90c	92·404		·986	261·1					134	
	8867	·616	267·4	198·5	— 6·8	4	12				·884	286·4					38	
	8862	·413	236·0	181·6	— 19·4	85	418				·829	246·9					118	
	8863	·251	228·8	171·7	— 16·0	4	27				·772	269·3					64	
	8868	·206	294·0	171·2	— 1·7	4	8				8862	·912	251·5	183·3	— 19·5	87	353	186c
	876h	·232	207·0	166·7	— 18·4	2	7				876j	·852	258·8	175·8	— 12·9	1	3	30p
	8866	·221	356·6	161·2	+ 6·1	6	23				876k	·755	244·5	164·7	— 23·2	2	3	34f
	8869	·487	120·3	133·9	— 20·1	16	124				8866	·756	283·9	164·4	+ 6·2	14	60	46c
	8871	·974	81·5	84·8	+ 6·6	69	299	150c	G		8869	·357	226·4	132·9	— 20·4	6	17	
	·770	57·4						97			8871	·564	69·6	85·0	+ 5·9	58	320	
Mar. 31	·840	46·1						133			8872	·553	106·4	83·9	— 14·4	23	127	
	·850	73·0						73			8875	·572	89·5	82·1	— 5·0	7	22	
	·861	82·4						112			8873	·888	80·5	55·6	+ 5·4	2	6	
	·903	59·7						214			8874	·924	77·5	51·3	+ 8·9	9	22	200c
		(—26·2)	(160·4)	(—6·6)	(199)	(947)	(927)				·862	72·1					392	

Group 8870, Mar. 29-30. One very small spot.

Group 8871, Mar. 30-Apr. 11. Return of Group 8850. A regular spot closely followed by variable small companions usually arranged in three clusters.

Group 8872, Apr. 1-6. Two very small spots which separate and become the centres of two small clusters.

Group 8873, Apr. 2-5. Return or revival of Group 8853. One or two small spots which multiply and make a short stream on Apr. 5.

Group 8874, Apr. 2-4. A single small spot in the same disturbed area as Group 8873.

Group 8875, Apr. 3-10. A stream of small unstable spots forming on the same meridian as Groups 8871 and 8872.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.
1919. 92°40'	·927	°	°	°					1919.	95°57'	·821	248°5	°	°			
Apr. 3	·960	89°7	(-26°3)	(117°0)	(-6°4)	(209)	(933)	(1337)	60	35	·744	297°6					110
93°38'	·872	246°2							630		876l	759	268°8	124°5	- 5°0	1	5
C	·868	260°2							115		8876	459	268°2	102°5	- 6°3	6	53
8866	·857	268°2							252		876m	417	259°6	99°6	- 9°9	1	5
8869	·848	291°2							170		8871	269	318°6	85°3	+ 5°5	38	260
8871	·975	251°4	182°4	- 19°5	55	318	206c				8875	171	272°6	84°9	- 5°6	19	114
8875	·894	280°4	166°0	+ 6°3	9	24	336c				8872	190	222°6	82°7	- 14°0	6	18
8877	·517	241°6	132°8	- 19°8	5	13					876n	242	104°5	61°4	- 9°5	2	8
8871	·388	58°4	84°7	+ 5°8	52	348					8877	407	49°0	57°0	+ 9°5	1	9
8875	·352	87°1	83°4	- 4°9	8	29					·775	66°8					212
8872	·370	112°4	83°4	- 14°0	10	74					·909	97°0					65
8873	·760	77°2	56°1	+ 5°4	8	35					·924	68°9					148
8874	·817	74°4	51°4	+ 8°8	9	23					·924	106°6					141
·769	65°6										·973	80°8					108
·897	81°0										·975	115°4					132
·905	74°5										·985	66°0					310
Apr. 4	(-26°4)	(104°0)	(-6°3)	(156)	(864)	(2468)	96°45'	285	Apr. 6	(-26°4)	(75°1)	(-6°2)	(74)	(472)	(1981)	228	
94°35'	·947	247°4							599		·930	294°0					80
G	·938	266°6							176		·926	304°0					142
8866	·931	289°6							173		·920	282°2					308
8869	·931	259°2							131		·908	250°7					122
8876	·913	303°1							93		·854	292°0					72
8875	·828	287°6							64		·849	312°7					67
8871	·967	278°1	165°3	+ 6°2	0	8	252c				·795	301°4					58
8872	·669	247°4	132°0	- 19°7	4	17					·745	313°4					10
8873	·161	267°9	100°5	- 5°6	7	22					·634	267°4	102°9	- 6°4	2	166	
8874	·091	83°6	86°0	- 5°7	16	77					8875	377	269°4	85°7	- 6°0	19	341
8875	·234	26°9	85°1	+ 5°7	60	319					8871	421	297°6	85°4	+ 5°4	50	41
8872	·200	133°5	82°6	- 14°1	10	29					8877	319	28°4	54°7	- 10°2	10	88
8873	·587	72°2	57°2	+ 5°1	10	38					8878	654	59°4	28°1	+ 14°4	34	70f
8877	·620	66°6	56°2	+ 9°1	1	1					8879	835	96°0	6°6	-- 8°5	7	53
·779	72°6								36		·850	68°3					44
·843	115°0								33		·889	79°2					135
·911	103°0								104		·935	63°1					176
·913	72°8								335		·938	117°0					212
·933	115°0								52		·943	109°4					207
Apr. 5	(-26°4)	(91°2)	(-6°3)	(108)	(511)	(2048)	Apr. 7				·963	73°6					239
95°57'	·977	248°4									·980	97°8					141
C	·952	295°2									·981	109°4					138
·928	265°8										(-26°4)	(63°5)	(-6°2)	(122)	(660)	(2354)	134
·908	282°4										·986	292°1					148
·858	296°8										·957	249°2					134
											·953	285°3					111
											·931	304°2					138
											·889	297°4					

Group 8876, Apr. 5-7. A small short-lived stream of very small spots.

Group 8877, Apr. 5-11. One or two small spots appearing near the place of Groups 8873 and 8874.

Group 8878, Apr. 7-15. An interesting group. A stream developing rapidly as one of normal type. The leader, at first a regular spot, divides into two portions on Apr. 11.

Group 8879, Apr. 7-8. A small spot.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.
1919. 97°57'	·868	285°4	°	°	°		67		1919. 99°346	Apr. 10	·956	° (-26°4)	° (25°3)	° (-6°0)	(118)	(880)	84 (1673)
	·816	264°8					79		·967		265°0					257	
	·805	312°6					56		·962		255°4					139	
	8875	267°9	86°1	- 6°2	7	77			·869		290°2					97	
	8871	287°2	85°6	+ 5°8	58	305			8871		278°4	85°5	+ 6°6	48	225	251c	
	8877	334°6	56°1	+ 9°6	4	9			8877		287°2	57°8	+ 8°8	2	8	90c	
	8878	44°5	28°4	+ 14°3	71	370			8878		319°7	28°5	+ 14°5	73	417		
	8879	96°2	8°0	- 8°7	2	7			·854		93°8					53	
	8760	68°9	351°6	+ 15°0	0	5	154c		·948		80°6					48	
	·832	107°6					106		·956		101°0					60	
	·841	56°9					75		(-26°4)		(11°0)	(-5°9)	(123)	(650)	(995)		
Apr. 8	·848	118°7					140		·992		255°4					168	
	·908	96°8					193		·986		281°9					336	
	·910	108°9					195		·953		215°3					39	
	·922	69°1					203		·944		288°5					372	
		(-26°4)	(48°7)	(-6°1)	(142)	(773)	(1933)		·909		251°9					92	
									·907		261°5					85	
	98°425	276°6					54		·874		282°9					409	
	·944	286°2					45		·855		294°6					216	
	·933	264°6					131		8878		304°5	29°3	+ 14°7	74	374		
	·912	298°2					183		8880		254°6	22°5	- 11°5	12	23		
	8875	269°0	85°6	- 4°8	17	42	86c		877a		179	97°3	349°3	- 7°0	1	4	
Apr. 9	·744	284°2	84°5	+ 6°6	48	278	104c		·878		71°7					85	
	8871	307°6	57°2	+ 9°2	3	5			·938		103°1					213	
	8877	384°2	28°3	+ 14°3	72	489			·959		81°7					96	
	8878	109°0	21°2	- 11°2	4	13			(-26°3)		(359°0)	(-5°8)	(87)	(401)	(2111)		
	·714	108°0					80		·992		285°2					63	
	·753	122°1					101		·964		253°9					67	
	·778	51°3					73		·950		281°3					291	
	·797	96°0					193		·936		291°3					172	
	·810	109°8					144		·890		269°1					61	
	·817	66°1					193		·859		259°5					60	
	·919	100°4					58		·832		287°1					60	
Apr. 10	·929	62°9					90		·988		285°2						
		(-26°4)	(37°5)	(-6°0)	(144)	(827)	(1535)		·964		253°9						
	99°346	262°4					92		·950		281°3						
	·968	289°6					118		·936		291°3						
	·941	301°2					128		·890		269°1						
	·882	254°0					185		·859		259°5						
	·756	292°2					150		·832		287°1						
	8875	263°4	87°7	- 8°6	2	7	459c		8878		753	295°1	30°2	+ 14°5	41	270	
	876p	267°8	85°7	- 4°9	4	15			8880		621	257°9	23°8	- 11°9	4	19	
	8871	280°6	84°5	+ 6°1	35	269	338c		877b		377	357°3	346°7	+ 16°3	1	3	
	8877	294°8	57°4	+ 9°0	6	9			8881		730	82°5	299°4	+ 1°5	7	27	
	8878	351°8	28°2	+ 14°2	71	580			·828		113°5					55	
	·839	99°0					60		·856		101°9					128	
	·946	71°4					59		873		78°9					125	
									·946		112°1					102	
									(-26°3)		(345°6)	(-5°7)	(53)	(319)	(1184)		

Group 8880, Apr. 9-15. Intermittent. A pair of very small spots on Apr. 9. A short stream of very small spots is seen in their place on Apr. 12.
 Group 8881, Apr. 13-22. Two small spots on Apr. 13; an elongated cluster on Apr. 14; afterwards a regular spot with small followers. On Apr. 18 the regular spot divides into two portions which separate in longitude.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.	
1919. 103·379	C	·969	284·5	°	°	°	76		1919. 106·357	G	·802	242·0	°	°	°	163		
		·935	266·4				85		877d		·531	262·5	324·8	— 8·5	2	5		
		·903	245·8				51		8881		·251	301·6	305·1	+ 2·3	38	172		
		·878	290·5	30·2	+ 15·0	30	156	499f	8882	·259	335·5	299·0	+ 8·2	3	7	78		
		8878	258·7	25·0	— 12·4	7	30	78c		·806	67·5					59		
		8880	195·3	339·1	— 28·5	1	2			·901	56·8					119		
		877c	406	106·8						·905	68·7					117		
		8881	522	77·7	301·6	+ 1·5	27	94		·965	95·9	(— 26·1)	(292·8)	(— 5·4)	(43)	(184)	(1220)	
		·751	106·8				74											
		·863	110·5				65									152		
Apr. 14		·962	106·9				90		Apr. 17								135	
		(— 26·3)	(332·1)	(— 5·6)	(65)	(282)	(1018)			107·375	·983	297·2					383	
		·957	251·9								·965	287·6					175	
		·936	266·3								·920	244·4					97	
		·817	294·6								·919	260·2						
		8878	964	287·5	31·2	+ 15·2	22	137			·893	294·3						
		8880	898	259·7	23·3	— 11·6	2	8			·455	286·4	305·1	+ 2·6	22	145	83	
		8881	304	64·8	303·2	+ 2·0	27	154			·872	70·2					133	
		8882	403	54·9	299·7	+ 8·1	2	6			·886	95·0					109	
		·854	103·3								·972	107·6	(— 26·0)	(279·3)	(— 5·3)	(22)	(145)	(1267)
Apr. 15		·961	105·6						Apr. 18		·965	240·5					49	
		·968	116·4								·958	252·2					79	
		·981	74·2								·951	292·9					66	
		(— 26·2)	(319·1)	(— 5·6)	(53)	(305)	(1626)				·655	280·1	305·9	+ 2·6	19	91		
		·978	259·1								·990	109·1	183·1	— 19·6	82	370	272p	
		·973	287·4								·900	105·8					100	
		·910	291·3								(— 25·9)	(265·9)	(— 5·2)	(101)	(461)	(566)		
		·888	259·0															
		·859	304·5															
		·773	297·4															
Apr. 16		·757	244·4						Apr. 19		·965	265·8					III	
		·691	231·7								·831	276·8	306·5	+ 2·8	8	35	215c	
		8881	143	9·1	303·9	+ 2·6	18	147			·926	108·8	183·0	— 19·3	55	338	273c	
		8882	268	24·3	298·8	+ 8·6	3	16			·969	79·8					209	
		8883	897	71·9	244·1	+ 13·6	2	8			·975	96·8	(— 25·8)	(251·0)	(— 5·1)	(63)	(373)	(1062)
		·917	116·9															
		·948	58·3															
		(— 26·1)	(305·2)	(— 5·5)	(23)	(171)	(1746)											
Apr. 17		·965	269·8						Apr. 20		·965	265·9					73	
		·961	287·5								·838	260·7					76	
		·932	257·9								·8881	920	274·7	305·9	+ 2·3	8	15	415c
		·930	300·1								·8885	591	108·6	204·3	— 15·0	12	44	
		·874	248·9								·8884	845	110·1	182·4	— 19·7	58	303	182c
		·862	292·6								·903	78·0					171	
		·840	263·1								·935	96·1					215	
											·965	111·2					177	
											·966	78·8					137	
											(— 25·7)	(239·6)	(— 5·1)	(78)	(362)	(1446)		

Group 8882, Apr. 15-17. One or two small spots *nf* Group 8881.

Group 8883, Apr. 16-24. Intermittent. A very small spot seen only on Apr. 16 and 24.

Group 8884, Apr. 19-May 2. Return of Group 8862. A regular spot with very small companions on Apr. 21 and 23.

Group 8885, Apr. 21-29. An irregular stream of ill-formed spots. After Apr. 25 the rear portion soon dies out, and the leader becomes a small regular spot.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.	
1919. 111.501.	G	·959	262·2	◦	◦				108	114·335	·893	83·5	◦	◦				
		·853	254·1						98	C	·977	85·5					97	
		8881	274·0	305·2	+ 3·1	0	66	317c	·982	Apr. 25	(-25·3)	(187·4)	(-4·7)	(270)	(1392)	115		
		877e	279·6	285·7	+ 6·0	2	5	63c								101		
		8885	360	118·8	205·8	-14·7	46	195								1279		
		8884	·695	113·2	182·3	-19·6	46	275										
		·775	74·4						77	115·393	·922	290·9					198	
		·840	98·4						138		·907	305·1					110	
		·901	115·7						301		·895	239·9					161	
		·905	69·6						144		8886	·754	294·2	218·6	+14·7	75	381	
Apr. 22			(-25·6)	(224·8)	(-5·0)	(94)	(541)	(1246)			8885	·591	251·9	208·7	-14·3	30	192	
	G	·959	278·3						82	G	8887	·358	224·5	188·7	-19·2	31	86	
		·917	253·9						109		8884	·288	207·1	181·4	-19·3	63	288	
		8886	355	346·7	217·7	+15·3	1	2			8888	·878	101·1	112·0	-11·9	72	541	
		8885	·213	147·3	206·1	-15·1	47	225				·820	56·4				215c	
		8884	·551	118·7	182·2	-19·5	57	305				·855	73·1				85	
		·829	115·5						78	Apr. 26		·945	68·6				99	
		·834	65·9						65			·963	93·5				86	
		·934	112·1						50			(-25·1)	(173·4)	(-4·6)	(271)	(1488)	161	
		·941	72·7						98			·973	290·2				121	
			(-25·5)	(212·9)	(-4·9)	(105)	(532)	(482)	116·350			·958	249·5				45	
Apr. 23	C	·957	250·6						131			·946	237·0				62	
		8883	·753	291·7	246·1	+12·8	2	5	86n			·864	263·3				87	
		8886	·448	318·4	218·3	+15·0	27	158				·861	290·0	217·4	+14·7	16	220	
		8885	·194	210·0	206·1	--14·4	46	172				8885	·759	254·8	209·7	-14·4	24	131
		8887	·344	140·8	187·1	-20·1	1	6				8887	·534	240·7	190·2	-19·0	8	43
		8884	·398	130·6	181·8	-19·5	46	264				8884	·420	231·2	181·0	-19·4	53	272
		8888	·996	102·0	114·8	-12·4	21	165				8888	·748	101·6	112·7	-11·7	72	469
		·856	61·0						101			·961	81·5	87·8	+ 6·9	23	133c	
		·924	76·5									·879	65·2				172p	
		·936	110·8									·886	92·8				124	
Apr. 24	C	·960	63·6									·921	109·6				160	
			(-25·4)	(200·4)	(-4·8)	(143)	(770)	(783)				·934	99·1				85	
		·934	300·8									·985	109·2				115	
		·850	243·3													45		
		·838	310·1													45		
		·832	292·1													298c		
		8886	·599	302·5	218·8	+14·7	67	439								211c		
		8885	·379	242·5	207·6	-14·5	34	222								250		
		8887	·255	181·3	187·8	-19·4	13	38								141		
		8884	·273	159·2	181·5	-19·4	66	263								236		
		8888	·969	100·8	111·2	-11·7	90	430										
114·335	C	·881	72·5						91	117·360	·936	263·9					162	
		·888	58·1						52		8886	·948	287·1	216·7	+14·7	17	90	
									60		8885	·895	256·7	210·9	-13·9	34	151	
		·832	292·1						154		8887	·715	247·1	191·5	-19·3	12	39	
		8886	·599	302·5	218·8	+14·7	67	439			8884	·587	242·5	180·7	-19·3	50	274	
		8885	·379	242·5	207·6	-14·5	34	222			8888	·577	103·5	112·7	--11·4	65	440	
		8887	·255	181·3	187·8	-19·4	13	38			8889	·877	79·5	87·3	+ 7·0	29	185	
		8884	·273	159·2	181·5	-19·4	66	263			8890	·923	108·6	80·1	-18·9	23	103	
		8888	·969	100·8	111·2	-11·7	90	430				·768	93·0					
		·881	72·5									·838	112·1					
		·888	58·1									·866	44·9					

Group 8886, Apr. 23-28. A tiny spot on Apr. 23 which, by the following day, has become a regular spot, preceded by a cluster of small companions. The group diminishes rapidly after Apr. 26.

Group 8887, Apr. 24-30. A small stream appearing in front of Group 8884.

Group 8888, Apr. 24-May 6. A group of the "stream" type, made up of a double spot as leader, a partially formed regular spot as the rear component and numerous sporadic companions between them.

Group 889, Apr. 27-May 9. Return of Group 887; third appearance. A regular spot with occasional very small companions.

Group 8890, Apr. 28-May 9. Two small spots, seen on Apr. 28 at the east limb, which have developed considerably by the following day. The leader becomes of regular formation by May 3; the follower, though a regular spot by Apr. 30, is unstable and soon begins to change form and disappear. A few small companion spots are seen until May 7.

A few small companion spots are seen until May 7.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.	Faculae.			Dist.	Pos. Angle.	Long.	Lat.	Umbræ.	Whole Spots.	Faculae.		
1919. 117·360	C	·866	97·7	°	°	°			175	120·332	8888	·176	226·0	115·5	-11·0	31	193		
·881		59·7							191		8889	·403	62·2	87·1	+7·0	28	160		
·966		72·9							346		8890	·489	123·2	82·5	-19·2	60	481		
·968		95·1							120		8892	·981	105·9	28·8	-16·4	0	18	354n	
·981		82·3							181			·810	69·6				132		
Apr. 28		(-24·9)	(147·4)	(-4·4)	(230)	(1282)	(3035)					·941	100·6				454		
												·959	74·5				136		
												(-24·4)	(108·1)	(-4·1)	(170)	(1089)	(1916)		
118·639	G	8885	256·2	211·1	-14·3	23	118	331f		May 1		·952	262·6					206	
8887		·889	250·2	192·9	-19·6	4	15	238c	121·367			·919	246·2					175	
8884		·778	248·9	180·4	-19·0	59	268	73c				·907	293·6					124	
877f		·320	272·6	149·1	-3·3	1	5					·812	262·4					71	
8891		·358	323·9	142·9	+12·5	1	4					·778	288·0					44	
877g		·378	328·8	142·1	+14·6	2	7					·8884	251·2	179·6	-19·1	38	239		
8888		·300	114·0	114·4	-11·1	53	318		107c		8888	·355	248·0	114·0	-11·3	27	188	99sf	
8889		·701	75·4	87·6	+7·0	27	154				C	·8889	·225	34·4	87·2	+6·6	31	150	
8890		·773	111·2	81·0	-19·0	79	475					·8890	·324	143·8	82·9	-19·0	81	492	
·861		70·4										·8892	·916	105·2	28·2	-15·5	11	23	420c
·901		80·2										·8893	·960	94·0	20·7	-5·0	35	225	461c
·959		73·6										·837	100·4					253	
Apr. 29		(-24·6)	(130·5)	(-4·3)	(249)	(1364)	(1133)					·852	73·2					64	
												·939	72·4	(-24·2)	(94·5)	(-4·0)	(223)	(1317)	(2173)
119·343	G	·990	254·7						106		May 2							237	
·933		249·9							149								102		
·846		247·3							68								68		
·829		279·8							61								73		
·790		265·1							63	122·372		·964	245·8					62	
·746		294·1							59			·963	292·5					127	
·724		236·4							60			·913	266·6						
8887		·957	250·5	194·5	-19·9	5	15					·900	284·6					73	
8884		·864	250·3	180·4	-19·1	52	283					·847	314·6					62	
8891		·461	307·1	143·2	+12·2	1	3					·810	301·2						
8888		·183	134·1	113·5	-11·4	46	288					8894	·720	253·0	126·4	-14·8	2	6	
8889		·585	72·3	87·2	+6·7	35	167					8888	·566	254·7	114·9	-11·8	30	182	
8890		·664	114·3	81·5	-19·1	88	510					8889	·210	329·4	87·3	+6·5	31	164	
·787		65·7							50			8890	·262	182·8	82·0	-19·0	86	535	
·841		79·5							86			8892	·805	106·0	28·1	-15·2	1	8	454c
·908		70·1							111			8893	·875	93·6	20·2	-5·0	37	209	345c
·983		100·7							56			8895	·983	82·9	2·7	+6·2	67	649	487c
Apr. 30		(-24·5)	(121·2)	(-4·2)	(227)	(1266)	(869)					·825	68·6					215	
												·937	64·4					117	
												·961	114·7	(-24·0)	(81·2)	(-3·9)	(254)	(1753)	(2345)
120·332	C	·982	249·2						142	May 3								58	
·927		281·6							117										
·899		268·8							81										
·862		258·6							147	123·662		·899	293·8					118	
·842		242·2							128			·851	309·8					99	
·814		296·0							133	G	8894	·877	255·4	125·2	-14·6	0	4	28c	
8884		·950	251·2	180·1	-19·2	51	237	92c	92c		8888	·770	257·6	114·1	-11·9	29	152	107c	

Group 8891, Apr. 29-30. A minute spot.

Group 8892, May 1-3. Two very small spots.

Group 8893, May 2-14. A regular spot with minor changes in structure between May 6 and 9.

Group 8894, May 3-4. A pair of very small spots on May 3; one alone on May 4.

Group 8895, May 3-15. A very large spot followed by a broad train of unstable spots which are faint and scattered after May 9. The leader spot is in continual change and exhibits for several days a triple umbra and later a double one.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.	
1919. 123-662	8889	.430	293°2'	87°4'	+ 6°2'	30	186		1919. 126-345	8893	.141	108°4'	21°0'	- 6°0'	31	176		
	8890	.411	230°6'	83°6'	- 18°6'	82	422			8895	.455	68°6'	3°7'	+ 6°4'	173	1001		
	8893	.690	93°9'	20°5'	- 5°5'	36	197			8896	.546	59°2'	0°0'	+ 13°1'	25	176		
	8895	.889	81°2'	2°2'	+ 6°0'	150	891	216c		8897	.901	106°9'	324°8'	- 16°8'	36	257	412f	
	8896	.932	71°8'	357°6'	+ 15°4'	0	8	117c		8898	.967	98°8'	313°3'	- 9°4'	2	8	295n	
	G	.928	62°4'					41			.956	82°8'					121	
		.945	109°4'					125			(-23°2')	(28°7')	(-3°5')	(324)	(2039)	(2131)		
	May 4	(-23°8')	(64°1')	(-3°8')	(327)	(1860)	(851)			May 7								
										127-508	.946	304°5'					94	
											.890	291°3'					119	
124-464		.951	300°4'					150			.891	278°9'					90	
		.934	251°6'					84			8889	.964	277°9'	87°0	+ 6°6'	15	155	277c
		.829	296°5'					118			8890	.949	253°4'	84°8'	- 16°9'	30	177	406c
		8888	.875	258°7'	114°4'	- 11°6'	27	138	382c		877i	.400	245°4'	35°1'	- 12°7'	0	5	
		8889	.582	286°2'	87°6'	+ 6°2'	25	153			8893	.146	250°5'	21°2'	- 6°1'	31	159	
		8890	.541	241°2'	83°3'	- 18°3'	72	435			8895	.229	41°1'	4°6'	+ 6°4'	148	797	
		8893	.547	94°1'	20°4'	- 5°3'	32	184	369c		8896	.367	38°5'	359°8'	+ 13°3'	44	178	
		8895	.783	78°3'	3°1'	+ 6°7'	167	1173			8897	.764	109°1'	324°6'	- 16°7'	35	263	224f
		8896	.838	71°2'	359°0'	+ 13°6'	21	62	129c		8898	.842	99°3'	316°1'	- 9°6'	29	81	204c
		.875	107°6'					97			.862	81°6'					86	
		.901	58°0'					107			.930	98°5'					134	
		.952	116°8'					89			.944	83°6'					180	
	May 5	(-23°6')	(53°5')	(-3°7')	(344)	(2145)	(1525)			May 8	(-22°9')	(13°3')	(-3°4')	(332)	(1815)	(1814)		
125-423		.936	283°4'					87			128-348	.955	287°6'					103
		.906	294°6'					97				.922	278°6'				93	
		.880	266°3'					119				.832	289°2'				94	
		.866	310°0'					61				.800	303°4'				56	
		8888	.970	259°2'	116°9'	- 11°3'	8	87	303f		8889	.997	277°0'	87°4	+ 6°7'	118	184	52s
		8889	.739	281°6'	87°3'	+ 6°1'	25	163	71c		8890	.992	253°5'	85°3'	- 16°8'	34	196	239c
		8890	.705	248°3'	84°1'	- 17°7'	53	273			8893	.330	260°8'	21°2'	- 6°1'	30	154	
		877i	.138	172°8'	39°8'	- 11°4'	1	3			8895	.182	341°4'	5°5'	+ 6°6'	143	756	
		8893	.345	97°4'	20°8'	- 5°9'	41	195			8896	.286	7°0'	0°2'	- 13°1'	33	174	
		8895	.633	75°6'	2°9'	+ 6°2'	180	988	97f		8897	.637	112°8'	324°5'	- 16°8'	31	254	
		8896	.701	67°6'	359°3'	+ 12°7'	28	104	61c		8898	.722	100°4'	316°3'	- 9°8'	45	199	66f
		8897	.970	106°4'	324°7'	- 16°8'	34	295	371f			.738	79°7'				54	
		.818	53°4'					45			.838	98°0'				56		
		.833	66°7'					51			.865	82°1'				77		
		.884	119°6'					93			.951	105°8'				83		
	May 6	(-23°4')	(40°8')	(-3°6')	(370)	(2108)	(1456)			May 9	(-22°8')	(2°2)	(-3°3')	(434)	(1917)	(973)		
126-345		.977	257°0'					191			129-591	.979	277°2'					86
		.970	290°6'					101				.940	286°4'				136	
		.954	262°6'					218				.935	295°3'				122	
		.923	305°0'					214				.800	256°3'				155	
		.894	263°4'					160				.755	291°9'				79	
		8889	.864	279°2'	87°6'	+ 6°1'	22	176	246c		878a	.944	264°7'	56°4'	- 6°1'	6	18	92f
		.833	250°8'	84°2'	- 17°9'	35	245	173c										

Group 8896, May 4-14. A group n Group 8895 in the same general area of disturbance. Two spots which separate in longitude. The leader is a small regular spot; the follower usually shows a double nucleus. There are small companions appearing between them.

Group 8897, May 6-18. A spot nearly of regular formation. There are two small but persistent nuclei just north of the main umbra of the spot.

Group 8898, May 7-15. A small composite spot, growing from a small marking in faculæ, followed by small companions.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

Group 8899, May 10-17. Intermittent. A few spots seen following Group 8898 until May 13. The group then revives for two days on May 16 and 17.
Group 8900, May 13-25. A large spot at the east limb, which develops considerably during the following days and becomes of very composite formation.

Group 8900, May 13-23. A large spot at the east limb, which develops considerably during the following days and becomes of very composite formation with numerous umbrae. A cluster of irregularly formed spots appears in front, and near its maximum phase, when it is of considerable extension, its division from the main spot is somewhat arbitrary.

Group 8901, May 15-25. A stream of spots with the leader, as the largest component. This is a spot of regular type until May 20, when it becomes elongated and divides on May 22. The train is made up of small spots, one of which can be traced for several days.

Group 8902, May 16-26. On May 16, a few very small spots, s Group 8901, which develop into a regular spot with a train of very small companions.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.	
1919. 135.696	G	·772	65·8	°	°				1919. 138.609	May 19	·839	105·8	170·3	—14·4	19	92	1720	
·849		109·1							·761		100·4					96		
·905		123·4							·932		118·6					92		
·954		108·3							·940		68·4					54		
May 16		(—20·9)	(265·0)	(—2·5)	(439)	(2202)	(1609)		(—20·0)		(226·5)	(—2·1)	(428)	(2370)	(717)			
136.351		·886	276·5						90	139.336	·924	251·9					108	
·876		260·4							8900	·370	319·0	231·2	+14·2	299	1663			
·924		252·3	323·2	—17·2	22	138	2020		8902	·195	128·9	208·0	—9·0	45	217			
·801		262·9	309·3	—7·1	7	22	84		8901	·189	107·8	206·4	—5·2	73	379			
·900		54·6	232·1	+14·2	335	1670			878d	·358	148·2	205·3	—19·6	1	3			
8901	C	·782	94·9	205·0	—5·4	77	476	5320	8906	·594	115·5	182·9	—16·5	1	5			
8902		100·1	202·6	—9·6	16	86	90c		8903	·700	117·0	175·4	—19·9	18	83			
8903		110·0	176·6	—20·1	27	112	52c		8905	·767	106·6	167·8	—13·9	38	170	1520		
·655		62·2							·838		118·2					100		
·825		110·3							·873		64·7					80		
·942		106·3							·922		122·9					93		
·967		78·9							·960		70·5					58		
·972		95·3							May 20		(—19·8)	(216·8)	(—2·0)	(475)	(2520)	(591)		
May 17		(—20·7)	(256·3)	(—2·4)	(484)	(2504)	(1823)											
137.378	C	·966	275·4						140.353	8900	·528	301·5	231·0	+14·3	244	1540		
·962		259·6							8902	·137	211·1	207·5	—8·6	38	263			
·910		263·8							8901	·072	217·1	205·9	—5·2	71	300			
·893		282·4							8906	·458	126·8	180·9	—17·6	0	2			
8897		·986	252·8	323·0	—17·4	9	61	351f	8903	·544	125·0	175·2	—19·8	16	78			
8904		·887	273·0	304·9	+ 1·5	10	24	132f	8905	·616	110·5	167·1	—13·9	44	183		50	
8900		·333	31·4	232·4	+14·2	224	1776		·742		123·0					70		
8901		·601	95·8	205·9	—5·3	61	449		·856		63·2					62		
8902		·614	102·7	205·5	—9·6	23	122		·863		126·9					86		
8903		·925	111·0	175·9	—20·2	9	97	213c		·933		68·3				85		
8905		·960	103·8	169·2	—13·8	12	83	341c		·954		59·7				104		
·846		109·3						203	May 21	·963	100·6					(457)		
·889		79·6						91		(—19·5)	(203·4)	(—1·9)	(413)	(2366)				
·909		93·8						80										
·987		111·3						85	141.505	·903	285·7					78		
May 18		(—20·4)	(242·7)	(—2·3)	(348)	(2612)	(2238)		8900	·717	292·0	231·2	+14·2	215	1459	273p		
138.609	G	·984	264·4						8902	·356	250·8	207·9	—8·3	47	276			
·877		251·8							8901	·320	259·5	206·5	—5·0	46	233			
8904		·987	272·0	306·9	+ 1·6	0	18	85	8906	·315	157·5	180·8	—18·6	0	4		74	
8900		·298	340·6	232·3	+14·2	287	1635	75	8903	·382	144·7	174·6	—19·8	15	57		83	
878c		·378	355·0	228·5	+19·9	1	3		8905	·396	120·9	167·8	—13·3	38	133		70	
8902		·341	112·0	207·9	—9·3	39	204		·799		65·0					102		
8901		·352	99·2	206·2	—5·2	66	325		·865		98·6					149		
8906		·711	111·3	183·0	—16·5	1	10		·877		81·3					(829)		
8903		·797	113·8	175·8	—20·0	15	83	48sf	May 22	·914	59·7							
									·945	103·4								
									(—19·1)	(188·1)	(—1·8)	(361)	(2162)					

Group 8903, May 17-25. Return of Group 8884; third apparition. A small regular spot. Group 8910 arises from its position on May 26.

Group 8904, May 18-19. A pair of small spots on May 18; one only is seen on May 19.

Group 8905, May 18-25. A group of spots, unstable in character, except the leader, which is a small regular spot.

Group 8906, May 19-23. One or two very small spots near Group 8903.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.	Faculae.			Dist.	Pos. Angle.	Long.	Lat.	Umbræ.	Whole Spots.	Faculae.	
1919. 142·339	C	·954	159·1	°	°				1919. 144·383	May 25	·387	236·8	169·5	-13·5	11	30		
·947		247·3							8905		·320	253·8	168·0	-6·4	1	3	101 ^p	
·853		239·3							8908		·885	78·5	88·8	+9·5	18	108	76	
·709		295·7							8909		·804	96·6					75	
·826		289·1	230·7	+14·6	142	1201	36				·830	43·6					372	
8900		257·3	209·4	-8·3	38	261	60				·907	111·0					93	
8902		263·7	206·1	-4·6	33	197	80				·908	60·8					87	
8901		213·7	189·2	-18·9	2	21	104				·922	50·4					43	
8907		195·7	181·9	-18·3	1	4	612c				·948	179·6					63	
8906		195·7	181·9	-18·3	1	4					·952	95·4					130	
297		170·9	174·0	-20·1	11	60					·954	80·4					82	
8903		141·7	167·5	-13·6	30	107					·972	68·4					(3420)	
8905		78·3									(-18·2)	(150·1)	(-1·4)	(280)	(1405)			
·840		103·1									175							
·848		57·4									132							
·946		69·9									144							
·948		98·5									121							
·958		55·3									163						210	
·976		82·4									151						58	
May 23		(-18·9)	(177·1)	(-1·7)	(257)	(1851)	(1885)				145·220						664 ^f	
143·371	C	·919	241·2								8902	·933	249·8					134c
·847		291·7									8907	·965	263·2	213·6	-6·9	34	141	
·789		245·7									8910	·817	248·1	191·9	-18·5	63	248	
8900		286·1	230·9	+14·4	121	1179	84				8908	·552	235·5	167·7	-19·2	14	38	
8902		260·5	210·7	-8·1	30	259	166				8911	·487	259·9	167·7	--6·0	15	48	
8901		264·9	206·7	-4·7	23	101	86				8909	·478	243·9	165·1	-13·3	0	3	
8907		233·3	188·7	-18·9	19	107						·780	76·9	88·9	+9·3	22	134	
8903		207·3	173·5	-20·1	11	24						·845	113·3					
8905		191·8	165·8	-12·7	22	129						·916	82·1					
8908		198·3	165·2	-7·1	1	2						·957	97·0					
8909		80·0	88·6	+9·3	14	122						·960	68·0					
·787		105·3										(-17·9)	(139·0)	(-1·3)	(148)	(612)	(1656)	
·884		66·3										146·354						
·927		95·9										·987	252·7					267
·935		49·5										·970	263·3					658
·968		108·1										·902	278·1					155
May 24		(-18·5)	(163·4)	(-1·6)	(241)	(1923)	(2026)					·832	264·5					66
144·383	C	·979	264·6								8907	·936	251·0	192·4	-18·1	15	374	
·938		289·8									8910	·724	243·5	167·3	-19·6	15	89	
·925		251·4									8908	·662	261·9	165·1	-6·3	19	104	
·826		247·2									8911	·636	250·7	161·8	-13·0	1	7	
8900		285·0	229·5	+14·5	175	894	674				8912	·318	124·9	108·6	-11·6	16	39	
878e		243·2	219·4	-25·7	2	3	193				8909	·594	72·0	89·2	+9·6	20	95	
8902		262·6	212·7	-7·2	35	191	109				8913	·829	79·5	68·8	+8·0	4	10	
8901		267·0	208·9	-3·3	7	33	99					·767	117·3					
8907		243·7	189·7	-18·5	26	122	539c					·866	98·1					
8903		228·8	173·1	-20·0	5	21	110s					·884	66·1					
·946							253c					·912	89·5					
·857							261f					·958	69·5					
·676							60c					·977	102·9					
·490												(-17·5)	(124·0)	(-1·2)	(141)	(718)	(3013)	
May 27																		

Group 8907, May 23-28. A stream of spots *p* Group 8906. A regular spot has formed as the leader by May 27, but the train is fast disappearing.

Group 8908, May 24-29. A small group with a brief maximum on May 27 when a small regular spot has appeared.

Group 8909, May 24-June 4. Return of Group 8889, fourth appearance. A small regular spot.

Group 8910, May 26-29. A pair of spots preceding the place of Group 8903.

Group 8911, May 26-27. One very small spot seen each day.

Group 8912, May 27-29. A short-lived group of the "stream" type.

Group 8913, May 27-28. A small spot.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.	
1919. 147·339		°	°	°	°				1919. 150·366		·981	239·8	°	°				
	8907	·927	262·3								·875	296·7					86	
		·845	255·8								·838	257·0					99	
	8910	·991	251·8	193·0	-18·2	76	413	314c		8909	·365	301·5	89·3	+10·3	15	112	66	
G	8908	·864	247·6	168·9	-19·8	6	22	134c		8914	·106	189·4	71·9	-6·6	14	115		
	8912	·811	263·8	164·9	-5·6	9	31	86c	C	8915	·344	34·5	59·3	+15·7	4	33		
	8909	·190	171·0	109·3	-11·9	8	31			8916	·415	56·9	50·1	+12·4	14	45		
	8913	·407	63·2	89·5	+9·5	18	98			8917	·878	81·7	10·1	+6·9	47	287		
		·668	77·3	70·1	+7·6	1	5			8918	·901	70·7	8·3	+17·0	9	43	313f	
		·792	62·9								·907	101·3					199f	
May 28		·890	68·0								·919	77·1					73	
		·925	103·0								·935	55·9					156	
		·938	76·6								·979	111·0	(-16·1)	(70·9)	(-0·7)	(103)	(635)	71
				(-17·2)	(111·0)	(-1·1)	(118)	(600)	(1259)	May 31							67	
148·343		·931	257·3						151·388		·938	295·1						104
		·875	238·4								·931	258·9						144
G	8910	·855	290·0								·922	280·1						93
	8908	·951	249·0	168·6	-20·2	3	11	255			·868	306·1						107
	8912	·919	263·8	164·2	-6·1	3	14	92			·835	254·1						76
	8909	·245	220·2	107·0	-11·7	0	3	65		8909	·556	289·9	89·4	+10·4	13	88		
	8914	·234	37·0	89·5	+9·7	19	105	175f		8914	·267	246·2	71·6	-6·7	34	191		
	8915	·473	100·7	70·0	-5·8	10	29			8915	·281	342·8	62·3	+14·9	18	83		
		·713	66·0	55·2	+16·1	1	6			8916	·260	30·9	49·6	+12·2	12	79		
		·801	61·7							8917	·741	79·9	10·3	+7·1	45	322		
May 29		·833	105·0							8918	·785	68·3	8·1	+16·4	13	49	208f	
		·951	72·2							8919	·866	61·1	1·3	+24·4	6	27	161f	
		·954	99·8								·917	115·8					69c	
		·955	110·8								·952	108·7					77	
				(-16·8)	(97·7)	(-1·0)	(36)	(168)	(1238)	June 1							155	
											·981	97·8					171	
149·337		·985	260·9						152·372								1365	
		·982	252·0								·981	258·6						98
C	8909	·964	290·9								·980	280·1						69
	8914	·935	239·8								·979	271·6						67
	8915	·210	335·9	89·5	+10·2	13	97	242			·938	298·8						80
	8916	·241	112·7	71·6	-6·2	19	63				·916	257·8						97
	8917	·535	56·9	56·8	+16·2	1	5				·903	289·4						91
	8918	·609	67·2	49·5	+12·9	8	40				·892	309·3						87
		·965	82·7	10·1	+6·8	51	323	519c	C		·819	280·9						73
May 30		·974	72·2	8·8	+17·1	4	61	163c		8909	·722	285·4	89·3	+10·7	13	96		
		·870	69·6							8914	·461	257·2	71·2	-6·3	49	350		
		·885	97·9							8915	·396	312·2	62·0	+14·9	28	110		
		·894	110·6							8916	·251	332·1	51·3	+12·3	10	48		
		·953	176·2							8917	·572	76·8	10·4	+7·1	54	298	71f	
		·964	62·5							8918	·641	63·6	7·9	+16·1	11	52	36f	
				(-16·5)	(84·5)	(-0·9)	(96)	(589)	(2239)	8919	·756	56·5	0·8	+24·2	10	34	29c	

Group 8914, May 29-June 6. A stream of small spots until June 2, when three or four larger components have appeared. The following spot becomes of regular type.

Group 8915, May 29-June 5. A sparse stream of small spots.

Group 8916, May 30-June 5. A small stream in continual change.

Group 8917, May 30-June 11. Return of Group 8895. A stable circular spot followed by an area of faculæ, in which one or two very small spots appear.

Group 8918, May 30-June 10. A small but persistent spot with an occasional companion, n Group 8917.

Group 8919, June 1-11. A stream approximately of normal type, developing in the usual way from two very small spots on June 1.

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G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.			G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.		
		Dist.	Pos. Angle.	Long.	Lat.	Umbra.	Whole Spots.	Faculae.			Dist.	Pos. Angle.	Long.	Lat.	Umbrae.	Whole Spots.	Faculae.
1919. 152.372	8921	.878	112.2	345.0	-19.6	1	7	128c	1919. 154.460		.812	116.1	0	0			115
C	8920	.905	97.5	339.9	-7.0	31	233	334c			.826	101.9					173
		.814	67.2					63			.841	129.9					83
		.945	73.8					77			.919	109.3					418
		.969	103.6					235			.922	98.2					87
June 2		(-15.4)	(44.4)	(-0.5)	(207)	(1228)	(1635)				.927	87.8					133
											.971	72.6					172
											(-14.6)	(16.7)	(-0.2)	(280)	(1455)	(2551)	
153.364		.962	303.5					117			.957	276.5					99
		.942	263.4					100			.954	243.7					112
		.928	280.7					151			.891	295.1					92
		.888	299.4					91			.776	298.3					42
		.852	250.5					128									
		8909	.854	282.9	88.9	+10.7	15	97	55f		8914	.954	226.9	74.3	-- 6.9	59	385
		8914	.654	260.5	71.5	-6.5	73	438			8915	.861	285.7	60.2	+14.2	0	4
		8915	.561	298.0	61.9	+14.9	11	55			8916	.795	286.2	53.4	+12.7	0	7
		8916	.412	302.0	52.1	+12.2	14	61			8922	.753	279.7	50.3	+7.2	92	370
		8917	.376	69.6	10.5	+7.2	46	295			8924	.636	235.3	36.1	-21.2	3	8
		8918	.481	53.5	7.5	+16.2	8	50			878f	.294	322.7	12.6	+13.3	3	9
		8919	.599	46.4	3.0	+24.0	4	18			8917	.196	311.5	10.6	+7.3	43	231
		8921	.749	116.0	345.8	-19.4	2	12	145f		8918	.297	342.7	7.4	+16.2	10	20
		8920	.786	98.2	339.8	-6.6	37	291	191c		8919	.410	0.3	2.0	+24.0	79	438
		.851	71.1					112			8925	.188	143.5	355.6	-8.8	4	8
		.885	104.1					265			8921	.410	142.3	346.8	-18.9	7	14
		.928	54.4					33			8920	.378	110.3	341.2	-7.7	17	103
		.929	124.0					83			8923	.564	113.2	330.1	-12.8	2	8
		.945	100.0					162				.801	100.1				52
		.954	84.7					120				.818	112.6				136
		.956	110.1					198				.889	69.7				63
June 3		(-15.0)	(31.2)	(-0.4)	(210)	(1317)	(1951)					(-14.1)	(2.1)	(-0.1)	(319)	(1605)	(1114)
154.460		.952	251.5					217	156.558		.964	285.3					155
		.880	242.9					158			.909	262.1					113
		.862	280.1					88			.928	293.6					168
		.776	301.4					111			.897	285.2					206
		8909	.959	281.0	89.6	+10.5	26	144	127c		8914	.988	263.2	69.7	-6.7	13	41
		8914	.837	261.8	73.0	-6.9	81	466	392c		8922	.879	277.7	50.1	+6.8	88	513
		8915	.718	291.0	60.4	+14.7	2	8	173f		8924	.768	241.0	35.2	-21.8	12	36
		8916	.604	290.8	51.8	+12.2	9	33			879a	.733	249.8	34.1	-14.6	3	15
		8922	.541	284.4	48.5	+7.5	8	23			8917	.394	289.3	10.9	+7.4	45	248
		8917	.169	38.4	10.7	+7.4	55	248			8918	.410	312.1	7.4	+15.9	7	18
		8918	.314	27.4	8.1	+15.9	10	20			8919	.453	332.9	2.0	+23.7	89	444
		8919	.486	30.6	1.0	+24.4	48	287			8925	.186	217.2	355.5	-8.5	28	70
		8921	.577	124.7	346.7	-19.2	6	12			8921	.326	174.9	347.3	-18.9	7	12
		8920	.601	101.6	340.5	-7.1	33	195			8920	.187	141.7	342.3	-8.4	11	68
		8923	.752	107.0	329.4	-12.7	2	19	47c			.769	67.7				90
		.719	67.0					57	June 6		(-13.7)	(349.0)	(0.0)	(303)	(1465)	(1160)	

Group 8920, June 2-8. A pair of ill-formed spots; the leader can be traced for several days, but the follower soon breaks up into a cluster.

Group 8921, June 2-10. A single small spot until June 4; a small stream of unstable spots then appears.

Group 8922, June 4-8. A very small cluster of spots on June 4; two prominent spots have appeared by the following day of which the leader preserves its regular formation and the follower breaks up into three components on June 7.

Group 8923, June 4-5. A small spot.

Group 8924, June 5-7. A pair of spots which separate in longitude.

Group 8925, June 5-10. A small but definite spot.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.		
1919. 157°36'		·958	283°0	°	°				244	1919. 160°342	8917	277·6	11°1	+ 7°4	34	212	563f		
		·949	290·6						190		8918	287·2	6°8	+ 16°2	0	8	156f		
		·943	250·6						101		8919	929	293·8	5°2	+ 22°1	70	400	657c	
		·837	252°0						62		8925	889	259·3	1°0	- 9°3	4	6	143f	
		·814	280·2						77		8921	776	244·8	346·6	- 18°9	0	4	96p	
G	8922	·953	276·8	50°3	+ 6°5	79	520	340c			8926	447	229·8	319·6	- 16°2	10	28		
	8924	·862	244·2	34°9	- 21°9	4	11	67c			8929	334	317·4	312·4	+ 14°7	30	89		
	879b	·700	249·6	20°7	- 14°0	1	3				8930	863	66·2	241·6	+ 20°5	2	5	125s	
	8917	·543	283·6	10°3	+ 7°3	34	224				8927	878	78·1	238·2	+ 10°7	4	15	415p	
	8918	·542	300·4	7°3	+ 15°9	4	10				8928	929	75·9	231·4	+ 13°1	125	589	363c	
	8919	·542	316·1	2·3	+ 22°9	95	467				8931	975	108·2	222·8	- 17°6	42	279	301c	
	8925	·350	245·4	357·0	- 8·2	42	147				8932	980	97·6	220·8	- 7°3	17	93	231n	
	8921	·354	203·8	346·9	- 18·6	6	10					788	69·2				89		
	8920	·176	204·9	342·6	- 9·1	6	51					66·3					199		
	879c	·290	12·3	334·6	+ 16·5	1	3					·950	(- 12·2)	(298·9)	(+ 0·5)	(338)	(1728)	(3338)	
June 7	8926	·464	130·8	316·8	- 17·4	1	3												
			(- 13·4)	(338·3)	(+ 0·1)	(273)	(1449)	(1081)											
158°492		·961	246·6						149			·974	286·8				147		
		·954	253·5						92			·946	261·0				240		
		·940	284·2						122			·903	286·4				64		
		·915	260·4						63			·900	245·8				161		
		·882	247·4						119			·846	259·1				193		
		·870	293·8						97			·792	244·6				56		
C	8922	·992	277·0	46·0	+ 6·9	23	165	208c			8917	996	277·4	10°0	+ 7·4	43	144	398f	
	879d	·834	285·4	18·8	+ 12·9	1	5	50c			8919	991	291·6	7°0	+ 21·4	43	206	592n/	
	8917	·743	279·8	10·8	+ 7·4	39	235				8926	607	242·0	319·0	- 16·0	13	67		
	8918	·720	292·1	7·1	+ 15·8	2	6				8929	515	298·2	313·1	+ 14·5	23	115		
	8919	·703	304·0	2·6	+ 23·2	95	447				8927	745	76·4	238·1	+ 10·5	2	8		
	8925	·576	255·0	357·5	-- 8·4	18	124				8928	831	74·3	230·2	+ 13·3	124	773	298c	
	8921	·499	229·2	346·8	- 18·8	5	8				8931	902	109·2	222·6	- 16·9	21	145	223c	
	8920	·360	241·6	342·0	- 9·6	4	21				8932	910	98·0	220·3	- 7·0	11	73	281n	
		·964	77·2						313			·806	65·4				170		
		·967	67·8						54			·917	63·2				84		
June 8			(- 13·0)	(323·4)	(+ 0·2)	(187)	(1011)	(1267)				·980	99·6				236		
											·985	91·7				110			
159°500		·954	291·8						87			(- 11·8)	(285·3)	(+ 0·6)	(280)	(1531)	(3334)		
		·952	248·9						85										
G	8917	·876	278·4	10·7	+ 7·5	38	233	253c			162°343	·971	245·2				86		
	8918	·850	288·8	6·7	+ 16·1	1	4	46f				·945	260·2				159		
	8919	·843	296·7	4·4	+ 22·4	75	447	113c				·899	246·8				60		
	8925	·768	258·9	359·4	- 8·2	9	32					·864	253·0				78		
	8921	·656	240·2	346·8	- 18·6	1	5					·788	256·9				26		
	8927	·958	79·0	237·1	+ 10·7	3	14	379p				8933	892	260·3	334·9	- 8·3	2	19	64c
	8928	·980	76·6	232·0	+ 13·2	116	536	159c				8926	762	248·1	319·5	- 15·9	25	94	36c
June 9		·874	73·8						278			8929	713	289·4	316·2	+ 14·2	24	156	
		·949	69·9						140			879e	523	277·3	303·6	+ 4·4	1	2	

Group 8926, June 7-13. Intermittent. A minute spot on June 7; a short stream from June 10-13.

Group 8927, June 9-13. One or two very small spots in a disturbed area p Group 8928.

Group 8928, June 9-21. Return of Group 8900. A large spot followed by a companion of regular type, and a small cluster at the rear. The leader is at first of regular type, but after June 14 it becomes larger and at the same time elongated with very composite umbra. It shrinks rapidly after June 16.

Group 8929, June 10-14. A small stream of normal type.

Group 8930, June 10-18. Intermittent. A very small spot seen only on June 10 and 18.

Group 8931, June 10-20. A composite spot followed by small companions until June 17.

Group 8932, June 10-19. Return of Group 8902. A small regular spot with a few small followers on June 15 and 16.

Group 8933, June 12-13. A small group at the west limb.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.	
1919. 162·343	8934	·514	309·3	297·3	+19·5	2	5		1919.	164·346	·625	97·9	207·7	-4·2	18	65		
G	8927	·569	73·2	239·0	+10·0	1	4			8937	·630	101·3	207·6	-6·3	0	4		
	8928	·680	71·8	231·1	+12·7	125	761			8935	·833	111·3	191·9	-17·0	137	940	163c	
	8931	·789	112·8	223·0	-17·3	22	119	94c		8939	·904	113·4	183·8	-20·5	0	13	372c	
	8932	·793	100·0	220·6	-7·4	13	62	121n			·849	97·2					64	
	8935	·988	107·7	192·2	-17·4	170	803	116c			·914	11·8					26	
		·842	63·4					39			·917	73·3					110	
		·909	101·2					163			·940	101·6					145	
		·926	94·4					165			·973	115·4					89	
		(-11·4)	(272·4)	(+0·7)	(385)	(2025)	(1207)		June 14		(-10·6)	(245·9)	(+1·0)	(383)	(2036)	(1741)		
163·358		·954	252·5					185	165·390		·984	284·7					88	
C		·902	259·4					104			·978	249·9					110	
		·891	276·4					92			·888	248·0					73	
		·788	247·0					109			8934	·929	289·5	299·3	+18·5	3	9	
	8933	·962	260·0	332·6	-9·4	13	37	198c		8938	·267	312·3	243·7	+11·3	1	3	80c	
	8926	·889	251·6	320·1	-15·9	10	54	167c		8928	·206	3·7	231·3	+13·0	146	777		
	8929	·860	286·5	317·2	+14·5	13	121	149c		8931	·371	152·7	221·8	-18·0	16	75		
	8934	·665	299·2	296·9	+19·5	9	18			8932	·261	125·7	219·8	-7·7	8	26		
	8936	·247	36·0	250·5	+12·2	4	50			8937	·413	102·3	208·3	-4·1	15	51		
	8927	·396	66·8	237·4	+9·7	0	9			8935	·694	116·3	191·7	-17·0	180	1054		
	8928	·503	65·5	231·1	+12·7	136	844			8939	·768	118·1	186·0	-20·4	0	40	131f	
	8931	·638	119·2	223·5	-16·9	26	148				·796	70·1					95	
	8932	·636	102·4	220·4	-7·2	12	53				·848	107·1					74	
	8937	·778	96·1	208·3	-4·2	13	68	165c			·913	117·7					82	
	8935	·930	108·8	192·2	-17·1	128	987	544c			·939	108·6					84	
		·811	105·3					124			·949	71·7					74	
		·820	114·9					73			·951	80·7					109	
		·927	15·0					45			(-10·1)	(232·1)	(+1·1)	(369)	(2035)	(1000)		
		·942	96·0					107									67	
		·962	124·2					61										
		·974	112·6					536	166·345		·972	289·9						
		·982	74·4					132			8938	·434	290·1	243·7	+9·6	2	8	
G		(-11·0)	(259·0)	(+0·8)	(364)	(2389)	(2791)			879g	·400	303·7	239·4	+13·9	0	4		
										8928	·288	315·5	231·3	+13·0	136	753		
										8931	·344	188·1	222·3	-18·6	12	61		
										8932	·158	179·7	219·3	-7·8	6	18		
										879h	·108	154·1	216·7	-4·4	0	2		
										8937	·234	114·1	207·1	-4·3	6	24		
										8935	·549	124·3	191·2	-16·8	175	1259		
										8939	·646	124·7	185·0	-20·5	1	18		
										8940	·842	79·8	162·5	+9·2	28	114	57c	
											·848	115·3					70	
G	8929	·952	285·2	317·4	+14·7	0	55	168f			·878	68·3					71	
	8934	·818	292·8	298·6	+19·0	6	15	68c			·938	118·1					76	
	8936	·222	331·8	252·0	+12·2	12	35				·977	67·7					97	
	8938	·194	20·4	242·0	+11·4	6	24				·990	98·5					55	
	8928	·327	49·8	231·1	+12·9	167	756				(-9·7)	(219·4)	(+1·2)	(366)	(2261)	(493)		
	8931	·494	130·5	222·8	-17·7	26	92											
	8932	·455	108·4	220·2	-7·3	11	37											
									June 16									

Group 8934, June 12-15. A very small spot with a companion on June 13.

Group 8935, June 12-24. Return of Group 8907. An extremely large spot visible to the naked eye. When seen foreshortened near the east limb, it appears nearly of regular formation, but later its umbra is seen to be composite, and its general outline becomes somewhat irregular. The spot shows signs of breaking up near the west limb. Small companion spots appear after June 14.

Group 8936, June 13-14. A small short-lived stream.

Group 8937, June 13-20. A small, faint, but persistent stream of insignificant spots.

Group 8938, June 14-18. One small spot, with a companion on June 14, p Group 8928.

Group 8939, June 14-22. A small cluster of faint spots not seen on June 20, f Group 8935 in the same general area of faculae.

Group 8940, June 16-26. A stream consisting of a regular spot followed by a train of small companions, barely discernible after June 22.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.	
1919. 167·344		·758	285·9	o	o	o			1919. 169·418	8932	·677	258·0	220·4	- 6·9	1	5	39c	
G	8938	·608	285·5	242·6	+10·4	o	8	100	G	8937	·536	259·6	210·5	- 4·2	1	20		
	8928	·458	297·0	230·9	+13·2	143	703			8943	·370	304·8	196·8	+13·6	57	314		
	879i	·462	210·5	220·8	-22·1	o	4			8935	·380	213·0	191·1	-16·9	230	1287		
	8931	·420	214·5	220·7	-18·9	9	47			8939	·382	192·0	183·5	-20·2	o	16		
	8932	·281	236·7	219·8	- 7·6	5	12			8940	·256	63·8	165·3	+ 8·0	53	368		
	8937	·108	209·3	209·2	- 4·1	3	21			8944	·461	70·8	152·6	+10·2	16	73		
	8941	·141	65·8	198·8	+ 4·6	2	6			8942	·640	104·2	140·1	- 7·7	1	5		
	8935	·403	142·1	191·2	-17·2	188	1199			·879	77·4						71	
	8939	·512	137·0	184·4	-20·7	o	20			·926	57·5						76	
	8940	·678	78·5	164·1	+ 8·8	69	315			·929	100·4						99	
	8942	·941	99·3	136·6	- 8·3	o	4	80c	June 19	(-8·4)	(178·7)	(+1·6)	(445)	(2620)	(1093)			
	·748	65·4								·896	298·5							
	·908	122·6								·850	265·3							
	·941	69·1								·817	257·9							
	·974	104·3								·978	288·4						211	
June 17		(-9·3)	(206·2)	(+1·3)	(419)	(2339)	(543)			·971	279·7						336	
										·896	298·5						108	
										·850	265·3						148	
										·817	257·9						88	
168·456		·880	285·2							8928	·913	284·0	230·8	+13·4	54	499	468c	
G	8938	·733	299·4							8931	·860	247·5	222·1	-18·3	5	14	284c	
	8930	·781	281·8	242·2	+10·0	2	5	328		8937	·702	263·1	209·6	- 3·6	4	12	244d	
	8928	·783	294·2	240·6	+19·6	o	5	61		8943	·551	292·9	196·9	+13·8	56	301		
	8928	·656	288·6	231·1	+13·1	93	609	99s		8935	·521	232·5	191·0	-16·9	187	1333		
	879j	·543	264·2	224·1	- 2·0	1	2			8940	·103	354·6	166·1	+ 7·5	46	316		
	8931	·591	234·6	221·9	-18·7	10	24			8944	·266	55·4	152·7	+10·3	11	48		
	8932	·498	253·1	220·1	- 7·1	6	17			8942	·440	111·2	141·2	- 7·5	3	8		
	8937	·351	253·4	211·1	- 4·4	o	11			·791	98·4						73	
	8941	·158	302·8	199·1	+ 6·3	o	8			·817	107·3						88	
	8943	·236	336·0	197·1	+13·8	37	105			·899	56·9						63	
	8935	·321	178·8	191·1	-17·3	197	1158			·975	108·4						99	
	8939	·403	162·4	184·0	-21·1	2	27			·975	79·5						175	
	8940	·466	74·2	164·7	+ 8·5	54	321			(-7·9)	(165·5)	(+1·7)	(366)	(2531)	(2385)			
	8944	·636	75·8	152·9	+10·0	1	6											
	8942	·810	101·6	138·4	- 8·5	2	7	65f									94	
June 18	·834	130·5								171·362	·969	296·8						99
	·853	65·4								·938	235·3						160	
	·929	130·9								·934	266·0						313	
	·938	173·0								·923	248·3						169	
	·951	77·4								·915	259·1						187	
	·965	61·6								·900	291·7						66	
	·971	98·8								·855	228·3						192	
		(-8·8)	(191·5)	(+1·4)	(405)	(2305)	(1226)			·836	265·0						200	
										·834	255·5							
169·418		·950	285·0							8928	·979	283·8	231·1	+13·8	85	581	304f	
G	8928	·909	279·2							8943	·702	288·1	196·2	+13·8	47	296	86c	
	897	289·7								8935	·665	242·3	190·7	-16·5	191	1403		
	879h	·889	262·4	240·9	- 6·0	o	4	416		8939	·555	226·7	178·5	-20·7	2	26		
	8928	·801	285·8	230·9	+13·6	78	510	131		8940	·230	297·1	164·9	+ 7·7	56	295		
	8931	·732	242·8	221·8	-18·3	8	18	118		8944	·150	2·3	152·6	+10·4	8	42		
										8945	·315	177·5	152·2	-16·5	2	8		

Group 8941, June 17-18. One very small spot.

Group 8942, June 17-27. A very small spot until June 20; on June 21, a stream of normal type develops which soon passes through the usual phases.

Group 8943, June 18-24. Two spots 5° apart appearing just past the central meridian. Neither is stable, but the following one is the larger and longer lived.

Group 8944, June 18-22. A short stream of small spots f Group 8940.

Group 8945, June 21-26. A small spot, which becomes regular on June 24, followed by one or two small companions.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.	Faculae.			Dist.	Pos. Angle.	Long.	Lat.	Umbræ.	Whole Spots.	Faculae.
1919. 171·362	8946	·353	28·5	142·7	+19·8	1	3		1919.	173·628	8940	·690	278·3	166·3	+7·1	39	199
G	8942	·278	126·7	140·1	-7·7	31	64			8953	·707	246·6	165·0	-14·8	1	6	
	8947	·644	102·5	113·9	-6·6	4	12			8945	·545	234·7	150·5	-16·5	22	61	
	8948	·740	108·9	107·3	-12·6	5	18			8942	·359	241·7	141·5	-7·8	59	220	
	8949	·986	99·4	73·2	-9·0	23	91	146n		8950	·197	17·4	119·6	+12·7	30	99	
	·816	55·2					91			8947	·217	131·4	113·6	-6·3	2	15	
	·889	100·3					68			8948	·343	135·7	108·9	-12·2	15	54	
	·903	78·7					189			8951	·508	69·2	94·1	+12·1	1	4	
	·914	110·9					102			8949	·771	102·4	73·7	-8·2	54	299	124c
	·927	50·1					104			8952	·881	86·6	61·4	+3·9	43	222	112c
	·951	93·9					178			·827	120·1					51	
June 21		(-7·5)	(153·0)	(+1·8)	(455)	(2839)	(2748)			·873	62·4					64	
172·410		·972	288·8							·918	74·2					145	
G	·958	248·0								·922	101·4					378	
	·944	265·0								·945	84·0					192	
	·943	258·1								(-6·5)	(123·0)	(+2·0)	(490)	(2722)	(2595)		
	·797	258·2								·974	263·2					111	
	8943	·836	285·3	195·0	+13·8	47	230	121	June 23	·935	235·1					149	
	8935	·819	247·7	191·3	--16·9	174	1490	108		·932	245·1					646	
	8939	·719	239·4	180·1	--20·0	1	3	159		·919	286·6					100	
	8940	·456	282·4	165·7	+7·3	45	283	210		·914	256·8					151	
	8944	·274	302·2	152·7	+10·2	4	33	61		8943	·983	284·6	192·6	+14·7	19	74	245p
	8945	·371	209·4	150·0	--16·9	12	53	170c		8935	·983	252·8	191·4	-16·5	120	1219	645c
G	8942	·182	185·2	140·1	-8·5	57	160	113c		8940	·780	278·2	164·3	+7·7	42	234	214c
	8950	·414	62·6	117·1	+12·7	5	26	·932		8953	·786	248·6	162·5	-15·3	0	5	171c
	8948	·548	116·4	109·1	-12·4	14	46	·919		8954	·754	289·3	160·8	+15·8	0	5	85c
	8951	·736	74·8	92·7	+12·4	4	20	·914		8945	·670	242·2	151·3	-16·5	38	153	
	8949	·917	100·6	73·5	-8·9	30	180	32c		8946	·585	301·7	145·1	+19·6	4	12	
	8952	·978	86·6	61·3	+3·7	40	237	130c		8942	·511	250·6	142·3	-8·0	50	274	
	·839	94·9						·915		8950	·215	331·4	119·3	+13·0	49	223	
	·859	79·6						·936		8955	·313	313·5	119·0	+7·4	2	5	
	·922	114·2						·947		8947	·153	193·2	115·3	-6·4	2	8	
	·948	65·2						·948		8948	·258	164·9	109·4	-12·3	12	71	
June 22	·969	76·4						·949		8949	·661	105·0	73·3	-8·2	53	284	65c
	·991	100·6						·952		8952	·788	86·6	61·5	+4·0	45	220	87c
		(--7·0)	(139·1)	(+1·9)	(433)	(2761)	(1936)			·873	103·1					530	
										·875	72·0					204	
										·884	83·1					330	
										·976	110·4					88	
										(-6·2)	(113·3)	(+2·1)	(436)	(2787)	(3821)		
										·980	264·9					254	
										·913	263·8					100	
										·869	241·9					102	
G	·844	288·0								·823	255·3						
	8943	·941	284·4	192·9	+14·2	24	137	316		8943	·941	251·5					
	8935	·937	251·5	190·8	-16·5	200	1406	·916		8943	·937	243·8					

Group 8946, June 21-27. Intermittent. One small spot on June 21 and 27; a pair on June 24.

Group 8947, June 21-30. At first a very small cluster not seen on June 22. On June 25, a stream begins to develop, the leader of which breaks up on June 27 but has reformed the next day.

Group 8948, June 21-30. A stream of spots suddenly becoming conspicuous on June 25 on the same meridian as Groups 8947, 8950 and 8955. It is then of normal type, with a well-defined regular spot as leader and a composite but shorter-lived spot as the following member.

Group 8949, June 21-July 3. Return of Group 8944. A regular spot with a train of small followers grouped usually about two centres. One of these companions is seen as a small regular spot on July 2.

Group 8950, June 22-29. A stream of spots in continual change.

Group 8951, June 22-23. A miniature stream of very small spots, of which one member alone remains on June 23.

Group 8952, June 22-July 4. Probable return of Group 8922. A stable regular spot.

Group 8953, June 23-24. A pair of minute spots on June 23; one spot on June 24. Group 8954, June 24-25. A single small spot.

Group 8955, June 24-29. A group of the "stream" type composed of a partially formed regular spot followed by a companion which has become a cluster by June 27. The group is preceded by a very small spot seen of Group 8950 on June 24.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.	Faculae.			Dist.	Pos. Angle.	Long.	Lat.	Umbræ.	Whole Spots.	Faculae.	
1919. 175-468	8940	.922	277.7	165.8	+ 8.0	36	200	227c	1919. 177-220	8947	.656	256.7	115.3	- 6.7	58	236		
	8954	.890	287.1	160.8	+ 16.2	2	8	60sp		8948	.641	246.5	112.4	- 12.7	101	565		
	8945	.829	248.5	151.9	- 16.2	19	91	58c		8949	.194	180.7	75.6	- 8.6	53	259		
	8942	.729	256.9	144.3	- 7.9	33	208			8952	.243	84.3	61.5	+ 3.8	42	170		
	8950	.394	298.7	119.4	+ 13.0	41	207			8957	.658	117.5	38.3	- 15.6	0	7		
	8955	.366	286.4	119.4	+ 8.0	28	78			8958	.883	81.5	13.7	+ 8.7	18	35		
	8947	.330	241.4	115.6	- 6.9	16	60				.766	114.8				319f	88	
	8948	.327	221.3	111.4	- 11.9	64	318				.835	68.7				103	103	
	8949	.444	114.3	74.7	- 8.4	55	258				.835	89.2				86	86	
	8952	.605	86.7	61.6	+ 3.9	34	193				.872	100.7				360	360	
		.728	84.4								.950	66.9				97	97	
		.733	68.5								.957	103.7				161	161	
		.768	106.0								.988	61.8						
		.933	106.7								(-4.9)	(75.5)	(+2.5)	(395)	(1908)	(2327)		
June 25																		
176-410		.978	247.8															
		.966	284.7															
		.839	293.8															
		8940	.986	277.1	166.5	+ 7.4	38	190	141f		8955	.867	276.9	120.8	+ 7.3	54	301	
		8945	.930	251.0	152.5	- 16.6	7	50	112f		8950	.845	284.2	117.9	+ 13.3	16	142	
		8942	.863	259.1	144.9	- 8.2	40	202	126f		8947	.838	260.4	116.9	- 6.6	58	372	
		8955	.561	280.1	119.9	+ 7.7	47	225			8948	.805	252.5	112.4	- 12.4	91	396	
		8950	.567	290.0	119.2	+ 13.2	43	246			8791	.603	234.6	91.8	- 18.2	1	3	
		8947	.529	253.1	116.7	- 6.7	21	54			879m	.319	247.6	77.9	- 4.5	1	3	
		8948	.493	239.2	111.8	- 12.4	79	420			8949	.336	235.4	77.0	- 8.5	50	243	
		8949	.265	131.1	75.3	- 8.5	61	246			8959	.190	235.8	69.8	- 3.5	8	35	
		8952	.418	86.4	61.6	+ 3.6	34	183			8952	.027	315.4	61.9	+ 3.6	30	153	
		8956	.477	113.6	60.1	- 8.8	1	7			879n	.265	157.6	54.9	- 11.6	1	3	
		8957	.799	114.2	36.6	- 17.5	2	8			8960	.273	79.0	45.3	+ 5.5	1	2	
		8958	.952	82.4	14.1	+ 8.0	13	45	51c		8957	.481	130.5	38.6	- 15.7	9	18	
		.865	111.6								8961	.549	130.6	34.8	- 18.6	2	5	
June 26		.869	77.0								8958	.743	80.6	13.1	+ 8.7	14	21	
		.900	87.6									.847	65.6				147	
		.945	98.8									.849	101.4				50	
		.958	113.2									.898	77.8				71	
		.981	69.8									.929	68.9				78	
												.932	59.8				143	
												.946	112.1				81	
												.956	99.4	(-4.4)	(60.8)	(-12.6)	(336)	(1697)
																	114	
																	(1627)	
177-220		.968	281.7															
		.966	251.7															
		.821	294.6															
		8942	.943	260.0	145.1	- 8.5	21	130	304f		8955	.990	291.8				110	
		8946	.925	290.7	142.4	+ 20.1	14	27	184f		8947	.954	262.1	117.9	- 6.7	42	426	
		8955	.719	277.6	121.2	+ 7.2	48	299			8950	.945	283.5	116.8	+ 13.6	11	487c	
		8950	.702	286.0	119.1	+ 13.0	40	180	97c		8948	.930	255.5	113.0	- 12.4	63	372c	

Group 8956, June 26-30. Intermittent. A few very small faint spots, f Group 8949, not seen on June 27 and 28.
 Group 8957, June 26-July 5. A disturbed area shown for several days by one or two very small spots. After July 1, these multiply and a regular spot appears followed by several small companions.
 Group 8958, June 26-July 3. Return of Group 8917; third apparition. A small spot with a distant companion from June 28-July 2.
 Group 8959, June 28-July 3. Some small spots (not seen on July 1) in a faculous area just n of Group 8949.
 Group 8960, June 28-July 3. Intermittent. A very small ephemeral spot on June 28. Another on July 1-3, with several companions on July 2.
 Group 8961, June 28-30. A pair of very small spots not seen on June 29.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.			G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.			
		Dist.	Pos. Angle.	Long.	Lat.	Umbral.	Whole Spots.	Faculae.			Dist.	Pos. Angle.	Long.	Lat.	Umbral.	Whole Spots.	Faculae.	
1919. 179439	8949	·554	250°5	77°8	— 8°3	43	220		1919. 181403	·782	115°0	°	°				149	
C	8959	·430	255°5	70°6	— 3°6	4	38			·873	72°7						92	
	8952	·275	275°4	62°0	+ 4°1	28	161		C	·911	115°0						217	
	8956	·319	233°7	61°1	— 8°2	0	2			·976	69°8						72	
	8957	·368	157°8	37°7	— 17°1	2	7		July 1	(—3°0)	(20°1)	(+2°9)	(88)	(513)	(2762)			
	8958	·557	77°5	12°8	+ 9°1	11	40			·976	268°2							
	8962	·981	98°3	328°1	— 7°6	0	35	446c	182370	·957	300°9							
		·708	60°9							·941	282°0						153	
		·861	56°7							·728	277°6						77	
		·875	102°7														112	
June 29		·961	109°8														226	
		(—3°9)	(46°1)	(+2°7)	(228)	(1611)	(3321)			·8949	·946	259°9	77°4	— 8°5	43	243	699f	
180349		·991	276°9							8959	·938	265°1	76°5	— 3°6	0	4	400f	
		·990	283°8							8952	·820	273°9	62°3	+ 5°0	22	135	295n	
		·930	303°6							879q	·803	255°8	59°2	— 9°5	2	9	272f	
		·856	247°4							8960	·644	275°0	47°2	+ 5°5	7	23		
		·804	266°8							8957	·607	241°5	40°6	— 14°2	15	53		
		8947	·989	262°3	114°8	— 7°2	16	108	162	8963	·268	225°3	18°3	— 7°9	4	24		
		8948	·986	256°8	113°3	— 12°5	26	423	271	8958	·143	322°0	12°4	+ 9°4	5	12		
		8949	·716	255°4	78°3	— 8°4	30	208	82	8962	·663	104°7	327°2	— 7°4	9	49	94c	
		8959	·659	260°6	74°5	— 4°0	1	5	82	8964	·962	81°1	293°1	+ 9°4	0	11	182f	
		8956	·517	250°5	63°3	— 7°4	0	13	114	8965	·994	81°5	283°4	+ 8°8	0	119	110c	
		8952	·468	273°9	61°8	+ 4°3	26	144	114	827	·827	117°7					209	
		8790	·337	277°3	53°5	+ 5°1	0	4	144	8934	·934	68°7					179	
		8961	·369	182°1	34°8	— 18°8	0	6		July 2	(—2°5)	(7°3)	(+3°0)	(107)	(682)	(3008)		
		8958	·383	72°4	12°4	+ 9°2	8	21		183376	·957	295°0						95
		879p	·636	84°6	354°7	+ 5°6	5	18			·900	257°4						315
		8962	·917	99°6	328°4	— 7°7	12	87	498c		·876	287°6						151
			·767	51°4							·862	276°0						310
			·787	106°6						8949	·985	259°9	73°0	— 9°3	20	79	379f	
			·901	112°8						8959	·983	264°9	72°9	— 4°4	0	16	321f	
June 30		·953	72°4							8952	·930	274°2	62°3	+ 5°0	15	139	255n	
		(—3°4)	(34°0)	(+2°8)	(124)	(1037)	(2779)			8960	·789	275°0	46°0	+ 5°8	0	6	37c	
										8957	·776	247°7	41°8	— 15°0	51	297	135c	
181403		·952	251°6							8963	·446	244°7	17°9	— 8°2	18	53		
		·948	304°5							8958	·372	288°9	14°8	+ 9°8	4	5		
		·916	268°0							8962	·487	111°2	326°9	— 7°4	20	89		
		·908	314°4							8964	·866	81°3	294°1	+ 9°1	6	22	136f	
		·907	279°8							8965	·953	80°9	281°6	+ 9°6	29	144	345c	
		·789	262°2								·843	68°1					109	
		8949	·859	258°6	78°2	— 8°2	43	267	127		·940	101°3					74	
		8952	·671	273°8	62°1	+ 4°7	30	157	105	July 3	(—2°1)	(354°0)	(+3°1)	(163)	(850)	(2662)		
		8960	·446	276°8	46°4	+ 5°6	1	5	194	184343	·963	259°7					348	
		8957	·439	228°6	39°9	— 14°1	0	4	66		·935	276°3					470	
		8963	·171	170°1	18°4	— 6°7	0	4	219		·933	289°4					101	
		8958	·168	45°6	13°1	+ 9°6	5	17	366		·987	274°6	61°9	+ 5°1	39	221	112n	
		8962	·807	101°2	327°4	— 7°2	9	59	529c									

Group 8962, June 29-July 8. Probable return of Group 8933, but perhaps only a revival. A small group of unstable spots which are very faint after July 4.

Group 8963, July 1-5. A minute spot on July 1; a small cluster on July 2; a pair of small but well-defined spots on the following days.

Group 8904, July 2-13. A very small spot in facula at the east limb developing into a regular spot followed by a companion. The latter quickly diminishes, whilst other very small companions form to make a small cluster for a few days.

Group 896, July 2-13. Two small ill-formed regular spots which separate from each other in longitude whilst a few small unstable companions appear between them. The follower is alone visible on July 11, and nothing is seen the following day, but a small spot appears in the region on July 13.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.	Faculae.			Dist.	Pos. Angle.	Long.	Lat.	Umbræ.	Whole Spots.	Faculae.		
1919. 184.343	8957	.906	251.7	43.9	-15.0	63	392	548c	1919. 187.463		.903	294.6					363		
	8963	.624	253.2	18.1	-7.7	13	32				.807	302.6					260		
G	8962	.314	126.8	326.6	-7.6	23	98				.792	260.4					222		
	8964	.741	81.8	293.6	+8.3	27	160	308c			.756	244.6					125		
	880a	.809	104.4	288.8	-9.6	0	7	74f			880d	.617	233.6	331.3	-18.3	2	7		
	8965	.878	80.6	279.9	+9.9	41	279	487c	C	8962	.489	244.0	326.2	-9.1	2	16			
July 4		.971	76.0					109		8964	.129	43.8	294.7	+8.9	48	314			
		(-1.6)	(341.2)	(+3.3)	(206)	(1189)	(2557)			8965	.393	72.0	277.7	+10.3	31	162			
											.813	76.4					432		
											.904	68.8					164		
185.386		.981	274.9					129			.917	77.6					350		
		.933	244.5					123			.954	96.6					453		
C		.884	253.0					66			.970	69.8					331		
		.866	275.1					72			.979	110.4					86		
		.731	275.6					165	July 7		(-0.2)	(299.9)	(+3.6)	(83)	(499)	(3230)			
	8957	.977	253.4	43.4	-15.3	51	291	498c			.951	292.2					256		
	8963	.803	258.2	19.6	-7.3	5	10	75c			.882	301.5					515		
	880b	.316	204.4	335.1	-13.3	1	3		188.253		.876	258.8					346		
	8962	.189	181.2	327.6	-7.4	5	24				.850	247.2					107		
	880c	.415	165.0	320.9	-20.1	0	3				.640	249.3	326.7	-10.1	1	9			
	8964	.550	79.8	294.4	+8.5	39	368				.156	310.0	296.3	+9.4	38	221			
	8965	.755	79.8	278.6	+9.9	31	260	128c			.8962	.240	59.6	277.3	+10.6	28	119		
July 5		.923	77.6					233			8964	.835	65.2				123		
		.969	72.4					259			8965	.840	75.9				220		
		.984	80.9					356				.916	97.2				412		
		(-1.2)	(327.4)	(+3.4)	(132)	(959)	(2104)	D				.926	85.5				119		
186.365		.995	250.3					225				.929	71.2				291		
		.963	254.3					113				.938	62.6				212		
C		.922	285.7					152				.952	110.7	(+0.2)	(289.4)	(+3.7)	(67)	(349)	(2867)
		.921	243.5					108									266		
		.915	353.7					26	July 8										
		.911	273.1					143											
		.908	259.9					146											
		.810	278.7					173											
		.781	297.1					343	189.402								88		
		.688	314.0					156				.972	285.9				496		
	8962	.255	221.8	324.2	-7.4	1	13				.963	299.4					253		
	8964	.342	73.9	295.1	+8.7	57	280				.958	259.1					252		
	8965	.589	77.8	278.8	+9.9	47	209				.890	247.8					311		
		.843	77.1					198				.814	258.1						
		.921	81.4					344	C	8964	.380	286.1	295.8	+9.6	38	228			
		.935	71.5					235		8965	.127	347.1	275.8	+10.9	16	67			
July 6		.981	78.1					207		8966	.923	103.5	208.4	-10.9	5	21	234c		
		(-0.7)	(314.4)	(+3.5)	(105)	(502)	(2569)				.828	64.1					302		
											.892	116.5					237		
											.913	90.3					191		
											.946	76.1					301		
187.463		.980	260.9					116	July 9			.984	106.9	(+0.7)	(274.2)	(+3.8)	(59)	(316)	(3377)
		.931	278.0					328									712		

Group 8966, July 9-20. A small spot on July 9; others appear on the following day, and by July 12 an extensive stream has developed. The leading and following members respectively are prominent spots of regular type. A compact cluster situated between them on July 12 soon disperses, and the other few companion spots, appearing from time to time, are of little importance.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.	
1919. 190°35'	C	·971	300°1	°	°		88		1919. 193°42'	G	·961	288°6	°	°			74	
		·957	248°8				182				·687	283°7					181	
		·919	259°9				447				8964	·966	279°3	296°3	+10°0	27	137	
		·856	245°0				114				8965	·836	280°1	277°7	+10°7	0	7	
		8964	·571	281°8	296°1	+9°9	29	217			8970	·693	243°4	260°7	-14°8	5	15	
		8965	·275	295°1	276°3	+10°4	11	80			8966	·243	147°1	213°4	-7°6	178	1035	
		880e	·152	17°5	259°0	+12°2	0	12			880j	·470	134°7	200°8	-15°3	0	5	
		8966	·809	104°3	209°3	-9°1	12	51	1970		8967	·538	124°0	193°8	-13°7	12	58	
		·852	119°9				91				8968	·562	127°5	193°4	-16°2	4	50	
		·872	75°3				302				8969	·785	84°7	169°3	+6°8	6	40	
	July 10	·931	108°9				1206					·738	126°9				137	
		·940	95°1				49					·825	99°7				406	
		·979	113°1				420					·846	128°0				149	
		(+1°1)	(261°7)	(+3°9)	(52)	(360)	(3096)					·941	69°7				334	
												·964	100°9				169	
												(+2°5)	(221°0)	(+4°2)	(232)	(1347)	(2292)	
191°35°	G	·978	261°8				235			194°478	C	·794	284°4				335	
		·952	249°0				72					·946	279°8				225	
		·784	293°5				54					8970	·865	249°6	264°1	-15°2	10	114
		8964	·740	279°8	296°0	+9°9	25	184	67c			8966	·250	211°9	214°7	-8°0	126	1004
		8965	·441	287°5	273°7	+11°3	2	8				8968	·419	151°0	194°9	-17°2	5	47
		8966	·634	108°0	211°0	-8°1	57	140	117f			8967	·401	142°0	192°4	-14°2	14	83
		880f	·762	118°0	203°5	-18°1	0	2				8969	·616	84°0	169°1	+7°1	4	54
		8967	·840	109°0	193°8	-13°6	14	102	722c			8971	·987	82°6	126°1	+8°0	9	100
		8968	·861	114°4	192°8	-18°6	0	12					·856	68°2			369	
		8969	·980	83°6	169°8	+7°1	12	52	101f				·878	102°8			311	
		·762	72°2										·968	69°4			100	
	July 11	·937	116°0										(+3°0)	(207°1)	(+4°3)	(168)	(1402)	(1559)
		·987	97°1															
		(+1°6)	(248°4)	(+4°0)	(110)	(500)	(2216)											
192°52°	C	·999	291°3				188			195°592	G	·932	281°7				201	
		·732	279°5				330					·852	290°6				371	
		8964	·892	279°2	296°1	+10°1	30	180	294f			·831	277°6				225	
		8970	·536	234°4	259°5	-14°5	4	15				·753	284°7				128	
		880g	·305	342°7	238°4	+20°9	1	9				8970	·964	253°1	264°8	-15°0	22	145
		8966	·407	119°3	212°0	-7°7	129	845				8966	·444	241°9	215°5	-8°0	170	892
		880h	·673	122°6	196°5	-17°9	3	9				880k	·297	315°0	204°9	+16°3	0	7
		8968	·679	118°9	194°9	-15°9	0	36	312c			8968	·372	191°3	196°7	-16°9	11	64
		8967	·674	115°3	194°2	-13°5	16	71				8967	·317	180°2	192°3	-14°0	13	51
		880i	·897	98°4	170°0	-5°6	0	8	213f			8969	·393	82°0	169°3	+7°2	8	18
	July 12	8969	·895	84°2	169°4	+7°0	12	38	201f			8971	·910	83°6	126°7	+7°7	23	134
		·823	121°3									8972	·938	99°8	123°7	-7°6	10	60
		·887	107°6									8973	·981	104°5	115°1	-13°3	55	396
		·917	124°2									·884	69°2				430n	
		·989	69°6									·943	76°5				135	
		(+2°1)	(232°9)	(+4°1)	(195)	(1211)	(2847)					(+3°5)	(192°3)	(+4°4)	(312)	(1767)	(2533)	

Group 8967, July 11-17. A small stream of ill-formed spots in the disturbed area with Groups 8968 and 8974.

Group 8968, July 11-17. A small stream of feeble activity.

Group 8969, July 11-18. Return of Group 8940. A single small spot which has disappeared by July 17. The following day a very small spot appears temporarily near its place.

Group 8970, July 12-16. A small group of the "stream" type.

Group 8971, July 14-26. Return of Group 8955. A regular spot.

Group 8972, July 15-23. Return of Group 8947. A few small unstable spots generally arranged in a cluster.

Group 8973, July 15-27. Return of Group 8948. A well defined regular spot with a few followers, after July 18. These are small and ephemeral, except a larger one, which appears on July 24 and 25.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.		
1919. 196·334		°	°	°	°				1919.	198·461	8969	°	169·5	+ 8·8	°	4			
		·979	282·8								8975	·271	285·7	153·7	+ 19·7	°	3		
		·899	280·2								8971	·260	2·3	126·7	+ 7·1	20	100		
		·898	291·4								8972	·464	83·6	123·0	- 7·2	3	34		
		·765	257·0								8973	·553	110·7	115·3	- 13·3	48	262		
G	8970	·978	252·8	258·3	- 15·7	°	9		1940	G	8974	·686	114·9	84·2	- 9·9	8	53	168c	
	8966	·594	251·2	216·9	- 7·3	173	905				8976	·949	102·1	99·6	76·0	8	109	154f	
	8974	·354	232·6	198·9	- 8·0	15	36				8977	·983	82·6	76·0	- 8·5	8			
	8968	·450	215·6	198·3	- 17·1	7	22					·870	99·6	114·9	- 13·3	48	262		
	8967	·367	216·6	195·4	- 12·7	1	30					·935	293·4	249·3	20·5				
	8969	·232	77·2	169·4	+ 7·3	4	12					·947	249·3	270·5	285·1				
	8971	·827	83·9	126·7	+ 7·5	18	114	85c				·940	271·7	231·7	705				
	8972	·871	101·4	123·3	- 7·6	17	51	345c				·886	212·7	100·1	673				
	8973	·936	106·2	115·2	- 13·4	51	337	508c				·955	114·5	121·8	125·6				
		·883	75·4	(+3·8)	(182·5)	(+4·5)	(286)	(1516)	(2478)			·952	123·3	125·6	- 5·8	14	102		
												·947	86·0	92·3	+ 6·1	0	15	160c	
July 16												·940	84·3	9·9	9	41	248f		
												·886	76·1	- 8·3	20	144	401f		
197·368		·974	281·3									·774	100·1	117·7	88·3	96·9	197		
		·960	291·7									·801	88·3	84·0	84·0		192		
		·908	281·4									·883	84·0	(+5·1)	(142·4)	(+4·7)	(242)	(1773)	(4486)
C	8966	·767	256·6	217·5	- 7·1	174	993	238c				·952	(+5·1)	(142·4)	(+4·7)	(242)	(1773)	(4486)	
	8974	·580	247·7	201·6	- 8·8	2	10					·774	100·1	117·7	88·3	96·9	197		
	8968	·605	234·5	199·6	- 16·5	2	18					·801	84·0	84·0			192		
	8967	·493	228·1	191·0	- 14·9	0	11					·883	84·0	84·0			192		
	8975	·370	43·3	153·2	+ 20·0	2	19					·883	84·0	(+5·1)	(142·4)	(+4·7)	(242)	(1773)	(4486)
	8971	·671	83·9	126·7	+ 7·5	17	93					·952	(+5·1)	(142·4)	(+4·7)	(242)	(1773)	(4486)	
	8972	·735	103·4	123·0	- 6·6	6	42	292c				·774	100·1	117·7	88·3	96·9	197		
	8973	·834	109·1	115·0	- 13·0	41	291	596n				·801	84·0	84·0			192		
		·776	73·1									·883	84·0	84·0			192		
		·951	80·9									·883	84·0	(+5·1)	(142·4)	(+4·7)	(242)	(1773)	(4486)
		·968	109·9									·952	(+5·1)	(142·4)	(+4·7)	(242)	(1773)	(4486)	
		·970	95·8									·774	100·1	117·7	88·3	96·9	197		
July 17		(+4·3)	(168·8)	(+4·6)	(244)	(1477)	(3671)					·801	84·0	84·0			192		
												·883	84·0	84·0			192		
												·883	84·0	(+5·1)	(142·4)	(+4·7)	(242)	(1773)	(4486)
198·461		·971	282·1									·952	250·4	285·1	239·4	286·6	342		
		·959	271·0									·945	259·5	259·5	259·5	259·5	342		
		·920	292·8									·830	250·4	285·1	239·4	286·6	342		
G		·907	243·9									·794	259·5	259·5	259·5	259·5	342		
		·849	269·5									·786	259·5	259·5	259·5	259·5	342		
		·796	285·3									·992	260·0	210·5	210·5	210·5	321		
		·783	242·2									·947	259·5	259·5	259·5	259·5	321		
	8966	·895	259·4	216·6	- 7·3	171	1119	548c				·066	216·4	126·4	126·4	126·4	321		
	8974	·764	254·4	202·2	- 8·7	0	5					·238	151·7	122·4	122·4	122·4	321		
												·390	141·7	114·6	114·6	114·6	321		
												·735	108·3	84·0	84·0	84·0	321		
												·812	104·0	76·3	76·3	76·3	321		
												·982	103·6	51·5	51·5	51·5	321		
												·863	84·2	84·2	84·2	84·2	321		
												·952	81·7	81·7	81·7	81·7	321		
												(+5·6)	(128·9)	(+4·8)	(+4·8)	(+4·8)	(1009)	(3493)	

Group 8974, July 16-20. A tiny stream on July 16; a single spot on the following days, except on July 19, when nothing is visible.

Group 8975, July 17-18. One or two faint spots.

Group 8976, July 18-20. Return of Group 8949; third apparition. A small regular spot just disappearing.

Group 8977, July 18-29. Probably a new formation of Group 8949, and not actually a return. A regular spot.

Group 8978, July 19-28. Intermittent. A very small cluster of spots on July 19. Nothing is then seen until July 26, when a small stream makes its appearance.

Group 8979, July 20-29. A regular spot which diminishes to a very small spot. Two small ephemeral spots accompany it on July 28, and one on the following day.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.	
1919. 201·347		·978	253·2	°	°	°			1919. 203·385	8979 8981 C	·664	115·1	51·4	-12·3	13	96	254c	
		·918	244·4								·782	110·5	40·8	-12·5	37	301	884f	
		·913	286·6								·913	100·3					103	
		·886	232·0								·923	117·3					284	
		·801	280·2								·928	82·5					247	
		·772	261·4								·968	65·6					233	
	8971	·186	284·4	126·6	+ 7·4	17	91				(+6·9)	(89·2)	(+5·1)	(146)	(964)	(2914)		
	8972	·246	210·7	123·4	- 7·3	12	45										112	
	8973	·310	176·4	115·0	-13·0	48	276										198	
	8980	·301	155·0	108·8	-11·0	0	6										35	
July 21	8977	·662	109·2	77·1	- 8·8	27	147	239f	204·369	·954 ·946 ·945 ·771 ·258·5 ·290·9 ·355·7 ·254·3 ·126·7 ·113·1 ·240·5 ·249·1 ·94·1 ·1·8 ·0 ·6							423	
	8979	·921	105·6	51·2	-12·2	18	164	232c									112c	
	8981	·973	104·7	41·4	-13·0	53	360	567c										
	·749	84·9						229										
	·848	105·4						267			·771	275·3	126·7	+ 7·4	9	69		
	·855	79·0						242			·669	240·5	113·1	-15·0	49	327		
	·920	84·2						120			·8973	·331	249·1	94·1	0	6		
	(+6·0)	(116·2)	(+4·9)	(175)	(1089)	(2832)					·8983	·362	207·7	86·1	-13·5	1	5	
											·880m	·252	187·7	78·2	- 9·2	22	147	
											·8977	·140	22·5	73·1	+12·6	9	39	
202·528	·967	246·9						131	·905 ·507 ·641 ·776 ·854 ·862 ·945 ·958 ·125·4 ·80·2 ·116·8 ·78·8 ·67·4 ·98·1 (+7·3)							361f		
	·948	236·7						220		·8979	·505	51·4	-12·2	12	79	98		
	·930	279·2						149		·8984	·507	45·9	+ 9·4	0	3	172		
	·909	224·3						94		·8981	·641	40·5	-12·5	33	292	133		
	·908	263·3						93							376			
	·790	295·6						179							155			
	8971	·437	276·9	126·3	+ 7·4	15	84			·8977	·252	187·7	78·2	- 9·2	22	147	2175	
	8972	·467	241·5	124·9	- 8·3	1	2			·8982	·140	22·5	73·1	+12·6	9	39		
	8973	·394	218·7	115·1	-13·0	49	247			·8979	·505	125·4	51·4	-12·2	12	79		
	8977	·451	121·6	77·7	- 9·0	32	153			·8984	·507	80·2	45·9	+ 9·4	0	3		
July 22	8982	·474	71·1	73·2	+13·3	1	9			·8981	·641	116·8	40·5	-12·5	33	292		
	8979	·786	110·0	51·6	-12·3	20	126	161c	·916 ·874 ·896 ·275·7 ·805 ·246·6 ·509 ·258·5 ·365 ·219 ·357 ·146·5 ·480 ·569 ·966 ·785 ·84·8 ·847 ·98·7 ·865 ·64·0 ·921 ·88·3 ·939 ·100·8 ·977 (+7·7)							76		
	8981	·881	107·3	41·2	-12·6	42	328	1002c		·8971	·874	256·5	126·6	+ 7·4	8	40	513f	
	·959	72·6						92		·8973	·896	275·7	126·6	+ 7·4	8	40	308n	
	·960	87·5						74		·8983	·509	246·6	112·6	-15·2	36	332	421c	
	(+6·5)	(100·5)	(+5·0)	(160)	(949)	(2195)				·8977	·365	226·5	92·6	- 1·2	1	19		
										·8982	·219	304·7	73·4	+12·4	9	55		
										·8979	·357	146·5	51·2	-12·1	9	59		
										·8981	·480	127·9	40·1	-12·2	34	270		
										·8985	·569	128·7	35·4	-16·1	0	7		
203·385	·984	237·3						140	·916 ·874 ·896 ·275·7 ·805 ·246·6 ·509 ·258·5 ·365 ·219 ·357 ·146·5 ·480 ·569 ·966 ·785 ·84·8 ·847 ·98·7 ·865 ·64·0 ·921 ·88·3 ·939 ·100·8 ·977 (+7·7)							326f		
	·981	279·1						166		·8979	·357	146·5	51·2	-12·1	9	59		
	·972	264·0						119		·8981	·480	127·9	40·1	-12·2	34	270		
	·964	224·9						105		·8985	·569	128·7	35·4	-16·1	0	7		
	·904	256·1						197		·8986	·966	110·3	350·7	-18·0	0	11		
	·886	292·9						182										
	8971	·608	275·6	126·6	+ 7·4	16	100			·8977	·785	84·8	84·8			172		
	8972	·619	248·7	124·7	- 8·8	0	6			·8982	·847	98·7	98·7			126		
	8973	·516	232·4	114·0	-13·6	46	286			·8979	·865	64·0	64·0			375		
	8980	·436	227·1	108·2	-12·4	0	3			·8981	·921	88·3	88·3			65		
C	8977	·313	141·3	77·8	- 9·1	31	163			·8985	·939	100·8	62·4			179		
	8982	·288	59·9	74·4	+13·2	3	9			·8986	·977	(62·8)	(+5·3)	(115)	(960)	(2952)	391	
July 25																		

Group 8980, July 21-23. A very small spot, not seen on July 22, f Group 8973.

Group 8981, July 21-Aug. 1. Return of Group 8957. A spot showing at first a slight deviation from the regular type with usually a few small companions.

Group 8982, July 22-29. A small stream of unstable spots.

Group 8983, July 24-26. A pair of very small spots.

Group 8984, July 24-27. Intermittent. A single small spot on July 24; a pair near its position on July 27.

Group 8985, July 25-27. One small spot s Group 8981

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.	
1919. 206·347	·926	258·8	°	°	°			364	1919. 208·427	·756	103·3	°	°			111		
	·711	245·4						224	C	·816	121·0					150		
	8971	971	276·6	126·5	+ 7·7	○	12	366nf	July 28	·876	109·2	(+9·0)	(22·5)	(+5·5)	(65)	(505)	116	
	8973	917	251·4	113·8	-14·7	43	240	427c									(2430)	
	8983	688	262·0	92·8	- 1·6	I	3	61c										
	8978	665	270·6	91·7	+ 4·4	12	43											
	8977	530	242·4	78·3	- 9·6	25	155		209·371	·991	274·2						365	
	8982	418	287·7	73·9	+12·1	3	36			·910	247·3						81	
	8979	304	184·6	51·4	-12·2	10	51			·804	252·2						113	
	8981	346	151·4	40·3	-12·4	32	201			8977	·943	257·0	78·8	-10·2	12	136	464n	
	8985	445	149·6	36·4	-17·4	2	30			8982	·893	281·8	73·5	+13·0	0	8	439s	
	8986	897	112·8	350·0	-17·7	2	48	341f		8979	·692	247·6	50·5	--11·0	0	12	128c	
	·777	62·0						274		8981	·567	239·4	39·8	-11·9	27	176		
July 26	·825	104·0						166		8989	·470	231·6	32·0	-11·7	I	4		
	·911	60·7						409		8987	·740	102·1	323·6	-- 5·0	2	7	125f	
	·957	97·2						99		8988	·943	84·2	299·2	+ 7·4	13	68	823f	
	·965	112·7						88		·935	109·0	(+9·4)	(10·0)	(+5·6)	(55)	(411)	78	
		(+8·2)	(50·0)	(+5·3)	(130)	(819)	(2819)		July 29								(2616)	
207·365	·976	260·4						95		·980	278·5						182	
	·880	245·2						123	210·670	·943	258·9						101	
	·860	262·4						120		·919	278·1						185	
	8973	981	253·9	113·2	-14·6	31	248	410c		·859	251·4						122	
	8978	830	272·8	92·6	+ 5·3	22	115	226c		·823	277·2						74	
	8977	703	250·2	78·5	- 9·7	25	151	274np		G	·755	239·5					84	
	8982	623	282·4	74·8	+11·9	4	13			8981	·768	249·3	39·9	-11·9	27	163	73c	
	8979	390	220·2	51·3	-12·0	8	17			8989	·685	241·3	31·0	-14·7	3	14		
	8984	221	280·0	49·1	+ 7·4	0	4			8987	·535	110·7	322·7	- 5·9	I	15		
	8981	307	191·5	40·1	-12·0	23	175			8990	·707	122·1	314·0	-17·7	I	3		
	8985	401	180·6	36·8	-18·2	3	19			8988	·808	85·1	298·8	+ 7·4	20	58	306c	
	8986	788	117·0	349·3	-17·3	2	8	229c		8991	·988	106·9	274·0	-15·6	28	88	160f	
	8987	970	96·0	321·3	- 4·5	0	18	80f		·934	80·7	(+9·9)	(352·8)	(+5·7)	(80)	(341)	203	
	·833	58·0						466									186nf	
July 27	·897	101·6						170	July 30								(1490)	
	·926	115·9						132										
		(+8·6)	(36·5)	(+5·4)	(118)	(768)	(2334)											
208·427	·956	250·4						86	211·345	·926	251·0						358	
	·955	265·0						139		·922	280·2						229	
	8978	934	272·8	91·6	+ 4·6	7	60	422c		·829	243·2						178	
	8977	851	254·6	78·7	-10·0	19	159	455n		G	8981	·854	252·0	39·9	-12·1	23	140	222c
	8982	784	281·6	74·2	+12·5	2	14	180c		8989	·772	244·8	30·1	-15·3	2	12		
	8979	549	239·9	51·3	-11·1	6	32			8987	·443	115·7	320·3	- 5·8	5	24		
	8981	417	224·8	39·9	-11·9	17	162			8990	·608	129·2	314·4	-17·6	I	4		
	8986	652	125·6	348·8	-17·7	I	10			8988	·693	85·4	299·9	+ 7·3	19	50	186nf	
	8987	876	98·6	322·4	- 4·7	5	11	149f		8991	·952	108·6	274·5	-- 15·7	24	60	427f	
	8988	993	83·6	299·2	+ 7·0	8	57	330f		·871	80·c						138	
	·743	55·8						292	July 31	·971	79·6	(+10·2)	(343·9)	(+5·7)	(74)	(290)	119	
																	(1857)	

Group 8987, July 27-Aug. 7. A disturbed area containing at first a single spot, then a cluster on July 30 and 31, and lastly a pair of faint spots which become more definite on Aug. 6.

Group 8988, July 28-Aug. 5. Possible return of Group 8964. A small cluster of spots, which are well-defined until Aug. 1 and faint afterwards.

Group 8989, July 29-31. One or two very small spots of Group 8981.

Group 8990, July 30-31. A minute spot.

Group 8991, July 30-Aug. 5. Possible return of Group 8970. A small regular spot becoming a cluster on Aug. 3.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.	
1919. 212.470	G	°	°	°	°				1919. 214.605	Aug. 3	°	°	°	°				
		.942	247.1								.958	67.5					136	
		.882	239.6								.964	82.5					155	
		.876	251.5								(+11.5)	(300.8)	(+6.0)	(186)	(722)	(1379)		
		.8c6	273.9															
		8981	255.5	40.3	-12.1	28	139	225c	215.421	G	.933	293.3					130	
		881a	330.3	339.8	+23.3	1	4				.919	258.5					152	
		8987	250	148.5	321.5	-6.5	6	30			.884	244.8					178	
		8988	489	85.3	299.7	+7.4	3	5			.879	301.4					131	
		8991	854	112.7	274.2	-15.9	10	37			.769	296.8					102	
			.775	79.1							.757	309.1					100	
			.895	76.9							.730	237.3	330.2	-18.6	2	4		
			.957	81.5							.564	247.0	321.4	-7.6	6	28		
			.973	73.3							.897	217.4	306.8	-15.6	3	10		
			(+10.7)	(329.0)	(+5.8)	(48)	(215)	(1930)			.8993	459	282.2	299.4	+8.0	1	30	
											.8991	464	142.6	273.0	-15.8	10	62	
											.8994	903	100.1	226.8	-6.4	112	555	128c
Aug. 1	213.419		.976	251.6							.8995	899	82.0	225.6	+9.8	2	5	138c
			.927	274.2							.8996	982	102.0	212.5	-10.5	18	98	148c
			.926	241.0							.814	107.6					90	
			.886	287.6							.919	63.0					112	
			.875	300.8							.920	71.2					86	
			.819	257.0							(+11.8)	(290.0)	(+6.0)	(154)	(792)	(1495)		
			.785	295.3														
			.699	297.3														
		G	8987	210.4	323.7	-6.4	4	21	216.388	Aug. 4	.982	294.4					88	
			8988	78.8	298.2	+9.1	1	18			.972	261.7					82	
			8992	325	92.6	4.7	0	6			.968	249.2					198	
			8991	738	118.1	-15.9	10	27			.875	260.0					70	
				.805	77.4						.867	302.5					394	
			.882	83.7							.859	242.9					120	
			.903	73.6												1000		
			.961	67.8														
			.969	78.4														
			(+11.0)	(316.5)	(+5.9)	(15)	(72)	(1429)										
Aug. 2	C								C	Aug. 5	.8987	739	255.1	323.0	-6.6	4	25	
											.607	233.2	307.4	-15.9	4	32		
											.8988	381	276.2	299.6	+8.0	0	16	
											.8991	386	169.0	272.8	-16.1	0	18	
											.8997	467	66.3	250.9	+16.2	0	4	
											.8994	788	103.0	226.8	-6.3	87	572	281c
											.8996	919	103.6	212.4	-9.9	13	102	347f
											.8998	987	98.3	197.7	-7.1	18	97	114n
											.808	79.6					160	
											.826	63.6					282	
											.877	99.6					214	
											.934	74.2					132	
											.940	63.9					115	
G	G										.952	110.2					417	
			8987	421	237.5	321.7	-7.4	6	231c	Aug. 5	(+12.2)	(277.2)	(+6.1)	(126)	(866)	(3114)		
			8993	388	197.1	307.6	-15.7	3			115							
			8988	074	41.1	298.0	+9.1	1			68							
			8992	058	94.0	297.5	+5.8	0			82	217.363						
			8991	575	128.5	273.1	-15.6	5			168						64	
			8994	968	98.5	226.5	-6.6	171									159	

Group 8992, Aug. 2-3. A small faint spot & Group 8988, Group 8993, Aug. 3-7. A diminutive stream.
 Group 8994, Aug. 3-15. With Group 8996, a return of Group 8966. A very large regular spot showing slight instability from Aug. 6-9, when a small portion detaches itself from the *np* part of the penumbra. For a few days after Aug. 8, numerous small companions make their appearance northwards.
 Group 8995, Aug. 4-11. Intermittent. A small spot seen only on Aug. 4 and 11 on the same meridian as Group 8994, but *n* of the equator.
 Group 8996, Aug. 4-15. Return of Group 8966. A small but stable regular spot. On Aug. 5 and after Aug. 6 several very small companions appear, and one of these develops considerably between Aug. 10 and 11. It soon diminishes, however, and by Aug. 15 it and the original member remain as a pair of small spots near the west limb.
 Group 8997, Aug. 5-6. A single small spot.
 Group 8998, Aug. 5-16. Return or revival of Group 8974. A small regular spot dying out by Aug. 13. A small spot is seen near its place on Aug. 15 and 16.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.
1919. 217·363		°	°	°					1919.	220·338	°	°	°				177
G	8987	·941	246·0	323·5	— 7·8	41	84	138c	G	9001	·785	241·0	250·4	+ 18·6	2	12	
	8993	·874	257·4	307·1	— 16·5	5	20			8994	·466	298·9	226·8	— 6·6	94	578	
	8999	·745	241·2	259·8	+ 19·6	0	8			8996	·227	187·9	213·2	— 10·1	21	120	
	8997	·244	17·8	250·1	+ 15·8	0	7			881e	·346	144·2	126·9	— 2·8	1	2	
	8994	·292	54·3	226·7	— 6·6	82	560			8998	·259	213·1	198·0	— 7·4	8	31	
	8996	·640	108·2	212·6	— 10·4	15	84	186f		881f	·505	116·5	193·6	— 5·0	1	2	
	8998	·812	107·6	197·4	— 7·5	12	50	113n		9000	·551	109·1	103·3	— 6·4	70	337	235f
	·930	100·7						78		·768	104·9	103·3	— 6·4			176	
	·738	101·6						64		·823	121·9					70	
	·821	74·0						191		·824	81·5					182	
Aug. 6	·871	113·8						51		·922	127·3					207	
	·933	72·9						129		·937	103·3					77	
	·940	112·8								·953	64·7					(1426)	
		(+12·6)	(264·3)	(+6·2)	(155)	(813)	(1272)				(+13·7)	(225·0)	(+6·3)	(197)	(1082)		
218·337		·706	274·8							·937	281·5					75	
G	8987	·965	259·6	324·7	— 8·3	29	210	162	G	221·420	·877	246·5					293
	8993	·867	246·6	307·4	— 16·8	6	29	215c		·838	278·9					125	
	8999	·245	332·5	258·2	+ 18·6	3	19	166c		·660	291·0					69	
	881c	·303	339·0	258·1	+ 22·5	1	1			·358	230·9	226·9	— 6·9	88	531		
	8994	·469	117·8	226·8	— 6·9	99	557			8996	·273	184·5	211·9	— 9·3	46	137	
	881d	·571	101·3	217·5	— 1·2	1	3			8998	·324	138·1	198·1	— 7·7	6	12	
	8996	·662	113·0	213·3	— 10·1	28	125	88n		9000	·599	111·4	176·6	— 7·3	78	352	
	8998	·824	103·8	197·8	— 7·7	14	86			·850	64·1					39	
	9000	·974	99·0	175·8	— 7·2	39	36c	193c		·853	109·1					259	
	·743	107·4						47		·854	129·5					140	
Aug. 7	·774	116·9						125			(+14·1)	(210·7)	(+6·4)	(218)	(1032)	(1000)	
	·872	117·2						127									
	·968	116·6						104									
	·978	79·0						99									
		(+13·0)	(251·4)	(+6·2)	(220)	(1390)	(1326)									207	
219·344		·957	287·2							·945	250·1					91	
G	·953	250·7								·929	279·3					109	
	·859	275·9								·890	288·5					115	
	9001	·334	319·5	251·5	+ 20·8	1	3	134	G	·826	275·3					206	
	8994	·298	138·5	226·7	— 6·6	98	568	266		·812	288·4						
	8996	·498	123·4	213·2	— 10·2	23	106	326		8994	·523	245·4	226·8	— 6·9	106	552	
	8998	·677	108·2	197·8	— 7·4	15	71			8995	·432	281·7	223·7	+ 10·9	0	3	
	9000	·897	101·4	175·9	— 7·3	54	349	546c		881g	·405	252·9	221·0	— 0·8	0	7	
	·915	117·2						232		8996	·341	220·4	211·2	— 8·7	58	283	
	·925	80·2						103		8998	·246	179·1	198·1	— 7·7	4	8	
	·987	103·0						142		881h	·411	163·5	191·5	— 10·8	4	8	
		(+13·4)	(238·1)	(+6·3)	(191)	(1097)	(1749)			881i	·492	163·1	189·5	— 21·5	1	2	
Aug. 8										9000	·433	121·9	176·7	— 7·1	69	404	
										997	104·9	114·8	— 14·2	0	214		
										·916	85·7					91	
										·947	78·9					72	
220·338		·943	277·5					302	Aug. 11	·965	(+14·5)	(198·3)	(+6·5)	(242)	(1481)	(1058)	

Group 8999, Aug. 6-7. A single very small spot.

Group 9000, Aug. 7-18. A large spot with some departure from the regular type. There are small companions southwards from Aug. 8-14.

Group 9001, Aug. 8-9. A single spot on Aug. 8; a close pair on Aug. 9.

Group 9002, Aug. 11-23. Return of Group 8973. A small regular spot, stable until Aug. 18 and then commencing to disappear.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.
1919. 223°347		°	°	°	°				1919. 225°340	9002	°	°	°	°	80	70f	
		.940	275°9							9004	.749	115°9	115°1	-14°4	15	5	66f
		.921	286°7							9004	.738	89°7	111°3	+4°7	2	3	103f
		.856	295°8							9006	.791	83°3	106°4	+9°3	1	202	92c
G	8994	.695	252°8	227°0	-7°0	99	496	76		9007	.940	96°3	89°6	-3°7	50	188c	
	8996	.516	240°4	212°1	-8°9	50	281				.773	125°6				45	
	8998	.335	222°1	198°2	-8°0	2	6				.841	99°5				43	
	9003	.408	194°4	191°3	-16°8	1	6				.882	112°1				100	
	9000	.285	147°0	176°2	-7°3	56	371				.941	105°1				61	
	9002	.954	107°5	115°4	-14°5	20	90				(+15°5)	(158°9)	(+6°6)	(506)	(2763)	(1472)	
	9004	.960	87°6	111°4	+4°2	0	9										
		.825	87°7														
		.875	105°0														
		.957	114°7														
Aug. 12		(+14°8)	(185°2)	(+6°5)	(228)	(1259)	(774)										
224°345		.980	287°3														
		.934	258°4														
		.915	273°8														
		.889	246°3														
		.783	278°8														
G	8994	.838	257°2	227°2	-6°9	91	507	91		8994	.994	262°1	227°8	-7°1	75	435	89c
	8996	.689	250°2	212°8	-8°5	43	215			8996	.940	258°3	213°5	-8°5	34	104	138sf
	9003	.532	220°7	193°3	-17°6	2	7			8998	.814	252°5	197°0	-10°0	3	10	39n
	9000	.248	197°6	176°3	-7°1	63	301			9000	.566	246°3	176°6	-7°4	58	224	
	881j	.657	26°6	148°8	+4°9	1	3			9002	.603	124°9	114°6	-14°4	13	86	
	9002	.872	110°8	114°9	-14°4	13	114	79c		9007	.826	99°7	90°6	-4°1	99	491	99c
	9004	.873	88°4	111°2	+4°6	2	11	172f		9005	.827	88°5	89°3	+5°0	233	1386	123c
	9005	.980	87°3	93°4	+3°9	236	854	127c		881k	.899	106°0	83°7	-11°2	0	5	68c
		.771	108°6							9008	.992	100°7	63°9	-9°7	34	99	
		.795	69°9								.767	117°9				58	
		.878	118°8								.802	107°3				44	
		.941	83°4								.871	69°7				54	
		.945	96°8								.891	78°5				40	
		.959	109°6								.937	102°9				66	
		.986	95°2								(+15°9)	(145°2)	(+6°7)	(549)	(2840)	(1633)	
Aug. 13		(+15°2)	(172°0)	(-6°6)	(451)	(2012)	(1337)										
225°340		.909	293°1														
		.893	280°5														
		.855	270°8														
G		.799	244°3														
		.768	293°3														
	8994	.939	259°9	227°4	-7°1	114	521	199n		8998	.919	258°5	196°8	-7°8	3	13	146c
	8996	.833	254°9	213°1	-8°7	34	180	144c		9000	.736	253°0	176°8	-7°7	34	212	135c
	9003	.648	230°9	190°8	-18°4	1	5			9002	.462	141°0	114°3	-14°5	21	71	
	9000	.379	232°3	176°4	-7°1	50	264			9007	.662	103°8	91°8	-3°9	118	598	
										9005	.673	90°1	89°4	+4°9	196	1336	97f

Group 9003, Aug. 12-14. A pair of small spots on Aug. 12; one on the following day. Group 9004, Aug. 12-14. A small spot.

Group 9005, Aug. 13-25. Return or revival of Group 8978. A very large and long stream seen at the east limb as one of normal type near maximum development. The leader is very large, showing a complex umbra for several days but becoming regular by Aug. 22; the follower is smaller and in two portions, which change continually and die out as the west limb is approached. The spots intermediate in the stream are, as usual, of little importance.

Group 9006, Aug. 14-18. Intermittent. A pair of small spots on Aug. 14; a wide pair on Aug. 17, and a single spot the following day.

Group 9007, Aug. 14-25. At first a pair of regular spots, which separate in longitude whilst a cluster appears between them. The follower then diminishes, but the leader increases in size very considerably after joining with a spot immediately following it. Meanwhile, the cluster has condensed to a spot of some extent and remains with the leader to the west limb. This Group is on the same meridian as Groups 9005, 9011 and 9014, and the leader of the two large streams comprising Groups 9005 and 9007 are in close juxtaposition but on opposite sides of the solar equator.

Group 9008, Aug. 15-27. A regular spot diminishing. It is surrounded by small companions on Aug. 23 and 24.

Group 9009, Aug. 16-18. A single well-defined spot on Aug. 16; a short stream on the two following days.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.			Dist.	Pos. Angle.	Long.	Lat.	Umbræ.	Whole Spots.	Faculæ.	
1919. 227·396	9008	·939	102·8	63·7	— 9·5	33	127	154c	1919. 230·558	·847	116·1	—	—			469 130 261	
G		·847	107·6				63		C	·860	85·3						
		·895	84·8				87			·944	116·9						
		·953	78·8				93			(+17·3)	(89·9)	(+6·9)	(421)	(2299)	(1098)		
		·987	101·2				64										
	Aug. 16	(+16·2)	(131·7)	(+6·7)	(417)	(2411)	(1437)		231·378	·948	294·1					104 219	
										·783	189·8						
										9002	653	237·3	113·6	— 15·0	8	46	
										9007	319	240·1	95·1	— 2·5	195	1028	
										9005	244	259·7	93·0	+ 4·2	196	1044	
										9011	193	290·5	89·6	+ 10·7	29	154	
G		·985	260·6				104			9008	371	137·7	64·5	— 9·1	19	102	
		·872	239·2				106			9012	467	131·7	58·3	— 11·6	0	3	
		·844	216·0				53			9010	508	124·9	54·1	— 10·5	2	6	
		·836	226·6				71				·797	121·7				308	
		9009	934	250·2	183·7	— 15·7	15	40	108c		·934	100·1				208	
		9000	872	257·3	176·9	— 7·6	38	211	180sf		·951	68·9				189	
		9002	372	170·1	114·2	— 14·6	12	73			(+17·5)	(79·1)	(+6·9)	(449)	(2383)	(1028)	
		9006	183	79·0	107·6	+ 8·7	2	11									
		9007	455	111·4	93·0	— 3·3	118	613									
		9005	475	92·1	89·6	+ 5·0	197	1312									
G		9008	830	106·4	64·4	— 9·6	18	105	144f	Aug. 20							
		9010	921	104·2	53·0	— 10·2	2	32	113c								
		·879	80·0				59									54	
		·929	112·3				98		232·388		·901	254·6				137	
		·981	103·8				93				·889	273·5				73	
	Aug. 17	(+16·6)	(118·0)	(+6·8)	(402)	(2397)	(1129)				·881	291·5				88	
											·869	283·6				68	
											·818	234·1				54	
											·696	272·5				79	
		·958	241·7				144				·792	244·9	113·5	— 15·0	18	38	
G		·906	232·1				123			9002	244·9	113·5	— 15·0	18	38	76c	
		·860	222·2				66			9013	698	296·3	108·4	+ 23·1	4	13	
		·853	247·0				69			9007	519	253·7	95·6	— 2·2	192	1145	
		9009	982	252·8	180·7	— 15·3	0	46	184c		9005	472	265·2	93·7	+ 4·0	187	892
		9000	961	260·1	176·8	— 7·5	35	225	160sf		9011	426	280·1	90·8	+ 10·5	52	247
		9002	399	204·0	113·9	— 14·5	14	80			9014	429	295·7	89·4	+ 17·1	2	12
		9006	·060	337·9	105·6	+ 9·9	0	4			9008	275	177·3	65·0	— 8·9	18	83
		9007	·249	103·3	93·9	— 3·1	116	648			9012	329	159·3	58·9	— 11·0	0	5
		9005	·248	97·8	90·0	+ 4·7	231	1269			9015	965	108·1	353·9	— 15·3	38	192
		9008	·682	112·1	64·6	— 9·6	27	101				·845	70·1				186f
G		9010	·795	108·4	54·5	— 10·2	7	18	138c			·859	101·5				59
		·938	110·1				299					·936	65·7				81
	Aug. 18	(+16·9)	(104·3)	(+6·8)	(430)	(2391)	(1183)					·977	93·3				59
											(+17·9)	(65·7)	(+6·9)	(511)	(2627)	(1068)	
C		·938	252·2				144			233·481		·976	293·5				106
		·864	293·6				94					·974	256·7				124
		·533	227·3	113·7	— 14·8	17	51					·957	280·3				63
		·185	209·4	95·1	— 2·3	159	970					·919	239·8				79
		·042	210·8	91·1	+ 4·7	212	1073					·914	288·0				102
		·076	13·9	88·8	+ 11·1	15	86					·843	273·3				149
		·503	122·8	64·6	— 9·5	16	105					·835	246·9				76
		·637	116·0	54·4	— 10·5	2	14										

Group 9010, Aug. 17-26. Intermittent. Two small spots on Aug. 17, one of which remains until Aug. 20. Nothing is then seen until Aug. 25, when a pair of small spots appear.

Group 9011, Aug. 19-25. A stream of normal type on the same meridian as Groups 9005 and 9007. The stream quickly passes through its phases, leaving the leader alone on Aug. 25.

Group 9012, Aug. 20-21. A small spot of Group 9008.

Group 9013, Aug. 21-22. A small group.

Group 9014, Aug. 21-23. A small stream on the same meridian as Groups 9005, 9007 and 9011.

Group 9015, Aug. 21-29. A regular spot gradually disappearing. There are occasional one or two followers.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

Group 9016, Aug. 22-29. Probable return of Group 8987. A small but persistent spot not seen on Aug. 28.
Group 9017, Aug. 23-31. A few small spots on Aug. 23 developing into a stream of normal type.

Group 9017, Aug. 23-31. A few small spots on Aug. 23 developing into a stream of normal type.
Group 2018, Aug. 25-26. Two or three very small spots.

Group 9018, Aug. 25-26. Two or three very small spots.
Group 9019, Aug. 27-28. Two or three small spots.

Group 9019, Aug. 27-30. Two or three small spots.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.
1919. 239·374	C	·978	258·8	°	°				1919. 242·464	Aug. 31	·892	101·8	231·2	— 7·1	9	33	318c
·975		248·8					49		·844		63·5					87	
·905		251·4					136		·866		112·3					87	
·892		240·0					282		G		·900	93·0				178	
·473		240·7	357·9	— 6·9	55	353			·957		73·6					105	
·9015		221·1	353·0	— 15·0	7	27			·959		62·4					127	
·869		115·4	278·0	— 17·9	0	14	145c		·971		103·0	(+20·8)	(292·6)	(+7·2)	(103)	(433)	(1824)
·844		82·8					109									86	
·907		107·2					171										
·949		74·7					306										
Aug. 28			(+20·0)	(333·4)	(+7·1)	(62)	(394)	(1304)	243·547		·967	262·2					232
240·387	G	·960	251·0						·886	Sept. 1	248·2					390	
·950		240·7					92		·932		296·9					78	
·651		250·4	358·0	— 7·0	41	250	139		·9020		165·9	272·7	— 14·8	84	457	139	
·9015		230·4	352·9	— 15·6	4	13			·9023		358	62·4	+16·3	4	8		
·641		235·1	332·9	— 15·6	1	3			·9021		760	105·7	231·0	— 6·9	10	16	294s/
·320		231·1	334·4	— 4·7	1	3			·777		121·8					82	
·742		121·0	278·4	— 17·1	10	30	40f		·807		96·1					48	
·819		114·0					50		·811		77·7					62	
·844		75·6					53		·880		62·7					92	
·878		123·6					49		·944		109·5	(+21·1)	(278·3)	(+7·2)	(98)	(481)	249
·912		74·3					138									(1666)	
·920	Aug. 29	85·7							·947	Sept. 2	264·5					120	
·965		100·6					53		·921		244·0					56	
(+20·2)		(320·0)	(+7·1)	(56)	(296)	(693)	244·386		·886		253·7					154	
·911		263·8					69		C	Sept. 2	794	239·3	313·2	— 18·9	0	13	69c
·902		273·5					78		·9020		387	194·1	272·8	— 14·8	83	465	
·779		242·6					70		·624		110·1	231·2	— 6·6	4	18		
·812		256·2	359·8	— 6·8	28	161	96c		·801		108·9					125	
·9017		131·2	279·0	— 17·1	3	8			·803		71·5					92	
·607		122·7	271·2	— 15·6	22	59			·896		114·7	(+21·3)	(267·2)	(+7·2)	(87)	(496)	276
·678		99·1	231·4	— 7·2	14	52	148f									(892)	
·976		72·0					80		·989	261·9					72		
·811		96·3					88		·951	256·7					213		
·899		63·3					62		·915	304·9					219		
·927		106·5					125		·810	272·5					218		
·951		(+20·5)	(307·4)	(+7·2)	(67)	(280)	(816)	245·396									
241·340	G	·878	245·0					346	C	9022	·899	245·7	313·2	— 18·1	0	5	135c
·859		261·2					85		9020	·489	220·8	273·1	— 14·9	86	485		
·826		298·8					151		9024	·078	9·9	253·1	+11·6	0	5		
·9017		260·3	1·0	— 6·5	25	152	254c		9021	·457	121·1	230·8	— 6·9	4	14		
·9022		219·8	314·9	— 18·9	5	10			9025	·970	98·8	179·3	— 6·6	0	8	156c	
·9020		137·7	271·9	— 15·3	53	205			·951	108·3						142	
·9023		71·1	257·7	+16·8	11	33			·952	76·1						81	
Sept. 3										(+21·5)	(253·9)	(+7·2)	(90)	(517)	(1236)		

Group 9020, Aug. 30-Sept. 8. An active group. A small cluster of spots on Aug. 30 developing into two chief spots with small companions. On Sept. 5, a small cluster just sf the stream has become an elongated spot comparable with the original components. This breaks into two portions, one of which is soon disappearing, whilst the s portion has become a regular spot.

Group 9021, Aug. 30-Sept. 8. Return of Group 8994. A small spot with a near companion on Sept. 1 and a more distant one on Sept. 3 and 5.

Group 9022, Aug. 31-Sept. 3. Intermittent. One or two small spots not seen on Sept. 1.

Group 9023, Aug. 31-Sept. 1. A small spot with a companion on Aug. 31.

Group 9024, Sept. 3-7. A small spot on Sept. 3, developing into a short stream by Sept. 5, after which date only one spot remains.

Group 9025, Sept. 3-8. Return of Group 9000. A small spot which has disappeared by Sept. 6. Its place, however, is marked by a pair of small spots on Sept. 7 and a single small spot on Sept. 8.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.	Faculæ.			Dist.	Pos. Angle.	Long.	Lat.	Umbrae.	Whole Spots.	Faculæ.	
1919. 246°35'	G	·970	248°3	°	°		105		1919. Sept. 7	G	·991	81°7	°	°			58	
		·946	304°2				134		250°427		·971	282°7					1557	
		·901	274°2				261				·917	288°5					96	
		·875	311°8				75				·916	279°7					270	
		·624	233°2	272°3	-15°8	126	604				·849	254°6					364	
		·224	289°0	253°6	+11°2	2	10				·9020	253°4	271°1	-15°9	41	593	113	
		·298	143°8	231°0	-6°8	3	6				·9028	239°3	233°4	-18°9	11	47	1650	
		·832	77°0	184°4	+14°8	0	6				·9021	252°3	228°7	-6°6	0	6	1420	
		·896	101°0	179°2	-6°5	3	16				·9025	289	149°5	178°9	-7°1	1	6	
		·906	109°6								·9027	865	113°1	131°8	-15°8	23	148	
		·962	119°5								·9029	951	101°5	117°2	-8°5	0	650	
Sept. 4	G	(-21°8)	(241°2)	(+7°2)	(134)	(642)	(1145)		G		·998	92°8	104°1	-2°0	114	575	2390	
		·761	242°0	271°4	-15°7	145	838	200			·9030	89°1	101°3	+	1°5	140	486	
		·9024	280°4	253°5	+11°0	9	40				·877	72°3					139	
		·307	192°9	231°3	-10°2	0	2				·932	83°9					170	
		·232	191°4	229°9	-5°9	2	18				·979	106°7					262	
		·764	105°0	179°5	-6°6	0	5	548			(-22°7)	(187°4)	(+7°3)	(330)	(1867)	(2535)		
		·823	112°6				87				·970	279°7					83	
		·909	122°9				284				·953	290°4					51	
		·942	105°0				160				·918	257°7					175	
		·944	90°2				117				·836	254°1					233	
Sept. 5	G	·970	68°6				38				·827	267°8					73	
		(-22°0)	(227°3)	(+7°2)	(156)	(903)	(1367)				·9028	888	244°2	233°0	-18°9	6	40	
		·710	290°3				71				·9027	760	118°5	131°6	-16°0	33	155	
		·888	248°1	271°1	-15°6	122	851	522c			·9032	931	106°9	109°8	-12°7	0	13	
		·693	278°3	256°6	+11°0	8	35	69c			·9030	945	94°5	105°2	-1°8	88	551	
		·438	228°3	231°8	-10°1	0	4				·9031	959	90°3	102°2	+	1°8	578	
		·355	231°9	228°7	-5°7	0	5				·832	84°3					321c	
		·994	106°9	131°3	-15°9	31	228	158c			·922	119°4					79	
		·826	130°0				117				(-22°9)	(175°5)	(-7°3)	(242)	(1337)	(1845)		
		·875	106°8				63				·978	261°3					67	
Sept. 6	G	·935	127°3				108				·937	269°6					134	
		(-22°3)	(212°5)	(-7°2)	(161)	(1123)	(1108)	252°349			·934	257°9					131	
		·938	281°9				74				·818	239°8					250	
		·832	290°1				215				·797	298°5					138	
		·961	251°4	271°5	-15°6	131	1061	501c			·9028	965	248°0	232°9	-18°9	2	13	
		·827	277°5	256°9	+10°2	1	7	112c			·882c	374	172°9	159°3	-14°5	0	3	
		·564	259°9	234°3	+0°4	0	2				·9027	622	128°5	131°6	-16°5	34	177	
		·650	230°8	232°6	-18°1	8	24				·9029	760	107°9	115°2	-8°5	0	4	
		·553	246°3	231°2	-6°6	0	2				·9032	832	110°9	109°3	-13°0	1	9	
		·446	124°7	179°1	-8°0	0	5				·9030	846	97°0	105°0	-2°0	90	551	
249°419	G	·953	109°3	131°7	-15°9	33	174	461c			·9031	869	92°3	102°0	+	1°5	537	
		·959	71°7				136				·934	71°6					59	

Group 9026, Sept. 5-6. A very small spot s Group 9021.

Group 9027, Sept. 6-18. A small stable regular spot. Within a few days a train of small followers has appeared, and between Sept. 11 and 12 a companion regular spot has suddenly developed sp the original one. The train gradually dies out, leaving the pair of regular spots alone on Sept. 17.

Group 9028, Sept. 7-10. A small partially formed regular spot with very small followers on Sept. 7 and 8.

Group 9029, Sept. 8-15. A very small spot not seen on Sept. 9. Others appear later and make up a small stream.

Group 9030, Sept. 8-20. Return of Group 9007. A very large regular spot breaking up rapidly on Sept. 18.

Group 9031, Sept. 8-20. Return of Group 9005; third apparition. A very large regular spot with occasional tiny companions. This spot and that of Group 9007 present a striking feature on the Sun's disc of a close pair of large regular spots but on opposite sides of the solar equator.

Group 9032, Sept. 9-14. One or two very small spots.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.		
1919. 252.349		·936	83.5	°	°				1919. 255.364	9031	·348	105.1	102.6	+ 1.6	105	537			
G		·938	96.9						9033	C	·489	110.5	95.0	- 3.4	1	5			
Sept. 10		·951	110.6	(+23.1)	(162.0)	(+7.2)	(244)	(1294)	566	·869	108.1						105		
								(2943)	326	·881	79.1						110		
									50								(544)		
253.367		·961	265.6						67	256.550	·953	285.5						117	
		·924	254.9						44	·946	251.5						62		
		·908	295.9						110	·946	259.9						84		
		·901	244.5						160	·937	240.9						70		
		·867	284.0						114	·867	230.3						105		
		·804	302.1						82	9027	·581	227.9	133.2	- 16.4	48	356			
G	882d	·330	170.7	145.5	- 11.8	3	10		272s	9029	·342	220.4	119.5	- 8.0	1	10			
	9027	·507	144.5	130.7	- 17.4	39	237			9032	·358	186.1	108.8	- 13.6	1	4			
	9029	·597	114.6	115.5	- 8.3	3	15			9030	·159	171.9	105.3	- 1.8	73	412			
	9032	·697	117.3	109.3	- 13.0	0	4			9031	·117	146.9	102.9	+ 1.5	109	507			
	9030	·698	100.5	105.4	- 2.0	89	524			9033	·271	130.2	94.7	- 3.0	0	11			
	9031	·726	94.7	102.4	+ 1.6	118	554				·734	74.3					210		
		·829	87.6								·966	96.7					99		
		·851	100.3								·974	102.9					176		
		·858	79.3								·983	111.0					88		
Sept. 11		·867	115.7							Sept. 14	(+23.9)	(106.6)	(+7.2)	(232)	(1300)	(1011)			
		·972	100.7	(+23.3)	(148.6)	(+7.2)	(252)	(1344)	(2045)										
254.617		·984	249.4						257.370	·969	253.3						88		
		·952	282.5							·935	237.5						131		
		·939	299.1							·873	222.0						86		
		·775	255.2							·869	250.0						110		
G	882e	·817	240.6	180.7	- 18.9	1	5			9027	·707	238.4	134.4	- 16.1	65	347	1450		
	882f	·728	286.2	178.8	+ 16.7	1	6			9029	·481	238.3	120.0	- 8.0	4	31			
	9027	·411	181.9	132.9	- 17.0	75	324			9030	·223	227.5	105.1	- 1.5	58	368			
	9029	·372	133.4	116.3	- 7.9	1	10			9031	·159	233.1	103.0	+ 1.7	103	534			
	9032	·583	132.6	105.6	- 16.8	2	15			9033	·161	173.3	94.6	- 2.0	0	11			
	9030	·474	108.0	105.4	- 2.0	70	462			882g	·559	119.1	66.1	- 9.5	0	5			
	9031	·502	99.6	102.5	+ 1.5	110	589			9034	·921	103.7	30.7	- 9.6	0	18	2230		
		·887	104.0								·890	98.9					114		
Sept. 12		·936	78.4	(+23.6)	(132.1)	(+7.2)	(260)	(1411)	(910)			·937	114.1	(-24.1)	(95.7)	(+7.2)	(230)	(1314)	(1021)
255.364		·866	258.4						258.432	·967	289.1						50		
		·851	239.1							·941	269.5						60		
		·849	284.7							·939	226.9						89		
		·844	247.6							G	·840	245.9	134.3	- 15.7	32	220	4700		
C	9027	·444	203.0	132.6	- 16.9	55	395			9029	·429	250.1	105.4	- 1.8	64	356			
	9029	·274	165.7	118.3	- 8.1	2	5			9031	·381	256.3	103.3	+ 1.5	107	571			
	9032	·433	147.9	108.5	- 14.4	1	4			9033	·323	231.7	96.4	- 4.5	1	16			
	9030	·331	117.2	105.1	- 1.8	50	465			882h	·131	289.8	88.9	+ 9.7	0	5			
										9034	·793	108.3	32.1	- 9.7	1	12	2620		

Group 9033, Sept. 13-16. Revival of Group 9007. A very small cluster of spots of Groups 9030 and 9031.

Group 9034, Sept. 15-21. One or two scattered spots, not seen on Sept. 20.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.	
1919. 258.432	G	'761	° 101.9	°	°				55	1919. 261.428	9036	'918	109.1	338.9	-14.4	54	282	916c
		'853	119.9						226			'780	121.3				171	
		'905	91.9						90	C		'869	98.1				104	
		'935	126.2						57			'903	121.2				58	
		'957	101.5	(+24.3)	(81.7)	(+7.2)	(205)	(1180)	150	Sept. 19		(+24.7)	(42.2)	(+7.1)	(185)	(1112)	(3448)	
259.460	G	'850	288.3						106			'979	251.9				132	
		'797	250.5						106			'917	247.3				102	
		'754	236.4						219			'905	262.3				498	
		9027	250.4	134.5	-15.6	28	203	654c		9030	'977	266.9	106.0	-1.5	30	239	400	
		9035	269.8	115.9	+4.7	0	4	95c		9031	'968	269.9	104.1	+1.7	82	453		
		9030	258.0	105.8	-1.8	60	361			9037	'686	105.9	347.4	-5.5	15	51		
		9031	262.6	103.6	+1.5	103	503			9036	'897	113.5	339.2	-14.2	43	240	920c	
		9034	259.4	118.0	36.1	-10.1	0	3		9038	'981	79.5	309.0	+11.6	25	285	531c	
		'887	104.6								'922	56.4				99		
		'923	94.6								'945	84.5				140		
Sept. 17		'960	111.7								'956	111.9				396		
		(+24.4)	(68.2)	(+7.2)	(191)	(1074)	(1599)				(+24.9)	(28.8)	(+7.1)	(195)	(1268)	(3968)		
260.348	G	'913	286.2						50	263.437		'969	273.6				92	
		'884	254.0						246			'967	263.2				129	
		'837	242.8						164			'951	283.0				264	
		9027	252.6	133.7	-15.6	21	118	372sf		9034	'416	218.8	31.0	-11.9	0	5	93	
		9035	273.0	117.6	+6.0	1	6	232c		9037	'497	114.2	348.6	-5.4	19	110		
		9030	261.6	105.7	-1.8	62	351			9036	'670	121.0	339.4	-14.4	29	163	363c	
		9031	265.4	103.6	+1.5	107	500	354c		9038	'916	80.4	308.6	+11.6	37	418	797c	
		9034	131.0	37.0	-9.9	1	3				'908	55.6				67		
		882	43.6	77.3	30.6	+11.9	1	4			'914	113.6				327		
		9036	106.9	340.3	-15.0	29	230	208c			(+25.0)	(15.6)	(+7.1)	(85)	(696)	(2132)		
Sept. 18		'796	106.2						114								111	
		'820	95.8						58	264.337		'986	284.9				95	
		'888	116.7						184			'958	256.5				128	
		'963	116.5						75			'846	279.9					
		(+24.6)	(56.4)	(+7.1)	(222)	(1212)	(2057)											
261.428	C	'969	257.3						241			'986	284.9					
		'965	276.1						94			'958	256.5					
		'944	246.6						271	Sept. 22		'846	279.9					
		'797	261.1						352			'987	106.7	285.7	-15.1	21	79	
		'733	280.3						313			'829	119.1				318c	
C	G	9030	264.9	106.1	-1.5	30	339			928c	265.414		'880	51.3				352
		9031	268.3	104.0	+1.8	101	489					(+25.1)	(3.8)	(+7.0)	(142)	(953)	(1719)	
		9034	322	159.6	35.7	-10.4	0	2				'747	235.0				114	
												'737	251.5				244	

Group 9035, Sept. 17-18. A minute spot.

Group 9036, Sept. 18-27. An irregular stream of unstable character which has formed from a double spot and a companion seen at the east limb.

Group 9037, Sept. 20-29. A stream of normal but of rapid development *np* Group 9036.

Group 9038, Sept. 20-Oct. 2. A large regular spot closely followed by a cluster of very small companions, and at a greater distance by two or three ill-formed spots, which dissolve into an elongated cluster after Sept. 24. On Sept. 26, the regular spot shows a double umbra, and by Sept. 30 the spot has completely separated into two components.

Group 9039, Sept. 22-30. A small regular spot with a cluster of small followers closely preceding Group 9040 in the same large general area of faculae.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.	Faculae.			Dist.	Pos. Angle.	Long.	Lat.	Umbræ.	Whole Spots	Faculae.
1919. 265-414	9037	.217	183°5'	350°4'	- 5°5'	19	96		1919. 268-387	9040	.670	118°3'	273°2'	- 13°0'	55	325	438s
	9036	.409	155°0'	339°3'	- 14°8'	21	94			9041	.957	99°8'	238°7'	- 7°2'	34	296	307c
	9038	.629	81°1'	310°5'	+ 11°0'	66	484	61c			.760	78°8'					237
	9039	.925	109°4'	285°3'	- 14°9'	19	111	547c			.888	104°4'					227
	9040	.980	104°3'	273°3'	- 12°4'	48	265	259c			.963	111°2'					132
		.953	77°4'					67		Sept. 26	(+25°6)	(310°3)	(+6°9)	(165)	(1104)	(2128)	
			(+25°3)	(349°6)	(+7°0)	(173)	(1050)	(1456)									
Sept. 23																	
266-380		.855	253°0'						269-345		.958	258°9'					88
		.850	239°2'								.893	246°5'					236
	883a	.875	263°0'	37°0'	- 2°7'	3	19	178		9037	.777	255°5'	346°7'	- 6°7'	2	17	287sf
		.883b	242°3'	7°2'	- 9°2'	0	5	242		883c	.815	245°1'	347°6'	- 15°6'	0	4	
	9037	.297	222°3'	348°3'	- 5°8'	7	34	84c		9036	.733	241°7'	339°5'	- 15°2'	1	15	
	9036	.373	185°0'	338°7'	- 14°7'	17	106			9038	.274	283°5'	313°3'	+ 10°3'	47	266	
	9038	.433	79°4'	311°2'	+ 10°9'	63	408			9042	.126	79°7'	290°5'	+ 8°1'	2	9	
	9039	.830	113°6'	285°0'	- 15°1'	22	149	485c		9039	.426	150°1'	285°1'	- 14°8'	16	74	
	9040	.916	107°4'	273°3'	- 12°8'	47	306	721c		9040	.526	129°3'	273°1'	- 13°1'	50	303	
		.884	75°8'					125		9041	.879	102°7'	238°0'	- 7°7'	52	285	276c
		.961	79°6'					200			.778	109°9'					
			(+25°4)	(336°8)	(+7°0)	(159)	(1027)	(2035)			.916	86°5'					
											.920	115°4'					
											.946	67°5'					
											.984	104°1'					
Sept. 24										Sept. 27	(+25°7)	(297°7)	(+6°9)	(170)	(973)	(1625)	
267-576		.972	265°3'														
		.957	255°9'														
		.944	243°8'													103	
		.845	259°0'													587	
		.784	247°2'													239c	
		.697	235°7'														
	9037	.497	245°2'	347°8'	- 5°8'	1	8	107									
		.476	219°7'	339°3'	- 14°8'	3	31	184		270-419	.981	249°3'					
	9036	.164	67°0'	312°2'	+ 10°5'	71	404	231			.860	245°6'					
	9038	.677	121°1'	284°3'	- 14°9'	36	169	86									
	9039	.787	112°5'	272°9'	- 13°0'	45	300	181		G							
	9040	.994	97°9'	238°5'	- 7°0'	44	171	157									
	9041	.861	79°3'														
		.886	64°8'														
		.944	100°0'														
			(+25°5)	(321°0)	(+6°9)	(200)	(1083)	(2928)									
Sept. 25										Sept. 28	(+25°8)	(283°5)	(+6°8)	(220)	(1220)	(1501)	
268-387		.981	246°4'														
		.953	234°7'													717	
		.940	261°0'													119	
		.846	258°1'													243np	
		.800	241°4'														
	9037	.651	251°6'	348°6'	- 6°4'	0	14	111									
		.591	234°4'	339°9'	- 14°1'	0	20	98		271-389	.928	248°7'					
	9036	.079	325°4'	312°9'	+ 10°6'	51	324	128			.781	238°5'					
	9038	.555	130°8'	284°6'	- 15°0'	25	125	194			.937	260°7'	346°7'	- 7°4'	2	20	
	9039							256		9038	.676	278°1'	313°4'	+ 10°5'	54	290	
										883d	.457	285°5'	297°5'	+ 13°0'	0	6	
										9039	.456	214°1'	286°0'	- 15°6'	7	22	
										9040	.334	187°9'	273°4'	- 12°4'	43	207	
										9044	.424	53°3'	249°5'	+ 20°9'	7	22	
										9041	.594	113°5'	237°5'	- 8°0'	79	358	
										9943	.833	113°3'	218°5'	- 15°0'	38	262	
																354c	

Group 9040, Sept. 23-Oct. 5. Return or revival of Group 9020; a regular spot with a train of small spots to the south, which have died out by Sept. 30. A close companion to it has appeared near the west limb. This group is closely associated with Group 9039.

Sept. 30. A close companion to it has appeared near the west limb. This group is closely associated with Group 9039. Group 9041. Sept. 25-Oct. 7. Revival of Group 9021. A large spot, with composite umbra, disappearing rapidly after Oct. 3.

Group 9041, Sept. 25-Oct. 7. Revival of Group 9021. A large spot, with composite umbra, disappearing rapidly after Oct. 3.

Group 9042, Sept. 27-28. Three very small spots on Sept. 27; one on Sept. 28.

Group 9044. Sept. 29–Oct. 2. A small cluster of spots.

Group 3-44, Sept. 19, Sec. 2. A small cluster of spots.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.
1919. 271·389	9045	·804 ·893	° (+25·9)	91·7 62·5	217·3 (270·7)	+ 2·7 (+6·8)	3 (233)	10 (1197)	81f .1587	1919. 275·387	·991 ·917 ·907 ·864 ·822 ·732 ·858 ·9041 ·9043	° 250·0 240·5 281·4 234·3 283·4 251·2 230·5 194·3 223·6 (+26·2)	° — 12·4 — 8·9 — 15·6 — 12·4 — 8·9 — 15·6	284·0 250·0 240·5 281·4 234·3 283·4 251·2 230·5 194·3 223·6 (+6·6)	28 66 26	174 369 156 (120)	112 374 127 91 134 82 177s'
Sept. 29		·977 ·867 9038 9039 9040 9044 9041 9043 9045	251·6 243·0 ·819 ·593 ·420 ·274 ·433 ·689 ·638	278·4 231·3 219·4 286·2 — 15·9 — 12·4 — 20·2 — 8·5 — 15·3 — 2·8	312·9 286·2 273·4 249·1 — 8·5 — 15·3 218·2 218·2	+ 10·7 — 15·9 — 12·4 — 20·2 — 8·5 — 15·3 — 2·8	35 0 42 4 70 39 0 4	216 6 190 17 351 215 (190)	129 138 232f ·819 ·413 ·392 ·874 ·982 Oct. 3	G	9040 9041 9043	·732 ·822 ·864 ·874 ·982 ·982 ·962 ·929 ·912 ·864 ·793 ·772 ·947 ·946 ·944 ·941 ·943	274·0 236·6 223·6 217·9 (+6·6)	— 12·4 — 8·9 — 15·6 — 12·4 — 8·9 — 15·6 28 66 26 (699)	174 369 156 (1412)		
Sept. 30		(+26·0)	(257·6)	(+6·7)	(190)	(999)	(621)	276·386		·982 ·962 ·929 ·912 ·864 ·793 ·772 ·947 ·946 ·944 ·941 ·943	252·9 245·5 286·9 241·6 279·6 287·9 252·9 254·3 249·7 244·1 218·6 109·3 83·1 (+26·3)	220	{ 496c				
273·351		·946 ·735 ·682 9038 9040 9046 9044 883e ·312 9041 9043	247·4 244·3 228·6 ·926 ·568 ·564 ·260 ·338·1 ·312 ·296 ·547	244·3 228·6 228·6 279·1 236·5 226·9 250·7 338·1 ·312 ·296 ·547	313·2 — 12·4 — 16·5 — 20·5 — 24·8 — 8·5 — 15·2	+ 11·0 — 12·4 — 16·5 — 20·5 — 24·8 — 8·5 — 15·2	24 34 0 4 2 63 30	191 179 10 10 7 416 176	233 184 75 790f	G	9040 9046 9041 9043	·772 ·929 ·912 ·864 ·793 ·772 ·947 ·946 ·944 ·941 ·943	273·6 272·2 236·3 223·1 204·8 (+6·5)	— 12·5 — 16·7 — 9·0 — 16·0 — 12·0 (128)	220 12 62 29 155 (627)	112 284 132 138 349 78 (1958)	
Oct. 1		·907 ·949 ·972 ·974 (+26·1)	123·3 108·6 119·4 70·3 (244·8)	123·3 108·6 119·4 70·3 (+26·1)	— 12·4 — 8·5 — 15·2	84 163 138 191 (157)	193 84 163 138 191 (989)	277·376		·969 ·957 ·892 ·882 ·872 ·969 ·957 ·892 ·882 ·872	244·9 278·2 257·9 288·5 268·3 255·9 278·2 257·9 288·5 268·3			151 139 156 224 44 350 196 208 7 207			
274·402		·974 ·832 ·793 ·688 9038 9040 9044 9041 9043	249·0 246·9 235·9 225·1 ·984 ·731 ·425 ·287 ·409	246·9 235·9 225·1 280·3 246·1 305·2 201·3 157·3 112·2	246·9 235·9 225·1 311·4 273·9 252·5 236·9 221·5 — 12·4 — 8·8 — 8·8 — 15·6	+ 11·3 — 12·4 — 20·2 — 8·8 — 15·6	52 464 153 113 631f 264s	C	9040 9041 9043 9047	·9040 ·9041 ·9043 ·9047	·993 ·735 ·630 ·883f ·996 ·843 ·907 ·920 ·922 ·960	272·9 236·2 223·9 217·3 179·3 111·9 83·7 131·7 114·9 99·3	— 13·0 — 9·3 — 15·8 + 15·3 — 2·9	28 30 38 1 7 27	350 196 208 7 207	500p 298c 115 116 62 342 250 (2497)	
Oct. 2		·917 ·930 (+26·1)	70·2 119·7 (230·9)	70·2 119·7 (+6·6)	(180)	(805)	(1986)	278·375		·971 ·969	288·7 258·7			178 173			

Group 9045, Sept. 29-30. A minute double spot.

Group 9046, Oct. 1-4. Intermittent. One small spot on Oct. 1 and two on Oct. 4 seen s Group 9040 in the same general disturbed area.

Group 9047, Oct. 5-17. Return of Group 9031; fourth apparition. A very large regular spot with a few very small companions from Oct. 11-14.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.	Faculae.			Dist.	Pos. Angle.	Long.	Lat.	Umbræ.	Whole Spots.	Faculae.
1919. 278·375	9041	·879	246·5	°	°	13	149	130	1919. 281·426	9049	·841	81·4	80·7	+10·7	27	195	265c
	9043	·864	255·5	236·2	— 9·1	39	198	602c	G	·912	105·0				62		
	9047	·769	242·9	223·7	— 15·9	106	474	235c	Oct. 9	·941	89·5				60		
	9048	·953	89·1	106·2	+ 2·8			179c		(+26·4)	(138·3)	(+6·3)	(156)	(844)	(778)		
	9049	·709	118·6					155									
	9050	·804	85·1					87									
	9051	·835	119·3					226	282·434	9051	·709	251·0	167·5	— 8·8	30	126	
	9052	·902	106·5					194		9053	·425	207·2	136·6	— 16·0	0	4	
	9053	·903	97·1					138		9052	·150	288·8	133·2	+ 8·9	5	35	
	9054	·978	96·7					204		9047	·325	100·6	106·4	+ 2·5	82	390	
Oct. 6	9055	·978	108·9					63		9048	·568	127·6	97·4	— 14·7	47	188	
	9056	(+26·3)	(178·5)	(+6·4)	(158)	(821)	(2564)			9050	·610	105·1	89·0	— 4·1	21	125	
	9057									9049	·703	81·0	80·2	+10·7	36	166	
	9058									·976	92·2				305f		
	9059	·961	250·5					64	Oct. 10		(+26·4)	(125·0)	(+6·2)	(221)	(1034)	(350)	
	9060	·935	265·0					64									
	9061	·959	258·5	236·0	— 9·1	9	106	428c		·901	245·8				58		
	9062	·903	247·9	223·9	— 16·5	36	218	294f	283·411	·855	232·3				73		
	9063	·9043	896	106·2	+ 2·7	85	392	307f		9051	·846	255·6	167·9	— 8·8	44	219	
	9064	·9047	848	90·8	106·2			249c		9053	·552	227·8	137·2	— 16·2	3	16	80c
Oct. 7	9065	·9048	953	107·8	94·5	— 14·8	10	112		9052	·382	279·8	134·4	+ 9·3	18	111	
	9066	·9049	989	80·2	81·9	+ 10·6	7	92		9047	·118	125·4	106·6	+ 2·2	79	372	
	9067	·967	114·0					158f		883g	·246	130·3	101·3	— 3·1	1	7	
	9068	·902	100·6					108		9048	·437	143·7	96·7	— 14·7	56	238	
	9069	·901	98·6					165		9050	·451	113·5	87·7	— 4·7	33	171	
	9070	·950	76·2					233		9049	·513	79·7	81·4	+ 10·5	25	125	
	9071	·980	97·2					161		883h	·697	104·6	69·6	— 5·6	0	4	
	9072	(+26·4)	(164·1)	(+6·4)	(147)	(920)	(2445)	214		·911	110·0				55		
	9073							918	Oct. 11	·922	97·7				123		
	9074									(+26·4)	(112·1)	(+6·1)	(259)	(1263)	(389)		
Oct. 8	9075	·992	259·5					55									
	9076	·981	271·4					56									
	9077	·914	272·3					49	284·397	9051	·941	258·7	167·8	— 8·5	47	293	
	9078	·857	243·6					275f		9052	·600	276·8	136·0	+ 8·8	37	200	
	9079	·9043	250·8	223·5	— 16·5	26	192	179f		9047	·144	242·1	106·4	+ 2·0	66	391	
	9080	·9047	720	92·4	106·1	+ 2·6	78	376		9048	·364	168·0	94·6	— 14·8	50	511	
	9081	·9048	874	111·3	94·7	— 15·1	25	161		9054	·439	157·3	88·9	— 17·9	0	3	
	9082	·9049	9050	97·8	89·9	— 4·0	0	7		9050	·280	131·8	87·1	— 4·9	11	81	
	9083	·938	81·2	81·8	+ 10·4	16	90	169f		9049	·338	74·4	79·8	+ 10·8	23	198	
	9084	·785	101·4					472f		883i	·800	114·0	50·1	— 15·0	0	12	
Oct. 9	9085	·885	75·2					98		·816	99·6				50c		
	9086	(+26·4)	(152·0)	(+6·3)	(145)	(826)	(1896)			·961	113·1				79		
	9087							81	Oct. 12	(+26·4)	(99·1)	(+6·0)	(234)	(1689)	(548)		
	9088														48		
	9089														99		
	9090														271		
	9091														269		
	9092														222sf		
	9093																
	9094																

Group 9048, Oct. 7-18. A small regular spot followed by a train of numerous unstable spots.

Group 9049, Oct. 7-18. A few spots in a stream of indefinite character.

Group 9050, Oct. 8-15. A small stream of which the following component is conspicuous on Oct. 11.

Group 9051, Oct. 9-13. A short stream; the leader, a regular spot, is left alone on Oct. 13.

Group 9052, Oct. 9-15. A regular spot followed by a train of small companions.

Group 9053, Oct. 10-11. One or two very small spots.

Group 9054, Oct. 12-14. A very small spot closely f Group 9048.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.	Faculæ.			Dist.	Pos. Angle.	Long.	Lat.	Umbrae.	Whole Spots.	Faculæ.
Oct. 13	1919. 285·339	°	°	°	°	30	204	700	1919. 289·392	°	°	°	°	°	151		
	9052	·758	275·8	136·2	+ 8·3	30	204	700		·910	280·5					151	
	9047	·346	259·1	106·5	+ 1·9	61	328			·839	259·1					157	
	9048	·394	204·6	96·4	- 15·0	48	406			9047	·957	269·5	106·1	+ 1·2	51	364	138s
	9054	·396	182·4	87·7	- 17·2	0	2			9048	·923	251·5	97·8	- 14·6	16	157	338c
	9050	·189	184·6	87·6	- 4·8	6	45			9049	·762	278·9	82·9	+ 10·5	4	11	128f
	9049	·143	54·2	80·0	+ 10·7	21	123			9055	·538	132·5	8·9	- 16·0	19	101	
	·913	117·2								·849	114·5					382	
	·950	103·4								·974	79·3					89	
Oct. 14	(+26·4)	(86·7)	(+6·0)	(176)	(1285)	(1214)	Oct. 17			(+26·3)	(33·2)	(+5·7)	(90)	(633)	(1383)		
	286·382	·936	249·9						167	290·383	·975	279·1				71	
	·852	240·0							217		·940	263·2				212	
	·769	271·6							106		·914	288·5				105	
	9052	·899	275·6	137·1	+ 7·6	18	147	252f		9048	·992	254·8	100·9	- 14·2	0	92	664f
	9047	·556	264·3	106·4	+ 1·8	74	340			9049	·889	279·3	83·1	+ 10·8	2	14	334f
	9048	·523	227·8	96·5	- 15·0	58	287			9055	·389	159·2	11·9	- 15·6	17	91	
	9054	·459	211·0	87·2	- 17·4	0	2			883k	·656	125·6	346·2	- 17·7	1	12	
	9050	·308	232·8	87·1	- 5·0	5	21			·799	119·7					287	
	9049	·165	299·0	81·3	+ 10·4	11	77			·897	78·8					267	
	·880	123·6								·955	76·3					242	
	·921	108·6								Oct. 18	(+26·2)	(20·1)	(+5·6)	(20)	(209)	(2182)	
	·967	95·8															
Oct. 15	(+26·4)	(72·9)	(+5·9)	(166)	(874)	(1079)			291·451	9055	·936	280·6				419	
	287·484	·949	244·0						160		·383	195·5	12·1	- 16·1	9	62	
	·874	256·4							290		·751	76·9				190	
	9052	·982	276·0	137·7	+ 7·0	11	141	148f	G		·867	74·7				203	
	9047	·747	266·6	106·3	+ 1·3	70	322	68c			·961	105·8				179	
	9048	·695	241·0	97·2	- 15·1	48	320	Oct. 19			(+26·2)	(6·0)	(+5·5)	(9)	(62)	(991)	
	9050	·514	250·8	87·3	- 4·6	0	3				·972	282·8				169	
	9049	·411	282·5	82·3	+ 10·4	12	49			9055	·479	220·0	12·5	- 15·8	2	32	
	9055	·819	114·8	7·7	- 16·5	7	33	61f	292·433	9056	·980	102·1	276·1	- 10·7	15	170	418c
	·867	97·5						91			·931	110·5				363	
Oct. 16	·970	110·6						83	G	·951	78·8				203		
	(+26·4)	(58·3)	(+5·8)	(148)	(868)	(901)			Oct. 20		(+26·1)	(353·1)	(+5·4)	(17)	(202)	(1153)	
	288·539	·956	253·3						94								
	·955	262·3							118								
	·881	259·0							101								
	·739	258·5							120								
	9047	·884	268·5	106·3	+ 1·5	66	334	167c	293·489	9055	·671	239·4	15·8	- 15·6	4	9	
Oct. 17	9048	·831	247·1	96·7	- 15·3	42	312	205c		884a	·193	304·7	348·4	+ 11·6	1	22	
	9049	·625	279·9	83·0	+ 10·7	5	21			9057	·876	79·6	277·7	+ 11·7	2	12	217c
	883j	·448	285·2	70·5	+ 11·9	0	3			9056	·906	104·2	276·1	- 10·4	16	133	422c
	9055	·678	121·6	7·6	- 16·1	24	107			·840	115·2				457		
	·912	112·4								·933	117·8				118		
	(+26·3)	(44·4)	(+5·8)	(137)	(777)	(1143)	Oct. 21			(+26·0)	(339·1)	(+5·4)	(23)	(176)	(1214)		

Group 9055, Oct. 15-21. Two small spots on Oct. 15 which grow and separate widely in longitude. On Oct. 18, the following member has broken into a cluster, and the leader likewise, by Oct. 20.

Group 9056, Oct. 20-Nov. 1. Return of Group 9040. A small but well-formed regular spot with one or two companions until Oct. 25.

Group 9057, Oct. 21-22. Three very small scattered spots in faculae on Oct. 21; one only on Oct. 22.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.			Dist.	Pos. Angle.	Long.	Lat.	Umbræ.	Whole Spots.	Faculæ.					
1919. 294.418	9057	.774	78.1	276.2	+12.5	o	3	158f	1919. 298.339	.963	280.9	o	o			472					
	9056	.801	107.1	276.0	-10.2	22	135	295f		.956	249.3					181					
Oct. 22	G	.752	121.3					414		.887	250.3					150					
		.906	115.6					165		.876	238.7					122					
		.945	69.3					100		.662	283.4					126					
		.948	102.5					149													
		(+25.9)	(326.9)	(+5.3)		(22)	(138)	(1281)													
	C									9056	.267	181.5	275.6	-10.5	22	108					
										9c60	.169	36.1	269.4	+12.7	2	28					
										9059	.820	110.9	223.2	-14.0	16	138					
										9c61	.996	78.7	189.7	+11.7	64	367					
											.802	75.3				276					
Oct. 23	C	.909	248.7					212		.946	114.1					99					
		.901	262.8					98		(+25.5)	(275.2)	(+14.9)	(104)	(641)	(1876)						
		.806	244.6					91													
		.623	282.5	352.3	+11.9	o	3	242f	299.393	.968	252.6					131					
		.661	112.3	275.7	-10.4	29	127	171		.925	244.9					168					
		.689	131.9					128		.806	275.7					91					
		.823	105.5					189		.803	283.5					383					
		.842	120.5					138													
		.873	67.1					242													
		.951	104.6					(+25.9)	(314.0)	(+5.2)	(29)	(130)	(1511)	C	.9056	.359	223.2	275.7	-10.5	25	114
Oct. 24	C	.973	265.3					92		.9060	.235	302.7	272.9	+11.9	2	6					
		.963	252.0					238		.9059	.675	116.8	223.1	-13.9	23	153					
		.880	242.4					124		.9c62	.877	117.0	204.8	-20.8	4	30	98c				
		.866	260.8					165		.9c61	.946	79.3	189.9	+11.7	74	467	423c				
		.721	238.9					311		.9c63	.984	77.0	181.0	+13.6	0	88	310c				
		.754	280.6	350.2	+11.3	o	8	131c	300.363	.968	108.4	(+25.4)	(261.3)	(+4.8)	(128)	(858)	(1667)				
		.9056	121.2	275.7	-10.3	25	126									109					
		.499	244.7	-9.9	o	3	252s				.918	274.9				121					
		884b	104.9								.910	250.8				80					
		.853	156c								.899	283.1				279					
Oct. 25	C	.984	105.9	223.5	-14.6	25	148				.740	243.9				167					
		.716	126.2					145			.689	231.5				134					
		.777	66.0					111													
		.924	114.2					213													
		.989	75.2					(+25.8)	(301.3)	(+5.1)	(50)	(285)	(2076)	C	.884c	.574	235.6	277.7	-14.8	o	3
		(+25.8)	(301.3)	(+5.1)		(50)	(285)				.9056	.519	240.6	275.8	-10.5	20	95				
											.9060	.441	288.1	273.8	+12.1	12	42				
											.9059	.521	127.5	223.4	-14.2	24	133				
											.9062	.756	122.9	205.9	-20.8	10	27	116c			
											.9061	.851	78.7	190.1	+12.1	103	503	450c			
Oct. 26	C	.952	245.3					138		.9063	.925	77.3	180.6	+13.5	12	59	479c				
		.943	262.3					160			.918	111.1				108					
		.849	245.3					447			.971	99.8				72					
		.9058	281.1	351.8	+12.1	o	7	286f	301.438												
		.896	141.5	275.6	-10.5	17	115														
		.340	66.3	271.7	+11.7	2	12														
		.9c60	107.7	223.3	-14.2	37	170	388sf													
		.922	738	111.3				92								245					
		.843	117.5					89								360					
		.927	75.9					306								193s					
Oct. 27		(+25.7)	(288.0)	(+5.0)		(56)	(304)	(1906)	C	.9056	.696	249.5	275.7	-10.6	22	95	161c				
										.9060	.630	283.8	272.9	+12.2	32	133					

Group 9058, Oct. 23-25. A single very small spot.

Group 9059, Oct. 24-Nov. 5. Return of Group 9043. A stable regular spot with a small companion on Oct. 25.

Group 9060, Oct. 25-Nov. 1. An inconspicuous group of a few spots until Oct. 29, when more definite components appear arranged as a stream.

Group 9061, Oct. 26-Nov. 7. A large and active group. A spot, approximately of regular formation, seen at the east limb preceded by a few very small spots. These companions multiply and form the nucleus of a large, elongated, but unstable, spot which has developed by Oct. 31. Meanwhile a cluster of small spots has also appeared, together with a more stable spot of nearly regular formation. The group when on the central meridian is a large compact stream with the original regular spot as the most prominent feature.

Group 9062, Oct. 27-Nov. 6. A group of small spots. An increase in the group takes place on Oct. 31, but the activity soon wanes. On Nov. 5, a further revival occurs in the fore portion of the stream.

Group 9063, Oct. 27-Nov. 1. Two small spots f Group 9063. One only is seen on Oct. 30 and Nov. 1, and nothing is visible on Oct. 31.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.
1919. 301·438	9059	·374	149·8	223·2	-14·3	28	145		1919. 304·370	9062	·478	199·3	205·5	-22·4	46	285	
Oct. 29	9062	·643	130·8	203·0	-20·8	11	35		C	9061	·174	33·1	190·1	+12·7	155	970	
	9061	·688	76·5	191·2	+12·6	130	776			9063	·326	63·1	178·4	+12·5	0	6	
	9063	·810	77·4	180·3	+12·9	4	40	3770		9064	·833	111·0	142·3	-14·8	7	32	86c
	·908	101·5					139			·811	81·9					173	
	·972	121·2					100			·841	100·1					178	
		(+25·2)	(234·3)	(+4·6)	(227)	(1224)	(1575)			·949	94·7					110	
										·956	78·9					99	
										·959	115·1					122	
										(+24·7)	(195·7)	(+4·3)	(248)	(1604)	(2165)		
302·356		·911	246·2						Nov. 1	677							
C	9056	·751	231·5							173							
	9060	·825	253·8	275·7	-10·6	19	100	466s		407c	305·339	·975	242·4				95
	9062	·782	282·6	273·4	+12·7	56	214			·944	269·7					72	
	9059	·324	182·2	222·9	-14·3	24	117			·935	291·4					172	
	884d	·199	22·0	217·8	+15·0	0	3			·897	253·5					312	
	9062	·528	142·4	202·2	-20·4	6	33			·688	243·6	222·3	-14·5	19	122		
	9061	·531	73·2	190·9	+12·7	153	945			·573	219·6	206·1	-22·3	30	183		
	9063	·690	78·1	178·8	+11·4	6	10	341np		·201	317·9	190·8	+12·7	163	1217		
	·793	105·4								·695	117·1	143·2	-15·2	45	192		
	·938	122·6								·972	87·2	106·5	+3·7	33	276	434c	
Oct. 30	·980	83·8								·712	103·6					183	
	·990	97·8								·883	100·4					279	
		(+25·0)	(222·2)	(+4·5)	(264)	(1422)	(2658)			·892	117·1					319	
										·970	103·9					174	
										(+24·6)	(182·9)	(+4·2)	(290)	(1990)	(2040)		
303·359		·967	246·7						Nov. 2	363							
C	·855	239·1								113						248	
	·782	252·1								232						188	
	·768	298·3								134	306·366	·954	253·5				
	9056	·931	256·6	276·0	-10·8	16	92	416s		798	288·3					203s	
	9060	·904	281·5	273·8	+12·2	30	149	512c		·826	249·4	222·1	-14·4	23	111		
	884e	·702	268·1	253·4	+1·8	6	22			·704	232·6	206·3	-22·0	20	91	158c	
	884f	·662	246·3	247·1	-11·9	0	3			·399	293·4	191·4	+12·9	139	1035		
	9059	·395	215·7	222·7	-14·3	26	126			·524	127·9	144·2	-15·0	47	324		
	9062	·450	172·3	205·3	-22·0	34	115			·885	87·8	107·2	+3·9	32	250	409c	
	9061	·344	63·5	190·7	+13·0	167	1065			·794	110·0					150	
Oct. 31	·922	83·3								·800	123·8					161	
	·931	108·3								·937	345·9					61	
	·940	98·5								·944	109·2					476	
		(+24·9)	(209·0)	(+4·4)	(279)	(1572)	(2468)			·946	77·0					237	
										·946	96·8					123	
										(+24·4)	(169·4)	(+4·1)	(261)	(1811)	(2414)		
304·370		·920	239·8						Nov. 3	108							
C	·907	257·9								96						168	
	·893	294·8								160	307·386	·897	286·2			217s	
	·855	269·5								83	9059	·928	252·7	221·9	-14·4	28	
	·817	252·1								167	9062	·826	240·2	206·1	-21·6	11	
	9056	·988	258·4	275·5	-10·7	6	110	164s		616	9061	·285·6	193·2	+12·7	159	980	
	9060	·981	281·1	274·9	+11·7	0	69	619c		375	9064	·148·8	144·4	-14·7	71	302	
	9059	·540	234·4	222·5	--14·4	34	132			755	9065	·88·5	106·9	+3·8	47	232	220c

Group 9064, Nov. 1-11. A stream with the early development of one of normal type but in which the rear component is never prominent.

Group 9065, Nov. 2-14. Return of Group 9047; fifth apparition. A slowly diminishing regular spot.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.	
1919. 307·386		·844	80·4	°	°				74	1919. 312·356	·821	275·2	°	°				
C		·856	113·2						452		·778	258·2					117	
Nov. 4		·870	67·8						108		·846	250·0	145·5	-14·8	44	267	119	
		·893	99·5						100		·282	272·5	106·7	+4·1	49	204	294f	
		·943	77·6	(+24·2)	(155·9)	(+4·0)	(316)	(1679)	166		·174	81·0	80·5	+5·0	72	270		
									9067		·617	75·4	53·0	+11·7	6	33	160	
									9066		·918	102·8					95	
											·920	118·0					(785)	
308·376		·965	285·8						132	Nov. 9	(+23·2)	(90·4)	(+3·5)	(171)	(774)			
C		·908	240·6						354		·966	236·3					70	
		9059	254·6	221·3	-14·4	17	178		101c	313·350	·922	275·9					123	
		9062	247·6	210·2	-19·6	39	302		529c		·903	261·1					74	
		9061	283·1	193·1	+12·5	163	957		536c		·803	238·4					142	
		9064	184·2	144·2	-14·9	45	318				9c64	·940	145·3	-15·0	58	291	388f	
		9065	588	88·6	106·9	+3·9	40	226			9c65	·492	106·6	+4·0	34	180		
			·750	95·6							9c67	·059	80·2	+5·0	54	267		
			·771	115·2							9c66	·464	72·7	50·5	+11·0	6	29	
Nov. 5		·832	78·2								·865	122·2					43	
		·937	77·2	(+24·0)	(142·8)	(+3·9)	(304)	(1981)			·878	107·7					145	
											·947	94·7					66	
309·170		·964	242·0						131	Nov. 10	(+22·9)	(77·2)	(+3·4)	(152)	(767)	(1051)		
D		9062	249·4	208·6	-19·3	0	25		144p	314·356	·949	229·1					58	
		9061	282·2	194·6	+12·5	192	1105		884c		·887	240·3					137	
		885									·887	262·1					149	
		9064	213·6	145·0	-14·8	68	283				·869	251·0					107	
		9065	435	89·1	106·7	+3·9	55	203			·847	284·1					74	
			·783	75·6							9c64	·991	144·9	-14·8	43	256	204sf	
		·907	75·0								9065	·681	106·8	+4·2	34	174		
Nov. 6			(+23·8)	(132·4)	(+3·8)	(315)	(1616)	(1398)			9c67	·274	277·1	79·8	+5·1	40	211	
											9066	·204	43·1	55·9	+11·8	2	14	
310·451	9061	·978	282·0	193·7	+12·5	99	661		790c	Nov. 11	·941	77·7	(+22·7)	(64·0)	(+3·3)	(119)	(655)	(846)
C	9c64	·576	237·2	145·4	-14·9	53	280				·970	245·0					117	
	9c65	·150	87·2	106·9	+4·1	40	188				·964	257·9					81	
	9c66	·917	79·2	49·0	+11·3	12	52		138c	315·469	·872	259·6					83	
Nov. 7			(+23·6)	(115·5)	(+3·7)	(204)	(1181)	(928)			·834	245·1					71	
											·845	272·8	106·9	+4·0	44	198	170c	
311·400		·972	283·0						548		·9065	·511	274·8	79·9	+5·2	34	184	
C		·931	258·8						86		·9067	·165	336·0	53·2	+11·7	0	9	
		9064	·725	245·0	145·7	-15·2	44	276			·833	76·8					127	
		·068	277·2	106·8	+4·1	43	182				·907	117·1					160	
		9065	·390	85·6	80·1	+5·0	49	207			·956	105·6					118	
Nov. 8	9c66	·788	77·8	51·3	+11·9	13	50		164c	Nov. 12	(+22·4)	(49·3)	(+3·1)	(78)	(391)	(905)		

Group 9066, Nov. 7-13. A pair of spots which separate widely in longitude. The leader alone survives after Nov. 10, but a small ephemeral spot appears near the follower's position on Nov. 12.

Group 9067, Nov. 8-15. A pair of regular spots, developing rapidly from two small spots seen on Nov. 8. For several days the follower is the larger and better-formed, but the leader is ultimately the longer lived.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.	
1919. 316·523	G	·903	248·8	°	°				1919.	Nov. 17	·905	78·3	°	°				
·884		263·7							·929		103·8					414	221	
884g		·980	278·6	114·0	+ 9·1	15	81	156 80 138c 111c	C		·935	118·3				163	212	
9065		·952	273·2	107·4	+ 3·9	29	171		·955		109·7	(+21·1)	(344·9)	(+2·6)	(8)	(58)	(1768)	
9067		·717	274·1	81·1	+ 5·0	23	134											
9066		·379	292·9	56·2	+ 11·3	0	2											
·825		119·6						79										
·877		107·2						98	321·398	·974	280·3				130			
·877		87·0						52	9069	·888	110·7	271·1	-17·1	4	13	250c		
·950		115·8						87	G	·712	119·6				99			
·968		73·8						167		·790	77·0				170			
Nov. 13		(+22·2)	(35·4)	(+3·0)		(67)	(388)	(968)			·818	106·8				155		
											·862	123·0				88		
317·378	C	·961	252·8					209	Nov. 18		·953	100·6				55		
·941		265·0						126			·963	63·9	(+20·8)	(331·2)	(+2·4)	(4)	(13)	(1048)
9065		·990	273·7	106·0	+ 4·1	38	168	82c			·722	116·7	274·4	-17·1	10	61	208c	
9067		·850	274·1	82·3	+ 5·0	14	62	156c			·751	127·6				60		
9068		·782	86·0	332·9	+ 5·0	6	10	68c			·865	62·1				74		
·792		110·1						97			·881	120·6				96		
·888		118·6						127			·911	102·3	(+20·5)	(316·7)	(+2·3)	(10)	(61)	(674)
·911		73·2						193										
Nov. 14		(+21·9)	(24·2)	(+2·9)		(58)	(240)	(1058)										
318·348	C	·881	289·6					191	Nov. 19		·415	64·8	282·9	+12·2	1	8		
·956		274·5	84·3	+ 5·2	8	25	245f		·585	123·6	274·9	-16·9	4	32	187			
9067		·626	86·5	332·8	+ 4·4	6	22	242		·827	105·2				76			
9068		·822	74·0					79		·874	125·2				109			
·976		76·1						202		·932	84·4				74			
·980		109·9						(959)		·947	112·0				71			
Nov. 15		(+21·7)	(11·4)	(+2·8)		(14)	(47)			·955	94·6	(+20·2)	(305·4)	(+2·2)	(5)	(40)	(517)	
319·390	C	·978	275·0					139		·876	281·3							
·948		286·8						116		·231	36·3	284·2	+12·7	12	50	94		
·826		281·2						220		·445	136·5	273·6	-16·8	3	13			
9068		·417	84·4	333·1	+ 4·7	9	25	78c		·814	114·7				114			
885a		·841	67·0	302·0	+ 20·7	0	5	353		·839	94·7				92			
·937		111·2						501		·934	121·0				88			
·956		78·4						126		·941	108·8				124			
·986		101·4						(1533)		·988	113·5	(+19·9)	(292·2)	(+2·1)	(15)	(63)	(714)	
Nov. 16		(+21·4)	(357·6)	(+2·7)		(9)	(30)											
320·354	C	·920	280·5					242	Nov. 21		·962	280·3						
·886		189·9						40			·903	242·3				95		
·175		81·9	334·9	+ 4·0	8	58		122			·854	255·5				123		
·811		73·4						354								152		
·852		113·5																

Group 9068, Nov. 14-17. A single spot on Nov. 14-15; one small cluster on Nov. 16 and two the following day.
 Group 9069, Nov. 18-21. One small spot on Nov. 18; a pair separated by 5° in longitude on the following days.
 Group 9070, Nov. 20-26. A small group of a few unstable spots.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.	
1919. 325·351	C	·852	274·0	°	°				1919. 329·411	Nov. 22	·815	235·8	°	°				
		9070	·217	337·2	284·0	+13·3	0	22			9070	·921	285·2	292·0	+14·5	0	10	95 335f
		885b	·389	151·4	267·9	-18·0	0	5			9072	·934	244·8	291·8	-22·8	19	57 428f	
		9071	·979	76·3	201·0	+13·8	85	465			G	·461	62·4	200·9	+13·6	81	539	
		·869	112·6								9073	·558	63·8	194·5	+15·3	23	109 44f	
		·930	1·3								9075	·991	105·4	144·2	-15·0	7	90 47p	
		·950	115·2									·770	69·4				125 38	
		(+19·6)	(279·1)	(+1·9)	(85)	(492)	(1961)					·965	80·3				(1221)	
											Nov. 26	(+18·2)	(225·6)	(+1·4)	(130)	(805)		
326·372	C	·946	274·9						330·359	Nov. 23	·969	284·7						253
		·941	252·3								·978	255·9						126
		·856	239·6								·905	238·3						117
		·837	288·9								·883	284·2						68
		9072	·539	220·4	287·7	-22·5	6	18			C	·825	244·3					270
		9070	·406	300·0	286·7	+13·3	6	14			9072	·986	246·9	291·8	-22·4	6	96 299f	
		885c	·434	87·8	239·5	+2·6	1	6			9071	·305	45·1	200·3	+13·6	100	573	
		885d	·530	74·7	234·5	+9·6	0	2			9073	·427	51·9	192·7	+16·5	15	73	
		885e	·747	118·2	221·6	-19·3	0	11			9076	·649	65·2	175·3	+16·8	1	5	
		9071	·909	75·8	200·8	+13·6	85	443			9075	·947	106·9	143·2	-15·6	26	148 153c	
		9073	·971	74·3	189·8	+15·6	10	39				·908	78·6				94	
		·867	118·4									(+17·9)	(213·1)	(+1·3)	(148)	(895)	(1380)	
327·4c8	C	(+19·2)	(265·6)	(+1·8)	(108)	(533)	(2236)		331·368	Nov. 24								
		·936	243·7								·977	256·7						85
		·914	287·3								·959	282·2						64
		9070	·635	292·5	289·3	+15·3	11	52			·954	241·7						74
		9072	·671	233·0	287·3	-22·4	13	57			·932	250·7						122
		9074	·610	120·7	219·0	-16·6	0	4			·861	297·2						130
		9071	·789	73·9	200·9	+13·6	68	391			·850	243·0						85
		9073	·885	72·7	190·7	+16·0	2	26			C	·846	258·4					133
		·776	124·9								9071	·217	357·3	200·4	+13·6	98	538	
		·960	74·9								9073	·295	27·2	191·8	+16·3	13	128	
328·531	G	(+18·9)	(252·0)	(+1·7)	(94)	(530)	(2034)		Nov. 25	Nov. 28	·851	109·2	143·5	-15·6	29	148	180f	
		·957	282·6								·946	101·9						85
		·841	286·9	293·3	+15·0	4	13	85 88f			·974	79·5						160
		9072	·829	240·9	288·7	-22·7	12	47			(+17·5)	(199·8)	(+1·2)	(140)	(814)	(1118)		
		9074	·436	134·7	218·4	-16·2	1	11			·930	258·3						154
		9071	·619	69·6	200·6	+13·7	90	520			·330	311·7	200·2	+13·7	107	553		
Nov. 25		9073	·743	69·5	190·9	+16·2	7	43	332·439	G	9073	·281	339·1	191·6	+16·2	8	79	
		·868	72·5								885f	·353	358·2	186·3	+21·7	0	5	
		(+18·5)	(237·1)	(+1·6)	(114)	(634)	(662)	9076			·289	33·1	176·2	+15·0	4	27		
								9075			·708	112·9	143·3	-15·1	26	147		
		·822	253·1															

Group 9071, Nov. 22-Dec. 4. Return of Group 9061. Two regular spots, the preceding one being the larger, which coalesce to make an elongated spot by Nov. 27. The two umbrae appear distinct, however, and the separation again into two components takes place after Nov. 29. A cluster of small followers has condensed to form an appendage to the composite spot on Nov. 27.

Group 9072, Nov. 23-27. A few spots arranged in stream formation. A small regular spot, marking the head of the stream, alone remains on Nov. 26.

Group 9073, Nov. 23-Dec. 2. Some small unstable spots usually in two clusters, closely f Group 9071.

Group 9074, Nov. 24-25. A small double spot.

Group 9075, Nov. 26-Dec. 7. Return of Group 9064. A small regular spot stable until Dec. 3 or 4, when it begins to disappear rapidly.

Group 9076, Nov. 27-Dec. 6. A very small spot not seen on Nov. 28. The following day, a stream of tiny spots has developed, in which larger components appear as the group nears the west limb.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.
1919. 332·439	9077	·977	86·9	108·1	+ 3·3	14	92	73c	1919. 335·335	·923	84·9	◦	◦				116
Nov. 29	9078	·994	108·5	102·8	-18·3	0	48	71p	C Dec. 2	·942	100·4						94
	·905	79·1						138		·947	72·3	(+16·0)	(147·5)	(+0·7)	(145)	(771)	49
	·972	70·9						42									267
		(+17·1)	(185·6)	(+1·1)	(159)	(951)	(478)			336·335	·953	242·5					68
								89		·908	228·9						887
		·973	257·0					59		·847	288·8						96
		·738	246·9					202		·718	296·6						627c
		·676	228·0							9071	285·2	201·5	+ 14·3	71	375		
		·506	296·7	201·3	+ 13·9	82	473			9076	287·4	182·0	+ 13·4	35	111		
		885g	285·2	201·0	+ 8·0	0	8			9075	305	208·6	-14·9	30	132		
Nov. 30	9073	·401	311·8	191·8	+ 16·4	4	65		C Dec. 3	885h	366	187·0	137·0	-20·6	0	4	
	9076	·247	355·4	174·9	+ 15·2	4	27			9077	424	85·0	109·4	+ 2·6	15	27	
	9075	·566	119·3	143·1	-15·2	24	129			9078	617	120·5	100·5	-17·7	35	191	
	9077	·907	87·1	108·8	+ 3·1	25	78	133c		9079	681	103·5	92·4	-8·6	22	64	
	9078	·965	108·8	100·3	-17·8	44	299	766c		·860	102·2						123
		·787	79·7					249		·909	62·0						82
		·913	68·3					109		·934	75·4						117
		(+16·8)	(173·7)	(-1·0)	(183)	(1079)	(1607)			(+15·6)	(134·3)	(+0·6)	(208)	(904)	(2344)		
Dec. 1		·856	250·3					91	C Dec. 4	337·335	·940	287·8					676
		·801	235·3					237		·801	298·7						71
	9071	·687	289·8	201·8	+ 14·0	86	463	126c		9071	985	285·0	200·8	+ 14·9	76	426	330c
	9073	·557	299·0	190·6	+ 16·3	2	20			9076	879	285·0	181·6	+ 13·3	47	236	197c
	9076	·371	309·4	177·3	+ 14·3	14	55			9075	445	233·8	142·8	-14·7	16	88	
	9075	·396	134·2	143·2	-15·2	24	133			885i	235	312·0	131·3	+ 9·5	0	11	
	9077	·779	87·0	109·2	+ 2·8	11	51	99c		9077	211	80·1	109·1	+ 2·6	4	16	
	9078	·876	111·2	101·2	-18·0	36	234	572f		9078	462	132·8	100·3	-17·7	21	168	
		·895	80·6					64		9079	472	109·4	94·5	-8·5	11	36	
		·896	358·7					36		·896	77·4	(+15·2)	(121·1)	(+0·5)	(175)	(981)	(1351)
Dec. 2		·956	98·6					35	C Dec. 5							77	
		·962	84·4					86		·982	290·4						233
		(+16·4)	(160·2)	(+0·8)	(173)	(956)	(1346)			·909	294·6						139
										9076	953	285·4	179·5	+ 14·7	31	173	427c
										9075	616	244·5	142·9	-15·0	17	91	
	9071	·824	286·6	201·8	+ 14·0	62	337	410c		9077	045	334·6	109·0	+ 2·6	8	11	
	9073	·698	292·0	189·6	+ 15·6	0	11	316c		9078	341	158·8	100·5	-18·2	27	146	
	9076	·575	293·5	180·2	+ 13·8	23	78			9079	363	119·0	89·2	-9·8	2	4	
	9075	·282	164·4	143·0	-15·0	17	131			·971	(+14·8)	(107·9)	(+0·3)	(85)	(425)	(918)	
	9077	·621	86·3	109·3	+ 2·8	13	29	68c									
Dec. 3	9078	·764	114·6	100·8	-18·0	30	185	343f	C Dec. 6	339·346	·969	298·0					54
		·775	79·7					63		9076	·985	286·8	174·0	+ 16·5	0	20	248c
		·813	103·3					149		9075	·766	249·8	142·6	-15·2	18	70	76c

Group 9077, Nov. 29-Dec. 7. Return of Group 9065; sixth apparition. A small regular spot gradually disappearing.

Group 9078, Nov. 29-Dec. 11. A pair of indefinite spots at the east limb. The first becomes nearly of regular type but breaks up in two unequal portions after Dec. 7; the other becomes a cluster by Dec. 2, which disappears by Dec. 8.

Group 9079, Dec. 3-10. Intermittent. A small stream developing *nf* Group 9078. It has completely disappeared by Dec. 7, but on the following day a pair of small spots is seen in the same region.

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G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.			G.M.T. (Civil.)	Group No.	MEASURES.		POSITION.		AREA.			
		Dist.	Pos. Angle.	Long.	Lat.	Umbræ.	Whole Spots.	Faculæ.			Dist.	Pos. Angle.	Long.	Lat.	Umbræ.	Whole Spots.	Faculæ.	
1919. 339·346	9077	·248	279·3	108·7	+ 2·5	4	5		1919. 344·329	·976	273·7	◦	◦				131	
	9078	·322	196·1	100·0	- 17·7	24	142			·924	262·9						123	
	9079	·210	155·0	89·4	- 10·7	0	9			·887	242·3						85	
	885j	·710	52·4	56·1	+ 25·7	2	5			45		9078	·951	250·1	99·8	- 18·9	0	8
	·885	96·6								172		9080	·851	255·2	86·3	- 12·7	2	6
	·896	81·0								(595)		9081	·460	74·8	2·6	+ 6·6	7	15
		(+14·4)	(94·6)	(+0·2)	(48)	(251)				9082	·680	82·3	346·6	+ 5·0	15	95		465c
Dec. 6	9083									9c83	·764	83·9	339·6	+ 4·4	28	246		73c
										·931	70·6						78	
	9075	·883	252·6	142·1	- 15·2	8	30	164c	Dec. 11	(+12·3)	(29·0)	(-0·4)	(52)	(370)			(955)	
	9077	·459	274·6	108·6	+ 2·2	0	3			·972	247·2						144	
	9078	·425	224·4	99·6	- 17·4	16	116			·957	257·9						99	
	C	·766	78·4							·910	277·8						88	
	·988	80·9								·870	257·4						70	
		(+14·0)	(81·5)	(+0·1)	(24)	(149)	(365)			345·346								
										9084	·522	246·9	44·9	- 12·3	2	4		
341·562	·973	251·7						158	C	9c81	·250	62·3	2·8	+ 6·1	2	7		
	·853	280·7						111		9c85	·624	34·4	351·6	+ 30·3	10	20		
	9078	·633	240·1	100·6	- 18·3	10	51			9082	·486	78·2	347·2	+ 5·2	15	68		
	9079	·480	258·9	93·5	- 5·4	9	27			9c83	·586	81·9	340·2	+ 4·2	53	329		
	9080	·405	235·2	85·3	- 13·4	2	3			9c86	·984	109·7	296·6	- 19·5	0	19		224c
	885k	·565	76·7	31·9	+ 7·4	0	2			·901	73·6						60	
	9081	·908	82·1	0·6	+ 7·1	9	51	152c		·970	76·4						214	
Dec. 8	9082	·983	84·1	346·3	+ 5·8	0	64	209f	Dec. 12	(630)	(+11·8)	(15·6)	(-0·6)	(82)	(447)		(899)	
		(+13·5)	(65·4)	(-0·1)	(30)	(198)				9084	·921	110·6	296·7	- 19·2	4	16		
										·890	75·6						360f	
										·962	78·0						253	
										·964	101·4						333	
										·981	112·8						68	
																	134	
342·472	·943	280·5						124	C	346·346	·974	276·0					80	
	·829	274·9						150		9c84	·703	253·2	45·7	- 12·2	9	29		
	9078	·762	245·7	100·2	- 18·3	11	28	329c		9c81	·170	12·3	0·3	+ 8·8	0	6		
	9079	·662	261·7	94·4	- 5·6	2	8	46c		9c85	·536	16·2	352·5	+ 30·2	4	24		
	9080	·570	247·3	85·9	- 12·8	12	16			9c82	·272	69·6	347·6	+ 4·7	13	59		
	9081	·794	80·9	1·4	+ 7·1	10	30	116c		885l	·345	54·2	345·9	+ 11·0	0	7		
	9082	·927	84·1	345·8	+ 5·4	27	122	195c		9c83	·392	77·0	340·0	+ 4·4	41	297		
Dec. 9	9083	·967	85·0	338·5	+ 4·7	21	115	98c	Dec. 13	9086	·921	110·6	296·7	- 19·2	4	16		
		·953	106·5					77		·890	75·6						360f	
		(+13·1)	(53·4)	(-0·2)	(83)	(319)	(1135)			·962	78·0						253	
										·964	101·4						333	
										·981	112·8						68	
																	134	
										(+11·4)	(2·4)	(-0·7)	(71)	(438)			(1228)	
343·479	9078	·934	273·5					124	C	347·356	·859	256·0	47·5	- 12·4	12	42		
	·882	248·7	100·2	- 18·8	4	9	358c	9082	·093	24·6	346·9	+ 4·0	18	60				
	9079	·815	262·5	94·4	- 6·3	0	4	67c	9083	·188	61·1	339·6	+ 4·4	61	370			
	9080	·738	252·6	86·3	- 13·0	6	9		9086	·817	113·1	296·6	- 19·2	0	6			
	G	9081	·672	76·3	359·0	+ 8·9	2	7	·772	72·1						427f		
	9082	·822	84·3	345·3	+ 4·5	32	105	96c								123		
	9083	·878	84·7	339·2	+ 4·5	66	268	113c										
Dec. 10	·892	103·7						44										
		(+12·7)	(40·2)	(-0·3)	(110)	(402)	(802)											

Group 9080, Dec. 8-11. A single small spot.

Group 9081, Dec. 8-13. A few small spots of which one alone survives after Dec. 9.

Group 9082, Dec. 8-19. Some unstable spots usually arranged as a stream.

Group 9083, Dec. 9-19. A close pair of spots which increase and coalesce to form a spot nearly of regular formation, around which several small companions appear. After Dec. 17, the spot divides, and the two portions die out rapidly. Groups 9082 and 9083 are evidently closely related to each other.

Group 9084, Dec. 12-15. A small spot with a follower on Dec. 13 and 14.

Group 9085, Dec. 12-13. A pair of small spots in high northern latitude. The leader is left on Dec. 13.

Group 9086, Dec. 12-21. Intermittent. A small spot with a distant companion on Dec. 15. Both have disappeared by Dec. 16, but on the following days a stream of small and faint spots appears in the region.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.		
1919. 347·356	C	·878	75·6	°	°				275	352·357	·977	279·4	°	°			60		
		·909	104·2						126		·899	275·7	346·8	+ 4·4	3	34	678c		
		·919	114·8	(+11·0)	(349·1)	(-0·8)	(91)	(478)	319		·812	274·1	337·1	+ 2·5	2	21	227c		
Dec. 14	C								(1377)		·9086	209·8	293·9	-19·2	2	33			
											·354	209·8	293·9	-19·2	2	33			
											·303	347·1	287·2	+15·6	2	6			
											·970	74·3	208·4	+14·8	0	8	336c		
											·794	81·9				74			
											·987	117·6	(+8·7)	(283·2)	(-1·5)	(9)	(102)	(1439)	
		·884	280·0	48·9	-12·7	4	19	73	Dec. 19		·982	276·2							
		·973	257·1	346·9	+ 4·3	17	42	110f			·922	274·0							
		·262	290·6	338·7	+ 4·0	41	300	251f			·824	292·1							
Dec. 15	C	·9083	137	309·8	338·7	0	8	296			·521	232·5	296·3	-19·9	4	13	492		
		·676	117·6	293·6	-18·9			337			·897	74·6					460		
		·724	72·4					137			·942	119·6					47		
		·806	119·0					73			·952	73·1	(+8·2)	(270·3)	(-1·6)	(4)	(13)	(2249)	
		·879	109·4	(+10·4)	(332·7)	(-1·0)	(62)	(369)			·9086	276·2							
											·924	292·1							
											·521	232·5	296·3	-19·9	4	13	745		
Dec. 16	C	·987	258·7					127	Dec. 20		·897	74·6					140		
		·943	279·6					38			·942	119·6					365		
		·935	263·6					74			·952	73·1	(+8·2)	(270·3)	(-1·6)	(4)	(13)	(2249)	
		·9082	428	282·3	347·4	+ 4·2	13	45			·969	274·2					211		
		·9083	287	288·0	338·5	+ 4·0	67	230			·900	292·4					132		
		·596	63·6	289·4	+14·4	12	27				·631	240·4	295·5	-19·5	3	13			
		·703	125·1								·886a	319·2	262·1	+ 0·7	1	4			
		·788	111·7					94			·054	249·7	+ 3·4	6	28				
		·840	124·2					102			·202	63·6	192·8	-12·2	5	23	390		
		·894	102·0					70			·9090	102·5	72·1				680		
Dec. 17	K	·927	115·8	(+10·0)	(322·7)	(-1·1)	(92)	(302)	Dec. 21		·831	72·1					101		
											·884	122·0					347		
											·939	71·4	(+7·8)	(260·1)	(-1·7)	(15)	(68)	(1510)	
		·9082	792	280·8				116			·875	287·1					174		
		·594	279·9	345·5	+ 4·9	17	71				·866	248·0					162		
Dec. 18	C	·9083	484	280·1	338·1	+ 3·9	24	194	Dec. 22		·764	242·0					162		
		·385	141·2	295·0	-18·6	4	26				·762	287·0					171		
		·442	51·9	288·7	+14·7	8	25	67			·9091	253·3	292·3	-14·2	19	98	111c		
		·903	59·4					53			·9089	299·2	250·9	+ 3·3	12	52			
		·971	83·9	(+9·6)	(309·7)	(-1·2)	(53)	(316)			·9090	105·2	195·1	-12·4	4	16	43c		
											·9092	109·2	182·9	-17·4	4	9	109f		
											·682	63·0	62·8				230		
Dec. 19	C	·9082	729	253·7				58	Dec. 23		·830	72·2					192		
		·763	277·7	345·7	+ 5·0	17	68	337p			·891	67·0					276		
		·668	277·1	338·0	+ 3·7	27	83	63c			·944	(+7·2)	(241·5)	(-1·9)	(39)	(175)	(1821)		
		·300	174·8	294·9	-18·6	8	52									191			
Dec. 20	C	·328	27·9	287·4	+15·6	8	11	93											
		·918	83·1																

Group 9087, Dec. 16-19. A pair of small spots on Dec. 16, one of which alone remains on Dec. 18-19.

Group 9088, Dec. 19-27. Intermittent. Return or revival of Group 9071. A small ephemeral spot on Dec. 19. On Dec. 23 and the following days, a small stream.

Group 9089, Dec. 21-24. A small stream of which only the leading component remains on Dec. 23.

Group 9090, Dec. 21-24. Two or three very small spots.

Group 9091, Dec. 22-24. A small regular spot followed by one or two companions.

Group 9092, Dec. 22-Jan. 1. A small spot from which develops a stream of small and unstable components.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.	
1919. 356·407	C	·937	249·3	°	°				149	359·480	9092	·275	160·1	183·8	-17·3	14	81	
		·905	285·6						404	9093	·981	96·1	110·7	-6·4	0	40	95f	
		·884	247·9						268	G	·900	77·1				113		
		886b	·564	294·1	261·4	+11·6	2	13	78c	Dec. 26	·971	86·8				82		
		·411	284·2	253·2	+3·9	5	13				(+5·3)	(189·4)	(-2·4)	(14)	(127)	(596)		
		9088	·461	52·5	207·7	+14·4	4	31								89		
		9090	·602	109·7	194·3	-13·3	6	32										
		9092	·747	111·9	183·3	-17·7	0	7	111f	360·431	·966	274·2						
		·752	57·0						125	9088	·572	299·4	207·6	+14·1	3	14		
		·775	69·5						175	9092	·278	209·0	184·8	-16·5	9	45		
Dec. 23	C	·879	63·4						154	886d	·115	63·4	170·9	+0·4	0	4		
		·961	82·3						103	9093	·906	96·1	112·0	-6·6	5	16	148f	
		(+ 6·7)	(229·8)	(-2·0)	(40)	(253)	(1567)				·797	75·3				134		
											·862	108·4				114		
											·910	86·1				138		
											·960	103·4				93		
											·965	0·6				39		
											·965	113·6	(-4·8)	(176·8)	(-2·5)	(17)	(79)	(815)
357·439	G	·978	249·2						176	Dec. 27								
		·956	283·6						168									
		·903	247·4						171									
		·715	288·5						21									
		9091	·975	255·8	293·2	-14·3	26	199	181c									
		9089	·616	277·8	253·7	+3·1	7	11										
		9088	·299	21·7	209·7	+13·9	10	69		361·381	·748	289·2						
		9090	·387	120·0	196·2	-13·1	0	2			·675	303·9						
		9092	·612	117·9	181·6	-18·3	20	69			·527	312·6	188·3	+18·4	2	10	396	
		·902	81·1								·405	233·2	184·0	-16·3	18	58	143	
Dec. 24	C	·954	108·0	(+6·2)	(216·2)	(-2·1)	(63)	(350)	(933)	143								
									73	9092	·803	82·9						
										9094	·859	96·0						
											·899	114·1						
											·900	104·6	(+4·4)	(164·3)	(-2·6)	(20)	(68)	(1160)
358·503	G	·946	249·9						114	Dec. 28								
		·861	285·0						39									
		·850	257·1						61									
		·765	275·5						62									
		9088	·306	333·5	210·2	+13·6	5	32		362·341	·845	286·8					905	
		9092	·409	131·0	183·4	-17·6	24	123			·806	233·3					177	
		·767	74·9								·795	299·2					234	
		·894	109·5								·677	301·8	188·9	+18·6	0	4		
		·972	79·5	(+5·7)	(202·2)	(-2·2)	(29)	(155)	(624)	C	·599	248·0	186·7	-15·1	8	25		
											·770	96·9						
Dec. 25	C										·821	106·4						
											·824	118·3	(+3·9)	(151·7)	(-2·7)	(8)	(29)	(1917)
359·480	G	·955	282·7						45	Dec. 29	·938	283·6					845	
		·929	258·3						60		·890	236·5					155	
		·886	274·4						201	363·357	·871	295·0					257	
		9088	·407	310·0	208·0	+12·8	0	3										

Group 9093, Dec. 26-27. One small spot.
 Group 9094, Dec. 28-29. One very small spot.

POSITIONS and AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.
1919. 363·357		·832	283·9	°	°		95		1919. 364·357		·946	292·1	°	°		281	
C	9092	·709	293·0	252·6	185·4	—14·8	15	80		·934	257·5				73		
Dec. 30	9095	·744	252·6	97·2	99·9	—6·6	12	32		·900	227·7				72		
		·624	(+3·4)	(138·3)	(—2·8)	(27)	(112)	(1619)	C	·871	300·1				202		
364·357		·969	283·1				295		9092	·843	289·0				258		
		·959	239·9				92		9095	·872	255·3	185·3	—14·2	24	94	544sf	
									Dec. 31	·402	99·9	101·7	—6·6	50	204		
										·944	106·1	(+2·9)	(125·1)	(—2·9)	(74)	(298)	78
																(1895)	

Group 9095, 1919, Dec. 30-1920, Jan. 7. Revival of Group 9079. A very large stream developing from a few very small spots on Dec. 30. The leader, at first of regular type, becomes large and composite—noticeably so on Jan. 3—whilst the follower, though of regular type on Jan. 3, is unstable and rapidly breaks up and disappears. A spot, representing a cluster, which closely follows the leader on Jan. 4, remains with it at the west limb.

ROYAL OBSERVATORY, GREENWICH.

GENERAL CATALOGUE

OF

GROUPS OF SUN SPOTS.

FOR THE YEAR

1919.

GENERAL CATALOGUE of GROUPS of SUN SPOTS for the YEAR 1919.

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 1918 and the previous years. Groups seen only once are not included in this Catalogue.

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

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

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

The *ninth* and *tenth* columns give, under the heading "Mean Longitude of Group," the mean heliographic longitude of the Group as computed upon two different systems. In System I. the daily sidereal motion due to the Sun's rotation is assumed to be $851^{\circ}07'$ 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 in accordance with the formula

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

In both systems the longitude of the centre of the Sun's disc is adopted as $254^{\circ}23'$ for 1919 Jan. 1^d·0, the longitudes given under System I. being thus rendered uniform with those given in preceding volumes of the Greenwich Photo-Heliographic Results. The longitudes according to System II. for Groups 8783, 8784, and 8788, are computed here from 1919·0 instead of from 1918·0, as in the volume for 1918.

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.				
8783	10 ^d	1918. Dec. 25	$-82^{\circ}9$	1919. Jan. 3	$+34^{\circ}3$	8	. 39	$256^{\circ}5$	$256^{\circ}6$	$-18^{\circ}2$	II.	<i>See</i> Ledger for 1918. <i>See</i> Ledger for 1918. <i>See</i> Ledger for 1918.	
	8	25	$-81^{\circ}3$	1	$+7^{\circ}2$	7	. 19	$257^{\circ}7$	$258^{\circ}2$	$+11^{\circ}9$	I. 878 (2)		
	9	26	$-58^{\circ}2$	3	$+50^{\circ}3$	15	82	$270^{\circ}2$	$270^{\circ}5$	$-11^{\circ}4$	II.		
8790	3	1919.		1	$-16^{\circ}5$	3	$+10^{\circ}5$	3	14	$233^{\circ}3$	$233^{\circ}1$	$+14^{\circ}1$	<i>See</i> Ledger for 1918.
	11	2	$-84^{\circ}4$	12	$+45^{\circ}7$	27	149	$150^{\circ}7$	$149^{\circ}4$	$-8^{\circ}9$	I. 875 (3)		
	6	3	$-62^{\circ}7$	8	$+1^{\circ}5$	2	11	$161^{\circ}5$	$160^{\circ}3$	$+3^{\circ}5$	II.		
	3/6	4	$-34^{\circ}2$	9	$+33^{\circ}7$	1	7	$175^{\circ}9$	$174^{\circ}6$	$-9^{\circ}4$	<i>I.</i> 882 (1) <i>II.</i> <i>Revives as Group 8821.</i>		
	12	5	$-67^{\circ}7$	16	$+78^{\circ}6$	81	584	$129^{\circ}3$	$127^{\circ}4$	$+9^{\circ}9$			
	10	8	$-42^{\circ}3$	17	$+72^{\circ}3$	36	184	$112^{\circ}7$	$111^{\circ}4$	$+15^{\circ}4$			
	7	9	$-83^{\circ}3$	15	$-3^{\circ}8$	13	66	$59^{\circ}1$	$58^{\circ}6$	$-18^{\circ}3$			
	2	11	$+54^{\circ}2$	12	$+67^{\circ}6$	12	51	$171^{\circ}9$	$171^{\circ}4$	$-18^{\circ}4$			
	12	11	$-75^{\circ}2$	22	$+67^{\circ}8$	38	205	$43^{\circ}0$	$39^{\circ}5$	$-7^{\circ}8$	I. 880 (2)		
	2	12	$-25^{\circ}3$	13	$-10^{\circ}3$	3	13	$79^{\circ}2$	$78^{\circ}4$	$-17^{\circ}8$			
8800	10	13	$-70^{\circ}5$	22	$+52^{\circ}9$	17	63	$21^{\circ}9$	$19^{\circ}2$	$+12^{\circ}3$	II.	<i>See</i> Ledger for 1918.	
	4	14	$-75^{\circ}4$	17	$-35^{\circ}3$	5	14	$1^{\circ}6$	$2^{\circ}0$	$-21^{\circ}5$	I. 881 (2)		
	6/8	14	$-83^{\circ}4$	21	$+8^{\circ}1$	4	26	$354^{\circ}0$	$350^{\circ}4$	$-7^{\circ}3$	II.		
	5	15	$-33^{\circ}6$	19	$+21^{\circ}5$	4	14	$32^{\circ}7$	$31^{\circ}6$	$-17^{\circ}3$	<i>Revives as Group 8835.</i>		
	3	16	$-68^{\circ}0$	18	$-38^{\circ}8$	3	11	$343^{\circ}7$	$342^{\circ}6$	$+17^{\circ}6$			
	3/4	17	$+37^{\circ}4$	20	$+73^{\circ}9$	4	12	$74^{\circ}3$	$72^{\circ}9$	$-16^{\circ}9$			
	2	17	$-4^{\circ}0$	18	$+10^{\circ}3$	1	6	$33^{\circ}4$	$29^{\circ}4$	$-5^{\circ}8$			
	2	17	$-36^{\circ}9$	18	$-24^{\circ}3$	2	8	$359^{\circ}6$	$356^{\circ}5$	$+10^{\circ}7$			
	2	18	$-8^{\circ}9$	19	$+2^{\circ}9$	1	4	$15^{\circ}0$	$10^{\circ}6$	$+3^{\circ}0$			
8810	2/3	19	$-6^{\circ}1$	21	$+20^{\circ}0$	0	3	$6^{\circ}2$	$2^{\circ}2$	$-8^{\circ}9$	<i>Revival of Group 8788.</i> <i>Revival of Group 8780.</i>		
	8	19	$-83^{\circ}3$	26	$+10^{\circ}2$	2	14	$289^{\circ}3$	$284^{\circ}3$	$+6^{\circ}9$			
	12	21	$-75^{\circ}4$	Feb. 1	$+71^{\circ}7$	17	96	$272^{\circ}1$	$268^{\circ}8$	$-14^{\circ}2$			
	3	23	$+12^{\circ}2$	Jan. 25	$+40^{\circ}2$	1	6	$332^{\circ}8$	$330^{\circ}9$	$-16^{\circ}7$			

GENERAL CATALOGUE OF GROUPS OF SUN SPOTS—continued.

No. of Group.	Duration.	First Seen.		Last Seen.		Mean Area Corrected for Foreshortening.		Mean Longitude of Group.		Mean Latitude of Group.	Reference to Ledger.	NOTES.		
		Date.	Long. from C.M.	Date.	Long. from C.M.	Umbræ.	Whole Spots.	System I.	System II.					
8813	3	1919.	°	1919.	°	Jan. 25	+33·5	Jan. 27	+65·4	I	8	329·2	325·7	+13·7
4	5	26	+ 5·6	30	+58·9	30	30	287·3	283·4	—13·4				
5	7	26	+ 5·2	Feb. 1	+84·0	75	414	289·0	282·6	— 6·6	I. 883 (1)			
6	2	29	+61·4	Jan. 30	+75·6	3	15	302·8	301·4	—18·2				
7	6	30	+13·6	Feb. 4	+77·1	30	120	240·9	244·5	+24·7	II.			
8	9	31	-77·4	8	+37·8	32	148	142·9	135·0	— 6·5	II.			
9	12	31	-77·6	II	+80·6	72	421	143·4	135·1	+ 7·2	I. 882 (2)			
8820	12	Feb. 1	-71·3	12	+75·4	16	79	129·8	124·9	-14·2	II.			
1	11	1	-79·8	11	+51·0	26	181	119·0	114·0	+13·8	II.			
2	4	2	+43·8	5	+81·1	20	116	229·8	222·2	+ 7·6				
3	12	2	-67·6	13	+75·9	43	314	118·6	111·8	+11·2	II.			
4	12	2	-73·5	13	+70·9	42	283	113·3	108·3	+14·0	II.			
5	4	4	+40·9	7	+83·7	8	28	202·3	195·9	+11·2	I. 884 (1)			
6	2	4	-27·5	5	-14·7	I	3	133·6	126·9	+10·2				
7	4/5	4	-75·2	8	-24·6	I	6	85·0	81·3	-15·7				
8	8	5	-33·1	12	+57·1	19	86	113·7	113·8	+20·5	II.			
9	12	6	-80·9	17	+62·7	17	77	56·8	49·9	+12·1	II.			
8830	3/4	7	+13·4	10	+51·6	0	6	133·7	124·1	- 4·4				
1	2	7	-49·9	8	-37·7	I	5	70·8	65·8	+14·2				
2	2	7	-64·2	8	-53·5	I	10	55·8	58·7	+23·4				
3	13	8	-79·3	20	+79·5	146	982	28·4	19·4	+ 9·1	I. 885 (1)			
4	13	15	-75·5	27	+82·6	22	147	301·2	288·9	- 5·4	I. 883 (2)			
5	5/8	16	-15·6	23	+75·8	I	8	347·1	343·0	+16·8	I. 885*(1)			
6	2	16	-32·7	17	-24·8	I	13	329·1	334·8	+25·0				
7	10	16	-77·5	25	+43·9	15	60	284·8	274·3	+ 9·0	II.			
8	3	19	- 5·0	21	+21·7	4	16	319·3	310·6	-11·6				
9	13	22	-78·2	Mar. 6	+77·3	39	220	204·4	195·5	+12·9	I. 884 (2)			
8840	6	24	-15·3	I	+50·5	6	33	246·1	249·5	+22·8	II.			
1	2	24	-20·2	Feb. 25	- 2·4	I	15	240·6	253·8	+29·0				
2	12	25	-70·3	Mar. 8	+76·4	36	235	174·3	160·4	+ 6·9	II.			
3	10	25	-78·3	6	+44·4	15	85	166·4	163·0	-18·0	II.			
4	6	26	-74·3	3	-10·7	2	12	155·1	142·2	+ 7·7	I. 882 (3)			
5	4	28	-28·3	3	+13·1	16	77	178·3	164·4	- 6·6				
6	5	Mar. 2	-77·0	6	-24·0	2	9	101·3	87·3	+ 7·2				
7	2	3	- 0·5	4	+12·4	I	22	165·6	153·6	+10·1				
8	2	3	-22·8	4	-10·3	2	9	143·1	128·5	+ 5·9				
9	3	4	+40·7	6	+72·4	4	15	196·3	183·2	- 7·4	Revives as Group 8867.			
8850	12	4	-78·6	15	+71·9	132	748	75·8	60·6	+ 7·6	I. 886 (1)			
1	2	6	+28·3	7	+42·3	3	43	154·8	147·1	+14·9				
2	2	7	+ 4·3	8	+16·8	I	8	117·3	102·8	+ 7·6				
3	13	7	-78·3	19	+76·2	92	565	38·4	23·3	+ 8·5	I. 885 (2)			
4	3	10	-68·5	12	-40·6	3	15	6·4	355·1	-12·3				
5	12	10	-78·2	21	+71·2	60	444	356·5	350·2	+16·5	I. 885*(2)			
6	13	10	-79·8	22	+75·1	54	334	350·5	346·7	-18·2	II.			
7	3	13	-25·3	15	+ 4·0	3	13	10·5	4·3	-16·6				
8	12	14	-77·3	25	+69·2	12	65	304·0	285·9	- 6·5	I. 883 (3)			
9	4	17	+22·4	20	+61·8	13	62	4·4	344·8	+ 2·6				
8860	10/12	21	-80·7	Apr. 1	+67·5	4	22	209·9	190·6	- 7·1	II.			
1	7	22	-71·8	Mar. 28	+10·0	7	25	204·0	192·3	+13·6	I. 884 (3)			
2	13	23	-78·5	Apr. 4	+78·4	89	451	182·1	180·6	-19·7	I. 887 (1)			
3	9	23	-86·2	Mar. 31	+11·3	I	87	173·3	166·7	-17·0	II.			
4	4	24	-63·2	27	-21·7	2	10	187·4	166·4	+ 3·6				
5	2/3	25	-29·9	27	- 5·2	I	6	204·9	185·6	- 6·8				
6	9/12	25	-68·9	Apr. 5	+74·1	5	26	164·7	143·7	+ 6·1	II.			
7	2/6	26	-25·4	Mar. 31	+38·1	I	4	198·0	179·0	- 8·0	Revival of Group 8844.			
8	5	27	-42·1	31	+10·8	6	16	170·1	147·6	- 1·7	Revival of Group 8849.			
9	10	27	-75·8	Apr. 5	+40·8	16	86	133·5	133·3	-20·3	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.	Umbras.	Whole Spots.	System I.	System II.				
8870	d	1919.	°	1919.	°			°	°	°			
1	2	Mar. 29	—2°3	Mar. 30	+11°9	1	4	180°0	160°0	—6°9	I. 886 (2)	Revival of Group 8845.	
2	13	30	—84°4	Apr. 1	+74°5	52	298	84°8	62°7	+6°1	II.		
2	6	Apr. 1	—61°1	6	+7°6	14	62	83°2	71°1	—14°2	I. 885 (3)		
3	4	2	—75°1	5	—34°0	5	25	55°9	33°5	+5°3	II.		
4	3	2	—78°1	4	—52°6	6	19	51°5	32°2	+8°8			
5	8	3	—34°9	10	+62°4	12	67	85°2	62°4	—5°8	II.		
6	3	5	+9°3	7	+39°4	5	28	102°0	79°8	—6°4			
7	7	5	—35°0	11	+46°8	4	12	56°6	36°8	+9°3	II.		
8	9	7	—35°4	15	+72°1	54	320	29°2	16°7	+14°6	II.		
9	2	7	—56°9	8	—40°7	4	10	7°3	346°8	—8°6			
8880	5/7	9	—16°3	15	+64°2	4	13	23°2	5°7	—11°7	II.		
1	10	13	—46°2	22	+80°4	17	95	304°2	276°9	+2°3	II.	Revives as Group 8904.	
2	3	15	—19°4	17	+6°2	3	10	299°2	276°5	+8°3			
3	2/9	16	—61°1	24	+45°7	0	1	245°1	228°9	+13°2			
4	14	19	—82°8	May 2	+85°1	55	284	181°4	178°4	—19°4	I. 887 (2)		
5	9	21	—35°3	Apr. 29	+80°6	33	161	207°8	193°5	—14°5	II.		
6	6	23	+4°8	28	+69°3	34	215	217°9	204°2	+14°8	II.		
7	7	24	—13°3	30	+73°3	11	35	190°4	187°9	—19°5	II.	Revives as Group 8907.	
8	13	24	—85°6	May 6	+76°1	44	285	113°9	93°0	—11°5	II.		
9	13	27	—73°0	9	+85°2	34	164	87°4	59°1	+6°6	I. 886 (3)		
8890	12	28	—67°3	9	+83°1	60	362	82°9	77°2	—18°4	II.		
1	2	29	+12°4	Apr. 30	+22°0	1	4	143°0	123°9	+12°4			
2	3	May 1	—79°3	May 3	—53°1	4	16	28°4	15°9	—15°7			
3	13	2	—73°8	14	+85°0	29	167	21°0	350°7	—5°7	II.		
4	2	3	+45°2	4	+61°1	1	5	125°8	110°9	—14°7			
5	13	3	—78°5	15	+84°3	121	765	5°0	335°3	+6°6	I. 888 (1)		
6	11	4	—66°5	14	+63°4	26	106	359°2	340°7	+13°4	II.		
7	13	6	—76°1	18	+80°3	29	207	324°1	314°2	—17°1	II.		
8	9	7	—75°4	15	+33°4	19	90	316°1	290°3	—9°7	II.		
9	6/8	10	—38°5	17	+53°0	4	13	308°0	278°8	—7°8	II.		
8900	13	13	—77°2	25	+79°4	217	1351	231°4	213°3	+14°2	I. 889 (1)	Largest group of the year.	
1	11	15	—79°4	25	+58°8	50	286	205°9	172°0	—5°0	II.	Revives as Group 8937.	
2	11	16	—63°1	26	+74°6	32	185	208°0	178°4	—8°6	I. 890 (1)		
3	9	17	—79°7	25	+23°0	14	68	174°9	173°6	—20°0	I. 887 (3)		
4	2	18	+62°2	19	+80°4	5	21	305°9	270°4	+1°6	Revival of Group 8881.		
5	8	18	—73°5	25	+19°4	27	116	168°1	148°4	—13°6	II.		
6	5	19	—43°5	23	+4°8	1	5	181°9	172°6	—17°5	II.	Revives as Group 8939.	
7	6	23	+12°1	28	+82°0	42	214	190°8	184°4	—18°5	I. 891 (1)	Revival of Group 8887.	
8	6	24	+1°8	29	+66°5	8	34	165°8	131°7	—6°2	II.		
9	12	24	—74°8	June 4	+72°9	17	108	89°2	60°2	+10°0	I. 886 (4)	See Group 8951.	
8910	4	26	+28°7	May 29	+70°9	9	40	168°1	165°8	—19°7			
1	2	26	+26°1	27	+37°8	1	5	163°4	141°8	—13°2			
2	3	27	—15°4	29	+9°3	8	24	108°3	83°1	—11°7			
3	2	27	—55°2	28	—40°9	2	7	69°4	37°2	+7°8			
4	9	29	—27°7	June 6	+80°7	42	255	71°9	36°6	—6°5	I. 892 (1)		
5	8	29	—42°5	5	+58°1	8	38	59°8	42°6	+15°2	II.		
6	7	30	—35°0	5	+51°3	10	45	51°1	26°7	+12°4	II.		
7	13	30	—74°4	11	+84°7	44	263	10°5	335°7	+7°2	I. 888 (2)		
8	12	30	—75°7	10	+67°9	7	28	7°6	353°4	+16°2	II.		
9	11	June 1	—56°1	II	+81°7	56	292	2°9	14°8	+23°3	II.		
8920	7	2	—64°5	8	+18°6	20	137	341°2	307°3	—7°9	II.		
1	9	2	—59°4	10	+47°7	4	9	346°5	341°4	—19°0	II.		
2	5	4	+31°8	8	+82°6	67	357	49°8	14°4	+7°0	I. 893 (1)		
3	2	4	—47°3	5	—32°0	2	14	329°8	305°8	—12°8			
4	3	5	+34°0	7	+56°6	6	18	35°4	40°3	—21°6			
5	6	5	—6°5	10	+62°1	18	65	357°7	324°2	—8°6	II.		
6	5/7	7	—21°5	13	+61°1	8	35	319°0	304°3	—16°3	II.	Revival of Group 8897.	

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.			
8927	5	June 9	-72°9'	June 13	-21°6'	2	10	238°0	207°1	+10°3	I. 889 (2)	
8	13	9	-78°0	21	+78°1	118	669	231°1	206°5	+13°2		
9	5	10	+13°5	14	+71°5	18	107	315°3	295°0	+14°5		
8930	2/9	10	-57°3	18	+49°1	0	1	241°1	239°8	+20°0		
1	11	10	-76°1	20	+56°6	18	93	222°3	212°9	-17°9	II.	
2	10	10	-78°1	19	+41°7	9	40	220°2	183°2	-7°3	I. 890 (2)	
3	2	12	+62°5	13	+73°6	7	28	333°8	299°8	-8°8	I. 894 (1)	
4	4	12	+24°9	15	+67°2	5	12	298°0	293°1	+19°1		
5	13	12	-80°2	24	+78°1	175	1195	191°4	178°2	-16°9	I. 891 (2)	See Groups 8967 and 8968.
6	2	13	-8°5	14	+6°1	8	42	251°2	224°4	+12°2		
7	8	13	-50°7	20	+44°1	8	34	209°0	167°6	-4°1	II.	
8	5	14	-3°9	18	+50°7	2	10	242°8	211°5	+10°5		
9	8/9	14	-62°1	22	+41°0	1	18	183°2	183°7	-20°5	II.	
8940	11	16	-56°9	26	+80°3	46	258	165°1	127°8	+7°9	I. 895 (1)	
1	2	17	-7°4	18	+7°6	1	7	199°0	158°6	+5°4		
2	11	17	-69°6	27	+69°6	27	117	141°3	103°9	-8°1	II.	
3	7	18	+5°6	24	+79°3	41	208	195°4	172°2	+14°0	II.	
4	5	18	-38°6	22	+13°6	8	40	152°7	120°0	+10°2	II.	
5	6	21	-0°8	26	+66°3	17	69	151°4	136°4	-16°5	II.	
6	3/7	21	-10°3	27	+66°9	3	6	143°4	141°0	+19°8		
7	9/10	21	-39°1	30	+80°8	23	131	115°6	75°0	-6°6	I. 896 (1)	
8	10	21	-45°7	30	+79°3	47	272	110°9	82°6	-12°4	I. 897 (1)	Revival of Group 8912.
9	13	21	-79°8	July 3	+79°0	45	233	75°7	38°0	-8°5	I. 892 (2)	
8950	8	22	-22°0	June 29	+70°7	29	145	118°6	92°2	+13°1	II.	
1	2	22	-46°4	23	-28°9	2	12	93°4	65°2	+12°2		Feeble revival of Recurrent Series 886.
2	13	22	-77°8	July 4	+80°7	33	180	61°8	17°5	+4°2	I. 893 (2)	
3	2	23	+42°0	June 24	+49°2	0	6	163°8	143°7	-15°0	Revival of Group 8911.	
4	2	24	+47°5	25	+62°1	1	6	160°8	143°8	+16°0		
5	6	24	+5°7	29	+73°7	34	190	120°0	80°8	+7°6	I. 898 (1)	
6	3/5	26	-26°1	30	+29°3	0	4	61°5	22°9	-8°1		
7	9/10	26	-49°6	July 5	+76°0	19	108	40°1	20°7	-15°5	I. 899 (1)	
8	8	26	-72°1	3	+20°8	10	25	13°3	336°2	+9°1	I. 888 (3)	
9	5/6	28	+9°0	3	+78°9	2	16	72°9	27°7	-3°8		
8960	4/6	28	-15°5	3	+52°0	1	6	46°2	2°9	+5°6		Revives as Group 8984.
1	2/3	28	-26°0	June 30	+0°8	1	4	34°8	27°6	-18°7		Revives as Group 8985.
2	10	29	-78°0	July 8	+37°3	8	48	326°9	286°7	-7°9	I. 894 (2)	
3	5	July 1	-1°7	5	+52°2	8	25	18°5	337°7	-7°6		
4	12	2	-74°2	13	+75°3	30	193	295°1	257°0	+9°3	I. 900 (1)	
5	11/12	2	-83°9	13	+56°7	20	121	277°7	242°0	+10°4	II.	
6	12	9	-65°8	20	+81°6	122	741	213°7	171°5	-8°1	I. 901 (1)	
7	7	11	-54°6	17	+22°2	10	58	193°3	166°6	-13°8	II.	
8	7	11	-55°6	17	+30°8	4	36	195°8	180°6	-16°9	II.	
9	7/8	11	-78°6	18	+15°2	6	27	169°4	125°8	+7°3	I. 895 (2)	
8970	5	12	+26°6	16	+75°8	10	72	262°3	239°4	-14°9	I. 902 (1)	
1	13	14	-81°0	26	+70°5	14	88	126°6	81°8	+7°5	I. 898 (2)	
2	9	15	-68°6	23	+35°5	6	30	123°8	79°1	-7°4	I. 896 (2)	
3	13	15	-77°2	27	+76°7	46	293	114°3	86°3	-13°7	I. 897 (2)	
4	4/5	16	+16°4	20	+70°0	3	12	200°4	158°2	-8°4	I. 903 (1)	
5	2	17	-15°6	18	-0°6	1	11	153°4	150°8	+19°8		
6	3	18	-70°1	20	-44°9	7	35	84°2	45°1	-9°9		
7	12	18	-78°3	29	+68°8	22	148	77°6	35°8	-9°2		
8	4/10	19	-50°1	28	+69°1	4	23	92°0	42°4	+5°1	I. 904 (1)	
9	10	20	-77°4	29	+40°5	11	77	51°3	17°1	-12°0	II.	
8980	2/3	21	-7°4	July 23	+19°0	0	3	108°5	73°9	-11°7		Revives as Group 9010.
1	12	21	-74°8	Aug. 1	+71°3	31	226	40°4	6°6	-12°3	I. 899 (2)	
2	8	22	-27°3	July 29	+63°5	4	23	73°8	41°5	+12°6	II.	
3	3	24	+17°9	26	+42°8	1	9	93°2	40°4	-1°5		Revives as Recurrent Series 907.

GENERAL CATALOGUE of GROUPS of SUN SPOTS—*continued.*

No. of Group.	Duration.	First Seen.		Last Seen.		Mean Area Corrected for Foreshortening.		Mean Longitude of Group.		Mean Latitude of Group.	Reference to Ledger.	NOTES.
		Date.	Long. from C.M.	Date.	Long. from C.M.	Umbræ.	Whole Spots.	System I.	System II.			
8984	4	1919.	°	1919.	°	0	2	47·5	3·6	+ 8·4		Revival of Group 8960.
5	2/4	July 24	-30·3	July 27	+12·6	2	19	36·2	21·3	-17·2		Revival of Group 8961.
6	3	25	-27·4	27	+ 0·3	1	19	349·7	336·9	-17·7		Revives as Group 9015.
7	4	25	-72·1	28	-33·7	9	41	322·5	272·9	- 6·4	I. 905 (1)	Revival near Recurrent Series 894.
8	12	27	-75·2	Aug. 7	+73·3	7	35	299·1	252·6	+ 7·9	I. 900 (2)	See Group 9018.
9	9	28	-83·3	5	+22·4	2	10	31·0	2·4	-13·9		
9	3	29	+22·0	July 31	+46·2	12	46	314·2	300·8	-17·6		
8990	2	30	-38·8	31	-29·5	4	22	273·7	252·1	-15·8	I. 902 (2)	Revives as Group 9022.
1	7	30	-78·8	Aug. 5	-4·4	15	543	226·9	176·5	- 6·8	I. 901 (2)	Revives as Recurrent Series 908.
2	2	2	-18·9	3	-3·3	0	6	297·6	246·0	+ 5·2		
3	5	3	+ 6·8	7	+56·0	4	22	307·3	286·7	-16·1		
4	13	3	-74·3	15	+82·6	101	543	226·9	176·5	- 6·8	I. 901 (2)	See Group 8996.
5	2/8	4	-64·4	11	+25·4	0	1	224·6	183·0	+10·4		
6	12	4	-77·5	15	+68·3	32	153	212·6	168·2	- 9·5	I. 901 (2)	
7	2	5	-26·3	6	-14·2	0	5	250·5	229·4	+16·0		
8	10/12	5	-79·5	16	+65·1	7	32	197·7	149·2	- 7·8	I. 903 (2)	
9	2	6	-4·5	7	+ 6·8	1	13	259·0	252·2	+19·1		
9000	12	7	-75·6	18	+72·5	54	301	176·5	126·3	- 7·3	I. 906 (1)	
1	2	8	+13·4	9	+25·4	1	7	251·0	247·2	+19·7		
2	13	II	-83·5	23	+73·7	13	64	114·1	86·0	-14·6	I. 897 (3)	
3	3	12	+ 6·1	14	+31·9	1	6	191·8	177·4	-17·6		Revival of Group 8968.
4	3	12	-73·8	14	-47·6	1	8	111·3	56·1	+ 4·5		Revives as Group 9035.
5	13	13	-78·6	25	+86·6	190	1099	92·1	35·2	+ 4·4	I. 904 (2)	
6	3/5	14	-52·5	18	+ 1·3	1	4	106·5	60·3	+ 9·3		
7	12	14	-69·3	25	+81·2	140	764	94·5	36·0	- 2·8	I. 907 (1)	Revival of Group 8983.
8	13	15	-81·3	27	+79·6	19	95	65·0	17·1	- 9·0	II.	
9	3	16	+52·1	18	+76·4	9	47	182·7	159·0	-15·6		
9010	6/10	17	-65·0	26	+54·3	2	9	53·6	10·6	-10·8	II.	Revival of Group 8979.
1	7	19	- 1·1	25	+83·7	26	154	92·1	48·6	+10·7	II.	
2	2	20	-20·8	21	- 6·8	0	4	58·6	17·6	-11·3		
3	2	21	+42·7	22	+55·9	6	25	107·8	127·0	+23·6		
4	3	21	+23·7	23	+48·7	7	31	89·0	70·3	+16·8		
5	9	21	-71·8	29	+32·9	18	89	352·9	328·1	-15·6	II.	Revival of Group 8986.
6	7/8	22	-76·5	29	+14·4	3	13	335·0	278·4	- 5·6	I. 905 (2)	
7	9	23	-43·4	31	+68·4	39	229	357·9	303·1	- 6·7	II.	
8	2	25	-62·8	26	-50·9	0	12	308·8	252·8	+ 5·9		Revival near Group 8988.
9	4	27	-68·0	30	-28·4	5	20	278·4	262·8	-17·5		
9020	10	30	-36·2	Sept. 8	+83·7	95	558	272·0	245·0	-15·3	I. 908 (1)	Revival of Recurrent Series 902.
1	10	30	-76·0	8	+41·3	5	17	230·5	173·7	- 6·6	I. 901 (3)	
2	3/4	31	+22·3	3	+59·3	1	7	313·8	303·8	-18·6		Revival of Group 8990.
3	2	31	-34·9	1	-19·2	8	20	258·4	237·6	+16·6		
4	5	Sept. 3	- 0·8	7	+56·2	4	19	254·7	209·9	+11·0	I. 906 (2)	
5	5/6	3	-74·6	8	- 8·5	1	7	179·2	122·7	- 7·0	I. 906 (2)	
6	2	5	+ 4·0	6	+19·3	0	3	231·6	183·6	-10·2		
7	13	6	-81·2	18	+77·3	40	237	132·6	109·0	-16·2	II.	Revives as Group 9053.
8	4	7	+31·9	10	+70·9	7	31	233·0	223·0	-18·7	II.	
9	7/8	8	-70·2	15	+24·3	1	10	117·4	62·5	- 8·2	II.	
9030	13	8	-83·3	20	+77·2	67	427	105·4	39·5	- 1·8	I. 907 (2)	
1	13	8	-86·1	20	+75·3	109	526	102·9	37·0	+ 1·6	I. 904 (3)	
2	6	9	-65·7	14	+ 2·2	1	8	108·6	74·3	-13·9	II.	
3	4	13	-27·2	16	+14·7	0	11	95·2	30·4	- 3·2		
4	6/7	15	-65·0	21	+15·4	0	6	33·8	344·1	-10·3	II.	
5	2	17	+47·7	18	+61·2	0	5	116·8	54·4	+ 5·4		Revival of Group 9004.
6	10	18	-76·1	27	+41·8	22	132	339·4	306·8	-14·6	II.	
7	10	20	-41·4	29	+76·0	9	47	348·3	285·4	- 6·0	II.	
8	13	20	-79·8	Oct. 2	+80·5	47	329	311·6	262·4	+10·9	II.	
9	9	22	-78·1	Sept. 30	+28·6	17	87	285·4	255·3	-15·2		
9040	13	23	-76·3	Oct. 5	+81·2	42	251	273·4	230·8	-12·6	I. 908 (2)	

GENERAL CATALOGUE of GROUPS of SUN SPOTS—*continued.*

No. of Group.	Duration.	First Seen.		Last Seen.		Mean Area Corrected for Foreshortening.		Mean Longitude of Group.		Mean Latitude of Group.	Reference to Ledger.	NOTES.
		Date.	Long. from C.M.	Date.	Long. from C.M.	Umbræ.	Whole Spots.	System I.	System II.			
9041	d	1919. Sept. 25	-82·5	1919. Oct. 7	+71·9	52	283	237·2	178·6	-8·4	II.	Revival near Group 9026.
2	2	27	-7·2	Sept. 28	+8·2	1	6	291·1	231·2	+7·6	I. 909 (1)	
3	11	28	-66·3	Oct. 8	+71·5	36	199	221·7	193·1	-15·7	I. 909 (1)	
4	4	29	-21·2	2	+21·6	4	13	250·4	250·8	+20·4	I. 904 (4)	Revives as Group 9069.
5	2	29	-53·4	Sept. 30	-39·4	1	7	217·8	148·7	+2·8	I. 904 (4)	
6	2/4	Oct. 1	+25·3	Oct. 4	+67·4	0	6	271·2	247·8	-16·6	I. 904 (4)	
7	13	5	-85·0	17	+72·9	71	359	106·4	33·8	+2·2	I. 904 (4)	
8	12	7	-69·6	18	+80·8	36	246	96·6	63·0	-14·9	II.	
9	12	7	-82·2	18	+63·0	16	97	81·5	28·2	+10·6	II.	
9050	8	8	-62·1	15	+29·0	11	64	88·1	18·2	-4·5	II.	
1	5	9	+27·4	13	+83·0	27	168	167·7	108·2	-8·7	II.	
2	7	9	-8·3	15	+79·4	18	124	134·9	74·1	+8·4	II.	
3	2	10	+11·6	11	+25·1	1	10	136·9	110·0	-16·1	I. 909 (2)	Revival of Group 9027.
4	3	12	-10·2	14	+14·3	0	2	87·9	69·1	-17·5	II.	
5	7	15	-50·6	21	+36·7	12	62	10·9	342·4	-16·0	I. 908 (3)	
6	13	20	-77·0	Nov. 1	+79·8	20	117	275·8	219·7	-10·5	I. 908 (3)	
7	2	21	-61·4	Oct. 22	-50·7	1	7	277·0	228·4	+12·1	I. 908 (3)	
8	3	23	+38·3	25	+63·8	0	6	351·4	301·0	+11·8	I. 908 (3)	
9	13	24	-77·8	Nov. 5	+78·5	25	138	222·7	183·7	-14·3	I. 909 (2)	
9060	8	25	-16·3	1	+79·2	17	82	272·8	223·5	+12·2	II.	
1	13	26	-85·5	Nov. 7	+78·2	135	850	191·5	143·1	+12·5	I. 910 (1)	
2	11	27	-56·5	6	+76·2	21	114	205·5	212·2	-21·3	II.	
3	5/6	27	-80·3	Nov. 1	-17·3	4	34	179·8	133·1	+12·8	II.	
4	11	Nov. 1	-53·4	11	+80·9	48	256	144·6	108·0	-14·9	I. 911 (1)	Revives as Group 9076.
5	13	2	-76·4	14	+81·8	40	204	106·8	29·3	+4·0	I. 904 (5)	
6	7	7	-66·5	13	+20·8	6	27	52·7	358·2	+11·5	II.	
7	8	8	-22·9	15	+72·9	37	170	81·0	4·8	+5·1	II.	
8	4	14	-51·3	17	-10·0	7	29	333·4	255·0	+4·5	I. 904 (6)	Revives as Group 9083.
9	4	18	-60·1	21	-18·6	5	30	273·5	248·6	-17·0	Revival of Group 9046.	
9070	7	20	-22·5	26	+66·4	5	24	287·5	242·4	+13·8	II.	Revives as Group 9087.
1	13	22	-78·1	Dec. 4	+79·7	84	469	201·0	155·9	+13·9	I. 910 (2)	
2	5	23	+22·1	Nov. 27	+78·7	11	55	289·5	307·5	-22·6	I. 912 (1)	
3	10	23	-75·8	Dec. 2	+42·1	8	59	191·4	159·6	+16·0	II.	
4	2	24	-33·0	Nov. 25	-18·7	1	7	218·7	189·6	-16·4	I. 911 (2)	Revival of Group 9063.
5	12	26	-81·4	Dec. 7	+60·6	20	111	143·1	104·9	-15·1	I. 911 (2)	
6	9/10	27	-37·8	6	+79·4	18	79	178·4	136·9	+14·6	II.	Revival of Group 9063.
7	9	29	-77·5	7	+27·1	10	35	108·9	23·5	+2·7	I. 904 (6)	
8	13	29	-82·8	11	+70·8	20	125	100·5	82·2	-18·1	II.	
9	7/8	Dec. 3	-41·9	10	+54·2	6	19	92·5	18·1	-7·8	II.	Revives as Group 9095.
9080	4	8	+19·9	11	+57·3	5	8	86·0	34·2	-13·0	II.	
1	6	8	-64·8	13	-2·1	5	19	1·1	284·4	+7·4	II.	
2	12	8	-79·1	19	+63·6	16	69	346·5	261·8	+4·8	II.	Revival of Group 9068.
3	11	9	-74·9	19	+53·9	39	223	338·9	252·7	+4·1	II.	
4	4	12	+29·3	15	+76·2	7	23	46·8	350·9	-12·4	II.	
5	2	12	-24·0	13	-9·9	7	22	352·0	89·6	+30·2	I. 912 (2)	
6	9/10	12	-79·0	21	+35·4	3	19	295·5	285·3	-19·2	Revival of Group 9070.	
7	4	16	-33·3	19	+4·0	7	17	288·2	247·8	+15·1	I. 910 (3)	
8	6/9	19	-74·8	27	+30·8	2	17	208·6	160·4	+13·9	I. 910 (3)	
9	4	21	-10·4	24	+37·5	7	26	251·9	162·6	+3·4	I. 914 (1)	See Ledger for 1920.
9090	4	21	-67·3	24	-20·0	4	18	194·6	139·4	-12·8	I. 913 (1)	Revives as Group 9105.
1	3	22	+50·8	24	+77·0	23	151	292·7	246·0	-14·2	I. 913 (1)	
2	11	22	-58·6	Jan. 1	+76·2	13	57	184·5	152·0	-16·4	II.	
3	2	26	-78·7	Dec. 27	-64·8	2	28	111·4	27·8	-6·5	I. 914 (1)	
4	2	28	+24·0	29	+37·2	1	7	188·6	172·7	+18·5	I. 914 (1)	
5	9	30	-38·4	Jan. 7	+78·2	133	701	105·3	22·6	-7·2	I. 914 (1)	See Ledger for 1920.

GENERAL CATALOGUE OF SUN SPOTS—*continued.*

REVIVAL GROUPS OF SUN SPOTS, 1919.

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.	
I	8780	873	d	1918-19 Dec. 22	° -52	1918-19 Dec. 31	° +76	147 6	° 332	332	-17	II.
	8812	874	3	Jan. 23	+12	Jan. 25	+40		333	331	-17	
2	8788	873	9	Dec. 26	-58	Jan. 3	+50	82 96	270	270	-11	II.
	8811	874	12	Jan. 21	-75	Feb. 1	+72		272	269	-14	
3	8794	873	12	Jan. 5	-68	Jan. 16	+79	584 421 12 26	129	127	+10	I. 882
	8819	874	12	31	-78	Feb. 11	+81		143	135	+7	
	8844	875	5	Feb. 27	-74	Mar. 3	-11		155	142	+8	
	8866	876	9/12	March 25	-69	April 5	+74		165	144	+6	
4	8795	873	10	Jan. 8	-42	Jan. 17	+72	184 181	113	111	+15	II.
	8821	874	11	Feb. 1	-80	Feb. 11	+51		119	114	+14	
5	8804	874	3	Jan. 16	-68	Jan. 18	-39	11 8 444	344	343	+18	I. 885*
	8835	875	5/8	Feb. 16	-16	Feb. 23	+76		347	343	+17	
	8855	876	12	March 10	-78	March 21	+71		357	350	+17	
6	8817	874	6	Jan. 30	+14	Feb. 4	+77	120 33	241	244	+25	II.
	8840	875	6	Feb. 24	-15	March 1	+51		246	249	+23	
7	8843	875	10	Feb. 25	-78	March 6	+44	85 87	166	163	-18	II.
	8863	876	9	March 23	-86	31	+11		173	167	-17	
8	8845	875	4	Feb. 28	-28	March 3	+13	77 4	178	164	-7	II.
	8870	876	2	March 29	-2	30	+12		180	160	-7	
9	8849	875	3	March 4	+41	March 6	+72	15 4	196	183	-7	II.
	8867	876	2/6	26	-25	31	+38		198	179	-8	
10	8881	877	10	April 13	-46	April 22	+80	95 21	304	277	+2	II.
	8904	878	2	May 18	+62	May 19	+80		306	270	+2	
11	8887	877	7	April 24	-13	April 30	+73	35 214 1195 58 36 6	190	188	-20	II.
	8907	878	6	May 23	+12	May 28	+82		191	184	-19	
	8935	879	13	June 12	-80	June 24	+78		191	178	-17	
	8967	880	7	July 11	-55	July 17	+22		193	167	-14	
	8968	880	7	11	-56	17	+31		196	181	-17	
	9003	881	3	Aug. 12	+6	Aug. 14	+32		192	177	-18	
12	8888	877	13	April 24	-86	May 6	+76	285 24 272 293	114	93	-12	II.
	8912	878	3	May 27	-15	May 29	+9		108	83	-12	
	8948	879	10	June 21	-46	June 30	+79		111	83	-12	
	8973	880	13	July 15	-77	July 27	+77		114	86	-14	

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.	
13	8897	878	1	1919 May 6	° -76	1919 May 18	° +80	207	324	314	-17	II.
	8926	879	13	June 7	-22	June 13	+61	35	319	304	-16	II.
14	8901	878	11	May 15	-79	May 25	+59	286	206	172	-5	II.
	8937	879	8	June 13	-51	June 20	+44	34	209	168	-4	II.
15	8906	878	5	May 19	-44	May 23	+5	5	182	173	-18	II.
	8939	879	8/9	June 14	-62	June 22	+41	18	183	184	-20	II.
16	8911	878	2	May 26	+26	May 27	+38	5	163	142	-13	
	8953	879	2	June 23	+42	June 24	+49	6	164	144	-15	
17	8960	879	4/6	June 28	-16	July 3	+52	6	46	3	+6	
	8984	880	2/4	July 24	-30	27	+13	2	48	4	+8	
18	8961	879	2/3	June 28	-26	June 30	+1	4	35	28	-19	
	8985	880	3	July 25	-27	July 27	0	19	36	21	-17	
19	8970	880	5	July 12	+27	July 16	+76	72	262	239	-15	I. 902
	8991	881	7	30	-79	Aug. 5	-4	46	274	252	-16	
	9020	882	10	Aug. 30	-36	Sept. 8	+84	558	272	245	-15	
	9039	883	9	Sept. 22	-78	30	+29	87	285	255	-15	
	9040	883	13	23	-76	Oct. 5	+81	251	273	231	-13	
20	8979	880	10	July 20	-77	July 29	+41	77	51	17	-12	II.
	9010	881	6/10	Aug. 17	-65	Aug. 26	+54	9	54	11	-11	II.
21	8983	881	3	July 24	+18	July 26	+43	9	93	40	-2	I. 907
	9007	882	12	Aug. 14	-69	Aug. 25	+81	764	95	36	-3	
	9030	883	13	Sept. 8	-83	Sept. 20	+77	427	105	39	-2	
22	8986	881	4	July 25	-72	July 28	-34	19	350	337	-18	II.
	9015	882	9	Aug. 21	-72	Aug. 29	+33	89	353	328	-16	
23	8990	881	2	July 30	-39	July 31	-30	4	314	301	-18	
	9022	882	3/4	Aug. 31	+22	Sept. 3	+59	7	314	304	-19	
24	9004	881	3	Aug. 12	-74	Aug. 14	-48	8	111	56	+5	
	9035	882	2	Sept. 17	+48	Sept. 18	+61	5	117	54	+5	
25	9027	882	13	Sept. 6	-81	Sept. 18	+77	237	133	109	-16	II.
	9053	883	2	Oct. 10	+12	Oct. 11	+25	10	137	110	-16	
26	9046	883	2/4	Oct. 1	+25	Oct. 4	+67	6	271	248	-17	
	9069	884	4	Nov. 18	-60	Nov. 21	-19	30	273	249	-17	
27	9063	884	5/6	Oct. 27	-80	Nov. 1	-17	34	180	133	+13	II.
	9076	885	9/10	Nov. 27	-38	Dec. 6	+79	79	178	137	+15	II.
28	9068	885	4	Nov. 14	-51	Nov. 17	-10	29	333	255	+4	II.
	9083	886	11	Dec. 9	-75	Dec. 19	+54	223	339	253	+4	
29	9070	885	7	Nov. 20	-23	Nov. 26	+66	24	288	242	+14	II.
	9087	886	4	Dec. 16	-33	Dec. 19	+4	17	288	248	+15	

ROYAL OBSERVATORY, GREENWICH.

LEDGERS

OF

GROUPS OF SUN SPOTS

FOR THE YEAR

1919.

LEDGER I.—RECURRENT GROUPS.

LEDGER I.—RECURRENT GROUPS OF SUN SPOTS for the YEAR 1919.

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 Umbræ and Whole Spots, given in the *second* and *third* columns, is the area as it is measured on the photograph, uncorrected for the effect of foreshortening, and expressed in millionths of the Sun's apparent disc.

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

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

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

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 882.

Group 8794 seen in Rotation 873.

..	8819	"	..	874.
..	8844	"	..	875.

Group 8794.—January 5–16. A large group of the "stream" type whose components are very complex for several days. The group originates in the usual way from two spot nuclei at the east limb, but its early stages of development are not so clearly marked as in a typical stream of normal type. *a* is the leading spot.

1919. d	o	6	o	8	129.0	128.1	+ 9.3	-67.7	1919. d	10	55	(27	145	137.6	130.8	+ 7.0)*	-77.6
4.366 C	31	146	28	133	126.6	125.5	+ 8.5	-55.4	31.404 C	150	615	143	610	142.4	135.3	+ 7.3	-58.3
5.484 G	59	548	42	391	126.9	125.7	+ 10.2	-43.8	32.605 C	137	769	96	547	141.6	134.2	+ 7.2	-43.3
6.345 C	201	1112	119	655	128.3	126.9	+ 10.1	-29.1	33.395 C	130	817	80	502	142.1	134.6	+ 7.4	-32.4
7.355 C	199	1178	106	627	129.3	127.6	+ 10.3	-14.0	34.436 C	144	767	79	421	141.9	134.1	+ 7.5	-18.9
8.423 C	169	1259	88	654	129.5	127.7	+ 11.0	- 1.4	35.362 C	176	883	91	458	142.0	134.0	+ 7.4	- 6.6
9.361 C	169	1259	88	654	129.5	127.7	+ 11.0	- 1.4	36.412 C	126	939	65	489	141.4	133.2	+ 7.2	+ 6.6
10.370 C	271	1674	145	892	129.7	127.7	+ 10.5	+ 12.0	37.505 C	108	922	59	508	141.4	132.9	+ 6.6	+ 21.0
11.386 C	147	1479	84	843	130.0	127.8	+ 9.9	+ 25.7	38.383 C	100	647	63	407	143.1	134.4	+ 6.8	+ 34.3
12.493 C	155	1332	107	911	130.1	127.7	+ 10.2	+ 40.4	39.467 G	51	362	42	299	144.8	135.9	+ 7.0	+ 50.3
13.426 C	108	770	93	680	130.7	128.1	+ 9.3	+ 53.3	40.389 C	23	139	30	176	147.4	138.3	+ 7.4	+ 65.0
14.334 C	58	455	79	635	132.0	129.2	+ 9.8	+ 66.5	41.477 G	12	62	41	213	148.7	139.3	+ 7.4	+ 80.6
15.475 G	40	192	(126	575	129.0	126.0	+ 11.0)*	+ 78.6	Means ..	..	..	72	421	143.35	135.11	+ 7.20	..

Spot *a*.

8.423 C	87	429	45	223	132.6	130.8	+ 9.3	- 10.7	31.404 C	38	219	44	256	137.1	129.9	+ 6.6	- 63.6
9.361 C	63	411	33	214	133.7	131.7	+ 9.7	+ 2.8	32.605 C	52	353	40	272	137.0	129.5	+ 6.8	- 47.9
10.370 C	78	383	42	207	134.8	132.6	+ 8.8	+ 17.1	33.395 C	44	331	29	215	136.9	129.2	+ 7.0	- 37.6
11.386 C	49	371	29	223	135.8	133.4	+ 8.3	+ 31.5	34.436 C	50	325	28	182	137.1	129.2	+ 7.1	- 23.7
12.493 C	43	319	33	242	136.8	134.1	+ 8.0	+ 47.1	35.362 C	50	337	26	175	137.2	129.1	+ 7.0	- 11.4
13.426 C	19	219	20	232	138.2	135.3	+ 7.5	+ 60.8	36.412 C	53	360	27	184	137.5	129.2	+ 6.7	+ 2.7
14.334 C	16	152	30	281	139.0	135.9	+ 7.4	+ 73.5	Means ..	..	..	81	584	129.28	127.45	+ 9.92	..

Spot *a*.

8.423 C	87	429	45	223	132.6	130.8	+ 9.3	- 10.7	31.404 C	38	219	44	256	137.1	129.9	+ 6.6	- 63.6
9.361 C	63	411	33	214	133.7	131.7	+ 9.7	+ 2.8	32.605 C	52	353	40	272	137.0	129.5	+ 6.8	- 47.9
10.370 C	78	383	42	207	134.8	132.6	+ 8.8	+ 17.1	33.395 C	44	331	29	215	136.9	129.2	+ 7.0	- 37.6
11.386 C	49	371	29	223	135.8	133.4	+ 8.3	+ 31.5	34.436 C	50	325	28	182	137.1	129.2	+ 7.1	- 23.7
12.493 C	43	319	33	242	136.8	134.1	+ 8.0	+ 47.1	35.362 C	50	337	26	175	137.2	129.1	+ 7.0	- 11.4
13.426 C	19	219	20	232	138.2	135.3	+ 7.5	+ 60.8	36.412 C	53	360	27	184	137.5	129.2	+ 6.7	+ 2.7
14.334 C	16	152	30	281	139.0	135.9	+ 7.4	+ 73.5	Means ..	..	..	81	584	129.28	127.45	+ 9.92	..

Spot *b*.

8.423 C	87	429	45	223	132.6	130.8	+ 9.3	- 10.7	31.404 C	38	219	44	256	137.1	129.9	+ 6.6	- 63.6
9.361 C	63	411	33	214	133.7	131.7	+ 9.7	+ 2.8	32.605 C	52	353	40	272	137.0	129.5	+ 6.8	- 47.9
10.370 C	78	383	42	207	134.8	132.6	+ 8.8	+ 17.1	33.395 C	44	331	29	215	136.9	129.2	+ 7.0	- 37.6
11.386 C	49	371	29	223	135.8	133.4	+ 8.3	+ 31.5	34.436 C	50	325	28	182	137.1	129.2	+ 7.1	- 23.7
12.493 C	43	319	33	242	136.8	134.1	+ 8.0	+ 47.1	35.362 C	50	337	26	175	137.2	129.1	+ 7.0	- 11.4
13.426 C	19	219	20	232	138.2	135.3	+ 7.5	+ 60.8	36.412 C	53	360	27	184	137.5	129.2	+ 6.7	+ 2.7
14.334 C	16	152	30	281	139.0	135.9	+ 7.4	+ 73.5	Means ..	..	..	81	584	129.28	127.45	+ 9.92	..

LEDGER I.—RECURRENT GROUPS of SUN SPOTS for the YEAR 1919—*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 882. Group 8819— <i>continued.</i>																						
Spot <i>c.</i>																						
1919. 4																						
31·404 C	46	191	39	164	147·7	140·7	+ 8·0	- 53·0	1919. 4													
32·605 C	37	181	24	119	147·0	139·7	+ 7·8	- 37·9	29·337 C	13	81	11	69	282·0	275·2	- 6·3	+ 54·1					
33·395 C	22	184	13	107	146·9	139·5	+ 7·6	- 27·6	30·304 D	2	17	3	22	283·0	275·9	- 5·0	+ 67·8					
34·436 C	20	128	11	68	147·6	139·9	+ 7·4	- 13·2	31·404 C	0	9	0	39	284·7	277·4	- 5·6	+ 84·0					
35·362 C	26	102	13	52	148·2	140·3	+ 7·0	- 0·4														
36·412 C	12	29	6	15	149·7	141·6	+ 7·0	+ 14·9														
Group 8844.—February 26– March 3. A single small spot.																						
56·578 C	1	6	2	11	154·9	142·5	+ 7·4	- 74·3	45·456 G	14	81	27	156	300·2	289·3	- 5·6	- 75·5					
57·355 C	4	21	5	25	155·0	142·4	+ 7·7	- 64·0	46·512 C	29	154	29	157	300·8	289·6	- 5·4	- 61·0					
58·348 C	3	16	2	13	155·1	142·3	+ 7·8	- 50·8	47·109 K	36	213	30	177	300·7	289·4	- 5·3	- 53·2					
59·355 C	4	18	3	12	155·0	141·9	+ 7·9	- 37·6	48·344 C	31	237	20	149	300·4	288·8	- 5·3	- 37·2					
60·355 C	2	15	1	8	155·7	142·4	+ 7·7	- 23·7	49·351 C	40	290	23	157	300·9	289·1	- 5·4	- 23·5					
61·390 C	0	5	0	3	155·1	141·6	+ 7·8	- 10·7	50·338 C	55	314	28	158	301·0	288·9	- 5·4	- 10·4					
Means ..	..	..	2	12	155·13	142·18	+ 7·72	..	51·347 C	43	307	22	154	301·2	288·9	- 5·4	+ 3·1			
									52·362 C	42	272	21	137	301·4	288·8	- 5·4	+ 16·7					
									53·356 C	27	254	16	147	301·4	288·6	- 5·2	+ 29·7					
									54·166 D	43	221	28	145	302·1	289·1	- 5·3	+ 41·1					
									55·556 G	17	122	16	118	302·1	288·8	- 5·4	+ 59·4					
									56·578 C	10	75	17	126	302·4	288·8	- 5·4	+ 73·2					
									57·355 C	3	36	10	124	301·6	287·8	- 5·5	+ 82·6					
RECURRENT SERIES 883.																						
Group 8815 seen in Rotation 874.																						
" 8834	"	"	"	"	875.				Means ..													
" 8858	"	"	"	"	876.				Group 8858.—March 14–25. A small regular spot, <i>a</i> of Group 8815, diminishing to a dot at the west limb.													
Group 8815.—January 26– February 1. A stream of normal type passing rapidly through its first phases; <i>a</i> is the leading spot; <i>b</i> represents the following component, at first a composite spot and later a cluster.																						
25·379 C	47	217	24	109	285·2	279·3	- 7·0	+ 5·2	72·389 G	14	48	30	104	303·6	286·8	- 6·5	- 77·3					
26·486 G	181	751	97	403	286·5	280·4	- 7·2	+ 21·0	73·353 C	22	113	24	125	304·4	287·4	- 6·4	- 63·8					
27·418 C	152	910	93	553	287·9	281·6	- 6·6	+ 34·7	74·382 C	14	103	11	81	303·6	286·3	- 6·3	- 51·0					
28·359 C	128	744	97	564	289·5	282·9	- 6·4	+ 48·7	75·359 C	19	141	12	89	303·7	286·2	- 6·2	- 38·0					
29·337 C	86	457	94	503	291·1	284·3	- 6·3	+ 63·2	76·373 C	19	151	10	83	303·7	286·0	- 6·5	- 24·7					
30·304 D	18	142	45	352	294·1	287·1	- 5·9	+ 78·9	77·358 C	26	141	13	72	303·8	285·8	- 6·6	- 11·6					
31·404 C	0	9	(0)	39	284·7	277·4	- 5·6)*	+ 84·0	78·414 C	25	160	12	80	303·8	285·6	- 6·4	+ 2·3					
Means ..	..	..	75	414	289·05	282·60	- 6·57	..	79·361 C	26	135	14	70	304·0	285·6	- 6·4	+ 15·0			
									80·319 C	13	70	7	39	304·1	285·5	- 6·6	+ 27·8					
									81·514 C	7	29	5	20	304·3	285·4	- 6·6	+ 43·7					
									82·374 C	3	16	3	14	304·2	285·1	- 6·6	+ 54·9					
									83·453 G	0	6	0	8	304·2	284·8	- 6·4	+ 69·2					
Spot <i>a.</i>																						
25·379 C	26	127	13	64	286·1	280·2	- 6·9	+ 6·1	Means ..	..	..	12	65	303·95	285·88	- 6·46	..			
26·486 G	80	371	44	204	289·6	283·5	- 7·2	+ 24·1	RECURRENT SERIES 884.													
27·418 C	74	437	47	280	291·7	285·4	- 6·9	+ 38·5	Group 8825 seen in Rotation 874.													
28·359 C	82	445	66	360	292·9	286·3	- 6·2	+ 52·1	" 8839	"	"	"	875.									
29·337 C	51	295	62	357	293·9	287·1	- 6·1	+ 66·0	" 8861	"	"	"	876.									
30·304 D	14	108	39	305	295·6	288·6	- 5·9	+ 80·4	Group 8825.—February 4–7. A pair of small nuclei on February 4, of which only one remains on the following days.													
Spot <i>b.</i>																						
25·379 C	21	90	11	45	283·3	277·4	- 7·0	+ 3·3	34·436 C	11	34	8	24	201·7	195·5	+ 10·3	+ 40·9					
26·486 G	92	271	48	141	282·7	276·5	- 7·2	+ 17·2	35·362 C	0	2	0	2	200·0	193·7	+ 9·8	+ 51·4					
27·418 C	61	354	35	202	282·4	276·0	- 6·6	+ 29·2	36·412 C	0	8	0	12	203·4	196·9	+ 12·4	+ 68·6					
28·359 C	29	186	19	123	281·9	275·3	- 6·4	+ 41·1	37·505 C	4	12	24	73	204·1	197·4	+ 12·1	+ 83·7					
Means ..	..	..	..	..	..	..	..	..	Means ..	..	..	..	8	28	202·30	195·88	+ 11·15

LEDGER I.—RECURRENT GROUPS OF SUN SPOTS for the YEAR 1919—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 884—continued.																						
Group 8839.—February 22–March 6. A regular spot with a few close companions near on March 2–4.																						
1919. d					°	°	°	°	1919. d													
52·362 C	16	96	47	280	206·5	198·5	+12·6	-78·2	38·383 C	19	98	48	247	31·5	23·6	+ 8·8	-77·3					
53·356 C	29	176	40	241	205·5	197·3	+12·8	-66·2	39·467 G	37	233	42	266	31·9	23·8	+ 8·5	-62·6					
54·166 D	41	218	40	214	204·8	196·5	+12·6	-56·2	40·389 C	114	756	95	627	31·5	23·2	+ 8·6	-50·9					
55·556 G	42	291	28	195	205·4	196·9	+12·4	-37·3	41·477 G	195	1234	127	801	31·6	23·1	+ 8·3	-36·5					
56·578 C	66	337	38	195	204·9	196·2	+12·4	-24·3	42·513 G	223	1244	125	696	31·6	22·8	+ 8·7	-22·8					
57·355 C	75	351	41	193	204·8	196·0	+12·5	-14·2	43·346 C	234	1474	124	781	31·4	22·5	+ 8·8	-12·1					
58·348 C	64	403	34	214	204·4	195·5	+12·8	- 1·5	44·343 C	282	1528	147	794	31·5	22·4	+ 9·2	+ 1·2					
59·355 C	90	364	49	196	204·2	195·1	+12·7	+11·6	45·456 G	239	1407	129	759	31·6	22·2	+ 9·3	+15·9					
60·355 C	66	449	39	265	203·7	194·5	+13·3	+24·3	46·512 C	186	1442	112	865	31·8	22·2	+ 9·8	+30·0					
61·390 C	51	353	35	240	203·3	193·9	+13·2	+37·5	47·109 K	132	1000	88	670	31·9	22·2	+ 9·7	+38·0					
62·327 C	54	290	45	244	203·2	193·7	+13·3	+49·7	48·344 C	135	740	121	666	31·8	21·8	+ 9·5	+54·2					
63·360 C	24	161	30	203	203·6	193·9	+13·6	+63·7	49·351 C	55	423	77	592	31·8	21·6	+ 9·4	+67·4					
64·428 C	15	64	41	175	203·1	193·2	+13·3	+77·3	50·338 C	17	125	51	379	31·2	20·8	+ 9·2	+79·8					
Means ..	..	..	39	220	204·42	195·48	+12·88	..												
Group 8861.—March 22–28. A small regular spot diminishing to a minute spot before disappearing.																						
80·319 C	9	38	17	70	204·5	193·2	+13·8	-71·8	39·467 G	39	239	69	423	22·2	14·0	+ 9·0	-72·3					
81·514 C	7	43	7	42	204·8	193·3	+13·6	-55·8	40·389 C	46	442	49	473	22·0	13·6	+ 9·3	-60·4					
82·374 C	10	30	8	23	204·5	192·9	+13·6	-44·8	41·477 G	92	701	69	526	22·3	13·7	+ 9·3	-45·8					
83·453 G	8	24	5	15	204·1	192·3	+13·6	-30·9	42·513 G	104	830	64	515	22·1	13·3	+ 9·6	-32·3					
84·382 C	10	20	6	11	203·5	191·6	+13·8	-19·3	43·346 C	85	990	48	554	22·1	13·1	+ 9·5	-21·4					
85·357 C	11	22	6	12	203·4	191·4	+13·6	- 6·5	44·343 C	117	788	62	418	22·0	12·8	+ 9·6	- 8·3					
86·614 G	0	8	0	4	203·3	191·1	+13·4	+10·0	45·456 G	80	637	42	331	21·6	12·2	+ 9·2	+ 5·9					
Means ..	..	..	7	25	204·01	192·26	+13·63	..	46·512 C	90	570	49	314	21·6	12·0	+ 9·0	+19·8			
RECURRENT SERIES 885.																						
Group 8833 seen in Rotation 874.																						
„ 8853	„	„	„	„	875.				47·109 K	43	436	25	257	21·4	11·6	+ 8·8	+27·5					
„ 8873	„	„	„	„	876.				48·344 C	44	272	32	198	21·8	11·8	+ 8·0	+44·2					
Group 8833.—February 8–20. A very large stream of normal type. The leader, a, increases very considerably, but after February 14, it commences to split into two portions. The follower, b, as usual, is composite and is smaller than a. The companion spots are few and small.																						
38·383 C	21	105	68	317	29·5	21·6	+ 8·7	-79·3	49·351 C	6	194	118	542	34·8	20·9	+ 9·3	-78·3					
39·467 G	101	585	143	880	26·4	18·3	+ 8·8	-68·1	60·358 C	66	449	79	531	37·3	23·2	+ 8·6	-63·1					
40·389 C	168	1244	154	1160	26·9	18·6	+ 9·0	-55·5	61·343 C	95	675	80	562	36·9	22·6	+ 8·8	-50·5					
41·477 G	301	1992	208	1375	27·5	19·0	+ 8·7	-40·6	62·347 C	160	930	104	607	37·6	23·0	+ 8·6	-36·6					
42·513 G	334	2116	194	1239	27·3	18·6	+ 9·1	-27·1	63·336 C	152	1164	87	665	37·7	22·9	+ 8·8	-23·4					
43·346 C	325	2501	175	1356	27·4	18·5	+ 9·1	-16·1	64·357 C	195	1158	103	615	37·7	22·7	+ 8·5	-10·0					
44·343 C	403	2339	211	1224	28·1	19·0	+ 9·3	- 2·2	65·391 C	36	194	118	542	34·8	20·9	+ 9·3	-78·3					
45·456 G	326	2085	175	1111	28·4	19·1	+ 9·2	+12·7	66·358 C	66	449	79	531	37·3	23·2	+ 8·6	-63·1					
46·512 C	276	2012	161	1179	29·1	19·6	+ 9·6	+27·3	67·343 C	95	675	80	562	36·9	22·6	+ 8·8	-50·5					
47·109 K	175	1436	113	927	29·0	19·3	+ 9·5	+35·1	68·347 C	160	930	104	607	37·6	23·0	+ 8·6	-36·6					
48·344 C	187	1061	159	899	29·1	19·2	+ 9·2	+51·5	69·336 C	152	1164	87	665	37·7	22·9	+ 8·8	-23·4					
49·351 C	61	535	83	704	30·2	20·1	+ 9·2	+65·8	70·357 C	195	1158	103	615	37·7	22·7	+ 8·5	-10·0					
50·338 C	19	133	54	392	30·9	20·6	+ 9·2	+79·5	71·417 G	200	1025	106	537	38·5	23·3	+ 8·4	+ 4·8					
Means ..	..	..	146	982	28·45	19·35	+ 9·12	..	72·389 G	178	923	96	507	38·9	23·5	+ 8·2	+18·0			
Spot a.																						
65·391 C	6	69	10	119	41·4	26·6	+ 7·7	-71·7	73·353 C	158	847	96	520	39·4	23·8	+ 8·4	+31·2					
66·358 C	31	210	31	208	42·5	27·4	+ 7·4	-57·9	74·382 C	91	787	69	592	40·3	24·5	+ 8·1	+45·7					
67·343 C	30	242	22	177	43·2	27·9	+ 7·4	-44·2	75·359 C	91	504	93	512	40·4	24·3	+ 8·3	+58·7					
Means ..	..	..	92	565	38·43	23·34	+ 8·48	..	76·373 C	33	312	75	594	41·7	25·4	+ 7·8	+73·3			
Spot b.																						
65·391 C	6	69	10	119	41·4	26·6	+ 7·7	-71·7	77·358 C	12	63	(28)	148	31·6	15·1	+ 9·8)*	+76·2					
66·358 C	31	210	31	208	42·5	27·4	+ 7·4	-57·9	68·343 C	30	242	22	177	43·2	27·9	+ 7·4	-44·2					

LEDGER I.—RECURRENT GROUPS OF SUN SPOTS FOR THE YEAR 1919—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 885. Group 8853—Spot a—continued.																										
1919. d 68°347 C	61	331	37	199	44°0	28°5	+ 7°0	-30°2	1919. d 46°512 C	3	9	2	5	346°2	342°4	+16°2	-15°6									
69°336 C	54	419	29	226	44°2	28°5	+ 7°0	-16°9	47°109 K	5	20	3	11	347°0	343°1	+16°5	-6°9									
70°357 C	83	385	43	200	44°7	28°7	+ 6°7	-3°0	48°344 C	2	11	1	6	347°3	343°3	+17°6	+9°7									
71°417 G	94	419	50	222	44°8	28°6	+ 6°8	+11°1	49°351 C	0	0	0	0	..	..	..	..					
72°389 G	71	417	40	238	45°1	28°7	+ 6°8	+24°2	50°338 C	2	4	1	3	347°4	343°3	+17°0	+36°0									
73°353 C	70	394	45	256	45°7	29°0	+ 7°1	+37°5	51°347 C	0	0	0	0	..	..	..	..					
74°382 C	53	427	44	354	45°5	28°6	+ 7°1	+50°9	52°362 C	0	0	0	0	..	..	..	..					
75°359 C	46	243	56	295	46°0	28°9	+ 7°2	+64°3	53°356 C	2	16	5	40	347°5	343°1	+16°5	+75°8									
76°373 C	25	159	65	412	46°2	28°9	+ 7°0	+77°8	Means ...	..	..	I	8	347°08	343°04	+16°76	..							
Spot b.																										
65°391 C	26	91	99	348	32°0	19°2	+ 10°2	-81°1	Group 8835 seen in Rotation 875																	
66°358 C	26	180	37	254	33°0	20°0	+ 10°0	-67°4	" 8855 "																	
67°343 C	46	247	42	227	32°8	19°6	+ 10°0	-54°6	Group 8835—February 16–23. Intermittent. One or two very small spots not seen on February 19, 21, and 22.																	
68°347 C	56	322	39	225	33°0	19°6	+ 10°1	-41°2	1919. d 46°512 C	3	9	2	5	346°2	342°4	+16°2	-15°6									
69°336 C	64	360	38	216	32°7	19°1	+ 10°2	-28°4	47°109 K	5	20	3	11	347°0	343°1	+16°5	-6°9									
70°357 C	71	481	38	260	32°8	19°0	+ 9°9	-14°9	48°344 C	2	11	1	6	347°3	343°3	+17°6	+9°7									
71°417 G	76	424	40	220	32°6	18°6	+ 9°9	-1°1	49°351 C	0	0	0	0	..	..	..	..					
72°389 G	78	385	41	204	32°5	18°3	+ 9°7	+11°6	50°338 C	2	4	1	3	347°4	343°3	+17°0	+36°0									
73°353 C	73	408	42	237	32°9	18°5	+ 9°7	+24°7	51°347 C	0	0	0	0	..	..	..	..					
74°382 C	32	340	21	224	32°3	17°7	+ 9°7	+37°7	52°362 C	0	0	0	0	..	..	..	..					
75°359 C	45	251	37	208	32°4	17°6	+ 9°8	+50°7	53°356 C	2	16	5	40	347°5	343°1	+16°5	+75°8									
76°373 C	8	153	10	182	31°6	16°6	+ 9°6	+63°2	Means ...	..	..	I	8	347°08	343°04	+16°76	..							
77°358 C	12	63	28	148	31°6	16°4	+ 9°8	+76°2	Group 8855—March 10–21. It is uncertain whether this is an actual return of Group 8835; more probably it is a revival of activity. Two large spots seen at the east limb, both of which are unstable and break up after March 13. The leader is then represented by one, and the follower by two, partially formed regular spots, whilst a few small companions have also appeared.																	
Spot c.																										
65°391 C	4	34	9	75	37°4	23°3	+ 7°6	-75°7	68°347 C	27	200	79	620	356°0	350°2	+16°0	-78°2									
66°358 C	9	59	11	69	37°2	22°9	+ 7°0	-63°2	69°336 C	68	618	92	873	355°3	349°4	+16°1	-65°8									
67°343 C	17	145	14	119	37°0	22°5	+ 7°4	-50°4	70°357 C	95	859	83	769	356°0	350°0	+15°6	-51°7									
68°347 C	30	233	19	151	37°1	22°4	+ 7°6	-37°1	71°417 G	129	966	90	678	355°6	349°5	+16°1	-38°1									
69°336 C	29	317	17	181	37°0	22°1	+ 8°2	-24°1	72°389 G	174	1062	104	639	356°4	350°2	+15°6	-24°5									
70°357 C	39	281	21	149	37°0	21°9	+ 8°5	-10°7	73°353 C	116	751	65	423	355°9	349°7	+16°6	-12°3									
71°417 G	30	182	16	95	37°3	21°9	+ 8°8	+ 3°6	74°382 C	96	618	52	339	356°0	349°7	+16°7	+ 1°4									
72°389 G	23	95	12	51	37°3	21°7	+ 8°8	+16°4	75°359 C	74	586	42	332	355°5	349°1	+17°2	+13°8									
73°353 C	13	41	8	25	37°7	21°9	+ 9°1	+29°5	76°373 C	69	418	43	261	356°8	350°3	+16°8	+28°4									
74°382 C	6	20	4	14	37°6	21°6	+ 9°1	+43°0	77°358 C	41	252	30	186	356°1	349°5	+17°2	+40°7									
75°359 C	0	10	0	9	37°7	21°5	+ 9°2	+56°0	78°414 C	15	100	15	103	357°9	351°2	+17°4	+56°4									
Means ...	..	..	..	5	25	55°90	33°53	+ 5°33	79°361 C	16	54	30	102	0°2	353°5	+18°0	+71°2						
RECURRENT SERIES 886.																										
Group 8850 seen in Rotation 875.																										
" 8871 "																										
" 8889 "																										
" 8909 "																										
Group 8850—March 4–15. A large stream with a large and nearly regular spot, a, as leader and a complex train which has practically died out by March 14.																										
62°327 C	6	39	(17	110	74°9	61°1	+ 8°2)*	-78°6																		
63°360 C	48	297	68	405	73°5	59°5	+ 8°1	-66°4																		
64°428 C	132	903	117	803	74°0	59°8	+ 8°2	-51°8																		
65°391 C	212	1404	144	950	74°3	59°8	+ 8°1	-38°8																		
66°358 C	344	2091	199	1214	74°8	60°1	+ 7°9	-25°6																		
67°343 C	318	1905	171	1015	74°2	59°3	+ 8°3	-13°2																		
68°347 C	294	1918	152	998	74°8	59°7	+ 8°0	+ 0°6																		
69°336 C	263	1338	140	714	75°1	59°8	+ 7°4	+14°0																		

LEDGER I.—RECURRENT GROUPS of SUN SPOTS for the YEAR 1919—*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.		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 886. Group 8850—continued.																	
1919. d 70°357 C 71°417 G 72°389 G 73°353 C	197 178 98 65	1028 803 483 256	115 128 101 113	609 583 493 439	75.6 77.3 79.6 80.1	60.0 61.5 63.6 63.9	+ 7.4 + 6.8 + 6.8 + 7.0	+27.9 +43.6 +58.7 +71.9	Means ..	..	..	132	748	75.75	60.64 + 7.64	..	
Spot a.																	
64°428 C 65°391 C 66°358 C 67°343 C 68°347 C 69°336 C 70°357 C 71°417 G 72°389 G 73°353 C	47 97 124 142 141 144 110 131 96 65	331 634 935 774 967 752 686 611 460 248	37 61 69 74 73 78 67 98 99 113	258 399 524 402 503 406 418 458 474 431	78.1 78.4 78.6 78.6 79.0 79.6 79.5 63.6 80.3 80.3	63.5 63.6 63.5 63.3 63.5 63.9 63.5 63.6 63.9 63.6	+ 8.0 + 7.8 + 7.6 + 7.0 + 6.9 + 6.6 + 6.7 + 6.6 + 6.8 + 7.0	-47.7 -34.7 -21.8 -8.8 + 4.8 + 18.5 + 31.8 + 46.1 + 59.4 + 72.1	Means ..	..	..	34	164	87.37	59.08 + 6.58	..	
Group 8871.—March 30—April 11. A regular spot (a of Group 8850) closely followed by variable small companions usually arranged in three clusters.,																	
88°489 G 89°112 K 90°306 D 91°427 C 92°404 G 93°386 C 94°357 G 95°577 C 96°452 G 97°579 G 98°425 G 99°346 C 100°430 G	7 32 58 77 97 95 118 72 623 91 62 34 24	48 138 302 398 533 644 625 502 50 475 364 264 113	43 69 61 56 58 52 319 38 341 58 48 35 48	293 299 320 291 320 348 319 260 341 305 278 269 225	84.2 84.8 83.9 84.6 85.0 84.7 85.1 85.3 85.4 85.6 84.5 84.5 85.5	63.4 63.9 62.7 63.1 63.3 62.7 62.9 62.8 62.7 62.7 61.4 61.1 61.9	+ 6.3 + 6.6 + 6.3 + 6.2 + 5.9 + 5.8 + 5.7 + 5.5 + 5.4 + 5.8 + 6.6 + 6.1 + 6.6	-84.4 -75.6 -60.7 -45.2 -32.0 -19.3 -6.1 + 10.2 + 21.9 + 36.9 + 47.0 + 59.2 + 74.5	Means ..	..	..	17	108	89.21	60.19 + 9.98	..	
Group 8889.—April 27—May 9. A regular spot (a of Group 8850) with occasional very small companions.																	
116°350 G 117°360 C 118°639 G 119°343 G 120°332 C 121°367 C 122°372 C 123°662 G 124°464 C	13 28 38 57 51 61 60 54 41	76 180 220 270 291 294 322 338 250	23 29 27 35 28 31 31 30 25	135 185 154 167 160 150 164 186 153	87.8 87.3 87.6 87.2 87.1 87.2 87.3 87.4 87.6	60.9 60.2 60.2 59.6 59.3 59.2 59.0 58.8 58.8	+ 6.9 + 7.0 + 7.0 + 6.7 + 7.0 + 6.6 + 6.5 + 6.2 + 6.2	-73.0 -60.1 -42.9 -34.0 -21.0 -7.3 + 6.1 + 23.3 + 34.1	Means ..	..	..	89	451	182.08	180.58 -19.68	..	
Group 8889—continued.																	
1919. d 125°423 G 126°345 C 127°508 G 128°348 G	33 22 8 16	220 179 84 25	25 22 15 118	163 176 155 184	87.3 87.6 87.0 87.4	58.3 58.4 57.6 57.8	+ 6.1 + 6.1 + 6.6 + 6.7	+ 46.5 + 58.9 + 73.7 + 85.2	Means ..	..	..	34	164	87.37	59.08 + 6.58	..	
Group 8909.—May 24—June 4. A small regular spot—a of Group 8850.																	
143°371 C 144°383 C 145°220 K 146°354 C 147°339 G 148°343 G 149°337 C 150°366 C 151°388 C 152°372 C 153°364 C 154°460 C	7 17 28 33 33 37 25 27 21 18 16 15	62 101 167 154 178 206 190 207 146 134 102 83	14 18 22 20 18 19 13 15 13 13 15 26	122 108 134 95 98 105 97 112 88 96 97 144	88.6 88.8 88.9 89.2 89.5 89.5 89.5 89.3 89.4 89.3 88.9 89.6	60.6 60.6 60.6 60.7 60.8 60.6 60.4 60.0 59.9 59.6 59.0 59.5	+ 9.3 + 9.5 + 9.3 + 9.6 + 9.5 + 9.7 + 10.2 + 10.3 + 10.4 + 10.7 + 10.7 + 10.5	-74.8 -61.3 -50.1 -34.8 -21.5 -8.2 + 5.0 + 18.4 + 32.0 + 44.9 + 57.7 + 72.9	Means ..	..	..	17	108	89.21	60.19 + 9.98	..	
RECURRENT SERIES 887.																	
Group 8862 seen in Rotation 876.																	
8884	"	877.															
8903	"	878.															
Group 8862.—March 23—April 4. A large regular spot, a, followed at first by a distant companion which disappears as a small cluster, and then by a train of numerous very small spots which die out towards the west limb.																	
81°514 C 82°374 C 83°453 G 84°382 C 85°357 C 86°614 G 87°480 G 88°489 G 89°112 K 90°306 D 91°427 C 92°404 G 93°386 C	42 72 120 141 159 172 211 185 156 132 87 72 25	229 404 649 783 859 848 914 909 763 616 434 292 144	93 542 103 530 91 442 466 481 418 400 72 87 55	506 181.7 181.1 181.6 181.9 181.8 182.4 181.7 181.6 183.0 182.4 182.4 182.4	182.1 180.3 179.7 180.2 180.4 180.3 180.9 180.2 180.1 181.5 180.8 181.7 180.8	-20.0 -20.4 -20.3 -19.8 -19.8 -19.6 -19.2 -19.7 -19.4 -19.2 -19.5 -19.5 -19.6	-78.5 -67.6 -53.9 -41.2 -28.0 -11.5 + 0.5 + 13.1 + 21.2 + 38.4 + 52.6 + 66.3 + 78.4	Means ..	..	..	89	451	182.08	180.58 -19.68	..		

LEDGER I.—RECURRENT GROUPS of SUN SPOTS for the YEAR 1919—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 887. Group 8862—continued.																						
Spot <i>a</i> .																						
1919. d					°	°	°	°														
81·514 C	42	229	93	506	182·1	180·5	-20·0	-78·5														
82·374 C	72	358	89	444	182·2	180·6	-20·0	-67·1														
83·453 G	110	579	92	481	182·3	180·6	-20·2	-52·7														
84·382 C	133	743	89	498	182·1	180·4	-19·8	-40·7														
85·357 C	148	785	84	447	182·5	180·8	-19·6	-27·4														
86·614 G	163	760	85	395	182·6	180·9	-19·2	-10·7														
87·480 G	211	902	108	460	182·5	180·8	-19·2	+0·6														
88·489 G	185	872	98	462	182·5	180·7	-19·2	+13·9														
89·112 K	150	704	82	387	182·6	180·8	-19·2	+22·2														
90·306 D	132	616	86	400	183·0	181·2	-19·2	+38·4														
91·427 C	87	430	72	356	182·5	180·7	-19·4	+52·7														
92·404 G	72	292	87	353	183·3	181·5	-19·5	+66·3														
93·386 C	25	144	55	318	182·4	180·5	-19·5	+78·4														
Group 8884.—April 19—May 2. A regular spot, <i>a</i> of Group 8862, with very small companions on April 21 and 23.																						
108·393 G	24	108	82	370	183·1	180·4	-19·6	-82·8														
109·523 C	42	258	55	338	183·0	180·3	-19·3	-68·0														
110·382 C	62	324	58	303	182·4	179·6	-19·7	-57·2														
111·501 G	67	398	46	275	182·3	179·5	-19·6	-42·5														
112·403 G	95	509	57	305	182·2	179·4	-19·5	-30·7														
113·348 C	85	488	46	264	181·8	179·0	-19·5	-18·6														
114·335 C	127	505	66	263	181·5	178·6	-19·4	-5·9														
115·393 G	122	554	63	288	181·4	178·5	-19·3	+8·0														
116·350 G	96	494	53	272	181·0	178·1	-19·4	+20·2														
117·360 C	80	442	50	274	180·7	177·8	-19·3	+33·3														
118·639 G	75	339	59	268	180·4	177·4	-19·0	+49·9														
119·343 G	53	286	52	283	180·4	177·4	-19·1	+59·2														
120·332 C	32	150	51	237	180·1	177·1	-19·2	-1·72·0														
121·367 C	8	50	38	239	179·6	176·6	-19·1	+85·1														
Means ..	..	..	55	284	181·42	178·41	-19·36	..												
Group 8903.—May 17–25. A small regular spot, probably <i>a</i> of Group 8862. Group 8910 arises following its position on May 26.																						
136·351 C	10	41	27	112	176·6	175·4	--20·1	-79·7														
137·378 C	7	75	9	97	175·9	174·7	--20·2	-66·8														
138·609 G	18	101	15	83	175·8	174·6	-20·0	-50·7														
139·336 G	26	119	18	83	175·4	174·1	-19·9	-41·4														
140·353 G	27	132	16	78	175·2	173·9	-19·8	-28·2														
141·505 G	28	106	15	57	174·6	173·3	-19·8	-13·5														
142·339 C	20	114	11	60	174·0	172·7	-20·1	-3·1														
143·371 C	21	45	11	24	173·5	172·2	-20·1	+10·1														
144·383 C	8	37	5	21	173·1	171·8	-20·0	+23·0														
Means ..	..	..	14	68	174·90	173·63	-20·00	..												
Spot <i>b</i> .																						
122·372 C	32	247	67	649	2·7	334·4	+ 6·2	-78·5														
123·662 G	136	817	150	891	2·2	333·6	+ 6·0	-61·9														
124·464 C	207	1455	167	1173	3·1	334·3	+ 6·7	-50·4														
125·423 G	280	1531	180	988	2·9	333·9	+ 6·2	-37·9														
126·345 C	309	1780	173	1001	3·7	334·5	+ 6·4	-25·0														
127·508 G	287	1549	148	797	4·6	335·2	+ 6·4	-8·7														
128·348 G	282	1483	143	756	5·5	335·9	+ 6·6	+ 3·3														
129·591 G	229	1353	124	726	5·7	335·8	+ 6·5	+ 20·0														
130·355 G	176	1029	106	611	6·5	336·4	+ 6·6	+ 30·9														
131·351 C	127	888	90	636	7·1	336·8	+ 6·6	+ 44·6														
132·338 G	81	587	76	556	6·6	336·0	+ 7·1	+ 57·2														
133·337 G	43	308	68	484	7·0	336·2	+ 7·3	+ 70·8														
134·338 G	15	127	80	676	7·3	336·3	+ 7·5	+ 84·3														
Means ..	..	..	55	284	181·42	178·41	-19·36	..												
Spot <i>b</i> .																						
122·372 C	0	17	0	75	358·3	331·9	+ 7·2	-82·9														
123·662 G	12	55	15	70	358·0	331·3	+ 8·0	-66·1														
124·464 C	23	139	21	129	357·2	330·3	+ 8·7	-56·3														
125·423 G	32	229	22	160	357·6	330·5	+ 8·2	-43·2														
126·345 C	52	289	31	171	358·0	330·7	+ 8·3	-30·7														
127·508 G	28	162	15	86	357·6	330·1	+ 8·5	-15·7														
128·348 G	20	75	10	38	358·0	330·3	+ 8·4	-4·2														
129·591 G	9	59	5	31	358·9	330·9	+ 7·9	+ 13·2														

LEDGER I.—RECURRENT GROUPS of SUN SPOTS for the YEAR 1919—*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.	Umbræ	Whole Spots.	System I.	System II.	Umbræ	Whole Spots.	System I.	System II.

RECURRENT SERIES 888. Group 8895—continued.

Spot c.

1919. d					o	o	o	o
122·372 C	o	29	o	154	357·0	326·4	+ 4·8	- 84·2
123·662 G	26	151	36	210	355·5	324·6	+ 4·4	- 68·6
124·464 C	21	129	20	124	355·3	324·2	+ 4·0	- 58·2
125·423 G	29	160	21	114	355·7	324·3	+ 3·1	- 45·1
126·345 C	17	135	10	81	355·9	324·3	+ 3·2	- 32·8
127·508 G	16	60	8	32	356·1	324·2	+ 2·9	- 17·2
128·348 G	10	25	5	13	355·7	323·6	+ 3·2	- 6·5
129·591 G	7	20	4	10	355·6	323·2	+ 3·3	+ 9·9
130·355 G	7	21	4	11	355·9	323·3	+ 3·6	+ 20·3
131·351 C	7	14	4	9	356·2	323·4	+ 3·8	+ 33·7
132·338 G	2	4	1	3	356·2	323·1	+ 4·0	+ 46·8

Group 8917.—May 30—June 11. A stable circular spot, evidently α of Group 8895, followed by an area of faculae in which one or two very small spots appear.

149·337 C	27	172	51	323	10·1	336·5	+	6·8	- 74·4
150·366 C	45	276	47	287	10·1	336·3	+	6·9	- 60·8
151·388 C	61	435	45	322	10·3	336·2	+	7·1	- 47·1
152·372 C	88	489	54	298	10·4	336·1	+	7·1	- 34·0
153·364 C	85	545	46	295	10·5	336·0	+	7·2	- 20·7
154·460 C	106	484	55	248	10·7	335·9	+	7·4	- 6·0
155·568 G	85	454	43	231	10·6	335·6	+	7·3	+ 8·5
156·558 G	84	460	45	248	10·9	335·7	+	7·4	+ 21·9
157·361 G	57	375	34	224	10·3	334·9	+	7·3	+ 32·0
158·492 C	53	317	39	235	10·8	335·1	+	7·4	+ 47·4
159·500 G	37	226	38	233	10·7	334·8	+	7·5	+ 60·7
160·342 G	21	129	34	212	11·1	335·0	+	7·4	+ 72·2
161·364 C	8	27	(43)	144	10·0	333·7	+	7·4)*	+ 84·7
Means ..	..	..	44	263	10·54	335·68	+	7·23	..

Group 8958.—June 26—July 3. A small spot, evidently *a* of Group 8895, with a distant companion from June 28—July 2.

176·410 G	8	28	13	45	14·1	337·8	+ 8·0	- 72·1
177·220 D	17	33	18	35	13·7	337·2	+ 8·7	- 61·8
178·329 G	19	29	14	21	13·1	336·4	+ 8·7	- 47·7
179·439 C	18	66	11	40	12·8	335·8	+ 9·1	- 33·3
180·349 C	15	40	8	21	12·4	335·2	+ 9·2	- 21·6
181·403 C	9	32	5	17	13·1	335·7	+ 9·6	- 7·0
182·370 C	10	23	5	12	12·4	334·8	+ 9·4	+ 5·1
183·376 C	7	10	4	5	14·8	337·0	+ 9·8	+ 20·8
Means ...	..	..	10	25	13·30	336·24	+ 9·06	..

RECURRENT SERIES 889.

Group 8900 seen in Rotation 878.
" 8928 " 879.

Group 8900.—May 13-25. A large spot at the east limb which develops considerably during the following days and becomes of very composite formation with numerous umbræ. A cluster of irregularly formed spots appears in front, and near its maximum phase, when it is of considerable extension, its division from the main spot is somewhat arbitrary.

1919. d					o	o	o	o
132·338 G	44	350	108	861	232·2	214·9	+13·7	-77·2
133·337 G	121	810	152	1021	231·2	213·7	+13·8	-65·0
134·338 G	235	1298	200	1103	231·5	213·9	+13·8	-51·5
135·696 G	507	2508	316	1563	232·2	214·4	+14·2	-32·8
136·351 C	585	2915	335	1670	232·1	214·2	+14·2	-24·2
137·378 C	426	3372	224	1776	232·4	214·4	+14·2	-10·3
138·609 G	548	3124	287	1635	232·3	214·1	+14·2	+ 5·8
139·336 G	552	3063	299	1663	231·2	212·9	+14·2	+14·4
140·353 G	415	2616	244	1540	231·0	212·6	+14·3	+27·6
141·505 G	303	2037	215	1459	231·2	212·7	+14·2	+43·1
142·339 C	162	1355	142	1201	230·7	212·0	+14·6	+53·6
143·371 C	87	849	121	1179	230·9	212·1	+14·4	+67·5
144·383 C	60	306	175	894	229·5	210·6	+14·5	+79·4

Group 8928.—June 9-21. A large spot, *a*, followed by a companion, *b*, of regular type and a small cluster, *c*, at the rear; *a* is at first of regular type, but after June 14 it becomes larger and, at the same time, elongated with very composite umbra. It shrinks rapidly after June 16.

159·500 G	47	218	116	536	232·0	208·2	+13·2	-78·0
160·342 G	93	439	125	589	231·4	207·5	+13·1	-67·5
161·364 C	139	862	124	773	230·2	206·2	+13·3	-55·1
162·343 G	185	1117	125	761	231·1	206·9	+12·7	-41·3
163·358 C	234	1451	136	844	231·1	206·8	+12·7	-27·9
164·346 G	317	1436	167	756	231·1	206·6	+12·9	-14·8
165·390 G	287	1522	146	777	231·3	206·7	+13·0	-8·8
166·345 G	261	1448	136	753	231·3	206·5	+13·0	+11·9
167·344 G	255	1252	143	703	230·9	206·0	+13·2	+24·7
168·456 G	141	922	93	609	231·1	206·0	+13·1	+39·6
169·418 G	94	614	78	510	230·9	205·7	+13·6	+52·2
170·417 C	46	408	54	499	230·8	205·4	+13·4	+65·3
171·362 G	36	241	85	581	231·1	205·6	+13·8	+78·1
Means ..	..	..	118	669	231·10	206·47	+13·15	..

Means 118 669 231.10 206.47 +13.15 ..

Spot *a*

ν	ν	ν	ν	ν	ν	ν	ν	ν	ν
159.500 G	47	218	116	536	232.0	207.1	+13.2	-78.0	
160.342 G	81	386	104	498	232.3	207.3	+13.0	-66.6	
161.364 C	105	596	89	507	232.2	207.0	+13.3	-53.1	
162.343 G	131	777	86	513	232.8	207.5	+12.6	-39.6	
163.358 C	158	968	90	552	232.7	207.2	+12.7	-26.3	
164.346 G	221	977	115	508	232.8	207.2	+12.4	-13.1	
165.390 G	173	966	88	493	232.8	207.0	+12.2	+ 0.7	

LEDGER I.—RECURRENT GROUPS OF SUN SPOTS for the YEAR 1919—*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 889. Group 8928—Spot <i>a</i> — <i>continued</i> .																				
1919. d 166·345 G	163	971	85	505	232·9	207·0	+12·2	+13·5	1919. d 136·351 C	9	42	7	34	204·4	175·2	-9·3	-51·9			
167·344 G	163	772	93	440	232·7	206·6	+12·4	+26·5	137·378 C	29	136	18	84	206·8	177·4	-9·6	-35·9			
168·456 G	74	536	50	364	233·3	207·0	+12·2	+41·8	138·609 G	55	314	29	166	208·7	179·0	-9·4	-17·8			
169·418 G	58	352	50	306	233·1	206·7	+12·7	+54·4	139·336 G	64	357	33	182	209·0	179·2	-9·1	-7·8			
170·417 C	16	229	21	302	233·0	206·4	+12·7	+67·5	140·353 G	54	355	28	181	209·7	179·7	-8·3	+6·3			
171·362 G	19	139	52	381	232·6	205·9	+13·3	+79·6	141·505 G	51	314	28	170	210·5	180·2	-8·2	+22·4			
Spot <i>b</i> .																				
160·342 G	12	53	21	91	226·2	205·2	+13·8	-72·7	142·339 C	47	306	29	187	211·3	180·8	-7·9	+34·2			
161·364 C	29	242	29	240	226·4	205·3	+13·6	-58·9	143·371 C	29	258	22	196	212·1	181·4	-7·6	+48·7			
162·343 G	42	278	30	200	227·5	206·2	+13·3	-44·9	144·383 C	30	165	33	182	213·0	182·1	-7·1	+62·9			
163·358 C	65	405	39	243	228·0	206·6	+13·5	-31·0	145·220 K	18	75	34	141	213·6	182·5	-6·9	+74·6			
164·346 G	84	410	45	221	228·1	206·6	+13·8	-17·8	Spot <i>a</i> .											
165·390 G	98	462	50	236	228·3	206·6	+14·1	-3·8	1919. d 136·351 C	9	42	7	34	204·4	175·2	-9·3	-51·9			
166·345 G	95	452	49	235	228·4	206·6	+14·6	+9·0	137·378 C	29	136	18	84	206·8	177·4	-9·6	-35·9			
167·344 G	84	431	46	237	228·3	206·4	+14·5	+22·1	138·609 G	55	314	29	166	208·7	179·0	-9·4	-17·8			
168·456 G	59	341	38	218	228·3	206·2	+14·5	+36·8	139·336 G	64	357	33	182	209·0	179·2	-9·1	-7·8			
169·418 G	36	247	28	193	228·1	205·9	+14·7	+49·4	140·353 G	54	355	28	181	209·7	179·7	-8·3	+6·3			
170·417 C	30	179	33	197	227·9	205·6	+14·7	+62·4	141·505 G	51	314	28	170	210·5	180·2	-8·2	+22·4			
171·362 G	17	102	33	200	228·2	205·8	+14·7	+75·2	142·339 C	47	306	29	187	211·3	180·8	-7·9	+34·2			
Spot <i>c</i> .																				
161·364 C	5	24	6	26	223·0	201·7	+14·4	-62·3	143·371 C	16	76	13	62	220·6	184·2	-7·4	-51·8			
162·343 G	12	62	9	48	223·3	201·9	+13·3	-49·1	144·383 C	18	82	12	53	220·4	183·8	-7·2	-38·6			
163·358 C	11	78	7	49	223·6	202·0	+13·5	-35·4	145·220 K	19	66	11	37	220·2	183·4	-7·3	-25·7			
164·346 G	12	49	7	27	223·7	202·0	+13·9	-22·2	160·342 G	7	38	17	93	220·8	184·9	-7·3	-78·1			
165·390 G	12	72	6	37	223·9	202·1	+14·1	-8·2	161·364 C	9	61	11	73	220·3	184·2	-7·0	-65·0			
166·345 G	3	25	2	13	223·9	201·9	+14·6	+4·5	162·343 G	16	76	13	62	220·6	184·2	-7·4	-51·8			
167·344 G	8	49	4	26	223·9	201·8	+14·1	+17·7	163·358 C	18	82	12	53	220·4	183·8	-7·2	-38·6			
168·456 G	8	45	5	27	224·4	202·2	+14·4	+32·9	164·346 G	19	66	11	37	220·2	183·4	-7·3	-25·7			
169·418 G	0	15	0	11	224·7	202·3	+14·8	+46·0	165·390 G	16	50	8	26	219·8	182·8	-7·7	-12·3			
RECURRENT SERIES 890.																				
Group 8902 seen in Rotation 878.																				
" 8932 " " 879.																				
Group 8902.—May 16–26. On May 16, a few very small spots, <i>s</i> Group 8901, which develop into a regular spot, <i>a</i> , with a train of very small companions.																				
135·696 G	3	18	3	20	201·9	173·3	-9·8	-63·1	146·339 C	4	39	2	21	189·2	182·9	-18·9	+12·1			
136·351 C	19	101	16	86	202·6	173·8	-9·6	-53·7	147·339 G	20	112	76	413	193·0	186·5	-18·2	+82·0			
137·378 C	36	193	23	122	205·5	176·5	-9·6	-37·2	Means ..	..	..	42	214	190·82	184·43	-18·52	..	
138·609 G	74	384	39	204	207·9	178·7	-9·3	-18·6	143·371 C	32	185	19	107	188·7	182·4	-18·9	+25·3			
139·336 G	87	424	45	217	208·0	178·6	-9·0	-8·8	144·383 C	38	180	26	122	189·7	183·3	-18·5	+39·6			
140·353 G	75	520	38	263	207·5	177·9	-8·6	+4·1	145·220 K	72	282	63	248	191·9	185·5	-18·5	+52·9			
141·505 G	88	518	47	276	207·9	178·0	-8·3	+19·8	146·354 C	48	267	66	374	192·4	186·0	-18·1	+68·4			
142·339 C	62	438	38	261	209·4	179·4	-8·3	+32·3	147·339 G	20	112	76	413	193·0	186·5	-18·2	+82·0			
143·371 C	41	349	30	259	210·7	180·5	-8·1	+47·3	Group 8935.—June 12–24. An extremely large spot visible to the naked eye. When seen foreshortened near the east limb, it appears nearly of regular formation, but later its general outline becomes somewhat irregular, and its umbra is seen to be composite. The spot shows signs of breaking up near the west limb. Small companion spots appear after June 14.											
144·383 C	32	174	35	191	212·7	182·2	-7·2	+62·6	162·343 G	54	255	170	803	192·2	179·5	-17·4	-80·2			
145·220 K	18	75	34	141	213·6	183·0	-6·9	+74·6	163·358 C	95	731	128	987	192·2	179·5	-17·1	-66·8			
Means ..	..	..	32	185	207·97	178·35	-8·61	..	164·346 G	152	1045	137	940	191·9	179·1	-17·0	-54·0	
									165·390 G	260	1525	180	1054	191·7	178·8	-17·0	-40·4			

LEDGER I.—RECURRENT GROUPS of SUN SPOTS for the YEAR 1919—*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 891. Group 8935—<i>continued.</i>																										
1919. d 166·345 G	290	2092	175	1259	191·2	178·2	−16·8	−28·2	1919. d 198·461 G	5	34	8	53	84·2	45·3	−9·9	−70·1									
167·344 G	346	2216	188	1199	191·2	178·1	−17·2	−15·0	199·364 C	9	41	9	41	84·3	45·2	−9·9	−58·1									
168·456 G	372	2184	197	1158	191·1	178·0	−17·3	−0·4	200·381 C	7	16	5	12	84·0	44·7	−9·9	−44·9									
169·418 G	425	2384	230	1287	191·1	177·9	−16·9	+12·4	Means ..	..	..	7	35	84·17	45·07	−9·90	..							
170·417 C	322	2298	187	1333	191·0	177·7	−16·9	+25·5																		
171·362 G	285	2095	191	1403	190·7	177·3	−16·5	+37·7	Group 8976.—July 18–20. A small regular spot just disappearing.																	
172·410 G	200	1713	174	1490	191·3	177·9	−16·9	+52·2	1919. d 198·461 G	3	41	8	109	76·0	35·3	−8·5	−78·3									
173·628 G	142	975	200	1406	190·8	177·3	−16·5	+67·8	199·364 C	15	111	20	144	76·1	35·2	−8·3	−66·3									
174·360 C	45	459	120	1219	191·4	177·8	−16·5	+78·1	200·381 C	26	176	22	150	76·3	35·2	−8·4	−52·6									
Means ..	..	..	175	1195	191·37	178·24	−16·92	..	201·347 G	41	222	27	147	77·1	35·8	−8·8	−39·1							
RECURRENT SERIES 892.																										
Group 8914 seen in Rotation 878.																										
,, 8949 „ 879.																										
,, 8976 and 8977 „ 880.																										
Group 8914.—May 29–June 6. A stream of small spots until June 2 when three or four larger components have appeared. The following spot becomes one of regular type.																										
148·343 G	17	51	10	29	70·0	35·6	−5·8	−27·7	198·461 G	3	41	8	109	76·0	35·3	−8·5	−78·3									
149·337 C	36	122	19	63	71·6	36·9	−6·2	−12·9	199·364 C	15	111	20	144	76·1	35·2	−8·3	−66·3									
150·366 C	27	231	14	115	71·9	37·0	−6·6	+1·0	200·381 C	26	176	22	150	76·3	35·2	−8·4	−52·6									
151·388 C	67	371	34	191	71·6	36·5	−6·7	+14·2	201·347 G	41	222	27	147	77·1	35·8	−8·8	−39·1									
152·372 C	87	618	49	350	71·2	35·8	−6·3	+26·8	202·528 G	58	273	32	153	77·7	36·2	−9·0	−22·8									
153·364 C	109	661	73	438	71·5	35·9	−6·5	+40·3	203·385 C	58	307	31	163	77·8	36·1	−9·1	−11·4									
154·460 C	89	508	81	466	73·0	37·2	−6·9	+56·3	204·369 C	43	283	22	147	78·2	36·3	−9·2	+2·0									
155·568 G	36	238	59	385	74·3	38·2	−6·9	+72·2	205·380 C	34	310	18	167	78·3	36·2	−9·4	+15·5									
156·558 G	4	13	(13)	41	69·7	33·4	−6·7)*	+80·7	206·347 G	43	263	25	155	78·3	36·0	−9·6	+28·3									
Means ..	..	..	42	255	71·89	36·64	−6·49	..	207·365 C	36	215	25	151	78·5	36·0	−9·7	+42·0							
Group 8949.—June 21–July 3. A regular spot with a train of small followers, grouped usually about two centres. One of these companions is seen as a small regular spot on July 2.																										
171·362 G	8	31	23	91	73·2	36·7	−9·0	−79·8	208·427 C	20	167	19	159	78·7	36·0	−10·0	+56·2									
172·410 G	25	140	30	180	73·5	36·8	−8·9	−65·6	209·371 C	8	92	12	136	78·8	35·9	−10·2	+68·8									
173·628 G	68	375	54	299	73·7	36·7	−8·2	−49·3	Means ..	..	..	22	148	77·65	35·85	−9·18	..							
174·360 C	78	426	53	284	73·3	36·2	−8·2	−40·0																		
175·468 G	96	460	55	258	74·7	37·3	−8·4	−24·0	RECURRENT SERIES 893.																	
176·410 G	116	470	61	246	75·3	37·7	−8·5	−10·9	1919. d 198·461 G	3	41	8	109	76·0	35·3	−8·5	−78·3									
177·220 D	103	508	53	259	75·6	37·8	−8·6	+0·1	199·364 C	15	111	20	144	76·1	35·2	−8·3	−66·3									
178·329 G	94	457	50	243	77·0	39·0	−8·5	+16·2	200·381 C	26	176	22	150	76·3	35·2	−8·4	−52·6									
179·439 C	71	365	43	220	77·8	39·6	−8·3	+31·7	201·347 G	41	222	27	147	77·1	35·8	−8·8	−39·1									
180·349 C	42	294	30	208	78·3	39·9	−8·4	+44·3	202·528 G	58	273	32	153	77·7	36·2	−9·0	+15·5									
181·403 C	45	273	43	267	78·2	39·6	−8·2	+58·1	203·385 C	58	307	31	163	78·8	36·3	−9·1	+61·1									
182·370 C	28	159	43	243	77·4	38·6	−8·5	+70·1	204·369 C	43	283	22	147	78·2	36·3	−9·2	+20·8									
183·376 C	7	28	(20)	79	73·0	33·9	−9·3)*	+79·0	205·380 C	34	310	18	167	78·3	36·2	−9·4	+15·5									
Means ..	..	..	45	233	75·67	37·99	−8·48	..	206·347 G	43	263	32	153	78·7	36·0	−9·6	+28·3							
Spot a.																										
155·568 G	56	236	45	191	53·6	17·8	+7·4	+51·5	156·558 G	35	176	43	216	55·0	19·0	+6·6	+66·0									
157·361 G	15	98	35	225	55·7	19·5	+6·0	+77·4	158·492 C	7	45	(23)	165	46·0	10·0	+6·9)*	+82·6									

LEDGER I.—RECURRENT GROUPS of SUN SPOTS for the YEAR 1919—*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.
	Umbra.	Whole Spots.	Umbra.	Whole Spots.	System I.	System II.				Umbra.	Whole Spots.	Umbra.	Whole Spots.	System I.	System II.		

RECURRENT SERIES 893—continued.

Group 8952.—June 22-July 4. A stable regular spot, perhaps *a* of Group 8922.

1919. a					°	°	°	°
172.410 G	17	101	40	237	61.3	18.5	+ 3.7	- 77.8
173.628 G	41	211	43	222	61.4	18.3	+ 3.9	- 61.6
174.360 C	56	271	45	220	61.5	18.3	+ 4.0	- 51.8
175.468 G	54	306	34	193	61.6	18.1	+ 3.9	- 37.1
176.410 G	61	332	34	183	61.6	17.8	+ 3.6	- 24.6
177.220 D	81	326	42	170	61.5	17.5	+ 3.8	- 14.0
178.329 G	60	306	30	153	61.9	17.7	+ 3.6	+ 1.1
179.439 C	53	310	28	161	62.0	17.4	+ 4.1	+ 15.9
180.349 C	46	252	26	144	61.8	17.1	+ 4.3	+ 27.8
181.403 C	45	234	30	157	62.1	17.1	+ 4.7	+ 42.0
182.370 C	25	155	22	135	62.3	17.1	+ 5.0	+ 55.0
183.376 C	11	103	15	139	62.3	16.8	+ 5.0	+ 68.3
184.343 G	13	73	39	221	61.9	16.2	+ 5.1	+ 80.7
Means ..	..	..	33	180	61.78	17.53	+ 4.21	..

RECURRENT SERIES 894.

Group 8933 seen in Rotation 879.
" 8962 " " 880.

Group 8933.—June 12-13. A small group at the west limb.

162.343 G	2	17	2	19	334.9	301.0	- 8.3	+ 62.5
163.358 C	7	20	13	37	332.6	298.5	- 9.4	+ 73.6
Means ...	..	..	7	28	333.75	299.75	- 8.85	..

Group 8962.—June 29-July 8. Probable return of Group 8933, but perhaps only a revival. A small group of unstable spots which are very faint after July 4.

179°439 C	o	14	o	35	328°1	288°8	- 7°6	- 78°0
180°349 C	10	69	12	87	328°4	288°9	-- 7°7	- 65°6
181°403 C	11	70	9	59	327°4	287°7	- 7°2	- 52°7
182°370 C	13	73	9	49	327°2	287°3	- 7°4	- 40°1
183°376 C	35	154	20	89	326°9	286°7	- 7°4	- 27°1
184°343 G	45	186	23	98	326°6	286°2	- 7°6	- 14°6
185°386 C	10	47	5	24	327°6	287°0	- 7°4	+ 0°2
186°365 C	2	25	1	13	324°2	283°4	- 7°4	+ 9°8
187°463 C	3	28	2	16	326°2	285°2	- 9°1	+ 26°3
188°253 D	2	14	1	9	326°7	285°5	-- 10°1	- 37°3
Means ..	..	..	8	48	326°93	286°67	- 7°89	..

RECURRENT SERIES 895.

Group 8940 seen in Rotation 879.
" 8969 " " 880.

Group 8940.—June 16-26. A stream consisting of a regular spot, *a* followed by a train of small companions, barely discernible after June 22.

1919. d					o	o	o	o
166·345 G	30	124	28	114	162·5	126·2	+ 9·2	- 56·9
167·344 G	100	459	69	315	164·1	127·6	+ 8·8	- 42·1
168·456 G	96	572	54	321	164·7	128·0	+ 8·5	- 26·8
169·418 G	103	715	53	368	165·3	128·4	+ 8·0	- 13·4
170·417 C	95	632	46	316	166·1	129·0	+ 7·5	+ 0·6
171·362 G	108	570	56	295	164·9	127·5	+ 7·7	+ 11·9
172·410 G	80	499	45	283	165·7	128·1	+ 7·3	+ 26·6
173·628 G	57	289	39	199	166·3	128·5	+ 7·1	+ 43·3
174·360 C	53	287	42	234	164·3	126·3	+ 7·7	+ 51·0
175·468 G	27	152	36	200	165·8	127·6	+ 8·0	+ 67·1
176·410 G	13	65	38	190	166·5	128·0	+ 7·4	+ 80·3
Means ..	..	..	46	258	165·11	127·75	+ 7·93	..

Spot a.

167·344 G	59	291	39	192	166·4	129·4	+	9·1	-39·8
168·456 G	63	399	35	219	166·9	129·7	+	8·3	-24·6
169·418 G	84	578	43	295	166·4	129·0	+	8·0	-12·3
170·417 C	85	598	42	299	166·3	128·6	+	7·5	+ 0·8
171·362 G	100	454	52	236	166·3	128·4	+	7·4	+13·3
172·410 G	69	438	39	250	166·7	128·6	+	7·1	+27·6
173·628 G	57	285	39	197	166·4	128·0	+	7·0	+43·4
174·360 C	42	244	35	205	166·7	128·2	+	7·4	+53·4
175·468 G	27	144	36	193	166·9	128·1	+	7·7	+68·2
176·410 G	13	65	38	190	166·5	127·5	+	7·4	+80·3

Group 8969.—July 11–18. A single small spot, evidently *a* of Group 8940, which has disappeared by July 17. The following day a very small spot appears temporarily near its place.

191·350 G	5	21	12	52	169·8	126·9	+ 7·1	- 78·6
192·528 C	11	34	12	38	169·4	126·3	+ 7·0	- 63·5
193·421 G	8	50	6	40	169·3	126·0	+ 6·8	- 51·7
194·478 C	7	85	4	54	169·1	125·5	+ 7·1	- 38·0
195·592 G	14	34	8	18	169·3	125·5	+ 7·2	- 23·0
196·334 G	8	24	4	12	169·4	125·4	+ 7·3	- 13·1
197·368 C	0	0	0	0	..	..	..	..
198·461 G	0	7	0	4	169·5	125·0	+ 8·8	+ 15·2
Means ..	..	..	6	27	169·40	125·80	+ 7·33	..

LEDGER I.—RECURRENT GROUPS OF SUN SPOTS for the YEAR 1919—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 896.																							
Group 8947 seen in Rotation 879.																							
" 8972 " 880.																							
Group 8947.—June 21–30. At first, a very small cluster not seen on June 22. On June 25, a stream begins to develop the leader of which breaks up on June 27 but has reformed the next day.																							
1919. d																							
171·362 G	6	18	4	12	113·9	74·3	– 6·6	– 39·1		178·329 G	108	468	91	396	112·4	83·7	– 12·4	+ 51·6					
172·410 G	0	0	0	0	..	..	..	..		179·439 C	46	311	63	414	113·0	84·1	– 12·4	+ 66·9	
173·628 G	4	30	2	15	113·6	73·5	– 6·3	– 9·4		180·349 C	9	145	26	423	113·3	84·3	– 12·5	+ 79·3					
174·360 C	3	16	2	8	115·3	75·0	– 6·4	+ 2·0		Means ..	..	..	47	272	110·90	82·57	– 12·38	..			
175·468 G	30	114	16	60	115·6	75·1	– 6·9	+ 16·9															
176·410 G	35	92	21	54	116·7	75·9	– 6·7	+ 30·5															
177·220 D	88	360	58	236	115·3	74·4	– 6·7	+ 39·8															
178·329 G	63	401	58	372	116·9	75·7	– 6·6	+ 56·1															
179·439 C	26	256	42	426	117·9	76·5	– 6·7	+ 71·8															
180·349 C	5	33	(16)	108	114·8	73·1	– 7·2)*	+ 80·8															
Means ..	..	..	23	131	115·65	75·05	– 6·61	..													
Group 8972.—July 15–23. A few small unstable spots generally arranged in a cluster.																							
195·592 G	7	42	10	60	123·7	79·9	– 7·6	– 68·6		195·592 G	22	150	55	396	115·1	87·9	– 13·3	– 77·2					
196·334 G	17	50	17	51	123·3	79·3	– 7·6	– 59·2		196·334 G	37	239	51	337	115·2	87·9	– 13·4	– 67·3					
197·368 C	8	58	6	42	123·0	78·8	– 6·6	– 45·8		197·368 C	46	323	41	291	115·0	87·6	– 13·0	– 53·8					
198·461 G	5	57	3	34	123·0	78·5	– 7·2	– 31·3		198·461 G	70	379	48	262	114·9	87·3	– 13·3	– 39·4					
199·364 C	1	21	1	12	125·6	80·9	– 5·8	– 16·8		199·364 C	83	507	50	306	114·5	86·8	– 13·3	– 27·9					
200·381 C	6	27	3	14	122·4	77·5	– 7·3	– 6·5		200·381 C	87	481	47	260	114·6	86·8	– 13·1	– 14·3					
201·347 G	23	87	12	45	123·4	78·3	– 7·3	+ 7·2		201·347 G	91	521	48	276	115·0	87·0	– 13·0	– 1·2					
202·528 G	2	4	1	2	124·9	79·5	– 8·3	+ 24·4		202·528 G	90	457	49	247	115·1	86·9	– 13·0	+ 14·6					
203·385 C	0	9	0	6	124·7	79·1	– 8·8	+ 35·5		203·385 C	77	487	46	286	114·0	85·7	– 13·6	+ 24·8					
Means ..	..	..	6	30	123·78	79·09	– 7·39	..		204·369 C	73	488	49	327	113·1	84·7	– 15·0	+ 36·9			
										205·380 C	43	392	36	332	112·6	84·0	– 15·2	+ 49·8					
										206·347 G	35	191	43	240	113·8	85·1	– 14·7	+ 63·8					
										207·365 C	11	98	31	248	113·2	84·4	– 14·6	+ 76·7					
										Means ..	..	..	46	293	114·32	86·32	– 13·73	..			
RECURRENT SERIES 897.																							
Group 8948 seen in Rotation 879.																							
" 8973 " 880.																							
" 9002 " 881.																							
Group 8948.—June 21–30. A stream of spots, suddenly becoming conspicuous on June 25, on the same meridian as Groups 8947, 8950, and 8955. It is then of normal type with a well defined regular spot, <i>a</i> , as leader and a composite, but shorter-lived spot as the following member.																							
171·362 G	7	24	5	18	107·3	79·7	– 12·6	– 45·7		222·360 G	0	35	(0)	214	114·8	87·5	– 14·2)*	– 83·5					
172·410 G	23	76	14	46	109·1	81·3	– 12·4	– 30·0		223·347 G	12	55	20	90	115·4	87·9	– 14·5	– 69·8					
173·628 G	29	102	15	54	108·9	80·9	– 12·2	– 14·1		224·345 G	13	113	13	114	114·9	87·3	– 14·4	– 57·1					
174·360 C	23	137	12	71	109·4	81·3	– 12·3	– 3·9		225·340 G	20	106	15	80	115·1	87·4	– 14·4	– 43·8					
175·468 G	123	604	64	318	111·4	83·1	– 11·9	+ 12·7		226·376 G	21	137	13	86	114·6	86·8	– 14·4	– 30·6					
176·410 G	137	740	79	420	111·8	83·4	– 12·4	+ 25·6		227·396 G	38	127	21	71	114·3	86·3	– 14·5	– 17·4					
177·220 D	154	866	101	565	112·4	83·9	– 12·7	+ 36·9		228·434 G	23	136	12	73	114·2	86·1	– 14·6	– 3·8					
										229·468 G	25	149	14	80	113·9	85·7	– 14·5	+ 9·6					
										230·558 C	28	87	17	51	113·7	85·3	– 14·8	+ 23·8					
										231·378 C	12	69	8	46	113·6	85·1	– 15·0	+ 34·5					
										232·388 G	22	46	18	38	113·5	84·9	– 15·0	+ 47·8					
										233·481 G	7	21	8	25	113·2	84·5	– 14·9	+ 61·9					
										234·379 G	1	4	2	8	113·1	84·3	– 14·5	+ 73·7					
										Means ..	..	..	13	64	114·13	85·97	– 14·63	..			

LEDGER I.—RECURRENT GROUPS OF SUN SPOTS for the YEAR 1919—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 898.

Group 8955 seen in Rotation 879.
" 8971 " 880.Group 8955.—June 24–29. A group of the "stream" type composed of a partially formed regular spot, *a*, followed by a companion which has become a cluster by June 27. The group is preceded by a very small spot seen, *s*, of Group 8950, on June 24.

1919. d					°	°	°	°
174·360 C	3	10	2	5	119·0	80·3	+ 7·4	+ 5·7
175·468 G	52	145	28	78	119·4	80·4	+ 8·0	+ 20·7
176·410 G	77	370	47	225	119·9	80·7	+ 7·7	+ 33·7
177·220 D	68	414	48	299	121·2	81·9	+ 7·2	+ 45·7
178·329 G	54	297	54	301	120·8	81·2	+ 7·3	+ 60·0
179·439 C	14	127	24	230	119·8	80·0	+ 7·7	+ 73·7
Means ..	..	..	34	190	120·02	80·75	+ 7·55	..

Spot *a*.

175·468 G	29	79	16	43	120·7	81·4	+ 7·4	+ 22·0
176·410 G	40	232	25	144	121·7	82·2	+ 7·2	+ 35·5
177·220 D	41	285	30	211	122·9	83·2	+ 7·1	+ 47·4
178·329 G	32	182	34	195	123·0	83·1	+ 7·2	+ 62·2
179·439 C	5	65	10	131	122·0	81·8	+ 7·7	+ 75·9

Group 8971.—July 14–26. A regular spot, which is evidently *a* of Group 8955.

194·478 C	3	33	9	100	126·1	82·7	+ 8·0	- 81·0
195·592 G	19	113	23	134	126·7	83·1	+ 7·7	- 65·6
196·334 G	20	129	18	114	126·7	82·9	+ 7·5	- 55·8
197·368 C	26	139	17	93	126·7	82·7	+ 7·5	- 42·1
198·461 G	35	179	20	100	126·7	82·4	+ 7·1	- 27·6
199·364 C	26	197	14	102	126·5	82·0	+ 7·4	- 15·9
200·381 C	40	216	20	108	126·4	81·7	+ 7·6	- 2·5
201·347 G	34	179	17	91	126·6	81·7	+ 7·4	+ 10·4
202·528 G	27	150	15	84	126·3	81·1	+ 7·4	+ 25·8
203·385 C	25	158	16	100	126·6	81·2	+ 7·4	+ 37·4
204·369 G	12	88	9	69	126·7	81·1	+ 7·4	+ 50·5
205·380 C	7	36	8	40	126·6	80·8	+ 7·4	+ 63·8
206·347 G	0	6	0	12	126·5	80·5	+ 7·7	+ 76·5
Means ..	..	..	14	88	126·55	81·84	+ 7·50	..

RECURRENT SERIES 899.

Group 8957 seen in Rotation 880.
" 8981 " 881.Group 8957.—June 26–July 5. A disturbed area shown for several days by one or two very small spots. After July 1, these multiply and a regular spot, *a*, appears followed by several small companions.

176·410 G	2	10	2	8	36·6	17·7	- 17·5	- 49·6
177·220 D	0	11	0	7	38·3	19·3	- 15·6	- 37·2
178·329 G	15	32	9	18	38·6	19·5	- 15·7	- 22·2

Group 8957—continued.

1919. d					°	°	°	°
179·439 C	2	13	2	7	37·7	18·5	- 17·1	- 8·4
180·349 C	0	0	0	0	..	..	..	..
181·403 C	0	6	0	4	39·9	20·5	- 14·1	+ 19·8
182·370 C	24	84	15	53	40·6	21·1	- 14·2	+ 33·3
183·376 C	65	376	51	297	41·8	22·2	- 15·0	+ 47·8
184·343 G	56	341	63	392	43·9	24·2	- 15·0	+ 62·7
185·386 C	24	120	51	291	43·4	23·6	- 15·3	+ 76·0
Means ..	..	..	19	108	40·09	20·73	- 15·50	..

Spot *a*.

183·376 C	34	209	28	171	43·6	22·1	- 14·8	+ 49·6
184·343 G	28	235	34	287	45·1	23·5	- 14·9	+ 63·9
185·386 C	9	72	26	210	46·2	24·5	- 15·1	+ 78·8

Group 8981.—July 21–August 1. A spot—perhaps *a* of Group 8957—showing at first slight deviation from the regular type, usually with a few small companions.

201·347 G	25	169	53	360	41·4	8·6	- 13·0	- 74·8
202·528 G	40	312	42	328	41·2	8·2	- 12·6	- 59·3
203·385 C	46	376	37	301	40·8	7·6	- 12·5	- 48·4
204·369 C	51	449	33	292	40·5	7·2	- 12·5	- 35·7
205·380 C	59	473	34	270	40·1	6·6	- 12·2	- 22·7
206·347 G	61	379	32	201	40·3	6·7	- 12·4	- 9·7
207·365 C	43	331	23	175	40·1	6·3	- 12·0	+ 3·6
208·427 C	30	294	17	162	39·9	5·9	- 11·9	+ 17·4
209·371 C	44	288	27	176	39·8	5·7	- 11·9	+ 29·8
210·670 G	34	209	27	163	39·9	5·6	- 11·9	+ 47·1
211·345 G	24	147	23	140	39·9	5·5	- 12·1	+ 56·0
212·470 G	16	81	28	139	40·3	5·7	- 12·1	+ 71·3
Means ..	..	..	31	226	40·35	6·63	- 12·26	..

RECURRENT SERIES 900.

Group 8964 seen in Rotation 880.
" 8988 " 881.

Group 8964.—July 2–13. A very small spot in faculae at the east limb developing into a regular spot followed by a companion. The latter quickly diminishes, whilst other very small companions form to make a small cluster for a few days.

182·370 C	0	6	0	11	293·1	256·1	+ 9·4	- 74·2
183·376 C	6	22	6	22	294·1	256·9	+ 9·1	- 59·9
184·343 G	38	217	27	160	293·6	256·2	+ 8·3	- 47·6
185·386 C	64	610	39	368	294·4	256·8	+ 8·5	- 33·0
186·365 C	105	525	57	280	295·1	257·3	+ 8·7	- 19·3
187·463 C	95	623	48	314	294·7	256·7	+ 8·9	- 5·2
188·253 D	74	434	38	221	296·3	258·1	+ 9·4	+ 6·9
189·402 C	70	422	38	228	295·8	257·4	+ 9·6	+ 21·6

LEDGER I.—RECURRENT GROUPS OF SUN SPOTS for the YEAR 1919—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 900. Group 8964—continued.								
1919. d 190·351 C	47	357	29	217	296·1	257·5	+ 9·9	+ 34·4
191·350 G	34	249	25	184	296·0	257·2	+ 9·9	+ 47·6
192·528 C	27	164	30	180	296·1	257·0	+ 10·1	+ 63·2
193·421 G	14	72	27	137	296·3	257·0	+ 10·0	+ 75·3
Means ..	..	..	30	193	295·13	257·02	+ 9·32	..

Group 8988.—July 28–August 5. A small cluster of spots which are well defined until August 1 and faint afterwards.

208·427 C	2	14	8	57	299·2	253·6	+ 7·0	- 83·3
209·371 C	9	46	13	68	299·2	253·4	+ 7·4	- 70·8
210·670 G	24	68	20	58	298·8	252·7	+ 7·4	- 54·0
211·345 G	27	72	19	50	299·9	253·6	+ 7·3	- 44·0
212·470 G	5	9	3	5	299·7	253·2	+ 7·4	- 29·3
213·419 G	2	34	1	18	298·2	251·5	+ 9·1	- 18·3
214·605 G	2	33	1	17	298·0	251·0	+ 9·1	- 2·8
215·421 G	2	58	1	30	299·4	252·2	+ 8·0	+ 9·4
216·388 C	0	29	0	16	299·6	252·2	+ 8·0	+ 22·4
Means ..	..	..	7	35	299·11	252·60	+ 7·86	..

RECURRENT SERIES 901.

Group 8966 seen in Rotation 880.
,, 8994 and 8996 ,, 881.
,, 9021 ,, 882.

Group 8966.—July 9–20. A small spot on July 9; others appear on the following day, and by July 12 an extensive stream has developed. The leading and following members, *a* and *b* respectively, are prominent spots of regular type. A compact cluster situated between them on July 12 soon disperses, and the other few companion spots appearing from time to time are of little importance.

189·402 C	5	16	5	21	208·4	167·3	- 10·9	- 65·8
190·351 C	14	60	12	51	209·3	168·0	- 9·1	- 52·4
191·350 G	88	217	57	140	211·0	169·5	- 8·1	- 37·4
192·528 C	235	1542	129	845	212·0	170·2	- 7·7	- 20·9
193·421 G	344	1992	178	1035	213·4	171·4	- 7·6	- 7·6
194·478 C	243	1932	126	1004	214·7	172·5	- 8·0	+ 7·6
195·592 G	303	1595	170	892	215·5	173·1	- 8·0	+ 23·2
196·334 G	279	1449	173	905	216·9	174·3	- 7·3	+ 34·4
197·368 C	221	1270	174	993	217·5	174·7	- 7·1	+ 48·7
198·461 G	150	1004	171	1119	216·6	173·5	- 7·3	+ 62·3
199·364 C	77	624	147	1144	215·7	172·4	- 7·7	+ 73·3
200·381 C	17	84	(65)	321	210·5	167·0	- 9·3)*	+ 81·6
Means ..	..	..	122	741	213·73	171·54	- 8·07	..

Spot *a*.

191·350 G	39	73	24	45	213·1	167·2	- 5·8	- 35·3
192·528 C	58	367	31	195	216·3	170·1	- 4·5	- 16·6
193·421 G	136	658	69	336	218·7	172·3	- 4·7	- 2·3

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 8966. Spot <i>a</i>—continued.								
1919. d 194·478 C	104	906	54	471	219·9	173·2	- 5·5	+ 12·8
195·592 G	159	764	92	443	221·0	174·1	- 6·0	+ 28·7
196·334 G	140	764	92	504	221·6	174·5	- 5·8	+ 39·1
197·368 C	114	628	98	540	222·3	175·0	- 5·8	+ 53·5
198·461 G	71	417	97	571	222·3	174·7	- 5·6	+ 68·0
199·364 C	24	165	70	482	222·0	174·2	- 5·4	+ 79·6

Spot *b*.

192·528 C	112	757	63	424	209·7	171·6	- 9·9	- 23·2
193·421 G	137	933	73	494	209·9	171·6	- 10·5	- 11·1
194·478 C	133	954	69	496	209·9	171·4	- 10·2	+ 2·8
195·592 G	131	796	71	430	210·2	171·5	- 9·9	+ 17·9
196·334 G	109	589	63	342	210·5	171·6	- 9·7	+ 28·0
197·368 C	86	522	59	360	210·4	171·3	- 9·5	+ 41·6
198·461 G	75	568	70	528	210·4	171·1	- 9·3	+ 56·1
199·364 C	47	439	67	628	210·9	171·4	- 9·7	+ 68·5
200·381 C	17	84	65	321	210·5	170·8	- 9·3	+ 81·6

Group 8994.—August 3–15. With Group 8996, a return of Group 8966. A very large regular spot, evidently *a* of Group 8966, showing slight instability from August 6–9, when a small portion detaches itself from the *n.p.* part of the penumbra. For a few days after August 8, numerous small companions make their appearance northwards.

214·605 G	87	320	171	627	226·5	177·3	- 6·6	- 74·3
215·421 G	97	483	112	555	226·8	177·5	- 6·4	- 63·2
216·388 C	108	706	87	572	226·8	177·2	- 6·3	- 50·4
217·363 G	127	862	82	560	226·7	176·9	- 6·6	- 37·6
218·337 G	173	977	99	557	226·8	176·8	- 6·9	- 24·6

219·344 G	189	1092	98	568	226·7	176·5	- 6·6	- 11·4
220·338 G	184	1134	94	578	226·8	176·3	- 6·6	+ 1·8
221·420 G	163	983	88	531	226·9	176·2	- 6·9	+ 16·2
222·360 G	179	935	106	552	226·8	175·9	- 6·9	+ 28·5
223·347 G	143	719	99	496	227·0	175·8	- 7·0	+ 41·8

224·345 G	100	557	91	507	227·2	175·8	- 6·9	+ 55·2
225·340 G	79	362	114	521	227·4	175·8	- 7·1	+ 68·5
226·376 G	17	99	75	435	227·8	176·0	- 7·1	+ 82·6
Means ..	..	..	101	543	226·94	176·46	- 6·76	..

215·421 G	7	38	18	98	212·5	169·2	- 10·5	- 77·5
216·388 C	11	81	13	102	212·4	168·9	- 9·9	- 64·8
217·363 G	18	91	15	84	212·6	168·9	- 10·4	- 51·7
218·337 G	42	186	28	125	213·3	169·4	- 10·1	- 38·1

LEDGER I.—RECURRENT GROUPS of SUN SPOTS for the YEAR 1919—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 901. Group 8996—*continued.*

1919. d					°	°	°	°
219.344 G	40	183	23	106	213.2	169.1	-10.2	-24.9
220.338 G	39	226	21	120	213.2	168.9	-10.1	-11.8
221.420 G	89	263	46	137	211.9	167.4	-9.3	+1.2
222.360 G	109	534	58	283	211.2	166.5	-8.7	+12.9
223.347 G	87	484	50	281	212.1	167.2	-8.9	+26.9
224.345 G	63	316	43	215	212.8	167.7	-8.5	+40.8
225.340 G	38	200	34	180	213.1	167.8	-8.7	+54.2
226.376 G	23	72	34	104	213.5	168.0	-8.5	+68.3
Means ..	..	..	32	153	212.65	168.25	-9.48	..

Group 902.—August 30—September 8. A small spot evidently α of Group 8966, with a near companion on September 1 and a more distant one on September 3 and 5.

241·340 G	6	23	14	53	231·4	175·6	- 7·2	- 76·0
242·464 G	8	30	9	33	231·2	175·2	- 7·1	- 61·4
243·547 G	13	21	10	16	231·0	174·7	- 6·9	- 47·3
244·386 C	7	28	4	18	231·2	174·7	- 6·6	- 36·0
245·396 C	7	26	4	14	230·8	174·1	- 6·9	- 23·1
246·351 G	5	12	3	6	231·0	174·1	- 6·8	- 10·2
247·409 G	3	36	2	18	229·9	172·7	- 5·9	+ 2·6
248·529 C	0	9	0	5	228·7	171·3	- 5·7	+ 16·2
249·419 G	0	4	0	2	231·2	173·6	- 6·6	+ 30·5
250·427 G	0	8	0	6	228·7	170·9	- 6·6	+ 41·3
Means ..	..	..	5	17	230·51	173·69	- 6·63	..

RECURRENT SERIES 902.

Group 8970 seen in Rotation 880.
" 8991 " " 881.

Group 8970.—July 12-16. A small group of the "stream" type.

192·528 C	6	25	4	15	259·5	236·8	-14·5	+26·6
193·421 G	7	21	5	15	260·7	237·9	-14·8	+39·7
194·478 C	10	115	10	114	264·1	241·1	-15·2	+57·0
195·592 G	12	77	22	145	264·8	241·7	-15·0	+72·5
196·334 G	0	4	(0)	9	258·3	235·1	-15·7)*	+75·8
Means ..	..	..	10	72	262·28	239·38	-14·88	..

Group 8991.—July 30—August 5. Possible return of Group 8970. A small regular spot becoming a cluster on August 3.

1919. d					o	o	o	o
210.670 G	9	28	28	88	274.0	252.7	-15.6	-78.8
211.345 G	15	37	24	60	274.5	253.1	-15.7	-69.4
212.470 G	11	39	10	37	274.2	252.7	-15.9	-54.8
213.419 G	13	36	10	27	274.1	252.5	-15.9	-42.4
214.605 G	9	50	5	31	273.1	251.4	-15.6	-27.7
215.421 G	18	110	10	62	273.0	251.2	-15.8	-17.0
216.388 C	0	33	0	18	272.8	250.9	-16.1	-4.4
Means ...	..	..	12	46	273.67	252.07	-15.80	..

RECURRENT SERIES 903.

Group 8974 seen in Rotation 880.
" 8998 " " 881.

Group 8974.—July 16-20. A tiny stream on July 16; a single spot on the following days except on July 19, when nothing is visible.

196·334 G	29	68	15	36	198·9	157·1	- 8·0	+ 16·4
197·368 C	4	16	2	10	201·6	159·6	- 8·8	+ 32·8
198·461 G	0	7	0	5	202·2	159·9	- 8·7	+ 47·9
199·364 C	0	0	0	0	..	..	..	..
200·381 C	0	6	0	9	198·9	156·2	- 8·3	+ 70·0
Means ..	..	..	3	12	200·40	158·20	- 8·45	..

Group 8998.—August 5-16. A return or perhaps a revival only of Group 8974. A small regular spot dying out by August 13. A small spot is seen near its place on August 15 and 16.

216·388 C	6	32	18	97	197·7	150·3	- 7·1	- 79·5
217·363 G	9	37	12	50	197·4	149·8	- 7·5	- 66·9
218·337 G	16	97	14	86	197·8	150·0	- 7·7	- 53·6
219·344 G	22	104	15	71	197·8	149·8	- 7·4	- 40·3
220·338 G	13	53	8	31	198·0	149·8	- 7·4	- 27·0
221·420 G	11	23	6	12	198·1	149·6	- 7·7	- 12·6
222·360 G	7	15	4	8	198·1	149·4	- 7·7	- 0·2
223·347 G	4	11	2	6	198·2	149·3	- 8·0	+13·0
224·345 G	0	0	0	0	..	..	..	..
225·340 G	0	0	0	0	..	..	..	..
226·376 G	4	12	3	10	197·0	147·4	- 10·0	+51·8
227·396 G	2	10	3	13	196·8	147·0	- 7·8	+65·1
Means ..	..	..	7	32	197·69	149·24	- 7·83	..

LEDGER I.—RECURRENT GROUPS OF SUN SPOTS for the YEAR 1919—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.		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 904.

Group 8978 seen in Rotation 880.

..	9005	"	"	881.
..	9031	"	"	882.
..	9047	"	"	883.
..	9065	"	"	884.
..	9077	"	"	885.

Group 8978.—July 19–28. Intermittent. A very small cluster of spots on July 19. Nothing is then seen until July 26 when a small stream makes its appearance.

1919. d					o	o	o	o	1919. d					o	o	o	
199·364 C	o	19	o	15	92·3	44°0	+ 6·1	- 50·1	228·434 G	230	1280	124	691	95·4	38·5	+ 4·4	- 22·6
200·381 C	o	o	o	o	..	..	..	..	229·468 G	277	1306	141	666	95·9	38·8	+ 3·9	- 8·4
201·347 G	o	o	o	o	..	..	..	..	230·558 C	319	1287	160	644	96·3	38·9	+ 3·7	+ 6·4
202·528 G	o	o	o	o	..	..	..	..	231·378 C	299	1430	155	744	96·4	38·8	+ 3·6	+ 17·3
203·385 C	o	o	o	o	..	..	..	..	232·388 G	251	1108	148	653	97·1	39·2	+ 3·3	+ 31·4
204·369 C	o	o	o	o	..	..	..	..	233·481 G	183	993	132	715	97·2	39·1	+ 3·3	+ 45·9
205·380 C	o	o	o	o	..	..	..	..	234·379 G	136	679	129	645	97·8	39·4	+ 3·3	+ 58·4
206·347 G	18	64	12	43	91·7	41·8	+ 4·4	+ 41·7	235·375 C	66	419	104	658	97·7	39·1	+ 3·1	+ 71·5
207·365 C	24	129	22	115	92·6	42·4	+ 5·3	+ 56·1									
208·427 C	5	42	7	60	91·6	41·2	+ 4·6	+ 69·1									
Means ..	..	..	4	23	92·05	42·35	+ 5·10	..									

Group 9005.—August 13–25. A very large and long stream seen at the east limb as one of normal type near maximum development. The leader, *a*, is very large and shows a complex umbra for several days but becomes regular by August 22; the follower is smaller and in two portions, which change continually and die out as the west limb is approached. The spots intermediate in the stream are, as usual, of little importance.

224·345 G	96	347	(236	854	93·4	38·0	+ 3·9)*	- 78·6	225·340 G	163	1029	239	1503	88·7	33·0	+ 4·8	- 70·2
226·376 G	256	1562	233	1386	89·3	33·4	+ 5·0	- 55·9	227·396 G	292	1984	196	1336	89·4	33·2	+ 4·9	- 42·3
228·434 G	350	2302	197	1312	89·6	33·2	+ 5·0	- 28·4	229·468 G	447	2433	231	1269	90·0	33·3	+ 4·7	- 14·3
230·558 C	420	2134	212	1073	91·1	34·1	+ 4·7	+ 1·2	231·378 C	379	2025	196	1044	93·0	35·8	+ 4·2	+ 13·9
232·388 G	325	1557	187	892	93·7	36·3	+ 4·0	+ 28·0	233·481 G	229	1246	159	867	95·1	37·4	+ 3·8	+ 43·8
234·379 G	153	802	140	729	96·1	38·2	+ 3·7	+ 56·7	235·375 C	66	438	104	677	97·4	39·3	+ 3·2	+ 71·2
236·452 C	11	42	(81	309	98·6	40·2	+ 3·1)*	+ 86·6	Means ..	..	..	190	1099	92·13	35·20	+ 4·36	..

Spot *a*.

224·345 G	96	347	236	854	93·4	37·5	+ 3·9	- 78·6	225·340 G	110	704	128	817	94·1	38·0	+ 4·4	- 64·8
226·376 G	142	935	111	729	94·6	38·2	+ 4·7	- 50·6	227·396 G	172	1129	107	699	94·9	38·3	+ 4·5	- 36·8
228·484 G	94	430	70	322	106·3	32·7	+ 1·3	+ 48·0	229·539 G	62	315	66	334	106·3	32·4	+ 1·5	+ 61·9
229·392 G	30	214	51	364	106·1	32·0	+ 1·2	+ 72·9	Means ..	..	..	71	359	106·35	33·79	+ 2·16	..

Group 9005. Spot *a*—continued.

1919. d					o	o	o	o	1919. d					o	o	o	
228·434 G	230	1280	124	691	95·4	38·5	+ 4·4	- 22·6	229·468 G	277	1306	141	666	95·9	38·8	+ 3·9	- 8·4
230·558 C	319	1287	160	644	96·3	38·9	+ 3·7	+ 6·4	231·378 C	299	1430	155	744	96·4	38·8	+ 3·6	+ 17·3
232·388 G	251	1108	148	653	97·1	39·2	+ 3·3	+ 31·4	233·481 G	183	993	132	715	97·2	39·1	+ 3·3	+ 45·9
234·379 G	136	679	129	645	97·8	39·4	+ 3·3	+ 58·4	235·375 C	66	419	104	658	97·7	39·1	+ 3·1	+ 71·5

Group 9031.—September 8–20. A very large regular spot (evidently *a* of Group 9005) with occasional tiny companions. This spot and that of Group 9007 present a striking feature on the Sun's disc of a close pair of large regular spots but on opposite sides of the solar equator.

250·427 G	19	66	140	486	101·3	36·9	+ 1·5	- 86·1	251·331 G	66	332	115	578	102·2	37·6	+ 1·8	- 73·3
252·349 G	117	537	117	537	102·0	37·2	+ 1·5	- 60·0	253·367 G	164	769	118	554	102·4	37·3	+ 1·6	- 46·2
254·617 G	190	1015	110	589	102·5	37·1	+ 1·5	- 29·6	255·364 C	199	1014	105	537	102·6	37·0	+ 1·6	- 19·6
256·550 C	217	1013	109	507	102·9	37·0	+ 1·5	- 3·7	257·370 C	201	1048	103	534	103·0	36·9	+ 1·7	+ 7·3
258·432 G	198	1057	107	571	103·3	36·9	+ 1·5	+ 21·6	259·460 G	166	811	103	503	103·6	36·9	+ 1·5	+ 35·4
260·348 G	144	675	107	500	103·6	36·7	+ 1·5	+ 47·2	261·428 C	95	461	101	489	104·0	36·8	+ 1·8	+ 61·8
262·442 C	42	231	82	453	104·1	36·7	+ 1·7	+ 75·3	Means ..	..	..	109	526	102·88	37·00	+ 1·59	..

Group 9047.—October 5–17. A very large regular spot, *a* of Group 9005, with a few very small companions from October 11–14.

277·376 C	5	39	27	207	106·7	35·7	+ 2·9	- 86·0	278·375 C	65	291	106	474	106·2	34·9	+ 2·8	- 72·3
279·471 G	90	417	85	392	106·2	34·7	+ 2·7	- 57·9	280·387 G	108	522	78	376	106·1			

LEDGER I.—RECURRENT GROUPS OF SUN SPOTS for the YEAR 1919—*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.	System I.	System II.	Umbræ.	Whole Spots.	System I.	System II.														
RECURRENT SERIES 904— <i>continued</i> .																															
Group 9065.—November 2–14. A slowly diminishing regular spot, <i>a</i> of Group 9005.																															
1919. d 305·339 C	16	132	33	276	106·5	30·5	+ 3·7	-76·4	1919. d 233·481 G	2	10	5	23	334·8	279·0	- 6·0	-76·5														
306·366 C	30	234	32	250	107·2	30·9	+ 3·9	-62·2	234·379 G	5	15	6	18	335·2	279·2	- 5·9	-64·2														
307·386 C	62	305	47	232	106·9	30·4	+ 3·8	-49·0	235·375 C	6	35	5	29	335·4	279·1	- 5·7	-50·8														
308·376 C	65	364	40	226	106·9	30·1	+ 3·9	-35·9	236·452 C	4	15	3	10	335·5	279·0	- 5·7	-36·5														
309·170 D	100	369	55	203	106·7	29·7	+ 3·9	-25·7	237·419 G	2	14	1	8	335·0	278·3	- 5·8	-24·2														
310·451 C	79	368	40	188	106·9	29·6	+ 4·1	- 8·6	238·404 G	9	27	5	14	334·5	277·5	- 5·3	-11·7														
311·400 C	85	364	43	182	106·8	29·3	+ 4·1	+ 3·8	239·374 C	0	0	0	..	..	..	..	..									
312·356 C	94	392	49	204	106·7	28·9	+ 4·1	+16·3	240·387 G	1	6	1	3	334·4	277·0	- 4·7	+14·4														
313·350 C	59	315	34	180	106·6	28·6	+ 4·0	+29·4	Means ..	..	..	3	13	334·97	278·44	- 5·59	..												
314·356 C	50	256	34	174	106·8	28·5	+ 4·2	+42·8																							
315·469 G	47	213	44	198	106·9	28·3	+ 4·0	+57·6																							
316·523 G	18	106	29	171	107·4	28·6	+ 3·9	+72·0																							
317·378 C	11	49	38	168	106·0	27·0	+ 4·1	+81·8																							
Means	40	204	106·79	29·26	+ 3·98	..																							
Group 9077.—November 29–December 7. A small regular spot gradually disappearing. This is the fifth appearance of spot <i>a</i> of Group 9005.																															
332·439 G	6	40	14	92	108·1	23·7	+ 3·3	-77·5	RECURRENT SERIES 906.																						
333·342 C	21	66	25	78	108·8	24·1	+ 3·1	-64·9	Group 9000 seen in Rotation 881.																						
334·366 C	14	65	11	51	109·2	24·3	+ 2·8	- 51·0	" 9025 " 882.																						
335·335 C	21	46	13	29	109·3	24·1	+ 2·8	-38·2	Group 9000.—August 7–18. A large spot with some departure from the regular type. There are small companions southwards from August 8–14.																						
336·335 C	27	49	15	27	109·4	24·0	+ 2·6	-24·9	218·337 G	18	166	39	360	175·8	126·9	- 7·2	-75·6														
337·335 C	7	31	4	16	109·1	23·4	+ 2·6	- 12·0	219·344 G	48	310	54	349	175·9	126·8	- 7·3	-62·2														
338·340 C	16	22	8	11	109·0	23·1	+ 2·6	+ 1·1	220·338 G	90	435	70	337	176·8	127·4	- 7·2	-48·2														
339·346 C	8	10	4	5	108·7	22·5	+ 2·5	+14·1	221·420 G	126	567	78	352	176·6	127·0	- 7·3	-34·1														
340·339 C	0	5	0	3	108·6	22·2	+ 2·2	+27·1	222·360 G	126	735	69	404	176·7	126·9	- 7·1	-21·6														
Means ..	..	..	10	35	108·91	23·49	+ 2·72	..	223·347 G	108	714	56	371	176·2	126·2	- 7·3	- 9·0												
RECURRENT SERIES 905.																															
Group 8987 seen in Rotation 880.																															
" 9016 " 881.																															
Group 8987.—July 27–August 7. A disturbed area, containing at first a single spot, then a cluster on July 30 and 31, and lastly a pair of faint spots which become more definite on August 6.																															
207·365 C	0	9	0	18	321·3	273·0	- 4·5	-75·2	224·345 G	121	578	63	301	176·3	126·1	- 7·1	+ 4·3														
208·427 C	5	11	5	11	322·4	273·8	- 4·7	- 60·1	225·340 G	93	488	50	264	176·4	125·9	- 7·1	+17·5														
209·371 C	3	10	2	7	323·6	274·8	- 5·0	- 46·4	226·376 G	95	368	58	224	176·6	125·9	- 7·4	+31·4														
210·670 G	2	25	1	15	322·7	273·6	- 5·9	- 30·1	227·396 G	47	287	34	212	176·8	125·9	- 7·7	+45·1														
211·345 G	9	42	5	24	320·3	271·1	- 5·8	- 23·6	228·434 G	38	209	38	211	176·9	125·7	- 7·6	+58·9														
212·470 G	12	57	6	30	321·5	272·0	- 6·5	- 7·5	229·468 G	20	127	35	225	176·8	125·4	- 7·5	+72·5														
213·419 G	8	40	4	21	323·7	274·0	- 6·4	+ 7·2	Means ..	..	..	54	301	176·48	126·34	- 7·32	..												
214·605 G	10	39	6	22	321·7	271·7	- 7·4	+20·9																							
215·421 G	9	47	6	28	321·4	271·2	- 7·6	+31·4																							
216·388 C	6	34	4	25	323·0	272·6	- 6·6	+45·8																							
217·363 G	40	82	41	84	323·5	272·9	- 7·8	+59·2																							
218·337 G	15	112	29	210	324·7	273·8	- 8·3	+73·3																							
Means	9	41	322·48	272·88	- 6·38	..	Means	1	7	179·20	122·68	- 6·96	..														

LEDGER I.—RECURRENT GROUPS of SUN SPOTS for the YEAR 1919—*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 907.

Group 9007 seen in Rotation 881.
" 9030 " " 882.

Group 9007.—August 14-25. At first a pair of regular spots, *a* and *b* which separate in longitude whilst a cluster appears between them. The follower, *b*, then diminishes, but *a* increases in size very considerably after joining with a spot immediately following it. Meanwhile the cluster has condensed to a spot of some extent and remains with the leader to the west limb. This group is on the same meridian as Groups 9005, 9011, and 9014, and the leaders of the two large streams comprising Groups 9005 and 9007 are in close juxtaposition but on opposite sides of the solar equator.

1919.	d				o	o	o	o
225·340 G	34	139	50	202	89·6	32·4	- 3·7	- 69·3
226·376 G	111	557	99	491	90·6	33·1	- 4·1	- 54·6
227·396 G	176	888	118	598	91·8	34·0	- 3·9	- 39·9
228·434 G	210	1074	118	613	93·0	35·0	- 3·3	- 25·0
229·468 G	222	1249	116	648	93·9	35·6	- 3·1	- 10·4
230·558 C	311	1904	159	970	95·1	36·5	- 2·3	+ 5·2
231·378 C	368	1938	195	1028	95·1	36·3	- 2·5	+ 16·0
232·388 G	325	1945	192	1145	95·6	36·6	- 2·2	+ 29·9
233·481 G	272	1367	198	990	96·8	37·5	- 1·9	+ 45·5
234·379 G	188	857	186	853	98·7	39·2	- 1·8	+ 59·3
235·375 C	63	498	106	860	99·0	39·2	- 2·0	+ 72·8
236·452 C	5	40	(17	137	93·2	33·1	- 1·8)*	+ 81·2
Means ..	..	..	140	764	94·47	35·95	- 2·80	..

Spot a .

225·340 G	19	79	24	99	93·0	35·5	- 3·1	- 65·9
226·376 G	36	231	28	182	95·2	37·5	- 3·7	- 50·0
227·396 G	78	345	48	214	97·2	39·2	- 3·3	- 34·5
228·434 G	97	486	52	262	98·1	39·8	- 2·7	- 19·9
229·468 G	92	580	47	296	98·5	40·0	- 2·3	- 5·8
230·558 C	217	1117	111	569	98·5	39·7	- 2·0	+ 8·6
231·378 C	216	1107	117	597	98·4	39·4	- 2·1	+ 19·3
232·388 G	188	1061	115	647	99·1	39·8	- 2·0	+ 33·4
233·481 G	178	826	135	628	99·6	40·1	- 1·7	+ 48·3
234·379 G	136	648	143	680	100·4	40·6	- 1·9	+ 61·0
235·375 C	42	363	80	690	100·6	40·6	- 2·0	+ 74·4

Spot h

225-340 G	15	60	26	103	86.4	31.0	- 4.2	- 72.5
226-376 G	66	273	63	262	87.4	31.7	- 4.3	- 57.8
227-396 G	79	418	57	301	87.2	31.3	- 4.5	- 44.5
228-434 G	84	439	50	266	86.7	30.5	- 4.7	- 31.3
229-468 G	73	387	39	205	87.0	30.6	- 4.9	- 17.3
230-558 C	38	314	19	160	87.4	30.7	- 4.4	- 2.5
231-378 C	39	239	20	124	87.5	30.6	- 4.5	+ 8.4
232-388 G	32	170	18	93	87.9	30.7	- 4.7	+ 22.2
233-481 G	4	33	2	21	88.2	30.8	- 4.7	+ 36.9

Group 9030.—September 8-20. A very large regular spot, *a* of Group 9007, breaking up rapidly on September 18.

1919.	d					o	o	o	o
250·427 G	26	131	114	575	104·1	39·7	- 2·0	- 83·3	
251·331 G	58	365	88	551	105·2	40·6	- 1·8	- 70·3	
252·349 G	97	593	90	551	105·0	40·2	- 2·0	- 57·0	
253·367 G	127	748	89	524	105·4	40·3	- 2·0	- 43·2	
254·617 G	122	810	70	462	105·4	40·0	- 2·0	- 26·7	
255·364 C	95	878	50	465	105·1	39·5	- 1·8	- 17·1	
256·550 C	143	807	73	412	105·3	39·4	- 1·8	- 1·3	
257·370 C	113	722	58	368	105·1	39·0	- 1·5	+ 9·4	
258·432 G	116	647	64	356	105·4	39·0	- 1·8	+ 23·7	
259·460 G	94	564	60	361	105·8	39·1	- 1·8	+ 37·6	
260·348 G	79	450	62	351	105·7	38·8	- 1·8	+ 49·3	
261·428 C	26	295	30	339	106·1	38·9	- 1·5	+ 63·9	
262·442 C	13	104	30	239	106·0	38·6	- 1·5	+ 77·2	
Means ..	..	..	67	427	105·35	39·47	- 1·79	..

RECURRENT SERIES 908.

Group 9020 seen in Rotation 882.
,, 9039 and 9040 ,, 883.
,, 9056 ,, 884.

Group 9020.—August 30—September 8. A small cluster of spots on August 30 developing into two chief spots, *a* and *b*, with small companions. By September 5, a small cluster first of the stream has become an elongated spot, *c*, comparable with the original components. This breaks into two portions, one of which is soon disappearing whilst the *s* portion has become a regular spot.

241·340 G	33	87	22	59	271·2	244·7	-15·6	-36·2
242·464 G	92	354	53	205	271·9	245·2	-15·3	-20·7
243·547 G	155	835	84	457	272·7	245·9	-14·8	-5·6
244·386 C	153	853	83	465	272·8	245·9	-14·8	+5·6
245·396 C	151	845	86	485	273·1	246·1	-14·9	+19·2
246·351 G	199	949	126	604	272·3	245·2	-15·8	+31·1
247·409 G	187	1086	145	838	271·4	244·2	-15·7	+44·1
248·529 C	113	791	122	851	271·1	243·8	-15·6	+58·6
249·419 G	74	595	131	1061	271·5	244·1	-15·6	+70·8
250·427 G	10	92	(41	593	271·1	243·6	-15·9)*	+83·7
Means ..	..	..	95	558	272·00	245·01	-15·34	..

Spot *a*

243°547 G	78	366	42	198	275°1	243°4	-15°2	- 3°2
244°386 C	69	353	38	194	275°7	243°9	-14°8	+ 8°5
245°396 C	72	397	42	230	275°8	243°9	-14°4	+21°9
246°351 G	50	286	33	189	275°8	243°8	-14°2	+34°6
247°409 G	41	199	34	163	275°7	243°5	-13°8	+48°4
248°529 C	19	123	23	150	275°5	243°2	-13°3	+63°0
249°419 G	17	114	38	252	275°4	243°0	-13°7	+74°7

LEDGER I.—RECURRENT GROUPS OF SUN SPOTS for the YEAR 1919—*continued*.

Date G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.	Date, G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.									
	Umbrae.	Whole Spots.	Umbrae.	Whole Spots.	System I.	System II.				Umbrae.	Whole Spots.	Umbrae.	Whole Spots.	System I.	System II.											
RECURRENT SERIES 908. Group 9020—<i>continued</i>.																										
Spot <i>b</i> .																										
1919. d					°	°	°	°	1919. d					°	°	°	°									
243·547 G	75	435	41	240	270·9	241·4	-14·4	-7·4	292·433 G	6	69	15	170	276·1	221·1	-10·7	-77·0									
244·386 C	80	485	43	262	271·0	241·4	-14·6	+3·8	293·489 G	14	113	16	133	276·1	220·9	-10·4	-63·0									
245·396 C	62	367	35	209	271·1	241·4	-14·8	+17·2	294·418 G	27	162	22	135	276·0	220·6	-10·2	-50·9									
246·351 G	69	335	43	208	270·8	241·0	-15·0	+29·6	295·397 C	44	192	29	127	275·7	220·2	-10·4	-38·3									
247·409 G	49	242	37	182	270·9	241·0	-14·7	+43·6	296·361 C	43	218	25	126	275·7	220·0	-10·3	-25·6									
248·529 C	34	210	36	221	270·9	240·8	-14·5	+58·4	297·365 C	33	218	17	115	275·6	219·7	-10·5	-12·4									
249·419 G	22	279	40	502	271·8	241·6	-15·0	+71·1	298·339 C	43	207	22	108	275·6	219·5	-10·5	+0·4									
250·427 G	0	36	0	365	272·7	242·4	-14·6	+85·3	299·393 C	47	211	25	114	275·7	219·4	-10·5	+14·4									
Spot <i>c</i> .																										
245·396 C	17	81	9	46	269·8	253·1	-16·7	+15·9	300·363 C	34	163	20	95	275·8	219·3	-10·5	+27·3									
246·351 G	75	291	47	183	269·4	252·6	-17·1	+28·2	301·438 C	32	138	22	95	275·7	219·0	-10·6	+41·4									
247·409 G	77	463	58	347	268·9	252·1	-17·3	+41·6	302·356 C	22	114	19	100	275·7	218·9	-10·6	+53·5									
248·529 C	47	357	48	364	268·7	251·8	-17·5	+56·2	303·359 C	12	68	16	92	276·0	219·0	-10·8	+67·0									
249·419 G	35	202	53	307	267·9	250·9	-18·0	+67·2	304·370 C	2	35	6	110	275·5	218·3	-10·7	+79·8									
250·427 G	10	56	41	228	267·4	250·4	-17·8	+80·0	Means ..	..	..	20	117	275·78	219·68	-10·52	..							
Group 9039.—September 22–30. A small regular spot, with a cluster of small followers, closely preceding Group 9040 in the same large general area of faculae. Possibly a return of spot <i>a</i> of Group 9020, but the identification is not certain.																										
RECURRENT SERIES 909.																										
Group 9043 seen in Rotation 883.																										
" 9059 " " 884.																										
Group 9043.—September 28–October 8. A long stream of a few spots of which the leader, <i>a</i> , is the longest-lived, <i>b</i> , is the following member.																										
264·337 C	7	26	21	79	285·7	256·1	-15·1	-78·1	270·419 G	34	180	50	259	217·2	189·1	-14·9	-66·3									
265·414 G	15	85	19	111	285·3	255·6	-14·9	-64·3	271·389 G	42	288	38	262	218·5	190·3	-15·0	-52·2									
266·380 G	25	165	22	149	285·0	255·2	-15·1	-51·8	272·380 G	55	306	39	215	219·9	191·6	-15·3	-37·7									
267·576 G	53	249	36	169	284·3	254·3	-14·9	-36·7	273·351 C	52	296	30	176	219·9	191·5	-15·2	-24·9									
268·387 C	43	209	25	125	284·6	254·5	-15·0	-25·7	274·402 C	66	269	36	147	221·5	193·0	-15·6	-9·4									
269·345 G	28	133	16	74	285·1	254·9	-14·8	-12·6	275·387 G	49	290	26	156	223·6	195·0	-15·6	+5·7									
270·419 G	12	85	6	45	286·2	255·9	-15·6	+2·7	276·386 G	51	272	29	155	223·1	194·4	-16·0	+18·3									
271·389 G	13	40	7	22	286·0	255·6	-15·6	+15·3	277·376 C	60	325	38	208	223·9	195·1	-15·8	+32·2									
272·380 G	0	9	0	6	286·2	255·7	-15·9	+28·6	278·375 C	50	254	39	198	223·7	194·7	-15·9	+45·2									
Means ..	..	..	17	87	285·38	255·31	-15·21	..	279·471 G	32	195	36	218	223·9	194·8	-16·5	+59·8							
Group 9040.—September 23–October 5. A regular spot, probably <i>b</i> of Group 9020, with a train of small spots to the south which have died out by September 30. A close companion to it has appeared near the west limb.																										
265·414 G	20	106	48	265	273·3	231·6	-12·4	-76·3	280·387 G	14	104	26	192	223·5	194·3	-16·5	+71·5									
266·380 G	37	244	47	306	273·3	231·5	-12·8	-63·5	Means ..	..	..	36	199	221·70	193·07	-15·66	..							
267·576 G	55	369	45	300	272·9	230·9	-13·0	-48·1	Spot <i>a</i> .																	
268·387 C	83	484	55	325	273·2	231·1	-13·0	-37·1	270·419 G	16	95	20	120	220·0	192·7	-15·3	-63·5									
269·345 G	86	521	50	303	273·1	230·8	-13·1	-24·6	271·389 G	18	168	15	143	221·0	193·6	-15·6	-49·7									
270·419 G	80	470	43	255	273·1	230·6	-12·6	-10·4	272·380 G	29	182	19	122	222·4	194·9	-15·4	-35·2									
271·389 G	81	390	43	207	273·4	230·8	-12·4	+2·7	273·351 C	23	172	13	100	223·4	195·8	-15·8	-21·4									
272·380 G	77	345	42	190	273·4	230·6	-12·4	+15·8	274·402 C	39	181	21	98	224·3	196·6	-15·6	-6·6									
273·351 C	56	293	34	179	273·7	230·8	-12·4	+28·9	275·387 G	47	265	25	143	224·3	196·5	-15·6	+6·4									
274·402 C	58	257	42	188	273·9	230·8	-12·4	+43·0	276·386 G	50	243	28	139	224·2	196·3	-15·8	+19·4									
275·387 G	29	179	28	174	274·0	230·8	-12·4	+56·1	277·376 C	60	318	38	204	223·9	195·9	-15·7	+32·2									
276·386 G	24	143	37	220	273·6	230·2	-12·5	+68·8	278·375 C	50	254	39	198	223·7	195·6	-15·9	+45·2									
277·376 C	7	86	28	350	272·9	229·3	-13·0	+81·2	279·471 G	32	195	36	218	223·9	195·7	-16·5	+59·8									
Means ..	..	..	42	251	273·37	230·75	-12·65	..	280·387 G	14	104	26	192	223·5	195·2	-16·5	+71·5							

LEDGER I.—RECURRENT GROUPS OF SUN SPOTS for the YEAR 1919—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 909. Group 9043—continued.																										
Spot b.																										
1919. d 270·419 G	18	85	30	139	213·8	180·8	-14·4	-69·7	1919. d 298·339 C	12	69	64	367	189·7	138·1	+11·7	-85·5									
271·389 G	9	76	9	79	212·8	179·7	-14·4	-57·9	299·393 C	45	280	69	431	189·7	137·9	+11·6	-71·6									
272·380 G	15	83	12	64	212·2	179·0	-14·6	-45·4	300·363 C	74	397	70	377	190·1	138·1	+11·6	-58·4									
273·351 C	13	85	8	54	212·1	178·8	-14·8	-32·7	301·438 C	109	559	76	391	190·0	137·9	+11·8	-44·3									
274·402 C	15	35	9	20	211·9	178·4	-15·0	-19·0	302·356 C	138	669	81	395	189·9	137·6	+11·6	-32·3									
Group 9059.—October 24–November 5. A stable regular spot, a of Group 9043, with a small companion on October 25.																										
296·361 C	9	54	25	148	223·5	185·3	-14·6	-77·8	303·359 C	137	718	73	381	189·7	137·2	+11·6	-19·3									
297·365 C	29	133	37	170	223·3	184·9	-14·2	-64·7	304·370 C	145	770	74	393	190·0	137·3	+11·6	-5·7									
298·339 C	18	159	16	138	223·2	184·7	-14·0	-52·0	305·339 C	133	769	68	392	189·5	136·7	+11·3	+6·6									
299·393 C	34	225	23	153	223·1	184·5	-13·9	-38·2	306·366 C	112	594	60	321	189·9	136·9	+11·3	+20·5									
300·363 C	41	229	24	133	223·4	184·6	-14·2	-25·1	307·386 C	100	526	61	321	189·9	136·7	+11·3	+34·0									
301·438 C	52	269	28	145	223·2	184·3	-14·3	-11·1	308·376 C	95	458	69	334	189·7	136·4	+11·5	+46·9									
302·356 C	46	220	24	117	222·9	183·9	-14·3	+0·7	309·170 D	95	342	89	321	190·3	136·8	+11·6	+57·9									
303·359 C	48	234	26	126	222·7	183·6	-14·3	+13·7	310·451 C	19	146	34	263	189·8	136·1	+11·6	+74·3									
304·370 C	58	224	34	132	222·5	183·2	-14·4	+26·8	Means ..	..	..	25	138	222·72	183·71	-14·30	..							
305·339 C	28	177	19	122	222·3	182·9	-14·5	+39·4	Group 9061—continued.																	
306·366 C	26	126	23	111	222·1	182·6	-14·4	+52·7	Spot a.																	
307·386 C	21	93	28	124	221·9	182·2	-14·4	+66·0	299·393 C	4	27	5	36	192·4	147·2	+14·4	-68·9									
308·376 C	6	63	17	178	221·3	181·5	-14·4	+78·5	300·363 C	27	68	24	60	193·0	147·6	+13·6	-55·5									
RECURRENT SERIES 910.																										
Group 9061 seen in Rotation 884.																										
.. 9071 .. ..	..	..	..	..	..	..	..	..	301·438 C	70	495	47	332	192·9	147·4	+13·1	-41·4	
.. 9088 .. ..	..	..	..	..	..	..	..	..	302·356 C	92	654	53	379	193·4	147·7	+12·8	-28·8	
Group 9061.—October 26–November 7. A large and active group. A spot, a, approximately of regular formation seen at the east limb preceded by a few very small spots. These companions multiply and form the nucleus of a large elongated but unstable spot, b, which has developed by October 31. Meanwhile a cluster of small spots has also appeared, together with a more stable spot, c, nearly of regular formation. The group when on the central meridian is a large compact stream with the original regular spot, a, as the most prominent feature.									303·359 C	106	731	56	387	193·0	147·2	+12·7	-16·0									
298·339 C	12	69	64	367	189·7	142·3	+11·7	-85·5	304·370 C	87	650	44	332	194·3	148·3	+12·4	-1·4									
299·393 C	49	307	74	467	189·9	142·3	+11·7	-71·4	305·339 C	103	911	54	474	195·1	149·0	+12·7	+12·2									
300·363 C	110	532	103	503	190·1	142·3	+12·1	-58·4	306·366 C	70	802	40	457	196·8	150·5	+13·3	+27·4									
301·438 C	189	1127	130	776	191·2	143·3	+12·6	-43·1	307·386 C	106	737	72	501	198·1	151·7	+12·7	+42·2									
302·356 C	262	1602	153	945	190·9	142·8	+12·7	-31·3	308·376 C	72	412	64	367	198·4	151·8	+12·9	+55·6									
303·359 C	313	1992	167	1065	190·7	142·5	+13·0	-18·3	309·170 D	54	504	69	645	199·6	152·9	+12·7	+67·2									
304·370 C	302	1904	155	970	190·1	141·7	+12·7	-5·6	310·451 C	16	90	65	366	199·1	152·2	+13·0	+83·6									
305·339 C	317	2368	163	1217	190·8	142·3	+12·7	+7·9	Spot c.																	
306·366 C	256	1875	139	1035	191·4	142·7	+12·9	+22·0	307·386 C	31	155	18	90	184·5	142·7	+13·6	+28·6									
307·386 C	250	1532	159	980	193·2	144·3	+12·7	+37·3	308·376 C	27	124	18	83	184·0	142·1	+13·7	+41·2									
308·376 C	209	1231	163	957	193·1	144·1	+12·5	+50·3	309·170 D	23	86	19	71	184·3	142·3	+13·7	+51·9									
309·170 D	186	997	192	1105	194·6	145·4	+12·5	+62·2	310·451 C	0	17	0	24	185·0	142·8	+13·5	+69·5									
310·451 C	35	259	99	661	193·7	144·3	+12·5	+78·2	Group 9071.—November 22–December 4. Two regular spots a and b, the preceding one being the larger, which coalesce to make an elongated spot by November 27. The two umbrae appear distinct, however, and the separation again into two components takes place after November 29. A cluster of small followers has condensed to form an appendage to the composite spot on November 27.																	
Means ..	..	..	135	850	191·49	143·10	+12·48	..	325·351 C	31	184	85	465	201·0	156·8	+13·8	-78·1							
									326·372 C	71	370	85	443	200·8	156·4	+13·6	-64·8									
									327·408 C	84	480	68	391	200·9	156·4	+13·6	-51·1									

LEDGER I.—RECURRENT GROUPS OF SUN SPOTS for the YEAR 1919—*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 910. Group 9071—*continued.*

1919. d 328·531 G	142	816	90	520	200·6	155·9	+13·7	-36·5	1919. d 352·357 C	o	4	o	8	208·4	160·8	+14·8	-74·8
329·411 G	143	955	81	539	200·9	156·1	+13·6	-24·7	353·336 C	o	o	o	..	..	..	..	..
330·359 C	192	1091	100	573	200·3	155·4	+13·6	-12·8	354·112 K	o	o	o	..	..	..	..	..
331·368 C	192	1055	98	538	200·4	155·3	+13·6	+0·6	355·523 C	o	o	o	..	..	..	..	..
332·439 G	203	1047	107	553	200·2	155·0	+13·7	+14·6	356·407 C	8	56	4	31	207·7	159·6	+14·4	-22·1
333·342 C	142	817	82	473	201·3	156·0	+13·9	+27·6	357·439 G	19	132	10	69	209·7	161·5	+13·9	-6·5
334·366 C	125	674	86	463	201·8	156·3	+14·0	+41·6	358·503 G	9	61	5	32	210·2	161·8	+13·6	+8·0
335·335 C	70	383	62	337	201·8	156·2	+14·0	+54·3	359·480 G	o	5	o	3	208·0	159·5	+12·8	+18·6
336·335 C	53	283	71	375	201·5	155·8	+14·3	+67·2	360·431 C	5	23	3	14	207·6	158·9	+14·1	+30·8
337·335 C	27	151	76	426	200·8	154·9	+14·9	+79·7	Means ...	..	..	2	17	208·60	160·35	+13·93	..
Means ...	..	..	84	469	200·95	155·88	+13·87	..									

Spot a.

325·351 C	20	147	45	331	201·9	155·7	+13·8	-77·2	304·370 C	8	35	7	32	142·3	106·4	-14·8	-53·4
326·372 C	48	266	55	306	201·7	155·4	+13·8	-63·9	305·339 C	65	277	45	192	143·2	107·2	-15·2	-39·7
327·408 C	64	338	51	270	201·7	155·2	+13·7	-50·3	306·366 C	80	551	47	324	144·2	108·0	-15·0	-25·2
328·531 G	94	521	59	328	201·7	155·0	+13·6	-35·4	307·386 C	129	557	71	302	144·4	108·1	-14·7	-11·5
329·411 G	97	614	54	344	201·9	155·1	+13·3	-23·7	308·376 C	86	601	45	318	144·2	107·8	-14·9	+1·4
330·359 C	116	584	60	304	201·6	154·7	+13·3	-11·5	309·170 D	125	525	68	283	145·0	108·5	-14·8	+12·6
331·368 C	..	..	..	..	201·4	154·3	+13·0	+1·6	310·451 C	87	460	53	280	145·4	108·8	-14·9	+29·9
332·439 G	..	..	..	..	201·2	154·0	+13·2	+15·6	311·400 C	61	384	44	276	145·7	108·9	-15·2	+42·7
333·342 C	88	501	51	291	201·9	154·6	+13·5	+28·2	312·356 C	47	287	44	267	145·5	108·6	-14·8	+55·1
334·366 C	75	440	52	304	202·1	154·6	+13·6	+41·9	313·350 C	40	201	58	291	145·3	108·3	-15·0	+68·1
335·335 C	39	238	35	212	202·3	154·7	+13·8	+54·8	314·356 C	12	71	43	256	144·9	107·8	-14·8	+80·9
336·335 C	28	144	38	194	202·1	154·3	+13·6	+67·8	Means ...	..	..	48	256	144·55	108·04	-14·92	..

Spot b.

325·351 C	11	37	40	134	196·9	154·6	+13·8	-82·2	304·370 C	8	16	7	14	143·9	107·4	-14·1	-51·8
326·372 C	23	104	30	137	198·1	155·7	+13·6	-67·5	305·339 C	30	140	20	94	145·1	108·5	-15·0	-37·8
327·408 C	20	128	17	108	199·2	156·6	+13·6	-52·8	306·366 C	55	396	32	230	145·4	108·6	-15·0	-24·0
328·531 G	31	165	20	106	199·7	157·0	+13·8	-37·4	307·386 C	88	423	48	228	145·4	108·5	-14·7	-10·5
329·411 G	36	237	21	135	199·7	156·9	+13·8	-25·9	308·376 C	65	439	34	233	145·8	108·8	-14·5	+3·0
330·359 C	60	241	32	128	199·8	156·9	+14·2	-13·3	309·170 D	114	454	62	245	146·0	108·9	-14·7	+13·6
331·368 C	..	..	..	..	200·2	157·1	+14·2	+0·4	310·451 C	87	440	53	268	145·6	108·3	-14·9	+30·1
332·439 G	..	..	..	..	200·0	156·8	+14·4	+14·4	311·400 C	61	384	44	276	145·7	108·3	-15·2	+42·7
333·342 C	52	236	30	137	200·4	157·1	+14·8	+26·7	312·356 C	47	287	44	267	145·5	108·0	-14·8	+55·1
334·366 C	50	234	34	159	200·5	157·0	+14·8	+40·3	313·350 C	40	201	58	291	145·3	107·7	-15·0	+68·1
335·335 C	31	145	27	125	200·7	157·1	+14·8	+53·2	314·356 C	12	71	43	256	144·9	107·2	-14·8	+80·9
336·335 C	25	139	33	181	201·1	157·4	+15·2	+66·8	Means ...	..	..	48	256	144·55	108·04	-14·92	..

Note.—On November 28 and 29, the penumbrae of the two spots *a* and *b* have completely coalesced, and therefore for these two days the position only of their respective umbrae is given.

Spot a.

304·370 C	8	35	7	32	142·3	106·4	-14·8	-53·4
305·339 C	30	140	20	94	145·1	108·5	-15·0	-37·8
306·366 C	55	396	32	230	145·4	108·6	-15·0	-24·0
307·386 C	88	423	48	228	145·4	108·5	-14·7	-10·5
308·376 C	65	439	34	233	145·8	108·8	-14·5	+3·0
309·170 D	114	454	62	245	146·0	108·9	-14·7	+13·6
310·451 C	87	440	53	268	145·6	108·3	-14·9	+30·1
311·400 C	61	384	44	276	145·7	108·3	-15·2	+42·7
312·356 C	47	287	44	267	145·5	108·0	-14·8	+55·1
313·350 C	40	201	58	291	145·3	107·7	-15·0	+68·1
314·356 C	12	71	43	256	144·9	107·2	-14·8	+80·9

LEDGER I.—RECURRENT GROUPS of SUN SPOTS for the YEAR 1919—*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 911— <i>continued</i> .																						
Group 9075.—November 26—December 7. A small regular spot, <i>a</i> of Group 9064. stable until December 3 or 4 when it begins to disappear rapidly.																						
1919. d 329·411 G	2	25	7	90	144·2	106·6	−15·0	−81·4	1919. d 345·346 C	○	7	○	19	296·6	286·6	−19·5	−79·0					
330·359 C	17	96	26	148	143·2	105·5	−15·6	−69·9	346·346 C	3	13	4	16	296·7	286·7	−19·2	−65·7					
331·368 C	31	156	29	148	143·5	105·7	−15·6	−56·3	347·356 C	○	7	○	6	296·6	286·5	−19·2	−52·5					
332·439 G	37	207	26	147	143·3	105·4	−15·1	−42·3	348·596 C	○	12	○	8	293·6	283·5	−18·9	−39·1					
333·342 C	39	212	24	129	143·1	105·1	−15·2	−30·6	349·358 C	○	○	○	○	..	..	..	..	
334·366 C	45	246	24	133	143·2	105·1	−15·2	−17·0	350·341 C	6	47	4	26	295·0	284·8	−18·6	−14·7					
335·335 C	32	251	17	131	143·0	104·8	−15·0	−4·5	351·342 C	16	100	8	52	294·9	284·7	−18·6	−1·6					
336·335 C	58	254	30	132	143·0	104·7	−14·9	+8·7	352·357 C	3	62	2	33	293·9	283·7	−19·2	+10·7					
337·335 C	28	157	16	88	142·8	104·3	−14·7	+21·7	353·336 C	7	23	4	13	296·3	286·0	−19·9	+26·0					
338·340 C	27	144	17	91	142·9	104·3	−15·0	+35·0	354·112 K	4	21	3	13	295·5	285·2	−19·5	+35·4					
339·346 C	24	91	18	70	142·6	103·9	−15·2	+48·0	Means ...	..	..	3	19	295·46	285·30	−19·18	..			
340·339 C	8	28	8	30	142·1	103·3	−15·2	+60·6														
Means ..	..	..	20	III	143·08	104·89	−15·14	..												

RECURRENT SERIES 912.

Group 9072 seen in Rotation 885.
,, 9086,, 886.

Group 9072.—November 23–27. A few spots arranged in stream formation. A small regular spot, marking the head of the stream alone remains on November 26.

326·372 C	10	30	6	18	287·7	305·7	−22·5	+22·1
327·408 C	19	85	13	57	287·3	305·3	−22·4	+35·3
328·531 G	14	52	12	47	288·7	306·8	−22·7	+51·6
329·411 G	14	41	19	57	291·8	309·9	−22·8	+66·2
330·359 C	2	33	6	96	291·8	310·0	−22·4	+78·7
Means ..	..	..	11	55	289·46	307·54	−22·56	..

ROYAL OBSERVATORY, GREENWICH.

LEDGERS

OF

GROUPS OF SUN SPOTS

FOR THE YEAR

1919.

LEDGER II.—NON-RECURRENT GROUPS.

LEDGER II.—NON-RECURRENT GROUPS OF SUN SPOTS for the YEAR 1919.

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 Umbræ and Whole Spots, given in the *second* and *third* columns, is the area as it is measured on the photograph, uncorrected for the effect of foreshortening, and expressed in millionths of the Sun's apparent disc.

The Area Corrected for Foreshortening given in the *fourth* and *fifth* columns is expressed in millionths of the Sun's visible hemisphere.

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

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

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

Group 8792.

January 3-8. One or two small spots.

1919. d					°	°	°	°	1919. d					°	°	°	°
2·359 C	3	9	3	10	160·5	159·9	+ 4·5	- 62·7	11·386 C	22	84	16	60	59·0	58·5	- 18·3	- 45·3
3·350 C	0	4	0	3	163·5	162·7	+ 3·1	- 46·6	12·493 C	12	38	7	23	59·2	58·6	- 18·3	- 30·5
4·366 C	6	18	4	11	163·1	162·0	+ 2·8	- 33·6	13·426 C	11	61	6	34	55·6	55·0	- 18·8	- 21·8
5·484 G	9	39	5	21	162·3	160·9	+ 2·5	- 19·7	14·334 C	2	17	1	9	61·7	61·0	- 18·3	- 3·8
6·345 C	2	36	1	18	160·9	159·3	+ 3·2	- 9·8	Means ..	..	..	13	66	59·14	58·61	- 18·33	..
7·355 C	1	8	1	4	158·9	157·1	+ 5·0	+ 1·5									
Means ..	..	..	2	11	161·53	160·32	+ 3·52	..									

Group 8795.

January 8-17. A stream of spots of Group 8794. The largest and most stable component is a partially formed regular spot at the rear, but this breaks up into two portions after January 13.

7·355 C	21	65	15	47	115·1	114·3	+ 15·6	- 42·3	12·493 C	8	46	14	76	19·2	17·2	+ 12·6	- 70·5
8·423 C	76	311	46	187	114·8	113·9	+ 15·3	- 28·5	13·426 C	42	124	43	126	19·8	17·6	+ 12·7	- 57·6
9·361 C	98	578	54	318	113·9	112·9	+ 15·1	- 17·0	14·334 C	50	189	37	143	19·9	17·6	+ 12·6	- 45·6
10·370 C	102	575	54	305	113·4	112·3	+ 15·6	- 4·3	15·475 G	23	109	14	66	20·8	18·3	+ 12·2	- 29·6
11·386 C	85	458	46	247	113·3	112·1	+ 15·3	+ 9·0	16·513 G	23	84	12	45	23·7	21·0	+ 11·6	- 13·1
12·493 C	77	353	45	205	112·1	110·7	+ 15·3	+ 22·4	17·509 G	23	56	12	29	23·5	20·7	+ 11·8	- 0·2
13·426 C	44	248	29	164	112·8	111·3	+ 15·3	+ 35·4	18·367 C	29	115	15	60	20·4	17·4	+ 12·4	+ 8·0
14·334 C	36	236	28	183	111·9	110·3	+ 15·9	+ 46·4	19·350 C	24	67	13	38	22·5	19·4	+ 13·0	+ 23·1
15·475 G	19	95	20	105	110·8	109·1	+ 15·3	+ 60·4	20·355 C	16	55	11	36	21·5	18·2	+ 13·2	+ 35·3
16·513 G	12	45	22	83	109·1	107·3	+ 15·2	+ 72·3	21·224 K	1	12	1	11	27·6	24·2	+ 11·2	+ 52·9
Means ..	..	..	36	184	112·72	111·42	+ 15·39	..	Means ..	..	..	17	63	21·89	19·16	+ 12·33	..

Group 8796.

January 9-15. A regular spot quickly dying out. Numerous very small spots appear near its position on January 14 and 15.

8·423 C	2	16	8	61	60·0	59·6	- 18·1	- 83·3	13·426 C	2	15	8	61	354·0	351·0	- 6·1	- 83·4
9·361 C	18	87	29	139	59·2	58·8	- 18·5	- 71·7	14·334 C	9	59	14	91	354·1	350·9	- 6·9	- 71·4
10·370 C	26	141	25	135	59·3	58·8	- 18·0	- 58·4	15·475 G	5	31	5	28	353·4	349·9	- 6·6	- 57·0

Group 8796—continued.

11·386 C	22	84	16	60	59·0	58·5	- 18·3	- 45·3	
12·493 C	12	38	7	23	59·2	58·6	- 18·3	- 30·5	
13·426 C	11	61	6	34	55·6	55·0	- 18·8	- 21·8	
14·334 C	2	17	1	9	61·7	61·0	- 18·3	- 3·8	
Means	13	66	59·14	58·61	- 18·33	..

Group 8800.

January 13-22. A sparse stream of unimportant spots. Only the leader remains on January 22.

12·493 C	8	46	14	76	19·2	17·2	+ 12·6	- 70·5	
13·426 C	42	124	43	126	19·8	17·6	+ 12·7	- 57·6	
14·334 C	50	189	37	143	19·9	17·6	+ 12·6	- 45·6	
15·475 G	23	109	14	66	20·8	18·3	+ 12·2	- 29·6	
16·513 G	23	84	12	45	23·7	21·0	+ 11·6	- 13·1	
17·509 G	23	56	12	29	23·5	20·7	+ 11·8	- 0·2	
18·367 C	29	115	15	60	20·4	17·4	+ 12·4	+ 8·0	
19·350 C	24	67	13	38	22·5	19·4	+ 13·0	+ 23·1	
20·355 C	16	55	11	36	21·5	18·2	+ 13·2	+ 35·3	
21·224 K	1	12	1	11	27·6	24·2	+ 11·2	+ 52·9	
Means	17	63	21·89	19·16	+ 12·33	..

Group 8802.

January 14-21. A small spot which has disappeared on January 18. A very small spot appears near its position on January 19, and two on January 21.

13·426 C	2	15	8	61	354·0	351·0	- 6·1	- 83·4
14·334 C	9	59	14	91	354·1	350·9	- 6·9	- 71·4
15·475 G	5	31	5	28	353·4	349·9	- 6·6	- 57·0
16·513 G	7	19	5	13	353·6	349·9	- 6·9	- 43·2
17·509 G	1	11	1	6	354·9	351·0	- 9·4	- 28·8

LEDGER II.—NON-RECURRENT GROUPS OF SUN SPOTS for the YEAR 1919—*continued.*

Date, G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.	Date, G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.
	Umbræ.	Whole Spots.	Umbræ.	Whole Spots.	System I.	System II.				Umbræ.	Whole Spots.	Umbræ.	Whole Spots.	System I.	System II.		
Group 8802— <i>continued.</i>																	
1919. d 18·367 C	o	o	o	o	..	..	..	..	1919. d 30·304 D	18	48	48	121	137·8	130·8	..	5·6
19·350 C	o	o	o	o	..	..	..	..	31·404 C	25	114	25	117	140·9	133·6	..	6·2
20·355 C	2	19	1	10	354·3	349·7	-7·8	+8·1	32·605 C	93	473	64	321	143·4	135·9	..	6·1
Means ..	..	..	4	26	354·05	350·40	-7·28	..	33·395 C	56	460	33	270	142·6	134·9	..	6·4
Group 8810.																	
January 19–26. A small spot diminishing to a dot with an occasional faint companion.																	
18·367 C	o	9	o	43	289·1	284·9	+7·3	-83·3	1919. d 30·304 D	4	15	6	22	144·7	137·9	..	7·2
19·350 C	4	19	6	29	289·3	284·9	+7·0	-70·1	31·404 C	13	34	11	28	147·1	140·0	..	7·2
20·355 C	6	20	6	19	289·2	284·5	+7·2	-57·0	32·605 C	20	76	12	47	148·7	141·4	..	7·1
21·224 K	2	8	1	6	288·6	283·8	+6·9	-46·1	33·395 C	18	83	10	46	149·1	141·6	..	7·5
22·364 C	2	5	1	3	290·1	285·0	+7·4	-29·6	34·436 C	29	66	15	34	149·7	142·0	..	7·6
23·361 C	2	8	1	4	288·7	283·4	+6·6	-17·9	35·362 C	32	56	16	28	149·8	141·8	..	7·4
24·339 C	o	8	o	4	289·2	283·6	+6·6	-4·5	36·412 C	14	35	7	18	150·4	142·2	..	6·8
25·379 C	3	13	2	7	290·2	284·4	+6·1	+10·2	37·505 C	7	29	4	17	150·6	142·2	..	+15·6
Means ..	..	..	2	14	289·30	284·31	+6·89	..	Means ..	..	..	32	148	142·91	134·96	-6·52	..
Group 8811.																	
January 21–February 1. Revival of Group 8788. A diminishing regular spot with occasional small companions.																	
20·355 C	14	74	26	139	270·8	268·2	-13·6	-75·4	30·304 D	4	15	6	22	144·7	137·9	..	7·2
21·224 K	24	113	27	127	270·8	268·1	-13·8	-63·9	31·404 C	13	34	11	28	147·1	140·0	..	7·2
22·364 C	21	150	16	113	271·6	268·7	-14·2	-48·1	32·605 C	20	76	12	47	148·7	141·4	..	7·1
23·361 C	25	183	15	112	272·0	269·0	-14·5	-34·6	33·395 C	18	83	10	46	149·1	141·6	..	7·5
24·339 C	24	188	13	102	272·1	269·0	-14·5	-21·6	34·436 C	29	66	15	34	149·7	142·0	..	7·6
25·379 C	31	198	16	101	272·3	269·0	-14·6	-7·7	35·362 C	32	56	16	28	149·8	141·8	..	7·4
26·486 G	48	215	24	110	272·7	269·3	-14·4	+7·2	36·412 C	14	35	7	18	150·4	142·2	..	6·8
27·418 C	32	186	17	100	272·9	269·4	-14·4	+19·7	37·505 C	7	29	4	17	150·6	142·2	..	+15·6
28·359 C	16	140	9	83	272·5	268·8	-14·2	+31·7	38·383 C	32	180	17	97	129·8	124·8	..	+21·0
29·337 C	29	100	20	70	272·6	268·8	-14·2	+44·7	39·467 G	27	133	16	81	129·6	124·4	..	+35·1
30·304 D	11	57	10	52	272·8	268·9	-14·2	+57·6	40·389 C	24	104	17	76	129·7	124·4	..	+47·3
31·404 C	4	25	6	38	272·4	268·4	-14·4	+71·7	41·477 G	11	40	11	40	129·4	124·0	..	+61·3
Means ..	..	..	17	96	272·12	268·80	-14·25	..	42·513 G	2	6	3	10	129·8	124·2	..	+75·4
Group 8817.																	
January 30–February 4. Two spots on January 30, which separate considerably on the following days and form a stream with other spots which appear after January 31.																	
29·337 C	22	124	13	74	241·5	244·8	+24·2	+13·6	31·404 C	13	37	19	55	129·4	125·3	-13·7	-71·3
30·304 D	20	77	14	50	242·4	245·8	+24·6	+27·2	32·605 C	18	95	15	82	129·8	125·5	-13·6	-55·1
31·404 C	80	293	64	234	242·3	245·8	+24·4	+41·6	33·395 C	18	204	13	143	129·8	125·4	-13·9	-44·7
32·605 C	59	175	65	193	241·7	245·4	+24·4	+56·8	34·436 C	36	147	21	87	129·8	125·3	-14·0	-31·0
33·395 C	18	81	26	121	239·6	243·4	+25·0	+65·1	35·362 C	35	191	19	101	130·0	125·4	-14·1	-18·6
34·436 C	o	15	o	50	237·9	241·8	+25·5	+77·1	36·412 C	38	193	19	98	130·3	125·5	-14·1	-4·5
Means ..	..	..	30	120	240·90	244·50	+24·68	..	37·505 C	40	151	20	77	129·9	125·0	-14·4	+9·5
Group 8820.																	
February 1–12. A small regular spot disappearing rapidly after February 9. An ephemeral companion appears, f, on February 3.																	
31·404 C	13	37	19	55	129·4	125·3	-13·7	-71·3	32·605 C	18	95	15	82	129·8	125·5	-13·6	-55·1
33·395 C	18	204	13	143	129·8	125·4	-13·9	-44·7	34·436 C	36	147	21	87	129·8	125·3	-14·0	-31·0
35·362 C	35	191	19	101	130·0	125·4	-14·1	-18·6	36·412 C	38	193	19	98	130·3	125·5	-14·1	-4·5
37·505 C	40	151	20	77	129·9	125·0	-14·4	+9·5	38·383 C	32	180	17	97	129·8	124·8	-14·2	+21·0
39·467 G	27	133	16	81	129·6	124·4	-14·6	+35·1	40·389 C	24	104	17	76	129·7	124·4	-14·2	+47·3
40·389 C	24	104	17	76	129·7	124·4	-14·2	+47·3	41·477 G	11	40	11	40	129·4	124·0	-14·4	+61·3
42·513 G	2	6	3	10	129·8	124·2	-14·6	+75·4	Means ..	..	..	16	79	129·78	124·93	-14·15	..
Group 8821.																	
February 1–11. A revival of Group 8795. A very composite spot breaking up on February 8. It is preceded by a cluster of small spots from February 4–8.																	
31·404 C	18	57	61	195	120·9	116·6	+13·4	-79·8	32·605 C	23	174	31	237	118·9	114·4	+13·8	-66·0
33·395 C	36	276	34	262	119·2	114·6	+14·0	-55·3	33·395 C	36	276	34	262	119·2	114·6	+14·0	-55·3

LEDGER II.—NON-RECURRENT GROUPS OF SUN SPOTS for the YEAR 1919—*continued.*

Date, G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude,	Long. from C.M.	Date, G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude,	Long. from C.M.
	Umbræ.	Whole Spots.	Umbræ.	Whole Spots.	System I.	System II.				Umbræ.	Whole Spots.	Umbræ.	Whole Spots.	System I.	System II.		
Group 8821— <i>continued.</i>																	
1919. d 34°43'6 C	48	369	34	266	°	°	°	°	1919. d 35°36'2 C	7	18	5	12	115.5	115.6	+20.0	-33.1
35°36'2 C	40	424	24	261	118.9	114.0	+14.3	-29.7	36°41'2 C	4	17	2	10	116.2	116.3	+19.1	-18.6
36°41'2 C	76	466	42	259	119.6	114.6	+14.0	-15.2	37°50'5 C	22	58	12	32	114.5	114.6	+20.2	-5.9
37°50'5 C	42	424	22	225	118.1	112.9	+13.6	-2.3	38°38'3 C	37	161	21	91	113.8	113.9	+20.5	+5.0
38°38'3 C	37	339	20	183	118.5	113.2	+13.7	+9.7	39°46'7 G	.97	520	58	312	113.6	113.7	+20.6	+19.1
39°46'7 G	13	106	7	61	118.1	112.6	+13.5	+23.6	40°38'9 C	63	298	41	197	113.3	113.4	+20.9	+30.9
40°38'9 C	13	34	8	22	118.4	112.8	+13.5	+36.0	41°47'7 G	13	30	10	24	111.2	111.3	+21.4	+43.1
41°47'7 G	0	24	0	21	119.1	113.4	+13.4	+51.0	42°51'3 G	2	12	2	12	111.5	111.6	+21.4	+57.1
Means ..	..	..	26	181	118.99	113.96	+13.75	..	Means ..	..	..	19	86	113.70	113.80	+20.51	..
Group 8823.																	
February 2-13. A few small spots which develop to a regular spot, followed by a cluster of penumbral markings. The two coalesce on February 6 to make an extended and very composite spot, practically joining that of Group 8821. The group disperses rapidly after February 10.																	
32°60'5 C	12	55	17	79	117.3	111.5	+11.5	-67.6	36°41'2 C	7	29	27	111	53.9	47.9	+12.0	-80.9
33°39'5 C	17	69	17	68	117.7	111.7	+11.5	-56.8	37°50'5 C	18	139	25	197	53.5	47.3	+12.5	-66.9
34°43'6 C	100	471	73	344	117.4	111.2	+10.8	-43.4	38°38'3 C	34	212	32	199	53.6	47.2	+12.5	-55.2
35°36'2 C	119	779	73	475	117.8	111.5	+10.9	-30.8	39°46'7 G	22	64	15	44	55.4	48.8	+12.2	-39.1
36°41'2 C	159	1193	86	651	118.6	112.1	+10.7	-16.2	40°38'9 C	18	62	10	36	57.1	50.4	+11.7	-25.3
37°50'5 C	74	1140	38	593	118.2	111.5	+10.8	-2.2	41°47'7 G	24	45	13	24	58.4	51.5	+11.4	-9.7
38°38'3 C	132	1007	70	533	118.8	111.9	+11.2	+10.0	42°51'3 G	16	37	8	20	59.4	52.3	+11.6	+5.0
39°46'7 G	117	731	68	424	119.4	112.3	+10.9	+24.9	43°34'6 C	30	112	16	62	58.6	51.4	+12.1	+15.1
40°38'9 C	60	469	40	309	119.3	112.1	+11.4	+36.9	44°34'3 C	22	98	13	60	59.2	51.8	+11.8	+28.9
41°47'7 G	13	164	11	143	120.2	112.8	+11.2	+52.1	45°45'6 G	23	63	17	46	58.9	51.4	+12.2	+43.2
42°51'3 G	15	83	19	107	119.4	111.8	+11.6	+65.0	46°51'2 C	21	68	20	65	57.4	49.7	+12.2	+55.6
43°34'6 C	1	19	3	45	119.4	111.6	+11.9	+75.9	47°109 K	9	46	11	55	56.6	48.8	+12.6	+62.7
Means ..	..	..	43	314	118.63	111.83	+11.20	..	Means ..	..	..	17	77	56.83	49.88	+12.07	..
Group 8824.																	
February 2-13. A stream of normal type in which the leader and follower practically merge into each other. The follower then disappears whilst the leader becomes double. Groups 8821, 8823, and 8824 are closely connected in the same disturbed area.																	
32°60'5 C	31	86	62	172	111.4	107.0	+14.1	-73.5	46°51'2 C	8	44	21	114	284.3	274.7	+ 8.8	-77.5
33°39'5 C	39	242	46	285	112.3	107.8	+13.9	-62.2	47°109 K	21	72	34	116	283.5	273.8	+ 8.8	-70.4
34°43'6 C	58	601	47	490	112.1	107.5	+14.3	-48.7	48°34'4 C	22	118	20	107	282.9	272.9	+ 8.9	-54.7
35°36'2 C	87	613	57	407	112.6	107.9	+14.4	-36.0	49°35'1 C	15	73	10	50	284.0	273.8	+ 8.8	-40.4
36°41'2 C	91	758	52	440	112.8	107.9	+14.4	-22.0	50°33'8 C	22	126	13	73	284.0	273.6	+ 8.6	-27.4
37°50'5 C	75	636	40	343	112.6	107.6	+14.0	-7.8	51°34'7 C	26	88	14	46	284.8	274.2	+ 8.8	-13.3
38°38'3 C	74	532	40	288	113.2	108.1	+14.2	+4.4	52°36'2 C	30	72	15	37	285.5	274.7	+ 8.8	+ 0.8
39°46'7 G	58	467	33	268	113.9	108.6	+14.0	+19.4	53°35'6 C	34	59	18	30	285.9	274.8	+ 9.4	+14.2
40°38'9 C	83	414	53	264	114.6	109.2	+13.9	+32.2	54°16'6 D	11	42	6	24	286.4	275.2	+ 9.7	+25.4
41°47'7 G	43	321	34	254	114.7	109.1	+13.7	+46.6	55°55'6 G	2	6	1	4	286.6	275.1	+ 9.5	+43.9
42°51'3 G	23	116	26	129	115.5	109.8	+13.6	+61.1	Means ..	..	..	15	60	284.79	274.28	+ 9.01	..
43°34'6 C	9	29	15	51	114.4	108.6	+13.4	+70.9	Means ..	..	..	15	60	284.79	274.28	+ 9.01	..

LEDGER II.—NON-RECURRENT GROUPS OF SUN SPOTS FOR THE YEAR 1919—continued.

Date, G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.	Date, G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.					
	Umbræ.	Whole Spots.	Umbræ.	Whole Spots.	System I.	System II.				Umbræ.	Whole Spots.	Umbræ.	Whole Spots.	System I.	System II.							
Group 8840.																						
February 24–March 1. A feeble stream of small unstable spots.																						
1919. d 54°366 D	19	124	11	74	245.7	249.0	+23.2	-15.3	1919. d 59°355 C	48	252	27	144	164.9	161.6	-18.1	-27.7					
55°556 G	7	41	4	24	248.0	251.3	+22.0	+5.3	59°355 C	18	136	9	70	165.7	162.3	-18.6	-13.7					
56°578 C	17	82	10	50	246.7	250.1	+22.4	+17.5	61°390 C	26	138	13	71	168.6	165.2	-18.1	+2.8					
57°355 C	7	38	5	24	247.4	250.8	+22.4	+28.4	62°327 C	27	125	14	66	167.8	164.3	-18.3	+14.3					
58°348 C	7	31	6	23	245.5	249.0	+23.1	+39.6	63°360 C	12	65	7	37	166.2	162.6	-19.3	+26.3					
59°355 C	2	5	2	5	243.1	246.7	+23.5	+50.5	64°428 C	2	6	1	4	170.2	166.6	-15.6	+44.4					
Means ...	..	..	6	33	246.07	249.48	+22.77	..	Means	..	..	15	85	166.37	163.01	-17.99	..	
Group 8842.																						
February 25–March 8. A group seen at the east limb as a stream of normal type. By March 3, the train of spots following the leader, a, has disappeared.																						
55°556 G	30	214	46	343	172.4	159.7	+7.9	-70.3	68°347 C	14	108	(34	259	354.4	350.9	-18.4)*	-79.8					
56°578 C	64	398	63	382	172.4	159.5	+7.6	-56.8	69°336 C	42	325	52	480	349.8	346.3	-18.0	-71.3					
57°355 C	78	551	63	422	172.2	159.1	+7.4	-46.8	70°357 C	87	548	80	526	348.7	344.9	-17.9	-59.0					
58°348 C	72	493	44	306	173.0	159.7	+7.3	-32.9	71°417 G	126	663	88	471	348.8	345.2	-17.9	-44.9					
59°355 C	66	445	36	240	174.3	160.8	+6.9	-18.3	72°389 G	156	757	93	453	348.7	345.0	-18.0	-32.2					
60°355 C	37	334	19	174	174.4	160.6	+7.0	-5.0	73°353 C	143	712	77	385	349.4	345.7	-17.9	-18.8					
61°390 C	72	460	37	239	174.8	160.8	+6.9	+9.0	74°382 C	111	697	57	357	350.3	346.5	-18.2	-4.3					
62°327 C	54	312	30	172	174.8	160.6	+6.5	+21.3	75°359 C	106	545	55	282	351.3	347.5	-18.3	+9.6					
63°360 C	37	277	23	175	175.2	160.7	+6.4	+35.3	76°373 C	63	438	35	244	351.7	347.8	-18.6	+23.3					
64°428 C	35	193	28	154	175.3	160.6	+6.2	+49.5	77°358 C	54	379	34	237	351.9	348.0	-18.4	+36.5					
65°391 C	23	109	26	124	175.7	160.8	+6.2	+62.6	78°414 C	22	255	17	199	352.1	348.1	-18.2	+50.6					
66°358 C	7	37	16	85	176.8	161.7	+6.6	+76.4	79°361 C	30	202	32	216	351.8	347.8	-18.4	+62.8					
Means	..	..	36	235	174.27	160.38	+6.91	..	80°319 C	13	89	23	157	351.4	347.3	-18.3	+75.1			
Spot a.																						
55°556 G	27	174	39	249	174.6	161.8	+7.4	-68.1	68°347 C	14	108	34	259	354.4	351.3	-18.4	-79.8					
56°578 C	42	304	38	277	174.3	161.3	+7.2	-54.9	69°336 C	42	236	52	290	354.1	351.0	-18.6	-67.0					
57°355 C	36	390	26	285	174.4	161.2	+6.9	-44.6	70°357 C	65	319	55	268	354.1	350.9	-18.6	-53.6					
58°348 C	67	417	41	254	174.3	160.9	+6.9	-31.6	71°417 G	88	399	58	263	353.7	350.5	-18.6	-40.0					
59°355 C	66	424	36	229	174.4	160.7	+6.8	-18.2	72°389 G	98	429	56	244	353.5	350.2	-18.6	-27.4					
60°355 C	37	310	19	161	174.6	160.7	+6.8	-4.8	73°353 C	97	464	51	246	353.3	350.0	-18.4	-14.9					
61°390 C	72	460	37	239	174.8	160.7	+6.9	+9.0	74°382 C	62	535	32	273	352.9	349.6	-18.4	-1.7					
62°327 C	54	312	30	172	174.8	160.5	+6.5	+21.3	75°359 C	92	464	48	241	353.0	349.6	-18.4	+11.3					
63°360 C	37	277	23	175	175.2	160.6	+6.4	+35.3	76°373 C	59	400	33	224	352.7	349.3	-18.7	+24.3					
64°428 C	35	193	28	154	175.3	160.5	+6.2	+49.5	77°358 C	52	356	33	224	352.6	349.1	-18.4	+37.2					
65°391 C	23	109	26	124	175.7	160.7	+6.2	+62.6	78°414 C	22	255	17	199	352.1	348.6	-18.2	+50.6					
66°358 C	7	37	16	85	176.8	161.5	+6.6	+76.4	79°361 C	30	202	32	216	351.8	348.2	-18.4	+62.8					
Means	..	..	36	235	174.27	160.38	+6.91	..	80°319 C	13	89	23	157	351.4	347.8	-18.3	+75.1			
Group 8843.																						
February 25–March 6. A sparse stream of spots with the leader as the only important member. A small spot appears near its position on March 6.																						
55°556 G	0	16	0	39	164.4	161.3	-18.7	-78.3	68°347 C	14	108	34	259	354.4	351.3	-18.4	-79.8					
56°578 C	15	97	17	113	164.8	161.6	-18.0	-64.4	69°336 C	42	236	52	290	354.1	351.0	-17.1	-64.6					
57°355 C	42	178	35	155	164.5	161.3	-18.0	-54.5	70°357 C	17	211	19	238	343.1	338.1	-16.8	-51.0					
58°348 C	34	226	23	148	166.6	163.3	-17.2	-39.3	71°417 G	31	247	24	195	342.7	337.6	-17.1	-38.2					
Means	..	..	36	235	174.27	160.38	+6.91	..	72°389 G	53	293	34	187	342.7	337.6	-16.9	-25.7			
Spot b.																						
69°336 C	0	89	0	190	343.3	338.4	-17.2	-77.8	69°336 C	0	89	0	190	343.3	338.4	-17.2	-77.8					
70°357 C	17	211	19	238	343.1	338.1	-17.1	-64.6	70°357 C	17	211	19	238	343.1	338.1	-17.1	-64.6					
71°417 G	31	247	24	195	342.7	337.6	-16.8	-51.0	71°417 G	31	247	24	195	342.7	337.6	-16.8	-51.0					
72°389 G	53	293	34	187	342.7	337.6	-17.1	-38.2	72°389 G	53	293	34	187	342.7	337.6	-17.1	-38.2					
73°353 C	46	248	26	139	342.5	337.3	-16.9	-25.7	73°353 C	46	248	26	139	342.5	337.3	-16.9	-25.7					

LEDGER II.—NON-RECURRENT GROUPS OF SUN SPOTS for the YEAR 1919—continued.

Date, G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.	Date, G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.	
	Umbræ.	Whole Spots.	Umbræ.	Whole Spots.	System I.	System II.				Umbræ.	Whole Spots.	Umbræ.	Whole Spots.	System I.	System II.			
Group 8856. Spot b—continued.																		
1919. d 74°38'2 C 75°35'9 C 76°37'3 C 77°35'8 C	49	148	25	77	341°7	336°4	−17°2	−12°9	89°11'2 K 90°30'6 D 91°42'7 C 92°40'4 G 93°38'6 C 94°35'7 G	11	46	6	23	161°2	140°3	+6°1	+0°8	
74°38'2 C 75°35'9 C 76°37'3 C 77°35'8 C	14	73	7	37	341°3	335°9	−17°4	−0°4	13	82	7	45	165°2	144°0	+6°2	+20°6		
74°38'2 C 75°35'9 C 76°37'3 C 77°35'8 C	4	38	2	20	340°0	334°6	−18°0	+11°6	15	57	10	36	166°6	145°1	+5°9	+36°8		
74°38'2 C 75°35'9 C 76°37'3 C 77°35'8 C	2	23	1	13	340°4	334°9	−17°6	+25°0	19	79	14	60	164°4	142°7	+6°2	+47°4		
74°38'2 C 75°35'9 C 76°37'3 C 77°35'8 C									8	22	9	24	166°0	144°1	+6°3	+62°0		
74°38'2 C 75°35'9 C 76°37'3 C 77°35'8 C									0	4	0	8	165°3	143°1	+6°2	+74°1		
Group 8860.																		
March 21–April 1. Intermittent. An area of faculae in which one or two very small ephemeral spots appear. After March 26 nothing is seen until March 29 when a few small spots are again visible.																		
79°36'1 C 80°31'9 C 81°51'4 C 82°37'4 C 83°45'3 G 84°38'2 C 85°35'7 C 86°61'4 G 87°48'0 G 88°48'9 G 89°11'2 K 90°30'6 D	2	37	4	119	208°3	190°3	−7°0	−80°7	85°35'7 C 86°61'4 G 87°48'0 G 88°48'9 G 89°11'2 K 90°30'6 D 91°42'7 C 92°40'4 G 93°38'6 C 94°35'7 G	15	75	28	139	134°1	133°9	−20°8	−75°8	
79°36'1 C 80°31'9 C 81°51'4 C 82°37'4 C 83°45'3 G 84°38'2 C 85°35'7 C 86°61'4 G 87°48'0 G 88°48'9 G 89°11'2 K 90°30'6 D	4	18	5	23	209°5	191°3	−6°4	−66°8	34	173	33	166	134°5	134°3	−20°6	−58°8		
79°36'1 C 80°31'9 C 81°51'4 C 82°37'4 C 83°45'3 G 84°38'2 C 85°35'7 C 86°61'4 G 87°48'0 G 88°48'9 G 89°11'2 K 90°30'6 D	2	7	2	6	208°6	190°1	−6°8	−52°0	42	191	31	143	134°4	134°2	−20°6	−47°5		
79°36'1 C 80°31'9 C 81°51'4 C 82°37'4 C 83°45'3 G 84°38'2 C 85°35'7 C 86°61'4 G 87°48'0 G 88°48'9 G 89°11'2 K 90°30'6 D	5	20	3	13	209°6	190°9	−6°3	−39°7	31	206	19	128	134°2	134°0	−20°4	−34°4		
79°36'1 C 80°31'9 C 81°51'4 C 82°37'4 C 83°45'3 G 84°38'2 C 85°35'7 C 86°61'4 G 87°48'0 G 88°48'9 G 89°11'2 K 90°30'6 D	3	30	2	17	210°2	191°2	−7°5	−24°8	29	217	16	124	133°9	133°7	−20°1	−26°5		
79°36'1 C 80°31'9 C 81°51'4 C 82°37'4 C 83°45'3 G 84°38'2 C 85°35'7 C 86°61'4 G 87°48'0 G 88°48'9 G 89°11'2 K 90°30'6 D	3	11	2	6	209°9	190°7	−6°1	−12°9	26	151	13	79	133°4	133°2	−20°4	−11°2		
79°36'1 C 80°31'9 C 81°51'4 C 82°37'4 C 83°45'3 G 84°38'2 C 85°35'7 C 86°61'4 G 87°48'0 G 88°48'9 G 89°11'2 K 90°30'6 D	0	0	0	0	..	..	..	..	17	58	9	30	133°2	133°0	−20°2	+3°4
79°36'1 C 80°31'9 C 81°51'4 C 82°37'4 C 83°45'3 G 84°38'2 C 85°35'7 C 86°61'4 G 87°48'0 G 88°48'9 G 89°11'2 K 90°30'6 D	0	0	0	0	..	..	..	..	11	33	6	17	132°9	132°7	−20°4	+15°9
79°36'1 C 80°31'9 C 81°51'4 C 82°37'4 C 83°45'3 G 84°38'2 C 85°35'7 C 86°61'4 G 87°48'0 G 88°48'9 G 89°11'2 K 90°30'6 D	20	56	13	37	209°7	189°6	−7°9	+41°1	8	23	5	13	132°8	132°6	−19°8	+28°8		
79°36'1 C 80°31'9 C 81°51'4 C 82°37'4 C 83°45'3 G 84°38'2 C 85°35'7 C 86°61'4 G 87°48'0 G 88°48'9 G 89°11'2 K 90°30'6 D	13	38	9	29	210°4	190°2	−7°8	+50°0	9	26	4	17	132°0	131°8	−19°7	+40°8		
79°36'1 C 80°31'9 C 81°51'4 C 82°37'4 C 83°45'3 G 84°38'2 C 85°35'7 C 86°61'4 G 87°48'0 G 88°48'9 G 89°11'2 K 90°30'6 D	1	8	1	10	212°1	191°6	−6°6	+67°5	Means	16	86	133°54	133°34	−20°30	..	
Group 8863.																		
March 23–31. A small regular spot of Group 8862 in the same general area of faculae. Two companion spots appear on March 26.																		
81°51'4 C 82°37'4 C 83°45'3 G 84°38'2 C 85°35'7 C 86°61'4 G 87°48'0 G 88°48'9 G 89°11'2 K	0	18	0	86	174°4	168°1	−17°6	−86°2	90°30'6 D 91°42'7 C 92°40'4 G 93°38'6 C 94°35'7 C 95°57'7 C	3	19	3	19	83°5	71°7	−14°4	−61°1	
81°51'4 C 82°37'4 C 83°45'3 G 84°38'2 C 85°35'7 C 86°61'4 G 87°48'0 G 88°48'9 G 89°11'2 K	13	63	23	113	174°1	167°8	−17°1	−75°2	47	146	33	106	83°3	71°3	−14°2	−46°5		
81°51'4 C 82°37'4 C 83°45'3 G 84°38'2 C 85°35'7 C 86°61'4 G 87°48'0 G 88°48'9 G 89°11'2 K	8	125	8	126	174°2	167°8	−17°4	−60°8	39	212	23	127	83°9	71°8	−14°4	−33°1		
81°51'4 C 82°37'4 C 83°45'3 G 84°38'2 C 85°35'7 C 86°61'4 G 87°48'0 G 88°48'9 G 89°11'2 K	33	203	26	157	173°2	166°7	−17°2	−49°6	19	137	10	74	83°4	71°2	−14°0	−20°6		
81°51'4 C 82°37'4 C 83°45'3 G 84°38'2 C 85°35'7 C 86°61'4 G 87°48'0 G 88°48'9 G 89°11'2 K	41	178	26	112	173°1	166°5	−17°2	−36°8	19	58	10	29	82°6	70°2	−14°1	−8°6		
81°51'4 C 82°37'4 C 83°45'3 G 84°38'2 C 85°35'7 C 86°61'4 G 87°48'0 G 88°48'9 G 89°11'2 K	29	158	16	85	173°0	166°3	−16°8	−20°3	11	35	6	18	82°7	70°2	−14°0	+7°6		
81°51'4 C 82°37'4 C 83°45'3 G 84°38'2 C 85°35'7 C 86°61'4 G 87°48'0 G 88°48'9 G 89°11'2 K	28	113	14	57	173°2	166°5	−16°8	−8°7	12	122	7	77	86°1	63°0	−6°2	+37°4		
81°51'4 C 82°37'4 C 83°45'3 G 84°38'2 C 85°35'7 C 86°61'4 G 87°48'0 G 88°48'9 G 89°11'2 K	12	48	6	24	172°6	165°8	−16°5	+4°0	23	56	17	42	85°6	62°3	−4°8	+48°1		
81°51'4 C 82°37'4 C 83°45'3 G 84°38'2 C 85°35'7 C 86°61'4 G 87°48'0 G 88°48'9 G 89°11'2 K	7	52	4	27	171°7	164°8	−16°0	+11°3	99°34'6 C	2	7	2	7	87°7	64°2	−8°6	+62°4	
81°51'4 C 82°37'4 C 83°45'3 G 84°38'2 C 85°35'7 C 86°61'4 G 87°48'0 G 88°48'9 G 89°11'2 K	Means	14	87	173°28	166°70	−16°96	..	Means	12	67	85°19	62°45	−5°85	..
Group 8866.																		
March 25–April 5. A small spot which has disappeared by March 27. On March 30, a small stream has appeared near its place.																		
83°45'3 G 84°38'2 C 85°35'7 C 86°61'4 G 87°48'0 G 88°48'9 G	3	23	4	34	166°1	146°5	+5°8	−68°9	92°40'4 G 93°38'6 C 94°35'7 G 95°57'7 C 96°45'2 G 97°57'9 G 98°42'5 G 99°34'6 C	11	36	7	22	82°1	60°2	−5°0	−34°9	
83°45'3 G 84°38'2 C 85°35'7 C 86°61'4 G 87°48'0 G 88°48'9 G	4	16	4	15	166°0	146°2	+6°0	−56°8	36	308	19	166	85°7	62°8	−6°0	+22°2		
83°45'3 G 84°38'2 C 85°35'7 C 86°61'4 G 87°48'0 G 88°48'9 G	0	0	0	0	..	..	..	..	11	122	7	77	86°1	63°0	−6°2	+37°4
83°45'3 G 84°38'2 C 85°35'7 C 86°61'4 G 87°48'0 G 88°48'9 G	0	0	0	0	..	..	..	..	23	56	17	42	85°6	62°3	−4°8	+48°1
83°45'3 G 84°38'2 C 85°35'7 C 86°61'4 G 87°48'0 G 88°48'9 G	18	11																

LEDGER II.—NON-RECURRENT GROUPS OF SUN SPOTS FOR THE YEAR 1919—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.		Long. from C.M.					
	Umbrae.	Whole Spots.	Umbrae.	Whole Spots.	System I.	System II.				Umbrae.	Whole Spots.	Umbrae.	Whole Spots.	System I.	System II.						
Group 8877.																					
April 5-11. One or two small spots appearing near the place of Groups 8873 and 8874.																					
1919·d					o	o	o	o	1919·d					o	o	o	o				
94·357 G	1	2	1	1	56·2	37·0	+ 9·1	- 35·0	98·425 G	8	25	4	13	21·2	4·4	- 11·2	- 16·3				
95·577 C	2	16	1	9	57·0	37·6	+ 9·5	- 18·1	99·346 C	0	0	0	0	..	..	..	..
96·452 G	20	78	10	41	54·7	35·1	+ 10·2	- 8·8	100·430 G	0	0	0	0	..	..	..	..
97·579 G	8	17	4	9	56·1	36·3	+ 9·6	+ 7·4	101·343 C	21	41	12	23	22·5	5·2	- 11·5	+ 23·5				
98·425 G	6	10	3	5	57·2	37·2	+ 9·2	+ 19·7	102·356 G	6	29	4	19	23·8	6·3	- 11·9	+ 38·2				
99·346 C	10	14	6	9	57·4	37·2	+ 9·0	+ 32·1	103·379 C	9	37	7	30	25·0	7·3	- 12·4	+ 52·9				
100·430 G	2	10	2	8	57·8	37·4	+ 8·8	+ 46·8	104·362 C	2	7	2	8	23·3	5·5	- 11·6	+ 64·2				
Means ..	..	..	4	12	56·63	36·83	+ 9·34	..	Means ..	..	..	4	13	23·16	5·74	- 11·72	..
Group 8878.																					
April 7-15. An interesting group. A stream developing rapidly as one of normal type. The leader, α , at first a regular spot, divides into two portions, α_1 and α_2 , on April 11.																					
96·452 G	51	133	34	88	28·1	16·1	+ 14·4	- 35·4	102·356 G	9	37	7	27	299·4	273·3	+ 1·5	- 46·2				
97·579 G	126	651	71	370	28·4	16·3	+ 14·3	- 20·3	103·379 C	45	159	27	94	301·6	275·2	+ 1·5	- 30·5				
98·425 G	133	899	72	489	28·3	16·1	+ 14·3	- 9·2	104·362 C	52	296	27	154	303·2	276·6	+ 2·0	- 15·9				
99·346 C	131	1083	71	580	28·2	15·9	+ 14·2	+ 2·9	105·416 C	35	292	18	147	303·9	277·0	+ 2·6	- 1·3				
100·430 G	131	744	73	417	28·5	16·1	+ 14·5	+ 17·5	106·357 G	73	332	38	172	305·1	278·0	+ 2·3	+ 12·3				
101·343 C	120	605	74	374	29·3	16·7	+ 14·7	+ 30·3	107·375 G	39	256	22	145	305·1	277·7	+ 2·6	- 25·8				
102·356 G	55	357	41	270	30·2	17·5	+ 14·5	+ 44·6	108·393 G	28	138	19	91	305·9	278·3	+ 2·6	- 40·0				
103·379 C	28	148	30	156	30·2	17·4	+ 15·0	+ 58·1	109·523 C	9	39	8	35	306·5	278·6	+ 2·8	+ 55·5				
104·362 C	12	74	22	137	31·2	18·3	+ 15·2	+ 72·1	110·382 C	6	12	8	15	305·9	277·8	+ 2·3	+ 66·3				
Means ..	..	..	" 54	320	29·16	16·71	+ 14·57	..	111·501 G	0	21	0	66	305·2	276·8	+ 3·1	+ 80·4		
Spot α .																					
96·452 G	29	64	19	41	30·1	17·9	+ 14·6	- 33·4	112·403 G	92	437	47	225	206·1	192·1	- 15·1	- 6·8				
97·579 G	56	313	31	175	30·9	18·5	+ 14·4	- 17·8	113·348 C	90	337	46	172	206·1	191·9	- 14·4	+ 5·7				
98·425 G	47	307	25	166	30·9	18·4	+ 14·4	- 6·6	114·335 C	63	409	34	222	207·6	193·3	- 14·5	+ 20·2				
99·346 C	77	561	42	303	30·5	17·9	+ 14·2	+ 5·2	115·393 G	48	307	30	192	208·7	194·3	- 14·3	+ 35·3				
Spot α_1 .																					
100·430 G	. 26	190	15	108	30·3	20·7	+ 15·3	+ 19·3	116·350 G	31	170	24	131	209·7	195·2	- 14·4	+ 48·9				
101·343 C	25	133	16	84	30·6	20·9	+ 15·8	+ 31·6	117·360 C	30	135	34	151	210·9	196·2	- 13·9	+ 63·5				
102·356 G	14	95	11	73	30·4	20·6	+ 16·2	+ 44·8	118·639 G	8	42	23	118	211·1	196·3	- 14·3	+ 80·6				
103·379 C	11	66	12	71	30·7	20·8	+ 16·5	+ 58·6	Means ..	..	..	33	161	207·81	193·52	- 14·51	..		
104·362 C	7	39	13	72	30·9	20·9	+ 16·5	+ 71·8													
Spot α_2 .																					
100·430 G	75	282	42	158	30·6	16·6	+ 13·6	+ 19·6	112·403 G	2	4	1	2	217·7	204·3	+ 15·3	+ 4·8				
101·343 C	52	249	33	157	31·2	17·1	+ 13·7	+ 32·2	113·348 C	48	281	27	158	218·3	204·8	+ 15·0	+ 17·9				
102·356 G	33	194	25	149	31·3	17·1	+ 13·6	+ 45·7													
103·379 C	14	64	15	68	31·2	16·8	+ 13·8	+ 59·1													
104·362 C	5	35	9	65	31·4	16·9	+ 13·8	+ 72·3													
Group 8880.																					
April 9-15. Intermittent. A pair of very small spots on April 9. A short stream of very small spots is seen in their place on April 12.																					
1919·d									1919·d					o	o	o	o				
98·425 G	8	25							98·425 G	8	25	4	13	21·2	4·4	- 11·2	- 16·3				
99·346 C	0	0							99·346 C	0	0	0	0	..	..	..	..
100·430 G	0	0							100·430 G	0	0	0	0	..	..	..	..
101·343 C	21	41							101·343 C	21	41	12	23	22·5	5·2	- 11·5	+ 23·5				
102·356 G	6	29							102·356 G	6	29	4	19	23·8	6·3	- 11·9	+ 38·2				
103·379 C	9	37							103·379 C	9	37	7	30	25·0	7·3	- 12·4	+ 52·9				
104·362 C	2	7							104·362 C	2	7	2	8	23·3	5·5	- 11·6	+ 64·2				
Means ..	..	..							Means ..	..	..	4	13	23·16	5·74	- 11·72	..
Group 8881.																					
April 13-22. Two small spots on April 13; an elongated cluster on April 14; afterwards, a regular spot with small followers. On April 18, the regular spot divides into two portions which separate in longitude.																					
102·356 G	9	37							102·356 G	9	37	7	27	299·4	273·3	+ 1·5	- 46·2				
103·379 C	45	159							103·379 C	45	159	27	94	301·6	275·2	+ 1·5	- 30·5				
104·362 C	52	296							104·362 C	52	296	27	154	303·2	276·6	+ 2·0	- 15·9				
105·416 C	35	292							105·416 C	35	292	18	147	303·9	277·0	+ 2·6	- 1·3				
106·357 G	73	332							106·357 G	73	332	38	172	305·1	278·0	+ 2·3	+ 12·3				
107·375 G	39	256							107·375 G	39	256	22	145	305·1	277·7	+ 2·6	- 25·8				
108·393 G	28	138							108·393 G	28	138	19	91	305·9	278·3	+ 2·6	- 40·0				
109·523 C	9	39							109·523 C	9	39	8	35	306·5	278·6	+ 2·8	+ 55·5				
110·382 C	6	12							110·382 C	6	12	8	15	305·9	277·8	+ 2·3	+ 66·3				
111·501 G	0	21							111·501 G	0	21	0	66	305·2	276·8	+ 3·1	+ 80·4				
Means ..	..	..							Means ..	..	..	17	95	304·18	276·93	+ 2·33	..
Group 8885.																					
April 21-29. An irregular stream of ill-formed spots. After April 25, the rear portion soon dies out, and the leader becomes a small regular spot.																					
110·382 C	20	71							110·382 C	20	71	12	44	204·3	190·5	- 15·0	- 35·3				
111·501 G	85	363							111·501 G	85	363	46	195	205·8	191·9	- 14·7	- 19·0				
112·403 G	92	437							112·403 G	92	437	47	225	206·1	192·1	- 15·1	- 6·8				
113·348 C	90	337							113·348 C	90	337	46	172	206·1	191·9	- 14·4	+ 5·7				
114·335 C	63	409							114·335 C	63	409	34	222	207·6	193·3	- 14·5	+ 20·2				
115·393 G	48	307							115·393 G	48	307	30	192	208·7	194·3	- 14·3	+ 35·3				
116·350 G	31	170							116·350 G	31	170	24	131	209·7	195·2	- 14·4	+ 48·				

LEDGER II.—NON-RECURRENT GROUPS OF SUN SPOTS for the YEAR 1919—continued.

Date. G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.	Date. G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.								
	Umbræ.	Whole Spots.	Umbræ.	Whole Spots.	System I.	System II.				Umbræ.	Whole Spots.	Umbræ.	Whole Spots.	System I.	System II.										
Group 8886—continued.																									
1919. d 114·335 C	107	701	67	439	218·8	205·2	+14·7	+31·4	1919. d 120·332 C	58	366	30	187	115·9	95·0	-11·0	+7·8								
115·393 G	98	500	75	381	218·6	204·9	+14·7	+45·2	121·367 C	40	272	22	147	116·2	95·1	-11·3	+21·7								
116·350 G	17	224	16	220	217·4	203·6	+14·7	+56·6	122·372 C	40	229	24	140	116·3	95·0	-11·6	+35·1								
117·360 C	11	57	17	90	216·7	202·7	+14·7	+69·3	123·662 G	23	153	19	125	116·7	95·2	-11·8	+52·6								
Means ...	..	..	34	215	217·92	204·25	+14·85	..	124·464 C	18	91	20	101	116·8	95·1	-11·6	+63·3						
Group 8888—Spot a—continued.																									
1919. d 125·423 G	4	43	8	87	8	87	116·9	95·1	1919. d 125·423 G	4	43	8	87	116·9	95·1	-11·3	+76·1								
Group 8887.																									
April 24–30. A small stream appearing in front of Group 8884.																									
113·348 C	2	11	1	6	187·1	184·7	-20·1	-13·3	114·335 C	10	54	30	164	106·2	86·6	-11·3	-81·2								
114·335 C	25	73	13	38	187·8	185·4	-19·4	+0·4	115·393 G	18	162	23	204	106·5	86·8	-11·7	-66·9								
115·393 G	57	160	31	86	188·7	186·3	-19·2	+15·3	116·350 G	28	166	24	143	106·3	86·4	-11·7	-54·5								
116·350 G	14	73	8	43	190·2	187·8	-19·0	+29·4	117·360 C	25	161	17	108	105·9	85·8	-11·9	-41·5								
117·360 C	17	55	12	39	191·5	189·0	-19·3	+44·1	118·639 G	13	77	7	42	106·3	86·0	-11·9	-24·2								
118·639 G	4	14	4	15	192·9	190·4	-19·6	+62·4	119·343 G	16	46	8	24	106·0	85·6	-11·9	-15·2								
Means ...	..	..	11	35	190·39	187·94	-19·50	..	Means ...	..	..	..	..	..	..	..	..
Group 8888.																									
April 24–May 6. A group of the "stream" type made up of a double spot, a, as leader; a partially formed regular spot b, as the near component, and numerous sporadic companions between them.																									
113·348 C	4	31	21	(165	114·8	95·1	-12·4)*	-85·6	117·360 C	18	79	23	103	80·1	74·6	-18·9	-67·3								
114·335 C	46	214	90	430	111·2	91·3	-11·7	-76·2	118·639 G	101	600	79	475	81·0	75·4	-19·0	-49·5								
115·393 G	70	521	72	541	112·0	91·9	-11·9	-61·4	119·343 G	130	754	88	510	81·5	75·9	-19·1	-39·7								
116·350 G	96	621	72	469	112·7	92·5	-11·7	-48·1	120·332 C	102	827	60	481	82·5	76·8	-19·2	-25·6								
117·360 C	106	717	65	440	112·7	92·3	-11·4	-34·7	121·367 C	151	927	81	492	82·9	77·2	-19·0	-11·6								
118·639 G	101	604	53	318	114·4	93·8	-11·1	-16·1	122·372 C	164	1021	86	535	82·0	76·3	-19·0	+0·8								
119·343 G	90	561	46	288	113·5	92·7	-11·4	-7·7	123·662 G	150	774	82	422	83·6	77·8	-18·6	+19·5								
120·332 C	60	378	31	193	115·5	94·6	-11·0	+7·4	124·464 C	120	727	72	435	83·3	77·5	-18·3	+29·8								
121·367 C	49	350	27	188	114·0	92·9	-11·3	+19·5	125·423 G	77	390	53	273	84·1	78·2	-17·7	+43·3								
122·372 C	50	299	30	182	114·9	93·6	-11·8	+33·7	126·345 C	39	272	35	245	84·2	78·3	-17·9	+55·5								
123·662 G	37	193	29	152	114·1	92·6	-11·9	+50·0	127·508 G	20	114	30	177	84·8	78·8	-16·9	+71·5								
124·464 C	26	124	27	138	114·4	92·7	-11·6	+60·9	128·348 G	9	53	34	196	85·3	79·3	-16·8	+83·1								
125·423 G	4	43	8	87	116·9	95·1	-11·3	+76·1	Means ...	..	..	60	362	82·94	77·18	-18·37	..						
Means	44	285	113·86	93·00	-11·51	..	Spot a.																
Spot a.																									
113·348 C	4	31	21	165	114·8	95·1	-12·4	-85·6	117·360 C	7	34	8	40	82·1	74·2	-17·4	-65·3								
114·335 C	36	160	60	266	114·3	94·4	-11·9	-73·1	118·639 G	51	285	37	208	84·7	76·6	-17·3	-45·8								
115·393 G	52	359	49	337	115·4	95·3	-12·0	-58·0	119·343 G	55	348	35	219	85·5	77·4	-17·8	-35·7								
116·350 G	64	422	45	300	115·9	95·7	-11·6	-44·9	120·332 C	51	466	29	261	85·7	77·5	-17·7	-22·4								
117·360 C	75	481	44	284	116·0	95·6	-11·0	-31·4	121·367 C	72	527	37	274	86·5	78·2	-17·9	-8·0								
118·639 G	76	450	40	234	116·5	95·9	-10·7	-14·0	122·372 C	74	505	38	263	86·6	78·3	-18·0	+5·4								
119·343 G	56	385	29	196	115·9	95·1	-11·0	-5·3	123·662 G	99	515	54	283	86·1	77·7	-17·5	+22·0								

LEDGER II.--NON-RECURRENT GROUPS OF SUN SPOTS for the YEAR 1919--continued.

Date, G.M.T. (Civil) Place.	Projected Area,		Corrected Area,		Longitude,		Latitude,	Long. from C.M.	Date, G.M.T. (Civil) Place.	Projected Area,		Corrected Area,		Longitude,		Latitude,	Long. from C.M.					
	Umbræ.	Whole Spots.	Umbræ.	Whole Spots.	System I.	System II.				Umbræ.	Whole Spots.	Umbræ.	Whole Spots.	System I.	System II.							
Group 8890--continued																						
Spot b.																						
1919. d					°	°	°	°	1919. d				°	°	°	°	°					
117·360 C	10	35	14	50	77·7	79·0	-20·2	-69·7	124·464 C	10	31	9	27	0·1	341·2	+13·1	-53·4					
118·639 G	46	294	39	250	77·6	78·9	-20·8	-52·9	125·423 G	22	84	15	57	1·3	342·2	+12·2	-39·5					
119·343 G	64	364	46	262	77·1	78·4	-21·1	-44·1	126·345 C	17	129	10	75	3·0	343·8	+12·7	-25·7					
120·332 C	50	344	30	210	76·8	78·1	-21·1	-31·3	127·508 G	25	134	13	71	3·9	344·5	+13·0	-9·4					
121·367 C	72	339	40	186	77·1	78·4	-21·3	-17·4	128·348 G	25	106	13	55	4·2	344·7	+13·1	+2·0					
122·372 C	67	366	36	194	77·1	78·4	-21·4	-4·1	129·591 G	22	59	12	32	3·7	344·0	+13·0	+18·0					
123·662 G	42	184	23	99	77·0	78·4	-21·4	+12·9	130·355 G	10	36	6	21	3·6	343·8	+13·0	+28·0					
124·464 C	18	216	10	123	76·9	78·3	-20·4	+23·4	131·351 C	23	72	16	50	3·3	343·3	+13·0	+40·8					
125·423 G	19	55	12	35	76·8	78·2	-20·3	+36·0	132·338 G	15	66	13	58	2·6	342·5	+13·2	+53·2					
126·345 C	11	53	9	41	77·1	78·5	-20·7	+48·4	133·337 G	7	14	9	18	2·2	341·9	+13·2	+66·0					
127·508 G	5	10	6	11	77·0	78·4	-20·4	+63·7														
Group 8893.																						
May 2-14. A regular spot with minor changes in structure between May 6 and 9.																						
121·367 C	20	128	35	225	20·7	351·8	-5·0	-73·8	124·464 C	8	24	8	24	356·4	338·9	+14·1	-57·1					
122·372 C	36	203	37	209	20·2	351·1	-5·0	-61·0	125·423 G	16	52	12	38	356·3	338·6	+13·6	-44·5					
123·662 G	52	286	36	197	20·5	351·1	-5·5	-43·6	126·345 C	23	147	14	91	356·6	338·8	+13·8	-32·1					
124·464 C	54	307	32	184	20·4	350·8	-5·3	-33·1	127·508 G	53	167	29	92	356·4	338·4	+13·6	-16·9					
125·423 G	77	367	41	195	20·8	351·0	-5·9	-20·0	128·348 G	31	177	16	92	356·4	338·3	+13·4	-5·8					
126·345 C	61	346	31	176	21·0	350·9	-6·0	-7·7	129·591 G	42	194	22	103	355·8	337·5	+13·3	+10·1					
127·508 G	60	312	31	159	21·2	350·9	-6·1	+7·9	130·355 G	36	125	20	70	355·8	337·4	+13·3	+20·2					
128·348 G	56	290	30	154	21·2	350·7	-6·1	+19·0	131·351 C	26	64	16	40	355·7	337·2	+13·3	+33·2					
129·591 G	41	234	25	143	21·1	350·3	-6·0	+35·4	132·338 G	13	47	10	35	355·1	336·4	+13·6	+45·7					
130·355 G	33	194	24	140	21·5	350·5	-6·1	+45·9	133·337 G	2	7	2	7	355·1	336·3	+13·7	+58·9					
131·351 C	21	132	21	129	21·8	350·5	-6·1	+59·3														
132·338 G	17	87	28	142	21·7	350·2	-5·8	+72·3														
133·337 G	2	23	11	122	21·2	349·5	-5·7	+85·0														
Means ..	..	..	29	167	21·02	350·72	-5·74	..												
Group 8896.																						
May 4-14. A group, n Group 8895, in the same general area of disturbance. Two spots, a and b, which separate in longitude. The leader a, is a small regular spot; b, usually shows a double nucleus. There are small companions appearing between them.																						
123·662 G	0	6	0	8	357·6	339·8	+15·4	-66·5	125·423 G	17	146	34	295	324·7	315·3	-16·8	-76·1					
124·464 C	22	67	21	62	359·0	341·1	+13·6	-54·5	126·345 C	32	225	36	257	324·8	315·3	-16·8	-63·9					
125·423 G	40	148	28	104	359·3	341·2	+12·7	-41·5	127·508 G	46	341	35	263	324·6	315·0	-16·7	-48·7					
126·345 C	42	293	25	176	0·0	341·8	+13·1	-28·7	128·348 G	48	390	31	254	324·5	314·9	-16·8	-37·7					
127·508 G	81	329	44	178	359·8	341·4	+13·3	-13·5	129·591 G	59	458	32	252	324·5	314·8	-17·1	-21·2					
128·348 G	63	335	33	174	0·2	341·7	+13·1	-2·0	130·355 G	68	421	35	219	324·7	314·9	-17·2	-10·9					
129·591 G	69	287	37	153	358·5	339·8	+13·3	+12·8	131·351 C	54	351	28	183	324·3	314·5	-17·5	+1·8					
130·355 G	46	161	26	91	358·2	339·4	+13·1	+22·6	132·338 G	57	421	31	223	324·3	314·4	-17·2	+14·9					
131·351 C	51	152	33	100	359·8	340·9	+13·1	+37·3	133·337 G	49	344	28	199	323·7	313·7	-17·2	+27·5					
132·338 G	29	117	24	96	359·4	340·3	+13·4	+50·0	134·338 G	43	287	30	195	323·6	313·5	-17·3	+40·6					
133·337 G	9	21	11	25	359·6	340·4	+13·3	+63·4	135·696 G	29	159	28	156	323·5	313·3	-17·1	+58·5					
Means ..	..	..	26	106	359·22	340·71	+13·40	..	136·351 C	17	107	22	138	323·2	313·0	-17·2	+66·9			
									137·378 C	3	21	9	61	323·0	312·7	-17·4	+80·3					
									Means ..	..	..	29	207	324·11	314·25	-17·10	..			
Group 8898.																						
May 7-15. A small composite spot, growing from a small marking in faculae, followed by small companions.																						
126·345 C		1		4		2		8	126·345 C	1	4	2	8	313·3	288·3	-9·4	-75·4					
127·508 G	31		88		29		81	316·1	127·508 G	31	275	45	199	316·3	290·9	-9·6	-57·2					
128·348 G	62								128·348 G	62						-9·8	-45·9					

LEDGER II.—NON-RECURRENT GROUPS OF SUN SPOTS for the YEAR 1919—*continued.*

Date. G.M.T. (Civil) Place.	Projected Area		Corrected Area		Longitude		Latitude	Long. from C.M.	Date G.M.T. (Civil) Place.	Projected Area		Corrected Area		Longitude		Latitude	Long. from C.M.
	Umbrae	Whole Spots	Umbrae	Whole Spots	System I.	System II.				Umbrae	Whole Spots	Umbrae	Whole Spots	System I.	System II.		
Group 8898— <i>continued.</i>																	
1919. d 129·591 G 130·355 G 131·351 C 132·338 G 133·337 G 134·338 G	52	269	.30	154	316·6	290·9	— 9·6	— 29·1	1919. d 140·353 G 141·505 G 142·339 C 143·371 C 144·383 C	92	370	46	185	208·6	174·4	— 4·9	+ 5·2
129·591 G 130·355 G 131·351 C 132·338 G 133·337 G 134·338 G	33	271	17	145	316·7	290·9	— 9·7	— 18·9	141·505 G 142·339 C 143·371 C 144·383 C	59	272	32	147	209·3	174·8	— 4·7	+ 21·2
129·591 G 130·355 G 131·351 C 132·338 G 133·337 G 134·338 G	36	205	19	105	316·1	290·1	— 9·9	— 6·4	142·339 C 143·371 C 144·383 C	36	207	21	122	209·3	174·6	— 3·9	+ 32·2
129·591 G 130·355 G 131·351 C 132·338 G 133·337 G 134·338 G	30	170	16	87	316·4	290·2	— 9·6	+ 7·0	143·371 C 144·383 C	24	118	17	84	208·6	173·6	— 4·4	+ 45·2
129·591 G 130·355 G 131·351 C 132·338 G 133·337 G 134·338 G	8	36	4	19	317·3	290·9	— 9·9	+ 21·1	144·383 C	7	34	7	33	208·9	173·7	— 3·3	+ 58·8
Means ..	..	..	19	90	316·13	290·32	— 9·73	..	Means ..	..	..	..	..	..	..	..	..
Group 8899.																	
May 10–17. Intermittent. A few spots seen following Group 8898 until May 13. The group then revives for two days on May 16 and 17.																	
129·591 G 130·355 G 131·351 C 132·338 G 133·337 G 134·338 G 135·696 G 136·351 C	2	9	1	6	307·2	278·7	— 8·8	— 38·5	135·696 G 136·351 C 137·378 C 138·609 G 139·336 G 140·353 G 141·505 G 142·339 C	17	84	19	92	202·0	170·0	— 5·8	— 63·0
129·591 G 130·355 G 131·351 C 132·338 G 133·337 G 134·338 G 135·696 G 136·351 C	1	19	1	11	308·1	279·4	— 8·8	— 27·5	136·351 C 137·378 C 138·609 G 139·336 G 140·353 G 141·505 G 142·339 C	25	88	21	74	202·9	170·7	— 5·8	— 53·4
129·591 G 130·355 G 131·351 C 132·338 G 133·337 G 134·338 G 135·696 G 136·351 C	10	48	5	25	306·7	277·8	— 8·0	— 15·8	137·378 C 138·609 G 139·336 G 140·353 G 141·505 G 142·339 C	12	99	8	64	203·5	171·1	— 6·3	— 39·2
129·591 G 130·355 G 131·351 C 132·338 G 133·337 G 134·338 G 135·696 G 136·351 C	6	47	3	23	307·1	278·0	— 7·3	— 2·3	138·609 G 139·336 G 140·353 G 141·505 G 142·339 C	18	101	10	55	204·2	171·5	— 6·3	— 22·3
129·591 G 130·355 G 131·351 C 132·338 G 133·337 G 134·338 G 135·696 G 136·351 C	0	0	0	0	..	..	..	..	139·336 G 140·353 G 141·505 G 142·339 C	21	78	11	40	204·5	171·6	— 5·9	— 12·3
129·591 G 130·355 G 131·351 C 132·338 G 133·337 G 134·338 G 135·696 G 136·351 C	17	30	12	21	309·5	279·6	— 6·5	+ 44·5	140·353 G 141·505 G 142·339 C	19	42	10	21	205·4	172·3	— 6·1	+ 2·0
Means ..	..	..	4	13	307·98	278·80	— 7·75	..	141·505 G 142·339 C	11	34	6	18	205·7	172·3	— 6·0	+ 17·6
Group 8901.																	
May 15–25. A stream of spots with the leader, <i>a</i> , as the largest component. This is a spot of regular type until May 20, when it becomes elongated and divides on May 22. The train is made up of small spots, one of which, <i>b</i> , can be traced for several days.																	
134·338 G 135·696 G 136·351 C 137·378 C 138·609 G 139·336 G 140·353 G 141·505 G 142·339 C 143·371 C 144·383 C	8	78	17	214	203·6	171·0	— 5·5	— 79·4	137·378 C 138·609 G 139·336 G 140·353 G 141·505 G 142·339 C 143·371 C 144·383 C	7	47	12	83	169·2	150·0	— 13·8	— 73·5
134·338 G 135·696 G 136·351 C 137·378 C 138·609 G 139·336 G 140·353 G 141·505 G 142·339 C 143·371 C 144·383 C	77	430	80	442	204·0	171·0	— 5·5	— 61·0	138·609 G 139·336 G 140·353 G 141·505 G 142·339 C 143·371 C 144·383 C	21	100	19	92	170·3	150·9	— 14·4	— 56·2
134·338 G 135·696 G 136·351 C 137·378 C 138·609 G 139·336 G 140·353 G 141·505 G 142·339 C 143·371 C 144·383 C	95	595	77	476	205·0	171·9	— 5·4	— 51·3	139·336 G 140·353 G 141·505 G 142·339 C 143·371 C 144·383 C	48	217	38	170	167·8	148·3	— 13·9	— 49·0
134·338 G 135·696 G 136·351 C 137·378 C 138·609 G 139·336 G 140·353 G 141·505 G 142·339 C 143·371 C 144·383 C	96	711	61	449	205·9	172·5	— 5·3	— 36·8	140·353 G 141·505 G 142·339 C 143·371 C 144·383 C	69	285	44	183	167·1	147·4	— 13·9	— 36·3
134·338 G 135·696 G 136·351 C 137·378 C 138·609 G 139·336 G 140·353 G 141·505 G 142·339 C 143·371 C 144·383 C	121	605	66	325	206·2	172·5	— 5·2	— 20·3	141·505 G 142·339 C 143·371 C 144·383 C	244	38	133	167·8	148·0	— 13·3	— 20·3	
134·338 G 135·696 G 136·351 C 137·378 C 138·609 G 139·336 G 140·353 G 141·505 G 142·339 C 143·371 C 144·383 C	140	735	73	379	206·4	172·5	— 5·2	— 10·4	142·339 C 143·371 C 144·383 C	56	203	30	107	167·5	147·6	— 13·6	— 9·6
134·338 G 135·696 G 136·351 C 137·378 C 138·609 G 139·336 G 140·353 G 141·505 G 142·339 C 143·371 C 144·383 C	140	599	71	300	205·9	171·8	— 5·2	+ 2·5	143·371 C 144·383 C	43	252	22	129	165·8	145·7	+ 2·4	
134·338 G 135·696 G 136·351 C 137·378 C 138·609 G 139·336 G 140·353 G 141·505 G 142·339 C 143·371 C 144·383 C	85	439	46	233	206·5	172·1	— 5·0	+ 18·4	144·383 C	20	56	11	30	169·5	149·3	— 13·5	+ 19·4
134·338 G 135·696 G 136·351 C 137·378 C 138·609 G 139·336 G 140·353 G 141·505 G 142·339 C 143·371 C 144·383 C	57	345	33	197	206·1	171·5	— 4·6	+ 29·0	Means ..	..	..	27	116	168·13	148·40	— 13·64	..
134·338 G 135·696 G 136·351 C 137·378 C 138·609 G 139·336 G 140·353 G 141·505 G 142·339 C 143·371 C 144·383 C	33	145	23	101	206·7	171·9	— 4·7	+ 43·3	145·220 K	1	7	1	4	181·9	172·62	— 17·50	..
134·338 G 135·696 G 136·351 C 137·378 C 138·609 G 139·336 G	7	34	7	33	208·9	173·8	— 3·3	+ 58·8	143·371 C 144·383 C	1	4	1	2	165·2	131·6	— 7·1	+ 1·8
134·338 G 135·696 G 136·351 C 137·378 C 138·609 G 139·336 G	8	45	17	96	206·4	173·6	— 5·5	— 76·6	144·383 C	1	5	1	3	168·0	134·2	— 6·4	+ 17·9
134·338 G 135·696 G 136·351 C 137·378 C 138·609 G 139·336 G	51	293	49	281	206·3	173·2	— 5·5	— 58·7	145·220 K	27	85	15	48	167·7	133·7	— 6·0	+ 28·7
134·338 G 135·696 G 136·351 C 137·378 C 138·609 G 139·336 G	58	440	45	339	206·7	173·4	— 5·3	— 49·6	146·220 K	1	3	1	2	166·8	132·6	— 6·3	+ 28·7
134·338 G 135·696 G 136·351 C 137·378 C 138·609 G 139·336 G	71	543	44	337	207·1	173·6	— 5·2	— 35·6	147·220 K	1	2	1	1	165·5	131·3	— 6·0	+ 28·7
134·338 G 135·696 G 136·351 C 137·378 C 138·609 G 139·336 G	84	418	45	222	207·9	174·1	— 4·9	— 18·6	148·220 K	1	1	1	1	164·2	130·2	— 6·0	+ 28·7
134·338 G 135·696 G 136·351 C 137·378 C 138·609 G 139·336 G	90	470	46	240	208·2	174·2	— 5·0	— 8·6	149·220 K	1	1	1	1	163·1	129·1	— 6·0	+ 28·7
134·338 G 135·696 G 136·351 C 137·378 C 138·609 G 139·336 G	Means ..	..	..	50	286	205·93	172·05	— 4·99	..	150·220 K	1	1	1	1	162·		

LEDGER II.—NON-RECURRENT GROUPS of SUN SPOTS for the YEAR 1919—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.		Long. from C.M.	
	Umbrae.	Whole Spots.	Umbrae.	Whole Spots.	System I.	System II.				Umbrae.	Whole Spots.	Umbrae.	Whole Spots.	System I.	System II.		
Group 8908—continued.																	
1919. d 146.354 C 147.339 G 148.343 G	29	155	19	104	165.1	130.9	— 6.3	+41.1	1919. d 151.388 C 152.372 C 153.364 C 154.460 C 155.568 G	6	27	6	27	1.3	12.8	+24.4	— 56.1
	10	36	9	31	164.9	130.4	— 5.6	+53.9		13	45	10	34	0.8	12.4	+24.2	— 43.6
	2	11	3	14	164.2	129.5	— 6.1	+66.5		6	29	4	18	3.0	14.7	+24.0	— 28.2
Means ..	..	..	8	34	165.85	131.72	— 6.25	..	145	804	79	438	2.0	13.8	+24.0	— 0.1	
Group 8915.																	
May 29-June 5. A sparse stream of small spots.																	
148.343 G 149.337 C 150.366 C 151.388 C 152.372 C 153.364 C 154.460 C 155.568 G	2	8	1	6	55.2	38.4	+16.1	+42.5	152.372 C 153.364 C 154.460 C 155.568 G	26	197	31	233	339.9	306.7	— 7.0	— 64.5
	2	8	1	5	56.8	39.9	+16.2	+27.7		47	359	37	291	339.8	306.4	— 6.6	— 51.4
	8	62	4	33	59.3	42.3	+15.7	+11.6		53	310	33	195	340.5	306.8	— 7.1	— 36.2
	33	159	18	83	62.3	45.2	+14.9	+4.9		31	192	17	103	341.2	307.3	— 7.7	— 20.9
	51	202	28	110	62.0	44.8	+14.9	+17.6		21	132	11	68	342.3	308.2	— 8.4	— 6.7
	19	91	11	55	61.9	44.6	+14.9	+30.7		12	100	6	51	342.6	308.3	— 9.1	+4.3
	3	11	2	8	60.4	43.0	+14.7	+43.7		7	38	4	21	342.0	307.4	— 9.6	+18.6
Means ..	..	..	8	38	59.76	42.60	+15.20	..	Means ..	..	..	56	292	2.87	14.76	+23.34	..
Group 8916.																	
May 30-June 5. A small stream in continual change.																	
149.337 C 150.366 C 151.388 C 152.372 C 153.364 C 154.460 C 155.568 G	12	63	8	40	49.5	25.6	+12.9	+35.0	152.372 C 153.364 C 154.460 C 155.568 G	26	197	31	233	339.9	306.7	— 7.0	— 64.5
	25	82	14	45	50.1	26.0	+12.4	+20.8		47	359	37	291	339.8	306.4	— 6.6	— 51.4
	24	152	12	79	49.6	25.4	+12.2	+7.8		53	310	33	195	340.5	306.8	— 7.1	— 36.2
	19	93	10	48	51.3	26.9	+12.3	+6.9		31	192	17	103	341.2	307.3	— 7.7	— 20.9
	25	111	14	61	52.1	27.6	+12.2	+20.9		21	132	11	68	342.3	308.2	— 8.4	— 6.7
	14	53	9	33	51.8	27.1	+12.2	+35.1		12	100	6	51	342.6	308.3	— 9.1	+4.3
	0	9	0	7	53.4	28.5	+12.7	+51.3		7	38	4	21	342.0	307.4	— 9.6	+18.6
Means ..	..	..	10	45	51.11	26.73	+12.41	..	Means ..	..	..	20	137	341.19	307.30	— 7.93	..
Group 8918.																	
May 30-June 10. A small but persistent spot, with an occasional companion, n Group 8917.																	
149.337 C 150.366 C 151.388 C 152.372 C 153.364 C 154.460 C 155.568 G	2	28	4	61	8.8	355.1	+17.1	+75.7	152.372 C 153.364 C 154.460 C 155.568 G	1	7	1	7	345.0	340.0	— 19.6	— 59.4
	8	38	9	43	8.3	354.5	+17.0	+62.6		3	16	2	12	345.8	340.8	— 19.4	— 45.4
	16	61	13	49	8.1	354.2	+16.4	+49.3		10	20	6	12	346.7	341.6	— 19.2	— 30.0
	17	80	11	52	7.9	353.9	+16.1	+36.5		12	26	7	14	346.8	341.7	— 18.9	— 15.3
	13	87	8	50	7.5	353.4	+16.2	+23.7		13	23	7	12	347.3	342.1	— 18.9	— 1.7
	19	37	10	20	8.1	353.9	+15.9	+8.6		11	19	6	10	346.9	341.7	— 18.6	+8.6
	18	39	10	20	7.4	353.1	+16.2	+5.3		8	14	5	8	346.8	341.6	— 18.8	+23.4
	12	32	7	18	7.4	353.0	+15.9	+18.4		2	8	1	5	346.8	341.5	— 18.6	+36.8
	6	17	4	10	7.3	352.8	+15.9	+29.0		0	5	0	4	346.6	341.3	— 18.9	+47.7
Means ..	..	..	7	28	7.62	353.37	+16.23	..	Means ..	..	..	4	9	346.52	341.37	— 18.99	..
Group 8919.																	
June 1-11. A stream, approximately of normal type, developing in the usual way from two very small spots on June 1.																	
1919. d 151.388 C 152.372 C 153.364 C 154.460 C 155.568 G	6	27	6	27	1.3	12.8	+24.4	— 56.1	151.388 C 152.372 C 153.364 C 154.460 C 155.568 G	45	10	34	12.4	+24.2	— 43.6	— 28.2	
	6	29	4	18	1.8	12.3	+24.0	— 15.7		29	4	18	12.7	+24.4	— 0.1	— 0.1	
	145	804	79	438	2.0	13.8	+24.0	— 0.1		145	804	79	438	2.0	13.8	+24.0	— 0.1
	158	791	89	444	2.0	13.9	+23.7	— 1.3		158	791	89	444	2.0	13.9	+23.7	+1.3
	157	783	95	467	2.3	14.3	+22.9	+24.0		157	783	95	467	2.3	14.3	+22.9	+24.0
	158	628	95	447	2.6	14.6	+23.2	+39.2		158	628	95	447	2.6	14.6	+23.2	+39.2
	159	590	75	447	4.4	16.5	+22.4	+54.4		159	590	75	447	4.4	16.5	+22.4	+54.4
	160	342	70	400	5.2	17.4	+22.1	+66.3		160	342	70	400	5.2	17.4	+22.1	+66.3
	161	364	43	206	7.0	19.3	+21.4	+81.7		161	364	43	206	7.0	19.3	+21.4	+81.7
Means ..	..	..	..	..	..	..	..	..	Means ..	..	..	56	292	2.87	14.76	+23.34	..
Group 8920.																	
June 2-8. A pair of ill-formed spots; the leader can be traced for several days, but the follower soon breaks up into a cluster.																	
152.372 C 153.364 C 154.460 C 155.568 G	26	197	31	233	339.9	306.7	— 7.0	— 64.5	152.372 C 153.364 C 154.460 C 155.568 G	47	359	37	291	339.8	306.4	— 6.6	— 51.4
	53	310	33	195	340.5	306.8	— 7.1	— 36.2		53	310	33	195	340.5	306.8	— 7.1	— 36.2
	31	192	17	103	341.2	307.3	— 7.7	— 20.9		31	192	17	103	341.2	307.3	— 7.7	— 20.9
	21	132	11	68	342.3	308.2	— 8.4	— 6.7		21	132	11	68	342.3	308.2	— 8.4	— 6.7
	12	100	6	51	342.6	308.3	— 9.1	+4.3		12	100	6	51	342.6	308.3	— 9.1	+4.3
	7	38	4	21	342.0	307.4	— 9.6	+18.6		7	38	4	21	342.0	307.4	— 9.6	+18.6
Means ..	..	..	..	..	..	..	..	..	Means ..	..	..	20	137	341.19	307.30	— 7.93	..
Group 8921.																	
June 2-10. A single small spot until June 4; a small stream of unstable spots then appears.																	
152.372 C 153.364 C 154.460 C 155.568 G	1	7	1	7	345.0	340.0	— 19.6	— 59.4	152.372 C 153.364 C 154.460 C 155.568 G	3	16	2	12	345.8	340.8	— 19.4	— 45.4
	10	20	6	12	346.7	341.6	— 19.2	— 30.0		10	20	6	12	346.7	341.6	— 19.2	— 30.0
	12	26	7	14	346.8	341.7	— 18.9	— 15.3		12	26	7	14	346.8	341.7	— 18.9	— 15.3
	13	23	7	12	347.3	342.1	— 18.9	— 1.7		13	23	7	12	347.3	342.1	— 18.9	— 1.7
	11	19	6	10	346.9	341.7	— 18.6	+8.6		11	19	6	10	346.9	341.7	— 18.6	+8.6
	8	14	5	8	346.8	341.6	— 18.8	+23.4		8	14	5	8	346.8	341.6	— 18.8	+23.4
	2	8	1	5	346.8	341.5	— 18.6	+36.8		2	8	1	5	346.8	341.5	— 18.6	+36.8
	0	5	0	4	346.6	341.3	— 18.9	+47.7		0	5	0	4	346.6	341.3	— 18.9	+47.7
Means ..	..	..	..	..	..	..	..	..	Means ..	..	..	4	9	346.52	341.37	— 18.99	..
Group 8925.</td																	

LEDGER II.—NON-RECURRENT GROUPS OF SUN SPOTS for the YEAR 1919—continued.

Date. G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.	Date. G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.							
	Umbræ.	Whole Spots.	Umbræ.	Whole Spots.	System I.	System II.				Umbræ.	Whole Spots.	Umbræ.	Whole Spots.	System I.	System II.									
Group 8925—continued.																								
1919. d 158·492 C	30	203	18	124	357·5	323·9	— 8·4	+34·1	1919. d 164·346 G	o	11	o	13	183·8	184·3	— 20·5	— 62·1							
159·500 G	11	41	9	32	359·4	325·6	— 8·2	+49·4	165·390 G	o	51	o	40	186·0	186·5	— 20·4	— 46·1							
160·342 G	4	6	4	6	1·0	327·0	— 9·3	+62·1	166·345 G	2	27	1	18	185·0	185·5	— 20·5	— 34·4							
Means ..	..	..	18	65	357·67	324·17	— 8·57	..	167·344 G	o	34	o	20	184·4	184·9	— 20·7	— 21·8					
Group 8926.																								
June 7–13. Intermittent. A minute spot on June 7; a short stream from June 10–13.																								
157·361 G	1	6	1	3	316·8	302·5	— 17·4	— 21·5	168·456 G	2	8	2	7	138·4	101·8	— 8·5	— 53·1							
158·492 C	o	o	o	o	..	..	..	..	169·418 G	2	7	1	5	140·1	103·3	— 7·7	— 38·6			
159·500 G	o	o	o	o	..	..	..	..	170·417 C	6	14	3	8	141·2	104·2	— 7·5	— 24·3			
160·342 G	17	50	10	28	319·6	305·0	— 16·2	+20·7	171·362 G	58	124	31	64	140·1	102·9	— 7·7	— 12·9							
161·364 C	21	107	13	67	319·0	304·3	— 16·0	+33·7	172·410 G	111	314	57	160	140·1	102·7	— 8·5	+ 1·0							
162·343 G	33	122	25	94	319·5	304·7	— 15·9	+47·1	173·628 G	111	411	59	220	141·5	103·8	— 7·8	+18·5							
163·358 C	9	50	10	54	320·1	305·2	— 15·9	+61·1	174·360 C	86	470	50	274	142·3	104·5	— 8·0	+29·0							
Means ..	..	..	8	35	319·00	304·34	— 16·28	..	175·468 G	45	287	33	208	144·3	106·2	— 7·9	+45·6					
Group 8931.																								
June 10–20. A composite spot followed by small companions until June 17.																								
160·342 G	20	121	42	279	222·8	213·7	— 17·6	— 76·1	167·344 G	o	3	o	4	136·6	100·3	— 8·3	— 69·6							
161·364 C	18	126	21	145	222·6	213·4	— 16·9	— 62·7	168·456 G	2	8	2	7	138·4	101·8	— 8·5	— 53·1							
162·343 G	27	147	22	119	223·0	213·7	— 17·3	— 49·4	169·418 G	2	7	1	5	140·1	103·3	— 7·7	— 38·6							
163·358 C	40	225	26	148	223·5	214·2	— 16·9	— 35·5	170·417 C	6	14	3	8	141·2	104·2	— 7·5	— 24·3							
164·346 G	45	160	26	92	222·8	213·4	— 17·7	— 23·1	171·362 G	58	124	31	64	140·1	102·9	— 7·7	— 12·9							
165·390 G	29	139	16	75	221·8	212·4	— 18·0	— 10·3	172·410 G	111	314	57	160	140·1	102·7	— 8·5	+ 1·0							
166·345 G	23	114	12	61	222·3	212·8	— 18·6	+ 2·9	173·628 G	111	411	59	220	141·5	103·8	— 7·8	+18·5							
167·344 G	17	85	9	47	220·7	211·2	— 18·9	+14·5	174·360 C	86	470	50	274	142·3	104·5	— 8·0	+29·0							
168·456 G	16	38	10	24	221·9	212·3	— 18·7	+30·4	175·468 G	45	287	33	208	144·3	106·2	— 7·9	+45·6							
169·418 G	11	25	8	18	221·8	212·1	— 18·3	+43·1	176·410 G	41	206	40	202	144·9	106·6	— 8·2	+58·7							
170·417 C	5	14	5	14	222·1	212·4	— 18·3	+56·6	177·220 D	14	88	21	130	145·1	106·6	— 8·5	+69·6							
Means ..	..	..	18	93	222·30	212·87	— 17·93	..	Means ..	..	..	27	117	141·33	103·90	— 8·06	..			
Group 8937.																								
June 13–20. A small, faint, but persistent stream of insignificant spots.																								
163·358 C	17	86	13	68	208·3	167·8	— 4·2	— 50·7	168·456 G	71	204	37	105	197·1	174·4	+13·8	+ 5·6							
164·346 G	28	102	18	65	207·7	166·9	— 4·2	— 38·2	169·418 G	105	584	57	314	196·8	173·9	+13·6	+18·1							
165·390 G	28	92	15	51	208·3	167·3	— 4·1	— 23·8	170·417 C	94	503	56	301	196·9	173·9	+13·8	+31·4							
166·345 G	12	48	6	24	207·1	165·8	— 4·3	— 12·3	171·362 G	67	422	47	296	196·2	173·1	+13·8	+43·2							
167·344 G	7	42	3	21	209·2	167·7	— 4·1	+ 3·0	172·410 G	51	256	47	230	195·0	171·7	+13·8	+55·9							
168·456 G	0	20	0	11	211·1	169·3	— 4·4	+19·6	173·628 G	17	88	24	137	192·9	169·5	+14·2	+69·9							
169·418 G	2	34	1	20	210·5	168·5	— 4·2	+31·8	174·360 C	7	28	19	74	192·6	169·1	+14·7	+79·3							
170·417 C	6	17	4	12	209·6	167·3	— 3·6	+44·1	Means ..	..	..	41	208	195·36	172·23	+13·96	..					
Means	8	34	208·98	167·58	— 4·14	..	Group 8944.															
June 18–22. A short stream of small spots f Group 8940.																								
168·456 G	2	9	1	6	152·9	120·6	+10·0	— 38·6	169·418 G	28	131	16	73	152·6	120·1	+10·2	— 26·1							

LEDGER II.—NON-RECURRENT GROUPS OF SUN SPOTS for the YEAR 1919—continued.

Date, G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.	Date, G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.	
	Umbræ.	Whole Spots.	Umbræ.	Whole Spots.	System I.	System II.				Umbræ.	Whole Spots.	Umbræ.	Whole Spots.	System I.	System II.			
Group 8944—continued.																		
1919. d 170°417 C	22	91	11	48	152°7	120°0	+10°3	-12°8	1919. d 191°350 G	15	111	14	102	193°8	167°6	-13°6	-54°6	
171°362 G	16	82	8	42	152°6	119°7	+10°4	-0°4	192°528 C	23	104	16	71	194°2	167°8	-13°5	-38°7	
172°410 G	8	64	4	33	152°7	119°6	+10°2	+13°6	193°421 G	20	98	12	58	193°8	167°3	-13°7	-27°2	
Means ..	..	..	8	40	152°70	120°00	+10°22	..	194°478 C	26	150	14	83	192°4	165°8	-14°2	-14°7
Group 8945.																		
June 21–26. A small spot, which becomes regular on June 24, followed by one or two small companions.																		
171°362 G	4	16	2	8	152°2	137°5	-16°5	-0°8	191°350 G	0	12	0	12	192°8	177°9	-18°6	-55°6	
172°410 G	23	98	12	53	150°0	135°2	-16°9	+10°9	192°528 C	0	53	0	36	194°9	179°9	-15°9	-38°0	
173°628 G	37	101	22	61	150°5	135°6	-16°5	+27°5	193°421 G	7	84	4	50	193°4	178°3	-16°2	-27°6	
174°360 C	57	228	38	153	151°3	136°3	-16°5	+38°0	194°478 C	9	86	5	47	194°9	179°7	-17°2	-12°2	
175°468 G	22	101	19	91	151°9	136°8	-16°2	+53°2	195°592 G	20	119	11	64	196°7	181°4	-16°9	+4°4	
176°410 G	5	37	7	50	152°5	137°3	-16°6	+66°3	196°334 G	13	39	7	22	198°3	183°0	-17°1	+15°8	
Means ..	..	..	17	69	151°40	136°45	-16°53	..	197°368 C	3	29	2	18	199°6	184°2	-16°5	+30°8
Group 8950.																		
June 22–29. A stream of spots in continual change.																		
172°410 G	9	47	5	26	117°1	91°2	+12°7	--22°0	191°350 G	0	12	0	12	192°8	177°9	-18°6	-55°6	
173°628 G	58	196	30	99	119°6	93°6	+12°7	-3°4	192°528 C	0	53	0	36	194°9	179°9	-15°9	-38°0	
174°360 C	96	436	49	223	119°3	93°1	+13°0	+6°0	193°421 G	7	84	4	50	193°4	178°3	-16°2	-27°6	
175°468 G	76	381	41	207	119°4	93°1	+13°0	+20°7	194°478 C	9	86	5	47	194°9	179°7	-17°2	-12°2	
176°410 G	70	406	43	246	119°2	92°7	+13°2	+33°0	195°592 G	20	119	11	64	196°7	181°4	-16°9	+4°4	
177°220 D	58	259	40	180	119°1	92°5	+13°0	+43°6	196°334 G	13	39	7	22	198°3	183°0	-17°1	+15°8	
178°329 G	17	154	16	142	117°9	91°1	+13°3	+57°1	197°368 C	3	29	2	18	199°6	184°2	-16°5	+30°8	
Means ..	..	..	29	145	118°55	92°15	+13°06	..	Means ..	..	..	4	36	195°8c	180°63	-16°91	..
Group 8955.																		
July 2–13. Two small ill-formed regular spots which separate from each other in longitude, whilst a few small unstable companions appear between them. The follower is alone visible on July 11, and nothing is seen the following day, but a small spot appears in the region on July 13.																		
182°370 C	0	27	(0	119	283°4	248°8	+8°8)*	-83°9	200°381 C	7	52	18	135	51°5	18°0	-12°4	-77°4	
183°376 C	16	87	29	144	281°6	246°8	+9°6	-72°4	201°347 G	14	129	18	164	51°2	17°6	-12°2	-65°0	
184°343 G	39	262	41	279	279°9	244°9	+9°9	-61°3	202°528 G	25	155	20	126	51°6	17°8	-12°3	-48°9	
185°386 C	41	341	31	260	278°6	243°4	+9°9	-48°8	203°385 C	20	144	13	96	51°4	17°4	-12°3	-37°8	
186°365 C	74	337	47	209	278°8	243°4	+9°9	-35°6	204°369 C	20	136	12	79	51°4	17°3	-12°2	-24°8	
187°463 C	56	295	31	162	277°7	242°1	+10°3	-22°2	205°380 C	17	111	9	59	51°2	16°9	-12°1	-11°6	
188°253 D	54	230	28	119	277°3	241°5	+10°6	-12°1	206°347 G	20	98	10	51	51°4	16°9	-12°2	+1°4	
189°402 C	32	132	16	67	275°8	239°8	+10°9	+1°6	207°365 C	15	32	8	17	51°3	16°7	-12°0	+14°8	
190°351 C	22	153	11	80	276°3	240°1	+10°4	+14°6	208°427 C	10	53	6	32	51°3	16°5	-11°1	+28°8	
191°350 G	4	15	2	8	273°7	237°3	+11°3	+25°3	209°371 C	0	17	0	12	50°5	15°5	-11°0	+40°5	
Means ..	..	..	20	121	277°74	242°02	+10°35	..	Means ..	..	..	11	77	51°28	17°06	-11°98	..
Group 8979.																		
July 20–29. A regular spot which diminishes to a very small spot. Two small ephemeral spots accompanying it on July 28, and one on the following day.																		
200°381 C	7	52	18	135	51°5	18°0	-12°4	-77°4	201°347 G	14	129	18	164	51°2	17°6	-12°2	-65°0	
202°528 G	25	155	20	126	51°6	17°8	-12°3	-48°9	203°385 C	20	144	13	96	51°4	17°4	-12°3	-37°8	
204°369 C	20	136	12	79	51°4	17°3	-12°2	-24°8	205°380 C	17	111	9	59	51°2	16°9	-12°1	-11°6	
206°347 G	20	98	10	51	51°4	16°9	-12°2	+1°4	207°365 C	15	32	8	17	51°3	16°7	-12°0	+14°8	
208°427 C	10	53	6	32	51°3	16°5	-11°1	+28°8	209°371 C	0	17	0	12	50°5	15°5	-11°0	+40°5	
Means	11	77	51°28	17°06	-11°98	..	Means	11	77	51°28	17°06	-11°98	..
Group 8982.																		
July 22–29. A small stream of unstable spots.																		
202°528 G	2	15	1	9	73°2	41°4	+13°3	-27°3	203°385 C	5	17	3	9	74°4	42°5	+13°2	-14°8	
204°369 C	17	77	9	39	73°1	41°0	+12°6	-3°1	205°380 C	18	107	9	55	73°4	41°2	+12°4	+10°6	
206°347 G	6	66	3	36	73°9	41°5	+12°1	+23°9	207°365 C	15	32	8	17	51°3	16°7	-12°0	+14°8	
Means ..	..	..	20	121	277°74	242°02	+10°35	..	Means ..	..	..	11	77	51°28	17°06	-11°98	..

LEDGER II.—NON-RECURRENT GROUPS OF SUN SPOTS for the YEAR 1919—continued.

Date, G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.	Date, G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.		
	Umbræ.	Whole Spots.	Umbræ.	Whole Spots.	System I.	System II.				Umbræ.	Whole Spots.	Umbræ.	Whole Spots.	System I.	System II.				
Group 8982—continued.																			
1919. d 207·365 C	6	21	4	13	74·8	42·2	+11·9	+38·3	1919. d 233·481 G	53	283	34	188	91·8	48·4	+10·6	+40·5		
208·427 C	2	18	2	14	74·2	41·5	+12·5	+51·7	234·379 G	26	165	22	141	93·8	50·2	+10·8	+54·4		
209·371 C	0	7	0	8	73·5	40·6	+13·0	+63·5	235·375 C	12	116	16	150	93·9	50·1	+10·8	+67·7		
Means ..	..	..	4	23	73·81	41·49	+12·63	..	236·452 C	4	29	15	111	95·7	51·7	+10·3	+83·7
Group 9008.																			
August 15–27. A regular spot diminishing. It is surrounded by small companions on August 23 and 24.									Group 9011.										
226·376 G	9	26	34	99	63·9	17·3	−9·7	−81·3	1919. d 232·388 G	20	102	38	192	353·9	329·5	−15·3	−71·8		
227·396 G	23	88	33	127	63·7	16·9	−9·5	−68·0	233·481 G	35	160	37	172	352·8	328·3	−15·8	−58·5		
228·434 G	20	118	18	105	64·4	17·3	−9·6	−53·6	234·379 G	41	172	32	139	352·8	328·2	−16·0	−46·6		
229·468 G	39	149	27	101	64·6	17·3	−9·6	−39·7	235·375 C	19	127	12	83	353·3	328·6	−15·6	−32·9		
230·558 C	28	181	16	105	64·6	17·1	−9·5	−25·3	236·452 C	17	109	10	62	353·0	328·2	−15·6	−19·0		
231·378 C	36	189	19	102	64·5	16·8	−9·1	−14·6	237·419 G	22	127	11	71	352·1	327·2	−15·9	−7·1		
232·388 G	36	160	18	83	65·0	17·1	−8·9	−0·7	238·404 G	25	85	14	46	352·5	327·5	−15·6	+ 6·3		
233·481 G	28	219	15	118	65·2	17·1	−8·5	+13·9	239·374 C	13	47	7	27	353·0	327·9	−15·0	+19·6		
234·379 G	20	170	12	99	65·5	17·2	−8·8	+26·1	240·387 G	6	20	4	13	352·9	327·7	−15·6	+32·9		
235·375 C	22	165	15	112	65·9	17·4	−8·8	+39·7	Means ..	..	..	18	89	352·92	328·12	−15·60	..
236·452 C	11	50	10	45	65·7	17·0	−8·5	+53·7	Group 9015.										
237·419 G	13	54	17	72	65·5	16·6	−8·5	+66·3	August 21–29. A regular spot gradually disappearing. There are occasional one or two followers.										
238·404 G	4	22	13	69	65·8	16·7	−8·5	+79·6	232·388 G	20	102	38	192	353·9	329·5	−15·3	−71·8		
Means ..	..	..	19	95	64·95	17·06	−9·04	..	233·481 G	35	160	37	172	352·8	328·3	−15·8	−58·5
Group 9010.																			
August 17–26. Intermittent. Two small spots on August 17, one of which remains until August 20. Nothing is then seen until August 25, when a pair of small spots appears.									Group 9017.										
228·434 G	2	25	2	32	53·0	10·7	−10·2	−65·0	234·379 G	5	27	4	19	356·0	302·1	−6·4	−43·4		
229·468 G	9	22	7	18	54·5	12·1	−10·2	−49·8	235·375 C	39	123	23	73	356·3	302·2	−6·2	−29·9		
230·558 C	3	22	2	14	54·4	11·7	−10·5	−35·5	236·452 C	84	417	45	222	357·8	303·4	−6·3	−14·2		
231·378 C	3	11	2	6	54·1	11·3	−10·5	−25·0	237·419 G	157	831	81	432	356·7	302·1	−6·9	−2·5		
232·388 G	0	0	0	0	..	..	..	..	238·404 G	89	760	47	400	357·6	302·8	−6·9	+ 11·4
233·481 G	0	0	0	0	..	..	..	..	239·374 C	97	622	55	353	357·9	302·8	−6·9	+ 24·5
234·379 G	0	0	0	0	..	..	..	..	240·387 G	61	373	41	250	358·0	302·7	−7·0	+ 38·0
235·375 C	0	0	0	0	..	..	..	..	241·340 G	33	187	28	161	359·8	304·3	−6·8	+ 52·4
236·452 C	0	14	0	10	51·9	8·2	−11·5	+39·9	242·464 G	17	103	25	152	1·0	305·2	−6·5	+ 68·4		
237·419 G	2	6	2	6	53·5	9·6	−11·6	+54·3	Means ..	..	..	39	229	357·90	303·07	−6·66	..
Means ..	..	..	2	9	53·57	10·60	10·75	..	Group 9027.								
Group 9011.																			
August 19–25. A stream of normal type on the same meridian as Groups 9005 and 9007. The stream quickly passes through its phases leaving the leader alone on August 25.									September 6–18. A small stable regular spot, <i>a</i> . Within a few days a train of small followers has appeared, and between September 11 and 12 a companion regular spot, <i>b</i> , has suddenly developed <i>sp. a</i> . The train gradually dies out, leaving <i>a</i> and <i>b</i> alone on September 17.										
230·558 C	30	172	15	86	88·8	45·9	+11·1	−1·1	248·529 C	7	52	31	228	131·3	108·2	−15·9	−81·2		
231·378 C	57	303	29	154	89·6	46·6	+10·7	+10·5	249·419 G	20	107	33	174	131·7	108·5	−15·9	−69·0		
232·388 G	93	443	52	247	90·8	47·6	+10·5	+25·1	250·427 G	23	150	23	148	131·8	108·5	−15·8	−55·6		
Means ..	..	..	..	..	..	..	..	..	251·331 G	43	202	33	155	131·6	108·2	−16·0	−43·9
									252·349 G	52	278	34	177	131·6	108·1	−16·5	−30·4		
									253·367 G	68	409	39	237	130·7	107·1	−17·4	−17·9		
									254·617 G	136	591	75	324	132·9	109·2	−17·0	+ 0·8		

LEDGER II.—NON-RECURRENT GROUPS OF SUN SPOTS for the YEAR 1919—*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.									
	Umbra.	Whole Spots.	Umbra.	Whole Spots.	System I.	System II.				Umbra.	Whole Spots.	Umbra.	Whole Spots.	System I.	System II.											
Group 9027— <i>continued</i> .																										
1919. d 255·364 C	99	711	55	395	132·6	108·8	°	°	1919. d 251·331 G	○	10	○	13	109·8	75·9	°	°									
256·550 C	79	580	48	356	133·2	109·3	—16·4	+26·6	252·349 G	1	10	1	9	109·3	75·2	—13·0	—52·7									
257·370 C	93	494	65	347	134·4	110·5	—16·1	+38·7	253·367 G	○	6	○	4	109·3	75·1	—13·0	—39·3									
258·432 G	35	239	32	220	134·3	110·3	—15·7	+52·6	254·617 G	4	25	2	15	105·6	71·2	—16·8	—26·5									
259·460 G	20	141	28	203	134·5	110·4	—15·6	+66·3	255·364 C	1	8	1	4	108·5	74·0	—14·4	—13·7									
260·348 G	8	43	21	118	133·7	109·5	—15·6	+77·3	256·550 C	1	8	1	4	108·8	74·2	—13·6	+2·2									
Means ..	..	..	40	237	132·64	108·97	—16·22	..	Means ..	..	..	1	8	108·55	74·27	—13·92	..					
Spot a.																										
248·529 C	7	52	31	228	131·3	103·5	—15·9	—81·2	Group 9032.																	
249·419 G	20	107	33	174	131·7	103·8	—15·9	—69·0	September 9–14. One or two very small spots.
250·427 G	23	144	23	141	132·1	104·1	—15·6	—55·3	251·331 G	○	10	○	13	109·8	75·9	—12·7	—65·7									
251·331 G	36	166	27	126	132·1	104·0	—15·4	—43·4	252·349 G	1	10	1	9	109·3	75·2	—13·0	—52·7									
252·349 G	31	180	20	113	132·1	103·8	—15·6	—29·9	253·367 G	○	6	○	4	109·3	75·1	—13·0	—39·3									
253·367 G	40	202	23	115	132·3	103·9	—15·6	—16·3	254·617 G	4	25	2	15	105·6	71·2	—16·8	—26·5									
254·617 G	39	198	21	107	132·2	103·7	—15·4	+0·1	255·364 C	1	8	1	4	108·5	74·0	—14·4	—13·7									
255·364 C	38	217	21	119	131·9	103·3	—15·0	+9·7	256·550 C	1	8	1	4	108·8	74·2	—13·6	+2·2									
256·550 C	32	199	19	119	131·9	103·2	—14·9	+25·3	Means ..	..	..	1	8	108·55	74·27	—13·92	..							
257·370 C	36	186	24	125	131·8	103·0	—14·7	+36·1	Group 9034.																	
258·432 G	18	118	15	101	132·1	103·2	—14·8	+50·4	September 15–21. One or two scattered spots, not seen on September 20.	
259·460 G	12	82	15	106	132·4	103·3	—14·8	+64·2	257·370 C	○	14	○	18	30·7	341·5	—9·6	—65·0									
260·348 G	6	30	13	65	131·8	102·6	—14·7	+75·4	258·432 G	1	14	1	12	32·1	342·7	—9·7	—49·6									
Means ..	..	..	..	..	..	..	..	..	259·460 G	○	5	○	3	36·1	346·5	—10·1	—32·1	
Spot b.																										
254·617 G	56	233	31	128	134·8	113·9	—17·1	+2·7	260·348 G	13	89	29	230	340·3	308·3	—15·0	—76·1									
255·364 C	38	284	21	159	135·6	114·7	—16·8	+13·4	261·428 C	44	225	54	282	338·9	306·7	—14·4	—63·3									
256·550 C	38	257	24	162	136·5	115·5	—16·5	+29·9	262·442 C	50	281	43	240	339·2	306·9	—14·2	—49·6									
257·370 C	38	245	28	179	136·7	115·6	—16·4	+41·0	263·437 G	43	243	29	163	339·4	307·0	—14·4	—36·2									
258·432 G	16	115	16	114	137·0	115·8	—16·7	+55·3	264·337 C	47	240	28	142	339·5	307·0	—14·4	—24·3									
259·460 G	8	59	13	97	137·2	115·9	—16·8	+69·0	265·414 G	39	173	21	94	339·3	306·7	—14·8	—10·3									
260·348 G	2	13	8	53	136·8	115·5	—16·8	+80·4	266·380 G	31	195	17	106	338·7	305·9	—14·7	+1·9									
Means ..	..	..	..	..	..	..	..	..	267·576 G	6	55	3	31	339·3	306·4	—14·8	+18·3	
Group 9029.										268·387 C	○	33	○	20	339·9	306·9	—14·1	+29·6								
September 8–15. A very small spot not seen on September 9. Others appear later and make up a small stream.	..	..	..	..	..	..	..	..	269·345 G	2	20	1	15	339·5	306·4	—15·2	+41·8	
250·427 G	○	4	○	6	117·2	63·1	—8·5	—70·2	Means ..	..	..	22	132	339·40	306·82	—14·60	..							
251·331 G	○	○	○	○	Group 9037.																	
252·349 G	○	5	○	4	115·2	60·7	—8·5	—46·8	September 20–29. A stream of normal type but of rapid development <i>np</i> Group 9036.
253·367 G	5	25	3	15	115·5	60·8	—8·3	—33·1	262·442 C	22	74	15	51	347·4	285·5	—5·5	—41·4									
254·617 G	2	19	1	10	116·3	61·3	—7·9	—15·8	263·437 G	33	191	19	110	348·6	286·4	—5·4	—27·0									
255·364 C	4	10	2	5	118·3	63·1	—8·1	—3·9	264·337 C	33	191	18	101	349·4	287·0	—5·2	—14·4									
256·550 C	2	19	1	10	119·5	64·1	—8·0	+12·9	265·414 G	38	186	19	96	350·4	287·8	—5·5	+0·8									
257·370 C	7	54	4	31	120·0	64·4	—8·0	+24·3	266·380 G	14	65	7	34	348·3	285·4	—5·8	+11·5									
Means ..	..	..	1	10	117·43	62·50	—8·19	..	267·576 G	2	14	1	8	347·8	284·6	—5·8	+26·8							
									268·387 C	○	21	○	14	348·6	285·3	—6·4	+38·3									

LEDGER II.—NON-RECURRENT GROUPS OF SUN SPOTS for the YEAR 1919.—continued.

Date, G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.	Date, G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.								
	Umbræ.	Whole Spots.	Umbræ.	Whole Spots.	System I.	System II.				Umbræ.	Whole Spots.	Umbræ.	Whole Spots.	System I.	System II.										
Group 9037—continued.																									
1919. 4 269·345 G	2	22	2	17	346·7	283·1	— 6·7	+49·0	127	578	79	358	237·5	179·4	— 8·0	— 33·2									
270·419 G	2	16	3	21	349·5	285·7	— 6·1	+66·0	127	638	70	351	237·0	178·7	— 8·5	— 20·6									
271·389 G	1	9	2	20	346·7	282·7	— 7·4	+76·0	122	800	63	416	237·1	178·6	— 8·5	— 7·7									
Means ..	..	..	9	47	348·34	285·35	— 5·98	..	175	733	91	381	236·9	178·2	— 8·8	+ 6·0							
Group 9038.																									
September 20—October 2. A large regular spot, <i>a</i> , closely followed by a cluster of very small companions and, at a greater distance, by two or three ill-formed spots, which dissolve into an elongated cluster after September 24. On September 26, <i>a</i> shows a double umbra, and by September 30 the spot has completely separated into two components.																									
262·442 C	11	112	25	285	309·0	261·0	+11·6	-79·8	1919. 4 271·389 G	6	68	10	112	94·5	61·5	-14·8	-69·6								
263·437 G	31	338	37	418	308·6	260·4	+11·6	-67·0	280·387 G	23	156	25	161	94·7	61·6	-15·1	-57·3								
264·337 C	84	723	75	631	308·4	260·0	+11·4	-55·4	281·426 G	39	222	28	164	96·2	63·0	-15·2	-42·1								
265·414 G	101	744	66	484	310·5	261·9	+11·0	-39·1	282·434 G	78	310	47	188	97·4	64·1	-14·7	-27·6								
266·380 G	114	726	63	408	311·2	262·4	+10·9	-25·6	283·411 G	100	428	56	238	96·7	63·3	-14·7	-15·4								
267·576 G	140	791	71	404	312·2	263·2	+10·5	-8·8	284·397 C	95	950	50	511	94·6	61·0	-14·8	-4·5								
268·387 C	100	649	51	324	312·9	263·8	+10·6	+ 2·6	285·339 C	88	743	48	406	96·4	62·7	-15·0	+ 9·7								
269·345 G	91	511	47	266	313·3	264·0	+10·3	+15·6	286·382 C	98	491	58	287	96·5	62·7	-15·0	+23·6								
270·419 G	93	480	54	279	313·3	263·8	+10·2	+29·8	287·484 G	69	460	48	320	97·2	63·3	-15·1	+38·9								
271·389 G	80	426	54	290	313·4	263·7	+10·5	+42·7	288·539 G	46	347	42	312	96·7	62·7	-15·3	+52·3								
272·380 G	40	248	35	216	312·9	263·0	+10·7	+55·3	289·392 G	11	117	16	157	97·8	63·6	-14·6	+64·6								
273·351 C	18	146	24	191	313·2	263·2	+11·0	+68·4	290·383 C	0	24	0	92	100·9	66·6	-14·2	+80·8								
Means ..	..	..	47	329	311·56	262·43	+10·89	..	Means ..	..	..	36	246	96·63	63·01	-14·88	..				
Spot <i>a</i> .																									
262·442 C	10	88	21	187	311·4	262·1	+11·1	-77·4	Spot <i>a</i> .																
263·437 G	23	206	25	227	311·8	262·3	+10·7	-63·8	279·471 G	6	62	10	100	94·8	60·1	-15·0	-69·3								
264·337 C	37	372	30	298	312·2	262·5	+10·7	-51·6	280·387 G	14	125	14	123	96·1	61·3	-15·3	-55·9								
265·414 G	67	494	42	306	312·9	263·0	+10·2	-36·7	281·426 G	31	168	22	121	97·4	62·5	-15·3	-40·9								
266·380 G	95	539	52	296	313·0	262·9	+10·3	-23·8	282·434 G	45	209	27	125	98·7	63·7	-14·7	-26·3								
267·576 G	136	719	69	367	312·9	262·6	+10·2	- 8·1	283·411 G	45	239	25	131	99·5	64·4	-14·3	-12·6								
268·387 C	97	613	49	306	313·4	262·9	+10·6	+ 3·1	284·397 C	46	232	24	123	99·5	64·2	-14·3	+ 0·4								
269·345 G	91	511	47	266	313·3	262·7	+10·3	+15·6	285·339 C	31	192	17	106	99·6	64·2	-14·1	+12·9								
270·419 G	93	475	54	276	313·4	262·6	+10·2	+29·9	286·382 C	40	149	24	89	99·6	64·1	-14·2	+26·7								
271·389 G	80	426	54	290	313·4	262·4	+10·5	+42·7	287·484 G	15	112	11	81	100·0	64·4	-14·2	+41·7								
272·380 G	40	248	35	216	312·9	261·7	+10·7	+55·3	288·539 G	18	118	17	114	100·4	64·6	-14·3	+56·0								
273·351 C	18	146	24	191	313·2	261·8	+11·0	+68·4	289·392 G	11	80	16	116	100·6	64·7	-14·6	+67·4								
Means ..	..	..	47	329	311·56	262·43	+10·89	..	290·383 C	0	24	0	92	100·9	64·9	-14·2	+80·8						
Group 9041.																									
September 25—October 7. A large spot, with composite umbra, disappearing rapidly after October 3.																									
267·576 G	10	39	44	171	238·5	181·2	— 7·0	-82·5	Group 9049.																
268·387 C	20	174	34	296	238·7	181·3	— 7·2	-71·6	279·471 G	2	28	7	92	81·9	29·6	+10·6	-82·2								
269·345 G	50	274	52	285	238·0	180·4	— 7·7	-59·7	280·387 G	11	63	16	90	81·8	29·4	+10·4	-70·2								
270·419 G	86	484	64	358	238·0	180·1	— 7·9	-45·5	281·426 G	29	209	27	195	80·7	28·1	+10·7	-57·6								

LEDGER II.—NON-RECURRENT GROUPS OF SUN SPOTS for the YEAR 1919—continued.

Date, G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.	Date, G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.
	Umbræ.	Whole Spots.	Umbræ.	Whole Spots.	System I.	System II.				Umbræ.	Whole Spots.	Umbræ.	Whole Spots.	System I.	System II.		
Group 9049—continued.																	
1919. d 282·434 G	51	233	36	166	80·2	27·4	+10·7	-44·8									
283·411 G	41	216	25	125	81·4	28·4	+10·5	-30·7									
284·397 C	43	371	23	198	79·8	26·6	+10·8	-19·3									
285·339 C	40	243	21	123	80·0	26·6	+10·7	-6·7									
286·382 C	21	152	11	77	81·3	27·7	+10·4	+8·4									
287·484 G	21	88	12	49	82·3	28·5	+10·4	+24·0									
288·539 G	8	33	5	21	83·0	29·0	+10·7	+38·6									
289·392 G	5	14	4	11	82·9	28·8	+10·5	+49·7									
290·383 C	2	13	2	14	83·1	28·8	+10·8	+63·0									
Means ..	..	..	16	97	81·53	28·24	+10·60	..									
Group 9050.																	
October 8–15. A small stream of which the following component is conspicuous on October 11.																	
280·387 G	0	6	0	7	89·9	20·9	-4·0	-62·1									
281·426 G	17	72	14	57	88·8	19·6	-4·2	-49·5									
282·434 G	33	198	21	125	89·0	19·5	-4·1	-36·0									
283·411 G	59	308	33	171	87·7	18·0	-4·7	-24·4									
284·397 C	22	157	11	81	87·1	17·1	-4·9	-12·0									
285·339 C	12	89	6	45	87·6	17·4	-4·8	+0·9									
286·382 C	10	40	5	21	87·1	16·7	-5·0	+14·2									
287·484 G	0	6	0	3	87·3	16·6	-4·6	+29·0									
Means ..	..	..	11	64	88·06	18·22	-4·54	..									
Group 9051.																	
October 9–13. A short stream; the leader, a regular spot, remains alone on October 13.																	
281·426 G	9	42	5	25	165·7	106·6	-9·3	+27·4									
282·434 G	42	177	30	126	167·5	108·2	-8·8	+42·5									
283·411 G	48	234	44	219	167·9	108·4	-8·8	+55·8									
284·397 C	31	195	47	293	167·8	108·1	-8·5	+68·7									
285·339 C	2	37	10	177	169·7	109·8	-8·2	+83·0									
Means ..	..	..	27	168	167·72	108·22	-8·72	..									
Group 9052.																	
October 9–15. A regular spot followed by a train of small companions.																	
281·426 G	9	54	5	28	130·0	69·8	+8·7	-8·3									
282·434 G	8	68	5	35	133·2	72·8	+8·9	+8·2									
283·411 G	33	204	18	111	134·4	73·8	+9·3	+22·3									
284·397 C	59	318	37	200	136·0	75·1	+8·8	+36·9									
285·339 C	38	267	30	204	136·2	75·1	+8·3	+49·5									
286·382 C	16	130	18	147	137·1	75·8	+7·6	+64·2									
287·484 G	4	53	11	141	137·7	76·2	+7·0	+79·4									
Means ..	..	..	18	124	134·94	74·09	+8·37	..									
Group 9055.																	
October 15–21. Two small spots on October 15 which grow and separate widely in longitude. On October 18, the following member has broken into a cluster, and the leader, likewise, by October 20.																	
1919. d 287·484 G	8	39	7	33	7·7	339·5	-16·5	-50·6									
288·539 G	36	156	24	107	7·6	339·3	-16·1	-36·8									
289·392 G	31	170	19	101	8·9	340·5	-16·0	-24·3									
290·383 C	31	166	17	91	11·9	343·4	-15·6	-8·2									
291·451 G	16	115	9	62	12·1	343·5	-16·1	+6·1									
292·433 G	4	55	2	32	12·5	343·8	-15·8	+19·4									
293·489 G	6	13	4	9	15·8	347·0	-15·6	+36·7									
Means ..	..	..	12	62	10·93	342·43	-15·96	..									
Group 9060.																	
October 25–November 1. An inconspicuous group of a few spots until October 29, when more definite components appear arranged as a stream.																	
297·365 C	4	23	2	12	271·7	222·9	+11·7	-16·3									
298·339 C	4	55	2	28	269·4	220·5	+12·7	-5·8									
299·393 C	4	11	2	6	272·9	223·8	+11·9	+11·6									
300·363 C	21	77	12	42	273·8	224·5	+12·1	+25·3									
301·438 C	49	206	32	133	272·9	223·5	+12·2	+38·6									
302·356 C	69	266	56	214	273·4	223·8	+12·7	+51·2									
303·359 C	25	127	30	149	273·8	224·0	+12·2	+64·8									
304·370 C	0	25	0	69	274·9	225·0	+11·7	+79·2									
Means ..	..	..	17	82	272·85	223·50	+12·15	..									
Group 9062.																	
October 27–November 6. A group of small spots. An increase in the group takes place on October 31, but the activity soon wanes. On November 5, a further revival occurs in the fore portion of the stream.																	
299·393 C	4	29	4	30	204·8	211·4	-20·8	-56·5									
300·363 C	12	35	10	27	205·9	212·5	-20·8	-42·6									
301·438 C	17	54	11	35	203·0	209·6	-20·8	-31·3									
302·356 C	10	56	6	33	202·2	208·9	-20·4	-20·0									
303·359 C	60	207	34	115	205·3	212·0	-22·0	-3·7									
304·370 C	82	500	46	285													

LEDGER II.—NON-RECURRENT GROUPS OF SUN SPOTS for the YEAR 1919—continued.

Date, G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.	Date, G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.					
	Umbræ.	Whole Spots.	Umbræ.	Whole Spots.	System I.	System II.				Umbræ.	Whole Spots.	Umbræ.	Whole Spots.	System I.	System II.							
Group 9063.																						
October 27–November 1. Two small spots of Group 9063. One only is seen on October 30 and November 1, and nothing is visible on October 31.																						
1919. d							°	°	°													
299·393 C	0	31	0	88	181·0	134·6	+13·6	-80·3	1919. d	17	80	11	52	289·3	244·1	+15·3	+37·3					
300·363 C	9	45	12	59	180·6	134·0	+13·5	-67·9	327·408 C	4	14	4	13	293·3	248·0	+15·0	+56·2					
301·438 C	5	46	4	40	180·3	133·6	+12·9	-54·0	328·531 G	0	8	0	10	292·0	246·5	+14·5	+66·4					
302·356 C	8	15	6	10	178·8	131·9	+11·4	-43·4	Means ..	..	..	5	24	287·49	242·44	+13·76	..			
303·359 C	0	0	0	0	..	..	..	..										
304·370 C	0	11	0	6	178·4	131·2	+12·5	-17·3														
Means ..	..	..	4	34	179·82	133·06	12·78	..												
Group 9066.																						
November 7–13. A pair of spots which separate widely in longitude. The leader alone survives after November 10; but a small ephemeral spot appears near the follower's position on November 12.																						
310·451 C	9	41	12	52	49·0	355·0	+11·3	-66·5	326·372 C	5	19	10	39	189·8	158·5	+15·6	-75·8					
311·400 C	16	62	13	50	51·3	357·1	+11·9	-51·7	327·408 C	2	24	2	26	190·7	159·3	+16·0	-61·3					
312·356 C	10	51	6	33	53·0	358·6	+11·7	-37·4	328·531 G	10	58	7	43	190·9	159·4	+16·2	-46·2					
313·350 C	11	40	6	29	50·5	356·0	+11·0	-26·7	329·411 G	38	181	23	109	194·5	162·9	+15·3	-31·1					
314·356 C	4	28	2	14	55·9	1·2	+11·8	-8·1	330·359 C	29	132	15	73	192·7	161·0	+16·5	-20·4					
315·469 G	0	9	0	9	53·2	358·3	+11·7	+3·9	331·368 C	25	244	13	128	191·8	160·0	+16·3	-8·0					
316·523 G	0	4	0	2	56·2	1·1	+11·3	+20·8	332·439 G	15	153	8	79	191·6	159·7	+16·2	+6·0					
Means ..	..	..	6	27	52·73	358·19	+11·53	..	333·342 C	8	119	4	65	191·8	159·8	+16·4	+18·1			
									334·366 C	3	33	2	20	190·6	158·5	+16·3	+30·4					
									335·335 C	0	16	0	11	189·6	157·4	+15·6	+42·1					
Means ..	..	..	..	..	..	..	..	..	Means ..	..	..	8	59	191·40	159·65	+16·04	..
Group 9067.																						
November 8–15. A pair of regular spots developing rapidly from two small spots seen on November 8. For several days the follower is the larger and better-formed, but the leader is ultimately the longer lived.																						
311·400 C	96	410	49	207	80·1	4·7	+ 5·0	-22·9	330·359 C	2	8	1	5	175·3	134·3	+16·8	-37·8					
312·356 C	142	535	72	270	80·5	4·9	+ 5·0	-9·9	331·368 C	0	0	0	0	..	..	..	..	
313·350 C	107	532	54	267	80·2	4·4	+ 5·0	+ 3·0	332·439 G	8	52	4	27	176·2	135·0	+15·0	-9·4					
314·356 C	77	403	40	211	79·8	3·7	+ 5·1	+15·8	333·342 C	8	52	4	27	174·9	133·6	+15·2	+1·2					
315·469 G	57	317	34	184	79·9	3·6	+ 5·2	+30·6	334·366 C	25	102	14	55	177·3	135·8	+14·3	+17·1					
316·523 G	32	187	23	134	81·1	4·5	+ 5·0	+45·7	335·335 C	38	128	23	78	180·2	138·6	+13·8	+32·7					
317·378 C	14	65	14	62	82·3	5·5	+ 5·0	+58·1	336·335 C	45	146	35	111	182·0	140·3	+13·4	+47·7					
318·348 C	5	15	8	25	84·3	7·3	+ 5·2	+72·9	337·335 C	45	228	47	236	181·6	139·8	+13·3	+60·5					
Means ..	..	..	37	170	81·03	4·82	+ 5·06	..	338·340 C	18	102	31	173	179·5	137·5	+14·7	+71·6			
									339·346 C	0	7	(0)	20	174·0	131·9	+16·5)*	+79·4					
Means ..	..	..	..	..	..	..	..	..	Means ..	..	..	18	79	178·38	136·86	+14·56	..
Group 9070.																						
November 20–26. A small group of a few unstable spots.																						
323·354 C	2	14	1	8	282·9	238·3	+12·2	-22·5	332·439 G	0	11	0	48	102·8	84·8	-18·3	-82·8					
324·354 C	24	98	12	50	284·2	239·4	+12·7	-8·0	333·342 C	24	160	44	299	100·3	82·3	-17·8	-73·4					
325·351 C	0	44	0	22	284·0	239·1	+13·3	+4·9	334·366 C	35	227	36	234	101·2	83·1	-18·0	-59·0					
326·372 C	10	25	6	14	286·7	241·7	+13·3	+21·1	335·335 C	38	240	30	185	100·8	82·7	-18·0	-46·7					
Means ..	..	..	..	..	..	..	..	..	336·335 C	56	301	35	191	100·5	82·3	-17·7	-33·8
									337·335 C	37	301	21	168	100·3	82·1	-17·7	-20·8					

LEDGER II.—NON-RECURRENT GROUPS OF SUN SPOTS for the YEAR 1919—continued.

Date, G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.	Date, G.M.T. (Civil) Place.	Projected Area.		Corrected Area.		Longitude.		Latitude.	Long. from C.M.
	Umbræ.	Whole Spots.	Umbræ.	Whole Spots.	System I.	System II.				Umbræ.	Whole Spots.	Umbræ.	Whole Spots.	System I.	System II.		
Group 9078—continued.																	
1919. d 338°340 C	52	277	27	146	100°5	82°2	−18°2	−7°4	1919. d 351°342 C	22	88	17	68	345°7	260°0	+5°0	+49°2
339°346 C	46	269	24	142	100°0	81°7	−17°7	+5°4	352°357 C	3	30	3	34	346°8	260°8	+4°4	+63°6
340°339 C	28	210	16	116	99°6	81°2	−17°4	+18°1	Means ..	..	..	16	69	346°50	261°85	+4°78	..
341°562 C	15	80	10	51	100°6	82°2	−18°3	+35°2									
342°472 C	14	36	11	28	100°2	81°7	−18°3	+46°8									
343°479 G	4	9	4	9	100°2	81°6	−18°8	+60°0									
344°329 C	0	5	0	8	99°8	81°2	−18°9	+70°8									
Means ..	..	..	20	125	100°52	82°24	−18°08	..									
Group 9079.																	
December 3–10. Intermittent. A small stream developing off Group 9078. It has completely disappeared by December 7, but on the following day a pair of small spots is seen in the same region.									December 9–19. A close pair of spots which increase and coalesce to form a spot nearly of regular formation, around which several small companions appear. After December 17, the spot divides and the two portions die out rapidly. Groups 9082 and 9083 are evidently closely related to each other.								
336°335 C	32	94	22	64	92°4	18°7	−8°6	−41°9	342°472 C	11	59	21	115	338°5	253°6	+4°7	−74°9
337°335 C	20	63	11	36	94°5	20°6	−8°5	−26°6	343°479 G	63	258	66	268	339°2	254°0	+4°5	−61°0
338°340 C	3	7	2	4	89°2	15°1	−9°8	−18°7	344°329 C	36	319	28	246	339°6	254°2	+4°4	−49°4
339°346 C	0	18	0	9	89°4	15°1	−10°7	−5°2	345°346 C	85	530	53	329	340°2	254°6	+4°2	−35°4
340°339 C	0	0	0	0	..	..	..	..	346°346 C	75	550	41	297	340°0	254°1	+4°4	−22°4
341°562 C	15	48	9	27	93°5	18°7	−5°4	+28°1	347°356 C	120	725	61	370	339°6	253°4	+4°4	−9°5
342°472 C	3	12	2	8	94°4	19°4	−5°6	+41°0	348°596 C	82	599	41	300	338°7	252°3	+4°0	+6°0
343°479 G	0	5	0	4	94°4	19°2	−6°3	+54°2	349°358 C	128	442	67	230	338°5	251°9	+4°0	+15°8
Means ..	..	..	6	19	92°54	18°11	−7°84	..	350°341 C	42	340	24	194	338°1	251°2	+3°9	+28°4
									351°342 C	41	124	27	83	338°0	250°9	+3°7	+41°5
									352°357 C	2	25	2	21	337°1	249°7	+2°5	+53°9
Means ..	..	..	..	..	..	..	..	..	Means ..	..	..	39	223	338°86	252°72	+4°06	..
Group 9081.																	
December 8–13. A few small spots of which one alone survives after December 9.									December 12–15. A small spot with a follower on December 13 and 14.								
341°562 C	8	43	9	51	0°6	284°4	+7°1	−64°8	345°346 C	4	7	2	4	44°9	349°3	−12°3	+29°3
342°472 C	12	36	10	30	1°4	285°0	+7°1	−52°0	346°346 C	13	41	9	29	45°7	349°9	−12°3	+43°3
343°479 G	3	10	2	7	359°0	282°4	+8°9	−41°2	347°356 C	12	43	12	42	47°5	351°6	−12°4	+58°4
344°329 C	12	26	7	15	2°6	285°8	+6°6	−26°4	348°596 C	2	9	4	19	48°9	352°8	−12°7	+76°2
345°346 C	3	13	2	7	2°8	285°8	+6°1	−12°8	Means ..	..	..	7	23	46°75	350°90	−12°40	..
346°346 C	0	11	0	6	0°3	283°1	+8°8	−2°1									
Means ..	..	..	..	5	19	1°12	284°42	+7°43	..								
Group 9082.																	
December 8–19. Some unstable spots usually arranged as a stream.									Group 9092.								
341°562 C	0	24	0	64	346°3	263°0	+5°8	−79°1	355°523 C	4	9	4	9	182°9	150°9	−17°4	−58°6
342°472 C	20	92	27	122	345°8	262°2	+5°4	−67°6	356°407 C	0	9	0	7	183°3	151°2	−17°7	−46°5
343°479 G	36	119	32	105	345°3	261°5	+4°5	−54°9	357°439 G	31	109	20	69	181°6	149°4	−18°3	−34°6
344°329 C	22	139	15	95	346°6	262°6	+5°0	−42°4	358°503 G	44	223	24	123	183°4	151°1	−17°6	−18°8
345°346 C	27	120	15	68	347°2	262°9	+5°2	−28°4	359°480 G	26	155	14	81	183°8	151°4	−17°3	−5°6
346°346 C	25	114	13	59	347°6	263°1	+4°7	−14°8	360°431 C	18	87	9	45	184°8	152°4	−16°5	+8°0
347°356 C	36	120	18	60	346°9	262°1	+4°0	−2°2	361°381 C	32	106	18	58	184°0	151°5	−16°3	+19°7
348°596 C	32	80	17	42	346°9	261°8	+4°3	+14°2	362°341 C	13	40	8	25	186°7	154°1	−15°1	+35°0
349°358 C	23	82	13	45	347°4	262°2	+4°2	+24°7	363°357 C	20	107	15	80	185°4	152°7	−14°8	+47°1
350°341 C	28	115	17	71	345°5	260°0	+4°9	+35°8	364°357 C	23	92	24	94	185°3	152°5	−14°2	+60°2
Means	365°362 C	4	15	8	31	188°1	155°2	−14°9	+76°2
									Means	13	57	184°48	152°04	−16°37	..

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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

1919.

TOTAL AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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

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

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

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

Greenwich Civil Time,	Place,	Projected Area.			Area Corrected for Foreshortening.			Greenwich Civil Time,	Place,	Projected Area.			Area Corrected for Foreshortening.				
		Umbræ.	Whole Spots.	Faculæ.	Umbræ.	Whole Spots.	Faculæ.			Umbræ.	Whole Spots.	Faculæ.	Umbræ.	Whole Spots.	Faculæ.		
1919 January	1·383	C	42	160	825	23	85	1250	1919 February	10·389	C	452	2779	3158	353	2250	3536
	2·404	C	40	145	1007	70	272	1472		11·477	G	417	2678	2162	328	2094	2744
	3·359	C	46	201	1634	60	268	1941		12·513	G	392	2379	1503	252	1522	2285
	4·350	C	29	207	2562	27	194	2852		13·346	C	365	2661	1575	209	1514	2749
	5·366	C	43	257	2756	30	184	3590		14·343	C	425	2437	843	224	1284	1181
	6·484	G	99	449	1613	68	310	2242		15·456	G	366	2244	489	221	1323	626
	7·345	C	114	914	1256	71	584	1645		16·512	C	338	2309	1449	234	1538	1763
	8·355	C	299	1538	680	174	887	810		17·109	K	248	1811	1468	192	1301	1692
	9·423	C	323	1813	594	183	1035	673		18·344	C	242	1427	1869	200	1161	2278
	10·361	C	310	2152	880	184	1232	1135		19·351	C	119	913	2096	118	919	2443
	11·370	C	461	2712	1453	306	1712	1924		20·338	C	104	607	1624	99	641	2357
	12·386	C	323	2380	1698	217	1527	1990		21·347	C	80	454	1679	42	232	1928
	13·493	C	325	2207	2809	226	1528	3541		22·362	C	90	451	1096	84	461	1373
	14·426	C	291	1678	1667	234	1353	2208		23·356	C	92	505	887	79	458	1161
	15·334	C	257	1477	3303	219	1352	4002		24·166	D	116	638	756	86	476	749
	16·475	G	208	1044	1267	229	1098	1816		25·556	G	102	715	745	97	738	1151
	17·513	G	176	736	1216	109	448	1399		26·578	C	176	1005	2213	149	883	2743
	18·509	G	90	532	238	49	283	287		27·355	C	209	1175	2349	159	943	2787
	19·367	C	82	473	511	51	318	673		28·348	C	236	1363	3675	141	815	4242
	20·350	C	55	262	974	38	192	1369	March	1·355	C	233	1220	3535	128	667	3927
	21·355	C	60	257	1677	63	279	2057		2·355	C	157	1116	1975	85	615	2525
	22·224	K	37	155	1895	42	173	2412		3·390	C	172	1113	1632	98	646	1849
	23·364	C	25	162	2352	18	120	2795		4·327	C	152	849	1419	113	640	1488
	24·361	C	29	199	1297	17	121	1471		5·360	C	130	836	858	135	849	1307
	25·339	C	31	230	938	17	126	1146		6·428	C	211	1299	1360	213	1249	1632
	26·379	C	87	459	849	46	238	1123		7·391	C	275	1764	2149	290	1656	2572
	27·486	G	245	1021	469	135	565	586		8·358	C	420	2601	1946	296	1843	2423
	28·418	C	196	1135	536	118	677	831		9·343	C	413	2580	2806	251	1577	3118
	29·359	C	171	1012	1214	126	746	1256		10·347	C	498	3171	3161	373	2504	4108
	30·337	C	144	727	1209	136	698	1435		11·336	C	531	3462	3574	376	2746	4562
	31·304	D	77	385	2691	144	723	3203		12·357	C	576	3608	1777	382	2529	2262
February	1·404	C	290	1150	2021	318	1288	2510		13·417	G	645	3497	759	418	2292	927
	2·605	C	404	1949	2390	372	1719	3080		14·389	G	624	3295	845	426	2207	1051
	3·395	C	332	2265	2183	265	1757	2683		15·353	C	504	2691	1204	375	1898	1316
	4·436	C	506	2833	1468	340	2030	1801		16·382	C	312	2205	967	189	1369	1455
	5·362	C	547	3259	995	321	1978	1205		17·359	C	299	1840	1069	207	1250	1192
	6·412	C	539	3804	341	312	2173	603		18·373	C	229	1503	800	192	1299	950
	7·505	C	399	3606	843	250	2126	1270		19·358	C	155	944	1209	122	729	1347
	8·383	C	486	3290	1442	343	2183	1819		20·414	C	64	523	1556	46	391	1620
	9·467	G	486	2968	1552	382	2369	1845		21·361	C	74	428	1845	80	507	2335

TOTAL AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.		
1919 March	22°319	C	39	215	1313	52	289	1953	1919 May	11°355	G	359	2099	541	210	1219	580
	23°514	C	58	333	1242	107	664	1522		12°351	C	299	1776	780	196	1178	1016
	24°374	C	106	546	1389	129	720	1571		13°338	G	264	1779	1583	286	1988	2087
	25°453	G	151	924	1573	128	807	2063		14°337	G	222	1542	2803	274	1870	3470
	26°382	C	202	1078	1515	140	744	1582		15°338	G	309	1815	2272	332	2203	3184
	27°357	C	231	1161	1788	154	772	2043		16°696	G	633	3145	1507	439	2202	1609
	28°614	G	261	1252	755	154	735	899		17°351	C	735	3785	1752	484	2504	1823
	29°480	G	307	1309	968	167	715	1035		18°378	C	584	4441	1568	348	2612	2238
	30°489	G	310	1417	913	194	1040	1088		19°609	G	786	4340	605	428	2370	717
	31°112	K	265	1302	896	199	947	927		20°336	G	856	4572	561	475	2520	591
										21°353	G	726	4156	376	413	2366	457
										22°505	G	573	3352	837	361	2162	829
										23°339	C	338	2501	1717	257	1851	1885
April	1°306	D	233	1178	923	171	873	1088		24°371	C	265	1891	1529	241	1923	2026
	2°427	C	243	1120	1929	180	874	2568		25°383	C	184	895	2502	280	1405	3420
	3°404	G	261	1215	1229	209	933	1337		26°220	K	167	678	1339	148	612	1656
	4°386	C	222	1270	2375	156	864	2468		27°354	C	168	795	2288	141	718	3013
	5°357	G	206	974	1513	108	511	2048		28°339	G	85	415	1068	118	600	1259
	6°577	C	141	904	1473	74	472	1981		29°343	G	60	288	984	36	168	1238
	7°452	G	211	1173	1766	122	660	2354		30°337	C	104	583	1300	96	589	2239
	8°579	G	239	1280	1646	142	773	1933		31°366	C	140	896	873	103	635	1130
	9°425	G	232	1354	1658	144	827	1535									
	10°346	C	181	1383	1469	118	880	1673									
	11°430	G	157	867	702	123	650	995									
	12°343	C	142	653	1492	87	401	2111									
	13°356	G	72	428	933	53	319	1184									
	14°379	C	83	348	1000	65	282	1018		1°388	C	228	1351	1137	141	839	1365
	15°362	C	70	388	1125	53	305	1626		2°372	C	320	1865	1299	207	1228	1635
	16°416	C	43	330	1320	23	171	1746		3°364	C	323	2001	1683	210	1317	1951
	17°357	G	83	353	1090	43	184	1220		4°460	C	408	2069	2386	280	1455	2551
	18°375	G	39	256	918	22	145	1267		5°568	G	469	2309	931	319	1605	1114
	19°393	G	52	246	309	101	461	566		6°558	G	448	2137	893	303	1465	1160
	20°523	C	51	297	803	63	373	1062		7°361	G	380	1905	787	273	1449	1081
	21°382	C	88	407	1123	78	362	1446		8°492	C	241	1258	788	187	1011	1267
	22°501	G	154	787	998	94	541	1246		9°500	G	180	980	1245	243	1271	1540
	23°403	G	189	950	398	105	532	482		10°342	G	277	1271	2610	338	1728	3338
	24°348	C	231	1154	602	143	770	783		11°364	C	249	1446	2371	280	1531	3334
	25°335	C	368	1902	988	270	1392	1279		12°343	G	358	1971	1020	385	2025	1207
	26°393	G	395	2042	1040	271	1488	1196		13°358	C	455	2908	2117	364	2389	2791
	27°350	G	267	1658	1175	196	1270	1409		14°346	G	603	2993	1338	383	2036	1741
	28°360	C	290	1665	2480	230	1282	3035		15°390	G	624	3392	804	369	2035	1000
	29°639	G	334	1848	1005	249	1364	1133		16°345	G	634	3916	343	366	2261	493
	30°343	G	334	1886	791	227	1266	869		17°344	G	738	4144	478	419	2339	543
										18°456	G	718	4065	1161	405	2305	1226
										19°418	G	772	4535	899	445	2620	1093
										20°417	C	596	3977	2066	366	2531	2385
May	1°332	C	245	1653	1398	170	1089	1916		21°362	G	601	3671	2243	455	2839	2748
	2°367	C	298	1768	1628	223	1317	2173		22°410	G	554	3339	1484	433	2761	1936
	3°372	C	346	2111	1874	254	1753	2345		23°628	G	568	2792	2087	490	2722	2595
	4°662	G	429	2418	775	327	1860	851		24°360	C	513	2800	3005	436	2787	3821
	5°464	C	470	2930	1514	344	2145	1525		25°468	G	527	2557	1033	328	1621	1247
	6°423	G	530	2851	1199	370	2108	1456		26°410	G	567	2769	928	386	1876	1178
	7°345	C	506	3099	1575	324	2039	2131		27°220	D	594	2886	1805	395	1908	2327
	8°508	G	533	2826	1528	332	1815	1814		28°329	G	456	2242	1347	336	1697	1627
	9°348	G	536	2851	806	434	1917	973		29°439	C	248	1560	2430	228	1611	3321
	10°591	G	456	2622	712	255	1452	796		30°349	C	147	911	1936	124	1037	2779

TOTAL AREAS OF SUN SPOTS AND FACULÆ FOR EACH DAY IN THE YEAR 1919.

Greenwich Civil Time.	Place.	Projected Area.			Area Corrected for Foreshortening.			Greenwich Civil Time.	Place.	Projected Area.			Area Corrected for Foreshortening.				
		Umbræ.	Whole Spots.	Faculæ.	Umbræ.	Whole Spots.	Faculæ.			Umbræ.	Whole Spots.	Faculæ.	Umbræ.	Whole Spots.	Faculæ.		
1919 July	d							1919 August	d								
	1·403	C	112	631	2787	88	513	2762	23·379	G	452	2268	836	414	2048	937	
	2·370	C	120	622	2708	107	682	3008	24·375	C	227	1502	3983	281	1984	4390	
	3·376	C	179	890	2025	163	850	2662	25·452	C	136	734	2411	181	926	3441	
	4·343	G	211	1138	2170	206	1189	2557	26·419	G	196	1038	561	112	594	712	
	5·386	C	145	1140	1456	132	959	2104	27·404	G	131	912	957	85	557	1208	
	6·365	C	181	887	2172	105	502	2569	28·374	C	110	683	1042	62	394	1304	
	7·463	C	157	957	2758	83	499	3230	29·387	G	82	439	551	56	296	693	
	8·253	D	70	738	2432	67	349	2867	30·340	G	76	310	681	67	280	816	
	9·402	C	107	570	2416	59	316	3377	31·464	G	142	556	1597	103	433	1824	
	10·351	C	83	594	2347	52	360	3096									
	11·350	G	146	628	2038	110	500	2216									
	12·528	C	308	1961	2796	195	1211	2847									
	13·421	G	400	2334	2314	232	1347	2292									
	14·478	C	298	2401	1527	168	1402	1559									
	15·592	G	421	2241	1973	312	1767	2533									
	16·334	G	405	2058	2033	286	1516	2478									
	17·368	C	312	1891	3371	244	1477	3671									
	18·461	G	268	1713	2089	258	1689	2418									
	19·364	C	212	1528	4162	242	1773	4486									
	20·381	C	190	1058	2821	180	1009	3493									
	21·347	G	384	1162	2482	175	1089	2832									
	22·528	G	244	1366	1896	160	949	2195									
	23·385	C	231	1503	2594	146	964	2914									
	24·369	C	218	1547	2221	135	967	2175									
	25·380	C	180	1478	2624	115	960	2952									
	26·347	G	190	1167	2620	130	819	2819									
	27·365	C	142	887	2178	118	768	2334									
	28·427	C	76	614	2132	65	505	2430									
	29·371	C	66	467	1941	55	411	2616									
	30·670	G	76	355	1229	80	341	1490									
	31·345	G	79	321	1551	74	290	1857									
August	1·470	G	46	194	1497	48	215	1930	September	1·547	G	175	871	1398	98	481	1666
	2·419	G	23	122	1289	15	72	1429		2·386	C	160	896	860	87	496	892
	3·605	G	113	399	1156	186	722	1379		2·576	G	158	888	917	90	517	1236
	4·421	G	142	764	1328	154	792	1495		3·396	C	211	1001	895	134	642	1145
	5·388	C	138	973	2656	126	866	3114		4·351	G	206	1202	1288	156	903	1367
	6·363	G	200	1135	1115	155	813	1272		5·409	C	131	910	974	161	1123	1108
	7·337	G	278	1611	1156	220	1390	1326		6·529	C	107	763	1077	173	1275	1557
	8·344	G	301	1695	1334	191	1097	1749		7·419	G	94	520	1904	330	1867	2535
	9·338	G	332	1877	1313	197	1082	1426		8·427	G	173	946	1582	242	1337	1845
	10·420	G	389	1836	1041	218	1032	1000		9·331	G	268	1435	2526	244	1294	2943
	11·360	G	429	2292	888	242	1481	1058		10·349	G	369	1976	2087	252	1344	2045
	12·347	G	356	1999	589	228	1259	774		11·367	G	456	2474	794	260	1411	910
	13·345	G	400	1938	1092	451	2012	1337		12·617	G	399	2629	558	214	1411	544
	14·340	G	432	2343	1436	506	2763	1472		13·364	C	442	2449	776	232	1300	1011
	15·376	G	536	2837	1342	549	2840	1633		14·550	C	414	2361	912	230	1314	1021
	16·396	G	591	3444	1206	417	2411	1437		15·370	C	351	1997	1490	205	1180	1509
	17·434	G	658	3916	941	402	2397	1129		16·432	G	280	1527	1509	191	1074	1599
	18·468	G	762	4153	884	430	2391	1183		17·460	G	177	1277	1849	222	1212	2057
	19·558	C	820	4501	1008	421	2299	1098		18·348	G	165	985	3124	185	1112	3448
	20·378	C	855	4541	985	449	2383	1028		19·428	G	138	802	2925	195	1268	3968
	21·338	G	830	4303	937	511	2627	1068		20·442	G	107	781	1828	85	696	2132
	22·481	G	650	3421	1376	474	2466	1711		21·437	G	171	1180	1474	142	953	1719
										22·337	G	213	1294	1252	173	1050	1456
										23·414	G	224	1421	1853	159	1027	2035
										24·380	G	266	1517	2799	200	1083	2928
										25·576	G	246	1570	2058	165	1104	2128
										26·387	C	262	1504	1645	170	973	1625
										27·345	G	307	1720	1406	220	1220	1501
										28·419	G	361	1793	1292	233	1197	1587
										29·389	G	307	1585	665	190	999	621
										30·380	G	260	1584	1823	157	989	2051
October	1·351	C	303	1298	1886	198	1140	1195		2·402	C	177	816	1447	128	627	1958
	2·387	G	198	1140	1195	120	1105	120		3·387	G	177	816	1447	128	627	1958
	4·386	G	177	816	1447	128	627	120		4·386	G	115	732	1788	124	627	1958</td

TOTAL AREAS of SUN SPOTS and FACULÆ for EACH DAY in the YEAR 1919.

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.
1919 October 11·411	G	444	2179	355	259	1263	389	1919 November 21·354	C	29	121	538	15	63	714
	C	380	2778	450	234	1689	548		C	31	238	1321	85	492	1961
	C	295	2002	1140	176	1285	1214		C	98	473	1891	108	533	2236
	C	268	1383	993	166	874	1079		C	122	675	1924	94	530	2034
	G	196	1076	756	148	868	901		G	172	959	715	114	634	662
	G	152	857	1059	137	777	1143		G	197	1210	1175	130	805	1221
	G	77	515	1305	90	633	1383		C	242	1360	1029	148	895	1380
	C	34	221	1685	20	209	2182		C	248	1455	880	140	814	1118
	G	16	115	857	9	62	991		G	269	1519	318	159	951	478
	G	10	124	634	17	202	1153		C	242	1440	1336	183	1079	1607
	G	24	180	1116	23	176	1214								
	G	27	166	1358	22	138	1281								
	C	44	196	1603	29	130	1511								
	C	52	285	1923	50	285	2076								
	C	66	380	1678	56	304	1906								
	C	77	490	1571	104	641	1876								
	C	138	814	1288	128	858	1667								
	C	227	1086	1996	181	862	2115								
	C	344	1840	1650	227	1224	1575								
	C	417	2279	2694	264	1422	2658								
	C	467	2664	2069	279	1572	2468								
November 1·370	C	452	2734	1609	248	1604	2165		C	247	1347	1372	173	956	1346
	C	475	3253	1606	290	1990	2040		C	199	1064	2200	145	771	1983
	C	419	2913	2201	261	1811	2414		C	271	1134	2194	208	904	2344
	C	475	2534	1975	316	1679	1978		C	164	953	938	175	981	1351
	C	392	2458	2350	304	1981	2456		C	116	552	519	85	425	918
	I	411	1901	1340	315	1616	1398		C	81	402	409	48	251	595
	C	210	1128	754	204	1181	928		C	36	243	291	24	149	365
	C	258	1220	519	149	715	798		C	41	205	376	30	198	630
	C	293	1265	829	171	774	785		C	79	262	1129	83	319	1135
	C	217	1088	903	152	767	1051		C	114	413	771	110	402	802
	C	143	758	654	119	655	846		C	72	495	670	52	370	955
	G	104	546	789	78	391	905		C	134	708	503	82	447	899
	G	56	330	721	67	388	968		C	122	783	792	71	438	1228
	C	32	126	891	58	240	1058		C	168	895	1351	91	478	1377
	C	14	50	764	14	47	959		C	116	700	1451	62	369	1204
	C	16	50	1060	9	30	1533		C	171	567	686	92	302	730
	C	15	114	1513	8	58	1768		C	91	546	226	53	316	236
	C	4	12	1009	4	13	1048		C	94	332	752	60	214	662
	C	14	84	720	10	61	674		C	11	133	1140	9	102	1439
	C	8	66	459	5	40	517		C	7	23	1589	4	13	2249
	C								K	21	102	1352	15	68	1510
										56	253	1995	39	175	1821
										50	301	1510	40	253	1567
										73	351	627	63	350	933
										53	284	579	29	155	624
										26	181	429	14	127	596
										27	132	653	17	79	815
										34	122	1361	20	68	1160
										13	46	2192	8	29	1917
										40	157	1457	27	112	1619
										114	464	1583	74	298	1895

MEAN AREAS of SUN SPOTS and FACULÆ for each ROTATION of the SUN, from 1918 December 24 to 1920 January 9.

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 1873-1918 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.
873	1918 December 23.97 ^d	27	217	1284	1603	158	918	2004
874	1919 January 20.31	28	282	1736	1447	201	1207	1835
875	February 16.65	27	272	1636	1832	200	1220	2221
876	March 15.97	27	200	1100	1351	141	789	1613
877	April 12.27	28	256	1432	1139	184	1034	1424
878	May 9.51	27	373	2147	1368	262	1540	1699
879	June 5.72	27	455	2507	1582	331	1891	1983
880	July 2.92	27	216	1293	2355	155	968	2730
881	" 30.13	27	380	2055	1355	282	1518	1599
882	August 26.36	28	213	1207	1362	165	956	1601
883	September 22.62	27	227	1273	1356	159	920	1543
884	October 19.91	27	216	1215	1388	153	876	1565
885	November 16.21	28	121	655	1002	89	486	1196
886	December 13.53	27	111	547	1026	75	386	1152

MEAN AREAS of SUN SPOTS and FACULÆ for the YEAR 1919.

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.
1919	365	253	1437	1445	182	1052	1729

MEAN HELIOGRAPHIC LATITUDE of SUN SPOTS for each ROTATION of the SUN, from 1918 December 24 to 1920 January 9.

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.		
873	1918 December	23·97 ^d	27	368	11·38	549	11·57	— 2·36 11·49
874	1919 January	20·31	28	965	10·84	242	9·17	+ 6·82 10·51
875	February	16·65	27	1005	10·00	215	13·16	+ 5·92 10·56
876	March	15·97	27	372	9·59	417	17·20	— 4·56 13·61
877	April	12·27	28	440	8·04	594	15·43	— 5·44 12·29
878	May	9·51	27	1007	12·65	533	10·18	+ 4·75 11·80
879	June	5·72	27	877	11·78	1014	14·13	— 2·11 13·04
880	July	2·92	27	221	8·71	747	10·45	— 6·06 10·05
881	"	30·13	27	549	5·12	970	6·59	— 2·36 6·06
882	August	26·36	28	298	3·40	658	10·27	— 6·00 8·13
883	September	22·62	27	361	6·46	559	12·11	— 4·83 9·89
884	October	19·91	27	604	10·50	272	14·86	+ 2·61 11·86
885	November	16·21	28	356	11·89	130	16·73	+ 4·23 13·19
886	December	13·53	27	88	6·92	298	9·07	— 5·42 8·58

MEAN HELIOGRAPHIC LATITUDE of SUN SPOTS for the YEAR 1919.

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.		
1919	365	559	9·85	493	11·79	— 0·28	10·76

**GREENWICH
PHOTO-HELIOGRAPHIC
RESULTS.**

1919.