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GREENWICH
PHOTO-HELIOGRAPHIC RESULTS

1943

LONDON : HER MAJESTY'S STATIONERY OFFICE

1953

Price £1 0s. Od. net.

JUL 30 1954

RESULTS OF MEASURES MADE AT THE
ROYAL OBSERVATORY, GREENWICH, OF
PHOTOGRAPHS OF THE SUN
TAKEN AT GREENWICH, THE CAPE
AND KODAIKANAL IN THE YEAR
1943

UNDER THE DIRECTION OF
SIR HAROLD SPENCER JONES, Sc.D., F.R.S.
ASTRONOMER ROYAL

*Published by Order of the Board of Admiralty
in Obedience to Her Majesty's Command*

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GREENWICH PHOTO-HELIOGRAPHIC RESULTS **1943**

INTRODUCTION

§1. Positions and Areas of Sunspots and Faculae for each Day in the Year 1943.

The photographs from which these measures were made were taken at the Royal Observatories of Greenwich or of the Cape, and at the Kodaikanal Observatory, Southern India.

The photographs of the Sun obtained at Greenwich were taken with the Dallmeyer Photoheliograph, of which the original 4-inch object-glass had been replaced in 1910 by a Grubb photographic objective. The equivalent focal length of the photoheliograph with its present enlarging system (supplied in 1926 by Ross Ltd.) is 67½ feet, the diameter of the Sun's image at the secondary focus being 7½ inches at the Earth's mean distance.

The photographs from the Cape Observatory were taken under the superintendence of His Majesty's Astronomer at the Cape, Dr. J. Jackson, and those from Kodaikanal under the superintendence of the Director, Dr. A. L. Narayan. At the Cape Observatory the instrument employed was a Dallmeyer photoheliograph giving an image of the Sun about 7½ inches in diameter; at Kodaikanal a Cooke photo-visual object-glass of 6 inches aperture was used, the image of the Sun being on about the same scale.

Photographs of the Sun were available for measurement on 363 days in 1943, those finally selected for measurement being supplied by the three observatories as under:

Greenwich	..	..	..	..	..	..	..	238
Cape	..	..	..	..	..	..	..	119
Kodaikanal	..	..	..	..	..	..	..	6
Total	..	..	..	..	..	..	..	363

For the two missing days, copies of original solar negatives were kindly supplied by the U.S. Naval Observatory, Washington, D.C.

The names of the measurers of the photographs for the year 1943 are as follows:

H. Barton	N. S. C. Rhodes
P. S. Laurie	Miss C. Chapman

At the principal focus of the photoheliographs, excepting that at Kodaikanal, two spider-lines are fixed by which the zero of position-angles on the photographs can be determined. These lines are inclined at an angle of 45° to the celestial equator in the Greenwich and Cape photoheliographs; in the Kodaikanal instrument there is one wire fixed parallel to the equator.

The zero of position-angles for the photoheliographs 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 photoheliograph to this line was measured with the position-micrometer, and a small correction for the inclination of the Sun's path was then applied. Two zero photographs were usually taken each month at Greenwich and at the Cape.

At Greenwich and the Cape, 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 at right angles to each other. From this angle, when corrected for the Sun's motion in declination, the correction for the zero position of the wires can be inferred. Transits were taken usually on four or more days during each month.

The following table gives the correction for zero of position thus determined by the two independent methods for the 4-inch Greenwich and Cape photoheliographs.

Determination of Zero of Position-Angles

Month, 1943	Greenwich		Cape	
	Photographic	Visual	Photographic	Visual
January	+ 1 55	° /	+ 1 58	° /
February	+ 2 00	° /	+ 1 03	+ 1 10
March	+ 1 46	° /	+ 1 09	+ 1 11
April	+ 1 46	° /	+ 1 06	+ 1 12
May	+ 1 59	° /	+ 1 05	+ 1 10
June	+ 2 04	° /	+ 1 10	+ 1 10
July	+ 1 58	° /	+ 1 12	+ 1 08
August	+ 1 58	° /	+ 1 15	+ 1 10
September	+ 1 52	° /	+ 1 07	+ 1 10
October .. ..	...	° /	+ 1 06	+ 1 10
November	+ 1 33	° /	+ 1 04	+ 1 10
December	+ 1 32	° /	+ 1 09	+ 1 11

The zero-corrections used during the year 1943 in the reduction of the Greenwich photographs were as follows:-

January 1 to March 31 .. ..	.. ..	° /	+ 1 54
April 1 to November 2 .. ..	.. ..	° /	+ 1 57
November 3 to December 31 .. ..	.. ..	° /	+ 1 36

INTRODUCTION TO GREENWICH PHOTO-HELIOGRAPHIC RESULTS, 1943.

C v

The zero-corrections used during the year 1943 in the reduction of the Cape photographs were as follows:-

January 1 to September 30 + 1 09
October 1 to December 31 + 1 06

The zero-correction adopted for the Kodaikanal photographs ranged from $0^{\circ}.0$ to $+0^{\circ}.6$.

The measures of the photographs were made with a large position-micrometer which can be used for 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 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 eye-piece, 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 negligible. The distance of a spot or facula from the centre of the disk is read off by means of a scale and vernier to $1/250$ th 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.

The majority of the plates for 1943 were measured twice independently, the two measurers taking right and left readings respectively with the micrometer. The remaining plates were measured once, each by an experienced measurer. To the single measures of position, small corrections have been applied equivalent to half the instrumental difference between right and left scale readings applicable to the current adjustment of the position-micrometer.

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 had 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 Photoheliograph 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 disk, 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 disk 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 latitude 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 disk, longitudes west of the centre being reckoned as positive, and χ the position-angle from the Sun's axis

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

χ is found from the position-angle measured from the north point by subtracting P , the position-angle of the north end of the Sun's axis, measured eastward from the north point of the disk. The heliographic longitude of the spot is $l + L$, where L is the heliographic longitude of the centre of the disk. 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. 390 of the *Nautical Almanac* for 1943.

The inclination of the Sun's axis to the ecliptic is assumed to be $82^\circ 45'$, the longitude of the ascending node of the Sun's equator on the ecliptic for 1943.0 to be $74^\circ 57'.9$, and the period of the Sun's sidereal rotation to be 25.38 days; the meridian which passed through the ascending node on 1854 January 1, Greenwich mean noon, being taken as the zero meridian.

§2. General Catalogue of Groups of Sunspots for 1943.

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 1942, and previous years. Groups seen only once are given with a distinctive numeration in a table which follows the catalogue.

A number of "Revival" groups of spots have been tabulated in series in a table following the catalogue and table of 1-day spots. The respective groups of each series are in the same heliographic position and were seen in consecutive disk passages, partial or complete, but with definite breaks in their history between each passage. 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 Sunspots for 1943.

Ledger I. - Recurrent Groups. - This ledger supersedes the *Catalogue of Recurrent Groups of Sunspots* 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 (§1), were searched some fifteen or sixteen days earlier, to ascertain whether a spot group of similar heliographic longitude and latitude was then near the west limb of the Sun. Similarly, if any spot group when last seen was 60° or more to the west of the central meridian, then a search was made to identify with the earlier group, any spot near the Sun's east limb, about a fortnight later. When there appeared to be a case of probable identity between groups in consecutive rotations of the Sun (in some cases, partial transits of the disk), then the character of the group, its area, longitude and latitude, have been carefully compared before accepting its continuity as a recurrent group.

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.

In deriving the proper motions of spots in longitude in both ledgers, the formula adopted as representing the Sun's daily sidereal motion is

$$\xi = 14^{\circ}.37 - 2^{\circ}.60 \sin^2 \phi,$$

where ϕ is the latitude of the spot. See *Greenwich Photo-Heliographic Results, 1924* §5.

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 Sunspots and Faculae for each day, and Mean areas and Mean Heliographic Latitude of Sunspots and Faculae for each Rotation of the Sun, and for the year 1943.

Particulars relating to this section are given in the headings on pages C 50 and C 54-55.

§5. Observations of Solar Flocculi made with the Spectrohelioscope in the year 1943.

This section contains measures of radial velocity of dark hydrogen flocculi seen on the Sun's disk near sunspots. The observations were made at Greenwich with a spectrohelioscope lent by the Mount Wilson Observatory in the autumn of 1929 and set up in the south attic of the Main Building. The observations were made by Mr. Barton and Mr. Laurie.

ROYAL OBSERVATORY, GREENWICH.

**Positions and Areas of
Sunspots and Faculæ**

For each Day in the Year

1943

POSITIONS AND AREAS OF SUNSPOTS AND FACULÆ FOR EACH DAY IN THE YEAR 1943.

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 observation - Greenwich (G), Cape of Good Hope (C), Kodaikanal (K), Washington (W). (3) Date of photograph.

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 are 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 for the time of photograph the position angle of the Sun's axis from the north point; the heliographic longitude and latitude of the centre of the disk; the total areas of spots and faculae for the day.

GREENWICH PHOTO-HELIOPHOTOGRAPHIC RESULTS, 1943.

C 3

POSITIONS AND AREAS OF SUNSPOTS AND FACULAE FOR EACH DAY IN THE YEAR.

U.T.	Group No.	MEASURES		POSITION		AREA			U.T.	Group No.	MEASURES		POSITION		AREA			
		Dist.	Pos. Angle	Long.	Lat.	Umbræ	Whole Spots	Faculae			Dist.	Pos. Angle	Long.	Lat.	Umbræ	Whole Spots	Faculae	
1943 0. 281 C	14125	o	o o				153		1943		o	o o						
.980 270.1							109		14126		.877 182.1					11		
.960 280.5							190				.854 301.3					124		
.914 257.9							104				.821 92.6	320.6 - 4.4	46	214	303 c	163		
.910 248.5							143				.886 76.8					18		
.907 267.1							60				.953 171.7					14		
.875 239.3											.968 4.2							
.658 281.0		150.1 + 4.8		23	108	(759)			Jan. 8		(- 1.2) (- 3.9)	(- 15.7) (- 3.9)	(46)	(214)	(683)			
(+ 2.3)		(109.9) (- 3.1)		(23)	(108)													
1. 412 G		.957 257.4					184		8. 293 C	14126	.690 92.8	320.8 - 4.9	25	165	150 c	9		
.831 277.7		150.5 + 4.6		15	117	196 f			Jan. 9		.903 161.6							
.879 94.9						226					(- 1.6) (- 4.0)	(- 4.4) (- 4.0)	(25)	(165)	(159)			
.942 62.8						207												
(+ 1.7)		(- 95.0) (- 3.2)		(15)	(117)	(813)												
Jan. 2									9. 282 C	14126	.503 92.6	321.2 - 4.9	31	188				
									Jan. 10		(- 2.1) (- 4.1)	(351.4) (- 4.1)	(31)	(188)	(0)			
2. 397 G	14125	.927 351.5					15											
.932 276.0		150.2 + 4.4		18	86	355 f			10. 441 G		.869 297.6							
.850 60.9						204					.776 255.9					130		
.970 76.3						154					.284 93.1	319.6 - 4.9	24	116		171		
(+ 1.2)		(- 82.1) (- 3.3)		(18)	(86)	(728)			Jan. 11		(- 2.7) (- 4.2)	(336.1) (- 4.2)	(24)	(116)	(301)			
Jan. 3																		
3. 467 G	14125	.947 181.9					14		11. 099 K	14126	.892 253.9							
.990 274.7		150.1 + 4.1		21	89	228 f					.121 91.4	320.6 - 4.4	11	78	173			
.945 75.8						293					.918 92.5	(- 2.9) (- 4.3)	(11)	(78)	(293)	120		
(+ 0.7)		(- 68.0) (- 3.4)		(21)	(89)	(535)			Jan. 12		(- 2.9) (- 4.3)	(327.5) (- 4.3)						
Jan. 4																		
4. 300 C	14126	.827 74.5					132		12. 406 G	14126	.857 285.3						249	
(+ 0.3)		(- 57.0) (- 3.5)		(0)	(0)	(132)					.174 258.3	320.1 - 6.4	5	37		14		
Jan. 5											.920 173.4					8		
											.932 176.3							
									Jan. 13		(- 3.6) (- 4.4)	(310.3) (- 4.4)	(5)	(37)	(271)			
5. 299 C	14126	.967 283.8					89											
.988 93.4		322.8 - 3.9		13	54	123 c												
.917 89.1						117												
(- 0.2)		(- 43.8) (- 3.6)		(13)	(54)	(329)			13. 524 G	14126	.974 268.3							
Jan. 6											.440 266.4	321.6 - 5.6	5	16		117		
											(- 4.1) (- 4.5)	(295.5) (- 4.5)	(5)	(16)	(117)			
6. 304 C	14126	.931 93.1					5		14. 579 G		.912 73.3						79	
(- 0.7)		(- 30.6) (- 3.7)		(5)	(57)	(174)					.989 96.1					141		
Jan. 7											(- 4.6) (- 4.6)	(281.6) (- 4.6)	(0)	(0)	(220)			
7. 435 G		.930 356.1					9											
.879 210.5							14											
.879 204.5							11											
.879 193.7							16		15. 296 C		.890 271.8							
											.778 265.9							

Group 14126. Jan. 6 - 14. A regular spot followed by a few small companions, undergoing changes after January 12.

POSITIONS AND AREAS OF SUNSPOTS AND FACULÆ FOR EACH DAY IN THE YEAR.

U.T.	Group No.	MEASURES		POSITION		AREA			U.T.	Group No.	MEASURES		POSITION		AREA		
		Dist.	Pos. Angle	Long.	Lat.	Umbras	Whole Spots	Faculae			Dist.	Pos. Angle	Long.	Lat.	Umbras	Whole Spots	Faculae
1943	1195a 14127	.874	63.6	215.8	+20.2	0	15	119 c	1943 23.468 G	14131 14129 14130	.960	269.0	172.7 + 4.1	5	22	171 151 145	
		.942	96.3	201.6	-7.5	6	25	146 c			.868	245.0					
Jan. 16	14127	(-5.0)	(272.2)	(-4.7)		(6)	(40)	(452)	14131 14129 14130	24.294 C	.808	287.1	172.7 + 4.1	5	22	171 151 145	
											.217	319.2					
16.296	C 14127	.860	266.2	198.1	-10.3	0	8	192	Jan. 24	14131 14129 14130	.266	46.6	153.5 + 5.2	5	8	120	
		.873	99.1			0	8	128 p			.582	61.3					
Jan. 17	14127	.926	83.0	198.0	(-4.8)	136			24.294 C	14131 14129 14130	.935	75.6	133.3 + 11.5	5	17	120	
		.931	97.2			197					(-8.7)	(164.6)	(-5.4)	(15)	(47)	(587)	
17.301	C 14128	.944	265.9	176.7	-7.8	5	44	212	Jan. 25	14131 14129 14130	.808	262.1	173.2 + 4.6	5	32	66	
		.933	96.5			146 c					.376	297.1					
Jan. 18	14128	(-5.9)	(245.8)	(-4.9)		(5)	(44)	(358)	24.294 C	14131 14129 14130	.187	1.7	153.4 + 5.2	2	5	129	
											.444	50.9					
18.297	C 14128	.982	191.7	173.8	-8.9	16			25.443 G	14131	.953	260.1	174.9 + 5.0	21	73	178	
		.978	263.7			108					.615	285.6					
Jan. 19	14129	.855	97.4	153.7	+4.9	14	92	198 c	Jan. 26	14131	.830	70.9	138.6 (-5.6)	(21)	(73)	(351)	
		.984	84.1			0	22	83 c			(-9.6)	(138.6)					
19.471	G 14128	.355	144.1	153.0	-21.6	1	3		26.461 G	14131	.953	260.4	178.0 + 5.6	15	73	282	
		.667	97.2			18	72	78 p			.943	271.2					
Jan. 20	14129	.907	82.0	153.0	+5.0	7	18	160 c	26.461 G	14131	.869	254.9	(125.2) (-5.7)	(15)	(73)	(960)	
		(-6.9)	(217.2)			(26)	(93)	(238)			.824	265.5					
20.413	G 14128	.513	99.6	153.4	-9.4	9	25		Jan. 27	14131	.811	281.2	178.0 + 5.6	15	73	175 c	
		.794	79.5			7	12	108 c			(-10.0)	(204.8)					
Jan. 21	14130	.965	76.8	131.7	+11.2	11	53	363 f	27.584 C	14131	.927	265.5	178.7 + 5.6	11	53	220	
		(-7.3)	(204.8)			(27)	(90)	(471)			.936	278.3					
21.401	G 14128	.301	103.2	132.9	-9.0	6	30		27.584 C	14131	.966	262.7	178.7 + 5.6	(11)	(53)	(415)	
		.640	75.9			8	23				.842	277.8					
Jan. 22	14130	.875	74.4	191.8	+10.9	9	60	223 f	28.406 G	14131	.983	276.2	178.2 + 5.0	11	29	331	
		(-7.8)	(-5.3)			(23)	(113)	(223)			.978	92.0					
22.609	G 14128	.878	270.0	174.7	-8.2	135			Jan. 29	14132	.966	262.7	21.6 - 3.2	5	9	230 f	
		.054	156.6			1	4				.983	276.2					
Jan. 23	14129	.427	65.7	153.0	+5.1	2	21		29.442 G	14132	.939	277.3					
		.723	68.6			4	28				.786	289.2					
	14130	.821	61.1	174.7	+11.4	75			Jan. 30	14132	.914	91.9	19.8 - 4.1	(0)	(9)	358 c	
		.859	70.6			105					(-11.3)	(85.9)					
		(-8.3)	(-5.4)			(7)	(53)	(315)			(-11.3)	(175.9)					

Group 14127. Jan. 16 - 17. A pair on January 16; a single spot on January 17.

Group 14128. Jan. 18 - 23. A small spot with a couple of distant satellites on January 20.

Group 14129. Jan. 19 - 25. Return or revival of Group 14125. A small steady spot.

Group 14130. Jan. 21 - 25. A single small spot.

Group 14131. Jan. 24 - 29. A small spot with one or two companions on January 25 - 27.

Group 14132. Jan. 29-Feb. 4. Usually, one or two tiny spots; others form a stream on February 3.

GREENWICH PHOTO-HELIOPHOTOGRAPHIC RESULTS, 1943.

C 5

POSITIONS AND AREAS OF SUNSPOTS AND FACULAE FOR EACH DAY IN THE YEAR.

U.T.	Group No.	MEASURES		POSITION		AREA			U.T.	Group No.	MEASURES		POSITION		AREA			
		Dist.	Pos. Angle	Long.	Lat.	Umbræ	Whole Spots	Faculae			Dist.	Pos. Angle	Long.	Lat.	Umbræ	Whole Spots	Faculae	
1943 30.375 C	14132	.970	275.9	o	o		170		1943 38.354 C	1196b	.832	253.4	o	o		160		
Jan. 31		.847	290.3				223			.811	89.3	274.5	- 3.3	2	32	105 c		
		.782	90.7	22.3	- 4.2	3	14	169 c	Feb. 8	(-14.8)	(328.6)	(- 6.5)	(2)	(32)	(265)			
		(-11.7)	(73.7)(- 6.0)	(3)	(14)	(562)												
31.439 G	14132	.969	284.6				302		39.352 C	1196c	.900	268.9	349.0	- 4.0	4	10	263	
		.883	291.2				114			14135	.554	272.7	283.5	+ 6.0	39	224		
Feb. 1		.594	86.7	23.4	- 3.0	4	15	(416)	14136	.566	69.2	280.9	- 2.5	10	38			
		(-12.1)	(59.7)(- 6.1)	(4)	(15)	(416)			Feb. 9	.572	84.8	(315.5)	(- 6.6)	(53)	(272)	(263)		
32.435 G	14132	.973	184.1				9		40.434 G	14135	.943	266.2	284.1	+ 6.3	132	766	145	
		.970	287.4				218			14136	.366	53.4	281.4	- 2.1	7	33		
		.968	198.8				14		Feb. 10	.347	77.9	(301.2)	(- 6.6)	(139)	(799)	(412)		
		.416	86.7	22.1	- 4.2	4	18			.933	87.3							
		.852	7.4				10											
Feb. 2		.904	91.2				151		41.508 G	14135	.230	17.2	283.2	+ 5.9	196	953		
		.915	8.0				9			14136	.116	50.8	282.0	- 2.5	8	23		
		.976	95.0				243		Feb. 11	.948	80.9	(287.1)	(- 6.7)	(204)	(976)	(370)		
		(-12.5)	(46.6)(- 6.1)	(4)	(18)	(654)				(-16.0)								
33.402 G	14133	.318	319.9	45.7	+ 8.0	6	27		42.478 G	14135	.281	321.4	284.4	+ 6.0	139	821		
	14132	.226	86.1	20.8	- 5.2	11	49			.926	99.7	(-16.3)	(274.3)	(- 6.7)	(139)	(821)	143	
Feb. 3	14134	.898	91.2	329.9	- 3.8	0	8	116 c	Feb. 12									
		(-12.9)	(33.8)(- 6.2)	(17)	(84)	(116)												
34.395 G	14133	.483	298.6	45.9	+ 7.7	6	17		43.361 G	.929	280.2				161			
	14132	.024	34.6	19.9	- 5.2	0	11			.906	266.3				307			
Feb. 4	14134	.741	87.3	333.1	- 2.2	1	7	94 c		.422	299.5	284.3	+ 5.6	125	737			
		(-13.3)	(20.7)(- 6.3)	(7)	(35)	(94)				.813	98.8				93			
35.294 C	1195c	.827	291.0	61.3	+13.4	0	30	99 c		.881	107.9				103			
		.928	71.9	117						.907	89.3				103			
Feb. 5		(-13.7)	(8.9)(- 6.3)	(0)	(30)	(216)				.929	81.0				146			
										.942	101.0				144			
										.954	113.4				161			
										.974	96.3				141			
										(-16.7)	(262.7)	(- 6.8)			(125)	(737)	(1359)	
36.299 C		.953	261.2				103		44.307 C	.959	266.5				176			
		.928	98.4				112			.586	290.0	283.7	+ 5.9	119	588			
Feb. 6		(-14.0)	(355.7)(- 6.4)	(0)	(0)	(215)				.867	91.4	190.0	- 4.6	2	13	117 c		
										.858	105.6				122			
37.474 G	1196a	.944	280.8	272.5	+ 9.6	0	10	130		.933	82.4				129			
		.937	77.2	(340.2)(- 6.4)	(0)	(10)	228 c			.938	115.2				246			
Feb. 7		(-14.5)					(358)		Feb. 14	.943	96.3	(-17.0)	(250.2)	(- 6.8)	(121)	(601)	(1210)	

Group 14133. Feb. 3 - 4. A tiny cluster.

Group 14134. Feb. 3 - 4. A single small spot.

Group 14135. Feb. 9 - 18. A large stream with abrupt development. The leader is a stable regular spot; the follower is complex and divides later into two spots.

Group 14136. Feb. 9 - 11. A small spot.

GREENWICH PHOTO-HELIOPHOTOGRAPHIC RESULTS, 1943.

POSITIONS AND AREAS OF SUNSPOTS AND FACULÆ FOR EACH DAY IN THE YEAR.

U.T.	Group No.	MEASURES		POSITION		AREA			U.T.	Group No.	MEASURES		POSITION		AREA		
		Pos. Dist.	Angle	Long.	Lat.	Umbrae	Whole Spots	Faculae			Pos. Dist.	Angle	Long.	Lat.	Umbrae	Whole Spots	Faculae
1943 45.397 G	14135	.770	282.2	284.8	+ 4.9	97	672	340 c	1943 52.305 C	14140	.902	263.2	o	o	223		
Feb. 15		.831	116.4				97			14137	.291	314.7	156.8	+ 4.8	6	31	
		.845	95.6				101			14139	.268	19.6	139.7	+ 7.5	4	15	
		.958	95.3	(-17.4)	(235.9)(- 6.8)	(97)	(672)	(688)		14138	.679	67.4	105.6	+ 9.6	7	26	
									Feb. 22		.770	71.8	97.3	+ 9.1	102	626	359 c
											(-19.6)	(144.9)(- 7.1)	(119)	(698)	(582)		
46.425 G	14135	.962	189.3				20									180	
		.843	294.8				201									211	
		.824	271.2	285.3	+ 4.8	105	626	621 c	53.350 C		.966	260.7					137
		.900	278.8				115									153	
		.902	91.6				125										
		.916	78.9				402										
Feb. 16		.924	23.1	(-17.7)	(222.3)(- 6.9)	(105)	(626)	(1493)		14140	.499	293.8	158.3	+ 5.3	14	59	
										14139	.490	55.8	107.0	+ 9.4	5	19	
										14138	.605	64.7	97.6	+ 9.0	134	943	
									Feb. 23		(-19.9)	(131.1)(- 7.1)	(153)	(1021)	(681)		
47.479 G	14135	.981	276.0	286.4	+ 4.5	97	457	695 c									
		.815	76.2				187									185	
Feb. 17			(-18.0)	(208.5)(- 6.9)	(97)	(457)	(882)		54.367 G		.956	280.3					152
																191	
48.437 G	14135	.994	278.3	278.2	+ 7.4	31	88	225 c		14140	.686	286.2	159.0	+ 5.6	35	208	145
	14137	.864	77.0	137.9	+ 7.5	11	37	151 c		14139	.335	34.5	106.7	+ 9.0	2	12	166 p
		.720	69.8				118			14138	.442	52.2	97.1	+ 9.0	125	900	
Feb. 18		.932	69.7	(-18.4)	(195.8)(- 7.0)	(42)	(125)	(731)			.921	175.6	(-20.2)	(117.7)(- 7.1)	(162)	(1120)	(850)
									Feb. 24							11	
49.411 G	14137	.980	183.0				17										174
		.746	72.7	137.2	+ 8.0	21	51	164 c	55.439 G	14140	.950	259.7					276 c
Feb. 19		.913	66.7	(-18.7)	(183.0)(- 7.0)	(21)	(51)	(379)		14141	.842	281.8	159.3	+ 5.9	27	155	
										14139	.294	319.9	114.5	+ 5.9	2	11	
										14138	.297	345.8	107.8	+ 9.4	1	6	
50.307 C	14137	.581	66.4	138.9	+ 7.5	14	75		Feb. 25	14138	.296	16.9	98.6	+ 9.2	118	762	
	14138	.970	78.6	97.0	+ 9.2	29	143	204 c			(-20.5)	(103.6)(- 7.2)	(148)	(934)	(450)		
Feb. 20			(-19.0)	(171.2)(- 7.0)	(43)	(218)	(204)										
51.294 C	1196e	.933	276.5				203		56.368 G		.826	269.6					81
	14137	.816	266.1	213.1	- 7.3	3	11	134 c		14140	.802	286.3					200
	14137	.415	53.7	138.6	+ 7.5	7	34			14141	.941	279.1	160.3	+ 6.0	25	135	361 c
	14139	.837	74.3	103.7	+ 9.0	4	19			14141	.446	298.9	114.4	+ 5.8	10	35	
Feb. 21		.903	76.3	95.7	+ 9.1	96	418 }	365 c		14138	.308	336.3	98.6	+ 9.2	172	1058	
			(-19.3)	(158.2)(- 7.1)	(110)	(482)	(702)		Feb. 26		.884	88.3	(-20.7)	(91.4)(- 7.2)	(207)	(1228)	(828)

Group 14137. Feb. 18 - 22. A pair of small spots.

Group 14138. Feb. 20-Mar. 3. A stream of notable development, in which the leader becomes a big complex spot. As follower, a number of small spots coalesce into a complex structure. From February 22 to 25, the leader is preceded by a small companion.

Group 14139. Feb. 21 - 25. A small spot in front of Group 14138.

Group 14140. Feb. 22 - 27. A small stream reaching peak area within two or three days of its origin.

Group 14141. Feb. 25-Mar. 1. One or two small spots.

GREENWICH PHOTO-HELIOPHOTOGRAPHIC RESULTS, 1943.

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POSITIONS AND AREAS OF SUNSPOTS AND FACULAE FOR EACH DAY IN THE YEAR.

U.T.	Group No.	MEASURES		POSITION		AREA			U.T.	Group No.	MEASURES		POSITION		AREA			
		Dist.	Pos. Angle	Long.	Lat.	Umbrae	Whole Spots	Faculae			Dist.	Pos. Angle	Long.	Lat.	Umbrae	Whole Spots	Faculae	
1943 57.373 G	14140	.891	283.0	o	o			148	1943 65.593 G	1197a 14142 Mar. 7	.887	273.6	o	o			113	
		.996	277.2	161.8	+ 6.4	21	69	321 c			.467	290.0	354.0	+ 2.7	0	5		
		.645	287.5	116.1	+ 5.5	4	15				.684	75.4	288.5	+ 4.5	146	827	152 f	
		.445	308.0	98.8	+ 9.1	213	1369				(-23.0)	(329.9)(-7.2)	(329.9)(-7.2)	(146)	(832)	(265)		
Feb. 27		(-21.0)	(-78.1)(-7.2)	(238)	(1453)	(469)												
58.306 C	14141	.796	282.3	117.1	+ 5.3	7	38	87 c	66.360 G Mar. 8	14142	.545	69.9	289.0	+ 4.6	180	1051		
		.601	195.3	99.1	+ 8.9	212	1892				(-23.1)	(319.8)(-7.2)	(319.8)(-7.2)	(180)	(1051)	(0)		
		(-21.2)	(65.9)(-7.2)	(219)	(1930)	(87)												
59.591 G	14141 14138	.960	293.6					162	67.401 G Mar. 9	14142	.931	190.9					20	
		.938	278.7	117.4	+ 5.6	3	6	205 c			.822	262.2					86	
		.805	287.2	99.9	+ 9.3	188	1508	249 c			.342	55.9	289.6	+ 4.1	190	1224		
		.911	82.6					106			(-23.4)	(306.0)(-7.2)	(306.0)(-7.2)	(190)	(1224)	(106)		
Mar. 1		.946	95.4					182										
		(-21.6)	(48.9)(-7.2)	(191)	(1514)	(904)												
60.310 C	14138 1196f	.977	278.8					218	68.397 G Mar. 10	14142	.205	16.6	289.5	+ 4.1	204	1265		
		.966	194.6					15			.947	81.9					142	
		.883	284.8	99.2	+ 9.4	171	1430	516 c			.948	71.4					119	
		.821	82.4	345.2	+ 2.0	2	11	78 c			.954	95.6					138	
		(-21.8)	(39.5)(-7.2)	(173)	(1441)	(827)					(-23.6)	(292.9)(-7.2)	(292.9)(-7.2)	(204)	(1265)	(399)		
Mar. 2																		
61.391 C	14138	.974	281.3	100.2	+ 9.0	122	719	827 c	69.477 C Mar. 11	14142	.282	313.6	290.5	+ 4.1	189	1238		
		(-22.0)	(25.2)(-7.2)	(122)	(719)	(827)					.947	98.4	206.8	-10.3	6	32	193 c	
											.941	79.6					118	
62.513 G	14142	.984	83.7	291.7	+ 4.8	49	192	355 c	70.375 G Mar. 12	14142 14143	.813	262.7					116	
		.951	109.9	(-22.3)	(10.4)(-7.2)	(49)	(192)	(478)			.437	295.7	290.0	+ 4.2	240	1121		
											.848	97.1	208.4	-9.8	2	7	172 c	
											.881	82.3					181	
63.490 G	14142	.946	82.1	287.7	+ 5.0	110	453	397 c			(-23.9)	(266.8)(-7.2)	(266.8)(-7.2)	(242)	(1128)	(469)		
		.917	90.7					250										
		.923	106.5	(-22.5)	(357.6)(-7.2)	(110)	(453)	(755)										
								108										
Mar. 5																		
64.094 K	14142	.885	80.5	288.6	+ 4.9	76	559	441 c	71.464 G Mar. 13	14142 14143	.646	285.8	290.9	+ 4.5	144	861		
		.869	90.9	(-22.7)	(349.6)(-7.2)	(76)	(559)	(601)			.700	97.0	207.8	-10.0	3	9	96	
											.774	76.7					250	
											.882	85.9					348	
Mar. 6											.899	98.8					214	
											.944	110.7						
											(-24.1)	(252.5)(-7.2)	(252.5)(-7.2)	(147)	(870)	(908)		

Group 14142. Mar. 4 - 16. Return of Group 14135. A large stream with its full development near the central meridian. The leader, at first a complex spot, simplifies to one of regular formation. The following part of the group remains complex.

Group 14143. Mar. 11 - 13. A pair of small spots.

POSITIONS AND AREAS OF SUNSPOTS AND FACULÆ FOR EACH DAY IN THE YEAR.

U.T.	Group No.	MEASURES		POSITION		AREA			U.T.	Group No.	MEASURES		POSITION		AREA		
		Dist.	Pos. Angle	Long.	Lat.	Umbras	Whole Spots	Faculae			Dist.	Pos. Angle	Long.	Lat.	Umbras	Whole Spots	Faculae
1943 72. 412 G Mar. 14	14142	.801	280.7	291.9	+ 4.1	137	779	246 c	1943 77. 322 C Mar. 19	14145*	.193	115.9	165.1	-11.8	0	5	
	14144	.965	80.5	166.6	+ 7.2	8	17	242 n		14145	.920	77.1	110.3	+ 8.9	21	184	1071 c
		.854	96.3					188			.934	59.3				142	
		(-24.3)	(240.0)(- 7.2)	(145)	(796)	(676)					(-25.1)	(175.3)(- 7.1)	(21)	(189)	(1213)		
73. 444 G Mar. 15		.911	265.5				180		78. 327 C Mar. 20	14145*	.124	210.4	165.7	-13.1	3	14	
	14142	.798	289.6				113			14145	.812	73.3	110.2	+ 9.1	33	182	132 f
	14144	.926	277.1	293.2	+ 3.7	133	679	923 c			.923	81.0				160	
		.868	76.1	168.3	+ 8.2	6	18	164 c			.937	69.2				175	
74. 378 G Mar. 16		.912	83.7				200		79. 337 C Mar. 21		(-25.2)	(162.0)(- 7.0)	(36)	(196)	(467)		
		(-24.5)	(226.4)(- 7.2)	(139)	(697)	(1580)										128	
		.965	345.2				8			14145*	.324	249.5	166.8	-13.1	3	12	
		.955	185.6				15			14145	.663	67.4	110.5	+ 9.2	31	186	
		.913	183.3				11			14146	.831	75.9	94.5	+ 7.6	0	12	118 c
		.906	340.2				15				.852	64.3				118	
		.861	191.8				11				(-25.3)	(148.7)(- 7.0)	(34)	(210)	(364)		
	14142	.984	274.9	293.0	+ 3.4	124	575	942 c								128	
	14144	.764	70.5	167.3	+ 9.9	2	5	82 c								128	
		.817	88.1				98			80. 415	.959	260.8				432	
75. 480 G Mar. 17		.836	174.8				6			G	.873	249.2				112	
		.847	77.2				180			14145	.485	55.8	110.6	+ 9.4	25	138	
		.887	172.0				10			14146	.664	69.4	95.8	+ 8.0	52	217	86 f
		.949	77.2				166				.869	74.6				106	
		(-24.6)	(214.1)(- 7.1)	(126)	(580)	(1544)				Mar. 22	(-25.4)	(134.5)(- 7.0)	(77)	(355)	(736)		
		.981	182.7				18			81. 468	.944	267.0				206	
		.919	187.8				9			G	.790	286.7				104	
		.909	195.2				18				.787	264.4				89	
		.873	268.2				158			14145	.329	33.2	110.1	+ 9.1	30	186	
		.868	187.6				13			14146	.494	59.2	95.3	+ 8.3	63	319	
76. 570 G Mar. 18		.845	186.5				17				.917	90.5				109	
	1197b	.984	278.8	277.9	+ 7.2	0	11	164 c		Mar. 23	(-25.6)	(120.6)(- 6.9)	(93)	(505)	(508)		
		.884	71.8				277									102	
		.972	166.7				15									179	
		(-24.8)	(199.6)(- 7.1)	(0)	(11)	(689)				82. 401	.893	264.7				86	
		.973	79.2	110.2	+ 8.7	28	234	861 c		G	.889	283.9					
		(-25.0)	(185.2)(- 7.1)	(28)	(234)	(861)					.770	279.7					
										14145	.283	351.3	110.8	+ 9.3	27	133	
										14146	.350	40.1	95.2	+ 8.7	53	344	
											(-25.7)	(108.3)(- 6.9)	(80)	(477)	(367)		

Group 14144. Mar. 14 - 16. One or two very small spots.

Group 14145. Mar. 18 - 29. Return of Group 14138. A regular spot contracting to a dot; there are occasional companions.

Group 14145*. Mar. 19 - 21. A few small spots on March 19; two spots on March 20 and 21.

Group 14146. Mar. 21 - 31. Starting with a small spot, there develops a regular spot with two or three smaller followers which have died out by March 29.

POSITIONS AND AREAS OF SUNSPOTS AND FACULAE FOR EACH DAY IN THE YEAR.

U.T.	Group No.	MEASURES		POSITION		AREA			U.T.	Group No.	MEASURES		POSITION		AREA		
		Pos. Dist.	Angle	Long.	Lat.	Umbrae	Whole Spots	Faculae			Pos. Dist.	Angle	Long.	Lat.	Umbrae	Whole Spots	Faculae
1943 83.432 G		.955	282.1	o	o		178		1943 90.390 C	14147	.045	179.8	2.8	-9.0	26	96	
	14145	.947	258.2				165		14148	14148	.921	84.4	296.6	+2.5	95	582	860 c
Mar. 25	14146	.383	313.6	110.9	+8.6	53	215		Apr. 1		(-26.2)	(-2.9)	(-6.5)	(121)	(678)	(860)	
		.270	357.6	95.4	+8.7	45	232										
				(-25.8)	(-94.7)(-6.9)	(98)	(447)	(343)									
84.342 C	14145	.536	298.7	111.0	+8.9	24	141		91.594 G	14149	.839	284.4	42.1	+8.3	4	12	91 c
	14146	.344	321.0	95.3	+8.8	50	271		14147		.296	261.1	4.2	-8.8	19	114	
Mar. 26		.865	125.8				74		14148		.776	81.6	297.1	+2.3	116	527	560 c
		.976	173.2				14				(-26.3)	(347.1)(-6.5)	(139)	(653)	(651)		
				(-25.9)	(-82.7)(-6.8)	(74)	(412)	(88)									
85.339 C		.903	181.3				7		02.354 C	14149	.917	283.1	41.6	+9.3	2	11	145 c
	14145	.848	282.9				97		14147		.474	262.6	5.3	-9.1	18	100	
Mar. 27	14146	.696	290.1	110.8	+8.7	10	76	228 p	14148		.658	78.7	296.9	+2.5	74	473	150 f
		.513	299.7	96.3	+8.6	42	194				.816	69.1				115	
Mar. 28				(-25.9)	(-69.6)(-6.8)	(52)	(270)	(332)	Apr. 3		(-26.3)	(337.0)(-6.4)	(94)	(584)	(410)		
	14145	.848	286.6				296		93.410 G	14149	.986	279.9	42.1	+8.6	0	12	200 c
Mar. 28	14146	.850	286.6	112.2	+10.3	8	22		14147		.680	263.3	6.1	-9.2	20	74	
		.682	290.4	96.6	+8.6	33	169	146 p	14148		.466	71.9	296.9	+2.6	97	525	
Mar. 28				(-26.0)	(-56.5)(-6.7)	(41)	(191)	(442)	Apr. 4		(-26.3)	(323.1)(-6.3)	(117)	(611)	(200)		
87.357 G		.986	273.5				324		94.360 G	14147	.827	263.5	6.7	-8.9	16	48	271 c
	14145	.947	281.9	112.5	+9.0	3	6	518 c	14148		.281	57.4	297.0	+2.6	100	513	
Mar. 29	14146	.831	284.8	97.1	+8.3	37	174	337 c			(-26.4)	(310.6)(-6.3)	(116)	(561)	(271)		
	14147	.676	96.6	0.3	-9.4	21	115		95.362 G								131
		.953	74.1				145		14147		.914	249.4					99
Mar. 29				(-26.1)	(-43.0)(-6.7)	(61)	(295)	(1324)	14148		.824	274.8					442 c
	14145						134				.936	262.8	7.1	-8.9	13	43	
Mar. 30	14146	.953	272.7				25		14147		.155	1.8	297.0	+2.6	100	536	
	14147	.943	190.7				157		14148		(-26.4)	(297.3)(-6.2)	(113)	(579)	(672)		
Mar. 30		.936	288.7				8										165
	14146	.930	181.9				38	189	364 c	96.509 G		.960	261.8				18
Mar. 30	14147	.933	281.8	97.2	+8.5	23	132		14148		.936	181.1					12
		.476	97.5	1.6	-9.3	(61)	(321)	(688)			.890	184.2					
Mar. 31				(-26.1)	(-30.0)(-6.6)				Apr. 7		.294	300.4	296.8	+2.5	100	568	
	14146	.950	286.6				163		14148		(-26.4)	(282.2)(-6.2)	(100)	(568)	(195)		
Mar. 31	14146	.991	279.6	97.7	+8.5	32	141	217 c	97.420 G		.905	270.2					155
	14147	.277	101.2	0.9	-9.4	21	96		14148		.472	286.5	297.0	+2.2	78	442	
Mar. 31	14148	.989	86.3	296.0	+2.6	105	558	207 p			(-26.4)	(270.2)(-6.1)	(78)	(442)	(155)		
				(-26.2)	(-16.8)(-6.6)	(158)	(795)	(587)	Apr. 8								

Group 14147. Mar. 29-Apr. 6. A stream of small spots in which the leader is the most stable member and alone remains after April 4.

Group 14148. Mar. 31-Apr. 12. Return of Group 14142: 3rd appearance. A large stable regular spot.

Group 14149. Apr. 2 - 4. One or two tiny spots.

POSITIONS AND AREAS OF SUNSPOTS AND FACULAE FOR EACH DAY IN THE YEAR.

U.T.	Group No.	MEASURES		POSITION		AREA			U.T.	Group No.	MEASURES		POSITION		AREA				
		Dist.	Pos. Angle	Long.	Lat.	Umbrae	Whole Spots	Faculae			Dist.	Pos. Angle	Long.	Lat.	Umbrae	Whole Spots	Faculae		
1943 98.412 C Apr. 9	14148 14150	.658 .968	280.6 101.0 (-26.4)	297.3 + 2.3 181.0 -12.1 (257.1)(-6.0)	65 25 (90)	449 203 (652)	191 c (191)		1943 106.332 G	14150 14151	.944 .936 .564 .818 .931 .938 .948 .952	183.1 280.4 256.9 73.9 88.8 64.0 173.5 176.2 (-26.0)	186.5 -11.8 99.8 + 9.8 (152.5)(-5.4)	67 92 (159)	314 395 (709)	24 221 246 c 304 242 11 14 251 181 184 c 212 297 319 283 c 182 136 362 759 c 405 291 73 160 101 91 101 114 399 399			
99.648 W	14148 14150	.919 .826 .843 .857 .892	276.1 285.6 276.2 100.7 74.8 (-26.4)	297.6 + 1.9 181.6 -12.2 (240.8)(-5.9)	45 26 (71)	316 213 (529)	249 c 461 c (2055)		Apr. 17										
100.333 C	14148 14150	.873 .827 .914 .765 .833 .894 .950	283.4 295.4 274.7 100.8 72.7 175.3 78.3 (-26.3)	297.1 + 1.8 181.7 -12.0 (231.7)(-5.9)	68 69 (137)	337 434 (771)	293 c 265 c 107 17 103 (1143)		107.318 G	14150 14151	.744 .675 .833 .935	259.4 68.8 61.6 70.6 (-26.0)	187.5 -11.4 99.9 + 10.0 (139.5)(-5.3)	51 160 (211)	230 617 (847)	184 c 212 297 182 319 283 c 182 136 362 759 c 405 291 73 160 101 91 101 114 399 399			
Apr. 11									Apr. 18										
101.337 C	14148 14150	.956 .894 .984 .589	281.7 290.7 273.2 102.9 (-26.3)	297.7 + 2.1 182.7 -12.2 (218.5)(-5.8)	41 76 (117)	296 500 (796)	159 c (596)		108.323 G	14150 14151	.874 .503 .977	259.7 60.7 79.5 (-25.9)	187.3 -11.5 99.9 + 9.4 (126.2)(-5.3)	30 115 (145)	186 650 (836)	283 c 182 182 319 283 c 182 136 362 759 c 405 291 73 160 101 91 101 114 399 399			
Apr. 12									Apr. 19										
102.361 G	14150	.387 .871	108.9 73.3 (-26.3)	183.1 -12.5 (205.0)(-5.7)	98 (98)	501 (501)	147 (147)		109.391 G	14150 14151	.930 .917 .971 .313 .944	284.4 272.4 259.5 37.5 76.9 (-25.8)	188.7 -11.4 101.0 + 9.2 (112.1)(-5.2)	18 140 (158)	133 792 (925)	759 c 405 136 362 160 101 91 101 114 399 399			
Apr. 13									Apr. 20										
103.340 C	14150	.190 .942	129.5 76.0 (-26.2)	183.4 -12.6 (192.0)(-5.7)	90 (90)	428 (428)	431 (431)		110.345 G	14151	.969 .953 .923 .922 .253 .788 .832 .956	256.5 265.4 281.5 271.9 352.8 97.4 75.0 92.2 (-25.7)	101.3 + 9.4 (99.5)(-5.1)	200 (200)	1018 (1018)	160 101 91 101 114 399 399			
Apr. 14									Apr. 21										
104.382 G	14150 14151	.156 .977 .859	223.2 81.2 72.6 (-26.2)	184.5 -12.1 101.7 + 7.4 (178.3)(-5.6)	65 21 (86)	383 104 (487)	193 c 243 (436)		14151	.253 .788 .832 .956	271.9 97.4 75.0 92.2 (-25.7)	101.3 + 9.4 (99.5)(-5.1)	200 (200)	1018 (1018)	101 91 101 114 399 399				
Apr. 15									Apr. 22										
105.398 G	14150 14151	.349 .910 .846 .947	249.9 78.8 85.3 69.6 (-26.1)	184.4 -12.1 100.9 + 7.8 (164.9)(-5.5)	66 18 (84)	341 95 (436)	293 c 129 145 (567)		111.572 G	14151	.400 .944	307.8 100.8 (-25.6)	101.9 + 9.4 (83.3)(-5.0)	264 (264)	1493 (1493)	160 101 91 101 114 399 399			

Group 14150. Apr. 9 - 20. A stream consisting of a leading regular spot and a cluster of small spots as follower that has gone by April 18.

Group 14151. Apr. 15 - 27. Return of Group 14146. A notable stream rising to peak area on the seventh day from its origin, very close to a small existing regular spot from the previous rotation. The new group develops vigorously from a stream-formation of two leading regular spots with following clusters. By April 22 the group consists of a single big regular spot followed by a string of complex spots that begin to die out rapidly after April 24.

GREENWICH PHOTO-HELIOPHOTOGRAPHIC RESULTS, 1943.

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POSITIONS AND AREAS OF SUNSPOTS AND FACULÆ FOR EACH DAY IN THE YEAR.

U.T.	Group No.	MEASURES		POSITION		AREA			U.T.	Group No.	MEASURES		POSITION		AREA		
		Dist.	Pos. Angle	Long.	Lat.	Umbrae	Whole Spots	Faculae			Dist.	Pos. Angle	Long.	Lat.	Umbrae	Whole Spots	Faculae
1943 112.369 C	14151	.792	284.1	o	o o			175	1943 118.345 G	.906	291.7	o	o o			138	
Apr. 23		.539	296.7	101.9	+ 9.7	228	1818			.816	281.7					224	
		.868	98.5	(-25.5)	(72.8)(- 4.9)	(228)	(1818)	(323)		.809	86.3	300.2	+ 0.5	35	207	199 c	
										.877	75.1					419	
										.935	90.1	(-24.7)	(353.8) (- 4.3)	(35)	(207)	471 (1451)	
113.315 G	14151	.909	282.9				322		Apr. 29								
		.874	295.2				143										
		.783	274.0				154										
Apr. 24		.714	289.2	103.3	+10.0	252	1655	229 c	119.368 C	.648	84.1	300.3	+ 0.6	30	171	164	
		.800	104.3	(-25.4)	(60.3)(- 4.8)	(252)	(1655)	(1055)		.838	89.9	(-24.5)	(340.3)(- 4.2)	(30)	(171)	(164)	
114.394 G	14151	.967	283.2				415		120.312 G	.917	182.9	300.4	+ 0.9	28	180	11	
		.929	261.9				197			.469	80.3					299	
		.921	297.6				216		May 1	.883	92.3					17	
		.912	272.1				241			.909	176.0	(-24.3)	(327.8)(- 4.1)	(28)	(180)	(327)	
		.773	273.2				97										
Apr. 25		.860	284.5	103.5	+ 9.9	314	1785	442 c	121.360 C	.245	70.1	300.7	+ 0.9	28	159		
		.924	92.5	(-25.2)	(46.0)(- 4.7)	(314)	(1785)	(1841)			(-24.1)	(314.0)(- 4.0)	(28)	(159)	(0)		
115.452 G	14151	.974	272.9				221		122.525 G	.936	260.3					318	
		.923	357.1				12		1199a	.192	296.7	308.4	+ 1.1	1	5		
		.957	281.9	103.7	+ 9.9	208	1394	911 c	14152	.097	339.0	300.6	+ 1.3	34	164		
		.864	85.5				201			.921	81.9					288	
		.921	98.2				178			.934	69.0	(-23.9)	(298.6)(- 3.9)	(35)	(169)	157 (763)	
Apr. 26		.940	169.6				7										
		.970	83.7	(-25.1)	(32.0)(- 4.6)	(208)	(1394)	(1795)	123.326 G	.234	291.9	300.5	+ 1.3	38	182		
										.799	85.2					123	
116.403 C	14151	.970	282.8	93.9	+11.2	8	44	313 c		.854	100.8					129	
	14152	.983	88.9	300.4	+ 0.2	29	234	152 c		.945	81.4	(-23.8)	(288.0)(- 3.8)	(38)	(182)	189 (441)	
Apr. 27		.884	83.1	(-24.9)	(19.5)(- 4.5)	(37)	(278)	(586)									
117.358 G	14152	.920	87.6	300.3	+ 0.5	29	183	608 c	124.422 G	.943	282.1					151	
		.809	76.6				212			.941	291.1					133	
		.926	101.8				155			.864	300.7					168	
		.950	76.8	(-24.8)	(6.9)(- 4.4)	(29)	(183)	(1218)	14152	.465	279.9	300.7	+ 1.3	32	149	100 (686)	
										.863	109.3					134	
										.942	80.6	(-23.5)	(273.5)(- 3.7)	(32)	(149)		

Group 14152. Apr. 27-May 9. Return of Group 14148: 4th appearance. A regular spot of remarkable stability, drifting very slowly from the Sun's equator.

POSITIONS AND AREAS OF SUNSPOTS AND FACULÆ FOR EACH DAY IN THE YEAR.

U.T.	Group No.	MEASURES		POSITION		AREA			U.T.	Group No.	MEASURES		POSITION		AREA														
		Dist.	Pos. Angle	Long.	Lat.	Umbræ	Whole Spots	Faculæ			Dist.	Pos. Angle	Long.	Lat.	Umbræ	Whole Spots	Faculæ												
May 6	14152	.948	280.6	300.4 + 1.5	(-23.3)	(259.7) (- 3.6)	(28)	137	1943 129.348 C	14153 May 10	.968 .528 .977 (-22.5)	266.5 267.1 80.3 (208.4) (- 3.2)	240.2 - 4.2 (208.4) (- 3.2)	(2)	8	337 212 (549)													
		.942	267.6																										
		.935	292.1																										
		.832	272.7																										
		.658	276.4																										
		.862	91.0																										
		.933	116.8																										
		.947	102.8																										
		(-23.3)		(259.7) (- 3.6)		(28)		(137)		(1340)		.961 .952 .942 .820 .793		296.4 267.6 279.0 287.6 264.6		182 330 160 99 108													
		(-23.3)		(259.7) (- 3.6)		(28)		(137)		(1340)		.993 .879 .924 .934 .952		80.9 84.1 100.2 129.8 69.2		113.0 + 8.6		20 94		334 p 166 161 172 184									
May 7	14152	.941	276.1	300.7 + 1.4	(-23.1)	(248.2) (- 3.5)	(32)	139	1943 130.334 G	14153 May 10	.993 .879 .924 .934 .952	(-22.2)	(195.3) (- 3.1)	(20)	(94)	(1896)													
		.778	289.7																										
		.798	274.5																										
		.917	95.6																										
		.933	74.9																										
		.933	117.1																										
		.936	106.1																										
		(-23.1)		(248.2) (- 3.5)		(32)		(139)		(1473)		.822 .958		267.1 81.0		109.5 + 7.7		99 520		567 c 267									
		(-23.1)		(248.2) (- 3.5)		(32)		(139)		(1473)		.787 .908		77.1 65.7		(-22.0)		(181.9) (- 3.0)		(99) (520)		(1077)							
		(-22.9)		(234.0) (- 3.4)		(32)		(151)		(1572)		.943 .926		264.6 281.0		106.9 + 7.5		73 406		1130 c 91									
May 8	14152	.909	286.2	300.8 + 1.8	(-22.9)	(234.0) (- 3.4)	(32)	151	1943 131.354 C	14153 May 11	.887 .780 .933 .934 .941	(-21.7)	(168.5) (- 2.9)	(73)	(406)	(2060)													
		.784	268.1																										
		.922	273.4																										
		.835	105.1																										
		.862	83.5																										
		.946	97.5																										
		.950	110.7																										
		(-22.9)		(234.0) (- 3.4)		(32)		(151)		(1572)		.887 .780 .933 .934 .941		80.0 67.6 57.4 13.3 65.5		106.9 + 7.5		73 406		1130 c 91 141 15 133									
		(-22.9)		(234.0) (- 3.4)		(32)		(151)		(1572)		.754 .845 .903 .921 .964		77.6 77.0 68.1 100.8 109.1		107.5 + 7.5 98.9 + 9.4		79 0		400 21		274 f 145 c							
		(-22.9)		(234.0) (- 3.4)		(32)		(151)		(1572)		(-21.4)		(155.3) (- 2.7)		(79)		(421)		(1337)									

Group 14153. May 9 - 10. A stream of tiny spots on May 9; a single spot on May 10.

Group 14154. May 11 - 23. Return of Group 14151: 3rd appearance. A large regular spot in decline. There are small companions both p and f.

Group 14155. May 14 - 24. With Group 14154, a return of Group 14151. A faint cluster of small spots nf Group 14154.

POSITIONS AND AREAS OF SUNSPOTS AND FACULÆ FOR EACH DAY IN THE YEAR.

U.T.	Group No.	MEASURES		POSITION		AREA			U.T.	Group No.	MEASURES		POSITION		AREA				
		Pos. Dist.	Angle	Long.	Lat.	Umbræ	Whole Spots	Faculæ			Pos. Dist.	Angle	Long.	Lat.	Umbræ	Whole Spots	Faculæ		
1943		o	o	o	o				1943	14154	o	o	o	o	61	332			
134.349	G	.818	261.5					176		14155	.552	285.9	108.6	+ 6.9	4	14			
	14154	.588	73.8	107.7	+ 7.2	75	371				.450	296.2	100.5	+ 9.5			180		
	14155	.684	75.6	100.4	+ 7.8	3	31				.871	104.7					177		
		.754	69.5					260			.900	115.8					13		
May 15		(-21.2)	(142.2)	(- 2.6)		(78)	(402)	(436)				.907	172.9	(-19.7)	(76.4)	(- 2.1)	(65)	(380)	(1145)
135.359	G	.877	257.9					404		140.328	.934	281.6						330	
	14156	.852	284.3					238		G	.922	289.1						175	
	14154	.787	216.8	167.4	-40.9	18	56	175			.856	273.2						99	
	14155	.386	63.8	108.5	+ 7.5	66	334				.844	293.4						116	
		.522	67.5	99.8	+ 9.4	3	38				14154	.723	281.6	108.5	+ 7.0	48	274	245 c	
		.880	9.1					15		14155	.640	286.4	101.5	+ 8.9	3	16			
May 16		.934	78.6					268			.863	79.6	(-19.4)	(63.2)	(- 1.9)	(51)	(290)	(1066)	
136.329	G	.954	285.3					187		141.360	.966	286.7						281	
	14156	.925	257.2					519		G	.842	290.5						272	
	14154	.871	223.4	168.1	-40.7	54	245	266 c			14154	.863	279.2	108.4	+ 7.0	38	232	426 c	
	14155	.214	38.2	108.5	+ 7.2	52	294				14155	.772	283.8	98.8	+ 9.4	2	17	72 c	
May 17		.356	50.8	99.9	+10.7	5	23				(-19.1)	(49.5)	(- 1.8)	(40)	(249)	(1051)			
		.950	172.2					22									101		
		(-20.6)	(116.1)	(- 2.4)		(111)	(562)	(994)											
137.335	G	.942	256.5					369		142.353	.967	289.3						220	
	14156	.938	227.2	167.5	-40.5	87	461	428 c		G	.875	292.4						282	
	14154	.195	329.7	108.5	+ 7.4	55	310				14154	.957	277.9	108.9	+ 7.0	31	190	570 c	
	14155	.213	12.7	100.1	+ 9.7	5	24				14155	.914	282.1	101.4	+10.3	2	20	269 c	
May 18		(-20.3)	(102.8)	(- 2.3)		(147)	(795)	(797)				.921	97.1					290	
											.959	85.3	(-18.8)	(36.4)	(- 1.7)	(33)	(210)	(1810)	
138.327	G	.981	228.7	166.4	-40.8	175	587	477 c		143.543	.960	294.1						201	
	14156	.354	297.4	108.0	+ 7.2	75	328			G	.952	271.0						184	
	14154	.274	314.4	101.0	+ 8.9	5	20				14155	.995	281.1	104.1	+10.8	0	43	357 c	
May 19		(-20.1)	(89.6)	(- 2.2)		(255)	(935)	(477)			14157	.967	85.8	305.8	+ 3.7	27	113	442 c	
											.920	95.1	(-18.4)	(20.6)	(- 1.6)	(27)	(156)	(1328)	
139.330	G	.977	186.4					21		May 24	.925	267.0						144	
		.967	195.4					14			.906	85.3	305.4	+ 3.6		29	102	524 f	
		.964	190.8					17			.787	84.8						203	
		.935	192.1					10		144.347	.944	73.4						188	
		.922	260.5					205		G	(-18.1)	(10.0)	(- 1.5)	(29)	(102)	(1152)			
		.913	189.3					6											
		.883	285.9					287											
	14156	.995	228.5	160.6	-41.5	0	34	206 c		May 25									

Group 14156. May 16 - 20. A stream of small composite spots appearing suddenly in high southern latitude - the first of the new cycle spots.

Group 14157. May 24-June 3. Return of Group 14152: 5th appearance. A pair of decreasing spots probably representing the last phase of the regular spot of remarkable stability of the previous rotation. The following nucleus of the pair alone remains on June 2. The latitude-drift from the first appearance of the group should be noted..

GREENWICH PHOTO-HELIOPHOTOGRAPHIC RESULTS, 1943.

POSITIONS AND AREAS OF SUNSPOTS AND FACULAE FOR EACH DAY IN THE YEAR.

U.T.	Group No.	MEASURES		POSITION		AREA			U.T.	Group No.	MEASURES		POSITION		AREA		
		Dist.	Pos. Angle	Long.	Lat.	Umbræ	Whole Spots	Faculae			Dist.	Pos. Angle	Long.	Lat.	Umbræ	Whole Spots	Faculae
1943 145.324 G	14157	.962	197.8	o	o		13		1943	1200a	.342	282.7	296.8	+ 3.7	3	7	
		.925	285.0				342				.766	73.5				162	
		.786	83.8	305.7	+ 4.0	22	99	282 f			.937	94.5	(-15.7)	(277.4)(-0.6)	(5)	(17)	233 (708)
		.807	111.3				100										
		.880	76.2				203										
		.919	95.6				226										
		.928	67.0				250										
		.959	14.8				19										
May 26			(-17.8)	(357.1)(-1.4)		(22)	(99)	(1435)								319	
																188	
146.360 G	14157	.944	253.1	305.7	+ 3.8	18	79	248	June 1	152.341 G	.886	270.3					
		.616	82.1								.793	281.3					
		.786	81.9				102				.641	275.1	303.8	+ 2.8	1	5	
		.788	68.6				121				.918	104.8				244	
		.823	96.1				246				.951	67.7	(-15.3)	(264.2)(-0.5)	(1)	(5)	238 (989)
		.923	78.5				183										
		.939	64.7				230										
		.955	91.7				183										
May 27			(-17.5)	(343.3)(-1.2)		(18)	(79)	(1313)	June 2								
147.338 G	14157	.974	196.5				46			153.378 G	.924	280.1					
		.936	354.6				35				.810	274.0	304.3	+ 3.0	0	8	
		.900	281.1				170					(-14.9)	(250.5)(-0.4)	(0)	(8)	150 c (599)	
		.887	268.6				159										
		.424	76.6	306.1	+ 4.6	17	49		June 3								
May 28			(-17.1)	(330.4)(-1.1)		(17)	(49)	(410)									
148.313 G	14157	.925	254.6				224			154.431 G	.978	292.3					
		.915	211.7				14				.959	256.4					
		.902	197.6				8				.945	275.9					
		.901	183.1				16				.886	266.5					
		.222	66.6	305.8	+ 4.1	12	35		June 4		.882	290.1					
		.945	93.4				242				.847	257.5					
May 29			(-16.8)	(317.5)(-1.0)		(12)	(35)	(504)			.824	82.8					
											.862	107.7					
											.963	107.4					
											.968	129.1					
149.475 G	14157	.101	323.5	305.5	+ 3.7	8	28		June 5		.959	261.1					
		.848	94.3				162				.956	276.6					
		.920	85.2				318				.952	288.5					
		.952	75.8				184				.929	131.5					
May 30			(-16.4)	(302.1)(-0.9)		(8)	(28)	(664)			.976	81.3	(-14.1)	(224.3)(-0.1)	(0)	(0)	
150.327 G	14157	.806	257.6	305.7	+ 4.5	8	19	144	June 6	156.357 G	.960	257.1					
		.272	288.6								.859	252.2					
		.861	78.6	(290.9)(-0.8)		(8)	(19)	(391)			.845	135.0					
May 31			(-16.0)								.940	80.3					
											.961	134.7					
											(-13.8)	(211.1)(0.0)					
151.342 G	14157	.973	190.4				15			157.337 G	.955	297.4					
		.959	184.0				16				.942	284.5					
		.944	282.3				282				.798	293.1					
		.477	279.7	305.4	+ 4.1	2	10		June 7		.827	83.0	142.7	+ 5.9	0	6	
											.792	141.8					
											.916	138.6					
											.946	77.5					
											.968	117.4					
											(-13.4)	(198.1)(+0.1)					

POSITIONS AND AREAS OF SUNSPOTS AND FACULAE FOR EACH DAY IN THE YEAR.

U.T.	Group No.	MEASURES		POSITION		AREA			U.T.	Group No.	MEASURES		POSITION		AREA			
		Pos. Dist.	Angle	Long.	Lat.	Umbræ	Whole Spots	Faculae			Pos. Dist.	Angle	Long.	Lat.	Umbræ	Whole Spots	Faculae	
1943 158.361 C	June 8	.889	266.0	o	o		120		1943	June 13	.825	224.7	o	o		69		
.969	81.0	.771	153.5	109.3	+ 8.7	18	98	313 c	.794	212.3	.214	49.9	108.9	+ 8.7	13	61	137	
.856	143.2	.884	73.0	(-13.0)	(184.5)(+ 0.2)	(18)	(98)	(939)	.765	72.9	.765	13.5	68.8	+13.5	7	34		
								(-10.9)	(118.4)(+ 0.8)	(-10.9)	(-10.9)	(20)	(95)	(538)				
159.513 G	.909	283.4				163		164.372	.960	251.8				162				
.895	246.8	.873	80.3	109.1	+ 8.6	23	136	322 c	.924	271.4	.872	222.6				297		
.810	67.4	.937	69.4	(-12.5)	(169.3)(+ 0.4)	(23)	(136)	(1048)	.788	210.1	.149	333.5	108.8	+ 8.6	15	60	111	
								.602	68.3	.602	13.6	70.0	+13.6	10	47	122		
160.381 G	.958	182.1				43		165.358	.939	225.8				232				
.944	285.7	.759	78.9	109.1	+ 8.7	24	101	167 c	.823	213.7	.319	295.4	108.8	+ 8.9	10	36	177	
.878	71.9	.934	63.5	(-12.1)	(157.8)(+ 0.5)	(24)	(101)	(966)	.382	53.6	.382	12.9	73.6	+12.9	1	8		
	.958	5.7				206		June 15	(-10.0)	(-10.0)	(91.9)(+ 1.1)	(105.0)(+ 0.9)	(25)	(107)	(409)			
161.346 G	June 10	.975	191.9				20		166.461	.977	228.2				200			
.947	281.1	.942	186.0				160		G	.963	280.6				231			
.934	255.2	.913	270.8				18			.926	186.1				22			
	.601	76.3	109.0	+ 8.6	16	84		.912	287.0	.538	285.0	108.9	+ 9.0	9	19	126		
	.966	77.9	70.4	+11.8	0	13	131 c	.897	220.2	.229	21.7	72.3	+13.4	7	27	258		
	.784	68.6				207		14158	.948	94.1	(- 9.6)	(77.3)(+ 1.2)	(16)	(46)	(1283)			
	.889	61.6				126		14159	(- 9.6)	(- 9.6)	(- 9.6)	(- 9.6)	(16)	(46)	(446)			
	.958	177.0	(-11.7)	(145.0)(+ 0.6)	(16)	(97)	(1091)	167.313	.951	277.9				202				
								G	.944	223.0				352				
									.853	283.1				197				
162.427 G	June 11	.958	266.9				138		14158	.684	281.9	108.5	+ 9.1	10	19			
.897	252.9	.395	69.1	108.9	+ 8.7	20	68		14159*	.560	271.0	.560	1.7	1	4			
	.878	76.1	70.1	+12.5	5	24	268 c	14159	.241	331.5	.241	13.5	6	12				
	(-11.3)	(130.7)(+ 0.7)	(25)	(92)	(509)	103			(- 9.2)	(- 9.2)	(- 9.2)	(- 9.2)	(66.0)(+ 1.3)	(17)	(35)	(751)		
163.355 C	.974	253.7				135		168.355	.970	222.7				158				
.910	259.6	.880	249.4				93		C	.936	282.9	.836	280.3	108.5	+ 9.3	2	10	
							104			14158	.763	269.3	.763	0.4	0	5		
									14159*	(- 8.7)	(- 8.7)	(- 8.7)	(- 8.7)	(52.3)(+ 1.4)	(2)	(15)	(330)	

Group 14158. June 8 - 19. Return of Group 14154: 4th appearance. A regular spot slowly contracting. (The ending of a very stable spot).

Group 14159. June 11 - 19. One or two small spots, not seen on June 18.

Group 14159*. June 17 - 18. A single spot on June 17; spots on June 18.

POSITIONS AND AREAS OF SUNSPOTS AND FACULÆ FOR EACH DAY IN THE YEAR.

U.T.	Group No.	MEASURES		POSITION		AREA			U.T.	Group No.	MEASURES		POSITION		AREA			
		Dist.	Pos. Angle	Long.	Lat.	Umbrae	Whole Spots	Faculae			Dist.	Pos. Angle	Long.	Lat.	Umbrae	Whole Spots	Faculae	
1943 169.420 G	14159	.920	280.0	o	o		275		1943 178.358 C	14160	.929	357.7	o	o			21	
		.896	290.9				271				.828	267.1	335.4	- 0.9	2	8	151 c	
		.865	270.5				125				.904	1.5					10	
		.751	277.9				86		June 28		(- 4.3)	(279.8) (+ 2.6)	(2)	(8)	(182)			
June 19		.480	289.3	65.5	+10.4	0	9	239										
		.939	84.6	(- 8.3)	(- 38.2) (+ 1.5)	(0)	(9)	(996)	179.522 G		.924	270.2					328	
									June 29		.779	263.6	(- 3.8)	(264.4) (+ 2.7)	(0)	(0)	(420)	
170.361 G		.949	294.2				163										285	
		.935	285.3				145										243	
		.884	85.4				141		180.511 G		.947	273.7						
June 20	14160	.948	96.5	(- 7.9)	(- 25.7) (+ 1.6)	(0)	(0)	(663)	June 30		.881	260.9	288.1	+17.3	0	3	(528)	
		.943	296.8				214					.630	294.4	(- 3.3)	(251.3) (+ 2.8)	(0)	(3)	
		.705	96.9	328.9	- 3.6	0	29	272									197	
		.917	98.9	(- 7.4)	(- 13.3) (+ 1.8)	(0)	(29)	102 c 342	181.352 G		.948	272.5					98	
June 21							(716)					.883	253.8				189	
												.882	278.6				255	
		.957	283.3				136		1201b		.950	262.3	311.3	- 6.4	0	8	(1023)	
		.481	95.9	330.5	- 1.1	3	9		July 1		.857	111.3	(- 2.9)	(240.2) (+ 2.9)	(0)	(8)		
June 22		.882	81.2	(- 7.0)	(359.0) (+ 1.9)	(3)	(9)	(268)	182.399 G								144	
												.949	288.9				147	
173.355 G	14160	.968	233.0				132					.883	278.3				189	
June 23		.258	102.6	331.6	- 1.3	9	48	247	July 2			.953	79.8	(- 2.4)	(226.3) (+ 3.0)	(0)	(0)	(480)
				(- 6.5)	(346.1) (+ 2.0)	(9)	(48)	(247)	183.361 G								170	
												.964	277.2				122	
174.322 G		.065	169.9	332.6	- 1.6	14	55					.945	263.5				192	
June 24				(- 6.1)	(333.3) (+ 2.1)	(14)	(55)	(0)	July 3			.861	77.0	(- 2.0)	(213.6) (+ 3.1)	(0)	(0)	193
												.955	81.1				(677)	
		.821	261.9				221		184.365 C			.957	262.5				209	
		.301	258.5	334.1	- 1.3	(7)	22	(221)	July 4			(- 1.5)	(200.3) (+ 3.2)	(0)	(0)	(209)		
June 25		(- 5.6)	(317.0) (+ 2.2)															
176.327 G	14160	.886	264.5				149		185.354 C		.903	79.0	(- 1.1)	(187.2) (+ 3.3)	(0)	(0)	(359)	
June 26		.480	263.2	335.0	- 1.3	(4)	18	(149)	July 5									
		(- 5.2)	(306.7) (+ 2.3)															
177.528 G									186.364 G			.923	283.9				150	
June 27		.705	266.2	335.3	- 0.9	4	8		July 6			.895	279.7				115	
		(- 4.7)	(290.8) (+ 2.5)			(4)	(8)	(0)				.959	74.8	(- 0.6)	(173.9) (+ 3.4)	(0)	(0)	442
																(707)		

Group 14160. June 21 - 28. A feeble equatorial group.

GREENWICH PHOTO-HELIOPHOTOGRAPHIC RESULTS, 1943.

C 17

POSITIONS AND AREAS OF SUNSPOTS AND FACULAE FOR EACH DAY IN THE YEAR.

U.T.	Group No.	MEASURES		POSITION		AREA			U.T.	Group No.	MEASURES		POSITION		AREA			
		Dist.	Pos. Angle	Long.	Lat.	Whole Umbrae	Spots	Faculae			Dist.	Pos. Angle	Long.	Lat.	Whole Umbrae	Spots	Faculae	
1943 187.350 G	14161	o	o o						1943 194.358 C	14161	o	o o						
July 7		.881	284.6						.937	216.6						289		
		.993	77.9	77.3	+12.4	28	171	109 108 c 127 227	.811	210.3						137		
		.867	75.0						.260	313.7	79.2	+14.5	93	534		18		
		.891	66.8						.933	178.7						(444)		
		(- 0.2)	(160.8)(+ 3.5)	(28)	(171)	(571)			(+ 3.0)	(68.1)(+ 4.3)	(93)	(534)						
188.323 G	14161*	.143	307.7	154.4	+ 8.7	1	6		195.314	.969	221.4					221		
July 8	14161	.945	77.4	76.9	+13.1	75	435	543 c	G	.903	279.3					146		
		(+ 0.3)	(147.9)(+ 3.7)	(76)	(441)	(543)			.870	219.2						215		
189.368 C	14161*	.965	264.2					147	14161	.432	294.4	79.2	+14.2	79	510		193	
		.911	181.8					22		.969	83.5					(775)		
		.898	259.7					101	July 15	(+ 3.4)	(55.4)(+ 4.4)	(79)	(510)					
		.886	193.4					12	196.310	.959	224.4					221		
	14161*	.370	284.1	155.3	+ 8.7	2	12	332 c	G	.953	281.8					207		
	14161	.842	76.3	77.0	+13.5	122	662			.867	286.8					150		
		.778	156.9					102		.818	294.2					135		
July 9		.862	147.5					208	14161	.627	287.8	80.1	+14.5	72	404		265	
		(+ 0.7)	(134.1)(+ 3.8)	(124)	(674)	(924)				.912	86.6					(978)		
		(+ 3.8)							July 16	(+ 3.8)	(42.2)(+ 4.4)	(72)	(404)					
190.359 C	14161*	.971	262.3					148	197.311	.946	220.8					204		
	14161	.604	278.2	158.0	+ 8.0	3	14		G	.944	277.9					180		
		.688	74.4	78.2	+13.5	113	861	93 p		.935	291.9					449		
July 10		.814	157.4					154		.926	209.9					182		
		(+ 1.2)	(121.0)(+ 3.9)	(116)	(875)	(395)				.917	182.4					15		
		(+ 3.9)							14161	.796	284.7	81.4	+14.4	59	330		166 c	
		(+ 1.2)								.804	89.0					175		
191.535 C	14161*	.956	343.2					22		.922	177.4					20		
		.952	353.7					21		.935	83.5					135		
		.943	355.9					24		.956	2.4					39		
	14161	.792	277.9					156	July 17	(+ 4.3)	(29.0)(+ 4.5)	(59)	(330)			(1565)		
		.484	67.6	78.0	+14.1	108	699											
		.811	12.7					17										
		.934	179.1					12										
July 11		.957	170.2					19	198.352	.968	223.2					153		
		(+ 1.7)	(105.4)(+ 4.0)	(108)	(699)	(271)			C	.950	291.9					177		
		(+ 4.0)								.902	299.0					179		
		(+ 1.7)								14161	.923	283.8	82.8	+14.5	35	320		459 f
192.430 G	14161	.901	277.1					132		.933	85.0					214		
July 12		.314	55.5	78.2	+14.2	113	649			.941	99.9					124		
		(+ 2.1)	(93.6)(+ 4.1)	(113)	(649)	(132)				.950	72.0					229		
		(+ 4.1)							July 18	(+ 4.8)	(15.2)(+ 4.6)	(35)	(320)			(1535)		
193.319 G	14161*	.832	280.4					83	199.507	.990	283.4	82.3	+13.9	53	394		578 f	
July 13	14161	.977	276.7	159.7	+ 7.5	5	16	326 c	G	14161	(+ 5.3)	(359.9)(+ 4.7)	(53)	(394)		(578)		
		.189	16.7	78.6	+14.6	99	644											
		(+ 2.5)	(81.8)(+ 4.2)	(104)	(660)	(409)			July 19									

Group 14161. July 7 - 19. A stream of normal type. The leader is a stable regular spot. The follower, of composite structure, decays rapidly after July 14.

Group 14161*. July 8 - 13. Intermittent. A small variable stream not seen on July 11 and 12.

POSITIONS AND AREAS OF SUNSPOTS AND FACULÆ FOR EACH DAY IN THE YEAR.

U.T.	Group No.	MEASURES		POSITION		AREA			U.T.	Group No.	MEASURES		POSITION		AREA		
		Dist.	Pos. Angle	Long.	Lat.	Whole Umbræ	Spots	Faculæ			Dist.	Pos. Angle	Long.	Lat.	Whole Umbræ	Spots	Faculæ
1943 200.372 G July 20		.969 .842 (+ 5.6)	o 283.9 281.3 (+ 4.8)	o o (348.5) (+ 4.8)	o o (0)	207 106 (313)			1943 208.394 G July 28	14162 14163 July 28	.914 .940 (+ 9.1)	o 83.2 (242.4) (+ 5.5)	307.9 172.1 - 1.3 + 8.3	- 1.3 + 8.3 (33)	20 13 13 (199)	132 67 341 (549)	208 c 341 c (549)
201.500 C July 21	14161†	.658 (+ 6.1)	265.1 (333.6) (+ 4.9)	14.4 + 0.5 (333.6) (+ 4.9)	3 (3) (14)	14 (0) (0)	209.378 G July 29	14162 14163 (+ 9.5)	.984 .841 (229.4) (+ 5.6)	267.7 83.7 - 1.2 + 8.3 (229.4) (+ 5.6)	308.6 172.0 19 13 (181)	- 1.2 + 8.3 126 55 (498)	126 282 (498)	216 c 282 c (498)			
202.567 G July 22	14161†	.824 .899 .906 .927 (+ 6.6)	267.8 6.8 1.5 169.0 (+ 5.0)	14.6 + 1.1 (319.4) (+ 5.0)	0 4 (0)	148 c 24 33 18 (223)	210.313 G 14163 July 30	1202b 14163 July 30	.201 .702 .815 .940 (+ 9.8)	208.0 84.0 83.5 78.6 (217.0) (+ 5.7)	222.4 172.3 + 4.5 + 8.3 (217.0) (+ 5.7)	- 4.5 + 8.3 (12) (57)	1 50 (57) (512)	7 178 334 (512)			
203.106 K July 23		.919 (+ 6.8)	267.2 (312.3) (+ 5.1)		*	189 (0) (0)	211.326 G July 31	14163 July 31	.515 .923 .932 .965 (+10.3)	83.3 80.5 63.8 72.9 (203.6) (+ 5.7)	172.6 172.6 + 8.3 72.9 (203.6) (+ 5.7)	+ 8.3 (5) (23)	23 103 140 107 (350)				
204.357 C July 24	1202a 14162	.956 .322 .203 .846 (+ 7.4)	267.5 264.2 232.0 78.8 (+ 5.2)	314.4 + 3.1 305.0 - 2.0 (295.8) (+ 5.2)	0 4 4 (4)	150 4 14 (18) (295)	212.345 G 14163 Aug. 1	214.437 G 14164 Aug. 2	.902 .299 .867 .868 .959 .968 (+10.7)	255.6 80.9 70.7 70.4 65.2 76.2 (190.1) (+ 5.8)	172.8 172.8 + 8.2 70.7 70.4 65.2 76.2 (190.1) (+ 5.8)	79 4 18 80 103 160 157 (579)					
205.337 G July 25	14162	.905 .409 .860 (+ 7.8)	356.9 252.5 100.7 (+ 5.3)	305.7 - 2.2 (282.8) (+ 5.3)	11 40 (11) (40)	8 101 (109)	Aug. 1 Aug. 2			No spots or faculæ							
206.326 G July 26	14162	.923 .610 .960 (+ 8.2)	274.6 259.2 14.6 (+ 5.3)	306.4 - 2.3 (269.7) (+ 5.3)	11 52 (11) (52)	148 21 (169)	214.437 G Aug. 3	14164 Aug. 3	.976 .927 (+11.5)	77.6 64.7 (162.4) (+ 6.0)	84.3 64.7 +13.4 (162.4) (+ 6.0)	36 4 (36)	124 18 (124)	478 c 272 (750)			
207.523 G July 27		.968 .838 .815 .989 (+ 8.7)	293.1 283.9 263.6 82.5 (+ 5.4)	307.8 - 2.0 171.9 + 8.2 (253.9) (+ 5.4)	21 97 30 151 (51)	135 157 210 c 237 c (248)	215.371 G 14164 Aug. 4	14164 Aug. 4	.915 .773 .812 .947 (+11.9)	78.0 69.1 56.0 62.9 (150.1) (+ 6.0)	83.4 69.1 56.0 62.9 +13.4 (150.1) (+ 6.0)	28 183 116 194 (847)	183 89 116 194 (847)				

Group 14161†. July 21 - 22. Scattered spots on July 21; a single spot on July 22.

Group 14162. July 24 - 29. A short stream of small spots increasing as it passes out of sight.

Group 14163. July 27-Aug. 1. A regular spot contracting to a small nucleus before extinction.

Group 14164. Aug. 3 - 15. Return of Group 14161. A regular spot shrinking rapidly after August 12.

GREENWICH PHOTO-HELIOPHOTOGRAPHIC RESULTS, 1943.

C 19

POSITIONS AND AREAS OF SUNSPOTS AND FACULAE FOR EACH DAY IN THE YEAR.

U.T.	Group No.	MEASURES		POSITION		AREA			U.T.	Group No.	MEASURES		POSITION		AREA		
		Dist.	Pos. Angle	Long.	Lat.	Whole	Umbrae	Spots			Dist.	Pos. Angle	Long.	Lat.	Whole	Umbrae	Spots	Faculae
1943 216.353 G	Aug. 5	.946	264.6	o	o o			105	1943 223.322 G	Aug. 12	.877	263.3	o	o o			117
.813	244.6							88	.619	281.7	83.2	+12.3	29	143			
.435	279.7	162.8	+ 9.7	7	24				.561	107.6	12.7	- 4.2	25	122			
.800	77.7	83.8	+13.5	34	181	261 f		119	.937	18.4	(+45.0)	(+ 6.5)	(54)	(265)	(360)		243
.822	59.6							98									
.852	108.6							130									
.937	67.8							124									
.962	100.4																254
	(+12.2)	(137.1)	(+ 6.1)	(41)	(205)	(925)											112 c
217.375 G	14165	.642	277.8	163.6	+ 9.7	7	20	86 p	224.360 C	14164	.903	293.0	82.8	+12.1	30	104	254
	14164	.646	77.1	83.5	+12.9	29	165	131 f		14166	.780	280.2	13.0	- 4.5	21	165	112 c
Aug. 6		(+12.6)	(123.6)	(+ 6.1)	(36)	(185)	(217)										283
218.386 C	14165	.906	280.0					338	225.356 G	14164	.938	289.6					130
	14164	.795	277.0	163.1	+ 9.3	3	18			14166	.910	298.3					136
Aug. 7		.458	73.8	83.5	+12.8	24	144	95 c		14167	.866	209.6					90
		(+13.0)	(110.2)	(+ 6.2)	(27)	(162)	(433)										259 f
219.400 G	14165	.927	277.9	165.2	+ 9.7	7	30	390 c	Aug. 14								466 c
	14164	.256	62.7	83.4	+12.8	21	153										308
	14166	.995	94.2	13.3	- 3.5	0	34	96 p									246
Aug. 8		.884	62.9					145	226.307 G	14164	.975	281.0	83.0	+11.9	16	71	496 f
		.895	52.6					89		14166	.239	216.3	13.3	- 4.5	20	113	
		(+13.4)	(96.8)	(+ 6.3)	(28)	(217)	(720)			14167	.854	80.6	306.4	+11.0	20	100	365 c
											.850	94.9					321
											(+15.9)	(- 5.5)	(+ 6.7)	(44)	(244)	(1182)	
220.358 C	14165	.981	279.3	163.7	+10.3	10	40	161 c	Aug. 15								126
	14164	.113	7.4	83.3	+12.7	29	158										92
Aug. 9		.953	96.1	12.7	- 3.8	21	137	193 c									132 f
		(+13.8)	(84.2)	(+ 6.3)	(60)	(335)	(354)										194
221.558 G	14164	.274	293.6	83.1	+12.5	19	145		Aug. 16								96
	14166	.837	99.3	12.6	- 4.2	21	116	286 c									116
Aug. 10		(+14.2)	(68.3)	(+ 6.4)	(40)	(261)	(286)										
222.497 G	Aug. 11	.913	290.5					249	228.443 G	14166	.967	258.5					
		.897	265.4					115		14167*	.847	246.4					
		.462	284.2	83.1	+12.3	25	137			14167	.623	253.7	14.0	- 4.6	15	73	
		.700	102.5	12.8	- 4.0	26	146			14168	.521	119.2	315.5	- 5.3	0	3	
		.962	8.9					74			.966	79.9	305.9	+11.0	19	97	
		(+14.5)	(55.9)	(+ 6.5)	(51)	(273)	(438)				.883	93.6	262.9	- 1.7	13	44	188 c
											(+16.6)	(337.3)	(+ 6.8)	(47)	(217)	(532)	132

Group 14165. Aug. 5 - 9. One or two small spots.

Group 14166. Aug. 8 - 20. A regular spot slowly contracting.

Group 14167. Aug. 14 - 25. A regular spot reducing rapidly after central meridian passage. There are one or two companions until August 20.

Group 14167*. Aug. 17 - 18. A single spot on August 17; a small stream on August 18.

Group 14168. Aug. 17 - 21. A small equatorial spot reducing to a speck.

GREENWICH PHOTO-HELIOPHOTOGRAPHIC RESULTS, 1943.

POSITIONS AND AREAS OF SUNSPOTS AND FACULÆ FOR EACH DAY IN THE YEAR.

U.T.	Group No.	MEASURES		POSITION		AREA			U.T.	Group No.	MEASURES		POSITION		AREA		
		Pos. Dist.	Angle	Long.	Lat.	Umbræ	Whole Spots	Faculæ			Pos. Dist.	Angle	Long.	Lat.	Umbræ	Whole Spots	Faculæ
1943 229.370 · G	14166 14167* 14167 14168	.950 .249 .335 .885 .953	250.5 258.2 152.7 77.2 95.0 68.2	o 13.8 318.4 305.7 263.4 (+16.9)	o -4.6 -6.0 +10.7 -1.1	14 0 16 5 21 (325.0)(+6.8)	234 90 c 84 197 c 409 (189)	1943 Aug. 23 235.344 G	14170	.617 .957 .982 (+18.5)	o 75.0 82.5 (259.1)(+7.0)	227.4 -14.1 (11)	7 23 (30) (1111)	194 148 338 119 98 338			
Aug. 18											.959 .880 .854	273.7 266.8 258.7					
230.361 G	14166 14167 14167 14168	.946 .919 .892 .132 .478 .747	272.0 239.8 261.2 62.7 114.7 97.8			208 173 369 f 145 21 10	208 173 369 f 87 c	14167 14170 14171 14171	.856 .496 .939 .946	278.4 137.7 82.7 69.4	305.4 226.0 175.7 (246.1)(+7.0)	+10.8 -14.9 +9.2 (+18.8)	2 3 0 (5)	11 13 10 (34)	266 c 555 c 157 165 87		
Aug. 19																	
231.474 G	14166 14167 14169 14168	.977 .171 .278 .548	264.2 294.0 138.8 103.0	14.0 306.3 286.6 265.1	-4.1 +10.8 -5.3 -1.2	12 16 13 3	41 42 38 5	279 f (279)	14167 14170 14171 14171	.945 .410 .842 .817	280.6 162.7 83.3 73.6	304.1 225.2 174.8 (232.5)(+7.0)	+12.2 -16.0 +9.4 (+19.1)	0 3 5 (8)	11 9 21 (41)	299 c 233 c 58 165	
Aug. 20																	
232.392 G	14167 14169 14168 14168	.384 .208 .361 .966	283.0 190.7 112.5 61.8	307.4 287.3 265.7 (+17.9)	+11.3 -4.8 -1.4 (285.1)(+6.9)	5 9 1 15	22 39 4 (65)	96 111 122 (122)	237.578 G 14170 14170	.965 .888 .403 (+19.5)	263.6 271.7 200.0 (216.6)(+7.1)						194 135
Aug. 21																	
233.308 G	14167 14169 14169 14167	.808 .789 .563 .327 .874 .951	260.3 269.6 277.9 232.3 53.8 63.2			4 6 18 33 93 165	96 111 171 209 149 78 162	238.353 G Aug. 27 239.339 C 14170	.941 .812 .482 .895 .941 (+19.7)	273.5 262.9 221.8 87.7 74.4 (206.3)(+7.1)	225.6 -14.3 -14.1 (193.3)(+7.1)	1 (1)	6 (6)	250 114 166 (656)			
Aug. 22																	
234.357 G		.955 .937 .909 .860 .828 14167	259.2 278.6 269.9 253.4 262.1 279.0			10 (51)	171 209 149 78 162 (465)	240.489 G Aug. 29	.628 .948 (+20.0)	236.9 69.4 (193.3)(+7.1)	226.0 -14.5 (178.1)(+7.1)	23 (23)	85 (85)	153 (153)			

Group 14169. Aug. 19 - 23. A little group.

Group 14170. Aug. 23 - 31. A little group with a temporary increase on August 28.

Group 14171. Aug. 24 - 25. A small spot.

POSITIONS AND AREAS OF SUNSPOTS AND FACULAE FOR EACH DAY IN THE YEAR.

U.T.	Group No.	MEASURES		POSITION		AREA			U.T.	Group No.	MEASURES		POSITION		AREA			
		Pos. Dist.	Angle	Long.	Lat.	Umbræ	Whole Spots	Faculae			Pos. Dist.	Angle	Long.	Lat.	Umbræ	Whole Spots	Faculae	
1943 241.364 G	14170	.893	250.3	226.3	-13.9	4	23	241 c	1943 248.362 G	.936	343.5	o	o	o	o	o	13	
		.947	66.6					176		.927	348.7						12	
		.976	78.5					180		.895	277.9						88	
Aug. 30		(+20.5)	(166.5)(+7.2)	(4)	(23)	(597)				.884	106.0						108	
										.923	97.9	(+22.3)	(-74.1)(+7.2)	(0)	(0)	(368)	147	
242.392 G	14170	.977	255.7	228.4	-12.2	0	16	230 c	Sept. 6									
		.804	73.5					96		249.426 C	.328	292.4	78.2	+13.9	36	124	116	
		.890	64.3					112		14172	.757	100.7	(+22.5)	(-60.1)(+7.2)	(36)	(124)	(116)	
		.922	78.5					175		Sept. 7								
		.974	74.6					174										
		.884	4.0					19										
Aug. 31		(+20.8)	(153.0)(+7.2)	(0)	(16)	(806)				250.360 G	.971	281.9					162	
											.893	357.2					18	
243.464 G		.832	78.1					103			.872	233.1					115	
		.902	71.2					91			.821	278.2					99	
Sept. 1		(+21.1)	(138.8)(+7.2)	(0)	(0)	(194)				14172	.510	285.4	78.0	+14.0	117	507	18	
											.870	174.8	(+22.7)	(-47.7)(+7.2)	(117)	(507)	(412)	
244.449 G		.922	245.0					131		Sept. 8							105	
		.872	235.9					92								95		
		.856	71.2					98								30		
Sept. 2		(+21.3)	(125.8)(+7.2)	(0)	(0)	(321)				251.362 G	.902	288.4						
										14172	.664	282.4	76.2	+13.6	192	882	218 p	
											.935	80.1						
											.943	5.4						
245.376 G		.965	242.9					214		Sept. 9							215	
		.916	235.7					154								768 c		
		.906	358.8					21										
		.903	273.9					230		252.339 C	.819	282.7	77.0	+14.5	190	1001	362 c	
		.888	283.4					152		14172	.289	241.9	36.3	-0.8	1	6		
		.885	227.7					126		1203a	(+23.1)	(-21.6)(+7.2)	(191)	(1007)	(362)			
Sept. 3		.874	8.5					7		Sept. 10								
		(+21.5)	(113.6)(+7.2)	(0)	(0)	(904)												
246.360 G										253.383 G	.941	299.1						
		.970	276.8					267		14172	.936	283.3	78.1	+15.0	191	943		
		.962	348.8					25		14173	.273	62.0	353.5	+14.4	3	12		
		.949	219.5					171			(+23.3)	(-7.8)(+7.2)	(194)	(955)	(983)			
		.938	268.0					212										
		.927	283.2					174		254.648 G	.990	283.4	74.1	+14.2	66	454	599 c	
		.958	27.8					126		14173	.141	336.7	354.4	+14.6	3	13		
Sept. 4		.960	18.2					167		Sept. 12	(+23.6)	(351.1)(+7.2)	(69)	(467)	(599)			
		(+21.8)	(100.6)(+7.2)	(0)	(0)	(1142)												
247.391 C		.957	279.2					131		255.338 C	.936	183.2					98	
Sept. 5		(+22.0)	(86.9)(+7.2)	(0)	(0)	(131)						.938	100.8				150	
												.920	169.2	(+23.7)	(342.0)(+7.2)	(0)	(0)	(322)
																74		

Group 14172. Sept. 7 - 12. A stream of vigorous development. Changes are rapid and result in a composite spot as leader and a more stable-looking follower.

Group 14173. Sept. 11 - 12. A small ephemeral spot.

GREENWICH PHOTO-HELIOPHOTOGRAPHIC RESULTS, 1943.

POSITIONS AND AREAS OF SUNSPOTS AND FACULÆ FOR EACH DAY IN THE YEAR.

U.T.	Group No.	MEASURES		POSITION		AREA			U.T.	Group No.	MEASURES		POSITION		AREA			
		Pos. Dist.	Angle	Long.	Lat.	Umbræ	Whole Spots	Faculæ			Pos. Dist.	Angle	Long.	Lat.	Umbræ	Whole Spots	Faculæ	
1943 Sept. 14		o	o	o					1943	14174	o	o	o	o	4	16	431 c	
257.346 G Sept. 15		.919	28.9				156		265.477 G Sept. 23		.960	261.2	280.5	- 6.4	(4)	(16)	(750)	
		(+24.1)	(315.5)(+7.2)	(0)	(0)	(156)			266.366 G Sept. 24		.822	276.9	276.1	- 6.1	6	21	460 c	
											.987	262.6	(196.4)	(+7.0)	(6)	(21)	(518)	
											(+25.4)							
259.601 G Sept. 17		.894	83.3				113		267.357 G Sept. 25		.951	275.9					144	
		.929	97.4				121				.809	113.5					76	
		(+24.4)	(285.7)(+7.2)	(0)	(0)	(234)					.930	104.8					182	
											.971	10.0					33	
											(+25.5)	(183.3)(+7.0)	(0)	(0)	(0)	(0)	(435)	
260.375 G 14174 1204a		.934	280.3				218		268.367 G Sept. 26		.996	75.0	83.6	+15.5	48	319	369 p	
		.240	183.5	276.3	- 6.7	34	142				.909	63.1					80	
		.393	97.4	252.6	+ 3.7	1	4				.928	99.1					120	
		.872	97.2				137				(+25.6)	(170.0)(+6.9)	(48)	(319)	(569)			
		.934	108.3				124											
		.948	2.6				25											
Sept. 18		(+24.6)	(275.5)(+7.1)	(35)	(146)	(504)			269.394 G Sept. 27		.955	75.8	82.8	+15.5	134	513	548 c	
											.855	101.6	(+25.7)	(156.4)(+6.9)	(134)	(513)	(656)	
261.439 G 14174		.916	279.5				124		270.356 C Sept. 28		.882	76.6	81.4	+15.0	117	631	707 c	
		.353	228.4	276.7	- 6.7	39	164				.929	56.2					168	
		(+24.7)	(261.4)(+7.1)	(39)	(164)	(124)					(+25.8)	(143.8)(+6.8)	(117)	(631)	(875)			
262.537 G 14174		.835	237.7				146		271.393 G Sept. 29		.946	278.9					137	
		.543	245.3	276.7	- 6.9	26	131				.933	219.4					123	
		.926	57.5				177				.747	75.4						
		.927	48.7				185				(+25.9)	(130.1)(+6.8)	(111)	(603)	(774)			
		.929	25.1				287											
		.961	39.8				230											
Sept. 20		(+24.9)	(247.0)(+7.1)	(26)	(131)	(1025)			272.154 K Sept. 30		.628	73.8	81.4	+15.4	121	634	294 f	
											(+26.0)	(120.0)(+6.8)	(121)	(634)	(294)			
263.348 C 14174		.682	252.8	277.0	- 6.2	19	96			273.365 G Oct. 1		.963	234.3					185
		(+25.0)	(236.2)(+7.1)	(19)	(96)	(0)					.399	65.7						
											(+26.0)	(104.1)(+6.7)	(105)	(586)	(185)			
264.366 G 14174		.962	261.8				223		274.306 C Oct. 2		.230	47.5	81.5	+15.5	127	586		
		.931	359.6				36				(+26.1)	(91.6)(+6.7)	(127)	(586)	(0)			
		.833	256.5	277.3	- 7.2	13	44	226 c										
		.945	173.7				17											
Sept. 22		(+25.1)	(222.8)(+7.0)	(13)	(44)	(502)												

Group 14174. Sept. 18 - 24. A short stream of abrupt origin on the central meridian and subsequent rapid decline.

Group 14175. Sept. 26-Oct. 9. Return of Group 14172. A large stable regular spot with a distant companion from September 28 to October 7.

POSITIONS AND AREAS OF SUNSPOTS AND FACULAE FOR EACH DAY IN THE YEAR.

U.T.	Group No.	MEASURES		POSITION		AREA			U.T.	Group No.	MEASURES		POSITION		AREA		
		Dist.	Pos. Angle	Long.	Lat.	Umbræ	Whole Spots	Faculae			Dist.	Pos. Angle	Long.	Lat.	Umbræ	Whole Spots	Faculae
1943 275.448 G		o		n	o		78		1943 Oct. 13		o		n	o			
Oct. 3	14175	.906 .868 .176 .966	285.7 273.7 332.2 65.1 (+26.2)		81.5 +15.5 (76.6)(+ 6.6)	116	576	56 190 (324)	Oct. 14						No spots or faculae		
276.374 C	14175	.920 .317	276.8 300.8 (+26.2)		80.7 +15.7 (64.3)(+ 6.6)	97	552	96	Oct. 15		.963 .930 .922	245.6 284.2 276.8 (+26.3)		(278.3)(+ 5.8)	(0)	(0)	(300)
Oct. 4											288.360 G						
277.302 C	14175	.490	290.0 (+26.3)		80.5 +15.4 (52.1)(+ 6.5)	104	581		Oct. 16		.866 .942	99.3 69.8 (+26.3)		(266.2)(+ 5.8)	(0)	(0)	(262)
Oct. 5									Oct. 17						No spots or faculae		
278.330 C	14175	.671	285.5 (+26.3)		80.4 +15.1 (38.5)(+ 6.4)	125	588		290.367 G	1205a	.495	117.6 (+26.2)		213.5 - 8.2 (239.7)(+ 5.6)	2	10	
Oct. 6									Oct. 18						(2)	(10)	(0)
279.539 G	14175	.844	284.0 (+26.3)		80.4 +15.2 (22.6)(+ 6.4)	94	534	281 c	291.396 G	1205b	.974 .944 .148 .911 .914 .937 .945	180.9 358.5 187.0 177.0 154.5 170.4 110.4 (+26.1)		227.2 - 2.9 (226.2)(+ 5.5)	4	13	
Oct. 7																	
280.359 G	14175	.875 .929	241.0 283.9 (+26.4)		80.7 +15.2 (11.8)(+ 6.3)	95	515	92 625 f	Oct. 19								
Oct. 8																	
281.358 G	14175	.987	284.4 14176	207.1 (.+26.4)	80.5 +15.2 16.3 -26.2 (358.6)(+ 6.3)	94	479	786 f	292.373 G		.958 .889 .942	279.0 107.8 117.7 (+26.1)		(213.3)(+ 5.5)			189 107 179
Oct. 9									Oct. 20						(0)	(0)	(475)
282.462 G	14176	.704 .889	222.8 104.3 (+26.4)		16.0 -25.8 (344.0)(+ 6.2)	9	22	85 f 108	293.624 G		.886	297.7 (+26.0)		(196.8)(+ 5.4)	(0)	(0)	118
Oct. 10									Oct. 21								
283.299 C	14176	.822	232.4 (+26.4)		17.2 -25.9 (333.0)(+ 6.1)	2	10	165 c	Oct. 22						No spots or faculae		
Oct. 11									Oct. 23								
284.301 C	14176	.952 .915 .927	166.2 237.2 (+26.4)		19.0 -26.7 (319.8)(+ 6.1)	0	5	21 208 c 12 (241)	296.444 G	14177	.985	76.0 (+25.7)		78.8 +14.7 (159.6)(+ 5.1)	56	350	547 c (350) (547)
Oct. 12																	

Group 14176. Oct. 9 - 12. One or two small spots of relatively high southern latitude. (A new cycle spot).
 Group 14177. Oct. 24-Nov. 5. Return of Group 14175: 3rd appearance. A very stable regular spot.

GREENWICH PHOTO-HELIOPHOTOGRAPHIC RESULTS, 1943.

POSITIONS AND AREAS OF SUNSPOTS AND FACULÆ FOR EACH DAY IN THE YEAR.

U.T.	Group No.	MEASURES		POSITION		AREA			U.T.	Group No.	MEASURES		POSITION		AREA		
		Pos. Dist.	Angle	Long.	Lat.	Umbræ	Whole Spots	Faculæ			Pos. Dist.	Angle	Long.	Lat.	Umbræ	Whole Spots	Faculæ
1943 297.414 G Oct. 25	14177	.924 .940 (+25.6)	76.1 66.5 (+25.6)	79.0 (146.8)(+5.0)	+14.8	59 (59)	303 (303)	692 c (883)	1943 306.439 G Nov. 3	.911 .765 .779 (+24.3)	290.6 297.5 284.9 (+4.1)	o o o o	78.5 (27.8)(+4.1)	+14.1	36 (36)	209 (209)	145 93 251 c (489)
298.449 G Oct. 26	14177	.967 .815 .876 .936 (+25.5)	277.2 75.5 65.5 55.3 (+25.5)	78.8 (133.2)(+4.9)	+14.7	60 (60)	295 (295)	64 594 c 170 139 (967)	307.557 G 14177 Nov. 4	.923 .884 .909 (+24.1)	255.9 295.8 283.9 (+4.0)	78.4 (13.1)(+4.0)	+14.2	39 (39)	205 (205)	99 257 385 f (741)	
299.467 G Oct. 27	14177	.838 .664 .769 .859 .895 .951 .955 (+25.4)	293.8 73.0 65.8 78.2 62.9 50.3 85.3 (+25.4)	78.8 (119.7)(+4.8)	+14.8	53 (53)	273 (273)	80 195 sf 214 96 171 158 128 (1042)	308.504 C 14177 Nov. 5	.937 .905 .871 .976 (+23.9)	292.5 280.3 300.6 283.5 (+3.9)	78.3 (0.6)(+3.9)	+14.0	34 (34)	238 (238)	269 86 161 137 c (653)	
300.571 G Oct. 28	14177	.959 .848 .469 .832 (+25.2)	226.8 259.9 66.9 47.9 (+25.2)	78.8 (105.2)(+4.7)	+14.8	58 (58)	272 (272)	134 165 99 (398)	309.310 C Nov. 6	.977 .923 (+23.8)	291.5 299.3 (350.0)(+3.8)	(0)	(0)	156 178 (334)			
301.266 C Oct. 29	14177	.339 (+25.1)	57.9 (96.0)(+4.6)	78.8 (96.0)(+4.6)	+14.8	41 (41)	226 (226)	(0)	311.480 C Nov. 8	.933 (+23.3)	211.4 (321.3)(+3.6)	(0)	(0)	262 (262)			
302.264 C Oct. 30	14177	.191 (+25.0)	21.5 (82.9)(+4.6)	78.8 (82.9)(+4.6)	+14.8	49 (49)	249 (249)	(0)	313.316 C Nov. 10	.965 (+22.9)	100.1 (297.1)(+3.4)	(0)	(0)	179 (179)			
303.543 C Oct. 31	14177	.278 (+24.8)	310.0 (66.0)(+4.4)	78.7 (66.0)(+4.4)	+14.5	48 (48)	232 (232)	(0)	314.433 G Nov. 11	.922 .909 .900 .914 (+22.6)	254.4 288.0 266.4 101.4 (282.4)(+3.3)	(0)	(0)	99 92 63 81 (335)			
304.493 C Nov. 1	14177	.450 (+24.6)	294.0 (53.5)(+4.3)	78.5 (53.5)(+4.3)	+14.4	50 (50)	228 (228)	(0)	Nov. 12	No spots or faculæ							
305.265 C Nov. 2	14177	.595 (+24.5)	288.5 (43.3)(+4.2)	78.8 (43.3)(+4.2)	+14.3	40 (40)	211 (211)	(0)	316.430 C Nov. 13	.922 .563 (+22.1)	290.3 109.4 (+22.1)	223.8 (256.1)(+3.0)	-8.2 (7)	51 (51)	175 (175)		

Group 14178. Nov. 13 - 17. A pair of small spots; one component remains on November 16.

POSITIONS AND AREAS OF SUNSPOTS AND FACULÆ FOR EACH DAY IN THE YEAR.

U.T.	Group No.	MEASURES		POSITION		AREA			U.T.	Group No.	MEASURES		POSITION		AREA			
		Dist.	Pos. Angle	Long.	Lat.	Whole Umbrae	Spots	Faculae			Dist.	Pos. Angle	Long.	Lat.	Whole Umbrae	Spots	Faculae	
1943 317.455 C Nov. 14	14178	.369	123.4	224.5	- 8.9	12	55		1943 326.356 C	14181	.729	71.5	79.8	+14.6	46	226	164 68 142 191 186	
			(+21.8)	(242.6)(+2.9)		(12)	(55)	(0)			.717	68.9						
318.385 G Nov. 15	14179	.961	297.4				175		Nov. 23			.766	57.4					
		.951	267.4				158					.864	68.8					
		.950	277.4				190					.912	61.4					
	14178	.818	272.2	285.1	+ 3.4	6	35	216 c	327.373	14181	.566	65.9	79.6	+14.7	45	238	176 87	
		.220	157.2	225.4	- 8.9	7	29				.784	53.8						
		(+21.6)	(230.3)(+2.8)	(13)	(64)	(739)					.934	55.0						
319.563 G Nov. 16	14179	.940	272.5	284.7	+ 3.3	3	27	315 c	Nov. 24			(+18.8)	(111.8)(+1.7)	(45)	(238)	(263)		
	14180	.558	249.4	246.6	- 9.0	2	17		328.385	14181	.888	280.7						
	14178	.285	225.1	226.5	- 8.9	2	11		G		.375	51.6	80.9	+15.0	50	225	141 129	
		(+21.3)	(214.8)(+2.7)	(7)	(55)	(315)					.838	52.1						
320.578 G Nov. 17	14180	.987	272.2	247.6	- 8.9	5	19	193	Nov. 25			(+18.5)	(98.5)(+1.6)	(50)	(225)	(270)		
		.739	255.4				256 c		329.303	14181	.249	25.9	80.0	+14.4	35	197		
		.955	86.7				327		C			(+18.2)	(86.4)(+1.5)	(35)	(197)	(0)		
321.442 G Nov. 18	14180	.865	258.4	248.8	- 8.7	0	9	272 c	330.088	14181	.234	341.0	80.5	+14.1	44	221		
		.916	84.9				295		K			(+17.9)	(76.0)(+1.4)	(44)	(221)	(0)		
		(+20.7)	(190.0)(+2.4)	(0)	(9)	(567)												
322.445 G Nov. 19		.752	256.6				200		331.342	14181	.411	302.8	80.3	+13.9	37	163		
		.954	257.3				467		C	14182	.929	84.5	351.4	+ 5.6	5	17	255 c	
		.981	77.5				222				.914	18.1						
		(+20.4)	(176.8)(+2.3)	(0)	(0)	(889)					.939	11.1						
323.347 C Nov. 20	14181	.974	261.0				128		Nov. 28			(+17.4)	(59.5)(+1.2)	(42)	(180)	(279)		
		.838	257.0				226											
		.987	74.6	84.2	+15.5	6	24	194 c	332.388	14181	.592	292.3	79.9	+13.8	40	215		
		(+20.2)	(164.9)(+2.2)	(6)	(24)	(548)			G	14182	.813	83.9	351.6	+ 5.6	14	64	394 c	
									Nov. 29			(+17.1)	(45.7)(+1.1)	(54)	(279)	(394)		
324.700 W Nov. 21	14181	.948	261.1	82.1	+14.8	50	261	391	333.383	14181	.753	287.7	80.1	+13.9	23	162	287 c	
		.930	74.9				1075 c		C	14182	.656	82.9	351.9	+ 5.4	14	91	153 f	
		(+19.7)	(147.1)(+2.0)	(50)	(261)	(1466)						(+16.7)	(32.6)(+1.0)	(37)	(253)	(440)		
325.131 K Nov. 22	14181	.882	74.6	80.2	+14.5	71	356	233 c	334.290	14181	.853	298.4					143	
		.927	65.4				240		C	14182	.854	285.7	78.3	+13.8	14	124	473 c	
		.954	75.5				149				.477	81.1	352.6	+ 5.0	15	71		
		.971	60.2				158					(+16.3)	(20.7)(+0.9)	(29)	(195)	(616)		
		(+19.6)	(141.4)(+2.0)	(71)	(356)	(780)			Dec. 1									

Group 14179. Nov. 15 - 16. One or two small spots.

Group 14180. Nov. 18 - 18. A small spot.

Group 14181. Nov. 20-Dec. 2. Return of Group 14177: 4th appearance. A stable regular spot, preceded by a few variable companions until November 30.

Group 14182. Nov. 28-Dec. 8. A sparse variable stream.

GREENWICH PHOTO-HELIOPHOTOGRAPHIC RESULTS, 1943.

POSITIONS AND AREAS OF SUNSPOTS AND FACULAE FOR EACH DAY IN THE YEAR.

U.T.	Group No.	MEASURES		POSITION		AREA			U.T.	Group No.	MEASURES		POSITION		AREA					
		Dist.	Pos. Angle	Long.	Lat.	Umbrae	Whole Spots	Faculae			Dist.	Pos. Angle	Long.	Lat.	Umbrae	Whole Spots	Faculae			
Dec. 2	G	1943	o	o	o	199	342. 257	1943	o	o	o	o	o	o	344	344	344			
		.963	295. 7			259	C	.963	274. 9			284. 2	- 6. 0	3	13	13	13			
		.864	296. 9			203	14184	.180	235. 3			234. 8	+ 7. 5	34	196	196	196			
		.844	309. 2			594 c	14183	.665	78. 3	(+13. 1)	(275. 7)(-0. 2)	(37)	(209)	(344)	(344)	(344)	(344)			
		14181	.962	284. 0	78. 7	+13. 6	31	133												
		14182	.190	68. 1	355. 0	+ 4. 8	18	96												
		.867	94. 4			87	343. 557	.977	288. 0			283. 8	- 6. 1	7	34	159	159			
		.883	79. 2			92	G	.438	256. 6			234. 7	+ 7. 5	21	141	87	87			
		.951	85. 9			192	14184	.425	71. 3											
		(+15. 9)	(-5. 1)(+0. 7)	(49)	(229)	(1626)	14183	.883	130. 8	(+12. 6)	(258. 5)(-0. 3)	(28)	(175)	(246)	(246)	(246)	(246)			
Dec. 3	G	336. 494	.959	295. 3			171	344. 474	.759	227. 9										
		.931	306. 1			248	G	.579	258. 8			281. 2	- 6. 8	1	18	79	79			
		.852	298. 2			93	14184	.245	56. 5			234. 7	+ 7. 3	24	142	20	20			
		14182	.080	348. 4	352. 5	+ 5. 0	31	144	.947	173. 8										
		.845	86. 4			100	14183	.955	11. 0	(+12. 2)	(246. 5)(-0. 5)	(25)	(160)	(121)	(121)	(121)	(121)			
		.928	56. 2			101														
		.954	85. 3			177														
		(+15. 5)	(351. 6)(+0. 6)	(31)	(144)	(890)	Dec. 11													
		337. 388	.951	302. 9			176	345. 272	.936	350. 2										
		G	14182	.246	292. 4	353. 0	+ 5. 8	35	212	.869	275. 4									
Dec. 4	G	Dec. 4	(+15. 1)	(339. 8)(+0. 5)	(35)	(212)	(176)	C	.136	10. 3			234. 6	+ 7. 1	23	124	150	150		
		.902	9. 5				14183	.902	9. 5	(+11. 8)	(236. 0)(-0. 6)	(23)	(124)	(250)	(250)	(250)	(250)			
		.933	179. 8																	
		.942	176. 0																	
		.961	20. 9																	
		(+14. 8)	(328. 0)(+0. 3)	(18)	(107)	(0)	Dec. 12													
		339. 269	14182	.596	277. 8	351. 3	+ 4. 8	8	42	346. 570	.966	273. 9								
		C	14183	.987	81. 4	234. 7	+ 8. 5	45	233	G	.926	263. 3								
		Dec. 6	(+14. 4)	(315. 1)(+0. 2)	(53)	(275)	(175)	14184	.305	297. 3			286. 3	- 6. 5	3	9	198	198		
		.980	112. 1				14183	.980	112. 1	(+11. 2)	(218. 8)(-0. 7)	(29)	(143)	(540)	(540)	(540)	(540)			
Dec. 7	G	340. 467	14182	.823	275. 9	354. 3	+ 4. 9	4	26	362 c	347. 289	.961	261. 2							
		G	1207a	.158	69. 1	290. 8	+ 3. 3	2	12	C	.450	288. 5								
		14183	.909	80. 9	234. 4	+ 8. 3	36	227	14185	.964	113. 1			234. 8	+ 7. 5	26	137	230	230	
		.851	97. 7																	
		.968	96. 6																	
		(+13. 9)	(299. 3)(+0. 1)	(42)	(265)	(834)	Dec. 14													
		341. 258	14182	.916	276. 3	354. 8	+ 5. 7	0	5	311 c	348. 258	14183	.628	283. 1						
		C	14183	.818	80. 4	234. 5	+ 7. 8	36	212	14185	.887	114. 9			234. 5	+ 7. 5	24	122	303	303
		.903	97. 6																	
		(+13. 5)	(288. 8)(0. 0)	(36)	(217)	(677)	Dec. 15													

Group 14183. Dec. 6 - 18. A regular spot slowly declining.

Group 14184. Dec. 9 - 13. One or two small spots not seen on December 12.

Group 14185. Dec. 14 - 26. A group of stream-type in which both leader and follower are at first composite spots. The leader, however, stabilizes into a regular spot by December 19. The follower, although the larger component, begins to disintegrate and so dies out.

POSITIONS AND AREAS OF SUNSPOTS AND FACULAE FOR EACH DAY IN THE YEAR.

U.T.	Group No.	MEASURES		POSITION		AREA			U.T.	Group No.	MEASURES		POSITION		AREA		
		Dist.	Pos. Angle	Long.	Lat.	Umbrae	Whole Spots	Faculae			Dist.	Pos. Angle	Long.	Lat.	Umbrae	Whole Spots	Faculae
1943 349.272 C	14183	.789	280.4	234.6	+ 7.5	25	122	117 c	1946 356.257 C	14185	.727	240.0	134.0	-22.6	37	221	188 c
	14185	.791	118.0	134.4	-22.5	98	696	236 c				(+ 6.8)	(91.2)(- 1.9)	(37)	(221)	(188)	
		.912	168.2				10										
		.955	174.3				22										
Dec. 16			(+10.0)	(183.3)(- 1.1)		(123)	(818)	(385)	357.260 C	14185	.845	244.3	133.4	-22.6	32	146	367 c
350.562 G	14183	.934	278.4	234.7	+ 7.4	18	87	342 c	Dec. 24			(+ 6.3)	(78.0)(- 2.1)	(32)	(146)	(367)	
Dec. 17	14185	.609	127.3	134.8	-22.6	138	910										
		(+ 9.4)	(166.3)(- 1.2)			(156)	(997)	(342)	358.274 C	14185	.938	246.6	133.3	-22.6	23	102	595 c
									.915			82.3				184	
351.255 C	14183	.921	263.1	233.9	+ 7.6	14	81	193 c	Dec. 25			(+ 5.8)	(64.7)(- 2.2)	(23)	(102)	(779)	
	14185	.976	278.1	134.1	-22.7	113	716										
	14186	.517	135.5	80.3	+14.8	11	47	220 c	359.293 C	14185	.980	247.5	129.4	-22.5	10	52	421 c
		.984	74.7													20	
		.928	18.4						.932			9.9				202	
Dec. 18			(+ 9.1)	(157.1)(- 1.3)		(138)	(844)	(616)	Dec. 26			(+ 5.3)	(51.2)(- 2.3)	(10)	(52)	(643)	
352.277 C	14185	.401	157.1	134.0	-23.0	89	635										
	14186	.923	73.0	77.9	+15.1	5	27	355 c	360.281 C	14187	.922	94.8	331.1	-5.3	0	13	399 c
Dec. 19		.940	60.0									(+ 4.8)	(38.2)(- 2.4)	(0)	(13)	(399)	
		(+ 8.6)	(143.7)(- 1.4)			(94)	(662)	(552)	Dec. 27								
353.439 G	14185	.372	192.4	133.4	-22.8	111	633			361.276 C						265	
	14186	.793	69.3	78.4	+15.2	3	12	206 c								183	
		.954	18.8						.824			302.6					
		.956	16.3						.794			92.9	332.7	-3.9	0	8	275 c
		.960	59.9						(+ 4.3)			(25.1)(- 2.6)	(0)	(8)	(723)		
		.966	95.2														
Dec. 20			(+ 8.1)	(128.4)(- 1.6)		(114)	(645)	(634)	362.259 C							138	
354.256 C	14185	.430	215.1	133.0	-22.1	76	535			Dec. 29						175	
		.852	61.9														
		.956	54.1						.940			288.9	(+ 3.9)	(12.2)(- 2.7)	(0)	(0)	(313)
Dec. 21			(+ 7.7)	(117.6)(- 1.7)		(76)	(535)	(345)	363.442 G								
355.454 G	14185	.609	234.4	134.0	-22.2	57	371			Dec. 30							
		.922	49.3						.936			291.1				167	
		.924	13.9						.897			300.3				146	
Dec. 22			(+ 7.1)	(101.8)(- 1.8)		(57)	(371)	(372)	364.256 C							120	
									.895			309.0	(+ 3.3)	(356.6)(- 2.8)	(0)	(0)	(433)
									.906			296.9				219	
									(+ 2.9)			(345.9)(- 2.9)					

Group 14186. Dec. 18 - 20. Return of Group 14181: 5th appearance. One or two small spots.
 Group 14187. Dec. 27 - 28. A tiny spot.

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ROYAL OBSERVATORY, GREENWICH.

**General Catalogue of Groups
of Sunspots**

For the Year

1943

GREENWICH PHOTO-HELIOGRAPHIC RESULTS, 1943

GENERAL CATALOGUE OF GROUPS OF SUNSPOTS FOR THE YEAR 1943.

Groups of sunspots, lasting for two or more days, are numbered in the first column in continuation of the group-numbers given in 1942 and the previous years. Groups seen only once are not included in this catalogue but are given with a distinctive enumeration in a following table on p. C 33.

The second column gives the U.T. of the central meridian passage of each group as deduced from its mean longitude (given in the tenth column). For those groups which are in existence at the time of the central meridian passage of their longitude, the time is given to $0^d.01$, corresponding to $0^h.13$ of solar longitude. In other cases, in which groups disappear before or appear after the central meridian, the deduced time is given to $0^d.1$.

The third 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 number of days covering the extreme limits of observation.

The fifth and seventh columns, headed "Longitude from central meridian," give, for the days on which each group was first and last seen respectively, the heliographic longitude from the meridian passing through the centre of the Sun's disk at the time of observation; longitudes west of the centre being reckoned as positive.

The mean areas for umbras and whole spots entered in the eighth and ninth columns are corrected for the effect of foreshortening and are expressed in millionths of the Sun's visible hemisphere.

The tenth and eleventh columns give the mean heliographic position of the group in longitude and latitude respectively.

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

With reference to the identification both of recurrent and revival groups, it should be noted that longitudes are based on the ephemeris given in the *Nautical Almanac*, assuming a solar rotation period, constant at all latitudes. After an interval of one rotation, recurring groups will, therefore, show in general - apart from any proper motion they may have of their own - apparent drifts in longitude varying in amount according to their respective latitudes. The following table derived from the formula $\xi = 14^\circ.37 - 2^\circ.60 \sin^2 \phi$ gives the apparent drift in longitude appropriate to corresponding latitudes after an interval of 27 days.

Latitude	..	..	Drift	Latitude	..	..	Drift
			forwards				backwards
0°	5°	20°	3°
5°	4.5	25°	7.5
10°	3	30°	12.5
15°	0.5	35°	18

GREENWICH PHOTO-HELIOPHOTOGRAPHIC RESULTS, 1943.

C 31

GENERAL CATALOGUE OF SUNSPOTS												
No. of Group	U.T. of Central Meridian Passage	Duration in Days	First Seen		Last Seen		Mean Area Corrected for Foreshortening		Mean Position of Group		Reference to Ledger	
			Date	Longitude from Central Meridian	Date	Longitude from Central Meridian	Umbrae	Whole Spots	Longitude	Latitude		
14126	1943	Jan. 12.60	9	Jan. 6	-81	1943	o	19	109	320.8	-5.0	II
7	21.8	2	16	-71	17	-61	3	16	199.8	-8.9		
8	23.7	6	18	-69	23	-1	9	44	174.9	-8.6	II	
9	25.3	7	19	-79	25	0	4	16	153.3	+5.0	I 1365 (2)	
14130	26.9	5	21	-73	25	-20	7	35	132.8	+11.2		
1	23.6	6	24	+8	29	+79	11	47	176.0	+5.0	II	
2	Feb. 4.3	7	29	-78	Feb. 4	-1	4	18	21.4	-4.2	II	
3	2.5	2	Feb. 3	+12	4	+25	6	22	45.8	+7.8		
4	8.1	2	3	-64	4	-48	0	8	331.5	-3.0		
14135	11.71	10	9	-32	18	+82	117	649	284.4	+5.5	I 1366 (1)	
6	11.9	3	9	-35	11	-6	8	31	281.4	-2.4		
7	22.8	5	18	-58	22	-5	11	42	138.5	+7.6		
8	25.85	12	20	-74	Mar. 3	+75	142	1004	98.2	+9.1	I 1367 (1)	
9	25.25	5	21	-54	Feb. 25	+4	4	16	106.2	+9.3		
14140	21.3	6	22	+12	27	+84	21	118	158.7	+5.5	II	
1	24.5	5	25	+11	Mar. 1	+68	5	21	115.9	+5.6		
2	Mar. 10.60	13	Mar. 4	-79	16	+79	156	886	290.2	+4.3	I 1366 (2)	
3	16.9	3	11	-72	13	-45	4	16	207.7	-10.0		
4	19.9	3	14	-73	16	-47	5	13	167.4	+8.4		
14145	24.21	12	18	-75	29	+70	24	142	110.8	+9.1	I 1367 (2)	
5*	20.04	3	19	-10	21	+18	2	10	165.9	-12.7		
6	25.34	11	21	-54	31	+81	41	212	95.9	+8.4	I 1368 (1)	
7	Apr. 1.32	9	29	-43	Apr. 6	+70	20	91	3.9	-9.1	II	
8	6.39	13	31	-81	12	+79	85	477	297.0	+2.4	I 1366 (3)	
9	Mar. 29.4	3	Apr. 2	+55	4	+79	2	12	41.9	+8.7		
14150	Apr. 14.90	12	9	-76	20	+77	60	332	184.6	-12.0	II	
1	21.19	13	15	-77	27	+74	168	985	101.6	+9.3	I 1368 (2)	
2	May 3.38	13	27	-79	May 9	+81	31	171	300.5	+1.0	I 1366 (4)	
3	8.1	2	May 9	+17	10	+32	7	24	238.0	-4.3		
4	17.92	13	11	-82	23	+72	63	333	108.3	+7.3	I 1368 (3)	
14155	18.53	11	14	-56	24	+84	3	22	100.2	+9.4		
6	13.5	5	16	+38	20	+84	84	337	167.4	-40.7		
7	30.23	11	24	-75	June 3	+54	13	50	305.4	+3.8	I 1366 (5)	
8	June 14.08	11	June 8	-75	18	+56	15	63	108.9	+8.8	I 1368 (4)	
9	16.98	8/9	11	-75	19	+27	4	19	70.4	+12.7	II	
9*	14.7	2	17	+34	18	+50	0	4	100.8	+1.0		
14160	24.35	8	21	-44	28	+56	5	25	332.9	-1.5	II	
1	July 13.53	13	July 7	-84	July 19	+82	88	550	79.0	+14.1	I 1369 (1)	
1*	7.6	4/6	8	+6	13	+78	2	8	156.8	+8.2		
1†	18.4	2	21	+41	22	+55	2	9	14.5	+0.8		
2	23.5	6	24	+9	29	+79	14	77	306.9	-1.8	II	
3	Aug. 2.7	6	27	-82	Aug. 1	-17	9	43	172.4	+8.3	II	
4	9.42	13	Aug. 3	-78	15	+78	25	133	83.4	+12.7	I 1369 (2)	

GREENWICH PHOTO-HELIOPHOTOGRAPHIC RESULTS, 1943.

GENERAL CATALOGUE OF SUNSPOTS												
No. of Group	U.T. of Central Meridian Passage	Duration in Days	First Seen		Last Seen		Mean Area Corrected for Foreshortening		Mean Position of Group		Reference to Ledger	
			Date	Longitude from Central Meridian	Date	Longitude from Central Meridian	Umbræ	Whole Spots	Longitude	Latitude		
14165	1943	1943	o	o	1943	o	o	o	o	o		
6	Aug. 3.3	5	Aug. 5	+26	Aug. 9	+80	7	26	163.7	+9.7		
7	14.71	13	8	-84	20	+77	20	108	13.3	-4.3	II	
7*	19.80	12	14	-72	25	+72	12	61	306.1	+11.0	II	
8	19.0	2	17	-22	18	-7	0	6	317.0	-5.6		
9	23.0	5	17	-74	21	-19	5	17	264.3	-1.3		
	21.24	4	19	-26	22	+15	8	33	287.0	-5.0		
14170	25.85	9	23	-32	31	+75	6	27	226.2	-14.3	II	
1	29.7	2	24	-70	25	-58	2	16	175.2	+9.3		
2	Sept. 6.1	6	Sept. 7	+18	Sept. 12	+83	145	691	77.5	+14.2	I 1370 (1)	
3	12.43	2	11	-14	12	+3	3	12	354.0	+14.5		
4	18.2	7	18	+1	24	+80	20	83	277.2	-6.6	II	
14175	Oct. 3.10	14	26	-86	Oct. 9	+82	112	575	81.2	+15.4	I 1370 (2)	
6	8.0	4	Oct. 9	+18	12	+59	4	14	17.1	-26.2		
7	30.58	13	24	-81	Nov. 5	+78	47	245	78.7	+14.5	I 1370 (3)	
8	Nov. 15.78	4	Nov. 13	-32	16	+12	7	36	225.0	-8.7		
9	11.2	2	15	+55	16	+70	4	31	284.9	+3.4		
14180	14.1	3	16	+32	18	+59	2	15	247.7	-8.9		
1	26.79	13	20	-81	Dec. 2	+74	40	210	80.0	+14.3	I 1370 (4)	
2	Dec. 3.40	11	28	-68	8	+66	15	80	352.8	+5.2	II	
3	12.38	13	Dec. 6	-80	18	+77	26	144	234.6	+7.5	II	
4	8.6	4/5	9	+8	13	+68	3	15	283.9	-6.4		
14185	19.99	13	14	-73	26	+78	74	472	134.2	-22.5	II	
6	24.2	3	18	-77	20	-50	6	29	78.9	+15.0	I 1370 (5)	
7	1944 Jan. 1.3	2	27	-67	28	-52	0	10	331.9	-4.6		

GENERAL CATALOGUE OF SUNSPOTS

SUNSPOTS SEEN ON ONE DAY ONLY

The groups of sunspots tabulated below were seen on one day only and appear in the *Daily Results* with a distinctive enumeration, comprising the number of the rotation during which each was observed and a letter given in order of appearance. These short-lived groups are usually composed of one or two very small spots. The deduced time of central meridian passage of each spot is given in the fourth column of the table.

No. of Group	Date	Longitude from Central Meridian	U.T. of Central Meridian Passage	Area Corrected for Foreshortening		Position of Group		No. of Group	Date	Longitude from Central Meridian	U.T. of Central Meridian Passage	Area Corrected for Foreshortening		Position of Group	
				Umbrae	Whole Spots	Longitude	Latitude					Umbrae	Whole Spots	Longitude	Latitude
	1943	o	1943			o	o	1201a	1943	o	1943			o	o
1195a	Jan. 16	-56.4	Jan. 20.6	0	15	215.8	+20.2	b	June 30	+36.8	June 27.7	0	3	288.1	+17.3
b	20	-12.9	21.5	1	3	204.3	-21.6		July 1	+71.1	26.0	0	8	311.3	-6.4
c	Feb. 5	+52.4	Feb. 1.3	0	30	61.3	+13.4								
1196a	Feb. 7	-67.7	Feb. 12.6	0	10	272.5	+ 9.6	1202a	July 24	+18.6	July 22.9	0	4	314.4	+ 3.1
b	8	-54.1	12.5	2	32	274.5	- 3.3	b	30	+ 5.4	29.9	1	7	222.4	- 4.5
c	9	+33.5	6.8	4	10	349.0	- 4.0								
d	14	-60.2	18.9	2	13	190.0	- 4.6								
e	21	+54.9	17.1	3	11	213.1	- 7.3	1203a	Sept. 10	+14.7	Sept. 9.2	1	6	36.3	- 0.8
f	Mar. 2	-54.3	Mar. 6.4	2	11	345.2	+ 2.0								
1197a	Mar. 7	+25.9	Mar. 5.6	0	5	354.0	+ 2.7	1204a	Sept. 18	-22.9	Sept. 20.1	1	4	252.6	+ 3.7
b	17	+78.3	11.5	0	11	277.9	+ 7.2								
1199a	May 3	+ 9.8	May 2.8	1	5	308.4	+ 1.1	1205a	Oct. 18	-26.2	Oct. 20.4	2	10	213.5	- 8.2
								b	19	+ 1.0	19.3	4	13	227.2	- 2.9
1200a	June 1	+19.4	May 30.9	3	7	296.8	+ 3.7								
b	7	-55.4	June 11.5	0	6	142.7	+ 5.9	1207a	Dec. 7	- 8.5	Dec. 8.1	2	12	290.8	+ 3.3

GREENWICH PHOTO-HELIOPHOTOGRAPHIC RESULTS, 1943.

REVIVAL GROUPS OF SUNSPOTS

Groups of spots occupying the same heliographic position in consecutive disk passages (partial or complete) but with definite breaks in their history are termed "Revivals". Such groups have been abstracted from the preceding catalogue and are grouped in series in the following table. When a "Recurrent" series i.e. *Ledger I* forms part of a "Revival", a reference is given in the last column of the table. Groups that are given in detail in *Ledger II* are also indicated.

No.	No. of Group	U.T. of Central Meridian Passage	Rotation	Duration in Days	First Seen		Last Seen		Area	Mean Position		Reference to Ledger
					Date	Longitude from Central Meridian	Date	Longitude from Central Meridian		Longitude	Latitude	
1	14129 40	1943 Jan. 25.3 Feb. 21.3	1195 1196	7 6	1943 Jan. 19 Feb. 22	° -79 +12	1943 Jan. 25 Feb. 27	° 0 +84	16 118	° 153 159	+ 5 + 6	I 1365 (2) II
2	14159 61 64 72 75 77 81 86	June 16.98 July 13.53 Aug. 9.42 Sept. 6.1 Oct. 3.10 Oct. 30.58 Nov. 26.79 Dec. 24.2	1200 1201 1202 1203 1204 1205 1206 1207	8/9 13 13 6 14 13 13 3	June 11 July 7 Aug. 3 Sept. 7 Sept. 26 Oct. 24 Nov. 20 Dec. 18	-75 -84 -78 +18 -86 -81 -81 -77	June 19 July 19 Aug. 15 Sept. 12 Sept. 26 Oct. 9 Nov. 5 Dec. 20	+27 +82 +78 +83 +82 +78 +74 -50	19 550 133 691 575 245 210 29	70 79 83 78 81 79 80 79	+13 +14 +13 +14 +15 +15 +14 +15	II } I 1369 } I 1370
3	14161* 65	July 7.6 Aug. 3.3	1201 1202	4/6 5	July 8 Aug. 5	+ 6 +26	July 13 Aug. 9	+78 +80	8 26	157 164	+ 8 +10	
4	14163 71	Aug. 2.7 Aug. 29.7	1202 1203	6 2	July 27 Aug. 24	-82 -70	Aug. 1 Aug. 25	-17 -58	43 16	172 175	+ 8 + 9	II

ROYAL OBSERVATORY, GREENWICH.

Ledgers of Groups of Sunspots
For the Year
1943

Ledger I.—Recurrent Groups

LEDGER I. - RECURRENT GROUPS OF SUNSPOTS FOR THE YEAR 1943.

The time (U.T.) at which the photograph was taken is expressed in the *first* column by the day of the year 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 and Washington by the letters C, K and W 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 disk.

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

The longitude given in the *sixth* column is based on the ephemeris given in the *Nautical Almanac*, assuming a daily sidereal motion of $14^{\circ}.18$, due to the Sun's rotation, constant at all latitudes; this corresponds to Carrington's assumed rotation period of 25.38 days.

The proper motion given in the *seventh* column is derived from the difference of longitude thus computed from the measured positions on any given day and the first day on which the group of spots or single spot is visible, after the correction for the motion appropriate to the latitude has been applied according to the formula, $\xi = 14^{\circ}.37 - 2^{\circ}.60 \sin^2 \phi$. A *plus* sign indicates a motion forwards; a *minus* sign a motion backwards relative to the position on the first day.

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

When a group is 80° or more from the Sun's central meridian, the measures for that day are not included in taking the mean area, longitude and latitude of the group. In such cases of close proximity to the Sun's limb, the addition of brackets denotes that only part of the group is visible.

GREENWICH PHOTO-HELIOPHOTOGRAPHIC RESULTS, 1943.

C 37

LEDGER I. - RECURRENT GROUPS OF SUNSPOTS FOR THE YEAR

Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Latit- ude	Long. from C.M.	Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Latit- ude	Long. from C.M.								
	Umbræ	Whole Spots	Umbræ	Whole Spots					Umbræ	Whole Spots	Umbræ	Whole Spots											
	No. 1366. Latitude +3°.4														No. 1366. Group 14142 - continued.								
	Group 14135 in Rotation 1196														No. 1366. Group 14142 - continued.								
	" 14142	"	"	1197					65.593 G	215	1204	146	827	288.5	+ 0.3	+ 4.5	-41.4						
	" 14148	"	"	1198					66.360 G	303	1760	180	1051	289.0	+ 0.6	+ 4.6	-30.8						
	" 14152	"	"	1199					67.401 G	359	2311	190	1224	289.6	+ 1.0	+ 4.1	-16.4						
	" 14157	"	"	1200					68.397 G	400	2477	204	1265	289.5	+ 0.7	+ 4.1	-3.4						
	Group 14135. Feb. 9-18. A large stream with abrupt development. The leader, <i>a</i> , is a stable regular spot; the follower is complex and divides later into two spots.														69.477 C	360	2356	189	1238	290.5	+ 1.5	+ 4.1	+11.8
															70.375 G	427	1996	240	1121	290.0	+ 0.9	+ 4.2	+23.2
															71.464 G	216	1298	144	861	290.9	+ 1.6	+ 4.5	+38.4
															72.412 G	160	920	137	779	291.9	+ 2.4	+ 4.1	+51.9
															73.444 G	101	515	133	679	293.2	+ 3.5	+ 3.7	+66.8
															74.378 G	44	207	124	575	293.0	+ 3.2	+ 3.4	+78.9
															Means	..	..	156	886	290.2	..	+ 4.3	..
															Spot <i>a</i>								
															62.513 G	18	70	49	192	291.7	+ 1.0	+ 4.8	-78.7
															63.490 G	26	97	33	123	291.7	+ 0.8	+ 5.0	-65.9
															64.094 K	25	150	24	146	291.9	+ 0.9	+ 4.8	-57.7
															65.593 G	121	601	79	393	291.3	0.0	+ 4.1	-38.6
															66.360 G	202	1021	117	592	291.5	+ 0.1	+ 3.8	-28.3
															67.401 G	187	1316	97	684	292.5	+ 0.9	+ 3.5	-13.5
															68.397 G	202	1390	103	709	293.0	+ 1.2	+ 3.6	+ 0.1
															69.477 C	198	1304	105	691	293.4	+ 1.4	+ 3.6	+14.7
															70.375 G	240	1201	137	685	293.5	+ 1.4	+ 3.4	+26.7
															71.464 G	163	946	111	643	293.5	+ 1.2	+ 3.6	+41.0
															72.412 G	134	744	117	647	293.9	+ 1.4	+ 3.4	+53.9
															73.444 G	92	475	123	636	293.7	+ 1.0	+ 3.4	+67.3
															74.378 G	44	198	124	558	293.4	+ 0.6	+ 3.3	+79.3
	Spot <i>a</i>														Group 14148. Mar. 31-Apr. 12. A large stable regular spot.								
															89.341 C	32	170	105	558	296.0	..	+ 2.6	-80.8
															90.390 C	75	458	95	582	296.6	+ 0.9	+ 2.5	-66.3
															91.594 G	147	667	116	527	297.1	+ 1.1	+ 2.3	-50.0
															92.354 C	112	717	74	473	296.9	+ 0.8	+ 2.5	-40.1
															93.410 G	174	937	97	525	296.9	+ 0.6	+ 2.6	-26.2
															94.360 G	192	986	100	513	297.0	+ 0.5	+ 2.6	-13.6
															95.362 G	196	1050	100	536	297.0	+ 0.4	+ 2.6	- 0.3
															96.509 G	192	1093	100	568	296.8	0.0	+ 2.5	+14.6
															97.420 G	137	775	78	442	297.0	0.0	+ 2.2	+26.8
															98.412 C	99	680	65	449	297.3	+ 0.1	+ 2.3	+40.2
															99.648 W	49	344	45	316	297.6	+ 0.2	+ 1.9	+56.8
															100.333 C	56	276	68	337	297.1	- 0.4	+ 1.8	+65.4
															101.337 C	15	108	41	296	297.7	0.0	+ 2.1	+79.2
															Means	..	..	85	477	297.0	..	+ 2.4	..

GREENWICH PHOTO-HELIOPHOTOGRAPHIC RESULTS, 1943.

LEDGER I. - RECURRENT GROUPS OF SUNSPOTS FOR THE YEAR

Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Latit- ude	Long. from C.M.	Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Latit- ude	Long. from C.M.							
	Umbras	Whole Spots	Umbras	Whole Spots					Umbras	Whole Spots	Umbras	Whole Spots										
No. 1366. - <i>continued</i>																						
Group 14152. Apr. 27-May 9. A regular spot of remarkable stability, drifting very slowly from the Sun's equator.																						
116.403 C	11	88	29	234	300.4	-0.1	+ 0.2	-79.1	50.307 C	14	69	29	143	97.0	0.0	+ 9.2	-74.2					
117.358 G	23	145	29	183	300.3	-0.3	+ 0.5	-66.6	51.294 C	82	357	96	418	95.7	-1.4	+ 9.1	-62.5					
118.345 G	41	244	35	207	300.2	-0.6	+ 0.5	-53.6	52.305 C	129	789	102	626	97.3	+ 0.1	+ 9.1	-47.6					
119.368 C	46	263	30	171	300.3	-0.7	+ 0.6	-40.0	53.350 C	201	1389	134	943	97.6	+ 0.2	+ 9.0	-33.5					
120.312 G	50	316	28	180	300.4	-0.8	+ 0.9	-27.4	54.367 G	221	1609	125	900	97.1	-0.4	+ 9.0	-20.6					
121.360 C	53	306	28	159	300.7	-0.7	+ 0.9	-13.3	55.439 G	224	1453	118	762	98.6	+ 1.0	+ 9.2	-5.0					
122.525 G	68	329	34	164	300.6	-1.0	+ 1.3	+ 2.0	56.368 G	325	2002	172	1058	98.6	+ 0.8	+ 9.2	+ 7.2					
123.326 G	75	356	38	182	300.5	-1.2	+ 1.3	+ 12.5	57.373 G	377	2426	213	1369	98.8	+ 0.9	+ 9.1	+ 20.7					
124.422 G	57	266	32	149	300.7	-1.2	+ 1.3	+ 27.2	58.306 C	342	3052	212	1892	99.1	+ 1.1	+ 8.9	+ 33.2					
125.464 G	43	207	28	137	300.4	-1.7	+ 1.5	+ 40.7	59.591 G	227	1818	188	1508	99.9	+ 1.7	+ 9.3	+ 51.0					
126.332 G	39	168	32	139	300.7	-1.6	+ 1.4	+ 52.5	60.310 C	152	1299	171	1430	99.2	+ 0.9	+ 9.4	+ 59.7					
127.413 G	25	118	32	151	300.8	-1.7	+ 1.8	+ 66.8	61.391 C	59	356	122	719	100.2	+ 1.8	+ 9.0	+ 75.0					
128.527 G	7	41	23	134	300.3	..	+ 1.8	+ 81.1	Means	..	..	142	1004	98.2	..	+ 9.1	..			
Group 14157. May 24-June 3. A pair of decreasing spots probably representing the last phase of the regular spot of remarkable stability of the previous rotations. The following nucleus of the pair alone remains on June 2. The latitude drift from the first appearance of the Group should be noted.																						
143.543 G	14	59	27	113	305.8	+ 0.4	+ 3.7	-74.8	Spot a													
144.347 G	25	87	29	102	305.4	-0.1	+ 3.6	-64.6	51.294 C	76	325	87	370	96.0	0.0	+ 9.2	-62.2					
145.324 G	28	123	22	99	305.7	0.0	+ 4.0	-51.4	52.305 C	76	481	58	366	98.4	+ 2.3	+ 8.8	-46.5					
146.360 G	28	124	18	79	305.7	-0.2	+ 3.8	-37.6	53.350 C	106	781	66	484	99.1	+ 2.8	+ 9.1	-32.0					
147.338 G	30	89	17	49	306.1	0.0	+ 4.6	-24.3	54.367 G	118	1053	65	579	99.6	+ 3.2	+ 8.7	-18.1					
148.313 G	23	69	12	35	305.8	-0.4	+ 4.1	-11.7	55.439 G	134	964	70	501	100.4	+ 3.9	+ 8.6	-3.2					
149.475 G	16	55	8	28	305.5	-0.9	+ 3.7	+ 3.4	56.368 G	237	1511	126	801	100.4	+ 3.8	+ 9.0	+ 9.0					
150.327 G	14	36	8	19	305.7	-0.9	+ 4.5	+ 14.8	57.373 G	289	1745	165	995	101.3	+ 4.5	+ 8.7	+ 23.2					
151.342 G	4	18	2	10	305.4	-1.4	+ 4.1	+ 28.0	58.306 C	236	2102	149	1324	100.7	+ 3.8	+ 8.4	+ 34.8					
152.341 G	2	7	1	5	303.8	-3.2	+ 2.8	+ 39.6	59.591 G	177	1332	150	1132	100.8	+ 3.8	+ 8.3	+ 51.9					
153.378 G	0	9	0	8	304.3	-2.9	+ 3.0	+ 53.8	60.310 C	135	1118	155	1260	101.2	+ 4.1	+ 9.2	+ 61.7					
Means	..	..	13	50	305.4	..	+ 3.8	..	61.391 C	34	161	76	362	101.0	+ 3.7	+ 8.7	+ 75.8			
No. 1367. Latitude +9°.1																						
Group 14138 in Rotation 1196																						
" 14145 " " 1197																						
Group 14138. Feb. 20-Mar. 3. A stream of notable development, in which the leader, a, becomes a big																						
continued																						
76.570 G	13	110	28	234	110.2	+11.0	+ 8.7	-75.0	77.322 C	17	146	21	184	110.3	+11.0	+ 8.9	-65.0					
78.327 C	39	214	33	182	110.2	+10.8	+ 9.1	-51.8	79.337 C	47	278	31	186	110.5	+11.0	+ 9.2	-38.2					
80.415 G	44	243	25	138	110.6	+11.0	+ 9.4	-23.9	81.468 G	57	352	30	186	110.1	+10.3	+ 9.1	-10.5					
82.401 G	53	256	27	133	110.8	+10.9	+ 9.3	+ 2.5	83.432 G	98	395	53	215	110.9	+10.9	+ 8.6	+ 16.2					
84.342 C	39	240	24	141	111.0	+10.9	+ 8.9	+ 28.3	85.339 C	15	109	10	76	110.8	+10.5	+ 8.7	+ 41.2					
86.328 G	8	24	8	22	112.2	+11.8	+ 10.3	+ 55.7	86.328 G	8	24	8	22	112.2	+11.8	+ 10.3	+ 55.7					
87.357 G	2	4	3	6	112.5	+12.0	+ 9.0	+ 69.5	87.357 G	2	4	3	6	112.5	+12.0	+ 9.0	+ 69.5					
Means	..	..	24	142	110.8	..	+ 9.1	..	Means	..	..	24	142	110.8	..	+ 9.1	..	

GREENWICH PHOTO-HELIOGRAPHIC RESULTS. 1943.

C 39

LEDGER I. - RECURRENT GROUPS OF SUNSPOTS FOR THE YEAR

Date U.T. Place	LEDGER I. - RECURRENT GROUPS OF SUNSPOTS FOR THE YEAR															
	Projected Area		Corrected Area		Longitude and Proper Motion	Latitude	Long. from C.M.	Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Latitude	Long. from C.M.	
	Umbrae	Whole Spots	Umbrae	Whole Spots					Umbrae	Whole Spots	Umbrae	Whole Spots				
No. 1368. Latitude +8°.6																
Group 14146 in Rotation 1197																
	"	14151	"	"	1198											
	"	14154	}"	"	1199											
	"	14155	}"	"	1200											
Group 14146. Mar. 21-31. Starting with a small spot, there develops a regular spot <i>a</i> , with two or three smaller followers which have died out by March 29.																
d																
79.337 C	0	13	0	12	94.5	0.0	+ 7.6	-54.2								
80.415 G	79	327	52	217	95.8	+ 1.2	+ 8.0	-38.7								
81.468 G	109	555	63	319	95.3	+ 0.5	+ 8.3	-25.3								
82.401 G	99	645	53	344	95.2	+ 0.3	+ 8.7	-13.1								
83.432 G	87	446	45	232	95.4	+ 0.4	+ 8.7	+ 0.7								
84.342 C	94	512	50	271	95.3	+ 0.1	+ 8.8	+12.6								
85.339 C	73	336	42	194	96.3	+ 1.0	+ 8.6	+26.7								
86.328 G	49	249	33	169	96.6	+ 1.2	+ 8.6	+40.1								
87.357 G	42	195	37	174	97.1	+ 1.5	+ 8.3	+54.1								
88.339 C	28	138	38	189	97.2	+ 1.5	+ 8.5	+67.2								
89.341 C	9	39	32	141	97.7	..	+ 8.5	+80.9								
Means	..	..	41	212	95.9	..	+ 8.4	..						
Spot <i>a</i>																
79.337 C	0	13	0	12	94.5	0.0	+ 7.6	-54.2								
80.415 G	57	234	37	152	97.1	+ 2.5	+ 7.9	-37.4								
81.468 G	60	296	34	166	97.4	+ 2.6	+ 8.2	-23.2								
82.401 G	64	389	34	206	96.7	+ 1.8	+ 8.2	-11.6								
83.432 G	56	313	29	163	96.6	+ 1.6	+ 8.5	+ 1.9								
84.342 C	47	278	25	147	96.6	+ 1.4	+ 8.3	+13.9								
85.339 C	56	268	32	155	96.8	+ 1.5	+ 8.1	+27.2								
86.328 G	40	222	27	151	96.9	+ 1.5	+ 8.3	+40.4								
87.357 G	42	195	37	174	97.1	+ 1.5	+ 8.3	+54.1								
88.339 C	28	138	38	189	97.2	+ 1.5	+ 8.5	+67.2								
89.341 C	9	39	32	141	97.7	..	+ 8.5	+80.9								
Spot <i>a</i>																
79.337 C	0	13	0	12	94.5	0.0	+ 7.6	-54.2								
80.415 G	57	234	37	152	97.1	+ 2.5	+ 7.9	-37.4								
81.468 G	60	296	34	166	97.4	+ 2.6	+ 8.2	-23.2								
82.401 G	64	389	34	206	96.7	+ 1.8	+ 8.2	-11.6								
83.432 G	56	313	29	163	96.6	+ 1.6	+ 8.5	+ 1.9								
84.342 C	47	278	25	147	96.6	+ 1.4	+ 8.3	+13.9								
85.339 C	56	268	32	155	96.8	+ 1.5	+ 8.1	+27.2								
86.328 G	40	222	27	151	96.9	+ 1.5	+ 8.3	+40.4								
87.357 G	42	195	37	174	97.1	+ 1.5	+ 8.3	+54.1								
88.339 C	28	138	38	189	97.2	+ 1.5	+ 8.5	+67.2								
89.341 C	9	39	32	141	97.7	..	+ 8.5	+80.9								
Group 14151. Apr. 15-27. A notable stream rising to peak area on the seventh day from its origin, very close to a small existing regular spot from the previous rotation. The new group develops vigorously from a stream-formation of two leading regular spots with following clusters. By April 22 the Group consists of a single big regular spot followed by a string of complex spots that begin to die out rapidly after April 24.																
104.382 G	9	45	21	104	101.7	+ 3.9	+ 7.4	-76.6								
105.398 G	15	80	18	95	100.9	+ 3.0	+ 7.8	-64.0								
d																
106.332 G	106	454	92	395	99.8	+ 1.7	+ 9.8	-52.7								
107.318 G	235	911	160	617	99.9	+ 1.7	+10.0	-39.6								
108.323 G	200	1124	115	650	99.9	+ 1.6	+ 9.4	-26.3								
109.391 G	263	1502	140	792	101.0	+ 2.5	+ 9.2	-11.1								
110.345 G	385	1958	200	1018	101.3	+ 2.7	+ 9.4	+ 1.8								
111.572 G	484	2733	264	1493	101.9	+ 3.2	+ 9.4	+18.6								
112.369 C	380	3052	228	1818	101.9	+ 3.0	+ 9.7	+29.1								
113.315 G	357	2339	252	1655	103.3	+ 4.3	+10.0	+43.0								
114.394 G	323	1826	314	1785	103.5	+ 4.4	+ 9.9	+57.5								
115.452 G	118	771	208	1394	103.7	+ 4.4	+ 9.9	+71.7								
116.403 C	4	22	(8	44	93.9	..	+11.2	+74.4								
Means	..	..	168	985	100.6	..	+ 9.3	..						
Spot <i>a</i>																
106.332 G	25	104	20	85	102.2	+ 4.1	+ 9.7	-50.3								
107.318 G	40	142	26	91	103.9	+ 5.7	+ 9.2	-35.6								
108.323 G	94	500	53	280	103.4	+ 5.1	+ 9.4	-22.8								
109.391 G	92	646	48	336	105.1	+ 6.6	+ 8.8	- 7.0								
110.345 G	124	677	64	352	105.7	+ 7.1	+ 8.7	+ 6.2								
111.572 G	238	1364	133	764	105.9	+ 7.2	+ 9.2	+22.6								
112.369 C	201	1515	125	939	105.9	+ 7.0	+ 9.4	+33.1								
113.315 G	224	1460	166	1080	106.0	+ 7.0	+ 9.6	+45.7								
114.394 G	215	1216	224	1265	105.7	+ 6.6	+ 9.7	+59.7								
115.452 G	95	678	179	1275	105.4	+ 6.1	+ 9.8	+73.4								
Group 14154. May 11-23. A large regular spot in decline. There are small companions both <i>p</i> and <i>f</i> .																
130.334 G	5	23	(20	94	113.0	..	+ 8.6	-82.3								
131.354 C	55	290	99	520	109.5	+ 8.1	+ 7.7	-72.4								
132.365 G	69	376	73	406	106.9	+ 5.4	+ 7.5	-61.6								
133.359 G	105	529	79	400	107.5	+ 5.9	+ 7.5	-47.8								
134.349 G	121	600	75	371	107.7	+ 5.9	+ 7.2	-34.5								
135.359 G	123	620	66	334	108.5	+ 6.6	+ 7.5	-20.4								
136.329 G	101	577	52	294	108.5	+ 6.5	+ 7.2	- 7.6								
137.335 G	107	606	55	310	108.5	+ 6.3	+ 7.4	+ 5.7								
138.327 G	140	618	75	328	108.0	+ 5.7	+ 7.2	+18.4								
139.330 G	101	550	61	332	108.6	+ 6.2	+ 6.9	+32.2								
140.328 G	66	381	48	274	108.5	+ 5.9	+ 7.0	+45.3								
141.360 G	39	237	38	232	108.4	+ 5.7	+ 7.0	+58.9								
142.353 G	18	112	31	190	108.9	+ 6.1	+ 7.0	+72.5								
Means	..	..	63	333	108.3	..	+ 7.3	..						

GREENWICH PHOTO-HELIOPHOTOGRAPHIC RESULTS, 1943.

Date U.T. Place	LEDGER I. - RECURRENT GROUPS OF SUNSPOTS FOR THE YEAR																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
	Projected Area		Corrected Area		Longitude and Proper Motion	Latitude	Long. from C.M.	Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Latitude	Long. from C.M.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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No. 1368. - continued												No. 1369. Group 14161 - continued																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
<p>Group 14155. May 14-24. A faint cluster of small spots nf Group 14154.</p> <table> <tbody> <tr><td>133.359 G</td><td>0</td><td>23</td><td>0</td><td>21</td><td>98.9</td><td>-2.7</td><td>+9.4</td><td>-56.4</td><td>192.430 G</td><td>213</td><td>1229</td><td>113</td><td>649</td><td>78.2</td><td>+1.1</td><td>+14.2</td><td>-15.4</td></tr> <tr><td>134.349 G</td><td>5</td><td>46</td><td>3</td><td>31</td><td>100.4</td><td>-1.4</td><td>+7.8</td><td>-41.8</td><td>193.319 G</td><td>194</td><td>1263</td><td>99</td><td>644</td><td>78.6</td><td>+1.5</td><td>+14.6</td><td>-3.2</td></tr> <tr><td>135.359 G</td><td>5</td><td>64</td><td>3</td><td>38</td><td>99.8</td><td>-2.1</td><td>+9.4</td><td>-29.1</td><td>194.358 C</td><td>178</td><td>1019</td><td>93</td><td>534</td><td>79.2</td><td>+2.0</td><td>+14.5</td><td>+11.1</td></tr> <tr><td>136.329 G</td><td>9</td><td>43</td><td>5</td><td>23</td><td>99.9</td><td>-2.1</td><td>+10.7</td><td>-16.2</td><td>195.314 G</td><td>141</td><td>914</td><td>79</td><td>510</td><td>79.2</td><td>+2.0</td><td>+14.2</td><td>+23.8</td></tr> <tr><td>137.335 G</td><td>9</td><td>48</td><td>5</td><td>24</td><td>100.1</td><td>-2.1</td><td>+9.7</td><td>-2.7</td><td>196.310 G</td><td>111</td><td>626</td><td>72</td><td>404</td><td>80.1</td><td>+2.8</td><td>+14.5</td><td>+37.9</td></tr> <tr><td>138.327 G</td><td>9</td><td>39</td><td>5</td><td>20</td><td>101.0</td><td>-1.3</td><td>+8.9</td><td>+11.4</td><td>197.311 G</td><td>70</td><td>393</td><td>59</td><td>330</td><td>81.4</td><td>+4.1</td><td>+14.4</td><td>+52.4</td></tr> <tr><td>139.330 G</td><td>7</td><td>25</td><td>4</td><td>14</td><td>100.5</td><td>-1.9</td><td>+9.5</td><td>+24.1</td><td>198.352 C</td><td>27</td><td>248</td><td>35</td><td>320</td><td>82.8</td><td>+5.4</td><td>+14.5</td><td>+67.6</td></tr> <tr><td>140.328 G</td><td>5</td><td>25</td><td>3</td><td>16</td><td>101.5</td><td>-1.1</td><td>+8.9</td><td>+38.3</td><td>199.507 G</td><td>14</td><td>109</td><td>53</td><td>394</td><td>82.3</td><td>..</td><td>+13.9</td><td>+82.4</td></tr> <tr><td>141.360 G</td><td>2</td><td>23</td><td>2</td><td>17</td><td>98.8</td><td>-3.9</td><td>+9.4</td><td>+49.3</td><td>Means</td><td>..</td><td>..</td><td>88</td><td>550</td><td>79.1</td><td>..</td><td>+14.1</td><td>..</td></tr> <tr><td>142.353 G</td><td>2</td><td>16</td><td>2</td><td>20</td><td>101.4</td><td>-1.4</td><td>+10.3</td><td>+65.0</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>143.543 G</td><td>0</td><td>9</td><td>0</td><td>43</td><td>104.1</td><td>..</td><td>+10.8</td><td>+83.5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr> <td>Means</td><td>..</td><td>..</td><td>3</td><td>22</td><td>100.2</td><td>..</td><td>+9.4</td><td>..</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr> <td> <p>Group 14158. June 8-19. A regular spot slowly contracting. (The ending of a very stable spot).</p> <table> <tbody> <tr><td>158.361 C</td><td>9</td><td>49</td><td>18</td><td>98</td><td>109.3</td><td>+4.4</td><td>+8.7</td><td>-75.2</td><td>187.350 G</td><td>7</td><td>42</td><td>28</td><td>171</td><td>77.3</td><td>..</td><td>+12.4</td><td>-83.5</td></tr> <tr><td>159.513 G</td><td>23</td><td>133</td><td>23</td><td>136</td><td>109.1</td><td>+4.0</td><td>+8.6</td><td>-60.2</td><td>188.323 G</td><td>25</td><td>208</td><td>35</td><td>291</td><td>78.5</td><td>0.0</td><td>+13.1</td><td>-69.4</td></tr> <tr><td>160.381 G</td><td>32</td><td>133</td><td>24</td><td>101</td><td>109.1</td><td>+3.9</td><td>+8.7</td><td>-48.7</td><td>189.368 C</td><td>85</td><td>370</td><td>72</td><td>314</td><td>80.2</td><td>+1.6</td><td>+14.3</td><td>-53.9</td></tr> <tr><td>161.346 G</td><td>25</td><td>136</td><td>16</td><td>84</td><td>109.0</td><td>+3.7</td><td>+8.6</td><td>-36.0</td><td>190.359 C</td><td>92</td><td>688</td><td>61</td><td>454</td><td>81.4</td><td>+2.8</td><td>+14.5</td><td>-39.6</td></tr> <tr><td>162.427 G</td><td>37</td><td>126</td><td>20</td><td>68</td><td>108.9</td><td>+3.4</td><td>+8.7</td><td>-21.8</td><td>191.535 C</td><td>103</td><td>656</td><td>57</td><td>361</td><td>82.1</td><td>+3.4</td><td>+14.7</td><td>-23.3</td></tr> <tr><td>163.355 C</td><td>25</td><td>120</td><td>13</td><td>61</td><td>108.9</td><td>+3.3</td><td>+8.7</td><td>-9.5</td><td>192.430 G</td><td>134</td><td>739</td><td>70</td><td>384</td><td>82.4</td><td>+3.7</td><td>+14.8</td><td>-11.2</td></tr> <tr><td>164.372 G</td><td>30</td><td>117</td><td>15</td><td>60</td><td>108.8</td><td>+3.1</td><td>+8.6</td><td>+3.8</td><td>193.319 G</td><td>120</td><td>739</td><td>61</td><td>377</td><td>82.5</td><td>+3.8</td><td>+15.0</td><td>+0.7</td></tr> <tr><td>165.358 C</td><td>18</td><td>67</td><td>10</td><td>36</td><td>108.8</td><td>+2.9</td><td>+8.9</td><td>+16.9</td><td>194.358 C</td><td>116</td><td>709</td><td>61</td><td>376</td><td>82.7</td><td>+3.9</td><td>+15.0</td><td>+14.6</td></tr> <tr><td>166.461 G</td><td>16</td><td>32</td><td>9</td><td>19</td><td>108.9</td><td>+2.9</td><td>+9.0</td><td>+31.6</td><td>195.314 G</td><td>116</td><td>651</td><td>66</td><td>371</td><td>82.6</td><td>+3.8</td><td>+14.7</td><td>+27.2</td></tr> <tr><td>167.313 G</td><td>14</td><td>28</td><td>10</td><td>19</td><td>108.5</td><td>+2.4</td><td>+9.1</td><td>+42.5</td><td>196.310 G</td><td>88</td><td>499</td><td>58</td><td>329</td><td>82.7</td><td>+3.8</td><td>+14.9</td><td>+40.5</td></tr> <tr><td>168.355 C</td><td>2</td><td>11</td><td>2</td><td>10</td><td>108.5</td><td>+2.2</td><td>+9.3</td><td>+56.2</td><td>197.311 G</td><td>65</td><td>370</td><td>55</td><td>314</td><td>82.7</td><td>+3.8</td><td>+14.5</td><td>+53.7</td></tr> <tr><td>Means</td><td>..</td><td>..</td><td>15</td><td>63</td><td>108.9</td><td>..</td><td>+8.8</td><td>..</td><td>198.352 C</td><td>27</td><td>248</td><td>35</td><td>320</td><td>82.8</td><td>+3.8</td><td>+14.5</td><td>+67.6</td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>199.507 G</td><td>14</td><td>97</td><td>53</td><td>371</td><td>83.3</td><td>..</td><td>+14.1</td><td>+83.4</td></tr> <tr> <td>Means</td><td>..</td><td>..</td><td>15</td><td>63</td><td>108.9</td><td>..</td><td>+8.8</td><td>..</td><td colspan="4" rowspan="2" style="text-align: center;">Spot a</td><td></td><td></td><td></td><td></td></tr> <tr> <td colspan="13"> <p>Group 14164. Aug. 3-15. A regular spot shrinking rapidly after August 12.</p> <table> <tbody> <tr><td>214.437 G</td><td>16</td><td>55</td><td>36</td><td>124</td><td>84.3</td><td>+6.1</td><td>+13.4</td><td>-78.1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>215.371 G</td><td>23</td><td>149</td><td>28</td><td>183</td><td>83.4</td><td>+5.1</td><td>+13.4</td><td>-66.7</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>216.353 G</td><td>41</td><td>218</td><td>34</td><td>181</td><td>83.8</td><td>+5.5</td><td>+13.5</td><td>-53.3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>217.375 G</td><td>44</td><td>254</td><td>29</td><td>165</td><td>83.5</td><td>+5.1</td><td>+12.9</td><td>-40.1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>218.386 C</td><td>42</td><td>258</td><td>24</td><td>144</td><td>83.5</td><td>+5.1</td><td>+12.8</td><td>-26.7</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>219.400 G</td><td>41</td><td>295</td><td>21</td><td>153</td><td>83.4</td><td>+4.9</td><td>+12.8</td><td>-13.4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>220.358 C</td><td>58</td><td>315</td><td>29</td><td>158</td><td>83.3</td><td>+4.8</td><td>+12.7</td><td>-0.9</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>221.558 G</td><td>37</td><td>279</td><td>19</td><td>145</td><td>83.1</td><td>+4.5</td><td>+12.5</td><td>+14.8</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>222.497 G</td><td>44</td><td>245</td><td>25</td><td>137</td><td>83.1</td><td>+4.5</td><td>+12.3</td><td>+27.2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>223.322 G</td><td>46</td><td>224</td><td>29</td><td>143</td><td>83.2</td><td>+4.6</td><td>+12.3</td><td>+38.2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>224.360 C</td><td>38</td><td>130</td><td>30</td><td>104</td><td>82.8</td><td>+4.1</td><td>+12.1</td><td>+51.5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>225.356 G</td><td>14</td><td>62</td><td>16</td><td>71</td><td>83.0</td><td>+4.2</td><td>+11.9</td><td>+64.9</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>226.307 G</td><td>0</td><td>7</td><td>0</td><td>15</td><td>83.5</td><td>+4.7</td><td>+12.2</td><td>+78.0</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>Means</td><td>..</td><td>..</td><td>25</td><td>133</td><td>83.4</td><td>..</td><td>+12.7</td><td>..</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </tbody> </table> </td><td></td><td></td><td></td><td></td></tr> <tr> <td colspan="13"> <p>No. 1369. 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(The ending of a very stable spot).</p> <table> <tbody> <tr><td>158.361 C</td><td>9</td><td>49</td><td>18</td><td>98</td><td>109.3</td><td>+4.4</td><td>+8.7</td><td>-75.2</td><td>187.350 G</td><td>7</td><td>42</td><td>28</td><td>171</td><td>77.3</td><td>..</td><td>+12.4</td><td>-83.5</td></tr> <tr><td>159.513 G</td><td>23</td><td>133</td><td>23</td><td>136</td><td>109.1</td><td>+4.0</td><td>+8.6</td><td>-60.2</td><td>188.323 G</td><td>25</td><td>208</td><td>35</td><td>291</td><td>78.5</td><td>0.0</td><td>+13.1</td><td>-69.4</td></tr> <tr><td>160.381 G</td><td>32</td><td>133</td><td>24</td><td>101</td><td>109.1</td><td>+3.9</td><td>+8.7</td><td>-48.7</td><td>189.368 C</td><td>85</td><td>370</td><td>72</td><td>314</td><td>80.2</td><td>+1.6</td><td>+14.3</td><td>-53.9</td></tr> <tr><td>161.346 G</td><td>25</td><td>136</td><td>16</td><td>84</td><td>109.0</td><td>+3.7</td><td>+8.6</td><td>-36.0</td><td>190.359 C</td><td>92</td><td>688</td><td>61</td><td>454</td><td>81.4</td><td>+2.8</td><td>+14.5</td><td>-39.6</td></tr> <tr><td>162.427 G</td><td>37</td><td>126</td><td>20</td><td>68</td><td>108.9</td><td>+3.4</td><td>+8.7</td><td>-21.8</td><td>191.535 C</td><td>103</td><td>656</td><td>57</td><td>361</td><td>82.1</td><td>+3.4</td><td>+14.7</td><td>-23.3</td></tr> <tr><td>163.355 C</td><td>25</td><td>120</td><td>13</td><td>61</td><td>108.9</td><td>+3.3</td><td>+8.7</td><td>-9.5</td><td>192.430 G</td><td>134</td><td>739</td><td>70</td><td>384</td><td>82.4</td><td>+3.7</td><td>+14.8</td><td>-11.2</td></tr> <tr><td>164.372 G</td><td>30</td><td>117</td><td>15</td><td>60</td><td>108.8</td><td>+3.1</td><td>+8.6</td><td>+3.8</td><td>193.319 G</td><td>120</td><td>739</td><td>61</td><td>377</td><td>82.5</td><td>+3.8</td><td>+15.0</td><td>+0.7</td></tr> <tr><td>165.358 C</td><td>18</td><td>67</td><td>10</td><td>36</td><td>108.8</td><td>+2.9</td><td>+8.9</td><td>+16.9</td><td>194.358 C</td><td>116</td><td>709</td><td>61</td><td>376</td><td>82.7</td><td>+3.9</td><td>+15.0</td><td>+14.6</td></tr> <tr><td>166.461 G</td><td>16</td><td>32</td><td>9</td><td>19</td><td>108.9</td><td>+2.9</td><td>+9.0</td><td>+31.6</td><td>195.314 G</td><td>116</td><td>651</td><td>66</td><td>371</td><td>82.6</td><td>+3.8</td><td>+14.7</td><td>+27.2</td></tr> <tr><td>167.313 G</td><td>14</td><td>28</td><td>10</td><td>19</td><td>108.5</td><td>+2.4</td><td>+9.1</td><td>+42.5</td><td>196.310 G</td><td>88</td><td>499</td><td>58</td><td>329</td><td>82.7</td><td>+3.8</td><td>+14.9</td><td>+40.5</td></tr> <tr><td>168.355 C</td><td>2</td><td>11</td><td>2</td><td>10</td><td>108.5</td><td>+2.2</td><td>+9.3</td><td>+56.2</td><td>197.311 G</td><td>65</td><td>370</td><td>55</td><td>314</td><td>82.7</td><td>+3.8</td><td>+14.5</td><td>+53.7</td></tr> <tr><td>Means</td><td>..</td><td>..</td><td>15</td><td>63</td><td>108.9</td><td>..</td><td>+8.8</td><td>..</td><td>198.352 C</td><td>27</td><td>248</td><td>35</td><td>320</td><td>82.8</td><td>+3.8</td><td>+14.5</td><td>+67.6</td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>199.507 G</td><td>14</td><td>97</td><td>53</td><td>371</td><td>83.3</td><td>..</td><td>+14.1</td><td>+83.4</td></tr> <tr> <td>Means</td><td>..</td><td>..</td><td>15</td><td>63</td><td>108.9</td><td>..</td><td>+8.8</td><td>..</td><td colspan="4" rowspan="2" style="text-align: center;">Spot a</td><td></td><td></td><td></td><td></td></tr> <tr> <td colspan="13"> <p>Group 14164. 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Spot a								<p>Group 14164. Aug. 3-15. A regular spot shrinking rapidly after August 12.</p> <table> <tbody> <tr><td>214.437 G</td><td>16</td><td>55</td><td>36</td><td>124</td><td>84.3</td><td>+6.1</td><td>+13.4</td><td>-78.1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>215.371 G</td><td>23</td><td>149</td><td>28</td><td>183</td><td>83.4</td><td>+5.1</td><td>+13.4</td><td>-66.7</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>216.353 G</td><td>41</td><td>218</td><td>34</td><td>181</td><td>83.8</td><td>+5.5</td><td>+13.5</td><td>-53.3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>217.375 G</td><td>44</td><td>254</td><td>29</td><td>165</td><td>83.5</td><td>+5.1</td><td>+12.9</td><td>-40.1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>218.386 C</td><td>42</td><td>258</td><td>24</td><td>144</td><td>83.5</td><td>+5.1</td><td>+12.8</td><td>-26.7</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>219.400 G</td><td>41</td><td>295</td><td>21</td><td>153</td><td>83.4</td><td>+4.9</td><td>+12.8</td><td>-13.4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>220.358 C</td><td>58</td><td>315</td><td>29</td><td>158</td><td>83.3</td><td>+4.8</td><td>+12.7</td><td>-0.9</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>221.558 G</td><td>37</td><td>279</td><td>19</td><td>145</td><td>83.1</td><td>+4.5</td><td>+12.5</td><td>+14.8</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>222.497 G</td><td>44</td><td>245</td><td>25</td><td>137</td><td>83.1</td><td>+4.5</td><td>+12.3</td><td>+27.2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>223.322 G</td><td>46</td><td>224</td><td>29</td><td>143</td><td>83.2</td><td>+4.6</td><td>+12.3</td><td>+38.2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>224.360 C</td><td>38</td><td>130</td><td>30</td><td>104</td><td>82.8</td><td>+4.1</td><td>+12.1</td><td>+51.5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>225.356 G</td><td>14</td><td>62</td><td>16</td><td>71</td><td>83.0</td><td>+4.2</td><td>+11.9</td><td>+64.9</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>226.307 G</td><td>0</td><td>7</td><td>0</td><td>15</td><td>83.5</td><td>+4.7</td><td>+12.2</td><td>+78.0</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>Means</td><td>..</td><td>..</td><td>25</td><td>133</td><td>83.4</td><td>..</td><td>+12.7</td><td>..</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </tbody> </table>													214.437 G	16	55	36	124	84.3	+6.1	+13.4	-78.1									215.371 G	23	149	28	183	83.4	+5.1	+13.4	-66.7									216.353 G	41	218	34	181	83.8	+5.5	+13.5	-53.3									217.375 G	44	254	29	165	83.5	+5.1	+12.9	-40.1									218.386 C	42	258	24	144	83.5	+5.1	+12.8	-26.7									219.400 G	41	295	21	153	83.4	+4.9	+12.8	-13.4									220.358 C	58	315	29	158	83.3	+4.8	+12.7	-0.9									221.558 G	37	279	19	145	83.1	+4.5	+12.5	+14.8									222.497 G	44	245	25	137	83.1	+4.5	+12.3	+27.2									223.322 G	46	224	29	143	83.2	+4.6	+12.3	+38.2									224.360 C	38	130	30	104	82.8	+4.1	+12.1	+51.5									225.356 G	14	62	16	71	83.0	+4.2	+11.9	+64.9									226.307 G	0	7	0	15	83.5	+4.7	+12.2	+78.0									Means	25	133	83.4	..	+12.7	..													<p>No. 1369. Latitude +13°.4</p> <table> <tbody> <tr><td>Group 14161 in Rotation 1201</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>" 14164 "</td><td>"</td><td>"</td><td>1202</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td colspan="13"> <p>Group 14161. July 7-19. A stream of normal type. The leader is a stable regular spot. 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133.359 G	0	23	0	21	98.9	-2.7	+9.4	-56.4	192.430 G	213	1229	113	649	78.2	+1.1	+14.2	-15.4																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
134.349 G	5	46	3	31	100.4	-1.4	+7.8	-41.8	193.319 G	194	1263	99	644	78.6	+1.5	+14.6	-3.2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
135.359 G	5	64	3	38	99.8	-2.1	+9.4	-29.1	194.358 C	178	1019	93	534	79.2	+2.0	+14.5	+11.1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
136.329 G	9	43	5	23	99.9	-2.1	+10.7	-16.2	195.314 G	141	914	79	510	79.2	+2.0	+14.2	+23.8																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
137.335 G	9	48	5	24	100.1	-2.1	+9.7	-2.7	196.310 G	111	626	72	404	80.1	+2.8	+14.5	+37.9																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
138.327 G	9	39	5	20	101.0	-1.3	+8.9	+11.4	197.311 G	70	393	59	330	81.4	+4.1	+14.4	+52.4																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
139.330 G	7	25	4	14	100.5	-1.9	+9.5	+24.1	198.352 C	27	248	35	320	82.8	+5.4	+14.5	+67.6																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
140.328 G	5	25	3	16	101.5	-1.1	+8.9	+38.3	199.507 G	14	109	53	394	82.3	..	+13.9	+82.4																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
141.360 G	2	23	2	17	98.8	-3.9	+9.4	+49.3	Means	88	550	79.1	..	+14.1	..																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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The follower, of composite structure, decays rapidly after July 14.</p> <table> <tbody> <tr><td>187.350 G</td><td>7</td><td>42</td><td>28</td><td>171</td><td>77.3</td><td>..</td><td>+12.4</td><td>-83.5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>188.323 G</td><td>46</td><td>284</td><td>75</td><td>435</td><td>76.9</td><td>0.0</td><td>+13.1</td><td>-71.0</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>189.368 C</td><td>134</td><td>707</td><td>122</td><td>662</td><td>77.0</td><td>0.0</td><td>+13.5</td><td>-57.1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>190.359 C</td><td>161</td><td>1232</td><td>113</td><td>861</td><td>78.2</td><td>+1.2</td><td>+13.5</td><td>-42.8</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>191.535 C</td><td>188</td><td>1220</td><td>108</td><td>699</td><td>78.0</td><td>+0.9</td><td>+14.1</td><td>-27.4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </tbody> </table> </td><td></td><td></td><td></td><td></td></tr> </tbody> </table>													Group 14161 in Rotation 1201																	" 14164 "	"	"	1202														<p>Group 14161. July 7-19. A stream of normal type. The leader is a stable regular spot. The follower, of composite structure, decays rapidly after July 14.</p> <table> <tbody> <tr><td>187.350 G</td><td>7</td><td>42</td><td>28</td><td>171</td><td>77.3</td><td>..</td><td>+12.4</td><td>-83.5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>188.323 G</td><td>46</td><td>284</td><td>75</td><td>435</td><td>76.9</td><td>0.0</td><td>+13.1</td><td>-71.0</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>189.368 C</td><td>134</td><td>707</td><td>122</td><td>662</td><td>77.0</td><td>0.0</td><td>+13.5</td><td>-57.1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>190.359 C</td><td>161</td><td>1232</td><td>113</td><td>861</td><td>78.2</td><td>+1.2</td><td>+13.5</td><td>-42.8</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>191.535 C</td><td>188</td><td>1220</td><td>108</td><td>699</td><td>78.0</td><td>+0.9</td><td>+14.1</td><td>-27.4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </tbody> </table>													187.350 G	7	42	28	171	77.3	..	+12.4	-83.5									188.323 G	46	284	75	435	76.9	0.0	+13.1	-71.0									189.368 C	134	707	122	662	77.0	0.0	+13.5	-57.1									190.359 C	161	1232	113	861	78.2	+1.2	+13.5	-42.8									191.535 C	188	1220	108	699	78.0	+0.9	+14.1	-27.4																																																																																																																																																																																																																																									
158.361 C	9	49	18	98	109.3	+4.4	+8.7	-75.2	187.350 G	7	42	28	171	77.3	..	+12.4	-83.5																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
159.513 G	23	133	23	136	109.1	+4.0	+8.6	-60.2	188.323 G	25	208	35	291	78.5	0.0	+13.1	-69.4																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
160.381 G	32	133	24	101	109.1	+3.9	+8.7	-48.7	189.368 C	85	370	72	314	80.2	+1.6	+14.3	-53.9																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
161.346 G	25	136	16	84	109.0	+3.7	+8.6	-36.0	190.359 C	92	688	61	454	81.4	+2.8	+14.5	-39.6																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
162.427 G	37	126	20	68	108.9	+3.4	+8.7	-21.8	191.535 C	103	656	57	361	82.1	+3.4	+14.7	-23.3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
163.355 C	25	120	13	61	108.9	+3.3	+8.7	-9.5	192.430 G	134	739	70	384	82.4	+3.7	+14.8	-11.2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
164.372 G	30	117	15	60	108.8	+3.1	+8.6	+3.8	193.319 G	120	739	61	377	82.5	+3.8	+15.0	+0.7																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
165.358 C	18	67	10	36	108.8	+2.9	+8.9	+16.9	194.358 C	116	709	61	376	82.7	+3.9	+15.0	+14.6																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
166.461 G	16	32	9	19	108.9	+2.9	+9.0	+31.6	195.314 G	116	651	66	371	82.6	+3.8	+14.7	+27.2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
167.313 G	14	28	10	19	108.5	+2.4	+9.1	+42.5	196.310 G	88	499	58	329	82.7	+3.8	+14.9	+40.5																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
168.355 C	2	11	2	10	108.5	+2.2	+9.3	+56.2	197.311 G	65	370	55	314	82.7	+3.8	+14.5	+53.7																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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<p>Group 14164. Aug. 3-15. A regular spot shrinking rapidly after August 12.</p> <table> <tbody> <tr><td>214.437 G</td><td>16</td><td>55</td><td>36</td><td>124</td><td>84.3</td><td>+6.1</td><td>+13.4</td><td>-78.1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>215.371 G</td><td>23</td><td>149</td><td>28</td><td>183</td><td>83.4</td><td>+5.1</td><td>+13.4</td><td>-66.7</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>216.353 G</td><td>41</td><td>218</td><td>34</td><td>181</td><td>83.8</td><td>+5.5</td><td>+13.5</td><td>-53.3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>217.375 G</td><td>44</td><td>254</td><td>29</td><td>165</td><td>83.5</td><td>+5.1</td><td>+12.9</td><td>-40.1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>218.386 C</td><td>42</td><td>258</td><td>24</td><td>144</td><td>83.5</td><td>+5.1</td><td>+12.8</td><td>-26.7</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>219.400 G</td><td>41</td><td>295</td><td>21</td><td>153</td><td>83.4</td><td>+4.9</td><td>+12.8</td><td>-13.4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>220.358 C</td><td>58</td><td>315</td><td>29</td><td>158</td><td>83.3</td><td>+4.8</td><td>+12.7</td><td>-0.9</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>221.558 G</td><td>37</td><td>279</td><td>19</td><td>145</td><td>83.1</td><td>+4.5</td><td>+12.5</td><td>+14.8</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>222.497 G</td><td>44</td><td>245</td><td>25</td><td>137</td><td>83.1</td><td>+4.5</td><td>+12.3</td><td>+27.2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>223.322 G</td><td>46</td><td>224</td><td>29</td><td>143</td><td>83.2</td><td>+4.6</td><td>+12.3</td><td>+38.2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>224.360 C</td><td>38</td><td>130</td><td>30</td><td>104</td><td>82.8</td><td>+4.1</td><td>+12.1</td><td>+51.5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>225.356 G</td><td>14</td><td>62</td><td>16</td><td>71</td><td>83.0</td><td>+4.2</td><td>+11.9</td><td>+64.9</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>226.307 G</td><td>0</td><td>7</td><td>0</td><td>15</td><td>83.5</td><td>+4.7</td><td>+12.2</td><td>+78.0</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>Means</td><td>..</td><td>..</td><td>25</td><td>133</td><td>83.4</td><td>..</td><td>+12.7</td><td>..</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </tbody> </table>													214.437 G	16	55	36	124	84.3	+6.1	+13.4	-78.1									215.371 G	23	149	28	183	83.4	+5.1	+13.4	-66.7									216.353 G	41	218	34	181	83.8	+5.5	+13.5	-53.3									217.375 G	44	254	29	165	83.5	+5.1	+12.9	-40.1									218.386 C	42	258	24	144	83.5	+5.1	+12.8	-26.7									219.400 G	41	295	21	153	83.4	+4.9	+12.8	-13.4									220.358 C	58	315	29	158	83.3	+4.8	+12.7	-0.9									221.558 G	37	279	19	145	83.1	+4.5	+12.5	+14.8									222.497 G	44	245	25	137	83.1	+4.5	+12.3	+27.2									223.322 G	46	224	29	143	83.2	+4.6	+12.3	+38.2									224.360 C	38	130	30	104	82.8	+4.1	+12.1	+51.5									225.356 G	14	62	16	71	83.0	+4.2	+11.9	+64.9									226.307 G	0	7	0	15	83.5	+4.7	+12.2	+78.0									Means	25	133	83.4	..	+12.7	..																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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GREENWICH PHOTO-HELIOPHOTOGRAPHIC RESULTS, 1943.

C 41

LEDGER I. - RECURRENT GROUPS OF SUNSPOTS FOR THE YEAR

Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Latit- ude	Long. from C.M.	Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Latit- ude	Long. from C.M.							
	Umbrae	Whole Spots	Umbrae	Whole Spots					Umbrae	Whole Spots	Umbrae	Whole Spots										
No. 1370. Latitude +14°.7																						
Group 14172 in Rotation 1203																						
" 14175 "	"	1204						300.571 G	101	477	58	272	+78.8	+2.2	+14.8	-26.4						
" 14177 "	"	1205						301.266 C	77	426	41	226	+78.8	+2.2	+14.8	-17.2						
" 14181 "	"	1206						302.264 C	96	488	49	249	+78.8	+2.2	+14.8	-4.1						
" 14186 "	"	1207						303.543 C	93	447	48	232	+78.7	+2.1	+14.5	+12.7						
Group 14172. Sept. 7-12. A stream of vigorous development. Changes are rapid and result in a composite spot as leader and a more stable-looking follower, b.																						
249.426 C	68	234	36	124	78.2	0.0	+13.9	+18.1	304.493 C	89	407	50	228	+78.5	+1.8	+14.4	+25.0					
250.360 G	202	874	117	507	78.0	-0.2	+14.0	+30.3	305.265 C	64	341	40	211	+78.8	+2.1	+14.3	+35.5					
251.362 G	282	1305	192	882	76.2	-2.0	+13.6	+41.7	306.439 G	46	264	36	209	+78.5	+1.8	+14.1	+50.7					
252.339 C	212	1126	190	1001	77.0	-1.3	+14.5	+55.4	307.557 G	33	172	39	205	+78.4	+1.7	+14.2	+65.3					
253.383 G	135	675	191	943	78.1	-0.2	+15.0	+70.3	308.504 C	15	106	34	238	+78.3	+1.5	+14.0	+77.7					
254.648 G	21	151	(66	454	74.1	..	+14.2)	+83.0	No. 1370. Group 14177 - continued													
Means	145	691	77.5	..	+14.2	..	d	300.571 G	101	477	58	272	+78.8	+2.2	+14.8	-26.4				
Spot b																						
249.426 C	18	83	9	43	75.4	0.0	+12.8	+15.3	301.266 C	77	426	41	226	+78.8	+2.2	+14.8	-17.2					
250.360 G	66	306	37	171	73.8	-1.6	+13.0	+26.1	302.264 C	96	488	49	249	+78.8	+2.2	+14.8	-4.1					
251.362 G	123	633	79	405	73.6	-1.8	+13.5	+39.1	303.543 C	93	447	48	232	+78.7	+2.1	+14.5	+12.7					
252.339 C	107	600	86	480	73.6	-1.9	+13.7	+52.0	304.493 C	89	407	50	228	+78.5	+1.8	+14.4	+25.0					
253.383 G	50	233	56	263	72.4	-3.1	+12.9	+64.6	305.265 C	64	341	40	211	+78.8	+2.1	+14.3	+35.5					
254.648 G	14	108	30	234	69.1	-6.4	+14.2	+78.0	306.439 G	46	264	36	209	+78.5	+1.8	+14.1	+50.7					
Means	..	..	145	691	77.5	..	+14.2	..	307.557 G	33	172	39	205	+78.4	+1.7	+14.2	+65.3			
Group 14175. Sept. 26-Oct. 9. A large stable regular spot with a distant companion from September 28 to October 7.																						
268.367 G	9	60	48	319	83.6	..	+15.5	-86.4	308.504 C	15	106	34	238	+78.3	+1.5	+14.0	+77.7					
269.394 G	81	309	134	513	82.8	+6.9	+15.5	-73.6	309.531 C	104	454	53	241	+78.8	+2.2	+14.8	-17.2					
270.356 C	110	583	117	631	81.4	+5.5	+15.0	-62.4	310.536 C	103	453	52	240	+78.8	+2.2	+14.8	-17.2					
271.393 G	148	790	111	603	81.7	+5.8	+15.4	-48.4	311.541 C	102	452	51	239	+78.7	+2.1	+14.7	-32.2					
272.154 K	188	990	121	634	81.4	+5.5	+15.4	-38.6	312.546 C	101	451	50	238	+78.6	+2.0	+14.6	-45.4					
273.365 G	192	1079	105	586	82.0	+6.0	+15.6	-22.1	313.551 C	100	450	49	237	+78.5	+2.0	+14.5	-61.2					
274.306 C	249	1147	127	586	81.5	+5.5	+15.5	-10.1	314.556 C	99	449	48	236	+78.4	+2.0	+14.4	-80.7					
275.448 G	226	1131	116	576	81.5	+5.5	+15.5	+4.9	315.561 C	98	448	47	235	+78.3	+2.0	+14.3	+14.5					
276.374 C	183	1043	97	552	80.7	+4.7	+15.7	+16.4	316.566 C	97	447	46	234	+78.2	+2.0	+14.2	+20.8					
277.302 C	180	1004	104	581	80.5	+4.5	+15.4	+28.4	317.571 C	96	446	45	233	+78.1	+2.0	+14.1	+34.2					
278.330 C	185	868	125	588	80.4	+4.3	+15.1	+41.9	318.576 C	95	445	44	232	+78.0	+2.0	+14.0	+47.5					
279.539 G	102	577	94	534	80.4	+4.3	+15.2	+57.8	319.581 C	94	444	43	231	+77.9	+2.0	+13.9	+57.6					
280.359 G	71	384	95	515	80.7	+4.6	+15.2	+68.9	320.586 C	93	443	42	230	+77.8	-0.3	+13.8	+45.8					
281.358 G	31	158	94	479	80.5	..	+15.2	+81.9	321.591 C	92	442	41	229	+77.7	-0.4	+13.8	+57.6					
Means	..	..	112	575	81.2	..	+15.4	..	322.596 C	91	441	40	228	+77.6	-0.5	+13.7	+73.6			
Group 14177. Oct. 24-Nov. 5. A very stable regular spot.																						
296.444 G	20	124	56	350	78.8	..	+14.7	-80.8	323.599 C	90	440	39	227	+77.5	-0.6	+13.6	+73.6					
297.414 G	46	235	59	303	79.0	+2.5	+14.8	-67.8	324.604 C	89	439	38	226	+77.4	-0.7	+13.5	+73.6					
298.449 G	70	343	60	295	78.8	+2.3	+14.7	-54.4	325.609 C	88	438	37	225	+77.3	-0.8	+13.4	+73.6					
299.467 G	79	407	53	273	78.8	+2.2	+14.8	-40.9	326.614 C	87	437	36	224	+77.2	-0.9	+13.3	+73.6					
Means	..	..	112	575	81.2	..	+15.4	..	327.619 C	86	436	35	223	+77.1	-0.9	+13.2	+73.6			
Group 14188. Dec. 18-20. One or two small spots.																						
351.255 C	4	17	11	47	80.3	+2.6	+14.8	-76.8	328.624 C	85	435	34	222	+77.0	-0.9	+13.1	+73.6					
352.277 C	4	21	5	27	77.9	+0.1	+15.1	-65.8	329.629 C	84	434	33	221	+76.8	-0.9	+13.0	+73.6					
353.439 G	4	15	3	12	78.4	+0.6	+15.2	-50.0	330.634 C	83	433	32	220	+76.7	-0.9	+12.9	+73.6					
Means	6	29	78.9	..	+15.0	..	331.639 C	82	432	31	219	+76.6	-0.9	+12.8	+73.6					

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ROYAL OBSERVATORY, GREENWICH.

Ledgers of Groups of Sunspots

For the Year

1943

Ledger II.—Non-Recurrent Groups

GREENWICH PHOTO-HELIOGRAPHIC RESULTS, 1943

LEDGER II. - NON-RECURRENT GROUPS OF SUNSPOTS FOR THE YEAR 1943.

The time (U.T.) at which the photograph was taken is expressed in the *first* column by the day of the year 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 and Washington by the letters C, K and W 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 disk.

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

The longitude given in the *sixth* column is based on the ephemeris given in the *Nautical Almanac*; assuming a daily sidereal motion of $14^{\circ}.18$, due to the Sun's rotation, constant at all latitudes; this corresponds to Carrington's assumed rotation period of 25.38 days.

The proper motion given in the *seventh* column is derived from the difference of longitude thus computed from the measured positions on any given day and the first day on which the group of spots or single spot is visible, after the correction for the motion appropriate to the latitude has been applied according to the formula, $\xi = 14^{\circ}.37 - 2^{\circ}.60 \sin^2 \phi$. A plus sign indicates a motion forwards, a minus sign a motion backwards relative to the position on the first day.

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

When a group is 80° or more from the Sun's central meridian, the measures for that day are not included in taking the mean area, longitude and latitude of the group. In such cases of close proximity to the Sun's limb, the addition of brackets denotes that only part of the group is visible.

GREENWICH PHOTO-HELIOPHOTOGRAPHIC RESULTS, 1943.

C 45

LEDGER II. - NON-RECURRENT GROUPS OF SUNSPOTS FOR THE YEAR																																																																																																																																																																																																																																																																																																																			
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Group 14126.							Group 14132.																																																																																																																																																																																																																																																																																																												
Jan. 8-14. A regular spot followed by a few small companions, undergoing changes after January 12.							Jan. 29-Feb. 4. Usually, one or two tiny spots; others form a stream on February 3.																																																																																																																																																																																																																																																																																																												
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52.305 C	12	59	6	31	156.8	0.0	+ 4.8	+11.9	52.305 C	12	59	6	31	156.8	0.0																																																																																																																																																																																																																																																																																																				
53.350 C	24	102	14	59	158.3	+ 1.3	+ 5.3	+27.2	53.350 C	24	102	14	59	158.3	+ 1.3																																																																																																																																																																																																																																																																																																				
54.367 G	51	304	35	208	159.0	+ 1.9	+ 5.6	+41.3	54.367 G	51	304	35	208	159.0	+ 1.9																																																																																																																																																																																																																																																																																																				
55.439 G	29	166	27	155	159.3	+ 2.0	+ 5.9	+55.7	55.439 G	29	166	27	155	159.3	+ 2.0																																																																																																																																																																																																																																																																																																				
56.368 G	17	89	25	135	160.3	+ 2.8	+ 6.0	+68.9	56.368 G	17	89	25	135	160.3	+ 2.8																																																																																																																																																																																																																																																																																																				
57.373 G	4	13	21	69	161.8	..	+ 6.4	+83.7	57.373 G	4	13	21	69	161.8	..																																																																																																																																																																																																																																																																																																				
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Group 14131.							Group 14147.																																																																																																																																																																																																																																																																																																												
Jan. 24-29. A small spot with one or two companions on January 25-27.							Mar. 29-Apr. 6. A stream of small spots in which the leader is the most stable member and alone remains after April 4.																																																																																																																																																																																																																																																																																																												
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G</td><td>19</td><td>86</td><td>15</td><td>73</td><td>178.0</td><td>+ 4.8</td><td>+ 5.6</td><td>+52.8</td><td>90.390 C</td><td>53</td><td>191</td><td>26</td><td>96</td><td>2.8</td><td>+ 2.1</td></tr> <tr><td>27.584 C</td><td>8</td><td>38</td><td>11</td><td>53</td><td>178.7</td><td>+ 5.3</td><td>+ 5.6</td><td>+68.3</td><td>91.594 G</td><td>36</td><td>217</td><td>19</td><td>114</td><td>4.2</td><td>+ 3.4</td></tr> <tr><td>28.406 G</td><td>4</td><td>11</td><td>11</td><td>29</td><td>178.2</td><td>+ 4.7</td><td>+ 5.0</td><td>+78.6</td><td>92.354 C</td><td>32</td><td>173</td><td>18</td><td>100</td><td>5.3</td><td>+ 4.4</td></tr> </tbody> </table>							d	Umbrae	Whole Spots	Umbrae	Whole Spots	Umbrae	Whole Spots	Umbrae	Whole Spots	Umbrae	Whole Spots	Umbrae	Whole Spots	Umbrae	Whole Spots	23.468 G	10	43	5	22	172.7	0.0	+ 4.1	+ 8.1	87.357 G	31	169	21	115	0.3	0.0	24.294 C	10	59	5	32	173.2	+ 0.4	+ 4.6	+19.5	88.339 C	41	230	23	132	1.6	+ 1.2	25.443 G	32	115	21	73	174.9	+ 1.9	+ 5.0	+36.3	89.341 C	39	184	21	96	0.9	+ 0.4	26.461 G	19	86	15	73	178.0	+ 4.8	+ 5.6	+52.8	90.390 C	53	191	26	96	2.8	+ 2.1	27.584 C	8	38	11	53	178.7	+ 5.3	+ 5.6	+68.3	91.594 G	36	217	19	114	4.2	+ 3.4	28.406 G	4	11	11	29	178.2	+ 4.7	+ 5.0	+78.6	92.354 C	32	173	18	100	5.3	+ 4.4	<table border="1"> <thead> <tr> <th>d</th><th>Umbrae</th><th>Whole Spots</th><th>Umbrae</th><th>Whole Spots</th><th>Umbrae</th><th>Whole Spots</th><th>Umbrae</th><th>Whole Spots</th><th>Umbrae</th><th>Whole Spots</th><th>Umbrae</th><th>Whole Spots</th><th>Umbrae</th><th>Whole Spots</th></tr> </thead> <tbody> <tr><td>87.357 G</td><td>31</td><td>169</td><td>21</td><td>115</td><td>0.3</td><td>0.0</td><td>- 9.4</td><td>-42.7</td><td>92.354 C</td><td>32</td><td>173</td><td>18</td><td>100</td><td>5.3</td><td>+ 4.4</td></tr> <tr><td>88.339 C</td><td>41</td><td>230</td><td>23</td><td>132</td><td>1.6</td><td>+ 1.2</td><td>- 9.3</td><td>-28.4</td><td>93.410 G</td><td>29</td><td>107</td><td>20</td><td>74</td><td>6.1</td><td>+ 5.0</td></tr> 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26.461 G	19	86	15	73	178.0	+ 4.8	+ 5.6	+52.8	90.390 C	53	191	26	96	2.8	+ 2.1																																																																																																																																																																																																																																																																																																				
27.584 C	8	38	11	53	178.7	+ 5.3	+ 5.6	+68.3	91.594 G	36	217	19	114	4.2	+ 3.4																																																																																																																																																																																																																																																																																																				
28.406 G	4	11	11	29	178.2	+ 4.7	+ 5.0	+78.6	92.354 C	32	173	18	100	5.3	+ 4.4																																																																																																																																																																																																																																																																																																				
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88.339 C	41	230	23	132	1.6	+ 1.2	- 9.3	-28.4	93.410 G	29	107	20	74	6.1	+ 5.0																																																																																																																																																																																																																																																																																																				
89.341 C	39	184	21	96	0.9	+ 0.4	- 9.4	-15.9	94.360 G	18	54	16	48	6.7	+ 5.5																																																																																																																																																																																																																																																																																																				
90.390 C	53	191	26	96	2.8	+ 2.1	- 9.0	- 0.1	95.362 G	9	31	13	43	7.1	+ 5.8																																																																																																																																																																																																																																																																																																				
91.594 G	36	217	19	114	4.2	+ 3.4	- 8.8	+17.1	91.594 G	36	217	19	114	4.2	+ 3.4																																																																																																																																																																																																																																																																																																				
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94.360 G	18	54	16	48	6.7	+ 5.5	- 8.9	+56.1	95.362 G	9	31	13	43	7.1	+ 5.8																																																																																																																																																																																																																																																																																																				
Means	11	47	176.0	..	+ 5.0	..	Means	20	91	3.9	..																																																																																																																																																																																																																																																																																																				
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GREENWICH PHOTO-HELIOGRAPHIC RESULTS, 1943.

LEDGER II. - NON-RECURRENT GROUPS OF SUNSPOTS FOR THE YEAR

GREENWICH PHOTO-HELIOGRAPHIC RESULTS, 1943.

C 47

LEDGER II. - NON-RECURRENT GROUPS OF SUNSPOTS FOR THE YEAR

Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Lat-i- tude	Long. from C.M.	Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Lat-i- tude	Long. from C.M.									
	Umbras	Whole Spots	Umbras	Whole Spots					Umbras	Whole Spots	Umbras	Whole Spots												
Group 14166.																								
Aug. 8-20. A regular spot slowly contracting.																								
^d					°	°	°																	
219.400 G	0	7	0	34	13.3	..	- 3.5	-83.5	239.339 C	36	132	23	85	226.0 - 1.6	-14.1 +32.7									
220.358 C	13	84	21	137	12.7	0.0	- 3.8	-71.5	240.489 G	10	48	8	40	225.9 - 1.7	-14.5 +47.8									
221.558 G	23	128	21	116	12.6	- 0.3	- 4.2	-55.7	241.364 G	4	21	4	23	226.3 - 1.3	-13.9 +59.8									
222.497 G	37	195	26	136	12.8	- 0.3	- 4.0	-43.1	242.392 G	0	7	0	16	228.4 + 0.8	-12.2 +75.4									
223.322 G	41	204	25	122	12.7	- 0.5	- 4.2	-32.3	Means	..	..	6	27	226.2 ..	-14.3 ..							
224.360 C	38	305	21	165	13.0	- 0.4	- 4.5	-18.3	Group 14170. - continued															
225.356 G	39	221	20	113	13.3	- 0.3	- 4.5	-4.8																
226.307 G	48	253	24	129	13.6	- 0.1	- 4.4	+ 8.1																
227.373 G	30	169	16	93	13.7	- 0.2	- 4.6	+22.3																
228.443 G	23	114	15	73	14.0	- 0.1	- 4.6	+36.7																
229.370 G	18	98	14	76	13.8	- 0.5	- 4.6	+48.8																
230.361 G	18	82	20	90	13.9	- 0.6	- 4.6	+62.0																
231.474 G	5	18	12	41	14.0	- 0.6	- 4.1	+76.8																
Means	20	108	13.3	..	- 4.3	..																
Group 14167.																								
Aug. 14-25. A regular spot reducing rapidly after central meridian passage. There are one or two companions until August 20.																								
225.356 G	13	62	20	97	306.4	0.0	+11.0	-71.7	260.375 G	66	276	34	142	276.3 0.0	- 6.7 + 0.8									
226.307 G	21	105	20	100	306.5	0.0	+11.5	-59.0	261.439 G	74	306	39	164	276.7 + 0.2	- 6.7 + 15.3									
227.373 G	26	132	19	93	306.6	0.0	+11.5	-44.8	262.537 G	45	220	26	131	276.7 + 0.1	- 6.9 + 29.7									
228.443 G	33	166	19	97	305.9	- 0.8	+11.0	-31.4	263.348 C	28	139	19	96	277.0 + 0.2	- 6.2 + 40.8									
229.370 G	30	159	16	84	305.7	- 1.1	+10.7	-19.3	264.366 G	14	48	13	44	277.3 + 0.4	- 7.2 + 54.5									
230.361 G	32	288	17	145	305.1	- 1.8	+10.2	- 6.8	265.477 G	2	9	4	16	280.5 + 3.4	- 6.4 + 72.4									
231.474 G	32	82	16	42	306.3	- 0.7	+10.8	+ 9.1	266.366 G	2	7	6	21	276.1 - 1.1	- 6.1 + 79.7									
232.392 G	9	41	5	22	307.4	+ 0.3	+11.3	+22.3	Means	..	..	20	83	277.2 ..	- 6.6 ..							
233.308 G	7	30	4	18	307.4	+ 0.2	+10.1	+34.4	Group 14182.															
234.357 G	5	9	4	7	306.9	- 0.4	+11.4	+47.8																
235.344 G	2	11	2	11	305.4	- 1.9	+10.8	+59.3																
236.371 G	0	7	0	11	304.1	- 3.3	+12.2	+71.6																
Means	12	61	306.1	..	+11.0	..																
Group 14170.																								
Aug. 23-31. A little group with a temporary increase on August 28.																								
234.357 G	11	36	7	23	227.4	0.0	-14.1	-31.7	331.342 C	4	13	5	17	351.4 0.0	+ 5.6 -68.1									
235.344 G	5	23	3	13	226.0	- 1.4	-14.9	-20.1	332.388 G	17	79	14	64	351.6 0.0	+ 5.6 -54.1									
236.371 G	5	16	3	9	225.2	- 2.3	-16.0	- 7.3	333.383 C	21	138	14	91	351.9 + 0.2	+ 5.4 -40.7									
237.358 G	2	11	1	6	224.8	- 2.7	-15.1	+ 8.2	334.290 C	25	124	15	71	352.6 + 0.7	+ 5.0 -28.1									
238.353 G	10	50	6	28	225.6	- 1.9	-14.3	+19.3	335.469 G	35	187	18	96	355.0 + 2.9	+ 4.8 -10.1									
Means	..	..	15	80	352.8	..	+ 5.2	..	336.494 G	63	287	31	144	352.5 + 0.2	+ 5.0 + 0.9							
Group 14183.																								
Dec. 6-18. A regular spot slowly declining.																								
339.269 C	15	77	45	233	234.7	..	+ 8.5	-80.4	340.467 G	30	191	36	227	234.4 0.0	+ 8.3 -64.9									

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LEDGER II. - NON-RECURRENT GROUPS OF SUNSPOTS FOR THE YEAR

Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Latit- tude	Long. from C.M.	Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Latit- tude	Long. from C.M.						
	Umbræ	Whole Spots	Umbræ	Whole Spots					Umbræ	Whole Spots	Umbræ	Whole Spots									
Group 14183. - continued															Group 14185. - continued						
341.258 C	42	247	36	212	234.5	0.0	+ 7.8	-54.3	351.255 C	194	1226	113	716	134.1	- 1.1	-22.7	-23.0				
342.257 C	50	293	34	196	234.8	+ 0.1	+ 7.5	-40.9	352.277 C	163	1162	89	635	134.0	- 1.0	-23.0	- 9.7				
343.557 G	39	256	21	141	234.7	- 0.1	+ 7.5	-23.8	353.439 G	203	1167	111	633	133.4	- 1.4	-22.8	+ 5.0				
344.474 G	46	273	24	142	234.7	- 0.3	+ 7.3	-11.8	354.256 C	138	960	76	535	133.0	- 1.7	-22.1	+15.4				
345.272 C	46	247	23	124	234.6	- 0.5	+ 7.1	- 1.4	355.454 G	91	587	57	371	134.0	- 0.4	-22.2	+32.2				
346.570 G	50	258	26	134	234.6	- 0.7	+ 7.3	+15.8	356.257 C	50	303	37	221	134.0	- 0.3	-22.6	+42.8				
347.289 C	46	245	26	137	234.8	- 0.6	+ 7.5	+25.4	357.260 C	34	154	32	146	133.4	- 0.7	-22.6	+55.4				
348.258 C	38	190	24	122	234.5	- 1.0	+ 7.5	+37.9	358.274 C	16	70	23	102	133.3	- 0.6	-22.6	+68.6				
349.272 C	31	150	25	122	234.6	- 1.1	+ 7.5	+51.3	359.293 C	4	21	(10	52	129.4	..	-22.5)	+78.2				
350.562 G	13	63	18	87	234.7	- 1.2	+ 7.4	+68.4	Means		74	472	134.2	..	-22.5	..					
351.255 C	6	36	14	81	233.9	- 2.1	+ 7.6	+76.8	Spot a												
Means	..	..	26	144	234.6	..	+ 7.5	..	347.289 C	13	77	21	124	138.6	0.0	-21.6	-70.8		
Group 14185.															Dec. 14-26. A group of stream-type in which both leader and follower are at first composite spots. The leader, however, stabilizes into a regular spot by December 19. The follower, although the larger component begins to disintegrate and so dies out.						
347.289 C	21	123	40	232	136.0	0.0	-22.5	-73.4	348.258 C	38	259	38	262	138.3	- 0.1	-22.0	-58.3				
348.258 C	69	422	76	462	136.4	+ 0.6	-22.3	-60.2	349.272 C	46	336	34	252	138.9	+ 0.7	-22.2	-44.4				
349.272 C	121	858	98	696	134.4	- 1.2	-22.5	-48.9	350.562 G	65	464	39	278	139.0	+ 1.0	-22.7	-27.3				
350.562 G	219	1443	138	910	134.8	- 0.6	-22.6	-31.5	351.255 C	71	477	40	267	139.0	+ 1.2	-22.7	-18.1				
									352.277 C	79	468	43	253	139.0	+ 1.4	-22.7	- 4.7				
									353.439 G	76	402	42	221	138.8	+ 1.4	-23.1	+10.4				
									354.256 C	46	293	26	167	138.6	+ 1.3	-22.8	+21.0				
									355.454 G	39	270	26	178	138.3	+ 1.3	-22.8	+36.5				
									356.257 C	25	166	20	129	137.9	+ 1.0	-22.9	+46.7				
									357.260 C	17	79	18	82	137.4	+ 0.7	-23.1	+59.4				
									358.274 C	8	37	13	61	136.4	- 0.1	-23.0	+71.7				

ROYAL OBSERVATORY, GREENWICH.

Total Areas of Sunspots and Faculae

Projected and Corrected for Foreshortening
for each Day, and

Mean Areas and Mean Heliographic
Latitude of Sunspots and Faculae

for each Rotation of the Sun
and for the Year

1943

GREENWICH PHOTO-HELIOGRAPHIC RESULTS. 1945

GREENWICH PHOTO-HELIOPHOTOGRAPHIC RESULTS, 1943.

TOTAL AREAS OF SUNSPOTS AND FACULÆ FOR EACH DAY IN THE YEAR 1943

The time (U.T.) at which the photograph was taken is expressed by the month, day of month, 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, Kodaikanal and Washington by the letters C, K and W 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 foreshortening is expressed in millionths of the Sun's visible hemisphere.

U.T.	Place	Projected Area			Area Corrected for Foreshortening			U.T.	Place	Projected Area			Area Corrected for Foreshortening					
		Umbræ	Whole Spots	Faculæ	Umbræ	Whole Spots	Faculæ			Umbræ	Whole Spots	Faculæ	Umbræ	Whole Spots	Faculæ			
1943	d							1943	d									
		1.281	C	35	164	546	23	108	759	February	10.434	G	258	1480	293	139	799	412
		2.412	G	17	132	705	15	117	813		11.508	G	396	1894	239	204	976	370
		3.397	G	13	63	586	18	86	728		12.478	G	266	1580	109	139	821	143
		4.467	G	6	26	300	21	89	535		13.361	G	227	1340	1046	125	737	1359
		5.300	C	0	0	150	0	0	132		14.307	C	195	966	903	121	601	1210
		6.299	C	4	17	182	13	54	329		15.397	G	126	861	741	97	672	688
		7.304	C	4	42	108	5	57	174		16.425	G	90	543	1348	105	626	1493
		8.435	G	53	247	683	46	214	683		17.479	G	35	155	567	97	457	882
		9.293	C	37	240	216	25	165	159		18.437	G	18	55	578	42	125	731
		10.282	C	54	324	0	31	188	0		19.411	G	28	68	389	21	51	379
		11.441	G	45	222	346	24	116	301		20.307	C	37	193	116	43	218	204
		12.099	K	22	154	253	11	78	293		21.294	C	104	452	629	110	482	702
		13.406	G	10	74	276	5	37	271		22.305	C	160	915	637	119	698	582
		14.524	G	10	28	54	5	16	117		23.350	C	233	1525	526	153	1021	681
		15.579	G	0	0	108	0	0	220		24.367	G	276	1935	732	162	1120	850
		16.296	C	4	32	406	6	40	452		25.439	G	259	1652	395	148	934	450
		17.296	C	0	8	594	0	8	653		26.368	G	360	2155	766	207	1228	828
		18.301	C	4	32	249	5	44	358		27.373	G	387	2461	246	238	1453	469
		19.297	C	15	104	314	14	114	405		28.306	C	350	3098	110	219	1930	87
		20.471	G	35	128	238	26	93	238	March								
		21.413	G	30	86	270	27	90	471		1.591	G	229	1822	765	191	1514	904
		22.401	G	33	151	173	23	113	223		2.310	C	154	1312	698	173	1441	827
		23.609	G	12	87	324	7	53	315		3.391	C	59	356	498	122	719	827
		24.468	G	28	86	507	15	47	587		4.513	G	18	70	322	49	192	478
		25.294	C	22	102	158	11	55	195		5.490	G	70	291	594	110	453	755
		26.443	G	32	115	367	21	73	351		6.094	K	68	492	550	76	559	601
		27.461	G	19	86	832	15	73	960		7.593	G	215	1213	304	146	832	265
		28.584	C	8	38	317	11	53	415		8.360	G	303	1760	0	180	1051	0
		29.406	G	6	15	510	16	38	911		9.401	G	359	2311	114	190	1224	106
		30.442	G	0	7	509	0	9	632		10.397	G	400	2477	253	204	1265	399
		31.375	C	4	17	523	3	14	562		11.477	C	364	2377	209	195	1270	311
									12.375	G	429	2003	480	242	1128	469		
February	1.439	1.439	G	7	24	260	4	15	416	13.464	G	220	1311	810	147	870	908	
		2.435	G	8	33	375	4	18	654	14.412	G	164	929	638	145	796	676	
		3.402	G	31	148	108	17	84	116	15.444	G	107	533	1412	139	697	1580	
		4.395	G	13	61	119	7	35	94	16.378	G	46	214	1143	126	580	1544	
		5.294	C	0	34	203	0	30	216	17.480	G	0	4	582	0	11	689	
		6.299	C	0	0	147	0	0	215	18.570	G	13	110	535	28	234	861	
		7.474	G	0	7	261	0	10	358	19.322	C	17	155	927	21	189	1213	
		8.354	C	2	38	300	2	32	265	20.327	C	45	242	398	36	196	467	
		9.352	C	87	449	231	53	272	263	21.337	C	53	315	376	34	210	364	

GREENWICH PHOTO-HELIOPHOTOGRAPHIC RESULTS, 1943.

C 51

TOTAL AREAS OF SUNSPOTS AND FACULÆ FOR EACH DAY IN THE YEAR 1943																		
U.T.		Place	Projected Area			Area Corrected for Foreshortening			U.T.		Place	Projected Area			Area Corrected for Foreshortening			
			Umbrae	Whole Spots	Faculae	Umbrae	Whole Spots	Faculae				Umbrae	Whole Spots	Faculae	Umbrae	Whole Spots	Faculae	
March	1943	d							1943	d								
	22.415	G	123	570	579	77	355	736		14.359	G	105	552	1209	79	421	1337	
	23.468	G	166	907	463	93	505	508		15.349	G	126	646	547	78	402	436	
	24.401	G	152	901	369	80	477	367		16.359	G	151	753	1067	87	428	1100	
	25.432	G	185	841	214	98	447	343		17.329	G	164	862	796	111	562	994	
	26.342	C	133	752	81	74	412	88		18.335	G	175	971	559	147	795	797	
	27.339	C	88	445	409	52	270	332		19.327	G	210	885	228	255	935	477	
	28.328	G	57	273	510	41	191	442		20.330	G	108	582	937	65	380	1145	
	29.357	G	75	368	910	61	295	1324		21.328	G	71	406	1038	51	290	1066	
	30.339	C	69	368	475	61	321	688		22.360	G	41	260	945	40	249	1051	
	31.341	C	80	393	301	158	795	587		23.353	G	20	128	1278	33	210	1810	
April	1943	d								24.543	G	14	68	798	27	156	1328	
	22.415	G	128	649	699	121	678	860		25.347	G	25	87	946	29	102	1152	
	23.468	G	187	897	736	139	653	651		26.324	G	28	123	1283	22	99	1435	
	24.401	C	146	899	464	94	584	410		27.360	G	28	124	1131	18	79	1313	
	25.432	G	203	1048	94	117	611	200		28.338	G	30	89	344	17	49	410	
	26.342	G	210	1040	323	116	561	271		29.313	G	23	69	364	12	35	504	
	27.339	G	205	1081	594	113	579	672		30.475	G	16	55	538	8	28	664	
	28.328	G	192	1093	118	100	568	195		31.327	G	14	36	424	8	19	391	
	29.357	C	137	775	134	78	442	155		June	1.342	G	9	32	580	5	17	708
	30.339	C	112	779	108	90	652	191		2.341	G	2	7	871	1	5	989	
	31.341	W	76	562	2016	71	529	2055		3.378	G	0	9	531	0	8	599	
	1.390	C	146	833	1145	137	771	1143		4.431	G	0	0	1090	0	0	1518	
	2.594	G	138	915	351	117	796	596		5.354	C	0	0	613	0	0	991	
	3.354	C	183	934	146	98	501	147		6.357	G	0	0	707	0	0	903	
	4.410	C	176	837	293	90	428	431		7.337	G	0	7	1546	0	6	1897	
	5.360	G	138	797	363	86	487	436		8.361	C	9	49	795	18	98	939	
	6.362	G	139	714	479	84	436	567		9.513	G	23	133	927	23	136	1048	
	7.509	G	216	969	854	159	709	1062		10.381	G	32	133	843	24	101	966	
May	18.318	G	303	1217	1233	211	847	1290		11.346	G	25	143	897	16	97	1091	
	19.323	G	229	1304	619	145	836	784		12.427	G	42	149	425	25	92	509	
	20.391	G	272	1567	1225	158	925	1662		13.355	C	34	164	485	20	95	538	
	21.345	G	385	1958	686	200	1018	931		14.372	G	46	193	582	25	107	692	
	22.572	G	484	2733	266	264	1493	399		15.358	C	20	83	362	11	44	409	
	23.369	C	380	3052	362	228	1818	323		16.461	G	28	85	851	16	46	1283	
	24.315	G	357	2339	1157	252	1655	1055		17.313	G	26	59	568	17	35	751	
	25.394	G	323	1826	1522	314	1785	1841		18.355	C	2	18	201	2	15	330	
	26.452	G	118	771	1291	208	1394	1795		19.420	G	0	16	867	0	9	996	
	27.403	C	15	110	351	37	278	586		20.361	G	0	0	479	0	0	663	
	28.358	G	23	145	1041	29	183	1218		21.300	G	0	41	598	0	29	716	
	29.345	G	41	244	1361	35	207	1451		22.375	G	5	16	206	3	9	268	
	30.368	C	46	263	180	30	171	164		23.355	G	17	92	126	9	48	247	
	1.312	G	50	316	305	28	180	327		24.322	G	28	109	0	14	55	0	
	2.360	C	53	306	0	28	159	0		25.547	G	14	41	254	7	22	221	
	3.525	G	70	338	568	35	169	763		26.327	G	7	32	139	4	18	149	
	4.326	G	75	356	409	38	182	441		27.528	G	5	12	0	4	8	0	
	5.422	G	57	266	556	32	149	686		28.358	C	2	9	199	2	8	182	
	6.464	G	43	207	1032	28	137	1340		29.522	G	0	0	370	0	0	420	
	7.332	G	39	168	1273	32	139	1473		30.511	G	0	5	416	0	3	528	
	8.413	G	25	118	1400	32	151	1572	July	1.352	G	0	5	845	0	8	1023	
	9.527	G	28	119	888	35	175	1413		2.399	G	0	0	347	0	0	480	
	10.348	C	4	13	264	2	8	549		3.361	G	0	0	485	0	0	677	
	11.334	G	5	23	1392	20	94	1896		4.365	C	0	0	123	0	0	209	
	12.354	C	55	290	916	99	520	1077		5.354	C	0	0	312	0	0	359	
	13.365	G	69	376	1665	73	406	2060		6.364	G	0	0	474	0	0	707	

GREENWICH PHOTO-HELIOGRAPHIC RESULTS, 1943.

GREENWICH PHOTO-HELIOPHOTOGRAPHIC RESULTS, 1943.

C 53

TOTAL AREAS OF SUNSPOTS AND FACULÆ FOR EACH DAY IN THE YEAR 1943

U.T.	Place	Projected Area			Area Corrected for Foreshortening			U.T.	Place	Projected Area			Area Corrected for Foreshortening				
		Umbræ	Whole Spots	Faculæ	Umbræ	Whole Spots	Faculæ			Umbræ	Whole Spots	Faculæ	Umbræ	Whole Spots	Faculæ		
1943 October	d 27.467	G	79	407	1056	53	273	1042	1943 November	d 29.388	G	81	425	438	54	279	394
	28.571	G	101	477	363	58	272	398		30.383	C	52	352	588	37	253	440
	29.266	C	77	426	0	41	226	0		1.290	C	40	254	634	29	195	616
	30.264	C	96	488	0	49	249	0		2.469	G	52	261	1254	49	229	1626
	31.543	C	93	447	0	48	232	0		3.494	G	63	287	672	31	144	890
November	1.493	C	89	407	0	50	228	0	December	4.388	G	68	409	110	35	212	176
	2.265	C	64	341	0	40	211	0		5.284	C	32	193	0	18	107	0
	3.439	G	46	264	572	36	209	489		6.269	C	27	144	79	53	275	175
	4.557	G	33	172	704	39	205	741		7.467	G	38	244	749	42	265	834
	5.504	C	15	106	492	34	238	653		8.258	C	42	251	669	36	217	677
	6.310	C	0	0	206	0	0	334		9.257	C	56	318	188	37	209	344
	7.258	C	0	0	0	0	0	0		10.557	G	52	317	151	28	175	246
	8.480	C	0	0	191	0	0	262		11.474	G	48	303	130	25	160	121
	9.277	G	0	0	0	0	0	0		12.272	C	46	247	216	23	124	250
	10.316	C	0	0	95	0	0	179		13.570	G	52	265	317	29	143	540
	11.433	G	0	0	275	0	0	335		14.289	C	67	368	370	66	369	669
	12.265	C	0	0	0	0	0	0		15.258	C	107	612	289	100	584	334
	13.430	C	12	84	137	7	51	175		16.272	C	152	1008	470	123	818	385
	14.455	C	23	103	0	12	55	0		17.562	G	232	1506	239	156	997	342
	15.385	G	19	98	581	13	64	739		18.255	C	204	1279	378	138	844	616
	16.563	G	10	68	207	7	55	315		19.277	C	167	1183	397	94	662	552
	17.578	G	7	26	591	5	19	776		20.439	G	207	1182	484	114	645	634
	18.442	G	0	9	502	0	9	567		21.256	C	138	960	267	76	535	345
	19.445	G	0	0	636	0	0	889		22.454	G	91	587	291	57	371	372
	20.347	C	2	8	395	6	24	548		23.257	C	50	303	250	37	221	188
	21.700	W	36	196	1048	50	261	1466		24.260	C	34	154	395	32	146	367
	22.131	K	66	331	572	71	356	780		25.274	C	16	70	597	23	102	779
	23.356	C	63	309	750	46	226	751		26.293	C	4	21	333	10	52	643
	24.373	C	75	393	283	45	238	263		27.281	C	0	10	291	0	13	399
	25.385	G	92	419	273	50	225	270		28.276	C	0	10	790	0	8	723
	26.303	C	67	377	0	35	197	0		29.259	C	0	0	221	0	0	313
	27.088	K	86	430	0	44	221	0		30.442	G	0	0	357	0	0	433
	28.342	C	71	313	185	42	180	279		31.256	C	0	0	187	0	0	219

GREENWICH PHOTO-HELIOPHOTOGRAPHIC RESULTS, 1943.

MEAN AREAS OF SUNSPOTS AND FACULÆ FOR EACH ROTATION OF THE SUN,
FROM 1943 JANUARY 10 TO DECEMBER 29.

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 1873-1942 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 of the Sun's equator on the ecliptic at mean noon on January 1, 1854, and the assumed period of the Sun's sidereal rotation being 25.38 days. The enumeration 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 U.T.

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
1195	1943 January 9.63	27	17	81	311	11	57	386
1196	February 5.97	27	161	1014	503	114	708	617
1197	March 5.31	28	147	829	512	105	583	624
1198	April 1.61	27	203	1155	666	138	798	780
1199	April 28.88	27	69	356	835	57	288	1034
1200	May 26.10	27	16	67	700	11	46	861
1201	June 22.30	27	58	354	416	39	239	519
1202	July 19.50	28	33	182	405	28	152	496
1203	August 15.72	27	50	236	451	38	181	568
1204	September 11.97	27	81	413	286	59	308	368
1205	October 9.25	28	32	161	255	26	137	304
1206	November 5.55	27	32	165	365	22	116	445
1207	December 2.86	27	74	453	346	51	311	441

MEAN AREAS OF SUNSPOTS AND FACULÆ FOR THE YEAR

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
1943	365	73	410	462	53	295	568

MEAN HELIOGRAPHIC LATITUDE OF SUNSPOTS FOR EACH ROTATION OF THE SUN,
FROM 1943 JANUARY 10 TO DECEMBER 29.

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 the mean heliographic latitude of spotted area north of the 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 of 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		
1195	1943 January 9.63	27	24	7.65	33	6.20	- 0.28	6.80
1196	February 5.97	27	703	7.83	6	3.19	+ 7.74	7.80
1197	March 5.31	28	564	5.22	18	9.60	+ 4.75	5.36
1198	April 1.61	27	641	7.37	157	11.82	+ 3.59	8.25
1199	April 28.88	27	235	5.57	53	39.46	- 2.72	11.81
1200	May 26.10	27	45	7.95	1	3.60	+ 7.68	7.84
1201	June 22.30	27	232	13.96	7	1.53	+13.53	13.62
1202	July 19.50	28	101	12.04	51	3.36	+ 6.90	9.14
1203	August 15.72	27	149	13.80	31	7.04	+10.18	12.63
1204	September 11.97	27	285	15.32	23	6.70	+13.69	14.68
1205	October 9.25	28	135	14.68	3	19.87	+13.98	14.78
1206	November 5.55	27	109	13.11	7	8.74	+11.78	12.84
1207	December 2.86	27	96	7.43	215	22.33	-13.14	17.73

MEAN HELIOGRAPHIC LATITUDE OF SUNSPOTS FOR THE YEAR

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		
1943	365	249	9.01	46	15.87	+5.11	10.09

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ROYAL OBSERVATORY, GREENWICH

Observations of Solar Flocculi

Made with the

Spectrohelioscope

In the Year

1943

GREENWICH PHOTO-HELIOPHOTOGRAPHIC RESULTS, 1943

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OBSERVATIONS OF SOLAR FLOCCULI MADE WITH THE SPECTROHELIOSCOPE IN THE YEAR 1943

The following observations relate to dark filaments or flocculi visible on the Sun's disk in the light of $H\alpha$ in the immediate vicinity of sunspots, the object of the measures being to determine the motion of these hydrogen flocculi in the line of sight.*

The observations were made at the Royal Observatory, Greenwich, with a spectrohelioscope lent by the Mount Wilson Observatory and described by Dr. Hale in the *Astrophysical Journal*, 70, 265-311, 1929. The spectrum is formed by a Rowland grating ruled with 14,438 lines to the inch, the observations being made in the light of $H\alpha$. The portion of the grating covered by the solar beam contains about 43,000 lines. The first order spectrum was used throughout the year, the scale being 1 mm. = 4.35 Å. The width of the second slit was usually 0.1 mm. The diameter of the monochromatic image of the Sun's disk at the second slit is about 50 mm., of which a strip 6 mm. wide and 28 mm. long is rendered visible by the rotating rectangular prisms. The eyepiece used magnifies twice.

Measures of radial velocity are taken with the "line-shifter", whose scale from 0-10 divisions = 0.37 Å = 17 km./sec. at $H\alpha$. The zero of the $H\alpha$ line is determined from measures of the darkest part of the line in an undisturbed portion of the Sun near the centre of the disk. The purpose of the observations being to locate large radial velocities, measured displacements are interpreted as being due to Doppler effects.

The probable error of a single measure of radial velocity, as determined from a number of successive readings, is about 3 km./sec., including the probable error of the zero determination. Three or four measures being generally made on each flocculus, the probable errors of the tabulated values in the third column of the following Table do not usually exceed 2 km./sec., except, perhaps in the case of the larger velocities which have accordingly been rounded off to the nearest 5 km./sec. The systematic error for the smallest velocities observed is less than 0.5 km./sec., as is shown by measures of the Sun's equatorial rotation taken at the limbs.

* An analysis of the radial velocities of the dark $H\alpha$ markings near sunspots observed at the Royal Observatory, Greenwich, 1930-33, is given in *Monthly Notices*, 94, 472, 1934. A further paper on the characteristic radial motion of solar flocculi associated with solar flares appears in *Monthly Notices* 102, 2, 1942.

In the following table, the headings of which are self-explanatory, particulars are given of each flocculus as follows -

- (1) The measured radial velocity in km./sec., + indicating motion away from the observer and - motion towards the observer.

Where two values are given it is to be understood, unless otherwise stated in the footnotes, that different velocities were observed along the length of the flocculus, and that the tabulated values are the extreme velocities measured, which in nearly all cases correspond to the opposite ends of the marking. In those cases in which one end of a flocculus, showing progressive velocities along its length, appeared to touch a sunspot, the radial velocity observed at that extremity of the flocculus is printed in heavy italics.

- (2) (a) The apparent length of the flocculus in minutes of arc, read by means of a scale inserted in the field. An asterisk denotes that the marking was small and roughly circular in shape. The diameters of these circular markings are of the order of 10".

(b) The apparent least distance in minutes of arc from the centre of the nearest sunspot or group of spots. In those cases indicated by dots in the appropriate column it was not possible to obtain a measure.

(c) The position of the flocculus relative to the group of associated sunspots or to a single component of the group. In cases where a sunspot has been designated in the *Ledgers* in the preceding *Results*, the appropriate letter *a* (the leader of the group) or *b* (the follower) has been added. The abbreviations *n*, *s*, *f*, *p*, *c*, stand respectively for, north, south, following, preceding, central.

- (3) Particulars of the associated group of sunspots, abstracted from the *General Catalogue*, including the longitude from the Sun's central meridian at the time of observing the flocculus (deduced from the mean longitude of the sunspots).

Notes have been added of unusual features seen at the time of observation. Flocculi which were apparently descending into sunspots with progressive velocities and which showed a definite curvature of shape are also noted. The intensity scale of associated solar flares is that used in the "Bulletin for Character Figures of Solar Phenomena" published from Zurich under the auspices of the International Astronomical Union.

OBSERVATIONS OF SOLAR FLOCCULI MADE WITH THE SPECTROHELIOSCOPE IN THE YEAR

Dark $\text{H}\alpha$ Flocculi						Associated Group of Sunspots				
Ref. Number	Date and Time U.T.	Measured Radial Velocity km./sec.	Length	Least Distance from Sunspot	Position relative to Sunspot or Group	Number of Group	Longitude from Central Meridian °	Central Meridian Passage d	Latitude °	Area
1	Jan. 13 9.9	-35	*	...	...	14126	+11	Jan. 12.60	-5	109
2	13 10.0	-2	2.3	...	s	126	+11			
3	13 10.8	-33	1.3	...	...	126	+11			
4	13 10.8	+31	*	...	...	126	+11			
5	Jan. 13 11.0	-30 to +33	2.3	1.3	p	14126	+11	Jan. 12.60	-5	109
6	13 11.1	+25 to +110	1.0	1.3	p	126	+11			
7	21 9.5	-3	1.0	2.7	s	128	-30		23.7	-9
8	Feb. 2 9.6	-2	0.3	0.2	c	132	-26	Feb. 4.3	-4	18
9	13 9.4	-2	1.3	0.4	n b	135	+22	11.71	+6	649
10	Feb. 13 10.5	-25	1.4	0.7	n b	14135	+23	Feb. 11.71	+6	649
11	13 10.5	+39	2.2	0.4	n b	135	+23			
11	13 10.7	-46 to +42}			n b	135	+23			
12	15 14.0	-26	0.8	0.2	p a	135	+51			
13	15 14.0	+30	0.3	0.8	p a	135	+51			
14	16 10.0	-22	0.6	0.2	p a	135	+62			
15	Feb. 16 10.3	-17	0.7	0.4	p a	14135	+62	Feb. 11.71	+6	649
16	16 10.4	-34	0.6	0.4	p a	135	+62			
16	16 11.2	-33	0.4	0.3	p a	135	+63			
17	25 10.8	-37	0.6	1.1	n	138	-5		25.85	+9
18	25 10.9	-1	0.9	0.3	n p	138	-5			1004
19	25 11.0	+28	0.6	0.8	n	138	-5			
20	Feb. 26 10.1	-28 to +37	0.3	0.2	c	14138	+8	Feb. 25.85	+9	1004
21	27 9.2	+42	0.3	0.4	s	138	+20			
22	Mar. 4 13.5	+1	0.6	0.3	p	142	-80	Mar. 10.60	+4	833
23	8 9.0	-3 to +26	0.3	0.2	c	142	-29			
24	9 9.1	-23 to +63	0.9	0.3	p a	142	-16			
25	Mar. 9 9.1	0	0.6	0.3	n p b	14142	-16	Mar. 10.60	+4	833
26	9 9.2	-4	1.8	2.0	s	142	-16			
27	10 9.2	0	0.4	0.5	s p a	142	-3			
28	10 9.3	-21 to +30	1.0	0.2	s f a	142	-3			
29	10 15.1	-1 to +34	0.7	0.2	n a	142	0			
30	Mar. 12 9.0	-30	0.4	1.5	f a	14142	+24	Mar. 10.60	+4	833
31	12 9.1	+33	0.2	0.6	p a	142	+24			
32	13 10.9	-22	0.5	0.6	p a	142	+38			
33	13 11.0	-7	0.6	0.4	f a	142	+38			
34	13 11.0	+3	2.0	1.4	s a	142	+38			
35	Mar. 16 13.6	-19	*	0.8	s	14142	+79	Mar. 10.60	+4	833
36	16 13.7	-45	0.4	1.0	n	142	+79			
37	18 10.5	+35	*	1.3	p	145	-76		24.21	+9
38	22 10.6	-4	0.8	0.5	f	145	-23			142
39	22 10.7	-9 to +15	0.3	0.1	c	146	-38		25.34	+8
40	Mar. 22 14.5	+1	1.1	0.6	s f	14145	-21	Mar. 24.21	+9	142
41	23 11.3	0	1.1	1.2	c	145	-10			
42	23 11.4	-30	*	0.4	c	145	-10			
43	23 11.6	+30	0.3	0.5	s b	146	-24		25.34	+8
44	23 11.6	+3	0.2	0.8	c	145	-10		24.21	+9
45	Mar. 23 13.5	-24 to +50	1.1	0.7	s	14145	-9	Mar. 24.21	+9	142
46	26 14.9	+2	0.5	0.7	c	146	+17		25.34	+8
47	29 8.7	-22	0.6	2.0	p	145	+68		24.21	+9
48	29 9.2	+32	0.4	0.4	c	147	-39	Apr. 1.32	-9	91
49	Apr. 3 9.7	+3	2.2	0.8	n	148	-39	6.39	+2	477

OBSERVATIONS OF SOLAR FLOCCULI MADE WITH THE SPECTROHELIOSCOPE IN THE YEAR

Dark H _α Flocculi							Associated Group of Sunspots				
Ref. Number	Date and Time U.T.	Measured Radial Velocity km./sec.	Length	Least Distance from Sunspot	Position relative to Sunspot or Group	Number of Group	Longitude from Central Meridian	Central Meridian Passage	Latitude °	Area	
	d h		'	'			°	d	°		
50	Apr. 3 9.7	+ 6	1.3	2.1	f	14148	-39	Apr. 6.39	+ 2	477	
51	5 8.0	- 1	3.0	0.7	n	148	-14				
52	5 8.1	0	1.8	2.4	f	148	-14				
53	5 13.5	+49	0.7	0.8	p	148	-11				
54	13 7.5	+27	1.0	0.5	p	150	-21	14.90	-12	332	
55	Apr. 13 7.6	-21	0.5	1.1	sp	14150	-21	Apr. 14.90	-12	332	
56	13 7.6	- 3	2.0	0.4	f	150	-21				
57	13 7.7	+ 1	2.2	2.1	sf	150	-21				
58	16 8.0	- 3	0.7	0.5	n	150	+19				
59	16 9.3	+36	0.3	2.8	f	150	+20				
60	Apr. 16 9.4	- 8	3.7	0.9	f	14150	+20	Apr. 14.90	-12	332	
61	16 10.1	+35	0.3	0.8	n	151	-63	21.19	+ 9	985	
62	17 8.1	+28 to +60	0.7	0.1	c	151	-51				
63	17 8.1	-32	0.3	1.0	c	151	-51				
64	17 8.1	+32	0.4	0.3	n	151	-51				
65	Apr. 17 8.3	-19	2.0	2.6	f	14150	+32	Apr. 14.90	-12	332	
65	17 8.5	-34 to +29}				150	+32				
66	17 8.4	+ 1	1.5	1.3	f	150	+32				
67	17 9.9	-42	0.4	0.3	f	151	-50	21.19	+ 9	985	
68	18 8.6	-32	2.5	0.1	c	151	-37				
69	18 8.7	- 4 to +46	0.6	0.1	c	151	-37				
70	Apr. 19 8.0	-60 }	0.7	0.3	c	14151	-24	Apr. 21.19	+ 9	985	
70	19 8.2	+46 }				151	-24				
71	19 9.5	-13 to +35	0.6	0.4	c	151	-24				
72	20 8.1	+ 2	0.4	1.2	n	151	-11				
73	21 8.0	+10	0.6	0.3	c	151	+ 2				
74	24 8.6	+39	0.7	0.4	n	151	+42				
75	Apr. 24 8.6	+30	0.8	0.7	s	14151	+42	Apr. 21.19	+ 9	985	
76	May 15 8.8	- 1	1.0	1.1	n	154	-34	May 17.92	+ 7	333	
77	17 7.9	- 1	1.9	0.8	n	154	- 8				
78	17 7.9	+ 1	1.4	0.7	sf	154	- 8				
78	17 8.1	-50 to +30}				154	- 8				
79	17 8.3	+32	*	0.6	c	156	+52	13.5	-41	337	
80	May 17 9.1	+39	*	0.5	c	14156	+52	May 13.5	-41	337	
81	18 7.7	-30 to +70	1.3	0.2	c	154	+ 5	17.92	+ 7	333	
82	18 7.8	-10	1.4	0.6	s	156	+64	13.5	-41	337	
83	19 8.0	- 2	0.6	2.0	n	154	+19	17.92	+ 7	333	
84	21 9.1	-22	0.4	0.5	sf	154	+46				
85	May 21 9.3	-24	0.6	0.3	n	14154	+46	May 17.92	+ 7	333	
86	28 8.8	- 5	4.6	0.6	f	157	-25	30.23	+ 4	50	
87	29 8.1	+ 2	3.5	1.8	f	157	-12				
88	June 23 9.6	+37	0.3	0.2	c	160	-12	June 24.35	- 2	25	
89	24 9.6	+ 2	0.3	0.4	nf	160	+ 1				
90	July 27 9.2	+23	*	1.2	p	14162	+51	July 23.5	- 2	77	
91	Aug. 9 9.0	- 4	*	0.7	s	166	-71	Aug. 14.71	- 4	108	
92	12 8.8	+13	1.1	0.6	sf	164	+39	9.42	+13	133	
93	19 8.7	- 0	1.9	0.7	n	167	- 6	19.80	+11	61	
94	19 8.7	- 2	1.7	1.1	p	167	- 6				

OBSERVATIONS OF SOLAR FLOCCULI MADE WITH THE SPECTROHELIOSCOPE IN THE YEAR

Dark H α Flocculi					Associated Group of Sunspots						
Ref. Number	Date and Time U.T.		Measured Radial Velocity km./sec.	Length	Least Distance from Sunspot	Position relative to Sunspot or Group	Number of Group	Longitude from Central Meridian	Central Meridian Passage	Latitude	Area
	d	h		'	'			°	d	°	
95	Aug.	20	11.6	- 1	1.0	1.5	nf	14167	+ 9	Aug. 19.80	+11 61
96	Sept.	7	12.8	+ 7 to +80	0.2	0.1	c	172	+19	Sept. 6.1	+14 691
97		8	9.1	+34	0.4	0.2	c	172	+30		
98		8	10.3	+32	1.1	0.5	c	172	+31		
98		8	11.0	-11 to +35	3.0	0.1	c	172	+31		
99		8	10.4	+31	1.1	0.2	c	172	+31		
100	Sept.	8	14.9	+23 to +60	1.0	0.1	n	14172	+33	Sept. 6.1	+14 691
101		9	8.8	-25 to +48	0.3	0.1	c	172	+43		
102		9	9.9	-48	0.7	0.6	f	172	+44		
103		9	10.0	-23 to +17	0.8	0.2	s	172	+44		
104		18	9.7	+13 to +80	0.6	0.3	c	174	+ 2	18.2	- 7 83
105	Sept.	20	14.4	+16	1.3	0.2	c	14174	+31	Sept. 18.2	- 7 83
106		22	9.2	-26 to +30	1.3	...	c	174	+55		
107		23	8.8	- 6	0.5	...	c	174	+68		
108	Oct.	2	8.7	+ 4	0.3	0.9	f a	175	-10	Oct. 3.10	+15 575
109		8	8.8	+ 1	0.3	1.5	s a	175	+70		
110	Oct.	27	11.3	- 3	1.5	0.8	f	14177	-41	Oct. 30.58	+14 245
111	Nov.	25	11.4	+ 1	3.0	1.4	s	181	-17	Nov. 26.79	+14 210
112	Dec.	20	9.8	0	0.5	0.6	c	185	+ 5	Dec. 19.99	-22 472
113		20	9.9	0	0.6	0.8	c	185	+ 6		
114		22	10.4	- 4	0.7	0.5	c	185	+32		

NOTES

Reference Number

5. Associated with a minor solar flare.
 10. Four minutes after this reading, the marking had gone.
 11. Associated with a minor solar flare (intensity 1). A later measure of the dark marking at 11° 20' gave -27 to +26 km./sec.
 12. One end of the marking appeared to come from the outer edge of the sunspot penumbra.
 24. The extreme velocities measured are tabulated, the separate readings being as follows:-
 8° 51" -23 km./sec. (no + component present)
 9° 04" +28" (- component has gone)
 9° 14" +65" marking fainter
 9° 18" ... marking had shrunk to a dot.
 44. A blob.
 53. Near the position of No. 51.

Reference Number

61. A pair of markings.
 64. A measure taken 38 minutes later gave +38 km./sec.
 65. Two apparently disconnected flocculi with overall length 2'.0. At the reading +29 km./sec. a blob was visible.
 69. Associated with a minor solar flare.
 70. Associated with a minor solar flare. By the time of the second measure, 11 minutes after the first, the - component had disappeared.
 78. At the - reading, a dot was visible; at the + reading a streak.
 86. An extensive S-shaped filament.
 97. Some enhanced emission present.
 101. Associated with a minor flare.

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S.O. Code No. 31-36-0-43