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GREENWICH
PHOTO-HELIOGRAPHIC RESULTS

1940

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LONDON : HER MAJESTY'S STATIONERY OFFICE

1953

Price £2 0s. 0d. net.

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~~Department of Terrestrial Magnetism
5241 Broad Branch Road, N. W.
Washington 15, D. C.~~

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

1940

UNDER THE DIRECTION OF
H. 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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A D D E N D A

GREENWICH PHOTO-HELIOGRAPHIC RESULTS, 1940.

Insert the following small areas of high-latitude faculae.
These were mainly small isolated flecks.

Page	Date	Dist. (Col. 3)	Pos. Angle (Col. 4)	Area (Col. 9)	Total Area of Faculae for day
			°		
C 9	Feb. 24	° 928 ° 925 ° 943	188° 7 165° 4 177° 6	15 14 16	1370
C 9	Feb. 26	° 975 ° 954	183° 2 194° 1	15 7	1580
C 12	Mar. 23	° 951	359° 1	14	1744
C 15	Apr. 12	° 951 ° 961	19° 6 11° 6	14 16	2999
C 15	Apr. 17	° 862	186° 6	9	2009
C 16	Apr. 23	° 948 ° 881	181° 1 181° 7	14 9	1224
C 19	May 24	° 949 ° 962	8° 2 20° 4	17 16	1886
C 20	June 7	° 985	3° 4	20	1731
C 21	June 9	° 914	8° 4	9	1891
C 21	June 11	° 934	4° 0	80	1996
C 22	June 21	° 869	347° 4	8	1259
C 22	June 25	° 948	336° 2	11	1150
C 23	June 27	° 961	3° 1	21	2140
C 26	July 23	° 957	359° 0	15	866
C 27	Aug. 7	° 931 ° 944	6° 2 9° 7	12 21	1877
C 30	Aug. 28	° 929	344° 0	12	1192
C 31	Sept. 3	° 942	4° 2	24	1973
C 31	Sept. 4	° 973 ° 951	350° 3 348° 7	15 11	1203
C 31	Sept. 5	° 947 ° 949	14° 4 160° 4	8 11	1321
C 33	Sept. 12	° 920	354° 2	9	2117
C 34	Oct. 4	° 938	339° 8	13	1038
C 37	Nov. 8	° 932	2° 9	18	1350

The daily totals of area on pages C 100 - 102 are correct.

~~B-1~~
~~786~~

GREENWICH PHOTO-HELIOGRAPHIC RESULTS 1940

INTRODUCTION

§1. *Positions and Areas of Sunspots and Faculae for each Day in the Year 1940.*

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. A positive on glass for November 16 was kindly supplied by the Superintendent, U.S. Naval Observatory, Washington, to fill a gap in the above series.

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 upon each day in 1940, those finally selected for measurement being supplied by the different observatories as under:

Greenwich	..	..	..	..	..	..	..	240
Cape	..	..	..	..	..	..	..	119
Kodaikanal	..	..	..	..	..	..	..	6
Washington	..	..	..	..	..	..	..	1
Total	..	..	..	..	..	..	..	366

The names of the measurers of the photographs for the year 1940 are as follows:

H. Barton
P. S. Laurie

Miss C. Chapman

At the principal focus of the photoheliographs, excepting that at Kodaikáanal, 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 Kodaikáanal 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, 1940	Greenwich		Cape	
	Photographic	Visual	Photographic	Visual
January	+ 1 47	+ 1 48	+ 1 24	+ 1 24
February	+ 1 53	+ 1 51	+ 1 27	+ 1 21
March	+ 1 53	+ 1 50	+ 1 24	+ 1 24
April	+ 1 44	+ 1 52	+ 1 34	+ 1 22
May	+ 1 44	+ 1 50	+ 1 28	+ 1 25
June	+ 1 50	+ 1 50	+ 1 23	+ 1 25
July	+ 1 46	+ 1 48	+ 1 30	+ 1 25
August	+ 1 47	+ 1 49	+ 1 37	+ 1 26
September	+ 1 54	+ 1 49	+ 1 29	+ 1 25
October	+ 1 46	+ 1 49	+ 1 32	+ 1 26
November	+ 1 49	+ 1 53	+ 1 26	+ 1 24
December	+ 1 54	+ 1 50	+ 1 20	+ 1 22

The zero-corrections used during the year 1940 in the reduction of the photographs taken at Greenwich were as follows:

				o /
January to March	..	..	..	+ 1 51
April to August	..	..	..	+ 1 48
September to December	..	..	..	+ 1 51

The cross wires were replaced on March 31 after the photograph had been taken.

INTRODUCTION TO GREENWICH PHOTO-HELIOGRAPHIC RESULTS, 1940.

C v

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

				o	/
January to March	..	..	..	+ 1	24
April to October	..	..	..	+ 1	27
November and December	..	..	..	+ 1	24

The zero-corrections adopted for the Kodaikanal photographs ranged from $0^{\circ}0$ to $+0^{\circ}4$.

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 circular plate, which can be turned by screw-action about a pivot in its circumference, 90° distant from that of the upper plate, this pivot being mounted on a circular plate with a position-circle which rotates about its centre. By this means small movements in two directions at right angles to each other can be readily given, and the photograph can be accurately centred with respect to the position-circle. When this has been done, a positive eyepiece, having at its focus a glass diaphragm ruled with cross-lines into squares, with sides of one-hundredth of an inch (for measurement of areas), is moved along a slide diametrically across the photograph, the diaphragm being nearly in contact with the photographic film, so that parallax is 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 1/250th 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 1940 were measured once, each by an experienced measurer. The remaining plates were measured twice independently, the two measurers taking right and left readings respectively with the micrometer. 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 has been made in the practice during years previous to 1916, where in this section components of groups are given separately and combined into groups in the ledgers.

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

The calculations of heliographic longitude and latitude are made by use of the formulæ given in "Researches on Solar Physics: Heliographical Positions and Areas of Sunspots 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 latitudes of the Earth and the spot respectively referred to the Sun's equator, and l the heliographic longitude of the spot from the solar meridian passing through the centre of the disk, longitudes west of the centre being reckoned as positive, and χ the position-angle from the Sun's axis.

$$\sin \phi = \cos \rho \sin D + \sin \rho \cos D \cos \chi.$$

$$\sin l = - \sin \chi \sin \rho \sec \phi$$

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.580 of the *Nautical Almanac* for 1940.

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 1940.0 to be $74^{\circ} 55' 4$, 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 1940.

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 1939, 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 1940.

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 1940.*

Particulars relating to this section are given in the headings of pages C 100 and C 104-5.

§5. *Observations of Solar Flocculi made with the Spectrohelioscope in the year 1940.*

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. Newton, Mr. Barton and Mr. Laurie.

ROYAL OBSERVATORY, GREENWICH.

Positions and Areas of Sunspots and Faculæ

For each Day in the Year

1940

POSITIONS AND AREAS OF SUNSPOTS AND FACULÆ FOR EACH DAY IN THE YEAR 1940.

- 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), Kodaikānal (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 were observed and by a letter given in the order of their appearance. When there is no number in the second column it is to be understood that there is a facula unaccompanied by a spot.
- Col. 3. Distance of spot group or faculæ from Sun's centre in terms of the Sun's radius.
- Col. 4. Position angle of spot group or faculæ measured from the north pole of the Sun's axis in the direction n., e., s., w., n.
- Col. 5. Heliographic longitude of the spot group derived from the measures.
- Col. 6. Heliographic latitude of the spot group similarly derived.
- Col. 7. Area of umbræ corrected for foreshortening in millionths of the Sun's visible hemisphere.
- Col. 8. Area of whole spots composing the group similarly expressed.
- Col. 9. Area of each group of faculæ similarly expressed. The positions of faculæ relative to the spots with which they are associated are indicated by the letters *n*, *s*, *p*, *f*, *c*, denoting respectively, north, south, preceding, following, concentric.

In line with the date of each day is given in brackets 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 faculæ for the day.

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
1940 0.512 C		°	°	°	°				1940 4.432 G		°	°	°				
	13498	•866	245.6					155		•966	253.1					184	
	1154b	•954	258.5	245.3	-11.9	7	82	353 c		•964	294.9					159	
	13501	•527	319.6	194.1	+20.7	2	11			•946	240.4					263	
	13502	•733	64.1	129.6	+16.4	23	107	142 c		•944	277.4					81	
		•831	75.1	118.2	+10.5	13	38	150 c		•912	286.6					131	
Jan. 1		•957	77.3					170	13500	•290	318.2	132.3	+ 9.0	28	94		
		(+2.3)		(172.8)	(- 3.1)	(45)	(216)	(970)	13501	•371	340.7	128.4	+16.9	23	97		
1.422 G		•942	252.2					285	13502	•247	358.0	121.6	+10.6	517	2288		
		•937	239.6					183	13504	•810	63.8	71.2	+18.7	5	14	83 c	
		•936	292.8					91		•873	109.6					330	
		•921	279.3					137		•881	97.8					102	
	13500	•505	68.6	132.6	+ 7.8	8	39			•884	57.8					229	
	13501	•599	56.7	129.5	+16.4	14	103		Jan. 5		(+0.4)	(121.1)	(- 3.5)	(573)	(2493)	(2327)	
	13502	•705	71.9	118.0	+10.3	30	156			•949	77.5					441	
		•853	127.9					184		•960	104.6					324	
		•892	35.0					190	5.297 C	•953	286.4					143	
		•896	107.9					242	13500	•429	299.9	131.7	+ 9.0	11	105		
Jan. 2		•911	74.3					311	13501	•470	318.9	128.5	+17.3	13	65		
		•930	62.8	(+1.9)	(160.8)	(- 3.2)	(52)	(298)	(1711)	13502	•316	320.0	121.6	+10.4	478	2860	
2.489 G		•898	240.3					283	Jan. 6		•885	76.6				201	
		•852	255.8					226		•902	105.7	(0.0)	(109.7)	(- 3.6)	(502)	(3030)	(657)
		•828	300.4					192	6.371 C	•631	288.2	132.7	+ 8.4	14	89		
	13503	•054	191.9	147.3	- 6.3	2	10		13500	•623	304.0	128.2	+17.2	5	24		
	13500	•315	51.9	132.3	+ 7.9	12	59		13502	•497	299.0	121.7	+10.6	608	2722		
	13501	•445	41.3	129.0	+16.3	17	89			•830	106.9					195	
	13502	•519	63.9	118.5	+10.3	92	453			•949	98.3					157	
		•886	62.7					139	Jan. 7	•974	69.6					145	
		•892	114.0					166		(-0.6)		(95.6)	(- 3.7)	(627)	(2835)	(497)	
		•912	71.7					169	7.435 G	•943	288.9					144	
Jan. 3		•942	102.8					175		•938	257.5					200	
		•976	68.8	(+1.3)	(146.7)	(- 3.3)	(123)	(611)	(1803)	•795	264.0	132.7	+ 8.7	5	55	113 p	
3.441 G		•938	259.0					186		13500	•786	296.3	127.4	+17.2	2	5	94 p
		•937	244.4					183		13501	•678	290.4	121.7	+10.7	555	2531	
		•917	289.5					201		13504	•412	23.6	71.6	+18.4	2	9	
		•913	303.5					157		13505	•382	98.9	59.4	- 6.9	1	3	
		•903	234.5					124		•885	97.3						104
		•780	293.1					121		•941	67.9						174
	13503	•225	258.7	147.0	- 5.9	2	11		Jan. 8	•947	107.7					132	
	13500	•212	10.8	131.9	+ 8.6	18	103			•948	84.3	(-1.1)	(81.6)	(- 3.8)	(565)	(2603)	(1497)
	13501	•361	14.1	128.9	+17.0	20	102		8.301 C	•970	288.2					170	
	13502	•343	45.2	119.9	+10.6	264	1253			•950	263.3					164	
	13504	•908	68.4	71.9	+17.9	5	13	171 n		•928	253.5					217	
		•869	73.6					86		13500	•863	261.3	132.2	+ 8.2	9	78	261 c
		•909	84.4					142		13501	•874	293.6	127.6	+18.4	2	6	364 c
		•940	105.4					407		13502	•796	288.2	121.0	+10.4	481	2287	364 c
Jan. 4		•943	74.9					160	13506	•479	330.5	84.7	+20.7	6	34		
		•948	59.5	(+0.9)	(134.2)	(- 3.4)	(309)	(1482)	(2071)	13505	•178	107.1	60.4	- 6.8	11	45	

Group 13502. Jan. 1 - 11. A giant stream of normal type developing rapidly from a pair of small spots on Jan.1. Both of the chief components, i.e., the leader and follower, are very large regular spots of remarkable stability over several weeks.

Group 13503. Jan. 3 - 4. A single small spot.

Group 13504. Jan. 4 - 8. Intermittent. A small spot not seen on Jan.6 and 7.

Group 13505. Jan. 8 - 16. At first a small spot becoming a tiny stream that dies down to a single spot on Jan.11. Reviving activity then results in a small stream or cluster.

Group 13506. Jan. 9 - 11. A pair of small spots on Jan.9 and 10; a single spot on the next day.

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
1940			°	°	°				1940			°	°	°			
	13513	•984	101.7	256.0	-12.4	16	82	344 p	1940	19.437	•954	269.2					89
		•900	94.6					418	G		•952	257.5					261
		•907	71.7					255			•945	304.3					359
		•920	60.8					300			•942	281.7					381
		•927	109.3					172		13510	•833	258.8	340.0	-12.1	6	22	97 c
Jan. 16			(-4.9)	(336.3)	(-4.7)	(151)	(627)	(2923)		13508	•776	263.3	334.5	-8.4	36	132	120 p
										13512	•258	187.2	285.5	-19.9	28	140	
										13515	•328	356.8	284.6	+13.9	21	59	
										13516	•288	110.6	287.6	-10.7	25	73	
										13514	•447	115.2	258.8	-15.6	11	54	
16.484		•973	279.8					115		13513	•480	106.3	255.5	-12.2	2	6	
G		•930	253.3					189		13517	•982	96.2	204.1	-7.1	5	23	205 c
		•862	265.6					84			•858	86.2					210
		•845	299.1					402			•897	131.2					121
	13510	•315	250.8	339.9	-10.5	2	12				•900	118.3					185
	13508	•169	242.5	331.1	-9.2	67	359				•915	105.4					199
	1155b	•142	136.6	316.7	-10.7	5	6				•936	86.2					151
	13512	•809	118.2	287.1	-19.5	23	185					(-6.8)	(283.5)	(-5.1)	(134)	(509)	(2378)
	13514	•923	105.9	254.8	-16.6	11	38	231 c	Jan. 20								
	13513	•926	101.1	254.4	-12.1	12	29	351 c									
		•797	93.9					319									
		•846	55.5					281		20.377	•912	246.6					316
		•910	77.6					115	C		•787	240.8					84
		•933	118.8					133		13508	•888	262.8	334.0	-8.7	7	34	425 c
Jan. 17			(-5.4)	(322.4)	(-4.8)	(120)	(629)	(2220)		13512	•340	219.9	284.6	-20.1	17	98	
										13515	•388	325.9	284.1	+13.7	19	75	
										13516	•112	147.0	287.7	-10.4	32	200	
										13514	•281	129.7	258.3	-15.2	11	43	
										13517	•926	96.2	203.2	-7.7	3	24	288 f
17.498		•954	253.6					195			•891	103.9					164
G		•935	270.0					256	Jan. 21			(-7.2)	(271.2)	(-5.1)	(89)	(474)	(1277)
		•902	296.9					745									
		•882	244.4					113									
		•856	312.0					311		21.418	•959	248.3					188
		•824	255.7					143	G		•926	302.3					141
	13508	•380	257.4	331.1	-9.3	65	286				•921	238.6					165
	13512	•450	125.5	286.3	-19.6	68	333			13508	•982	263.1	336.9	-7.8	10	34	646 c
	13514	•787	106.0	257.6	-15.5	7	35	167 c		13515	•534	306.5	283.6	+13.8	6	30	
	13513	•813	101.4	254.7	-12.1	8	13	221 c		13512	•484	234.8	282.4	-20.9	3	25	
		•778	48.2					171		13516	•219	246.9	269.2	-10.0	21	121	
		•848	92.9					91		13514	•178	193.9	260.0	-15.1	14	38	
		•919	55.1					122		13517	•772	93.3	206.9	-5.9	10	26	95 c
		•935	114.1					135			•876	117.2					178
Jan. 18			(-5.9)	(309.1)	(-4.9)	(148)	(667)	(2670)			•893	79.3					190
											•894	99.1					168
											•909	131.4					283
											•949	66.9					85
18.414		•944	284.2					210	Jan. 22			(-7.7)	(257.5)	(-5.2)	(64)	(274)	(2139)
G		•925	299.8					281									
		•916	254.2					199									
		•899	268.6					122									
		•811	268.5					184		22.520	•919	255.9					272
	13508	•572	261.1	331.8	-9.2	34	254		G		•917	285.0					321
	1155c	•549	218.7	320.2	-29.9	4	8				•905	305.4					251
	13512	•318	145.3	286.0	-19.9	23	123			13512	•718	246.9	287.5	-20.1	4	20	
	13515	•380	33.8	284.5	+13.4	5	26			13515	•713	295.5	284.4	+13.9	6	26	
	13514	•628	108.8	259.2	-15.5	6	38			13516	•458	257.4	269.9	-10.4	29	129	
	13513	•670	102.9	255.2	-12.3	4	10			13514	•359	240.9	261.9	-15.0	53	202	
		•833	103.3					87		13517	•620	94.2	204.6	-6.8	9	42	
		•945	66.4					130			•919	74.4					408
Jan. 19			(-6.3)	(297.0)	(-5.0)	(76)	(459)	(1213)	Jan. 23		•945	92.7					163
												(-8.2)	(243.0)	(-5.3)	(101)	(419)	(1415)

Group 13513. Jan. 16 - 20. A small spot representing a revival rather than a return of Group 13495.
 Group 13514. Jan. 17 - 27. A stream of small spots with a sudden increase in area on Jan. 23.
 Group 13515. Jan. 19 - 23. A short-lived stream of small spots.
 Group 13516. Jan. 20 - 27. A small stream of spots of which the leader alone remains after Jan. 23.
 Group 13517. Jan. 20 - 31. A small stream of variable 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.	Umbræ	Whole Spots	Faculæ			Dist.	Pos. Angle	Long.	Lat.	Umbræ	Whole Spots	Faculæ
			°	°	°							°	°	°			
1940									1940								
23.499		*944	310.8					162	27.373		*955	256.2					364
G		*936	266.2					151	C		*951	245.1					166
		*924	298.9					195		13517	*479	264.8	207.7	- 7.5	20	101	
		*884	246.2					389		13518	*787	71.7	129.8	+10.5	140	791	220 c
		*883	287.6					229		13519	*910	74.1	115.9	+11.9	107	822	162 c
	13518	*662	259.9	271.5	-10.7	26	129		Jan.28			(-10.3)	(179.1)	(- 5.7)	(267)	(1714)	(912)
	13514	*562	251.5	263.4	-14.8	42	213										
	13517	*373	94.7	208.2	- 6.7	6	21										
		*843	87.0					159	28.532		*943	259.2					154
		*878	92.9					112	C		*939	248.8					210
Jan.24		*926	108.1					170		13517	*692	265.0	207.7	- 7.7	15	89	153 c
		(-8.8)		(230.1)	(- 5.4)	(74)	(363)	(1567)		13518	*618	64.8	129.3	+10.4	129	740	
										13519	*792	70.4	114.4	+11.7	111	682	360 c
											*949	69.0					328
24.466		*951	321.5					86	Jan.29			(-10.8)	(163.8)	(- 5.8)	(255)	(1511)	(1206)
G		*940	287.4					235									
		*929	249.9					434									
		*920	299.4					300									
		*788	270.4					122	29.282		*963	257.5					123
	13516	*811	260.9	271.6	-10.5	16	106	91 c	C		*865	256.9					93
	13514	*719	254.5	262.9	-15.0	43	215			13517	*808	264.9	208.0	- 7.6	7	33	237 c
	13517	*209	96.7	205.3	- 6.8	4	25			13518	*494	57.0	129.1	+10.2	142	706	
		*910	86.8					64		13519	*693	66.1	113.7	+11.8	90	531	
		*919	81.0					272		13520	*964	95.1	73.9	- 6.1	41	321	218 c
		*936	120.8					227			*897	66.5					366
		*945	73.6					261			*955	112.0					347
Jan.25		*966	97.1					82	Jan.30			(-11.1)	(153.9)	(- 5.9)	(280)	(1591)	(1404)
		(-9.0)		(217.3)	(- 5.5)	(63)	(346)	(2174)									
25.284		*969	249.2					324	30.277		*946	255.9					243
C		*946	285.9					152	C		*915	264.3	207.2	- 7.7	10	69	377 c
		*942	298.0					191		13521	*846	266.1	196.3	+10.2	2	12	181 s
		*896	267.8					116		13518	*344	36.7	128.8	+10.1	175	667	
	13516	*906	260.8	271.9	-10.7	20	98	288 c		13519	*546	56.0	113.3	+12.3	74	477	
	13514	*843	256.4	264.2	-14.5	48	273	434 c		13522	*918	114.1	74.1	-24.5	36	165	348 c
	13517	*026	157.5	206.0	- 7.0	3	20			13520	*919	94.3	73.8	- 6.3	71	311	502 c
	13518	*979	78.4	129.9	+10.1	170	1101	490 c			*923	67.7					243
		*830	86.8					145	Jan.31			(-11.5)	(140.8)	(- 6.0)	(368)	(1701)	(1892)
		*896	97.4					245									
Jan.26		*906	88.0					330									
		(-9.4)		(206.6)	(- 5.6)	(241)	(1492)	(2715)	31.277		*970	262.9					295
									C		*947	282.3	197.1	+ 9.6	6	20	225 c
26.281		*850	253.0					177		13521	*273	356.5	128.6	+ 9.7	118	664	
C	13516	*974	260.6	270.8	-10.4	4	28	244 c		13518	*390	38.1	113.4	+12.0	108	535	
	13514	*934	257.0	263.0	-14.2	17	180	375 c		13519	*804	93.3	74.0	- 6.2	35	239	194 c
	13517	*256	264.4	208.9	- 6.9	11	55			13522	*819	115.9	73.8	-24.5	18	105	253 c
	13518	*911	76.2	129.6	+10.1	129	1028	393 c			*837	62.9					171
	13519	*985	77.0	115.1	+11.7	112	936	212 c			*865	105.9					141
		*843	95.2					150			*892	83.7					494
		*938	62.5					96			*959	105.5					181
Jan.27		(-9.8)		(163.4)	(- 5.7)	(273)	(2227)	(1647)	Feb. 1			(-11.9)	(127.6)	(- 6.0)	(283)	(1563)	(1954)

Group 13518. Jan.26-Feb. 7. Together with Group 13519, this is a return of Group 13502. A big regular spot with variable companions until Feb.4.

Group 13519. Jan.27-Feb. 8. Linked with Group 13518 as a return of Group 13502. A large stable regular spot with a cluster of variable companions preceding it until Feb.4.

Group 13520. Jan.30-Feb.11. A regular spot with a double umbra until it reaches the central meridian. A number of small companions then emerge, but the whole group appears to be nearing extinction as it passes around the west limb.

Group 13521. Jan.31-Feb. 1. A pair of tiny spots.

Group 13522. Jan.31-Feb.11. A small regular spot shrinking perceptibly as it passes round the west limb.

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	Spots	Faculae			Dist.	Pos. Angle	Long.	Lat.	Umbrae	Spots	Faculae	
1940 32° 27' 6" C	13518 13519 13522 13520	• 951 • 359 • 309 • 680	281° 8' 317° 9' 4° 3' 120° 3'	128° 6' 113° 1'	+ 9° 5' + 11° 8'	115 85	591 320	208	1940 36° 50' 9" G	• 960 • 942 • 924 • 908	251° 7' 296° 3' 273° 0' 309° 8'					172 160 84 153		
	13518 13519 13520 13522 13523	• 644 • 791 • 883 • 938 • 964	92° 7' 93° 7' 104° 2' 77° 3' 106° 5'	74° 3'	- 6° 4'	41	247		13518 13519 13520 13522 13523 13524	• 950 • 825 • 290 • 389 • 087 • 948	282° 7' 289° 6' 270° 0' 214° 5' 250° 3' 97° 1'	128° 7' 111° 3'	+ 9° 9' + 12° 2'	123 52 54 19	668 252 332 102	334 c 160 c		
Feb. 2			(-12° 3')	(114° 5')	(- 6° 1')	(253)	(1229)	(1245)		13524	• 948 • 852 • 900 • 910 • 935 • 974	97° 1' 52° 2' 107° 3' 66° 1' 116° 8' 75° 5'	346° 9'	- 8° 7'	3	6	260 p 155 173 155 165 141	
33° 27' 8" C	13518 13519 13520 13522 13523	• 781 • 521 • 369 • 442 • 534 • 589	291° 7' 300° 1' 326° 6' 91° 9' 128° 0'	128° 4' 113° 2'	+ 9° 6' + 11° 8'	126 72	682 438	137	Feb. 6			(-14° 0')	(58° 8')	(- 6° 4')	(253)	(1388)	(2112)	
	13523	• 589 • 784 • 861 • 941 • 960	94° 6' 102° 4' 109° 3' 104° 1' 93° 4'	65° 1'	- 7° 7'	5	26		37° 27' 9" C	• 927 • 906 • 905 • 448 • 491 • 870 • 859 • 964	295° 0' 280° 8' 286° 6' 267° 7' 228° 2' 69° 7' 95° 3' 100° 9'					139 265 c 430 c		
Feb. 3			(-12° 8')	(101° 3')	(- 6° 2')	(276)	(1574)	(774)		13518 13519 13520 13522 13525 13524	• 906 • 905 • 448 • 491 • 870 • 859 • 964	280° 8' 286° 6' 267° 7' 228° 2' 69° 7' 95° 3' 100° 9'	127° 4'	+ 9° 4'	111	479	265 c	
34° 35' 2" C	1155d 13518 13519 13520 13522 13523	• 855 • 810 • 910 • 697 • 522 • 209 • 392 • 328	258° 9' 290° 8' 288° 6' 290° 6' 304° 8' 91° 0' 146° 0' 97° 0'	149° 8'	+ 14° 1'	2 112 63 44 18 2	10 650 392 292 91 9	171 229 205 c	Feb. 7		• 874 • 980 • 656 • 646 • 734 • 683 • 871 • 876 • 953	255° 1' 283° 9' 266° 3' 238° 5' 63° 9' 96° 5' 98° 4' 114° 7' 99° 1'					103 136 c	
	13518 13519 13520 13522 13523	• 823 • 948	105° 0' 68° 5'	68° 1'	- 8° 2'	2	9		38° 33' 5" C	• 874 • 980 • 656 • 646 • 734 • 683 • 871 • 876 • 953	255° 1' 283° 9' 266° 3' 238° 5' 63° 9' 96° 5' 98° 4' 114° 7' 99° 1'	111° 2'	+ 12° 2'	25 53 11 24 10	165 327 66 151 43	136 c		
Feb. 4			(-13° 2')	(87° 2')	(- 6° 2')	(241)	(1444)	(1062)		13524	• 871 • 876 • 953	98° 4' 114° 7' 99° 1'	351° 5'	- 9° 2'	10	43	138 f 343 169 315	
35° 52' 2" G	13518 13519 13520 13522 13523	• 967 • 953 • 899 • 889	287° 1' 268° 2' 295° 3' 304° 7'	128° 6'	+ 9° 7'	141 51 58 25	667 343 303 113	230 176 134 199	Feb. 8		• 971 • 966 • 906 • 877 • 830 • 798 • 564 • 483 • 718 • 850	255° 1' 271° 0' 289° 1' 297° 8' 265° 7' 243° 8' 53° 5' 90° 3' 104° 3' 99° 9'	(-14° 7')	(34° 7')	(- 6° 5')	(123)	(752)	(1388)
	13518 13519 13520 13522 13523	• 858 • 692 • 083 • 319 • 146	285° 4' 284° 9' 271° 2' 183° 3' 104° 6'	111° 6'	+ 12° 1'	51 58 25	343 303 113		39° 45' 9" C	• 971 • 966 • 906 • 877 • 830 • 798 • 564 • 483 • 718 • 850	255° 1' 271° 0' 289° 1' 297° 8' 265° 7' 243° 8' 53° 5' 90° 3' 104° 3' 99° 9'	76° 2'	- 7° 2'	30 5 41 28 3 23	220 24 256 133 12 127	228 c 98 sf 78 c 261 c		
Feb. 5	1155e	• 424 • 901 • 922 • 930 • 931 • 956	64° 1' 67° 1' 105° 6' 76° 6' 57° 3' 94° 0'	49° 4'	+ 4° 8'	2	11		Feb. 9			(-15° 1')	(19° 9')	(- 6° 5')	(130)	(772)	(1209)	

Group 13523. Feb. 3 - 6. One or two tiny spots.

Group 13523. Feb. 5 - 8. One or two tiny spots.
Group 13524. Feb. 6 - 17. A stream developing from a single spot on Feb. 6. The leader is the chief component and is the longest lived.

Group 13525. Feb. 7 - 16. A stream of normal type whose whole life history is presented on the visible hemisphere.

Group 13528. Feb. 7 - 18. A stream of normal type whose whole life history is presented on the visible hemisphere.

Group 13528. Feb. 9 - 19. A few inert spots for some days. On Feb. 14, a stream begins to develop quite rapidly and this is still growing as it passes around the west limb.

Group 13527. Feb. 9 - 14. A pair of spots dying out just past the central meridian.

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	Spots	Faculae			Dist.	Pos. Angle	Long.	Lat.	Umbræ	Spots	Faculae	
1940			°	°	°				1940			°	°	°				
40° 466		•907	254° 6					205			•891	302° 2					286	
G	13520	•934	264° 5	78° 3	- 7° 5	29	156	473 c		13524	•824	267° 1	353° 8	- 7° 1	37	244		
	13522	•908	245° 6	72° 2	-24° 9	5	15	258 c		13525	•652	298° 9	350° 8	+12° 8	55	271		
	13525	•422	35° 7	352° 1	+13° 6	56	334			13526	•373	251° 0	336° 3	-13° 3	50	201		
	13524	•264	87° 0	351° 4	- 5° 6	36	146			13527	•140	234° 1	321° 7	-11° 4	4	22		
	13526	•542	106° 2	334° 3	-14° 3	10	42			13528	•715	73° 0	271° 7	+ 7° 1	53	246		
	13527	•719	101° 0	320° 6	-12° 5	15	65			13529	•731	103° 2	268° 0	-14° 2	16	85		
		•893	126° 2					239		1156a	•958	98° 9	241° 5	-10° 5	15	34	303 f	
		•936	58° 2					197			•835	74° 8					157	
		•953	113° 3					390			•867	105° 9					218	
Feb. 10			(-15° 5)	(6° 7)	(- 6° 6)	(151)	(756)	(1762)			•862	60° 8					240	
											•953	109° 0					106	
												(-16° 9)	(315° 1)	(- 6° 8)	(230)	(1103)	(1995)	
41° 355		•934	265° 0					348		Feb. 14								
C		•859	254° 7					153			•953	300° 9					246	
	13520	•984	262° 2	75° 4	- 8° 9	0	59	391 c		45° 402	•931	288° 8					270	
	13522	•971	245° 7	72° 4	-25° 1	0	16	243 s		C	•921	276° 7					235	
	13525	•351	9° 2	351° 7	+13° 6	36	244				•847	305° 9					234	
	13524	•060	85° 2	351° 6	- 6° 3	39	198				•780	252° 9					151	
	13526	•395	110° 9	332° 7	-14° 2	4	15			13524	•783	266° 0	354° 4	- 7° 3	35	188	284 c	
	13527	•553	101° 2	321° 5	-11° 7	10	37			13525	•795	292° 8	350° 4	+13° 5	35	134	152 c	
	13528	•996	82° 4	271° 2	+ 6° 9	43	245			13526	•579	257° 4	337° 0	-12° 8	64	320		
		•922	111° 3					282		13528	•548	66° 1	271° 5	+ 6° 9	31	224		
		•952	100° 4					264		13529	•549	104° 9	268° 7	-13° 8	59	354		
		•963	90° 0					185		13530	•861	98° 5	241° 8	-10° 8	4	17	319 c	
Feb. 11			(-15° 8)	(355° 0)	(- 6° 6)	(132)	(814)	(1866)			•777	107° 6					174	
												(-17° 3)	(301° 7)	(- 6° 8)	(228)	(1237)	(2065)	
42° 603		13524	•253	268° 9	353° 2	- 6° 8	53	275		Feb. 15								
G		13525	•406	327° 0	351° 6	+13° 3	32	203			46° 438	•937	276° 7				185	
		13526	•116	165° 1	336° 8	-13° 1	6	28		G	•926	298° 7					242	
		13527	•306	107° 5	321° 2	-11° 7	1	6			•911	251° 3					314	
		13528	•926	80° 0	272° 1	+ 6° 5	48	287	328 f		13524	•923	264° 7	355° 7	- 7° 5	28	170	649 f
			•921	101° 5				386			13525	•915	288° 5	351° 1	+13° 8	16	66	202 c
			•941	58° 0				317			13526	•769	258° 3	338° 5	-13° 4	103	565	170 c
Feb. 12			(-16° 3)	(338° 5)	(- 6° 7)	(140)	(799)	(1031)			13528	•368	50° 3	271° 5	+ 6° 9	32	140	
											13529	•326	113° 4	270° 1	-14° 0	58	318	
43° 506		•901	258° 9					247			•818	101° 2					132	
G		•891	287° 4					237			•924	120° 2					183	
		•822	304° 4					284			•947	98° 7					302	
	13524	•457	268° 0	353° 9	- 6° 9	57	290			Feb. 16		(-17° 6)	(288° 0)	(- 6° 9)	(237)	(1259)	(2379)	
	13525	•524	309° 4	351° 1	+13° 2	63	274				•967	285° 3					332	
	13526	•231	241° 0	336° 5	-13° 1	10	33			47° 286	•961	298° 7					223	
	13527	•125	133° 3	321° 3	-11° 7	4	20			C	•942	252° 2					200	
	13528	•830	77° 4	272° 2	+ 6° 5	45	246	358 f			•904	306° 7					171	
	13529	•851	104° 5	267° 9	-15° 9	0	7	155 c			13524	•977	263° 5	355° 1	- 7° 8	30	175	500 c
		•964	106° 4					261			13526	•883	258° 7	339° 5	-13° 2	97	709	326 c
Feb. 13			(-16° 6)	(326° 6)	(- 6° 8)	(179)	(870)	(1542)			13529	•154	140° 9	271° 2	-13° 7	44	249	
											13528	•270	26° 7	269° 8	+ 7° 0	21	133	
44° 381		•959	266° 9					132			•872	98° 7					212	
G		•944	256° 2					327		Feb. 17		(-17° 9)	(276° 9)	(- 6° 9)	(192)	(1266)	(1964)	
		•925	288° 4					228										

Group 13528. Feb. 11 - 20. A small composite spot, breaking up into a cluster by Feb. 17 and then rapidly dying out.

Group 13529. Feb. 13 - 23. A stream developing from a tiny spot on Feb. 13. The leader becomes a regular spot by Feb. 16.

The follower is represented by a variable cluster that has died out by Feb. 20.

Group 13530. Feb. 15 - 22. Intermittent. A single spot on Feb. 15. Nothing is then seen until Feb. 19 when a cluster appears not far from the previous position. By the next day, the cluster has become a regular spot with a companion, but the group soon 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.	Umbræ	Spots	Faculae			Dist.	Pos. Angle	Long.	Lat.	Umbræ	Spots	Faculae
1940			°	°	°				1940			°	°	°			
48° 374		• 886	289° 5					124		13534	• 983	79° 5	129° 0	+ 8° 9	69	343	269 c
C		• 863	261° 3					216			• 902	97° 2					151
	13528	• 962	258° 4	337° 5	-13° 1	99	758	628 c	Feb. 22			(-19° 6)	(206° 9)	(- 7° 1)	(148)	(717)	(1459)
	13529	• 208	230° 9	272° 1	-14° 4	38	205			53° 284	• 948	281° 5					360
	13528	• 271	329° 3	270° 5	+ 6° 5	7	29		C	13529	• 971	258° 0	275° 0	-13° 3	16	117	427 c
Feb. 18		• 863	98° 3					161		13531	• 378	257° 0	219° 9	-11° 4	27	186	
		• 942	72° 5					262		13533	• 594	103° 7	161° 6	-13° 8	25	139	123 f
			(-18° 3)	(262° 5)	(- 7° 0)	(144)	(992)	(1369)		13534	• 940	77° 8	129° 8	+ 9° 0	49	325	539 c
49° 279		• 940	257° 9					412			• 831	83° 8					169
C	13528	• 995	256° 1	336° 4	-14° 5	94	456	410 c	Feb. 23			(-19° 8)	(197° 9)	(- 7° 1)	(117)	(767)	(1618)
	13529	• 388	249° 9	272° 6	-14° 1	34	157			54° 374	• 948	165° 7					15
	13528	• 381	305° 7	268° 7	+ 6° 1	4	34			G	• 831	165° 4					14
	13530	• 217	90° 7	238° 0	- 7° 0	14	49				• 831	177° 6					16
	13531	• 569	102° 2	216° 0	-12° 7	2	10			13531	• 599	260° 4	220° 4	-11° 4	26	97	
	13532	• 958	78° 2	179° 4	+11° 1	14	72	260 c		13532	• 350	20° 2	176° 4	+12° 1	6	22	
Feb. 19		• 892	70° 3					266		13533	• 378	108° 7	162° 1	-13° 5	18	99	
			(-18° 5)	(250° 6)	(- 7° 0)	(162)	(778)	(1348)		13534	• 794	109° 0	131° 0	-19° 4	2	12	57 f
50° 276		• 985	256° 5					226		13534	• 836	73° 9	129° 2	+ 9° 3	66	349	332 f
C		• 889	259° 1					118		13535	• 960	75° 9	112° 0	+11° 4	4	16	220 c
	13529	• 600	256° 9	274° 3	-13° 4	22	139		Feb. 24		• 961	69° 3					425
	13528	• 588	290° 3	271° 0	+ 5° 9	2	17					(-20° 1)	(183° 5)	(- 7° 1)	(122)	(595)	(1325)
	13530	• 040	259° 6	239° 8	- 7° 4	23	122			55° 376	• 972	261° 1					176
	13531	• 354	106° 4	217° 3	-12° 3	14	60		C		• 900	261° 1					325
	13532	• 877	73° 3	178° 9	+11° 0	11	48	153 c		13531	• 781	261° 8	222° 0	-10° 9	15	67	218 f
	13533	• 967	101° 2	161° 4	-12° 6	15	129	423 c		13532	• 346	342° 4	176° 4	+12° 0	2	7	
Feb. 20		• 982	72° 8					228		13533	• 188	128° 0	162° 5	-13° 1	17	96	
			(-18° 9)	(237° 5)	(- 7° 0)	(87)	(513)	(1148)		13534	• 694	68° 8	129° 5	+ 9° 0	58	315	141 f
51° 273		• 921	246° 9					218		13535	• 873	73° 1	112° 2	+10° 9	0	4	207 s
C	13529	• 765	258° 8	274° 6	-13° 1	26	97	251 c		13536	• 909	62° 4	110° 7	+21° 3	0	10	403 s
	13530	• 246	268° 2	238° 7	- 7° 2	22	113			13537	• 992	95° 8	87° 0	- 6° 6	15	80	197 c
	13531	• 121	130° 3	219° 0	-11° 4	26	114				• 801	53° 6					105
	13532	• 741	68° 8	179° 9	+10° 5	9	33				• 910	97° 8					113
	13533	• 879	101° 0	162° 3	-13° 0	22	83	559 c			• 950	105° 9					133
Feb. 21		• 831	69° 8					227		Feb. 25	• 983	75° 6					213
			(-19° 2)	(224° 4)	(- 7° 0)	(104)	(440)	(1255)				(-20° 4)	(170° 3)	(- 7° 2)	(107)	(579)	(2231)
52° 597		• 933	266° 6					225		56° 453	• 978	263° 8					233
G		• 912	261° 4					449		G	• 914	261° 7	222° 7	-10° 5	16	67	284 f
	13529	• 916	259° 0	273° 9	-12° 9	18	89	365 c		13532	• 476	313° 3	176° 8	+12° 3	1	6	
	13530	• 529	268° 4	238° 9	- 6° 9	5	20			13533	• 152	225° 0	162° 4	-13° 3	19	89	
	13531	• 230	246° 2	219° 4	-11° 8	29	141			13534	• 522	59° 1	129° 2	+ 9° 1	74	330	
	13532	• 519	57° 6	177° 9	+ 9° 7	2	12			13536	• 775	57° 5	112° 4	+19° 4	2	10	88 c
	13533	• 703	102° 1	162° 1	-13° 5	25	112			13535	• 742	68° 0	111° 8	+11° 0	1	7	75 c
										13537	• 935	94° 7	88° 6	- 7° 0	20	153	470 c
									Feb. 26		• 948	71° 7					408
												(-20° 7)	(156° 1)	(- 7° 2)	(133)	(662)	(1558)

Group 13531. Feb. 19 - 26. A small short lived stream starting with a single spot on Feb. 19. Only one spot remains on Feb. 24-26.

Group 13532. Feb. 19 - 26. Usually a small single spot, but a pair on Feb. 20 and 21.

Group 13533. Feb. 20-Mar. 2. A small decreasing regular spot with companions on Feb. 23 and 24.

Group 13534. Feb. 22-Mar. 6. A return of Group 13518: 3rd appearance. A large stable regular spot related to Group 13535.

Group 13535. Feb. 24-Mar. 2. Return of Group 13518: 3rd appearance. Intermittent. A tiny spot (related to Group 13534) representing the end of the big follower spot of Group 13502.

Group 13536. Feb. 25-Mar. 3. A wide, feeble area of disturbance denoted by a tiny spot that is lost on four of the eight days.

Group 13537. Feb. 25-Mar. 8. A fairly large stream developing from a few small spots near the east limb. The leader becomes a regular spot of marked stability.

1580

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
1940			°	°	°				1940			°	°	°			
57° 276		• 878	261° 9					198	62° 417		• 979	256° 8					211
C	13531	• 973	260° 6	222° 7	-10° 8	9	17	326 c	G	13539	• 835	264° 3	147° 2	- 7° 9	69	363	368 c
	13533	• 310	249° 2	162° 5	-13° 2	16	60			13534	• 810	287° 1	129° 1	+ 9° 3	67	339	
	13534	• 386	44° 8	129° 4	+ 8° 9	84	321			13536	• 626	312° 5	106° 6	+18° 7	4	12	
	13537	• 846	94° 0	87° 3	- 7° 1	39	291	403 c		13537	• 277	277° 7	93° 5	- 4° 8	164	766	
		• 869	72° 1					443		13542	• 360	338° 9	85° 2	+12° 4	8	33	
		• 930	62° 9					148		13541	• 603	108° 5	41° 1	-16° 8	39	125	
		• 961	96° 3					188		13543	• 975	96° 9	359° 8	- 8° 3	9	24	119 p
Feb. 27			(-20° 9)	(145° 3)	(- 7° 2)	(148)	(689)	(1706)	Mar. 3		• 966	105° 7					167
												(-22° 2)	(77° 6)	(- 7° 2)	(360)	(1662)	(865)
58° 277		• 868	291° 9					158									
C	13533	• 508	256° 2	162° 4	-13° 2	10	52		63° 339		• 906	293° 2					186
	13534	• 288	10° 2	129° 2	+ 9° 2	67	335		C		• 785	296° 3					365
	13538	• 445	100° 0	105° 7	-10° 8	4	19			13539	• 980	262° 4	144° 6	- 8° 9	15	84	234 c
	13537	• 675	91° 3	89° 5	- 6° 2	64	420	146 f		13534	• 908	263° 8	128° 5	+ 9° 3	50	322	266 c
Feb. 28		• 863	96° 2					382		13537	• 471	273° 5	93° 4	- 4° 7	128	763	
			(-21° 2)	(132° 1)	(- 7° 2)	(145)	(826)	(686)		13542	• 471	314° 0	85° 6	+12° 2	60	315	
										13541	• 444	114° 4	40° 5	-17° 0	24	171	
59° 281		• 959	285° 3					165		13543	• 909	95° 8	359° 6	- 8° 3	5	25	180 c
C		• 876	289° 2					192		13544	• 978	100° 4	346° 5	-11° 7	45	223	366 c
	13533	• 689	258° 5	162° 6	-13° 1	12	70		Mar. 4		• 878	59° 4					297
	13539	• 451	269° 6	145° 8	- 6° 6	10	54					(-22° 4)	(65° 4)	(- 7° 2)	(327)	(1903)	(1894)
	13534	• 329	328° 8	128° 8	+ 9° 2	42	284										
	13538	• 239	111° 4	105° 8	-12° 0	2	7										
	13537	• 451	87° 5	92° 1	- 5° 3	80	483										
	13540	• 819	104° 4	63° 6	-15° 9	3	18	152 c									
Feb. 29			(-21° 4)	(118° 9)	(- 7° 2)	(149)	(916)	(509)	64° 372		• 897	296° 0					320
									G		• 882	282° 7					162
60° 317		• 966	285° 9					192		13534	• 982	281° 1	129° 2	+ 9° 4	52	370	207 c
C		• 832	294° 9					161		1156c	• 930	288° 5	117° 1	+14° 2	3	20	168 c
	13533	• 637	259° 3	162° 5	-12° 9	7	27	263 c		13537	• 667	271° 2	93° 6	- 4° 6	162	973	
	13539	• 666	267° 9	147° 1	- 6° 8	51	209			13542	• 632	299° 2	86° 0	+12° 0	74	408	
	13534	• 485	304° 4	129° 0	+ 9° 3	55	316			13541	• 261	131° 1	40° 0	-16° 9	31	114	
	13538	• 062	214° 3	107° 2	-10° 1	1	6			13543	• 800	94° 9	358° 4	- 8° 3	11	29	148 c
	13537	• 214	80° 4	93° 0	- 5° 0	119	709			13544	• 910	99° 2	345° 7	-11° 3	80	416 }	825 c
	13540	• 665	106° 2	63° 7	-16° 1	1	9			13545	• 957	95° 6	338° 3	- 7° 4	0	19 }	
	13541	• 897	105° 9	40° 8	-17° 4	0	9	120 c	Mar. 5		• 963	109° 0					181
		• 922	75° 1					338				(-22° 7)	(51° 8)	(- 7° 2)	(413)	(2349)	(2011)
Mar. 1			(-21° 7)	(105° 2)	(- 7° 2)	(234)	(1285)	(1074)									
61° 373		• 949	287° 3					206	65° 410		• 959	286° 2					498
G		• 945	258° 6	163° 1	-13° 1	6	20	476 f	G		• 948	299° 6					102
	13539	• 824	266° 0	147° 1	- 7° 4	63	339	146 c		13537	• 829	269° 4	94° 1	- 4° 5	181	825	426 c
	13534	• 658	293° 3	128° 9	+ 9° 3	62	338			13542	• 788	291° 3	86° 5	+11° 8	73	376	160 c
	13536	• 535	318° 7	112° 9	+16° 9	0	5			1156d	• 485	224° 1	60° 3	-27° 0	1	5	
	13535	• 429	311° 8	110° 1	+ 9° 7	1	5			13541	• 168	190° 9	40° 0	-16° 7	16	65	
	13537	• 051	319° 3	93° 2	- 5° 0	123	670			13543	• 622	93° 9	359° 5	- 8° 0	12	29	
	13541	• 769	106° 3	41° 0	-17° 1	39	123			13544	• 785	99° 1	348° 0	-11° 6	60	304	627 c
Mar. 2		• 875	73° 3					226	Mar. 6		• 844	94° 6	340° 2	- 7° 8	4	10	
			(-22° 0)	(91° 3)	(- 7° 2)	(294)	(1500)	(1054)			• 940	109° 0					319
												(-22° 9)	(38° 1)	(- 7° 2)	(347)	(1614)	(2132)

Group 13538. Feb. 28-Mar. 1. A pair of small spots on Feb. 28: a single spot afterwards.

Group 13539. Feb. 29-Mar. 4. A stream developing towards the west limb.

Group 13540. Feb. 29-Mar. 1. A small spot.

Group 13541. Mar. 1 - 8. A small compact stream developing from a single spot on Mar. 1.

Group 13542. Mar. 3 - 8. A stream developing rapidly into one of normal type.

Group 13543. Mar. 3 - 10. A small spot; a companion follows on Mar. 5. Return of Group 13524.

Group 13544. Mar. 4 - 13. A medium-sized spot with companions dying out rather abruptly. Return of Group 13526.

Group 13545. Mar. 5 - 16. A stream of small spots. Probably its full life history is seen from a single spot near the east limb to its last stages as a pair of spots at the west limb.

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
1940			°	°	°				1940			°	°	°			
66° 432	13537	•937	268° 0	94° 3	- 4° 4	185	925	683 c	71° 341	•972	267° 9						134
0	13542	•905	286° 8	86° 8	+11° 8	70	349	380 c	C	•988	252° 3						251
	13541	•310	234° 3	39° 9	-17° 3	14	44			13544	•479	260° 1	348° 8	-11° 0	25	143	
	13543	•424	93° 6	359° 5	- 8° 0	10	17			13545	•447	265° 1	346° 6	- 8° 6	12	53	
	13544	•631	99° 7	345° 4	-11° 7	60	279			13547	•216	235° 1	330° 5	-14° 1	23	113	
	13545	•709	95° 1	339° 3	- 8° 7	16	63			13546	•335	346° 8	324° 5	+11° 8	34	280	
		•872	107° 1					267		13548	•964	96° 5	244° 6	- 8° 2	15	75	458 c
Mar. 7			(-23° 1)	(24° 7)	(- 7° 2)	(355)	(1677)	(1340)	Mar. 12		•804	73° 8					179
												(-24° 1)	(320° 0)	(- 7° 2)	(109)	(664)	(1022)
67° 422		•940	299° 0					148			•940	290° 2					246
C		•902	274° 6					122	72° 333		•798	262° 8					239
		•868	261° 3					286	C		•664	262° 0	348° 7	-10° 7	17	88	
	13537	•987	266° 5	92° 6	- 4° 6	107	752	369 c		13544	•634	266° 0	346° 4	- 8° 1	17	74	
	13542	•982	283° 5	88° 6	+11° 7	30	218	310 c		13549	•558	269° 3	340° 9	- 6° 4	10	41	
	13541	•497	247° 5	40° 2	-17° 3	2	10			13547	•416	252° 0	330° 9	-13° 9	7	40	
	13543	•206	95° 1	359° 8	- 8° 1	4	30			13546	•449	313° 7	326° 1	+11° 2	31	158	
	13544	•427	102° 4	346° 5	-11° 8	34	245			13548	•900	96° 4	242° 3	- 8° 9	17	98	608 c
	13545	•506	95° 2	341° 1	- 8° 8	12	84		Mar. 13			(-24° 2)	(306° 9)	(- 7° 2)	(99)	(499)	(1083)
	13546	•772	68° 4	324° 7	+11° 6	12	28	84 c									
		•913	70° 3					82									
Mar. 8			(-23° 3)	(11° 6)	(- 7° 2)	(201)	(1367)	(1401)									
68° 371		•947	261° 7					305	73° 341		•938	268° 4					189
0		•015	239° 8	359° 8	- 7° 6	4	16		C		•938	258° 2					159
	13543	•225	109° 7	346° 7	-11° 4	43	248			13545	•798	265° 1	346° 8	- 8° 2	10	35	317 c
	13544	•284	96° 4	342° 6	- 8° 7	19	80			13549	•713	268° 6	339° 2	- 8° 0	3	9	
	13545	•644	62° 1	323° 7	+11° 7	21	60			13547	•614	256° 3	331° 4	-14° 1	8	32	
		•953	98° 1					269		13546	•635	297° 7	328° 4	+11° 2	25	127	
Mar. 9			(-23° 5)	(359° 1)	(- 7° 2)	(87)	(404)	(574)		13548	•778	95° 6	242° 2	- 8° 9	20	77	205 c
										13550	•973	65° 6	221° 4	+21° 7	45	173	214 c
											•920	98° 6					228
69° 378		•967	258° 3					214	Mar. 14			(-24° 4)	(293° 6)	(- 7° 2)	(111)	(453)	(1312)
C		•865	246° 5					103									
		•842	254° 6					156									
	13543	•244	268° 4	0° 1	- 7° 4	2	9		74° 338		•857	254° 8					296
	13544	•080	193° 3	347° 0	-11° 7	34	205		0		•812	288° 9					94
	13545	•045	124° 9	343° 8	- 8° 6	24	142			13545	•907	264° 2	346° 1	- 8° 3	11	38	532 c
	13546	•476	48° 2	324° 7	+11° 8	13	94			13546	•812	288° 8	331° 8	+10° 7	30	147	
		•846	116° 3					149		13551	•357	101° 5	259° 7	-10° 7	1	5	
		•901	100° 3					340		13548	•625	95° 9	241° 6	- 9° 3	35	198	
		•938	76° 4					320		13550	•906	62° 3	221° 3	+21° 3	34	232	493 f
		•951	109° 7					178	Mar. 15			(-24° 6)	(280° 5)	(- 7° 1)	(111)	(620)	(1415)
Mar. 10			(-23° 7)	(345° 9)	(- 7° 2)	(73)	(450)	(1460)									
70° 399		•904	255° 3					144									
C		•904	269° 1					136	75° 338		•893	253° 5					410
		•893	283° 0					141	C		•822	241° 9					108
	13544	•268	253° 3	347° 5	-11° 4	24	147			13545	•987	262° 5	348° 7	- 8° 5	0	27 }	883 c
	13545	•207	261° 7	344° 3	- 8° 8	20	83			13547	•934	259° 3	337° 1	-12° 5	0	12 }	
	13546	•351	23° 7	324° 2	+11° 5	35	183			13546	•931	284° 9	333° 5	+11° 0	31	202	456 c
		•800	102° 0					155		13551	•160	103° 5	258° 3	- 9° 1	9	32	
		•864	76° 7					230		13548	•432	97° 1	241° 6	- 9° 5	18	103	
		•930	103° 4					230		1157a	•668	97° 4	225° 2	-10° 2	3	10	
Mar. 11			(-23° 9)	(332° 4)	(- 7° 2)	(79)	(423)	(1036)	Mar. 16		•805	56° 2	221° 4	+21° 7	27	168	438 f
												(-24° 7)	(267° 3)	(- 7° 1)	(88)	(554)	(2295)

Group 13546. Mar. 8 - 17. A stream of variable spots.

Group 13547. Mar. 12 - 16. A cluster of small spots that has gone by Mar.15; on the following day a single spot is seen a few degrees of longitude ϕ the original position.

Group 13548. Mar. 12 - 19. A cluster of small spots.

Group 13549. Mar. 13 - 14. A small cluster on the first day; a single spot on the next.

Group 13550. Mar. 14 - 25. A stable regular spot with a companion on Mar.19, 20 and 23.

Group 13551. Mar. 15 - 19. Two or three small 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
1940			°	°	°				1940			°	°	°			
76°362		•963	258°3					187		13554	•751	97°2	151°8	-10°0	25	91	
C		•955	247°7					159		13555	•924	73°8	135°9	+12°0	134	744	225 c
	13548	•989	281°9	333°5	+10°5	43	212	244 f		13557	•987	77°8	127°4	+9°8	60	290	299 c
	13551	•081	237°9	257°8	-9°6	16	83				•834	59°8					140
	13548	•210	102°3	241°8	-9°5	14	57				•847	98°7					206
	13550	•688	47°7	220°8	+21°6	32	177				•884	81°4					118
Mar.17		•811	57°9					163	Mar.21			(-25°4)	(200°8) (-7°0)	(357)	(1809)	(1625)	
			(-24°9)	(253°8) (-7°1)		(105)	(529)	(753)									
77°363		•954	243°6					175	81°351		•957	281°5					102
C		•313	280°5	258°8	-9°7	9	48		C		•849	255°7					104
	13548	•048	209°6	241°9	-9°4	10	40		1157c	•987	267°6	263°4	-4°1	12	41	148 f	
	13552	•112	113°9	234°7	-9°7	2	6		13558	•847	267°3	248°1	-8°0	4	8	301 s	
	13550	•576	33°7	220°5	+21°9	24	167		13552	•737	282°5	235°7	-10°2	44	174	74 c	
	13553	•991	72°0	161°1	+16°7	47	264	182 c	13550	•675	313°8	219°6	+21°8	29	148		
Mar.18		•947	104°4					159	13553	•589	49°1	160°4	+16°5	44	199		
			(-25°0)	(240°6) (-7°1)		(92)	(525)	(516)	13554	•587	97°9	151°9	-10°2	8	36		
78°373		•530	283°5	259°4	-9°4	2	6		Mar.22			(-25°5)	(188°0) (-6°9)	(313)	(1691)	(1503)	
G		•260	259°6	242°3	-9°4	1	5										
	13552	•132	247°9	234°4	-9°8	2	9				•451	359°1					14
	13550	•497	13°8	220°0	+21°8	33	208		82°363		•962	283°0					319
	13553	•940	69°3	160°9	+16°7	64	315	544 sf	G	13552	•886	261°6	237°5	-10°6	16	113	460 c
	13554	•967	98°2	151°4	-9°7	29	178	294 c		13550	•787	304°0	218°9	+21°2	37	167	
Mar.19		•883	107°0					243		13553	•455	30°1	161°0	+16°4	24	148	
			(-25°2)	(227°3) (-7°0)		(131)	(721)	(1081)		13554	•384	100°6	152°2	-10°4	7	21	
79°369		•930	281°8					194		13558	•553	94°8	141°0	-8°4	18	58	
G		•908	256°8					569		13555	•677	63°2	136°6	+12°3	135	1017	
	13552	•340	280°0	234°0	-10°0	47	212		Mar.23		•773	71°3	126°9	+9°7	36	224	95 f
	13550	•490	349°4	219°7	+21°7	28	167			13559	•909	71°3	112°5	+13°8	0	5	557 c
	1157b	•215	46°9	205°2	+1°5	1	4			13560	•968	92°9	99°1	-4°6	47	201	299 c
	13553	•851	85°7	180°4	+16°4	66	330	650 f				(-25°6)	(174°7) (-8°9)	(320)	(1954)	(1780)	
	13554	•882	97°8	151°8	-10°2	21	111	179 c									174
	13555	•988	76°8	135°1	+11°8	139	743	364 c	83°488	13552	•977	260°5	238°3	-10°7	21	83	185 f
Mar.20		•921	107°1					141	G	13550	•913	297°8	220°2	+21°9	33	143	142 f
			(-25°3)	(214°2) (-7°0)		(302)	(1567)	(2097)		13553	•382	355°0	161°9	+15°4	17	84	
80°381		•963	257°4					404		13554	•130	116°6	153°1	-10°2	0	4	
G		•825	265°5					233		13561	•185	90°0	149°2	-6°8	2	11	
	13556	•705	267°1	245°8	-7°0	3	9			13558	•308	97°3	142°0	-8°8	44	185	
	13552	•561	261°6	235°0	-10°5	53	218			13555	•501	50°3	136°8	+12°2	271	1234	
	13550	•576	327°8	220°1	+22°5	31	186			13557	•602	63°7	126°8	+9°7	63	256	
	13553	•727	58°8	160°5	+16°8	51	271			13559	•794	69°2	110°8	+11°9	17	49	55 c
										13560	•879	91°5	98°3	-4°6	53	250	229 c
										13562	•923	74°7	94°9	+11°2	5	23	210 f
									Mar.24	13563	•968	117°3	82°9	-28°1	4	14	197 f
												(-25°7)	(159°9) (-6°9)	(530)	(2336)	(1028)	

Group 13552. Mar. 18 - 24. A tiny spot on Mar.18 and 19, suddenly developing into a stream of normal type. The follower spot does not survive to the west limb.

Group 13553. Mar. 18 - 28. A medium-sized spot comes over the east limb and, dividing into two parts by Mar.21, dies out before long.

Group 13554. Mar. 19 - 24. A return of Group 13539. A small double spot breaking up into a tiny cluster before dying out.

Group 13555. Mar.20-Apr.1. A big complex spot which, though showing at times great chromospheric activity, retains its general shape throughout. Its position, 10° of longitude in front of Group 13557 with its long life history dating from early January, is perhaps not merely fortuitous.

Group 13556. Mar. 21 - 22. A tiny cluster on Mar.21: one spot only on Mar.22.

Group 13557. Mar.21-Apr.2. Return of Group 13534: fourth appearance. A stable regular spot f the complex spot (Group 13555).

Group 13558. Mar. 23 - 31. A small stream of normal type of which the leader spot alone remains after Mar.27.

Group 13559. Mar. 23 - 30. One small spot on Mar.23: a long stream of small spots by Mar.26; a few days later only one tiny component is left.

Group 13560. Mar.23-Apr.3. A return of Group 13537. A stable regular spot with a small companion until Mar.29.

Group 13561. Mar. 24 - 26. A faint spot p Group 13558.

Group 13562. Mar. 24 - 27. One small spot on Mar.24, 25 and 27: a tiny cluster on Mar.26. Probable return of Group 13542.

Group 13563. Mar. 24 - 27. A small spot in rather high latitude.

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
			°		°	°						°		°			
1940									1940								
84° 419	13550	° 975	294° 2	220° 6	+21° 7	20	148	344 <i>f</i>		13560	° 170	81° 8	99° 5	- 5° 2	48	228	
G	13553	° 433	328° 5	161° 1	+15° 0	10	113			13564	° 672	71° 0	69° 5	+ 7° 4	21	77	
	13561	° 036	278° 4	149° 6	- 6° 5	4	8			13566	° 752	74° 6	62° 5	+ 6° 9	15	68	
	13558	° 097	113° 1	142° 4	- 9° 0	30	133			13567	° 875	91° 5	48° 1	- 4° 6	2	9	185 <i>f</i>
	13555	° 371	29° 5	136° 9	+12° 1	254	1347			13568	° 893	100° 0	45° 4	-11° 9	68	347	266 <i>f</i>
	13557	° 449	52° 1	126° 6	+ 9° 6	40	239		Mar. 28			(-26° 1)	(109° 2) (- 6° 7)	(491)	(2417)	(605)	
	13559	° 640	62° 1	112° 4	+11° 8	13	35										
	13560	° 757	90° 4	98° 4	- 4° 8	47	235										
	13562	° 826	71° 3	94° 9	+11° 2	4	10	115 <i>f</i>	88° 372		° 948	285° 3					215
Mar. 25	13563	° 902	117° 5	83° 2	-27° 7	5	13	170 <i>f</i>	C		° 935	252° 5					120
			(-25° 8)	(147° 6)	(- 6° 8)	(427)	(2281)	(629)			° 880	264° 2					256
											° 875	292° 5					375
										13565	° 907	259° 1	161° 1	-12° 7	5	22	122 <i>p</i>
85° 341		° 970	292° 0					174		13558	° 782	262° 4	147° 1	-10° 0	14	65	178 <i>c</i>
C		° 962	258° 5					115		13555	° 704	294° 2	136° 2	+11° 8	232	1569	
		° 952	299° 6					130		13557	° 568	297° 2	126° 1	+ 9° 3	45	227	
	13553	° 559	309° 7	161° 7	+14° 8	8	36			13559	° 387	325° 4	108° 3	+12° 1	3	14	
	13561	° 256	268° 1	150° 3	- 7° 1	0	5			13560	° 076	287° 1	99° 6	- 5° 3	45	227	
	13558	° 140	249° 8	143° 0	- 9° 5	26	94			13564	° 479	60° 9	70° 5	+ 7° 4	17	78	
	13555	° 321	355° 9	136° 7	+11° 8	204	1284			13566	° 573	67° 4	63° 3	+ 7° 1	33	179	
	13557	° 319	28° 3	126° 6	+ 9° 6	46	240			13567	° 736	89° 9	48° 0	- 4° 4	1	7	97 <i>c</i>
	13559	° 454	45° 0	116° 3	+12° 2	20	102			13568	° 766	99° 7	45° 2	-11° 7	53	319	254 <i>f</i>
	13560	° 594	89° 2	99° 0	- 5° 0	32	202				° 962	107° 3					122
	13562	° 706	65° 5	94° 5	+11° 9	6	33		Mar. 29			(-26° 1)	(95° 4) (- 6° 6)	(448)	(2707)	(1739)	
	13563	° 808	119° 3	83° 0	-27° 5	3	11	135 <i>c</i>									
	13564	° 938	80° 3	67° 1	+ 6° 6	8	48	210 <i>c</i>									
		° 856	92° 5					195		89° 338							
Mar. 26		° 945	101° 7					178	G		° 973	289° 4					616
			(-25° 9)	(135° 4)	(- 6° 8)	(353)	(2055)	(1137)			° 966	259° 7					317
										13558	° 905	261° 7	148° 0	-10° 3	10	72	286 <i>f</i>
86° 396	13565	° 671	260° 9	163° 8	-11° 1	17	43			13555	° 836	289° 0	136° 4	+11° 9	194	1599	417 <i>c</i>
G	13563	° 718	298° 2	162° 2	+14° 8	9	19			13567	° 725	289° 9	126° 3	+ 9° 5	37	217	
	13558	° 390	262° 0	144° 4	- 9° 3	24	113			13559	° 529	306° 6	108° 4	+12° 4	2	6	
	13555	° 407	322° 7	136° 1	+12° 3	207	1320			13560	° 296	274° 4	99° 9	- 5° 0	32	189	
	13557	° 288	345° 1	125° 8	+ 9° 4	43	245			13564	° 312	40° 4	71° 0	+ 7° 2	12	56	
	13559	° 347	13° 6	116° 7	+12° 9	15	53			13566	° 397	53° 5	64° 0	+ 7° 4	65	267	
	13560	° 390	87° 2	98° 6	- 5° 1	37	210			13568	° 609	100° 9	45° 2	-11° 8	46	284	
	13562	° 547	56° 0	94° 0	+11° 8	4	19				° 925	103° 9					217
	13563	° 674	124° 1	82° 7	-27° 4	1	5		Mar. 30		° 973	98° 4					236
	13564	° 819	76° 2	68° 4	+ 7° 2	16	60					(-26° 2)	(82° 7) (- 6° 6)	(398)	(2690)	(2089)	
	13566	° 897	78° 5	59° 3	+ 7° 2	4	10	174 <i>c</i>									
	13567	° 961	93° 4	47° 3	- 5° 2	4	12	155 <i>f</i>									
Mar. 27	13568	° 973	100° 6	44° 1	-11° 8	47	317	287 <i>c</i>	90° 380		° 808	297° 4					186
			(-26° 0)	(121° 5)	(- 6° 7)	(428)	(2426)	(616)	G	13558	° 980	260° 6	148° 1	-10° 5	5	22	197 <i>f</i>
										13555	° 939	286° 0	136° 3	+12° 6	237	1365	476 <i>c</i>
87° 331	13565	° 799	260° 6	162° 5	-11° 5	24	95	64 <i>c</i>		13557	° 859	285° 2	125° 9	+ 9° 5	41	209	57 <i>c</i>
G	13553	° 825	292° 5	160° 9	+14° 3	2	13	90 <i>c</i>		13560	° 513	271° 1	99° 8	- 5° 0	39	198	
	13558	° 607	262° 8	146° 7	- 9° 7	15	80			13564	° 237	349° 5	71° 4	+ 6° 9	18	57	
	13555	° 549	304° 7	136° 6	+12° 2	236	1209			13566	° 252	16° 3	64° 3	+ 7° 3	59	221	
	13557	° 402	312° 9	126° 5	+ 9° 4	54	238			13568	° 410	104° 2	45° 1	-11° 7	63	295	
	13559	° 320	352° 1	111° 8	+11° 7	6	53		Mar. 31	13569	° 911	96° 8	2° 9	- 8° 9	5	11	139 <i>p</i>
											° 958	102° 2					669
												(-26° 2)	(68° 9) (- 6° 5)	(467)	(2378)	(1724)	

- Group 13564. Mar. 26-Apr. 5. A tiny stream in front of Group 13566. The leader alone remains after Mar. 30.
 Group 13565. Mar. 27 - 29. Two or three small spots.
 Group 13566. Mar. 27-Apr. 5. A small stream passing through its life history on the Sun's visible hemisphere.
 Group 13567. Mar. 27 - 29. One very small spot.
 Group 13568. Mar. 27-Apr. 8. A stable regular spot with companions until Apr. 4.
 Group 13569. Mar. 31-Apr. 7. Intermittent. One small spot on Mar. 31 and Apr. 7; a pair on Apr. 5 and 6.

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
1940			°		°				1940			°		°			
91.380		°934	292.2					185		13568	°655	257.4	44.2	-12.9	44	242	
G		°833	292.6					201		13569	°053	265.0	6.4	-6.5	4	10	
	13555	°990	284.6	135.6	+13.4	75	751	488 c		13570	°197	144.6	356.6	-15.4	37	137	
	13557	°956	282.2	127.0	+9.6	42	247			13571	°244	95.7	349.3	-7.4	29	184	
	13560	°698	269.5	100.1	-5.0	36	208				°865	100.8					165
	13564	°356	310.5	71.6	+7.1	13	56				°967	103.1					193
	13566	°296	319.9	66.8	+6.7	37	228		Apr. 5		(-26.4)		(3.4) (-6.2)	(131)	(619)	(1403)	
	13568	°214	118.1	44.7	-12.2	56	251										
	13570	°852	104.1	357.0	-15.4	6	31	455 c									
		°962	98.0					281	96.414		°962	281.2					643
		°974	78.3					291	G	13568	°809	258.6	43.5	-12.9	46	205	
Apr. 1		°976	107.2					225		1158a	°561	254.6	23.0	-13.8	1	4	
		(-26.3)		(55.8) (-6.5)		(265)	(1772)	(2126)		13569	°314	270.7	7.6	-5.7	5	18	
										13570	°200	215.1	356.1	-15.5	37	168	
	92.338							285		13571	°039	205.2	350.3	-8.2	32	168	
G		°920	288.2					281		13572	°967	98.5	273.5	-9.8	27	95	394 c
	13557	°995	280.5	125.9	+9.7	34	182	386 c			°880	106.4					255
	13560	°836	268.4	99.9	-4.9	43	201	370 f	Apr. 6		°966	92.9	(-26.4)	(349.3) (-6.2)	(146)	(658)	(1568)
	1157d	°679	308.2	77.4	+19.5	5	20										
	13564	°529	294.8	71.9	+7.2	13	51										
	13566	°466	298.7	67.3	+7.0	21	110		97.376	13568	°918	258.5	43.8	-13.0	28	243	670 n
	13568	°106	193.3	44.5	-12.3	59	265		G	13569	°542	268.7	9.5	-5.8	2	9	
	13570	°716	105.5	357.5	-15.5	8	32	265 f		13570	°369	241.3	356.2	-15.9	14	84	
		°915	77.4					604		13571	°271	259.4	352.2	-8.7	33	172	
Apr. 2		°932	105.2					668		1158b	°768	58.8	292.8	+19.0	8	22	135 c
		(-26.3)		(43.1) (-6.4)		(183)	(861)	(2859)		13572	°881	98.1	274.5	-10.0	38	207	914 c
									Apr. 7		°980	96.8	(-26.4)	(336.6) (-6.1)	(123)	(737)	(1938)
	93.574							493									
G		°912	288.1					243									
	13560	°957	267.1	100.0	-4.6	31	182										
	13564	°733	286.3	71.8	+7.4	13	52		98.463	13568	°985	258.1	43.3	-12.8	37	164	271 n
	13566	°710	286.8	69.8	+7.1	22	57		G	13570	°574	251.1	356.5	-15.7	6	25	
	13568	°313	248.3	44.1	-12.7	39	276			13571	°504	263.1	352.6	-8.6	32	144	
	13570	°513	110.0	356.9	-15.7	13	40			13573	°760	58.8	279.1	+18.8	8	31	
	13571	°623	92.7	348.2	-6.7	21	50			13572	°720	97.3	276.1	-9.4	34	112	264 c
		°820	106.8					291			°938	98.0					478
Apr. 3		°855	71.6					278	Apr. 8		(-26.4)		(322.3) (-6.0)	(117)	(476)	(1013)	
		(-26.3)		(26.8) (-6.4)		(139)	(657)	(1305)									
	94.544																
G		°906	297.6					157	99.373	13574	°721	285.0	354.6	+6.4	3	12	
	1157e	°936	286.6	80.8	+13.1	10	28	372 c	G	13571	°875	264.0	352.9	-8.5	31	152	
	13564	°863	282.7	71.9	+7.6	11	30	458 f		13575	°638	290.0	347.4	+7.8	15	79	
	13566	°851	282.5	70.7	+7.2	15	38				13573	°651	50.9	278.1	+19.1	18	73
	13568	°505	255.7	44.0	-12.6	41	253			13572	°557	98.4	276.5	-9.7	18	96	
	1157f	°534	14.1	5.8	+24.8	1	8		Apr. 9		°824	98.0	(-26.4)	(310.3) (-6.0)	(85)	(412)	(345)
	13570	°331	119.6	356.7	-15.4	15	65										
	13571	°417	93.6	349.3	-7.2	37	173										
Apr. 4		°943	104.6					247	100.348		°937	264.8					262
		(-26.4)		(14.0) (-6.3)		(130)	(595)	(1234)	G	13574	°874	279.9	357.1	+5.7	9	50	116 c
	95.350									13571	°825	263.5	353.2	-8.7	19	116	326 f
G		°983	282.6					237		13575	°803	285.0	348.8	+8.3	35	197	177 c
		°963	293.4					205		13573	°496	36.0	279.6	+18.0	12	39	
	13564	°939	280.4	71.8	+7.5	6	16	603 f		13572	°360	100.4	276.5	-9.2	13	78	
	13566	°832	279.9	70.8	+6.8	11	30			Apr. 10		°963	101.5	(-26.3)	(297.4) (-5.9)	(88)	(480)

Group 13570. Apr. 1 - 8. A small stream.

Group 13571. Apr. 3 - 12. A small stream; the leader remains stable after the following spots have died out by Apr. 8.

Group 13572. Apr. 6 - 16. A double spot followed by companions until Apr. 11 after which it in turn slowly dies out.

Group 13573. Apr. 7 - 13. One small spot persisting for several days with variable companions. Nothing is seen on Apr. 12.

Group 13574. Apr. 9 - 11. One small spot on Apr. 9 and 11: a pair on Apr. 10.

Group 13575. Apr. 9 - 12. A group developing near the west limb; it does not survive to the next rotation.

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
1940			°	°	°				1940			°	°	°			
101° 345 G	13574	*969	280° 9					356	13581	*305	193° 1	222° 5	-22° 6		5	18	
	13571	*971	277° 4	359° 4	+ 5° 7	14	55	252 c	13576	*123	206° 5	221° 4	-11° 7		101	492	
	13571	*919	283° 8	351° 3	- 8° 0	26	110	378 c	13580	*757	92° 5	169° 0	- 5° 5		26	95	240 f
	13575	*912	282° 2	348° 4	+ 8° 6	46	230	326 c	13582	*968	78° 6	144° 5	+11° 5		63	290	738 c
	13573	*410	10° 8	279° 6	+17° 9	7	24			*794	67° 5						258
	13572	*146	119° 6	276° 8	- 9° 8	25	92			*923	64° 1						348
	13576	*889	100° 4	221° 1	-11° 9	30	144	451 c		*944	97° 1						372
Apr. 11		*923	65° 8					231	Apr. 16			(-26° 1)	(218° 2)	(- 5° 4)	(200)	(904)	(2899)
			(-26° 3)	(284° 2)	(- 5° 8)	(148)	(655)	(1992)									
102° 406 G			95° 1	19° 6				14	107° 343 G								9
			96° 1	11° 6				16		*962	290° 6						202
		*898	257° 5					557		*948	262° 9						349
		*859	288° 6					326		*864	258° 5						379
	13571	*993	282° 3	353° 9	- 8° 3	8	73	597 f	13581	*420	224° 5	223° 5	-22° 5		1	4	
	13575	*981	280° 0	347° 7	+ 8° 6	10	50	396 f	13576	*301	246° 6	221° 3	-12° 0		54	308	
	13572	*128	236° 5	276° 4	- 9° 8	17	76		13580	*582	92° 0	169° 4	- 5° 6		21	95	
	13577	*438	85° 4	244° 4	- 3° 2	6	26		13582	*898	73° 9	143° 4	+11° 8		60	322	681 c
	13576	*752	101° 5	221° 4	-12° 5	68	305	465 f	13583	*984	81° 6	126° 4	+ 7° 2		5	25	389 c
	13578	*852	103° 1	211° 6	-14° 2	4	9	149 f	Apr. 17			(-26° 0)	(205° 0)	(- 5° 4)	(141)	(754)	(2009)
Apr. 12		*823	61° 8					197									
		*920	62° 1					282	108° 349 C								
			(-26° 3)	(270° 2)	(- 5° 8)	(113)	(539)	(2869)		*975	264° 9						183
								2999		*965	256° 6						197
103° 330 G								296		*884	258° 9						184
	13572	*335	257° 6	277° 3	- 9° 5	8	38		13576	*485	254° 9	220° 3	-11° 9		32	177	
	13573	*516	322° 8	277° 2	+18° 8	2	6		13580	*379	92° 0	169° 5	- 5° 7		17	99	
	13577	*205	75° 9	246° 6	- 2° 7	2	5		13582	*767	70° 7	144° 4	+11° 1		55	285	475 c
	13576	*607	102° 5	220° 9	-12° 1	32	202		13583	*916	79° 5	126° 8	+ 7° 4		5	18	238 c
	13578	*703	103° 3	213° 5	-13° 4	1	5		13584	*952	73° 8	121° 9	+13° 6		14	50	394 f
Apr. 13		*964	65° 5					248	Apr. 18			(-25° 9)	(191° 8)	(- 5° 3)	(123)	(629)	(1671)
			(-26° 2)	(258° 0)	(- 5° 7)	(45)	(256)	(544)									
104° 448 G	13572	*539	261° 3	275° 9	- 9° 4	15	50		109° 340 G	13586	*734	276° 5	225° 3	+ 1° 1	17	53	
	13576	*383	108° 4	221° 6	-12° 1	81	382			13576	*679	256° 6	221° 3	-11° 5	33	145	
	13579	*907	63° 2	183° 1	+21° 4	10	21	164 c	13580	*157	93° 3	169° 7	- 5° 7		16	68	
Apr. 14	13580	*964	94° 6	168° 6	- 5° 5	30	141	347 f	13582	*627	64° 2	143° 7	+11° 5		67	334	
			(-26° 2)	(243° 3)	(- 5° 6)	(136)	(594)	(511)	13584	*862	71° 1	122° 0	+13° 4		18	51	535 f
									13585	*971	93° 0	102° 5	- 4° 1		29	176	428 c
105° 363 G	13572	*737	262° 4	278° 8	- 9° 3	5	12		Apr. 19			(-25° 8)	(178° 7)	(- 5° 2)	(180)	(827)	(963)
	13581	*345	156° 2	222° 5	-23° 8	14	43										
	13576	*204	121° 6	221° 0	-11° 5	78	389		110° 434 C								
	13579	*795	57° 6	185° 2	+21° 4	3	13			*880	296° 2						238
	13580	*890	93° 5	168° 2	- 5° 6	31	147	200 c		*854	245° 3						100
1158c		*978	93° 9	153° 8	- 5° 0	5	9	232 f	13586	*880	273° 5	225° 4	+ 0° 6		25	107	136 c
Apr. 15		*937	72° 9					237		*839	259° 7	221° 3	-11° 4		10	47	496 c
			(-26° 1)	(231° 2)	(- 5° 5)	(136)	(613)	(669)	13580	*087	259° 4	169° 1	- 6° 0		13	96	
106° 350 G									13582	*436	51° 3	144° 0	+11° 0		48	275	
		*950	258° 6					427	13584	*722	66° 3	121° 6	+13° 1		12	52	
		*898	292° 3					203	13585	*884	92° 5	102° 0	- 4° 6		23	143	303 c
	13572	*867	262° 5	278° 5	- 9° 1	5	9	313 f		*873	65° 1						245
										*894	102° 4						218
										*959	76° 9						183
									Apr. 20			(-25° 7)	(164° 2)	(- 5° 1)	(131)	(720)	(1919)

Group 13576. Apr. 11 - 21. A variable stream rising to a maximum near its central meridian passage and then dissipating as the west limb is reached.

Group 13577. Apr. 12 - 13. A tiny ephemeral group near the Sun's equator.

Group 13578. Apr. 12 - 13. A tiny spot.

Group 13579. Apr. 14 - 15. A pair of small spots on Apr. 14 a single spot on Apr. 15.

Group 13580. Apr. 14 - 25. A slowly decreasing regular spot with one or two companions.

Group 13581. Apr. 15 - 17. A few ephemeral spots.

Group 13582. Apr. 16 - 27. Return of Group 13555: 2nd appearance. A stable regular spot with variable companions.

Group 13583. Apr. 17 - 22. Intermittent. One or two small spots, not seen on Apr. 19 and 20. Return of Group 13557.

Group 13584. Apr. 18 - 28. A changing group of small spots.

Group 13585. Apr. 19 - 30. Return of Group 13560: 3rd appearance. A stable regular spot.

Group 13586. Apr. 19 - 21. A pair of spots within 1° of the Sun's equator.

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	Spots	Faculae			Dist.	Pos. Angle	Long.	Lat.	Umbræ	Spots	Faculae
1940			°	°	°				1940			°	°	°			
111° 380	13586	966	272° 2	226° 3	+ 0° 8	31	70	185 c	115° 310	13580	946	279° 8					155
G	13576	938	259° 6	221° 7	-11° 5	7	16	828 c	G	13591	929	291° 4					288
	13580	303	267° 9	169° 3	- 5° 4	15	66			13582	944	266° 0	170° 6	- 5° 3	8	14	273 f
	13587	126	207° 9	155° 1	-11° 3	4	10			13591	756	260° 4	148° 9	-10° 3	22	64	172 c
	13582	305	25° 3	144° 1	+11° 0	56	266			13582	740	288° 2	145° 2	+10° 1	35	162	
	13583	480	62° 3	126° 4	+ 8° 3	4	13			13584	426	318° 5	116° 6	+14° 1	4	14	
	13584	621	61° 6	117° 7	+13° 0	21	101			13585	044	289° 0	102° 2	- 3° 9	30	144	
	13585	763	91° 2	102° 0	- 4° 2	22	142	168 f		1158d	304	103° 7	82° 5	- 8° 6	1	3	
	13588	953	82° 7	80° 2	+ 5° 3	11	23	318 f		13590	623	64° 8	64° 8	+11° 5	4	13	
		844	55° 5					209		13592	982	79° 6	22° 0	+ 9° 2	56	253	345 c
		830	72° 1					274			963	98° 1					227
Apr. 21		938	95° 4					193	Apr. 25			(-25° 1)	(99° 8)	(- 4° 7)	(160)	(687)	(1460)
			(-25° 6)	(151° 7)	(- 5° 0)	(171)	(707)	(2175)									
112° 384		973	257° 2					528	116° 314	13591	885	260° 8	148° 9	-10° 3	38	170	435 c
G	13580	513	268° 0	169° 3	- 5° 2	8	39		G	13582	861	285° 2	144° 0	+10° 6	40	206	720 c
	13587	335	249° 0	157° 0	-11° 5	2	5			13585	265	271° 8	101° 8	- 4° 0	32	134	
	13582	291	339° 6	144° 4	+10° 9	39	250			13592	917	78° 1	21° 4	+ 9° 0	45	197	332 c
	13583	293	41° 9	127° 2	+ 7° 7	2	6		Apr. 26		944	98° 0					407
	13584	486	49° 5	116° 2	+13° 8	36	165					(-25° 0)	(86° 5)	(- 4° 6)	(155)	(707)	(1894)
	13585	592	90° 0	102° 3	- 4° 0	28	134										
	13588	855	80° 9	80° 8	+ 5° 1	11	24	234 c	117° 410		850	275° 5					149
Apr. 22		951	74° 1					432	G	13591	970	260° 4	148° 3	-10° 4	69	328	311 c
			(-25° 5)	(138° 5)	(- 4° 9)	(126)	(623)	(1194)		13582	961	282° 6	144° 6	+10° 8	41	251	432 c
		948	187° 1					14		13584	754	291° 5	118° 0	+12° 9	5	11	288 f
113° 457		904	295° 6					229		13585	497	270° 3	101° 8	- 3° 7	42	151	
C	13589	822	284° 4	177° 8	+ 8° 9	6	27	98 c		13592	800	75° 1	20° 8	+ 9° 1	55	214	109 c
	13580	709	267° 3	169° 5	- 5° 3	5	13				906	77° 3					172
	13582	432	307° 0	144° 7	+10° 5	32	189				909	93° 3					215
	13584	332	21° 0	117° 3	+13° 2	19	117		Apr. 27		916	102° 8					445
	13585	378	89° 0	102° 1	- 4° 1	29	135					(-24° 8)	(72° 1)	(- 4° 4)	(212)	(955)	(2121)
	13588	699	77° 8	81° 2	+ 5° 0	3	13										
		858	74° 6					212	118° 150		952	287° 3					404
		926	122° 6					200	K		888	279° 5					185
Apr. 23		931	105° 8					221		13591	994	259° 9	146° 5	-10° 5	18	127	
		961	95° 6					241		13584	827	288° 9	115° 5	+12° 9	7	62	180 c
			(-25° 4)	(124° 3)	(- 4° 8)	(94)	(494)	(1201)		13585	635	269° 5	101° 8	- 3° 7	14	103	
								1224		13592	697	72° 0	20° 3	+ 9° 1	18	139	
											955	80° 0					166
114° 423		966	293° 1					188	Apr. 28		961	101° 3					214
C		853	291° 6					332				(-24° 7)	(62° 3)	(- 4° 4)	(57)	(431)	(1149)
	13589	947	261° 9	181° 3	+ 9° 6	0	14	171 c									
	13580	850	266° 3	169° 7	- 5° 6	4	16	169 c	119° 521		939	286° 5					773
	13582	597	294° 7	144° 8	+10° 5	35	177		C		883	300° 0					151
	13584	341	332° 0	120° 9	+12° 8	15	80				848	259° 1					161
	13585	165	85° 8	102° 1	- 4° 0	26	134			13585	839	288° 3	101° 2	- 3° 7	16	124	121 c
	13588	527	72° 7	81° 3	+ 4° 9	1	5			13592	464	60° 1	20° 2	+ 9° 5	24	113	
	13590	749	89° 9	65° 8	+11° 6	3	15				807	104° 9					138
		808	107° 3					138			825	75° 9					100
Apr. 24		907	93° 7					245			937	103° 7					462
		926	104° 8					215	Apr. 29		952	76° 3					246
			(-25° 3)	(111° 5)	(- 4° 7)	(84)	(441)	(1458)				(-24° 5)	(44° 2)	(- 4° 2)	(40)	(237)	(2152)

Group 13587. Apr. 21 - 22. A pair of small spots on Apr. 21: one spot on Apr. 22.

Group 13588. Apr. 21 - 24. A small single spot.

Group 13589. Apr. 23 - 24. A pair of small spots on Apr. 23: one spot on Apr. 24.

Group 13590. Apr. 24 - 25. A pair of dots.

Group 13591. Apr. 25 - 28. A pair of spots developing near the west limb.

Group 13592. Apr. 25-May 4. A medium-sized spot with companions up to May 2. On May 3, the spot disintegrates 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.	Umbræ	Whole Spots	Faculae			Dist.	Pos. Angle	Long.	Lat.	Umbræ	Whole Spots	Faculae
1940			°	°	°				1940			°	°	°			
120° 363		° 982	295° 4					245	128° 338		° 954	280° 0					428
C		° 944	281° 4					279	G	13593	° 393	308° 3	332° 8	+10° 1	51	188	
		° 930	258° 9					171		13595	° 332	319° 2	326° 8	+11° 1	4	11	
		° 871	292° 0					160			° 934	97° 5					141
		° 782	285° 0					91	May 6			(-23° 2)	(314° 1)	(- 3° 5)	(55)	(199)	(569)
	13585	° 928	287° 2	101° 1	- 4° 2	24	110	141 n			° 980	279° 0					224
	13592	° 321	43° 6	20° 1	+ 9° 3	19	112				° 932	262° 2					617
		° 787	103° 6					146	127° 346		° 891	246° 4					198
Apr. 30		° 915	76° 0					310	G		° 584	293° 0	333° 7	+10° 3	53	159	
		° 918	110° 2					301		13593	° 500	299° 6	326° 9	+11° 2	7	20	
			(-24° 4)	(33° 0)	(- 4° 2)	(43)	(222)	(1844)		13595	° 937	99° 0					704
									May 7			(-23° 0)	(300° 7)	(- 3° 4)	(60)	(179)	(1743)
121° 511		° 952	287° 2					195			° 968	258° 8					251
C		° 943	283° 2					195			° 935	247° 0					178
		° 827	280° 6					242	128° 351		° 908	283° 4					299
	13592	° 241	351° 6	19° 9	+ 9° 7	14	64		C		° 852	258° 6					209
	13593	° 714	72° 6	334° 4	+ 9° 3	5	23	147 c		13593	° 757	286° 8	334° 7	+10° 4	23	119	114 c
		° 831	64° 7					141		13595	° 863	291° 0	326° 4	+11° 1	6	27	
May 1		° 870	116° 3					129		13596	° 813	99° 6	233° 2	- 9° 7	7	21	333 c
			(-24° 2)	(17° 9)	(- 4° 1)	(19)	(87)	(1049)			° 909	108° 0					249
122° 556		° 922	280° 5					218	May 8			(-22° 8)	(287° 4)	(- 3° 3)	(36)	(167)	(1633)
G	13592	° 366	310° 8	20° 4	+10° 1	10	43				° 870	283° 8	333° 2	+10° 3	28	121	340 c
	13593	° 549	86° 4	333° 6	+ 9° 3	7	42			13595	° 800	285° 8	325° 6	+10° 5	4	15	
		° 944	100° 5					272		13596	° 693	99° 7	230° 6	- 9° 0	3	17	
May 2		° 949	79° 0					89	129° 349	13593	° 928	97° 4	206° 1	- 8° 0	7	15	185 f
			(-24° 0)	(4° 1)	(- 3° 9)	(17)	(85)	(579)	G	13595	° 825	111° 4					319
123° 401	13594	° 658	254° 3	33° 3	-13° 1	3	7		May 9			(-22° 5)	(274° 2)	(- 3° 2)	(42)	(168)	(844)
G	13592	° 518	295° 6	21° 1	+ 9° 5	10	49			13596	° 954	282° 0	332° 5	+10° 5	33	157 }	398 c
	13593	° 376	55° 2	334° 8	+ 8° 7	3	11			13595	° 915	282° 7	326° 0	+10° 3	11	33 }	
		° 908	104° 7					172		13596	° 460	104° 4	234° 4	- 9° 3	11	52	
May 3		° 917	93° 2					252	130° 345	13593	° 825	97° 1	205° 6	- 7° 7	22	84	105 c
			(-23° 8)	(352° 9)	(- 3° 8)	(16)	(67)	(424)	G	13595	° 877	103° 0					210
124° 436		° 908	280° 7					119	May 10			(-22° 3)	(261° 1)	(- 3° 1)	(77)	(326)	(713)
G	13594	° 827	256° 6	34° 7	-13° 1	4	8	99 c		13596	° 988	280° 7	327° 3	+10° 1	14	113	382 c
	13592	° 711	287° 3	22° 5	+ 9° 4	17	51			13596	° 234	118° 1	235° 1	- 9° 3	10	40	
	13593	° 243	24° 1	333° 5	+ 9° 0	4	19			13597	° 658	97° 5	206° 2	- 7° 2	60	303	
May 4		° 965	108° 5					342	May 11			(-22° 0)	(247° 1)	(- 3° 0)	(84)	(456)	(382)
			(-23° 6)	(339° 2)	(- 3° 7)	(25)	(78)	(560)									
125° 589		° 921	256° 2					307	131° 402	13595	° 106	193° 5	235° 4	- 8° 7	9	34	
C		° 872	284° 0					478	G	13596	° 337	113° 2	215° 7	-10° 4	6	16	
	13593	° 277	327° 8	332° 6	+10° 0	14	103		May 12	13598	° 488	99° 6	206° 4	- 7° 1	71	429	
	1159a	° 907	108° 6	259° 3	-18° 4	0	11	305 c		13599	° 995	77° 3	150° 8	+12° 3	24	172	145 c
		° 824	103° 6					271			° 989	98° 5					249
		° 970	107° 2					141				(-21° 8)	(234° 0)	(- 2° 9)	(110)	(651)	(394)
May 5		° 970	95° 6					170									
			(-23° 4)	(324° 0)	(- 3° 6)	(14)	(114)	(1672)									

Group 13593. May 1 - 10. At first a few small spots. On May 5-6 there is increased activity resulting in a small stream of normal type.

Group 13594. May 3 - 4. A tiny spot.

Group 13595. May 6 - 11. A pair of small spots.

Group 13596. May 8 - 18. A variable group.

Group 13597. May 9 - 20. A small spot on May 9 which develops into a composite spot of moderate size. It breaks up into a cluster on May 14 and is dying out by the time the west limb is reached.

Group 13598. May 12 - 16. A pair of small spots, the leader being the first to break up and disappear.

Group 13599. May 12 - 24. Return of Group 13582: 3rd appearance. A pair of regular spots both dividing on May 17. The minor portions die out, those of the following spot being the first to go.

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	
1940		°		°					1940		°		°					
133° 421 G		*912	256° 3					358		13602	*269	318° 1	178° 6	+ 9° 2	6	20		
		*910	264° 9					299		13599	*406	49° 8	149° 7	+12° 9	41	370		
	13598	*253	246° 7	233° 9	- 8° 5	45	181			13600	*581	59° 9	137° 0	+14° 9	81	395		
	13598	*157	151° 2	216° 0	-10° 7	21	82				*912	90° 1					276	
	13597	*244	109° 2	207° 0	- 7° 3	59	390				*976	97° 4					256	
	13599	*953	75° 2	149° 5	+13° 2	90	417	602 c	May 17		(-20° 4)	(168° 2)	(- 2° 3)	(253)	(1338)	(1593)		
	13600	*996	74° 7	136° 8	+14° 9	85	426											
		*923	99° 8					501										
		*943	106° 7					68		138° 337 G	*903	252° 8					223	
May 13			(-21° 5)	(220° 4)	(- 2° 8)	(300)	(1496)	(1828)		13596	*982	261° 5	234° 4	- 8° 7	43	180	803 f	
										13601	*806	257° 1	208° 5	-11° 7	8	19	230 c	
										13597	*799	262° 2	208° 2	- 7° 5	19	161		
134° 329 G		*971	254° 6					234		13603	*388	322° 7	169° 5	+15° 8	16	52		
		*859	251° 6					155		13599	*271	18° 7	150° 3	+12° 6	41	214		
	13598	*452	256° 5	234° 7	- 8° 5	45	223			13600	*424	46° 1	137° 0	+15° 0	60	285		
	13598	*174	223° 8	215° 4	- 9° 8	19	108				*925	95° 7					148	
	13597	*078	166° 4	207° 3	- 7° 0	48	310		May 18		(-20° 1)	(155° 4)	(- 2° 2)	(187)	(911)	(1404)		
	13601	*152	163° 4	205° 9	-11° 1	1	6											
	13599	*874	73° 3	149° 4	+13° 1	81	451	329 c		139° 394 G	13601	*926	258° 2	208° 9	-11° 7	7	12	618 c
	13600	*961	73° 4	136° 1	+15° 1	60	419	349 c			13597	*922	263° 9	208° 4	- 6° 4	23	111	
May 14		*909	116° 0					123			13603	*583	299° 8	172° 8	+15° 0	5	26	
			(-21° 3)	(208° 4)	(- 2° 7)	(254)	(1517)	(1190)			13599	*296	329° 3	150° 3	+12° 6	58	255	
										1159c	*105	203° 2	143° 8	- 7° 6	6	22		
135° 456 G	13598	*660	260° 3	234° 4	- 8° 3	46	184			13600	*309	15° 4	136° 6	+15° 1	70	331		
	13598	*386	251° 8	215° 2	- 9° 2	16	50		May 19		(-19° 8)	(141° 4)	(- 2° 1)	(169)	(757)	(618)		
	13597	*242	250° 7	206° 7	- 7° 0	42	259											
	13601	*252	235° 6	205° 7	-10° 6	25	62			140° 336 G	13597	*985	264° 3	208° 9	- 6° 0	14	59	598 s
	13602	*330	52° 5	178° 2	+ 9° 1	9	22				13603	*749	291° 3	174° 8	+14° 4	7	17	
	13599	*725	69° 5	149° 5	+12° 9	85	421				13599	*438	304° 1	150° 6	+12° 3	48	231	
	13600	*855	70° 9	137° 0	+14° 8	77	370	345 c			13600	*320	336° 9	136° 3	+15° 1	63	307	
		*955	75° 3					511			13604	*275	117° 9	114° 7	- 9° 3	3	7	
May 15		*970	83° 6					69				*965	95° 4				150	
			(-21° 0)	(193° 5)	(- 2° 5)	(300)	(1368)	(925)	May 20		(-19° 5)	(128° 9)	(- 2° 0)	(135)	(621)	(748)		
136° 385 G		*914	261° 3					139										
	13598	*791	260° 2	233° 1	- 9° 2	28	176	292 c		141° 325 G	13603	*848	288° 8	171° 8	+14° 7	10	47	161 c
	13598	*567	257° 3	215° 1	- 9° 1	5	26				13599	*614	292° 5	151° 2	+12° 0	42	165	
	13597	*450	259° 2	207° 5	- 6° 9	24	200				13600	*447	309° 9	136° 6	+14° 8	58	341	
	13601	*446	249° 8	206° 3	-11° 0	12	38				13604	*133	165° 0	113° 9	- 9° 3	25	100	
	13602	*210	15° 2	178° 0	+ 9° 3	6	15				13605	*862	96° 7	54° 2	- 6° 8	46	177	147 c
	13599	*580	63° 1	149° 2	+13° 1	64	405		May 21		(-19° 2)	(115° 9)	(- 1° 9)	(181)	(830)	(308)		
	13600	*736	66° 8	136° 9	+15° 1	61	415											
		*834	75° 0					247										
		*937	75° 5					228		142° 591 G	13603	*962	286° 5	171° 9	+15° 4	37	122	296 c
		*941	100° 8					200			13599	*807	286° 5	151° 2	+12° 1	33	142	155 c
May 16		*973	90° 3					145			13600	*651	295° 5	136° 4	+14° 8	45	256	
			(-20° 7)	(181° 2)	(- 2° 4)	(200)	(1275)	(1249)			13604	*282	241° 4	113° 6	- 9° 3	14	48	
137° 366 G	13598	*905	260° 9	232° 8	- 9° 2	77	285	1061 c			13605	*695	96° 9	55° 4	- 6° 0	34	256	
	1159b	*632	253° 8	223° 7	-14° 7	5	19				13606	*889	61° 7	40° 4	+24° 0	5	10	114 c
	13601	*651	255° 2	208° 0	-11° 3	6	27				13607	*928	102° 3	31° 4	-12° 0	7	15	173 c
	13597	*640	261° 4	207° 7	- 7° 2	37	222		May 22			*923	77° 9				191	
											(-18° 8)	(99° 1)	(- 1° 7)	(175)	(849)	(929)		

Group 13600. May 13 - 25. An elongated spot with a few companions.

Group 13601. May 14 - 19. An unstable stream of small spots, forming s Group 13597.

Group 13602. May 15 - 17. A pair of small spots.

Group 13603. May 18 - 23. A few variable spots.

Group 13604. May 20 - 24. A short-lived stream of small spots.

Group 13605. May 21 - 29. A small stream of normal type developing quickly from the place of a small bright patch of faculae on May 20. The following spot dies out first.

Group 13606. May 23 - 31. A small but persistent spot with one or two companions on May 27 and 28. One of these grows and alone survives on May 29.

Group 13607. May 22-June 2. On May 22 and 23, a single small spot that has gone by May 24. A variable stream then appears a few degrees of longitude in advance of the original position.

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
1940			°	°	°				1940			°	°	°			
143° 324 G	13603	°990	286°5	170°2	+16°1	17	62	280 c	13607	°197	178°5	36°1	-12°4	47	152		
	13599	°892	284°6	151°2	+12°2	35	114	304 c	13609	°556	106°7	3°8	-10°1	81	422		
	13600	°762	291°1	136°6	+14°8	56	253		13610	°688	108°3	354°4	-13°2	1	5		
	13604	°432	251°2	113°8	-9°4	25	86			°914	77°8					336	
	13605	°554	98°1	56°1	-5°8	57	267			°941	65°9					166	
	13606	°796	57°7	42°1	+24°0	7	22	100 f	May 27		(-17°2)	(36°4)	(-1°1)	(162)	(711)	(714)	
	13607	°852	103°1	31°6	-12°0	5	13	94 c									
	13608	°989	106°9	14°2	-16°7	14	50	171 c									
	13609	°994	99°9	5°8	-10°0	48	272		148° 108 K	°957	269°3					105	
		°886	78°6					269		°934	288°9					138	
		°956	83°1					173		°934	298°7					264	
		°962	102°4					164		°875	262°1					150	
May 23			(-18°6)	(89°4)	(-1°6)	(264)	(1139)	(1555)		13605	°552	261°9	59°2	-5°3	11	58	
		°974	282°2	152°4	+11°5	31	102	507 f		13606	°470	329°7	41°0	+22°9	8	38	
144° 334 G	13599	°975	282°2	152°4	+11°5	31	102	507 f		13607	°250	217°6	35°0	-12°4	26	191	
	13600	°885	287°3	136°6	+14°5	34	193	442 f		13609	°394	113°9	4°7	-10°1	73	368	
	13604	°610	256°3	112°8	-9°5	17	55			13610	°552	112°1	354°6	-12°8	4	25	
	13605	°329	103°1	57°3	-5°7	45	213				°825	115°3					210
	13606	°655	50°5	42°8	+23°3	6	12				°855	73°7					335
	13608	°898	108°1	13°1	-16°9	10	26	176 c	May 26		°933	117°9					256
	13609	°957	99°9	3°1	-9°9	86	491	515 c			(-16°9)	(26°1)	(-1°0)	(122)	(680)	(1458)	
		°880	100°5					213									
May 24			(-18°2)	(78°0)	(-1°5)	(229)	(1092)	(1853)	149° 367 G	13605	°784	264°2	60°9	-5°1	7	13	107 c
								1576		13607	°488	245°3	36°4	-12°5	33	121	
145° 448 G	13600	°973	285°8	136°9	+15°0	30	141	510 f		13608	°575	314°9	35°7	+23°0	16	31	
	13605	°091	146°3	58°4	-5°7	30	152			13609	°178	157°3	5°5	-10°3	62	333	
	13606	°501	35°5	43°0	+22°6	5	13			13611	°911	97°3	304°2	-7°0	2	6	171 f
	13607	°459	114°5	36°1	-12°2	26	141		May 29		°957	105°3					194
	13608	°770	111°7	12°9	-17°5	4	11				(-16°5)	(9°5)	(-0°9)	(120)	(504)	(472)	
	13609	°859	100°9	2°6	-10°1	78	460	534 c									
		°946	55°3					97	150° 339 G		°819	262°9					398
May 25			(-17°9)	(61°3)	(-1°4)	(173)	(918)	(1141)		13607	°678	252°2	37°8	-12°5	93	322	
										13608	°714	303°3	36°6	+22°4	6	31	
146° 511 C		°968	291°2					194		13609	°221	220°6	5°0	-10°4	71	327	
		°950	269°6					156		13612	°238	334°5	2°6	+11°5	5	17	
		°926	259°8					275		13611	°783	98°0	305°4	-6°8	4	9	128 f
		°921	283°4					174	May 30		°937	105°7					420
		°866	294°3					230			(-16°1)	(356°6)	(-0°8)	(179)	(706)	(946)	
		°838	250°5					141									
		°822	268°1					138	151° 453 G		°951	263°3					477
	13605	°217	247°9	58°8	-5°8	22	144			13607	°839	256°1	37°9	-11°9	55	321	242 c
	13606	°400	8°9	43°3	+24°3	2	10			13608	°851	297°4	36°6	+22°6	5	17	170 c
	13607	°278	136°7	36°0	-12°8	39	183			13609	°436	247°4	5°8	-10°1	55	293	
	13609	°703	103°5	3°4	-10°3	80	435 }	306 c		13611	°612	100°9	304°7	-7°1	6	19	
	13610	°806	105°7	354°6	-13°2	2	6				°929	110°3					214
		°830	73°7					94	May 31		(-15°7)	(341°8)	(-0°6)	(121)	(650)	(1103)	
		°935	113°1					147									
		°938	103°7					157	152° 363 G		°925	295°2					283
		°950	78°8					210		13607	°927	257°3	37°1	-11°9	69	290	513 c
May 26			(-17°5)	(47°2)	(-1°2)	(145)	(778)	(2222)		13609	°609	253°1	6°0	-10°5	42	248	
										13613	°354	124°4	312°5	-11°9	1	5	
147° 329 G		°915	267°8					212			°849	109°8					215
	13605	°395	258°2	59°2	-5°6	29	118		June 1		°973	97°4					196
	13606	°413	347°7	41°8	+22°6	4	14				(-15°4)	(329°8)	(-0°5)	(112)	(543)	(1207)	

Group 13608. May 23 - 25. A pair of small spots.

Group 13609. May 23-June 4. A stream of normal type; the leader, a regular spot, alone remaining after May 30.

Group 13610. May 26 - 28. A dot f Group 13609.

Group 13611. May 29-June 7. A small single spot at first that has gone by June 1. On June 2, a small cluster appears a little in advance of the original position.

Group 13612. May 30-June 4. Intermittent: one or two tiny spots.

Group 13613. June 1 - 8. A small stream of normal type developing from a dot on June 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		
		Dist.	Pos. Angle	Long.	Lat.	Umbræ	Whole Spots	Faculae			Dist.	Pos. Angle	Long.	Lat.	Umbræ	Whole Spots	Faculae
			°	°	°							°	°	°			
1940									1940								
153°398		*973	295°7					147		13615	*342	178°7	276°6	-20°0	68	284	
G		*880	256°6					214		13617	*336	162°4	271°0	-18°7	11	43	
	13607	*977	257°7	33°4	-12°1	16	115	302 c		13616	*753	109°8	230°2	-14°8	33	134	366 f
	13609	*776	256°7	6°1	-10°5	52	272				*916	100°6					507
	13613	*202	170°3	314°1	-11°8	11	39				*925	116°9					238
	13611	*179	120°4	307°2	-5°6	7	35		June 5			(-13°9)	(277°1) (-0°1)	(173)	(709)	(1965)	
		*917	98°1					511									
		*980	101°1					226									
June 2			(-15°0)	(316°1) (-0°4)		(86)	(461)	(1400)	157°309		*970	282°5					186
									G		*884	282°2					267
154°326		*958	260°1					453		13613	*794	255°4	315°7	-11°5	28	150	186 c
G		*893	258°1	6°4	-10°7	51	277	611 f		13611	*685	261°9	307°1	-5°5	3	7	
	13612	*875	263°8	3°8	+11°8	13	31	130 c		13615	*395	208°9	276°0	-20°0	70	374	
	13614	*805	285°1	356°2	+11°9	4	13			13617	*346	200°5	271°6	-18°7	56	218	
	13613	*271	220°3	314°1	-12°2	33	93			13618	*217	128°5	254°5	-7°6	1	6	
	13611	*119	209°6	307°2	-6°2	20	72			13616	*600	115°5	230°4	-14°8	14	77	
	13615	*540	127°8	277°0	-19°5	23	91			13619	*992	96°4	181°8	-6°4	27	122	170 p
	13616	*962	105°4	230°4	-14°8	25	128	354 f	June 6	13620	*998	76°7	178°1	+13°3	37	234	149 p
		*840	100°6					379					(-13°5)	(264°3) (+0°1)	(236)	(1188)	(957)
		*924	101°4					444									
June 3			(-14°6)	(303°8) (-0°3)		(169)	(705)	(2351)	158°335								20
									G		*917	282°6					189
155°388		*838	287°1					104		13613	*922	257°8	317°2	-11°1	46	191	300 c
G		*977	259°3	7°1	-10°5	53	285	789 f		13611	*840	263°4	307°5	-5°4	2	8	149 c
	13612	*976	281°1	6°8	+10°8	11	25	203 c		13615	*541	231°3	277°3	-19°5	103	538	
	13614	*941	282°8	359°3	+11°9	3	10			13617	*475	227°8	272°5	-18°4	63	271	
	13613	*468	244°4	315°2	-11°8	46	185			13621	*407	242°2	272°2	-10°7	5	13	
	13611	*336	251°9	308°5	-6°1	20	97			13622	*294	133°2	238°2	-11°4	1	3	
	1160a	*173	224°8	296°8	-7°2	1	4			13616	*426	127°7	230°5	-14°8	12	45	
	13615	*404	147°8	276°6	-20°1	40	173		June 7	13620	*956	75°8	178°6	+13°6	96	507	410 c
	13617	*437	135°3	271°0	-18°2	7	13			13619	*962	96°8	177°0	-6°5	53	266	663 c
	1160b	*655	111°1	251°0	-13°8	1	5						(-13°1)	(260°8) (+0°2)	(360)	(1842)	(1711)
	13616	*876	106°8	229°8	-14°8	26	168	572 nf	159°328		*863	266°9					1731
		*780	101°7					311	G		*823	248°7					121
		*962	100°0					288		13613	*988	259°4	318°2	-10°4	35	173	444
June 4			(-14°2)	(289°8) (-0°2)		(208)	(965)	(2267)		13615	*691	240°5	277°1	-19°6	126	643	519 f
156°347		*974	280°4					224		13621	*618	252°2	274°2	-10°6	3	14	
G		*950	256°6					344		13617	*646	240°7	273°8	-18°1	47	244	
		*855	282°8					286		13618	*242	236°9	249°3	-7°3	3	19	
	13613	*649	251°8	316°0	-11°7	42	177			13616	*285	156°5	230°9	-14°8	8	25	
	13611	*533	258°0	308°6	-6°4	19	71		June 8	13620	*861	74°4	179°3	+13°5	78	440 }	471 c
										13623	*938	72°7	169°0	+16°3	3	10	
										13619	*869	97°8	177°8	-6°6	70	346	578 c
												(-12°7)	(237°6) (+0°3)	(373)	(1916)	(2133)	

Group 13614. June 3 - 4. Two tiny spots on June 3: one on June 4.

Group 13615. June 3 - 11. A large stream of normal type forming on the disk. The leader divides into two on June 8; the rear spot of the stream becomes a regular spot, and is more stable. Group 13617 is close by.

Group 13616. June 3 - 11. A regular spot shrinking and so dying out.

Group 13617. June 4 - 11. A small stream, forming closely north of Group 13615 with which it intermingles.

Group 13618. June 6 - 8. A tiny spot on June 6 that has gone by June 7. Another spot emerges on June 8, 5° behind in longitude.

Group 13619. June 6 - 18. A stream with a stable regular spot as leader. The rest of the formation undergoes considerable changes before dying out.

Group 13620. June 6 - 17. A largish spot, very stable in position, but splitting into two and decreasing. On June 17, a companion appears nf.

Group 13621. June 7 - 10. A pair of small spots; one is missing on June 8.

Group 13622. June 7 - 13. Intermittent. A single small spot on June 7 and 9; a small short-lived cluster appears on June 11.

Group 13623. June 8 - 18. A variable group of nondescript spots, none being seen on June 13.

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
1940 160°339 G		914	8.4	°	°		9		1940 164°166 K			°	°	°			
		*965	264.5				150			13622	*972	259.1					489
		*934	251.3				284				*868	258.3	233.0	- 9.7	2	9	298 c
	13615	*830	245.9	277.5	-19.5	106	585	168 c		13626	*558	220.5	196.9	-24.2	63	272	
	13617	*789	245.7	273.4	-18.7	30	131			13620	*242	333.8	179.9	+13.4	58	275	
	13621	*766	256.5	273.1	-10.0	26	53			13619	*174	216.0	179.5	- 7.2	106	605	
	1160c	*483	317.9	245.0	+21.7	1	4			13625	*421	15.9	166.3	+24.6	9	40	
	13622	*301	220.0	235.6	-12.9	3	6		June 13			(-10.7)	(173.6)	(+ 0.9)	(238)	(1201)	(787)
	13616	*293	201.8	230.6	-15.3	5	18										
	1160d	*405	65.1	202.4	+10.1	1	3			165°344 G	*954	257.8					377
	13620	*728	71.3	179.2	+13.8	58	345	304 c			*834	253.4					104
	13623	*858	71.3	166.6	+16.1	7	11			13626	*712	233.3	196.6	-24.3	66	318	
	13619	*722	99.9	178.6	- 6.8	63	299	268 c		13619	*401	249.3	180.1	- 7.2	99	506	
		*932	101.2					218		13620	*424	300.7	179.9	+13.4	45	195	
		*939	79.9					148		13625	*429	335.7	169.1	+23.9	4	10	
		*969	70.4					342		13623	*312	323.9	169.0	+15.5	46	130	
June 9			(-12.3)	(224.2)	(+ 0.4)	(300)	(1455)	(1882)			*927	98.1					121
								1871			*940	85.8					300
161°355 G	13615	*927	248.4	276.8	-19.7	95	490	702 c	June 14			(-10.2)	(158.0)	(+ 1.0)	(260)	(1159)	(902)
	13617	*904	249.4	273.6	-18.2	22	156			166°348 G	*937	255.7					324
	13621	*890	257.6	272.8	-10.7	13	35	97 c		13626	*835	239.8	196.8	-24.1	69	331	304 c
	13624	*418	255.7	234.7	- 5.3	5	21			13619	*604	255.5	180.7	- 7.8	99	375	
	13616	*429	231.4	231.0	-14.9	4	13			13620	*604	290.7	180.0	+13.2	33	155	
	13620	*559	65.9	179.3	+13.7	66	344			13623	*484	301.3	170.0	+15.5	38	156	
	13619	*560	103.0	177.6	- 8.7	88	441			13627	*445	114.5	120.6	- 9.6	8	26	
	13623	*710	67.0	168.0	+16.4	6	28				*881	85.8					314
		*855	107.0					177	June 15			(- 9.7)	(144.7)	(+ 1.1)	(247)	(1043)	(942)
		*888	70.5					373		167°391 C	*967	255.7					164
June 10		*970	71.7					303			*926	241.9					351
			(-11.8)	(210.8)	(+ 0.6)	(299)	(1528)	(1652)		13626	*933	243.6	197.9	-25.0	41	287	
162°343 G		934	4.0					50		13619	*780	259.1	181.3	- 7.7	43	261	264 c
		*958	259.1					179		13620	*768	286.5	179.9	+13.4	31	143	
		*825	259.5					506		13623	*665	292.1	170.5	+15.4	19	112	
	13615	*982	249.6	275.6	-19.9	81	424	595 c		13627	*260	135.1	120.2	- 9.3	10	56	
	13617	*973	250.5	273.0	-18.7	26	98			13628	*995	100.8	47.3	-10.6	43	450	118 p
	13624	*620	261.1	235.5	- 4.9	6	26				*930	95.8					151
	13616	*597	243.5	231.1	-14.8	6	11		June 16			(- 9.3)	(130.9)	(+ 1.3)	(187)	(1309)	(1048)
	13622	*568	250.5	230.5	-10.3	14	41			168°490 G	*965	242.8					323
	13620	*380	54.0	179.3	+13.5	66	340			13619	*921	261.0	182.8	- 7.7	29	190	521 f
	13619	*366	111.2	177.7	- 6.9	98	452			13620	*902	284.2	180.2	+13.4	14	55	258 c
	13623	*551	60.7	167.8	+16.2	3	7			13623	*852	287.5	173.7	+15.6	13	55	
	13625	*637	49.0	165.7	+25.1	9	23			13625	*819	294.9	168.9	+21.0	8	38	101 c
June 11	1160e	*863	71.5	139.5	+16.2	0	9	412 f		13628	*939	102.0	47.4	-10.8	122	517	607 f
		*791	65.3					224	June 17			(- 8.8)	(116.4)	(+ 1.4)	(186)	(855)	(1810)
			(-11.4)	(197.7)	(+ 0.7)	(309)	(1431)	(1916)		169°341 G	*981	261.5	183.3	- 8.0	23	146	511 f
163°350 G		929	259.2					483		13623	*935	286.1	173.7	+15.5	7	25	226 p
	13622	*738	255.3	230.7	-10.3	5	22	293 p		13625	*906	293.7	168.3	+22.0	34	127	182 c
	13626	*455	202.8	195.5	-24.0	19	70			13628	*858	103.3	47.2	-10.5	107	683	652 f
	13620	*236	21.0	179.4	+13.5	80	331		June 18			(- 8.4)	(105.1)	(+ 1.5)	(171)	(981)	(1571)
	13619	*172	145.5	178.8	- 7.3	90	512										
	13625	*467	32.4	168.6	+23.9	3	8										
	13623	*411	47.8	166.0	+16.7	1	7										
June 12		*920	104.8					290									
			(-11.0)	(184.4)	(+ 0.8)	(198)	(950)	(1076)									

Group 13624. June 10 - 11. One small spot on June 10; a tiny cluster on June 11.

Group 13625. June 11 - 19. Two or three variable spots, not seen on June 14 and 15, in fairly high northern latitude, matched in southern latitude by Group 13626.

Group 13626. June 12 - 16. A stream of normal type developing towards the west limb.

Group 13627. June 15 - 16. A pair of small spots.

Group 13628. June 16 - 28. A large regular spot with small unstable companions.

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
1940			°	°	°				1940			°	°	°			
170° 340								132									110
G	13625	856	289.7					682 c			854	115.8					97
	13628	958	293.5	164.2	+22.9	41	189	363 f			878	100.4					182
	13629	722	105.9	47.2	-10.3	139	608	299 p			932	72.9					172
	13629	998	108.3	8.2	-18.0	0	37	123			952	112.5					310
June 19		886	70.4								976	100.8					
		(- 8.0)		(91.9)	(+ 1.6)	(180)	(814)	(1579)	June 23		(- 6.2)		(38.0)	(+ 2.1)	(219)	(1135)	(1893)
171° 403								276									
G	13628	911	290.7						175° 591	13633	899	274.0	86.1	+ 4.6	10	26	121 c
	13628	545	112.3	47.1	-10.4	117	640	368 c	G	13632	602	293.6	57.1	+15.7	7	22	
	13629	932	109.0	10.9	-17.0	36	285	219 f		13628	463	243.6	47.1	- 9.8	93	475	
	13630	951	101.2	6.7	-10.1	14	110	207		13631	315	205.0	30.2	-14.4	9	37	
June 20		887	98.2							13629	349	152.2	12.6	-15.7	125	793	
		(- 7.5)		(77.8)	(+ 1.7)	(187)	(1035)	(1070)		13630	348	128.9	6.0	- 9.9	12	67	
172° 412								240		13634	652	112.7	344.4	-12.8	3	11	
G	13628	889	347.4					178		13635	962	105.4	309.5	-14.1	12	34	184 c
	13631	857	289.2					156		13636	968	87.9	307.0	+ 2.6	27	118	198 c
	13629	835	256.1						June 24		890	105.7					202
	13630	364	124.9	46.8	-10.1	100	611				(- 5.7)		(22.3)	(+ 2.2)	(298)	(1583)	(705)
	13631	651	115.9	27.2	-15.0	4	14										
June 21	1160f	662	72.8	24.2	+12.7	9	21	174 c	176° 344	13633	971	274.3	88.4	+ 4.7	43	186	284 f
	13629	830	111.9	11.0	-16.9	64	372	354 nf	G	13628	598	249.8	47.0	-10.0	99	428	
	13630	860	102.8	6.2	-10.0	16	77	149		13631	412	226.1	30.2	-14.3	27	107	
		938	110.2					1251		13637	386	212.4	24.8	-16.7	9	44	
		(- 7.1)		(64.4)	(+ 1.9)	(193)	(1095)	1259		13629	304	182.0	13.0	-15.3	147	783	
173° 340								171		13630	239	151.7	5.8	- 9.8	15	71	
G	13628	942	258.1							13638	375	160.4	4.8	-18.4	9	55	
	13631	229	157.6	47.0	-10.2	117	548			1160h	281	58.2	358.4	+10.7	9	38	
	13629	484	125.3	28.1	-14.3	27	101	265 f		13634	495	121.1	346.8	-12.7	4	14	
	13630	693	116.4	11.9	-16.4	65	388	74 c		13635	906	106.6	309.2	-13.9	47	139	161 c
	1160g	737	105.4	6.1	- 9.8	12	63	235		13636	909	88.1	307.2	+ 2.7	32	170	436 f
June 22		933	84.8	343.3	+ 5.6	3	12	225	June 25		818	105.2					258
		899	116.6					91			(- 5.3)		(12.4)	(+ 2.3)	(441)	(2015)	(1189)
		935	106.3														1150
		949	73.8														
		(- 6.7)		(52.1)	(+ 2.0)	(224)	(1112)	(1061)	177° 336		850	286.6					109
174° 410								180	G	13628	760	254.7	47.1	-10.0	76	464	
C		952	283.2					197		13631	561	239.4	29.0	-14.4	25	85	
		938	249.6					196		13637	539	234.1	26.1	-16.3	4	21	
		824	257.8					212		13629	364	215.9	12.7	-15.7	142	814	
		812	272.4							13630	240	208.0	5.7	- 9.8	13	68	
	13632	397	306.7	57.2	+15.7	10	37			13638	376	194.9	5.0	-18.8	10	32	
	13628	265	215.0	46.8	-10.4	97	520			1161a	234	342.0	3.5	+15.2	4	11	
	13631	322	149.8	28.4	-14.0	12	49			13639	533	77.4	327.6	+ 8.7	7	17	
	13629	520	127.2	12.5	-16.4	84	449			13636	788	88.6	307.4	+ 2.6	28	142	467 f
	13630	561	111.3	6.1	-10.0	16	80			13635	814	109.4	307.0	-14.2	48	309	148 c
		744	119.4					109			952	108.8					670
		793	109.2					128	June 26		962	84.1					187
											(- 4.9)		(359.2)	(+ 2.4)	(357)	(1963)	(1581)

Group 13629. June 19-July 1. A large stream of normal type. The leader becomes a double spot; the follower emerges as a regular spot on June 29.

Group 13630. June 20-July 1. A small decreasing regular spot with a companion on June 27. Return of Group 13609.

Group 13631. June 21 - 30. A small stream.

Group 13632. June 23 - 24. A pair of small spots.

Group 13633. June 24 - 25. A pair of growing spots near the west limb.

Group 13634. June 24 - 25. A pair of small spots.

Group 13635. June 24-July 5. A stream of normal type in which the follower, at first larger than the leader spot, does not survive to the west limb.

Group 13636. June 24-July 5. A pair of regular spots until June 28. The remaining one shrinks to a small spot last seen within 30° of the west limb.

Group 13637. June 25 - 27. A stream in miniature forming close to the rear spot of Group 13631.

Group 13638. June 25 - 27. A cluster of small spots f Group 13629.

Group 13639. June 26-July 4. A small cluster when first seen, becoming a small stream of normal type. Its axis is markedly inclined to the Sun's equator.

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
1940 178°432 G		961	3.1	°	°			21	1940 182°332 G			°	°	°			
		°952	283°5					148			°949	288°1					363
		°941	284°1					219			°918	244°9					289
	13628	°895	257°8	47°1	-9°7	74	418	658 f			°815	252°0					218
	13631	°727	247°4	28°4	-14°3	23	108			13629	°988	254°3	12°9	-15°0	106	624	444 c
	13637	°718	244°8	27°0	-15°8	10	38			13630	°958	258°7	5°3	-9°9	3	12	235 f
	13629	°549	235°3	12°6	-15°8	162	948			13639	°562	281°4	326°8	+8°3	40	205	
	13630	°404	237°2	4°8	-10°1	15	57			13640	°466	262°9	320°5	-0°6	3	8	
	13638	°473	222°5	4°2	-17°9	4	14			13635	°432	227°8	312°3	-14°0	68	325	
	13639	°315	70°1	327°3	+8°6	24	88			13636	°263	266°5	309°5	+2°5	15	62	
	13640	°467	98°3	317°3	-1°5	1	4			13641	°452	147°4	278°2	-19°4	11	45	
	13635	°626	115°8	309°4	-13°7	125	549			13642	°978	79°2	215°1	+11°2	33	108	210 c
	13636	°599	88°9	308°0	+2°7	30	115				°795	103°2					303
	13641	°958	110°7	273°6	-19°0	0	15	531 f			°906	103°3					229
		°883	110°6					563	July 1			(-2°6)	(283°1) (+3°0)		(279)	(1389)	(2291)
June 27		(-4°4)	(344°7) (+2°6)	(468)	(2354)	(2110)		2140									
179°362 C	13628	°968	259°2	46°9	-9°7	43	384	474 c		183°348 G		°939	265°4				132
	13631	°852	250°8	28°5	-14°7	31	147	125 c			°934	254°0					287
	13629	°899	244°1	13°0	-15°7	115	967				°840	287°5					213
	13630	°577	249°2	5°4	-9°5	8	61			13639	°738	278°8	327°0	+8°8	30	117	
	13639	°153	40°3	326°7	+9°4	13	72			13635	°603	241°9	312°8	-13°9	46	232	
	1161b	°371	144°9	319°7	-15°0	1	5			13636	°499	269°8	309°5	+2°6	9	52	
	13640	°239	103°8	319°0	-0°6	2	7			13641	°379	165°7	274°1	-18°4	2	8	
	13635	°471	126°1	309°5	-13°5	74	437			1161c	°397	106°2	257°3	-3°4	3	6	
	13638	°404	89°7	308°7	+2°8	19	87			13642	°903	78°9	215°3	+11°3	42	129	235 c
		°786	115°1					159	July 2		°974	75°3					425
		°909	113°9					345				(-2°1)	(279°7) (+3°1)		(132)	(544)	(1292)
		°948	96°7					174									
June 28		(-3°9)	(332°4) (+2°7)	(306)	(2167)	(1277)				184°394 C		°848	257°3				185
180°362 G		°977	267°3					212		13639	°891	278°4	328°8	+9°0	20	116	503 c
	13631	°938	252°6	27°1	-15°2	23	132	474 b		13635	°785	249°7	314°9	-13°7	24	170	142 c
	13629	°825	248°6	12°0	-15°8	166	888	304 c		13636	°695	270°4	309°7	+2°6	6	19	
	13630	°741	254°0	5°3	-9°8	5	13			13643	°222	284°3	278°2	+6°2	4	16	
	13639	°161	309°7	326°4	+8°6	41	159			13644	°191	171°6	264°2	-7°7	1	4	
	13635	°315	152°9	310°8	-13°5	85	416			13642	°776	77°9	215°3	+11°4	22	107	124 c
	13636	°192	90°9	308°2	+2°6	25	80			13645	°952	116°2	197°1	-23°7	21	87	224 c
	13641	°891	120°3	280°4	-18°2	5	22			13646	°986	98°7	186°3	-8°0	12	64	311 c
		°857	98°2					288	July 3		°907	75°2					289
		°968	102°7					249			°944	124°8					117
June 29		(-3°5)	(319°2) (+2°8)	(350)	(1710)	(1527)						(-1°7)	(265°8) (+3°2)		(110)	(583)	(1875)
181°396 G	13631	°995	253°8	28°4	-15°8	10	67	151 c		185°372 G		°933	265°1				237
	13629	°934	252°2	12°6	-15°5	146	881	330 c		13639	°964	278°8	327°6	+9°4	25	66	470 c
	13630	°874	256°9	5°0	-9°9	5	21	133 c		13635	°903	253°0	315°4	-13°7	40	127	300 c
	13639	°371	287°5	326°4	+9°1	54	244			13636	°835	270°6	309°4	+2°3	4	11	136 f
	13635	°301	197°2	310°7	-13°8	57	394			13643	°429	276°1	278°2	+5°6	4	12	
	13636	°061	264°9	309°0	+2°6	9	52			13644	°281	228°1	265°0	-7°6	1	5	
	13641	°540	131°3	280°3	-18°1	12	28			13642	°615	75°8	215°6	+11°3	21	79	
		°902	99°8					531		13645	°872	119°5	197°2	-23°6	14	89	284 f
June 30		(-3°0)	(305°5) (+2°9)	(293)	(1687)	(1145)				13646	°926	100°1	186°1	-8°0	7	30	427 f
									July 4		°861	101°9					79
											°941	76°0					404
											°976	69°5					207
												(-1°2)	(252°9) (+3°3)		(116)	(419)	(2544)

Group 13640. June 27-July 1. Intermittent. A tiny spot, not seen on June 29 and 30.

Group 13641. June 27-July 2. Return of Group 13615: one or two tiny spots, not seen on June 28.

Group 13642. July 1 - 6. A pair of spots; only one remains on July 5 and 6.

Group 13643. July 3 - 7. A pair of very small spots, not seen on July 5.

Group 13644. July 33 - 4. One tiny spot.

Group 13645. July 3 - 12. Return of Group 13626. A small regular spot slowly dying out.

Group 13646. July 3 - 8. Return of Group 13619. 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		
		Dist.	Pos. Angle	Long.	Lat.	Umbræ	Spots	Faculae			Dist.	Pos. Angle	Long.	Lat.	Umbræ	Spots	Faculae
			°	°	°							°	°	°			
1940									1940								
186°381	13635	*982	255°2	317°1	-13°8	31	137	492 f			*841	68°5					107
G	13636	*940	271°0	309°4	+2°1	3	10	220 nf			*901	75°9					92
	13642	*412	69°9	216°4	+11°2	8	36				*955	100°6					211
	13645	*762	124°9	196°8	-23°3	14	68	180 f	July 8		(+ 0°6)		(200°3) (+ 3°7)		(82)	(396)	(1219)
	13647	*767	109°0	191°8	-12°1	13	37	101 f									
	13648	*814	102°6	186°3	-8°2	10	30	161 c									
	1161d	*872	104°2	180°4	-10°6	2	5	277 f	190°423	13649	*479	302°2	211°2	+18°2	80	394	
		*822	62°4					121	G	13648	*391	295°3	207°2	+13°1	23	153	
		*853	76°3					307		13645	*483	198°9	195°8	-23°3	9	41	
		*947	64°8					533		13647	*281	207°0	193°4	-10°7	11	50	
July 5		(- 0°7)		(239°5) (+ 3°4)		(81)	(323)	(2392)		13650	*214	12°1	183°3	+15°8	45	199	
									July 9	13651	*854	101°1	128°5	-7°4	5	13	164 f
											(+ 1°1)		(186°0) (+ 3°8)		(173)	(850)	(164)
187°430		*968	271°7					241									
C		*906	246°7					717									
		*775	242°7					321	191°355		*973	257°9					213
	13643	*812	274°3	279°8	+5°6	0	9	107 c	C		*883	259°3					284
	13642	*212	49°5	216°2	+11°4	2	9			13649	*637	294°2	211°3	+18°2	127	719	
	13648	*399	64°6	204°0	+13°1	22	103			13648	*558	287°5	206°3	+12°8	33	171	
	13645	*634	134°6	196°3	-23°3	19	78			13645	*570	217°1	195°6	-23°3	5	22	
	13647	*604	116°4	192°1	-12°6	10	42			13647	*417	232°9	193°4	-10°8	12	60	
	13646	*658	106°7	186°2	-8°2	11	31			13650	*259	321°5	183°3	+15°5	46	254	
		*749	128°9					142		13652	*360	25°5	164°1	+22°7	22	107	
		*852	65°4					424		13651	*708	108°8	130°9	-10°3	23	92	
		*934	58°1					246		13653	*981	85°1	94°8	+5°6	93	737	421 c
July 6		(- 0°3)		(225°6) (+ 3°5)		(64)	(272)	(2198)			*887	108°3					143
									July 10		*957	98°7					182
											(+ 1°5)		(173°7) (+ 3°9)		(361)	(2162)	(1243)
188°377		*967	252°1					535									
G		*889	244°2					400	192°357	13649	*780	290°2	210°6	+18°2	194	1078	
	13643	*918	274°5	279°7	+5°6	6	26	156 c	G	13648	*739	283°8	207°6	+12°8	24	197	
	13648	*211	41°8	204°9	+12°5	49	218			13647	*616	246°7	195°4	-10°8	13	26	
	13645	*526	149°1	196°1	-23°3	15	74			13645	*692	229°7	195°3	-23°2	10	17	
	13647	*434	129°7	193°2	-12°7	9	31			13650	*432	297°2	183°7	+15°0	26	138	
	13646	*488	113°7	186°4	-8°0	5	25			13652	*313	345°1	165°3	+21°5	64	252	
		*851	56°4					352		13651	*541	116°2	131°0	-10°3	26	114	
		*938	71°0					247		13653	*909	85°1	95°0	+6°1	127	781	415 c
July 7		(+ 0°2)		(213°1) (+ 3°6)		(84)	(374)	(1690)	July 11		(+ 2°0)		(160°4) (+ 4°0)		(484)	(2603)	(415)
189°343		*977	274°2					239	193°330	13649	*892	288°7	210°4	+18°5	236	1234	246 c
G		*961	247°2					368	G	13648	*876	282°6	208°7	+13°0	29	164	169 f
		*906	258°9					202		13647	*772	252°4	195°9	-10°7	4	9	132 c
	13649	*274	334°0	207°5	+17°9	8	22			13645	*809	237°5	195°3	-23°0	4	10	123 c
	13648	*184	329°1	205°8	+12°7	41	225			13650	*614	287°4	184°6	+13°8	45	236	
	1161e	*197	19°0	196°5	+14°4	1	3			13652	*423	314°8	166°3	+21°2	43	207	
	13645	*461	171°5	196°1	-23°3	13	65			13651	*372	132°0	131°3	-10°4	22	87	
	13647	*276	152°4	192°9	-10°4	7	37			13653	*794	85°2	95°1	+6°3	115	869	290 f
	13646	*310	130°5	186°6	-8°0	0	8			13654	*935	84°2	78°3	+6°9	17	32	142 c
	13650	*383	53°2	181°7	+16°7	12	36		July 12		(+ 2°4)		(147°6) (+ 4°1)		(515)	(2848)	(1102)

Group 13647. July 5 - 13. A cluster of small spots.

Group 13648. July 6 - 13. A stream with rapid rise to a brief maximum. The leader spot is the longest lived.

Group 13649. July 8 - 14. A large stream of normal type developing rapidly west of the central meridian.

Group 13650. July 8 - 15. A variable cluster or stream.

Group 13651. July 9 - 16. A short-lived cluster or stream.

Group 13652. July 10 - 16. A revival rather than a return of Group 13625. A small stream in which the leader spot is the largest component.

Group 13653. July 10 - 22. A fairly large composite spot breaking up into separate spots which then diminish. The origin of the group is probably represented by Group 13633.

Group 13654. July 12 - 18. Intermittent. A cluster of small spots dying out on July 14. A tiny single spot represents its position on July 16 and 18.

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	
			°		°	°						°		°				
1940									1940									
194°355		°861	235°4					225		13657	°901	108°3	17°6	-14°2	19	78	638 c	
G	13649	°969	287°8	210°0	+18°3	196	1032	130 c			°912	114°9					208	
	13648	°963	282°4	208°6	+13°1	16	33	315 f	July 17		(+ 4°7)	(79°4)	(+ 4°6)	(101)	(668)	(1262)		
	13647	°898	255°7	196°2	-10°9	2	8	197 c										
	13650	°784	283°9	185°3	+13°5	27	186	363 c	199°394		°963	294°0					183	
	13652	°589	301°7	166°4	+21°5	32	177		C		°958	281°9					172	
	13651	°255	172°2	132°0	-10°4	27	91				°913	257°7					283	
	13653	°619	84°6	95°8	+ 6°7	125	796			13655	°734	257°5	113°2	- 5°9	1	7		
July 13	13654	°828	83°6	78°1	+ 7°7	11	45	101 c		13653	°484	276°9	96°2	+ 7°5	83	473		
		(+ 2°9)	(134°0)	(+ 4°2)		(436)	(2368)	(1331)		13654	°221	284°5	79°7	+ 7°8	1	5		
										13656	°456	124°5	44°9	-10°5	6	30		
195°380	13649	°998	287°5	206°2	+17°8	27	64	119 c		13658	°711	114°5	25°7	-13°6	1	6		
G	13650	°909	284°0	185°8	+14°5	8	33	575 nf		13657	°795	112°3	18°1	-14°5	17	42	508 c	
	13652	°758	295°0	167°8	+21°5	26	115				°913	121°5					237	
	13651	°325	218°6	132°2	-10°4	8	34				°948	110°3					208	
	13653	°418	83°4	95°8	+ 6°7	124	787		July 18		°974	78°9	(+ 5°1)	(67°3)	(+ 4°7)	(109)	(563)	(1843)
	13654	°660	82°5	79°2	+ 8°2	8	29											
July 14		°790	83°5	(+ 3°3)	(120°4)	(+ 4°3)	(201)	(1062)		200°332		°970	259°4				210	
								(880)	G	13659	°941	256°4	123°4	-11°0	18	49	245 c	
196°395		°970	237°7					202		13653	°659	275°4	96°1	+ 7°2	97	449		
C		°951	258°6					285		13656	°333	146°4	44°1	-11°3	1	4		
		°774	304°3					150		13657	°675	117°4	16°9	-14°2	9	26		
	13650	°978	284°4	185°4	+15°0	9	52	503 f		13660	°918	79°1	348°0	+11°9	17	47	140 c	
	13652	°876	292°4	167°4	+21°7	28	176	465 c		13661	°981	80°7	335°6	+10°1	13	45	290 c	
	13651	°507	239°2	133°2	-11°1	5	12				°830	114°8					225	
	13655	°190	187°3	108°4	- 6°4	1	5				°932	109°8					267	
	13653	°194	77°4	98°1	+ 6°7	99	734		July 19		(+ 5°5)	(54°9)	(+ 4°8)	(155)	(620)	(1377)		
	13656	°892	103°0	45°4	- 9°5	10	44	234 s		201°489		°872	264°4				297	
July 15		°949	107°0	(+ 3°8)	(107°0)	(+ 4°4)	(152)	(1023)		C	13659	°992	257°8	121°0	-11°4	34	153	193 f
								(2112)		13653	°838	275°8	96°6	+ 7°5	65	334	484 c	
197°400		°874	302°0					187		13656	°275	200°2	45°1	-10°0	2	7		
C	13652	°960	291°7	167°6	+22°0	16	70	355 c		13662	°705	56°8	358°6	+26°4	6	32		
	13651	°672	248°0	133°0	-11°1	3	12			13660	°782	78°6	348°2	+11°9	18	52	134 c	
	13655	°357	241°2	111°9	- 5°6	2	14			13661	°896	80°8	335°8	+10°4	4	35	320 c	
	13653	°054	320°4	95°7	+ 6°8	80	664			13663	°974	102°4	324°2	-10°8	0	15	189 c	
	13654	°280	76°1	77°8	+ 8°2	1	7		July 20		°923	69°2	(+ 6°0)	(39°6)	(+ 4°9)	(129)	(628)	(1767)
	13656	°771	106°1	45°2	- 9°4	5	21											
	13657	°961	106°1	21°8	-14°1	0	16	398 c		202°383		°957	262°8				177	
July 16		(+ 4°2)	(93°7)	(+ 4°5)	(107)	(804)	(940)		G	13653	°933	276°7	96°9	+ 8°0	48	253	518 c	
										13662	°592	49°2	357°7	+27°0	3	9		
198°481		°942	304°5					153		13660	°628	78°3	349°1	+11°2	4	12		
G		°938	293°0					263		13661	°790	80°5	335°6	+10°5	4	10	121 f	
	13655	°552	251°5	111°0	- 6°1	6	17			13663	°902	103°9	325°2	-10°2	6	10	210 f	
	13653	°286	279°4	95°8	+ 7°1	75	563			13664	°971	97°9	312°6	- 6°4	4	14	178 f	
	13656	°601	112°1	45°2	- 9°3	1	10		July 21		°684	95°8	(+ 6°4)	(27°8)	(+ 5°0)	(69)	(308)	(1302)

- Group 13655. July 15 - 18. A very small spot on July 15, 16 and 18: a pair on July 17.
 Group 13656. July 15 - 20. A small spot except on July 18 and 20 when there is a small cluster.
 Group 13657. July 16 - 19. A revival rather than a return of Group 13657. Two or three small spots.
 Group 13658. July 18 - 27. Intermittent. One tiny spot seen only on July 18, 23 and 27.
 Group 13659. July 19 - 20. A pair of spots forming near the west limb.
 Group 13660. July 19 - 22. A variable cluster of small spots.
 Group 13661. July 19 - 22. A single small spot diminishing to a dot. Probable return of Group 13639.
 Group 13662. July 20 - 22. A tiny cluster.
 Group 13663. July 20 - 21. A tiny spot, possibly representing the return of Group 13635.
 Group 13664. July 21 - 26. A single small spot until July 24: a pair of spots on July 26.

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
1940			°	°	°				1940			°	°	°			
203°336		*866	277°3					342	208°334		*937	240°9					178
G	13653	*989	278°0	97°2	+8°7	59	325	1081 f	G	13665	*960	292°8	23°4	+23°4	4	9	117 f
	13665	*335	342°7	21°4	+23°6	5	13			13658	*970	256°3	23°1	-11°8	4	14	425 f
	13666	*450	150°7	1°9	-18°1	5	19			13666	*858	244°4	3°3	-18°5	87	361	328 c
	13662	*455	32°5	359°3	+27°4	7	25			1162a	*042	153°9	307°9	+3°4	2	14	
	13660	*460	75°0	348°4	+11°4	4	13			1162b	*554	133°8	284°3	-17°5	1	4	
	13661	*640	79°8	335°6	+10°4	3	8			13668	*615	109°9	273°5	-7°8	50	252	
	13664	*892	99°8	313°3	-8°3	6	10	228 f		13669	*891	102°8	247°7	-8°7	40	135	198 c
		*848	109°6					303	July 27			(+8°9)	(309°0)	(+5°5)	(188)	(789)	(1246)
		*905	88°3					121									
		*976	83°5					130									
July 22			(+6°8)	(15°2)	(+5°1)	(89)	(413)	(2205)	209°337		*968	254°5					223
									G	13666	*950	248°3	4°2	-18°5	71	423	432 c
										13668	*431	121°0	274°0	-7°8	38	196	
204°602	13658	*474	232°5	20°9	-11°9	4	14			13669	*753	107°5	249°3	-9°3	44	205	179 c
G	13666	*408	188°8	2°2	-18°5	24	90			13670	*990	72°1	212°8	+18°5	55	274	245 c
	13664	*729	104°0	313°2	-8°5	4	10	109 f	July 28		*901	106°4					158
	13667	*895	86°5	294°8	+5°5	6	13	192 f				(+9°3)	(295°8)	(+5°6)	(208)	(1098)	(1235)
		*912	115°8					111									
		*912	104°9					250	210°333		*810	278°0					253
July 23		*971	110°8					189	G	13666	*996	250°9	5°0	-18°4	48	282	364 f
			(+7°3)	(358°4)	(+5°2)	(38)	(127)	(851)		13668	*281	147°6	274°5	-7°1	35	156	
										13669	*583	115°4	250°4	-9°7	41	179	
										13671	*882	107°2	225°6	-11°7	9	18	94 c
205°449		*862	251°4					459		13670	*951	272°0	210°0	+18°8	116	654	292 c
C	13666	*477	212°2	2°7	-18°7	33	266				*932	79°6					140
	13664	*589	107°9	313°0	-8°1	2	7				*960	86°0					201
	13667	*779	86°7	296°0	+5°9	6	24	203 c	July 29		*973	84°6					98
		*904	114°5					440				(+9°7)	(282°6)	(+5°6)	(249)	(1289)	(1442)
		*925	105°5					151									
		*952	121°5					222	211°119		*925	280°9					306
July 24		*976	99°7					200	K	13668	*229	192°9	275°1	-7°1	18	125	
			(+7°7)	(347°2)	(+5°2)	(41)	(297)	(1675)		13669	*430	127°3	252°0	-9°7	28	230	
										13671	*760	110°9	225°9	-11°8	13	55	176 c
206°362		*953	254°9					225		13670	*890	71°5	209°2	+19°0	94	593	509 c
G	13665	*749	297°4	21°5	+23°8	5	16				*898	80°6					242
	13666	*599	230°4	4°0	-17°8	54	253		July 30		*930	90°1					254
	13668	*910	101°7	271°1	-8°3	36	143	255 c			*955	103°8					212
		*922	115°4					294				(+10°1)	(272°2)	(+5°7)	(153)	(1003)	(1699)
July 25			(+8°1)	(335°1)	(+5°3)	(95)	(412)	(774)	212°384		*958	255°5					217
									G		*952	288°0					166
207°440		*880	252°5					478			*859	255°9					200
G	13665	*887	294°0	22°9	+23°7	2	7	78 f		13668	*414	239°0	276°4	-6°8	16	70	
	13666	*763	240°3	5°0	-18°3	64	269			13672	*035	335°6	256°3	+7°7	13	101	
	13664	*243	149°4	313°8	-8°7	3	7			13669	*269	166°8	251°9	-9°3	40	213	
	13668	*770	105°1	272°5	-8°0	41	251	138 c		13671	*573	119°7	225°1	-11°4	18	72	
		*941	103°5					336		13670	*737	69°2	208°8	+19°2	86	460	247 f
July 26			(+8°5)	(320°9)	(+5°4)	(110)	(534)	(1030)	July 31		*921	71°4					232
												(+10°6)	(255°5)	(+5°8)	(173)	(916)	(1062)

Group 13665. July 22 - 27. Intermittent. One or two tiny spots.

Group 13666. July 22 - 29. A small stream forming near the central meridian.

Group 13667. July 23 - 24. One small spot.

Group 13668. July 25-Aug. 4. A stream of normal type in which the leader alone remains by July 31 which in turn is dying out as it passes around the west limb.

Group 13669. July 27-Aug. 6. A stream of spots; the follower dies out leaving the leader as a stable regular spot.

Group 13670. July 28-Aug. 10. A stream of normal type. Return of Group 13649.

Group 13671. July 29-Aug. 2. A small stream of changing spots.

Group 13672. July 31-Aug. 6. A small stream of variable 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.	Umbræ	Whole Spots	Faculae			Dist.	Pos. Angle	Long.	Lat.	Umbræ	Whole Spots	Faculae
		°		°	°						°		°	°			
1940									1940								
213°431		*855	247°7					330	217°341	13672	*924	276°6	257°7	+ 8°4	21	142	170 c
G	13668	*597	250°7	276°0	- 6°5	16	63		G	13669	*924	258°0	255°7	- 8°6	48	318	291 c
	13672	*278	278°5	257°6	+ 8°0	13	57			13670	*348	309°4	206°3	+18°6	74	393	
	1162c	*380	223°0	256°8	-10°4	1	4			13674	*719	74°9	144°1	+15°1	51	211	
	13669	*315	215°7	252°5	- 8°9	43	209			13675	*835	79°9	133°0	+11°8	6	13	132 c
	13671	*407	135°9	224°9	-11°2	18	63			13673	*863	107°5	132°9	-11°7	117	699	531 f
	13670	*569	64°4	208°8	+19°2	95	497		Aug. 5			(+12°5)	(189°9) (+ 6°1)	(317)	(1776)	(1124)	
		*788	68°2					223									
		*942	69°8					219									
		*980	59°8					197	218°403	13669	*987	260°2	255°3	- 8°6	48	345	545 f
Aug. 1		(+11°0)		(241°6) (+ 5°9)		(186)	(893)	(969)	G	13672	*981	278°8	255°3	+ 9°8	18	46	329 c
										13670	*532	296°0	206°1	+18°8	87	377	
214°487	13668	*765	256°2	275°9	- 6°6	12	63			1162f	*447	219°1	192°7	-14°2	1	4	
G	13672	*530	274°4	259°7	+ 7°3	9	57			1162g	*279	286°2	191°6	+10°4	3	7	
	13669	*489	239°7	252°9	- 8°9	40	179			13674	*547	71°1	143°6	+15°4	59	193	
	13671	*295	176°8	226°7	-11°2	3	11			13675	*670	79°2	133°8	+11°8	3	7	
	13670	*396	53°6	208°1	+19°1	72	422			13673	*722	112°5	133°2	-11°5	176	813	
		*933	61°6					411		13676	*972	84°1	99°1	+ 7°2	33	148	241 f
Aug. 2		(+11°4)		(227°7) (+ 5°9)		(136)	(732)	(411)			*861	111°3					337
									Aug. 6		*947	104°5					88
215°337		*976	255°8					241			*954	91°0					244
C		*969	279°6					221			*978	78°9					207
		*949	245°3					436				(+12°9)	(175°9) (+ 6°2)	(428)	(1940)	(1991)	
		*942	232°4					163									12
		*841	238°6					245	219°613		*918	253°8					258
		*829	253°6					201	G		*818	252°3					79
	13668	*873	260°0	276°0	- 5°7	9	41	163 c		1162h	*843	277°8	217°6	+ 9°9	2	10	242 c
	13672	*693	274°0	280°4	+ 7°1	12	40			13670	*718	290°9	205°0	+19°3	82	385	
	13669	*637	248°6	253°1	- 8°6	44	202			13674	*321	60°7	143°1	+15°0	30	170	
	13670	*271	32°0	207°7	+19°2	77	408			13675	*452	76°4	133°4	+11°7	1	5	
	1162d	*915	56°9	151°1	+32°6	0	12	405 c		13673	*526	122°7	133°2	-10°8	127	802	
	13673	*996	102°1	133°1	-11°4	21	154	96 c		13677	*808	111°3	109°5	-13°1	41	95	107 c
		*804	66°8					196		13676	*865	85°4	99°8	+ 7°1	21	109	688 c
		*938	89°6					133		13678	*915	86°6	93°5	+ 5°7	88	580	
		*960	77°6					164			*828	99°7					326
Aug. 3		(+11°8)		(216°4) (+ 6°0)		(163)	(857)	(2664)	Aug. 7		*881	75°5					144
											(+13°4)		(159°9) (+ 6°3)	(392)	(2156)	(1844)	
216°449		*946	244°0					243									1077
G	13668	*972	262°5	277°1	- 5°8	10	23	300 f	220°401		*900	278°7					209
	13672	*853	274°9	260°4	+ 7°4	11	59	104 c	G	13670	*825	288°9	205°0	+19°1	92	336	458 c
	13669	*808	254°5	253°5	- 8°7	39	206	197 f		13674	*189	35°2	143°1	+15°1	33	112	
	13670	*242	336°1	207°6	+18°8	78	367			13673	*403	136°9	133°3	-11°0	176	766	
	1162e	*797	92°0	149°1	+ 2°1	6	22	91 f		13675	*291	70°1	133°3	+11°7	1	4	
	13674	*842	76°8	144°1	+14°4	21	71	165 c		13677	*686	116°1	110°5	-12°7	45	202	
	13673	*947	104°9	132°7	-11°9	134	514	396 f		13676	*758	86°8	100°1	+ 6°5	23	94	
	13675	*931	79°7	132°6	+11°8	7	15	178 f		13678	*826	87°1	93°7	+ 5°9	138	725	271 c
Aug. 4		(+12°2)		(201°7) (+ 6°1)		(306)	(1277)	(1674)	Aug. 8		*826	75°1					100
											(+13°7)		(149°5) (+ 6°3)	(508)	(2239)	(1038)	

Group 13673. Aug. 3 - 15. Possible return of Group 13659. A complex spot in which the leading nucleus breaks away and advances in longitude, converting the group into a stream that is diminishing rapidly as it passes around the west limb.

Group 13674. Aug. 4 - 15. A variable stream.

Group 13675. Aug. 4 - 8. A tiny spot.

Group 13676. Aug. 6 - 16. Return of Group 13653. A slowly contracting regular spot with a small companion on Aug. 8 and 11, closely preceding Group 13678.

Group 13677. Aug. 7 - 16. A quickly growing stream in which the leader is large and apparently stable.

Group 13678. Aug. 7 - 18. A stream in which the leader is complex and the follower consists of two nearly regular spots. The intermediate spots grow until they connect the leader and follower. The group is at the centre of the disk on Aug. 12.

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	
1940			°	°	°				1940			°	°	°				
221°438		*972	279°7					96		13673	*805	249°6	134°4	-12°1	70	453	443 c	
G		*962	268°0					205		13677	*567	235°9	112°8	-12°7	151	793		
	13670	*928	288°1	204°6	+19°1	53	305	704 c		13676	*284	270°7	100°6	+6°5	8	31		
	13674	*194	322°2	142°8	+15°1	29	124			13678	*186	285°2	94°8	+5°6	108	758		
	13673	*306	171°9	133°3	-11°2	89	674			1162i	*050	272°6	87°0	+6°7	1	4		
	13677	*510	127°3	111°4	-12°1	71	329			13679	*749	113°2	39°4	-12°5	129	659	263 c	
	13676	*579	87°1	100°3	+6°9	14	57			13680	*748	77°1	35°6	+14°0	45	208	153 f	
	13678	*671	88°1	93°6	+6°0	176	915			1162j	*877	77°4	22°3	+14°2	2	5	245 f	
Aug. 9			(+14°1)	(135°8)	(+6°4)	(432)	(2404)	(1005)		13681	*990	108°5	5°0	-17°2	31	182	199 p	
											*897	108°0					141	
											*959	119°6					99	
222°420	13670	*981	289°2	202°8	+20°0	31	158	495 c	Aug. 13			(+15°5)	(84°1)	(+6°6)	(572)	(3190)	(1825)	
G	13674	*388	295°0	144°1	+15°4	28	136											
	13673	*358	211°8	133°8	-11°4	107	519			226°330	13674	*932	286°0	140°6	+17°3	24	121	772 c
	13677	*369	150°0	112°0	-12°2	130	569			G	13673	*906	253°7	133°5	-11°7	40	214	634 c
	13676	*376	88°2	100°7	+6°6	14	57				13677	*726	245°2	113°5	-12°9	142	665	
	13678	*484	89°2	93°8	+6°0	169	928				13676	*495	271°6	100°8	+6°5	9	35	
Aug. 10		*964	104°2	(+14°4)	(122°8)	(+6°4)	(479)	(2365)	(706)		13678	*399	269°8	94°6	+6°0	122	737	
											13679	*603	121°0	39°3	-12°4	129	595	
											13680	*583	75°2	35°8	+13°9	30	183	
223°392		*971	291°2					137			13681	*943	111°0	4°1	-17°2	31	186	315 f
C		*955	261°0					221				*777	76°0				289	
		*872	289°8					235				*936	117°1				321	
	13674	*581	288°2	144°7	+15°8	17	74		Aug. 14			(+15°8)	(71°1)	(+6°6)	(527)	(2736)	(2331)	
	13673	*501	233°5	134°1	-11°4	74	578											
	13677	*325	187°4	112°3	-12°2	154	762			227°364	13674	*982	286°5	137°8	+17°5	18	119	653 c
	13676	*162	86°6	100°6	+7°0	15	69			G	13673	*975	255°1	132°4	-12°9	40	141	1121 nf
	13678	*267	91°4	94°4	+5°9	117	894				13677	*870	251°1	114°8	-12°8	163	665	543 c
	13679	*951	105°8	40°3	-12°8	22	121	482 c			13676	*686	273°0	100°9	+6°9	5	17	
	13680	*959	77°7	35°5	+13°7	31	235	291 c			13678	*809	270°9	95°0	+5°9	118	735	
Aug. 11		*886	75°8	(+14°8)	(109°9)	(+6°5)	(430)	(2733)	(1639)		13679	*449	136°0	38°9	-12°4	172	788	
											13680	*385	69°3	35°7	+14°1	36	192	
											13681	*848	115°1	4°2	-17°1	41	187	392 f
224°357		*952	289°0					184				*839	124°1				313	
G		*872	299°8					255				*906	79°5				402	
	13674	*722	287°3	143°1	+17°0	22	86		Aug. 15			(+16°2)	(57°4)	(+6°7)	(593)	(2844)	(3424)	
	13673	*659	243°4	134°1	-11°9	93	440											
	13677	*416	219°5	112°9	-12°4	169	894			228°349		*895	263°9				253	
	13676	*060	278°6	100°6	+7°0	21	70			G	13677	*967	254°8	117°3	-12°8	133	655	923 c
	13678	*046	95°5	94°6	+6°3	159	733				13676	*827	273°7	100°4	+6°8	4	14	} 489 c
	13679	*867	109°1	40°2	-12°9	103	394	403 c			13678	*774	271°8	95°2	+5°6	101	596	
	13680	*876	77°4	35°6	+14°1	40	231	224 f			13679	*343	162°4	38°3	-12°3	147	815	
		*959	106°7					398			13680	*189	49°5	35°9	+13°7	37	183	
Aug. 12		*961	77°0	(+15°1)	(97°2)	(+6°5)	(607)	(2848)	(1747)		13682	*492	132°3	22°6	-13°1	4	12	
											13681	*725	121°3	4°2	-17°0	28	161	365 f
225°342		*893	280°4					76			13683	*869	83°3	343°7	+9°1	12	43	196 c
G	13674	*829	286°4	140°3	+17°3	27	97	206 c	Aug. 16			(+16°5)	(44°4)	(+6°7)	(466)	(2479)	(2464)	

Group 13679. Aug. 11 - 22. A stream of which the f part soon dies out. The large leader spot that survives becomes elongated as it nears the west limb, perhaps indicating an early decay, since it does not last to the following rotation, although its place is marked by Group 13702.

Group 13680. Aug. 11 - 22. A stable regular spot with an occasional companion.

Group 13681. Aug. 13 - 22. A regular spot that quickly dies out after Aug.20. Return of Group 13666.

Group 13682. Aug. 16 - 18. A pair of small spots.

Group 13683. Aug. 16 - 26. A large group of rapid growth and subsequent decline. The leader - the larger component - becomes elongated and finally breaks into two as its area decreases. The rear spot largely maintains its shape.

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
1940			°	°	°				1940			°	°	°			
229° 377		*979	254° 6					602	233° 415		*940	283° 1					218
G		*880	281° 6					237	C		*796	246° 6					208
	1162k	*937	264° 6	99° 6	- 2° 6	23	90	215 c		13679	*891	252° 5	37° 6	-12° 1	116	615	560 c
	13678	*904	273° 6	95° 7	+ 8° 1	81	518	633 c		13680	*853	280° 9	36° 4	+12° 9	28	147	127 f
	13679	*350	202° 5	38° 6	-12° 1	132	797			13686	*711	240° 9	17° 2	-14° 9	3	22	
	13680	*139	326° 9	35° 3	+13° 4	46	184			13681	*587	228° 8	4° 7	-16° 6	15	60	
	13682	*357	160° 7	23° 9	-12° 8	7	24			13683	*142	278° 3	345° 5	+ 8° 0	126	741	
	13681	*584	132° 2	4° 0	-17° 0	28	152			13685	*485	76° 9	308° 6	+12° 4	5	19	
	13683	*721	84° 6	344° 4	+ 8° 6	126	553			13687	*636	125° 3	304° 9	-15° 7	29	118	
	13684	*917	102° 6	326° 2	- 8° 6	2	11	251 f		13689	*928	86° 4	269° 1	+ 5° 9	24	113	} 917 c
		*842	104° 1					105		13690	*974	82° 7	259° 9	+ 8° 7	20	106	
		*946	97° 1					382		13688	*946	100° 4	267° 9	- 7° 5	75	353	563 c
Aug. 17			(+16° 8)	(30° 8)	(+ 6° 8)	(445)	(2329)	(2425)			*828	119° 4					265
											*828	99° 3					200
											*960	114° 1					148
230° 347		*979	264° 6					110	Aug. 21			(+18° 1)	(337° 4)	(+ 6° 9)	(441)	(2294)	(3206)
G		*962	282° 6					205									
	13678	*981	274° 2	97° 0	+ 5° 4	76	376	471 f									
	1162l	*949	252° 7	86° 8	-14° 0	8	17	131 f									
	13679	*473	226° 6	38° 5	-12° 5	133	815		234° 433		*904	245° 5					343
	13680	*311	292° 9	35° 1	+13° 5	37	207		G		*805	285° 2					287
	13682	*343	198° 4	24° 3	-12° 2	3	12			13679	*967	255° 5	36° 9	-12° 0	110	567	530 c
	13681	*462	150° 2	4° 2	-16° 9	33	169			13680	*948	281° 0	36° 2	+12° 6	33	135	445 f
	13683	*545	84° 5	344° 8	+ 8° 7	164	1006			13681	*731	240° 2	5° 1	-16° 0	9	24	
	13684	*850	99° 4	321° 0	- 4° 3	5	17	349 c		13683	*362	273° 5	345° 3	+ 7° 8	175	741	
Aug. 18		*949	77° 9					251		13685	*268	66° 5	309° 5	+12° 9	8	33	
			(+17° 2)	(18° 0)	(+ 6° 8)	(459)	(2619)	(1517)		13687	*494	140° 7	305° 1	-15° 8	44	134	
										13689	*815	87° 5	269° 2	+ 6° 1	27	91	314 c
231° 607		*980	255° 2					140		13688	*846	103° 4	268° 1	- 7° 4	71	347	410 c
G	13679	*664	242° 3	38° 2	-12° 4	147	775			13690	*896	83° 5	259° 9	+ 8° 9	16	64	242 c
	13680	*572	283° 3	36° 0	+13° 2	45	187		Aug. 22	1163a	*951	101° 2	253° 7	- 8° 3	8	14	296 f
	13681	*407	186° 8	4° 2	-16° 8	29	133					(+18° 4)	(324° 0)	(+ 7° 0)	(501)	(2150)	(2867)
	13682	*282	83° 3	344° 9	+ 8° 5	199	1098										
	13684	*635	106° 2	323° 7	- 4° 7	3	15										
	13685	*811	79° 7	306° 7	+12° 4	8	33	266 f	235° 511		*957	249° 2					299
Aug. 19		*960	79° 7					201	C		*941	235° 2					134
			(+17° 6)	(1° 3)	(+ 6° 9)	(431)	(2241)	(607)			*940	283° 6					478
											*843	243° 1					243
232° 343											*824	233° 3					97
G	13679	*767	247° 3	37° 9	-12° 5	112	700	284 p		13683	*800	272° 4	346° 7	+ 7° 1	82	457	
	13680	*699	281° 6	36° 0	+13° 0	41	178			13685	*115	2° 4	309° 4	+13° 6	8	35	
	13686	*557	227° 7	16° 8	-15° 7	7	20			13687	*584	173° 1	307° 0	-15° 3	19	88	
	13681	*453	206° 3	3° 7	-17° 1	29	132			13689	*633	88° 4	270° 3	+ 6° 4	17	93	
	13683	*118	75° 9	345° 0	+ 8° 5	166	918			13688	*687	107° 8	268° 7	- 6° 8	74	364	163 c
	13685	*700	79° 1	307° 0	+12° 5	13	24			13690	*763	83° 9	259° 7	+ 9° 1	3	20	334 c
	13687	*796	116° 0	303° 7	-15° 8	4	11	106 f			*834	125° 4					178
	13688	*993	98° 6	269° 7	- 7° 6	28	252	150 p			*865	104° 3					250
Aug. 20		*990	84° 9	269° 4	+ 6° 0	25	206	236 c			*955	105° 1					274
			(+17° 8)	(351° 6)	(+ 6° 9)	(425)	(2441)	(776)	Aug. 23			(+18° 8)	(309° 7)	(+ 7° 0)	(203)	(1057)	(2450)

Group 13684. Aug. 17 - 19. One or two tiny spots spread in latitude.

Group 13685. Aug. 19 - 25. One or two small spots.

Group 13686. Aug. 20 - 21. A cluster of tiny spots.

Group 13687. Aug. 20 - 29. A cluster of changing spots. On Aug. 23 another small cluster forms in front, the whole group dying out by Aug. 26. On Aug. 27 activity revives, and a stream is seen developing rapidly as it passes round the west limb.

Group 13688. Aug. 20-Sept. 1. Two regular spots, rather widely separated in longitude. The leading spot is the larger and longer lived. A return of Group 13669.

Group 13689. Aug. 20 - 24. A pair of spots; each has broken up by Aug. 24.

Group 13690. Aug. 21 - 24. A spot rapidly diminishing to a dot.

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
1940			°	°	°				1940			°	°	°			
245°357 G		*973	280°3					266		13696	*455	292°8	152°7	+16°6	20	112	
		*967	259°2					351		13697	*410	282°5	150°9	+11°7	19	84	
		*920	250°7					129		13698	*422	227°7	145°3	-9°6	29	87	
	1163f	*456	279°5	206°8	+10°7	1	5			13699	*396	167°3	121°7	-15°5	35	168	
	13692	*365	232°4	196°5	-5°9	129	784				*974	74°1					247
	13694	*158	337°4	183°3	+15°5	22	69		Sept. 6		(+22°4)		(126°9) (+7°2)		(248)	(1046)	(1693)
	13696	*482	68°2	152°0	+16°7	22	133			250°346 G	*974	262°5					443
	13697	*489	79°2	150°5	+11°5	40	167				*932	283°9					370
	13698	*636	113°0	143°5	-8°6	9	50			13700	*967	255°9	186°8	-11°6	17	44	328 f
	13699	*889	111°4	120°8	-15°2	12	85	381 c		13696	*635	287°5	152°8	+16°6	18	93	
		*891	95°2					322		13697	*602	279°2	150°9	+11°2	10	43	
		*928	104°4					271		13698	*593	244°0	146°3	-8°9	20	79	
Sept. 2		*950	81°2					251		13699	*408	198°8	121°6	-15°5	36	218	
		*952	111°4					109		1163i	*192	94°6	102°8	+6°2	1	5	
		(+21°5)		(179°7) (+7°2)		(235)	(1293)	(2080)		1163j	*331	91°3	94°4	+6°4	3	6	
	246°341 G	*943	260°0	235°8	-6°9	10	37	302 c		1163k	*624	106°3	77°0	-4°3	1	4	
	1163h	*807	277°5	220°9	+10°3	4	12	150 p		13701	*846	77°0	55°5	+14°8	7	15	85 c
	13692	*559	248°0	198°0	-5°9	172	840			1163l	*918	75°6	46°4	+16°0	11	29	208 c
	13694	*310	299°0	183°0	+15°5	18	32			1163m	*966	74°0	37°6	+17°3	4	17	206 c
	13696	*296	55°5	152°0	+16°6	27	138				*907	112°1					160
	13697	*304	73°2	149°5	+11°9	41	177				*972	106°0					309
	13698	*481	123°6	142°9	-8°8	27	110		Sept. 7		(+22°6)		(113°8) (+7°2)		(128)	(553)	(2107)
	13699	*760	117°6	122°6	-15°4	49	156			251°413 C	*982	258°6					181
		*842	81°4					209		13696	*800	285°5	153°1	+16°7	18	78	175 c
		*846	109°1					422		13697	*771	278°5	150°5	+11°1	3	10	197 c
		*865	95°5					269		13698	*745	249°1	144°5	-10°3	21	109	
Sept. 3		*907	118°6					120		13699	*525	223°2	121°5	-15°7	26	200	
		*940	85°3					477		13701	*738	76°1	52°0	+15°1	12	48	256 c
		(+21°7)		(166°7) (+7°2)		(346)	(1502)	(1949)			*907	110°3					400
	247°373 G	*928	277°5					386			*940	71°7					254
		*797	277°5					223			*950	81°8					215
	13692	*732	255°0	198°1	-5°8	134	644		Sept. 8		(+22°9)		(99°7) (+7°2)		(80)	(445)	(1678)
	13694	*453	289°0	179°2	+15°0	5	8			252°396 G	*965	282°2					363
	13696	*163	4°3	152°3	+16°6	28	112			13696	*914	285°2	153°5	+16°7	13	63	640 f
	13697	*083	22°9	151°1	+11°6	30	112			13698	*862	252°2	143°3	-11°4	22	109	574 c
	13698	*327	148°5	143°1	-9°0	42	128			13699	*667	235°8	121°6	-16°1	41	223	
	13699	*629	126°0	121°2	-15°5	39	192			13701	*586	73°4	51°2	+15°5	12	48	
Sept. 4		*867	84°0					568		13702	*814	114°2	36°7	-14°9	6	20	
		(+22°0)		(153°0) (+7°2)		(278)	(1196)	(1177)			*798	73°7					264
	248°346 G	*973	279°9					194			*934	72°2					313
		*919	277°4					200	Sept. 9		(+23°1)		(86°7) (+7°2)		(94)	(463)	(2154)
		*874	288°0					301		253°408 C	*917	288°5					326
		*811	301°1					155			*827	296°3					106
	13692	*880	260°1	200°5	-5°2	113	566	452 c			*731	262°7					136
	13700	*705	247°0	181°3	-10°5	5	19			13696	*980	285°5	153°2	+16°6	10	32	320 s
	13696	*264	310°0	152°3	+16°8	26	127			13698	*956	256°2	144°1	-10°8	13	56	652 c
	13697	*200	294°2	150°9	+11°8	22	104			13699	*803	243°7	121°6	-16°1	20	160	543 c
	13698	*287	191°5	143°5	-9°1	36	109			13701	*384	65°9	52°0	+15°7	12	71	
Sept. 5		*491	141°2	121°6	-15°6	38	272			13703	*970	85°4	357°1	+6°2	18	115	300 c
		(+22°2)		(140°2) (+7°2)		(240)	(1197)	(1302)			*898	114°5					160
	249°353 G	*937	289°7					384			*939	78°9					236
	13692	*970	263°2	201°8	-4°8	115	481	906 f	Sept. 10		(+23°3)		(73°3) (+7°2)		(73)	(434)	(2779)
	13700	*852	252°5	182°5	-10°8	30	114	156 c									

Group 13700. Sept. 5 - 7. A few small spots.

Group 13701. Sept. 7 - 17. A changing stream of small spots.

Group 13702. Sept. 9 - 11. A pair of tiny spots not seen on Sept. 10.

Group 13703. Sept. 10 - 18. Return of Group 13683. A double spot dying out rapidly. Six days after its disappearance, a minute ephemeral spot appears near its place.

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
1940			°	°	°				1940			°	°	°			
254°353 G		*971	257°6					162	Sept. 15		*945	78°7					131
		*956	285°1					380				(+24°2)	(7°3) (+ 7°2)	(42)	(222)	(888)	
		*938	295°3					162									
		*869	261°0					249									
	13699	*899	248°2	121°0	-16°0	18	67	725 c	259°357 C		*944	258°6					180
	13701	*208	44°0	52°3	+15°7	47	158				*842	246°3					311
	13702	*498	131°0	38°4	-12°4	3	5			13701	*888	282°6	58°1	+14°5	21	113	229 c
	13703	*882	86°4	357°5	+ 6°4	22	89	417 f		1164a	*563	248°5	26°4	- 5°7	5	21	
		*828	79°8					179		13707	*503	313°2	18°9	+26°6	26	103	
		*929	114°0					182		13705	*171	27°6	350°1	+15°9	19	84	
		*948	76°9					281		13708	*995	98°8	272°0	- 7°9	19	105	151 c
Sept. 11			(+23°5)	(60°9) (+ 7°2)		(90)	(319)	(2737)			*808	108°3					110
											*922	94°8					251
											*969	83°6					283
255°411 G		*941	265°6					495	Sept. 16			(+24°4)	(354°8) (+ 7°2)	(90)	(426)	(1515)	
		*889	279°0					122									
	13699	*975	251°9	121°1	-15°8	20	104	662 c	260°374 G		*891	248°7					294
	13701	*179	327°8	52°6	+15°8	25	92			13701	*944	284°5	53°1	+16°0	3	14	261 s
	1163n	*321	184°5	48°4	-11°4	1	5			13707	*637	306°0	16°9	+27°8	7	48	
	13703	*759	87°8	357°4	+ 6°4	14	43	190 f		13705	*191	323°0	348°2	+15°9	17	99	
		*866	75°5					268		13706	*598	118°8	309°3	-10°6	32	105	
		*936	88°3					174		13708	*946	100°8	272°0	- 7°8	14	143 }	311 c
		*959	99°3					197		13709	*974	101°0	266°2	- 8°9	20	74 }	
Sept. 12			(+23°7)	(46°9) (+ 7°2)		(60)	(244)	(2108)			*893	115°0					248
								2117			*918	84°7					562
256°503 G		*952	281°5					90	Sept. 17			(+24°5)	(341°4) (+ 7°2)	(93)	(463)	(1676)	
		*892	274°0					199									
	13701	*395	291°0	54°8	+14°8	24	128		261°350 G		*957	253°6					382
	13704	*535	74°8	0°5	+14°2	3	8				*952	246°0					145
	13705	*690	74°2	349°0	+16°1	5	17				*919	266°0					354
		*863	110°5					133			*865	260°3					156
		*875	100°9					140		13707	*769	302°1	16°4	+28°9	3	16	88 c
		*979	106°4					271		13703	*499	267°1	358°4	+ 4°7	1	4	
Sept. 13			(+23°9)	(32°5) (+ 7°2)		(32)	(153)	(833)		13705	*397	283°1	350°7	+15°5	73	327	
257°460 G		*954	276°9					371		13706	*426	133°8	310°4	-10°3	78	341	
		*945	250°0					154		13708	*849	103°5	272°4	- 7°5	25	115	308 c
		*940	291°7					393		13709	*906	103°2	265°5	- 8°7	26	106	694 c
	13701	*586	285°5	55°4	+14°9	42	177				*859	84°8					241
	13704	*353	67°0	0°3	+14°7	5	18				*944	76°5					202
	13705	*483	70°0	351°8	+15°8	4	10		Sept. 18		*977	97°5					207
	13706	*969	103°4	306°2	-11°0	4	14	126 f				(+24°7)	(328°5) (+ 7°1)	(206)	(909)	(2777)	
		*888	108°2					366									
Sept. 14			(+24°0)	(19°8) (+ 7°2)		(55)	(219)	(1410)	262°405 G		*971	289°4					139
258°408 C		*743	283°5	55°5	+14°8	20	104	108 c			*945	281°3					103
	13707	*378	331°0	19°0	+26°3	7	45				*861	297°9					88
	13705	*323	81°8	350°2	+15°7	15	73			13705	*588	286°1	350°3	+15°1	120	615	
		*816	77°8					103		13706	*293	166°3	310°6	- 9°4	137	618	
		*861	115°5					353		13708	*709	108°7	272°1	- 7°9	23	118	
		*919	105°4					193		13709	*789	106°7	265°0	- 8°5	18	75	158 c
									Sept. 19	13710	*961	100°0	242°2	- 7°5	60	307	514 c
												(+24°8)	(314°6) (+ 7°1)	(358)	(1733)	(1002)	

Group 13704. Sept. 13 - 14. One tiny spot on Sept.13: others in a diminutive stream on Sept.14.

Group 13705. Sept. 13 - 22. At first, small spots in a stream. On Sept.18, there is a sudden increase of activity, and the group rapidly develops. The follower becomes a short-lived regular spot; the leading part of the stream is an unstable cluster.

Group 13706. Sept. 14 - 25. A small spot on Sept.14: after a gap of two days, a tiny cluster appears which develops into a major stream of normal type with a large stable leader spot.

Group 13707. Sept. 15 - 18. A short stream of small spots.

Group 13708. Sept. 16 - 28. Return of Group 13688: 3rd appearance. A regular spot, stable in area and position.

Group 13709. Sept. 17 - 22. A small decreasing regular spot, with a companion till Sept.20, perhaps related to Group 13708.

Group 13710. Sept. 19 - 28. A stream already in rapid decline as it comes round the east limb.

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
1940			°	°	°				1940			°	°	°			
263° 357 G		* 955	296° 0					412			* 862	70° 3					150
		* 889	280° 0					413			* 927	56° 0					133
		* 849	300° 3					212	Sept. 24			(+25° 5)	(246° 2) (+ 7° 0)	(288)	(1508)	(1243)	
	13705	* 747	284° 0	350° 5	+15° 1	140	879	351 c									
	13706	* 322	208° 4	310° 9	- 9° 4	204	858										
	13708	* 548	116° 1	272° 4	- 7° 7	20	103		268° 425 G	13706	* 989	259° 2	315° 0	- 9° 6	133	686	955 sf
	13709	* 645	112° 5	265° 1	- 8° 6	16	53			13712	* 910	292° 7	301° 1	+23° 5	24	80	117 c
	13710	* 874	102° 8	242° 9	- 7° 6	59	223	891 c		13708	* 646	249° 1	272° 5	- 7° 8	28	101	
		* 949	79° 1					918		13710	* 326	209° 3	244° 4	- 9° 6	1	8	
Sept. 20			(+25° 0)	(302° 0) (+ 7° 1)		(439)	(2116)	(3197)		13711	* 506	108° 6	206° 5	- 3° 2	103	465	
											* 948	65° 6					174
264° 346 C		* 941	238° 7					317			* 969	76° 5					494
		* 912	274° 5					407	Sept. 25			(+25° 6)	(235° 1) (+ 6° 9)	(289)	(1340)	(1974)	
	13705	* 877	283° 5	350° 8	+15° 2	104	739	447 c									
	13706	* 467	232° 9	311° 0	- 9° 7	169	874										
	1164b	* 201	278° 9	300° 4	+ 8° 7	7	28		269° 521 G		* 971	293° 2					252
	13708	* 378	131° 9	272° 5	- 7° 8	23	98			13708	* 810	255° 2	272° 6	- 7° 7	25	122	
	13709	* 454	125° 1	266° 9	- 8° 5	5	17			13710	* 414	239° 0	241° 4	- 5° 9	4	9	
	13710	* 747	106° 7	242° 9	- 7° 5	21	157	163 c		13711	* 301	125° 9	206° 5	- 3° 4	79	465	
	13711	* 990	94° 4	207° 8	- 3° 3	31	178				* 907	102° 8					476
		* 875	79° 7					363			* 915	76° 2					689
Sept. 21		* 974	83° 5	(+25° 1)	(288° 9) (+ 7° 1)	(360)	(2091)	(1955)	Sept. 26			(+25° 7)	(220° 6) (+ 6° 9)	(108)	(596)	(1417)	
265° 360 C		* 938	275° 7					186	270° 343 G		* 968	262° 9					263
		* 904	255° 6					314			* 919	275° 2					367
	13705	* 973	282° 8	353° 9	+14° 1	52	431	515 c			* 783	272° 3					269
	13706	* 648	245° 4	312° 2	-10° 0	152	1052			13708	* 899	257° 9	272° 1	- 7° 8	20	88	475 c
	13708	* 263	168° 1	272° 5	- 7° 8	16	98			13713	* 343	224° 7	223° 8	- 7° 5	2	7	
	13709	* 291	148° 8	266° 9	- 7° 4	2	18			13711	* 190	162° 8	206° 6	- 3° 4	88	413	
	13710	* 585	112° 1	242° 6	- 6° 8	16	67			1164c	* 510	119° 0	183° 1	- 8° 2	2	6	
	13711	* 937	96° 6	207° 0	- 3° 7	79	465	296 c		13714	* 834	105° 1	155° 5	- 8° 6	4	14	250 c
		* 772	80° 2					296			* 833	79° 0					302
		* 925	87° 5					113			* 911	72° 5					269
		* 928	105° 5					148			* 838	102° 6					192
		* 933	79° 4					163	Sept. 27		* 966	66° 6	(+25° 8)	(209° 8) (+ 6° 8)	(116)	(528)	(2535)
Sept. 22		* 957	70° 0	(+25° 2)	(275° 6) (+ 7° 0)	(317)	(2131)	(2186)									148
266° 350 G		* 977	284° 3					414	271° 351 G		* 918	277° 2					280
		* 966	258° 5					213			* 806	253° 9					244
	13706	* 797	251° 2	312° 4	-10° 4	165	990	310 p		13708	* 973	260° 6	271° 7	- 7° 5	23	85	465 f
	13712	* 646	298° 1	300° 7	+23° 2	6	12			13713	* 537	244° 5	225° 6	- 7° 4	11	33	
	13708	* 306	213° 7	272° 3	- 7° 8	13	94			13711	* 252	224° 6	206° 7	- 3° 6	78	433	
	13710	* 413	127° 4	243° 2	- 7° 9	10	29			13714	* 663	110° 2	157° 7	- 7° 9	1	6	
	13711	* 840	98° 7	206° 4	- 3° 4	83	429	624 f			* 874	106° 4					228
		* 877	69° 5					232	Sept. 28		* 946	93° 1	(+25° 9)	(196° 5) (+ 6° 8)	(113)	(557)	(1439)
		* 954	70° 3	(+25° 4)	(282° 5) (+ 7° 0)	(287)	(1554)	(1977)									
Sept. 23									272° 223 K		* 975	261° 1					206
											* 966	280° 7					177
											* 893	257° 5					205
	13706	* 939	256° 9	314° 1	- 9° 7	151	838	632 c		13713	* 691	251° 3	226° 1	- 7° 7	12	63	
	13712	* 821	283° 9	300° 9	+23° 5	22	91	114 c		13711	* 417	244° 7	207° 1	- 3° 9	85	408	
	13708	* 504	241° 3	272° 6	- 7° 7	21	100			13715	* 988	84° 9	103° 5	+ 6° 1	0	44	154 c
	13710	* 286	172° 3	244° 0	- 9° 4	2	11				* 887	115° 7					56
	13711	* 658	103° 5	206° 5	- 3° 4	92	468	214 f	Sept. 29		* 946	106° 7	(+25° 9)	(185° 0) (+ 6° 8)	(97)	(515)	(986)

Group 13711. Sept. 21-Oct. 3. Return of Group 13692. A large stable regular spot.
 Group 13712. Sept. 23 - 25. A single spot on Sept. 23; a pair on Sept. 24 and 25.
 Group 13713. Sept. 27-Oct. 2. A short stream growing to its maximum near the west limb.
 Group 13714. Sept. 27 - 28. A pair of very small spots on Sept. 27; a dot on Sept. 28.
 Group 13715. Sept. 29-Oct. 8. A cluster of small spots developing into a variable stream and then rapidly dying 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.	Umbræ	Whole Spots	Faculae			Dist.	Pos. Angle	Long.	Lat.	Umbræ	Whole Spots	Faculae
1940			°	°	°				1940			°	°	°			
273°486 G		*961	262°2					674			*947	96°8					206
		*844	278°9					208	Oct. 5		(+26°3)		(103°9) (+ 6°5)	(52)	(282)	(892)	
		*819	289°1					97									
	13713	*874	257°1	227°6	- 7°9	65	281	188 c			*949	256°3					236
	13711	*848	256°1	207°2	- 3°7	79	377		279°393 C		*920	286°2					244
	13715	*905	86°4	103°3	+ 6°1	8	44	575 f			*815	283°3					101
Sept. 30		*951	70°3					162			*787	249°9					174
			(+26°0)	(168°3) (+ 6°7)		(152)	(702)	(1904)			13715	*213	263°6	102°6 + 4°9	28	219	
274°422 G		*960	281°1					510			13716	*147	312°6	96°7 +12°0	3	27	
	13713	*963	259°9	228°9	- 7°8	53	285	290 c			13717	*438	74°1	64°9 +12°7	1	5	
	1164d	*852	282°3	209°0	+13°9	8	28	153 c			13719	*849	79°0	32°0 +12°7	2	16	158 c
	13711	*797	259°7	207°6	- 4°0	61	358	294 p			*918	65°9					215
Oct. 1	13715	*805	88°8	102°5	+ 5°0	21	70	123 c	Oct. 6		*945	78°6					146
			(+26°1)	(156°0) (+ 6°7)		(143)	(741)	(1370)				(+26°3)	(90°4) (+ 6°4)	(34)	(267)	(1274)	
275°421 G		*949	279°8					490	280°349 G		*970	283°8					406
		*869	286°9					334			*889	286°3					313
	13713	*992	261°0	224°2	- 8°0	15	61	236 c			13715	*433	267°3	103°4 + 4°5	15	92	
	13711	*912	262°6	207°6	- 3°9	51	281	597 c			13716	*334	290°0	96°5 +12°5	7	24	
	13715	*849	89°9	102°3	+ 5°1	22	77				13717	*218	62°8	66°4 +11°9	6	33	
Oct. 2		*965	77°8					461			13718	*493	67°0	49°6 +16°7	6	19	
			(+26°2)	(142°8) (+ 6°6)		(88)	(419)	(2118)			13720	*923	109°7	13°7 -15°4	44	184	448 c
276°341 C		*928	258°8					344			13721	*966	75°9	1°8 +15°2	152	1081	854 c
		*926	282°8					227	Oct. 7		*832	75°8					241
		*923	268°8					190			*916	59°5					192
		*918	248°5					242			*944	86°7					250
	13711	*978	264°6	207°9	- 3°8	61	350	249 c				(+26°4)	(77°8) (+ 6°3)	(230)	(1433)	(2704)	
	13715	*475	91°9	102°4	+ 4°9	18	75		281°377 G		*988	285°7					239
Oct. 3		*913	77°6					431			*955	256°1					148
			(+26°2)	(130°7) (+ 6°6)		(79)	(425)	(1683)			13715	*614	270°0	102°1 + 5°0	3	7	
277°341 G		*968	259°3					296			13716	*510	285°9	94°4 -13°5	42	160	
		*896	284°6					150			13717	*121	328°1	67°9 +12°2	1	6	
	1164e	*359	182°1	118°3	-14°4	2	9				13720	*819	113°9	13°4 -15°4	53	202	300 c
	13715	*258	94°0	102°6	+ 5°2	23	203				13721	*874	75°9	2°9 +15°4	143	1151	641 c
	13716	*411	72°7	93°9	+12°9	7	26				*951	66°5					142
	13717	*778	79°0	66°2	+12°6	6	20	150 c	Oct. 8		*965	73°1					250
	13718	*906	77°6	52°0	+13°9	2	13	177 c			*965	79°3					187
Oct. 4		*959	106°3					252				(+26°4)	(64°2) (+ 6°3)	(242)	(1528)	(1887)	
			(+26°3)	(117°5) (+ 6°5)		(40)	(271)	(1025)	282°391 G		*955	267°8					203
278°366 G		*841	254°8					267			*927	251°5					381
	13715	*028	142°6	102°9	+ 5°2	42	248				*823	272°5					136
	13716	*176	51°2	95°9	+12°7	2	7				13716	*687	283°3	94°1 +13°7	45	251	
	13717	*601	78°4	67°0	+12°2	2	10				13720	*677	121°4	14°1 -15°6	68	299	
	13719	*946	78°1	32°1	+13°4	6	17	157 f			13721	*742	75°0	3°0 +15°3	192	1083	
		*887	110°2					262	Oct. 9		*903	81°0					383
											*905	71°1					464
												(+26°4)	(50°8) (+ 6°2)	(305)	(1643)	(1587)	

Group 13716. Oct. 4 - 12. One or two small spots until Oct.7; on Oct.8 a stream appears in which the follower spot is the most stable.

Group 13717. Oct. 4 - 13. Intermittent. One or two ephemeral spots not seen on Oct.9-12.

Group 13718. Oct. 4 - 7. Intermittent. A small spot on Oct.4; a pair on Oct.7.

Group 13719. Oct. 5 - 6. A small spot.

Group 13720. Oct. 7 - 18. A regular spot followed by one or two variable companions.

Group 13721. Oct. 7 - 18. Revival of Group 13704. A large complex spot which undergoes considerable change as it crosses the disk. It is preceded by a small regular spot. The group is rapidly dying out as it passes round the west limb.

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
1940			°	°	°				1940			°	°	°			
283°394 G		*961	281°1					196	289°305 C	13720	*905	283°9					348
		*913	271°5					269		13721	*866	247°2	15°7	-16°4	40	197	424 c
		*847	279°5					269		13722	*700	286°3	3°6	+15°4	55	274	
	13716	*836	282°3	94°6	+13°6	42	200			13722	*255	172°6	317°7	-8°9	94	447	
	13720	*514	135°0	15°5	-15°6	44	270			13723	*471	114°7	294°2	-6°1	15	76	
	13721	*584	71°4	2°7	+15°7	171	886			13724	*941	109°9	252°4	-16°5	52	330	234 c
	13722	*988	99°6	317°8	-8°3	113	671	303 c			*797	105°9					154
		*835	70°6					180			*932	100°1					199
Oct. 10			(+26°4)	(37°6)	(+6°1)	(370)	(2027)	(1217)	Oct. 16		*953	71°1					181
												(+26°3)	(319°6)	(+5°7)	(256)	(1324)	(1540)
284°486 G	13716	*946	282°2	94°9	+13°5	47	230	423 c	290°404 G	13720	*959	250°5	15°7	-16°9	30	229	332 c
	13720	*389	161°6	15°9	-15°5	44	192			13721	*857	284°3	4°2	+15°1	33	144	712 c
	13721	*382	63°6	2°5	+15°4	144	908			13722	*333	219°6	317°5	-9°3	113	517	
	13722	*923	101°8	317°5	-8°4	123	636	419 f		13723	*287	138°9	294°2	-6°9	18	89	
		*883	112°2					212		13724	*835	114°1	252°6	-16°5	95	474	260 c
Oct. 11			(+26°4)	(23°2)	(+6°1)	(358)	(1966)	(1054)			*885	99°4					260
											*921	77°3					337
285°363 G	13716	*837	279°8					242	Oct. 17		*972	98°8					278
	13720	*987	282°4	93°2	+13°2	39	176	224 f				(+26°2)	(305°1)	(+5°6)	(289)	(1453)	(2179)
	13721	*380	187°8	14°7	-16°0	46	244										
	1164f	*130	185°7	12°3	-1°4	1	4		291°297 C	13720	*942	272°6					220
	13721	*237	42°9	2°0	+15°9	207	1018				*825	284°8					311
	13722	*828	104°4	317°7	-8°3	131	617	646 f		13721	*992	253°4	13°9	-15°6	8	65	237 s
	13723	*986	97°3	292°2	-6°1	26	149	174 p		13722	*941	283°9	4°1	+15°0	16	85	542 c
Oct. 12		*953	62°4					91		13723	*476	239°0	317°6	-9°0	101	534	
			(+26°4)	(11°6)	(+6°0)	(450)	(2208)	(1377)		13724	*202	186°2	294°6	-5°9	11	46	
286°384 G	13717	*851	286°5					105		13725	*718	119°9	252°9	-16°7	56	418	193 c
	13720	*930	282°0	67°0	+13°3	9	30	215 s			*990	96°4	212°3	-5°5	28	173	227 c
	13721	*470	218°8	15°8	-15°8	42	194				*778	100°2					182
	13722	*177	337°6	2°1	+15°2	169	907				*833	77°6					125
	13723	*686	109°4	317°4	-8°7	106	507				*906	121°0					150
		*918	99°1	292°7	-5°9	22	178	300 f			*955	85°6					178
Oct. 13		*887	63°7					142	Oct. 18			(+26°2)	(283°3)	(+5°6)	(220)	(1321)	(2365)
			(+26°4)	(358°1)	(+5°9)	(348)	(1816)	(762)									
287°638 G		*945	284°8					168	292°296 C		*932	254°1					209
		*900	249°6					253			*922	284°9					1027
		*839	286°3					101		13722	*648	248°9	317°8	-9°1	95	583	
	13720	*648	237°3	16°0	-15°7	44	188	140 f		13723	*328	232°1	295°2	-6°3	7	34	
	13721	*396	297°7	2°9	+16°0	102	612			13724	*581	130°7	252°8	-17°3	84	525	
	13722	*473	121°2	317°5	-8°9	101	502			13725	*932	98°5	212°5	-5°9	57	296	322 c
	13723	*766	103°1	293°2	-6°1	28	176				*916	87°2					184
		*956	101°0					223	Oct. 19			(+26°1)	(280°2)	(+5°5)	(243)	(1438)	(1742)
Oct. 14		*964	81°7					307									
			(+26°3)	(341°6)	(+5°8)	(275)	(1478)	(1192)									
288°591 G		*967	252°2					471	293°378 G		*952	289°6					214
	13720	*785	244°6	16°3	-15°7	31	186	266 c			*944	252°1					165
	13721	*572	289°8	2°9	+16°0	78	429			13722	*808	254°1	317°7	-9°4	132	549	186 c
	13722	*324	141°5	317°3	-8°9	127	508			13723	*526	249°2	295°4	-6°0	11	18	
	13723	*611	108°3	293°4	-6°3	32	142			1165a	*278	229°0	278°0	-5°2	5	18	
	13724	*982	108°6	252°6	-16°9	57	229	313 c		13724	*428	154°2	254°7	-17°3	82	457	
		*890	103°3					363		13725	*817	101°2	212°4	-5°9	70	256	299 c
Oct. 15			(+26°3)	(329°0)	(+5°8)	(325)	(1494)	(1413)	Oct. 20		*901	105°5					152
												(+26°0)	(265°9)	(+5°4)	(300)	(1298)	(1016)

Group 13722. Oct. 10 - 22. Return of Group 13706. A large regular spot that is very stable in position. From Oct. 18, however, the spot becomes elongated, and by Oct. 21 has completely divided into two spots.

Group 13723. Oct. 12 - 21. A diminishing regular spot with a small companion on Oct. 17.

Group 13724. Oct. 15 - 27. A stream of normal type; the leader spot alone remains after Oct. 24.

Group 13725. Oct. 18 - 30. Return or revival of Group 13711. 3rd appearance. A stream of normal type in which at first both leader and follower are regular spots. On Oct. 24, the leader begins to break up into a cluster 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.	Umbræ	Whole Spots	Faculae			Dist.	Pos. Angle	Long.	Lat.	Umbræ	Whole Spots	Faculae
1940			°	°	°				1940			°	°	°			
294°302		*910	242°4					217	298°413		*929	255°6					177
C	13722	*912	257°3	317°8	-9°3	70	549	525 c	G	13724	*866	245°6	255°4	-18°2	78	368	274 f
	13728	*904	252°4	315°9	-13°4	5	20			13725	*303	231°3	213°2	-6°1	45	245	
	13723	*684	255°7	295°3	-5°7	3	9			13730	*305	204°9	207°0	-11°1	8	29	
	13724	*388	183°1	255°0	-17°4	55	409			13729	*352	111°0	180°4	-2°6	7	29	
	13725	*673	105°7	213°2	-6°4	72	331				*942	81°5					162
		*847	107°4					124	Oct.25		(+25°5)	(199°5)	(+4°9)	(136)	(671)	(613)	
		*934	99°9					171									
Oct.21		(+25°9)		(253°7)	(+5°3)	(205)	(1318)	(1037)									
									299°442		*893	259°1					363
									G	13724	*954	249°1	255°5	-18°3	43	376	554 f
295°475		*878	258°2					184		13725	*505	248°1	213°9	-6°6	46	249	
G	13722	*990	259°4	318°8	-9°7	70	513	234 c		13730	*449	231°4	206°8	-11°7	11	42	
	13726	*983	255°2	315°8	-13°5	21	68			13729	*147	148°6	181°5	-2°3	12	41	
	1165b	*369	268°5	259°8	+4°2	1	4		Oct.26		(+25°4)	(185°9)	(+4°8)	(112)	(708)	(1078)	
	13724	*477	215°8	255°2	-17°7	65	444										
	13725	*460	114°4	213°4	-6°1	55	343										
	13727	*848	104°5	182°1	-9°4	8	14	117 c	300°396		*964	260°9					205
	13728	*934	104°0	171°0	-11°1	6	12	271 f	C		*879	262°1					288
		*969	97°2					109		13724	*994	251°0	254°8	-18°2	40	189	432 f
Oct.22		*975	73°0					243		13725	*670	254°3	213°6	-6°7	40	217	
		(+25°8)		(238°2)	(+5°2)	(226)	(1398)	(1158)		13730	*616	244°7	207°8	-11°2	18	86	
										13729	*173	222°5	180°0	-2°5	30	122	
											*850	111°0					117
296°298		*953	260°8					554			*908	85°6					163
C		*896	269°6					114	Oct.27		(+25°3)	(173°3)	(+4°8)	(126)	(614)	(1546)	
		*875	260°2					136									
		*833	278°2					158									
		*791	258°2					173	301°553	13725	*820	258°8	211°9	-6°4	33	168	124 c
	13724	*587	229°2	255°1	-18°0	71	484		G	13730	*809	252°7	209°8	-11°0	36	150	90 c
	13725	*313	128°3	213°2	-6°2	42	284			13729	*401	251°6	180°4	-2°9	60	203	
	13727	*727	108°0	183°1	-9°3	3	11	39 c		13731	*849	76°3	100°1	+14°1	10	66	207 c
	13728	*847	106°3	171°7	-10°8	0	12	273 f	Oct.28		(+25°1)	(158°1)	(+4°7)	(139)	(587)	(421)	
		*781	98°1					68									
		*921	97°8					237									
Oct.23		*934	71°0					323	302°385	13725	*913	260°8	211°9	-6°4	26	100	266 c
		(+25°8)		(227°4)	(+5°1)	(116)	(791)	(2075)	G	13730	*898	255°1	209°1	-11°2	23	78	209 c
										13729	*582	258°6	181°8	-2°8	46	199	
										1165c	*377	12°5	141°9	+26°0	1	6	
										13731	*732	75°5	100°5	+13°7	12	42	206 f
297°333		*971	262°9					182			*951	79°4					262
C		*947	274°5					203	Oct.29		(+25°0)	(147°1)	(+4°6)	(108)	(425)	(1229)	
		*907	261°8					105									
		*825	254°9					187									
		*818	274°5					229	303°449	13725	*977	262°3	209°9	-6°5	18	108	231 c
	13724	*725	239°1	254°4	-18°1	57	375		C	13730	*966	256°5	206°5	-11°8	15	57	424 c
	13725	*197	179°0	213°5	-6°3	38	272			13729	*761	262°5	182°0	-2°7	18	102	
	13729	*580	101°2	179°1	-2°3	6	32			13731	*549	71°9	100°8	+13°6	7	77	
		*790	102°3					159		13732	*661	100°2	74°8	-6°4	6	30	251 c
		*818	71°6					161		13733	*951	76°7	60°8	+14°1	27	135	346 c
		*947	73°7					256			*847	76°8					217
Oct.24		*952	101°9					179	Oct.30		(+24°9)	(133°1)	(+4°5)	(91)	(509)	(1469)	
		(+25°7)		(213°7)	(+5°0)	(101)	(679)	(1661)									

Group 13726. Oct. 21 - 22. A small spot s Group 13722.

Group 13727. Oct. 22 - 31. Intermittent. A small spot on Oct.22 and 23: a small cluster on Oct.31.

Group 13728. Oct. 22 - 23. A small spot.

Group 13729. Oct.24-Nov.1. A small stream showing rapid decay after its maximum around Oct.28-29.

Group 13730. Oct. 25 - 30. A small cluster or stream s Group 13725.

Group 13731. Oct.28-Nov.1. A pair of small spots.

Group 13732. Oct.30-Nov.6. A few unstable spots.

Group 13733. Oct.30-Nov.9. A variable stream: the leader, a regular spot, is the most stable component.

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
			°	°	°							°	°	°			
1940									1940								
304.443	13729	.903	265.1	184.0	- 2.5	9	54	164 c	309.401	13734	.977	278.9	132.5	+ 9.5	9	25	241 c
C	13727	.879	257.6	180.0	- 8.7	8	49	87 c	G	13735	.554	279.2	88.0	+ 8.2	5	32	
	13731	.389	63.4	100.2	+13.6	6	36			13738	.475	245.5	80.4	- 7.9	6	27	
	13732	.732	103.3	74.4	- 6.6	0	10	188 c		13732	.305	230.7	68.3	- 7.4	8	39	
	13733	.856	76.7	61.2	+13.7	18	107	185 c		13733	.226	313.1	64.3	+12.6	25	154	
Oct. 31		.960	76.7					317		13736	.689	117.9	15.5	-15.8	3	8	
		(+24.7)		(120.0)	(+ 4.4)	(41)	(256)	(941)		13737	.683	81.0	11.7	+ 8.9	22	107	82 c
											.847	119.9					153
305.376		.961	259.1					292			.899	76.3					199
G		.882	256.7					173			.929	65.7					251
	13729	.973	266.3	183.8	- 2.6	15	47	305 f	Nov. 5		(+23.8)		(54.6)	(+ 3.8)	(78)	(392)	(1069)
	13731	.191	30.2	102.1	+13.8	5	13										
	13732	.646	106.7	69.3	- 7.3	8	33										
	13733	.733	75.3	61.0	+13.7	52	222	117 c	310.276		.951	278.2					322
		.866	75.7					137	C		.857	284.0					533
Nov. 1		.912	112.2					266		13738	.629	252.7	80.3	- 7.8	5	17	
		(+24.5)		(107.7)	(+ 4.3)	(80)	(315)	(1290)		13732	.493	247.1	70.3	- 7.8	2	9	
										13733	.405	292.6	65.5	+12.4	21	112	
306.337		.955	257.9					359		13737	.521	79.2	12.1	+ 8.7	22	156	
C	13732	.537	108.4	64.3	- 6.1	4	22				.795	79.6					208
Nov. 2	13733	.564	72.4	61.6	+13.3	34	198				.838	64.5					241
		(+24.4)		(95.0)	(+ 4.2)	(38)	(220)	(359)	Nov. 6		.859	108.8					216
											.921	73.4					186
											(+23.6)		(43.1)	(+ 3.7)	(50)	(294)	(1686)
307.393		.963	290.0					225									
C		.923	281.8					186	311.433		.945	283.3					364
	1165d	.910	258.2	145.3	- 8.9	7	43	279 c	G	13738	.821	258.1	81.7	- 7.6	8	24	193 c
	13734	.797	278.4	133.9	+ 9.1	12	59	160 c		13733	.631	265.4	66.2	+12.5	18	80	
	13735	.146	311.5	87.4	+ 9.6	1	9			13739	.583	263.0	63.0	- 1.1	13	43	
	13732	.308	127.2	66.9	- 6.7	19	82			13736	.397	150.7	16.2	-16.6	1	4	
	13733	.358	62.7	62.1	+13.3	31	230			13737	.276	70.1	12.6	+ 8.8	19	64	
	13736	.929	111.1	15.7	-17.8	0	8	389 c		13740	.375	77.5	6.2	+ 8.0	4	19	
	13737	.936	82.4	11.6	+ 8.5	0	11	440 n		13741	.960	100.8	315.2	- 9.3	32	84	299 c
Nov. 3		.938	73.2					182	Nov. 7	13742	.960	83.0	314.0	+ 7.8	4	12	219 f
		(+24.2)		(81.1)	(+ 4.1)	(70)	(442)	(1861)			(+23.4)		(27.8)	(+ 3.6)	(99)	(330)	(1075)
308.381		.969	259.1					219	312.422		.935	277.2					213
G		.831	248.1					294	G	13738	.927	259.7	81.7	- 8.2	20	50	242 c
	13734	.904	278.2	132.8	+ 9.1	34	110	314 c		13733	.779	262.3	65.6	+11.7	21	131	95 c
	13735	.321	285.2	86.3	+ 8.6	4	11			13739	.769	264.7	64.6	- 1.8	19	54	77 c
	13732	.192	173.0	66.8	- 6.9	12	57			13737	.098	17.6	13.1	+ 8.9	16	58	
	13733	.166	25.8	63.9	+12.5	30	100			13740	.164	58.9	6.7	+ 8.3	4	20	
	13736	.831	115.4	16.0	-18.4	4	10	725 f		1165e	.431	90.3	349.4	+ 3.0	2	5	
	13737	.838	82.1	11.2	+ 8.8	12	45	517 f		13741	.875	102.9	315.2	- 9.5	19	79	312 c
Nov. 4		.965	73.6					910	Nov. 8	13742	.885	82.9	312.6	+ 7.9	12	24	162 c
		(+24.0)		(68.1)	(+ 4.0)	(96)	(333)	(2979)			.937	99.2					231
											(+23.2)		(14.8)	(+ 3.5)	(113)	(421)	(1332)

Group 13734. Nov. 3 - 5. One or two small spots.

Group 13735. Nov. 3 - 5. One or two small spots.

Group 13736. Nov. 3 - 7. A small spot on each day except Nov. 6.

Group 13737. Nov. 3 - 13. A small stream developing from a single spot on Nov. 3. The f part becomes a cluster and dies out after Nov. 9.

Group 13738. Nov. 5 - 8. One or two small spots.

Group 13739. Nov. 7 - 8. A tiny stream.

Group 13740. Nov. 7 - 8. A tiny cluster f Group 13737.

Group 13741. Nov. 7 - 18. Return of Group 13722. 3rd appearance. A regular spot showing a southward drift in latitude.

Group 13742. Nov. 7 - 15. A variable stream of small 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.	Umbræ	Whole Spots	Faculae			Dist.	Pos. Angle	Long	Lat.	Umbræ	Whole Spots	Faculae
1940			°	°	°				1940			°	°	°			
313° 096 K		*967	261° 2					255	317° 279 C		*955	251° 2					315
		*871	257° 6					154			*870	244° 2					480
	13733	*870	281° 4	66° 2	+11° 5	23	116	394 c		13737	*923	279° 4	18° 0	+ 9° 8	0	8	621 c
	13739	*867	268° 1	85° 6	- 1° 7	6	26	143 c		1166b	*797	292° 4	1° 9	+19° 5	3	17	102 c
	13737	*144	306° 6	12° 6	+ 8° 3	12	83			13743	*226	290° 8	322° 9	+ 7° 5	60	414	
	13743	*722	83° 0	319° 8	+ 7° 4	17	81	169 c		13741	*251	200° 6	315° 8	-10° 5	13	81	
	13742	*812	82° 7	311° 7	+ 7° 9	10	45			13742	*085	338° 0	312° 5	+ 7° 5	6	45	
	13741	*792	105° 3	315° 3	- 9° 9	13	81			13747	*293	146° 4	301° 2	-11° 1	9	44	
	13744	*958	73° 8	292° 6	+16° 4	3	14	184 c		13744	*308	39° 2	299° 0	+16° 7	11	67	
	13745	*982	80° 4	286° 7	+10° 0	21	106	144 c		13745	*413	74° 6	287° 0	+ 9° 0	2	7	
		*910	81° 8					140		13746	*859	111° 4	254° 3	-16° 6	8	57	253 c
		*912	100° 5					332		13748	*983	101° 8	232° 3	-11° 0	11	90	151 c
Nov. 9			(+23° 0)	(5° 9)	(+ 3° 4)	(105)	(552)	(1915)	Nov. 13		*836	99° 1	(+22° 0)	(310° 7)	(+ 3° 0)	(123)	(830) (2079)
314° 385 G		*964	282° 3					283	318° 391 G		*958	279° 0					339
		*873	287° 3					246			*949	248° 9					240
	13737	*482	283° 0	17° 2	+ 9° 1	4	16				*926	288° 8					200
	13743	*455	79° 1	322° 2	+ 7° 9	73	345				*847	282° 3					132
	13741	*595	112° 4	315° 0	-10° 4	24	84				*817	248° 1					85
	13742	*611	81° 0	311° 5	+ 8° 1	15	66				*810	292° 7					261
	13745	*882	80° 8	287° 1	+ 9° 6	16	78	250 f		13743	*481	279° 6	324° 5	+ 7° 1	47	250	
	1166a	*957	98° 8	276° 7	- 7° 4	3	12	226 f		13741	*411	235° 5	316° 2	-10° 8	13	68	
		*854	100° 0					124		13742	*311	285° 3	313° 6	+ 7° 4	8	35	
Nov. 10			(+22° 7)	(348° 9)	(+ 3° 3)	(135)	(601)	(1129)		13747	*270	211° 7	304° 4	-10° 4	4	9	
315° 283 C		*944	289° 1					248		13744	*256	345° 1	300° 0	+17° 0	57	249	
		*923	247° 1					299		13749	*531	120° 8	288° 3	-13° 2	5	25	
	13737	*653	281° 2	17° 4	+ 9° 7	3	11			13746	*714	116° 4	254° 5	-16° 4	11	55	154 f
	13743	*273	72° 9	321° 8	+ 7° 7	88	545		Nov. 14	13748	*907	103° 3	232° 3	-10° 8	18	80	354 f
	13741	*434	122° 1	315° 2	-10° 3	16	93					(+21° 7)	(296° 1)	(+ 2° 8)	(163)	(771) (1765)	
	13742	*413	77° 9	313° 0	+ 7° 9	10	62										
	13745	*770	80° 1	286° 9	+ 9° 7	6	49	114 c	319° 401 G		*960	278° 2					231
		*920	101° 2					731			*943	261° 5					226
Nov. 11			(+22° 5)	(337° 0)	(+ 3° 2)	(123)	(760)	(1392)			*927	285° 9					405
316° 280 C		*963	281° 2					194			*898	250° 7					247
		*762	242° 9					276			*889	296° 8					177
	13737	*811	279° 8	17° 9	+ 9° 7	0	3	85 c		13743	*676	277° 3	325° 1	+ 6° 9	45	241	
	13743	*089	14° 8	322° 6	+ 8° 0	54	422			13741	*592	246° 9	316° 4	-11° 1	12	57	
	13741	*271	148° 3	315° 6	-10° 2	12	68			13742	*506	279° 6	312° 8	+ 7° 2	3	23	
	13742	*212	64° 4	312° 8	+ 8° 3	6	37			13744	*365	309° 7	300° 7	+16° 8	97	421	
	13745	*609	77° 8	286° 9	+ 9° 8	5	26			13749	*358	139° 5	289° 0	-13° 1	103	451	
	13746	*946	108° 4	254° 9	-16° 3	20	96	309 c		13746	*561	125° 1	254° 3	-16° 4	7	29	
		*813	105° 2					404		13748	*785	106° 4	232° 9	-11° 1	19	93	188 f
		*938	98° 0					157		13750	*977	100° 9	206° 1	-10° 0	9	25	111 c
Nov. 12			(+22° 2)	(323° 9)	(+ 3° 1)	(97)	(652)	(1425)	Nov. 15		*937	106° 6					309
											*947	96° 1	(+21° 4)	(282° 8)	(+ 2° 7)	(295)	(1340) (2096)

- Group 13743. Nov. 9 - 18. A stream developing rapidly in front of Group 13742. The leader is a stable regular spot and the follower a cluster.
- Group 13744. Nov. 9 - 19. A single spot on Nov. 9; nothing is then seen until Nov. 13 when a cluster appears some distance in advance of the original position. This cluster rapidly develops into a stream in which the leader and follower are regular spots.
- Group 13745. Nov. 9 - 13. A spot shrinking rapidly from its first appearance at the east limb.
- Group 13746. Nov. 12 - 18. Return of Group 13724. A small spot slowly dying out.
- Group 13747. Nov. 13 - 14. One or two small spots.
- Group 13748. Nov. 13 - 19. A small regular spot.
- Group 13749. Nov. 14 - 21. A stream suddenly developing from a tiny cluster on Nov. 14. The leader becomes a regular spot and alone remains after Nov. 19.
- Group 13750. Nov. 15 - 16. A single small spot representing a return or revival (on the invisible hemisphere) of Group 13730.

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
1940			°	°	°				1940			°	°	°			
320° 633 W		° 972	254° 8					437			° 864	69° 5					162
		° 964	294° 6					453			° 947	81° 4					336
		° 897	299° 2					178	Nov. 20		(+19° 9)		(216° 3) (+ 2° 1)	(62)	(379)	(908)	
		° 711	279° 8					273									
		° 697	256° 8					344									
13743		° 872	276° 3	327° 1	+ 6° 7	27	147	738 <i>f</i>	325° 284 C		° 929	245° 4					141
13741		° 784	253° 4	316° 3	-11° 2	6	32	457 <i>p</i>			° 763	245° 4					234
13744		° 611	294° 0	301° 9	+16° 4	64	312		13749		° 938	253° 4	273° 4	-14° 8	21	191	650 <i>f</i>
13749		° 281	190° 6	269° 5	-13° 4	76	388		13751		° 293	126° 4	191° 5	- 8° 0	2	7	
13746		° 385	147° 4	254° 1	-16° 3	4	15		13752		° 512	113° 1	176° 8	- 9° 8	28	155	
13748		° 588	113° 3	233° 2	-11° 2	12	50				° 754	65° 1					96
13750		° 872	102° 8	207° 1	- 9° 8	0	7	70 <i>c</i>			° 837	86° 4					144
13751		° 967	101° 0	192° 3	- 9° 9	14	52	555 <i>c</i>			° 854	103° 4					169
		° 804	107° 8					390	Nov. 21		° 867	77° 2					294
		° 831	98° 2					278			(+19° 6)		(205° 2) (+ 2° 0)	(51)	(353)	(1728)	
Nov. 16		(+21° 0)		(266° 5) (+ 2° 6)		(203)	(1003)	(4173)									
321° 423 G		° 948	276° 4	327° 5	+ 6° 8	37	229	247 <i>f</i>	326° 496 G		° 977	255° 7					377
		° 876	255° 6	315° 8	-11° 3	9	18	100 <i>f</i>			° 940	265° 9					380
		° 733	290° 4	301° 7	+16° 5	76	389				° 881	250° 2					458
13749		° 371	221° 5	270° 7	-13° 6	89	393				° 841	292° 1					121
13746		° 324	173° 7	254° 0	-16° 2	5	13		13753		° 254	228° 3	200° 3	- 7° 8	2	10	
13748		° 443	122° 1	233° 7	-11° 2	25	95		13751		° 190	193° 0	191° 8	- 8° 7	2	8	
13751		° 909	101° 8	191° 7	- 9° 7	8	37	143 <i>c</i>	13752		° 293	137° 7	177° 8	-10° 6	31	109	
13752		° 982	100° 2	177° 8	- 9° 6	23	85	124 <i>n</i>	Nov. 22		° 955	103° 6					579
Nov. 17		(+20° 8)		(256° 1) (+ 2° 5)		(272)	(1259)	(614)			(+19° 2)		(189° 3) (+ 1° 9)	(35)	(127)	(1915)	
322° 282 C		° 941	248° 3					199	327° 287 C		° 946	252° 2					398
		° 894	274° 4					256			° 886	287° 8					184
		° 891	260° 4					538			° 807	253° 4					265
13743		° 991	277° 0	327° 1	+ 7° 3	14	61	216 <i>c</i>	13751		° 291	231° 2	192° 0	- 8° 7	0	3	
13741		° 951	257° 5	315° 7	-11° 1	3	27	178 <i>c</i>	13752		° 223	175° 0	177° 7	-11° 0	30	122	
13744		° 847	288° 4	301° 6	+16° 7	63	456	353 <i>c</i>	13754		° 970	77° 2	103° 0	+12° 9	8	26	132 <i>c</i>
13749		° 511	237° 5	271° 0	-13° 7	56	359				° 899	105° 4					427
13746		° 351	205° 6	253° 8	-16° 0	3	21		Nov. 23		° 923	67° 4					150
13748		° 303	141° 9	233° 9	-11° 4	7	59				(+19° 0)		(178° 8) (+ 1° 8)	(38)	(151)	(1556)	
13753		° 640	108° 6	207° 0	- 9° 8	1	8										
13751		° 807	103° 8	192° 4	- 9° 6	7	42	123 <i>c</i>	328° 411 G		° 948	257° 0					203
13752		° 925	101° 6	178° 2	- 9° 8	13	92	340 <i>c</i>			° 834	254° 7					196
Nov. 18		° 854	58° 8					219	13751		° 395	249° 0	185° 7	- 6° 6	12	37	
		(+20° 6)		(244° 8) (+ 2° 4)		(167)	(1125)	(2422)	13752		° 319	225° 4	177° 3	-11° 4	25	105	
323° 433 G		° 950	261° 5					207	13754		° 851	76° 4	106° 3	+12° 4	21	66	164 <i>c</i>
13744		° 953	286° 8	301° 6	+16° 7	62	339	362 <i>c</i>			° 804	108° 4					146
13749		° 716	246° 8	272° 3	-14° 7	48	259		Nov. 24		° 844	75° 8					164
1166c		° 403	309° 9	248° 4	+17° 0	5	19				° 965	100° 7					228
13748		° 251	196° 8	233° 8	-11° 7	7	24				(+18° 6)		(164° 0) (+ 1° 6)	(56)	(208)	(1099)	
13751		° 632	107° 9	192° 2	- 9° 4	10	26		329° 284 C		° 886	267° 0					190
13752		° 800	104° 0	177° 8	- 9° 8	30	123	288 <i>c</i>			° 869	253° 7					220
Nov. 19		° 948	70° 3					135	13751		° 589	256° 9	187° 6	- 6° 4	16	111	
		(+20° 2)		(229° 6) (+ 2° 2)		(162)	(790)	(992)	13752		° 456	240° 5	176° 3	-11° 6	18	125	
324° 441 G		° 877	250° 5	275° 3	-15° 9	34	225	410 <i>f</i>	13754		° 731	74° 9	106° 5	+12° 0	21	143	196 <i>c</i>
		° 452	116° 1	192° 1	- 9° 5	2	7		13755		° 985	76° 3	72° 6	+13° 8	48	398	256 <i>c</i>
		° 652	108° 0	177° 4	-10° 0	26	147		Nov. 25		° 839	89° 3					137
											° 917	99° 9					300
											(+18° 3)		(152° 5) (+ 1° 5)	(103)	(777)	(1299)	

Group 13751. Nov. 16 - 27. A small diminishing spot that finally dies on Nov. 23. On the next day, fresh activity is shown a short distance away *nf* by the formation of a small stream.

Group 13752. Nov. 17 - 29. At first, a small regular spot; on Nov. 19 other spots appear *f* making a small variable stream.

Group 13753. Nov. 18 - 22. Intermittent. One very small spot on Nov. 18; a pair on Nov. 22, 7° behind the first spot.

Group 13754. Nov. 23 - 30. A small short-lived stream.

Group 13755. Nov. 25-Dec. 7. A stable regular spot with a few unstable companions.

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
1940		°		°	°				1940		°		°	°			
330° 491		° 959	265° 8					569	336° 281		° 893	260° 5					92
G	13751	° 795	260° 4	188° 5	- 6° 7	18	100	138 c	C		° 834	265° 1					208
	13752	° 669	251° 3	178° 7	-11° 3	46	213				° 822	249° 9					183
	13754	° 510	67° 5	107° 9	+12° 4	26	117			13756	° 991	281° 5	142° 3	+11° 4	38	266	503 c
	1166d	° 553	121° 3	107° 4	-15° 4	1	4			13755	° 305	320° 2	71° 9	+14° 1	37	239	
	13755	° 910	74° 9	71° 8	+14° 3	55	343	703 c			° 814	65° 0					217
Nov. 26			(+17° 9)	(138° 6)	(+ 1° 4)	(146)	(777)	(1410)			° 838	81° 7					149
											° 858	112° 6					295
											° 933	70° 8					474
											° 959	103° 2					285
331° 459	13751	° 930	263° 4	191° 7	- 5° 7	5	32	271 f	Dec. 2			(+15° 7)	(60° 3)	(+ 0° 6)	(75)	(525)	(2406)
G	13752	° 826	254° 7	178° 1	-11° 8	19	172	223 c									
	13756	° 365	304° 7	141° 7	+13° 1	4	33										
	13754	° 318	53° 1	108° 8	+12° 1	11	51										
	13755	° 800	73° 0	71° 9	+14° 2	60	304	365 f	337° 343		° 949	253° 7					290
Nov. 27		° 946	73° 6					216	C		° 907	291° 9					129
			(+17° 5)	(123° 8)	(+ 1° 2)	(99)	(592)	(1075)			° 898	281° 5					304
										13755	° 479	299° 6	71° 7	+14° 1	38	207	
										13758	° 924	87° 9	339° 0	+ 2° 1	22	90	165 c
332° 393		° 971	263° 6					223		13759	° 954	82° 1	334° 1	+ 7° 7	13	66	} 212 c
G	° 901	266° 7						149		13761	° 980	82° 1	328° 1	+ 7° 9	5	37	
	13752	° 930	256° 5	178° 9	-12° 1	33	268	541 f			° 754	76° 3					239
	13756	° 527	294° 6	140° 9	+13° 5	22	84				° 871	104° 5					233
	13757	° 505	288° 2	140° 5	+10° 0	6	47				° 887	66° 0					472
	13754	° 218	32° 9	104° 6	+11° 6	2	9		Dec. 3			(+15° 3)	(46° 3)	(+ 0° 5)	(78)	(400)	(2044)
	13755	° 656	69° 8	72° 3	+13° 9	48	295										
Nov. 28			(+17° 2)	(111° 5)	(+ 1° 1)	(111)	(703)	(913)									
333° 419	13752	° 991	257° 8	179° 7	-11° 9	25	141	637 f	338° 453		° 974	283° 4					165
G	13757	° 713	280° 9	142° 9	+ 8° 4	8	36		G		° 886	287° 3					175
	13756	° 697	287° 0	140° 9	+12° 5	53	197			1166e	° 866	256° 4	90° 7	-11° 5	4	24	207 c
	13754	° 215	328° 7	104° 5	+11° 5	2	11			13755	° 665	291° 0	71° 3	+14° 0	38	197	
	13755	° 481	62° 6	72° 0	+13° 6	67	312			13758	° 786	87° 6	340° 1	+ 2° 1	23	115	93 c
Nov. 29			(+16° 8)	(98° 0)	(+ 1° 0)	(155)	(697)	(637)		13759	° 857	81° 1	333° 2	+ 7° 8	12	69	} 165 c
										13761	° 900	80° 9	328° 0	+ 8° 3	5	19	
										13762	° 922	102° 0	325° 3	-10° 8	19	56	284 c
											° 889	76° 0					82
334° 277		° 937	294° 1					213			° 953	77° 1					142
C	° 920	253° 6						137	Dec. 4			(+14° 8)	(31° 7)	(+ 0° 4)	(101)	(480)	(1313)
	13757	° 839	279° 6	143° 3	+ 8° 6	4	15	} 280 c									
	13756	° 821	283° 9	141° 0	+11° 9	44	341										
	13754	° 363	301° 3	105° 1	+11° 7	0	7										
	13755	° 331	47° 3	72° 3	+13° 8	47	272		339° 428	13755	° 810	287° 8	71° 4	+14° 4	30	190	313 c
		° 917	82° 5					221	G	13758	° 608	88° 0	341° 5	+ 1° 4	37	192	
		° 919	113° 3					476		13759	° 715	79° 7	333° 8	+ 7° 4	18	63	
		° 935	90° 3					131		13762	° 819	103° 3	324° 8	-10° 7	27	125	229 c
		° 943	73° 9					410		13761	° 815	79° 7	324° 8	+ 8° 5	35	168	284 c
Nov. 30			(+16° 5)	(86° 7)	(+ 0° 9)	(95)	(635)	(1888)	Dec. 5	13763	° 962	70° 7	305° 7	+18° 6	27	117	423 f
												(+14° 4)	(18° 8)	(+ 0° 2)	(174)	(855)	(1249)
335° 350	13756	° 935	282° 6	141° 2	+12° 0	68	450	363 c									
C	13755	° 227	3° 7	71° 7	+13° 8	41	216		340° 491	13755	° 925	285° 2	71° 5	+14° 1	22	150	299 f
		° 758	115° 4					96	G	13758	° 399	86° 4	341° 4	+ 1° 5	32	174	
		° 798	73° 8					287		13759	° 532	75° 3	333° 7	+ 7° 8	10	60	
		° 907	69° 6					434		13761	° 646	76° 8	325° 5	+ 8° 5	46	234	
		° 915	113° 4					336		13762	° 660	106° 5	324° 9	-10° 7	64	316	
		° 965	78° 3					355		13763	° 883	68° 3	304° 8	+19° 1	23	108	260 f
Dec. 1			(+16° 0)	(72° 6)	(+ 0° 7)	(109)	(666)	(1871)	Dec. 6			(+14° 0)	(4° 8)	(+ 0° 1)	(197)	(1042)	(559)

Group 13756. Nov. 27-Dec. 2. A stream developing towards the west limb.

Group 13757. Nov. 28 - 30. A tiny stream on Nov. 28: one spot on Nov. 29 and 30.

Group 13758. Dec. 3 - 13. A variable equatorial stream in which the leader is the longest lived spot.

Group 13759. Dec. 3 - 13. Return of Group 13743. A regular spot that is very stable for its small size.

Group 13761. Dec. 3 - 15. A stream, developing f Group 13759, in which the following part disappears after Dec. 10.

Group 13762. Dec. 4 - 14. Two small spots on Dec. 4; the leading one develops into a large regular spot with which the follower merges to form a somewhat composite structure which then dissipates.

Group 13763. Dec. 5 - 14. Return of Group 13744. A regular spot with occasional companions.

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

[illegible]

Group 13764. Dec. 7 - 18. A small regular spot shrinking to a dot by Dec.12. After a lapse of two days, another spot appears 2° nearer the equator as the origin of a small stream.

Group 13735. Dec. 8 - 15. A short-lived stream.

Group 13766. Dec. 8 - 10. A short-lived stream.
Group 13766. Dec. 8 - 20. A spot with double umbra, slowly decreasing and dividing into two spots as the west limb is approached.

Group 13767. Dec. 9 - 16. A variable stream, near the sun's equator, developing from a tiny cluster on Dec.9.

Group 13787. Dec. 9 - 18. A variable stream, near the sun's equator, develop
Group 13788. Dec. 10 - 13. A stream of rapid initial growth on Dec.10 and 11.

Group 13769. Dec. 10 - 11. A small spot.

Group 13770. Dec. 10 - 21. A variable stream developing from a few spots near the east limb on Dec.10.

Group 13770. Dec. 10 - 21. A variable stream developing from a few spots.

Group 13771. Dec. 12 - 15. A small spot with two companions on Dec.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.	Umbræ	Whole Spots	Faculæ			Dist.	Pos. Angle	Long.	Lat.	Umbræ	Whole Spots	Faculæ
1940			°	°	°				1940			°	°	°			
347° 278		*965	280° 0					137	350° 463		*946	282° 7					248
C		*956	255° 0					193	G	13767	*959	271° 7	306° 6	+ 1° 3	28	182	462 c
		*858	301° 9					77		13764	*732	254° 9	279° 4	-11° 8	23	73	
	13758	*945	271° 1	346° 0	+ 0° 7	0	12	351 c		13766	*452	249° 2	258° 7	-10° 3	38	254	
	13768	*930	290° 0	342° 1	+18° 2	26	161	407 c		13770	*246	323° 2	242° 0	+10° 1	74	369	
	13759	*864	278° 8	334° 6	+ 7° 2	4	21	254 c		13773	*650	73° 7	194° 3	+ 9° 6	15	61	
	13761	*826	281° 0	330° 3	+ 8° 6	35	150			13774	*665	68° 7	194° 1	+13° 0	5	11	
	13762	*769	255° 1	324° 6	-11° 9	24	117	144 c		13775	*771	102° 5	183° 7	-10° 3	20	97	280 f
	13772	*743	274° 7	323° 1	+ 3° 0	6	34				*911	76° 7					391
	13767	*535	272° 9	307° 6	+ 0° 9	70	281		Dec. 16		(+ 9° 6)		(233° 4)	(- 1° 2)	(201)	(1027)	(1381)
	13771	*528	264° 6	307° 0	- 3° 5	8	40										
	13763	*557	306° 3	303° 8	+18° 0	10	41										
	13765	*198	120° 2	265° 5	- 6° 5	16	76										
	13768	*336	119° 5	258° 2	-10° 3	45	271		351° 440	13764	*874	256° 5	280° 9	-12° 4	22	113	344 c
	13770	*574	70° 0	242° 2	+10° 7	48	301		G	13776	*746	284° 0	267° 6	+ 9° 5	8	32	
	13774	*989	77° 0	194° 6	+12° 7	13	69	159 c		13766	*634	255° 2	259° 0	-10° 3	42	234	
	13773	*992	80° 0	193° 1	+ 9° 8	8	80			13770	*434	297° 9	244° 0	+10° 5	53	303	
Dec. 13		*932	93° 2					148		13773	*469	67° 1	194° 8	+ 9° 3	11	37	
		(+11° 0)		(275° 4)	(- 0° 8)	(313)	(1654)	(1870)		13775	*606	106° 4	184° 5	-10° 8	23	91	
									Dec. 17		*942	78° 3					256
											(+ 9° 1)		(220° 6)	(- 1° 3)	(159)	(810)	(800)
348° 365		*984	290° 5					258									
C	13761	*939	280° 1	330° 3	+ 9° 1	20	195	592 c	352° 429	13764	*970	257° 8	283° 2	-12° 2	8	26	1124 f
	13762	*909	256° 3	325° 8	-12° 8	5	20	539 c	G	13776	*882	282° 2	268° 3	+10° 0	12	76	213 c
	13772	*903	272° 8	325° 3	+ 2° 1	25	176	319 c		13766	*793	258° 4	259° 3	-10° 0	41	245	477 d
	13771	*742	285° 1	308° 7	- 4° 2	11	77			13770	*635	288° 5	246° 1	+10° 5	48	264	
	13767	*733	271° 9	308° 0	+ 1° 1	39	269			13773	*275	48° 1	195° 6	+ 9° 2	4	17	
	13763	*727	296° 5	304° 1	+18° 2	6	36			13775	*419	113° 7	184° 6	-11° 0	16	63	
	13765	*130	222° 1	266° 1	- 6° 4	13	69				*987	102° 5					100
	13768	*174	164° 1	258° 3	-10° 5	51	296		Dec. 18		(+ 8° 7)		(207° 5)	(- 1° 4)	(129)	(691)	(1914)
	13770	*366	57° 6	241° 8	+11° 1	38	291										
	13774	*925	75° 8	194° 5	+12° 7	10	49	502 f									
	13773	*930	79° 3	183° 4	+ 9° 6	28	119										
	13775	*976	100° 9	184° 0	-10° 8	18	86	184 s	353° 443		*971	262° 5					443
Dec. 14		*948	94° 3					220	G	13776	*972	280° 5	269° 9	+ 9° 8	4	19	219 f
		(+10° 5)		(281° 1)	(- 0° 9)	(264)	(1703)	(2614)		13766	*905	260° 0	258° 7	- 9° 7	37	181	381 f
										13770	*783	284° 8	245° 3	+10° 7	84	314	
										13775	*232	132° 7	184° 3	-10° 6	14	75	
349° 389		*971	255° 5					322			*945	103° 6					424
C		*903	259° 9					240	Dec. 19		(+ 8° 2)		(194° 2)	(- 1° 6)	(139)	(589)	(1467)
		*843	294° 6					221									
	13761	*990	279° 7	328° 8	+ 9° 4	0	56	454 c									
	13772	*981	271° 9	326° 2	+ 1° 6	20	232	294 f									
	13771	*880	265° 3	309° 0	- 4° 6	6	34	327 c	354° 281		*968	250° 4					184
	13767	*874	271° 3	308° 3	+ 0° 6	54	419		C		*859	249° 0					121
	13764	*558	250° 6	280° 0	-11° 6	2	10			13776	*992	280° 4	265° 2	+10° 1	0	23	85 c
	13765	*368	253° 5	268° 3	- 7° 0	2	22			13766	*971	260° 3	259° 1	- 9° 8	43	213	370 c
	13766	*248	228° 6	258° 5	-10° 5	54	263			13770	*901	282° 7	246° 3	+10° 7	43	256	502 c
	13770	*225	22° 1	242° 7	+10° 8	41	262			13775	*162	186° 4	184° 2	-10° 9	7	36	
	13774	*819	73° 3	194° 2	+12° 9	5	33	264 c		13777	*864	105° 0	124° 1	-13° 6	18	107	169 c
	13773	*815	77° 6	194° 0	+ 9° 4	11	63				*929	98° 1					174
Dec. 15		*900	101° 3	183° 9	-10° 6	28	171	274 c	Dec. 20		*959	108° 9					164
		(+10° 1)		(247° 6)	(- 1° 1)	(223)	(1565)	(2396)			(+ 7° 8)		(183° 1)	(- 1° 7)	(111)	(635)	(1769)

Group 13772. Dec. 13 - 15. An equatorial group originating near the west limb, so that its subsequent development is lost to view.

Group 13773. Dec. 13 - 18. A regular spot dying out.

Group 13774. Dec. 13 - 16. A small spot, perhaps related to Group 13773.

Group 13775. Dec. 14 - 25. A regular spot slowly disappearing. A small spot appears on Dec. 24 and 25 within the same general area.

Group 13776. Dec. 17 - 20. One or two small spots.

Group 13777. Dec. 20 - 30. A compact stream rising sharply to a maximum by Dec. 23: the decline is relatively slow.

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
1940			°	°	°				1940			°	°	°			
355° 442		* 873	283° 4					133	381° 281		* 872	279° 7					168
G	13770	* 977	281° 6	244° 7	+10° 9	47	308	75 c	C	13780	* 950	282° 3	161° 6	+10° 8	22	125	171 c
	13775	* 312	240° 5	183° 8	-10° 5	8	29			13777	* 585	249° 3	125° 1	-13° 9	29	172	
	13777	* 717	106° 9	123° 2	-13° 3	50	284			13778	* 161	355° 1	91° 7	+ 6° 7	10	42	
	13778	* 978	82° 0	90° 4	+ 7° 4	14	35	140 c			* 933	75° 7					299
Dec. 21		(+ 7° 3)		(167° 8)	(- 1° 8)	(119)	(656)	(346)	Dec. 27		* 942	109° 9					153
											(+ 4° 5)		(90° 9)	(- 2° 5)	(61)	(339)	(791)
356° 236		* 945	281° 1					165									
C		* 852	257° 4					89	362° 277		* 966	280° 4					505
	13775	* 465	250° 5	183° 8	-10° 6	4	25		C	13777	* 737	253° 3	124° 3	-14° 0	33	234	
	13777	* 574	110° 9	124° 1	-13° 4	52	331			13778	* 304	301° 4	92° 9	+ 6° 6	9	39	
	13778	* 921	81° 3	91° 0	+ 7° 2	10	75	210 c		13781	* 969	97° 7	2° 1	- 8° 1	7	46	163 c
Dec. 22		* 971	77° 7					205			* 809	111° 8					159
		(+ 6° 9)		(157° 4)	(- 1° 9)	(66)	(431)	(669)	Dec. 28		* 819	73° 6					253
											* 947	109° 8					208
357° 281		* 939	256° 7					336			(+ 4° 0)		(77° 8)	(- 2° 6)	(49)	(319)	(1288)
C		* 840	286° 4					268	363° 483		* 904	255° 5	126° 2	-14° 3	32	123	532 c
	13775	* 654	255° 9	183° 6	-10° 7	3	17		G	13777	* 545	285° 9	94° 0	+ 6° 2	14	47	
	13779	* 219	324° 5	151° 0	+ 8° 2	1	19			13778	* 646	285° 9	94° 0	+ 6° 2	14	47	
	13777	* 382	122° 0	124° 2	-13° 5	75	427			13781	* 872	97° 6	1° 3	- 8° 0	20	88	107 c
	13778	* 807	78° 8	90° 7	+ 6° 9	13	77	157 c		13782	* 889	76° 5	341° 5	+12° 9	2	9	235 c
Dec. 23		* 927	76° 4					351		13783	* 990	70° 9	340° 7	+18° 9	21	82	
		(+ 6° 4)		(143° 6)	(- 2° 0)	(92)	(540)	(1112)			* 882	64° 0					113
									Dec. 29		* 925	70° 0					309
358° 281		* 865	287° 5					227			* 973	101° 0					230
C	1167b	* 979	281° 9	207° 8	+11° 2	30	157	264 f			(+ 3° 4)		(61° 9)	(- 2° 8)	(89)	(349)	(1526)
	13775	* 749	254° 7	178° 0	-12° 8	0	13		364° 284		* 963	255° 8	125° 8	-14° 5	18	113	333 c
	13779	* 378	298° 5	149° 9	+ 8° 3	13	82		C	13778	* 693	282° 2	94° 2	+ 6° 3	6	28	
	13777	* 221	152° 2	124° 4	-13° 4	52	303			13781	* 763	98° 0	1° 9	- 8° 0	29	145	
	13778	* 651	76° 5	91° 0	+ 7° 0	11	57			13782	* 940	75° 4	342° 9	+12° 7	6	30	392 c
Dec. 24		* 833	71° 2					187		13783	* 951	69° 4	341° 8	+18° 5	6	27	164 n
		(+ 5° 9)		(130° 4)	(- 2° 2)	(106)	(612)	(678)		1167c	* 955	103° 8	336° 8	-14° 0	3	13	385 c
										13784	* 967	81° 8	337° 0	+ 7° 2	15	112	239 c
359° 341		* 961	266° 4					202	Dec. 30		* 837	66° 0					208
C		* 960	283° 0					301			(+ 3° 0)		(51° 4)	(- 2° 9)	(83)	(468)	(1721)
	13775	* 898	256° 4	180° 0	-13° 2	2	14	249 c	365° 277		* 943	279° 7					169
	13780	* 713	289° 3	159° 8	+11° 9	15	65		C		* 888	289° 5					225
	13779	* 559	288° 2	148° 8	+ 8° 1	7	37			13778	* 835	280° 1	94° 0	+ 6° 7	0	7	174 c
	13777	* 252	215° 2	125° 1	-14° 1	46	249			13781	* 597	99° 2	1° 9	- 7° 9	27	165	
Dec. 25		* 450	69° 6	91° 5	+ 6° 9	12	56			13782	* 838	73° 6	343° 3	+11° 9	7	34	271 c
		(+ 5° 4)		(116° 5)	(- 2° 3)	(82)	(421)	(752)		1167d	* 827	101° 7	342° 8	-11° 4	0	7	358 c
										13783	* 868	66° 7	341° 3	+18° 4	4	21	156 c
360° 380		* 965	255° 7					196		13784	* 886	80° 3	336° 9	+ 7° 2	16	103	175 c
C	13780	* 863	284° 3	161° 0	+11° 0	22	153	173 c		1167e	* 832	107° 8	329° 9	-17° 6	0	14	465 c
	13779	* 728	283° 2	148° 3	+ 7° 9	3	23				* 907	88° 5					250
	13777	* 415	241° 3	124° 7	-13° 7	33	224				* 949	74° 1					375
	13778	* 238	49° 5	92° 4	+ 6° 5	9	40				* 966	84° 9					336
Dec. 26		(+ 4° 9)		(102° 8)	(- 2° 4)	(67)	(440)	(369)	Dec. 31		* 969	62° 4					187
											(+ 2° 5)		(38° 3)	(- 3° 0)	(54)	(351)	(3141)

Group 13778. Dec. 21 - 31. A slowly diminishing regular spot with occasional companions.
 Group 13779. Dec. 23 - 26. One or two small spots.
 Group 13780. Dec. 25 - 27. A small stream originating near the west limb.
 Group 13781. Dec. 28-1941, Jan. 3. A short-lived stream in which the follower becomes the largest component. The group dies out when just past the central meridian.
 Group 13782. Dec. 29-Jan. 6. One or two variable spots: then a stream a little north of them. The group disappears rather suddenly soon after meridian passage.
 Group 13783. Dec. 29-Jan. 5. Return or revival of Group 13768. A single spot.
 Group 13784. Dec. 30-Jan. 9. Return of Group 13781. A regular spot coming over the east limb is joined by small companions on Jan. 1 to form a stream.

ROYAL OBSERVATORY, GREENWICH.

General Catalogue of Groups of Sunspots

For the Year

1940

GREENWICH PHOTO-HELIOGRAPHIC RESULTS, 1940

GENERAL CATALOGUE OF GROUPS OF SUNSPOTS FOR THE YEAR 1940.

Groups of sunspots, lasting for two or more days, are numbered in the *first* column in continuation of the Group-numbers given in 1939 and the previous years. Groups seen only once are not included in this catalogue but are given with a distinctive enumeration in the following table on p. C 53.

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 $0^{\circ}.13$ 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 umbræ 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.
	<i>forwards.</i>		<i>backwards.</i>
0° ...	5°	20° ...	3°
5° ...	4.5	25° ...	7.5
10° ...	3	30° ...	12.5
15° ...	0.5	35° ...	18

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	
13502	1940 Jan. 5°50	11	1940 Jan. 1	°	1940 Jan. 11	°					
03	3°5	2	3	-55	4	+73	349	1689	120°2	+10°5	I 1306 (1)
04	9°2	3/5	4	+1	8	+13	2	10	147°2	-6°1	
				-62		-10	2	7	71°6	+18°3	
13505	10°00	9	8	-22	16	+84	14	85	60°9	-7°1	II
08	8°1	3	9	+14	11	+44	6	27	85°5	+20°4	
07	14°7	2	11	-44	12	-30	2	8	358°6	+14°0	
08	16°68	12	11	-69	22	+79	38	181	333°0	-9°1	II
09	11°8	3	13	+24	15	+44	5	16	37°1	+7°7	
13510	16°08	6/8	13	-33	20	+56	5	18	340°9	-12°2	II
11	12°1	2	14	+29	15	+43	4	20	33°4	-17°0	
12	20°27	8	16	-50	23	+44	25	134	285°8	-20°0	II
13	22°6	5	16	-80	20	-28	6	14	255°0	-12°2	
14	22°20	11	17	-68	27	+70	24	121	260°4	-15°2	II
13515	20°38	5	19	-12	23	+41	11	43	284°2	+13°7	
16	21°46	8	20	-16	27	+77	22	110	270°0	-10°5	II
17	26°29	12	20	-79	31	+66	9	44	206°5	-7°1	II
18	Feb. 1°19	13	26	-77	Feb. 7	+79	133	726	128°9	+9°9	I 1306 (2)
19	2°38	13	27	-78	8	+76	76	472	113°1	+11°9	I 1306 (2)
13520	5°26	13	30	-80	11	+80	47	281	75°2	-6°6	II
21	Jan. 27°0	2	31	+56	1	+70	4	16	196°7	+9°9	
22	Feb. 5°43	12	31	-67	11	+77	15	80	73°0	-24°8	II
23	6°03	4	Feb. 3	-36	6	+5	2	11	65°1	-8°0	
24	11°56	12	6	-72	17	+78	30	157	352°3	-7°2	I 1307 (1)
13525	11°62	10	7	-57	16	+63	37	200	351°5	+13°6	II
26	12°76	11	9	-46	19	+86	45	268	336°5	-13°5	I 1308 (1)
27	13°91	6	9	-59	14	+7	10	46	321°3	-11°6	II
28	17°78	10	11	-84	20	+34	27	151	271°0	+6°6	II
29	17°68	11	13	-59	23	+77	30	165	271°7	-13°9	II
13530	20°13	5/8	15	-60	22	+32	8	40	239°4	-7°9	II
31	21°61	9	19	-35	27	+77	18	84	219°9	-11°5	II
32	24°80	7/8	19	-71	26	+21	6	25	178°0	+11°2	II
33	25°99	12	20	-76	Mar. 2	+72	16	81	162°3	-13°2	II
34	28°50	13	22	-78	5	+77	61	330	129°1	+9°2	I 1306 (3)
13535	29°84	4/8	24	-72	2	+19	1	4	111°5	+10°8	I 1306 (3)
36	29°91	4/8	25	-80	3	+29	1	5	110°6	+19°1	II
37	Mar. 2°33	13	25	-83	8	+81	115	634	91°9	-5°3	I 1309 (1)
38	1°24	3	28	-26	1	+2	2	11	106°2	-11°0	
39	Feb. 27°2	5	29	+27	4	+79	48	241	146°8	-7°2	I 1310 (1)
13540	Mar. 4°5	2	29	-55	1	-42	2	14	63°6	-16°0	
41	6°24	8	Mar. 1	-64	8	+29	21	83	40°4	-17°1	II
42	2°7	6	3	+8	8	+77	52	283	86°4	+12°0	I 1311 (1)
43	9°34	8	3	-78	10	+14	7	22	359°6	-8°0	I 1307 (2)
44	10°30	10	4	-79	13	+42	42	230	346°9	-11°4	I 1308 (2)
13545	10°58	12	5	-74	16	+81	13	63	343°2	-8°4	II
46	11°77	10	8	-47	17	+80	28	149	327°5	+11°3	II
47	11°39	4/5	12	+10	16	+70	8	39	332°5	-13°6	
48	18°23	8	12	-75	19	+15	16	82	242°3	-9°1	II
49	10°8	2	13	+34	14	+46	6	25	340°0	-6°2	

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	
	1940		1940	°	1940	°			°	°	
13550	Mar. 19° 80	12	Mar. 14	-72	Mar. 25	+73	31	174	220° 4	+21° 7	II
51	16° 98	5	15	-21	19	+32	7	35	258° 8	- 9° 7	
52	18° 74	7	18	- 8	24	+78	26	116	235° 7	-10° 2	II
53	24° 39	11	18	-80	28	+52	31	163	161° 1	+15° 8	II
54	25° 1	6	19	-76	24	- 7	15	74	152° 0	-10° 1	I 1310 (2)
13555	26° 28	13	20	-79	Apr. 1	+80	198	1189	136° 3	+12° 1	I 1312 (1)
56	18° 0	2	21	+45	Mar. 22	+58	4	8	246° 0	- 6° 5	
57	27° 01	13	21	-73	Apr. 2	+83	46	240	126° 6	+ 9° 6	I 1308 (4)
58	25° 63	9	23	-34	Mar. 31	+79	21	91	144° 7	- 9° 5	II
59	26° 11	8	23	-62	30	+26	10	40	112° 2	+12° 4	II
13560	29° 08	12	23	-76	Apr. 3	+73	41	211	99° 4	- 4° 9	I 1309 (2)
61	25° 26	3	24	-11	Mar. 26	+15	2	8	149° 7	- 6° 8	
62	29° 4	4	24	-65	27	-28	5	21	94° 6	+11° 5	I 1311 (2)
63	30° 3	4	24	-77	27	-39	3	11	83° 0	-27° 7	
64	31° 25	11	26	-68	Apr. 5	+68	13	53	70° 6	+ 7° 2	II
13565	24° 3	3	27	+42	Mar. 29	+66	15	53	162° 5	-11° 8	
66	31° 61	10	27	-62	Apr. 5	+67	28	121	65° 9	+ 7° 1	II
67	Apr. 2° 0	3	27	-74	Mar. 29	-47	2	9	47° 8	- 4° 7	
68	2° 23	13	27	-77	Apr. 8	+81	49	275	44° 5	-12° 3	II
69	5° 11	4/8	31	-66	7	+33	2	6	6° 6	- 6° 7	II
13570	5° 86	8	Apr. 1	-59	8	+34	17	73	356° 7	-15° 6	II
71	6° 29	10	3	-39	12	+84	29	141	351° 0	- 8° 0	II
72	11° 94	11	6	-76	16	+60	19	79	276° 4	- 9° 6	II
73	11° 82	5/6	8	-43	13	+19	8	29	278° 7	+16° 5	II
74	5° 8	3	9	+44	11	+75	9	39	357° 0	+ 5° 9	
13575	6° 5	4	9	+37	12	+78	26	139	348° 1	+ 8° 3	
76	16° 12	11	11	-63	21	+70	48	237	221° 2	-11° 8	II
77	14° 3	2	12	-26	13	-11	4	16	245° 5	- 3° 0	
78	16° 8	2	12	-59	13	-44	2	7	212° 6	-13° 8	
79	16° 9	2	14	-60	15	-46	6	17	184° 2	+21° 4	
13580	20° 05	12	14	-75	25	+71	16	74	169° 3	- 5° 5	II
81	16° 00	3	15	- 9	17	+18	7	22	222° 8	-23° 0	
82	21° 94	12	16	-74	27	+72	48	251	144° 3	+10° 9	I 1312 (2)
83	23° 3	4/6	17	-79	22	-11	3	10	126° 7	+ 7° 6	I 1306 (5)
84	23° 88	10/11	18	-70	28	+53	14	64	118° 8	+13° 3	II
13585	25° 15	12	19	-76	30	+68	26	136	101° 9	- 4° 0	I 1309 (3)
86	15° 8	3	19	+47	21	+75	24	77	225° 7	+ 0° 8	
87	21° 1	2	21	+ 3	22	+18	3	8	156° 0	-11° 4	
88	26° 7	4	21	-72	24	-30	6	16	80° 9	+ 5° 1	
89	19° 3	2	23	+54	24	+70	3	20	179° 6	+ 9° 2	
13590	27° 9	2	24	-46	25	-35	4	14	65° 3	+11° 6	
91	21° 6	4	25	+49	28	+84	43	194	148° 7	-10° 3	
92	May 1° 28	10	25	-78	May 4	+43	27	124	20° 9	+ 9° 4	II
93	4° 86	10	May 1	-44	10	+71	22	94	333° 6	+ 9° 8	II
94	Apr. 30° 3	2	3	+40	4	+56	4	8	34° 0	-13° 1	
13595	May 5° 4	6	6	+13	11	+80	8	36	326° 5	+10° 7	II
96	12° 41	11	8	-54	18	+79	29	127	233° 8	- 9° 0	II
97	14° 43	12	9	-68	20	+80	37	226	207° 0	- 7° 2	II
98	13° 79	5	12	-18	16	+34	13	56	215° 5	- 9° 8	
99	18° 71	13	12	-83	24	+76	54	274	150° 4	+12° 5	I 1312 (3)

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	
13600	1940 May 19° 75	13	1940 May 13	0	1940 May 25	0					
01	14° 42	6	May 14	-84	May 19	+78	58	309	136° 7	+14° 9	II
02	16° 61	3	May 15	-2	May 17	+68	10	27	207° 2	-11° 2	II
03	17° 1	6	May 18	-15	May 23	+10	7	19	178° 3	+9° 2	II
04	21° 48	5	May 20	+14	May 24	+81	15	53	172° 2	+15° 1	II
				-14		+37	17	59	113° 8	-9° 4	
13605	25° 72	9	21	-62	29	+51	31	155	57° 7	-5° 8	II
06	27° 03	10	22	-59	31	+55	6	20	40° 3	+23° 2	II
07	27° 39	11/12	22	-68	June 2	+77	36	159	35° 5	-12° 3	II
08	29° 1	3	23	-75	May 25	-48	9	29	13° 4	-17° 0	
09	29° 71	13	23	-84	June 4	+77	61	351	5° 0	-10° 3	I 1313 (1)
13610	30° 5	3	26	-53	May 28	-32	2	12	354° 5	-13° 1	
11	June 3° 11	9/10	29	-65	June 7	+57	8	32	306° 7	-6° 2	II
12	May 29° 7	3/6	30	+6	4	+77	5	12	4° 4	+11° 4	II
13	June 2° 48	8	June 1	-17	8	+81	29	120	315° 0	-11° 7	II
14	May 30° 3	2	3	+52	4	+70	4	12	357° 8	+11° 9	
13615	June 5° 36	9	3	-27	11	+78	79	397	276° 9	-19° 7	I 1314 (1)
16	8° 86	9	3	-73	11	+33	15	69	230° 5	-14° 9	II
17	5° 69	8	4	-19	11	+75	33	147	272° 5	-18° 5	II
18	7° 25	2/3	6	-10	8	+12	1	8	251° 9	-7° 4	
19	12° 71	13	6	-82	18	+78	72	367	179° 6	-7° 2	I 1315 (1)
13620	12° 72	12	6	-86	17	+64	57	285	179° 6	+13° 5	II
21	5° 6	4	7	+21	10	+62	12	29	273° 1	-10° 5	
22	8° 63	5/7	7	-13	13	+59	4	12	233° 6	-10° 9	II
23	13° 48	10/11	8	-69	18	+69	13	49	169° 4	+15° 9	II
24	8° 5	2	10	+24	11	+38	6	24	235° 1	-5° 1	
13625	13° 64	7/9	11	-32	19	+72	12	46	167° 3	+23° 3	II
26	11° 4	5	12	+11	16	+67	52	256	196° 7	-24° 3	I 1316 (1)
27	17° 2	2	15	-24	16	-11	9	41	120° 4	-9° 4	
28	22° 72	13	16	-84	28	+74	99	525	47° 1	-10° 2	II
29	25° 35	13	19	-84	July 1	+80	113	683	12° 3	-15° 9	II
13630	25° 85	12	20	-71	1	+72	11	58	5° 7	-9° 9	I 1313 (2)
31	24° 12	10	21	-37	June 30	+83	20	87	28° 6	-14° 5	II
32	22° 0	2	23	+19	24	+35	8	30	57° 2	+15° 7	
33	19° 7	2	24	+64	25	+76	26	96	87° 2	+4° 6	I 1317 (1)
34	27° 4	2	24	-38	25	-26	4	12	345° 6	-12° 8	
13635	29° 94	12	24	-73	July 5	+78	55	272	311° 6	-13° 8	I 1318 (1)
36	30° 16	12	24	-75	5	+70	17	76	308° 6	+2° 5	II
37	24° 3	3	25	+12	June 27	+42	8	34	26° 0	-16° 3	
38	25° 93	3	25	-8	27	+20	8	34	4° 7	-18° 4	
39	28° 76	9	26	-32	July 4	+75	28	120	327° 2	+8° 9	I 1319 (1)
13640	29° 38	3/5	27	-27	1	+27	1	4	318° 9	-0° 9	
41	July 2° 5	5/6	27	-71	2	-6	5	20	277° 3	-18° 6	I 1314 (2)
42	7° 2	6	July 1	-78	6	-9	21	78	215° 6	+11° 3	II
43	2° 4	4/5	3	+12	7	+67	3	13	279° 0	+5° 8	
44	3° 49	2	3	-2	4	+12	1	4	264° 6	-7° 6	
13645	8° 66	10	3	-69	12	+48	12	55	196° 2	-23° 3	I 1316 (2)
46	9° 4	6	3	-80	8	-14	8	31	186° 3	-8° 1	I 1315 (2)
47	8° 84	9	5	-48	13	+62	9	33	193° 8	-11° 3	II
48	7° 87	8	6	-22	13	+75	30	156	206° 6	+12° 9	II
49	7° 6	7	8	+7	14	+86	140	746	210° 2	+18° 2	I 1320 (1)

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		
	1940		1940	°	1940	°			°	°		
13650	July 9° 57	8	July 8	-19	July 15	+78	27	142	184° 1	+15° 0	II	
51	13° 54	8	9	-58	16	+39	15	57	131° 5	-10° 2	II	
52	10° 91	7	10	-10	16	+74	33	158	166° 4	+21° 7	II	
53	16° 24	13	10	-79	22	+82	94	620	95° 8	+ 6° 8	I 1317 (2)	
54	17° 54	5/7	12	-69	18	+12	5	19	78° 6	+ 7° 8	II	
13655	15° 1	4	15	+ 1	18	+46	2	11	111° 1	- 6° 0		
56	20° 08	6	15	-62	20	+ 6	4	19	45° 0	-10° 0	II	
57	22° 1	4	16	-72	19	-38	11	40	18° 6	-14° 2		
58	21° 73	3/10	18	-42	27	+74	1	3	23° 2	-12° 4	II	
59	14° 2	2	19	+68	20	+81	18	49	123° 4	-11° 0	I 1321 (1)	
13660	24° 4	4	19	-67	22	-27	11	31	348° 4	+11° 6		
61	25° 3	4	19	-79	22	-40	6	24	335° 6	+10° 4	I 1319 (2)	
62	23° 6	3	20	-41	22	-16	5	22	358° 5	+26° 9		
63	26° 2	2	20	-75	21	-63	3	12	324° 7	-10° 5	I 1318 (2)	
64	27° 0	5/6	21	-75	26	- 7	3	8	313° 2	- 6° 4	II	
13665	21° 8	4/6	22	+ 6	27	+74	3	8	22° 3	+23° 6	II	
66	23° 23	8	22	-13	29	+82	48	240	3° 3	-18° 4	I 1322 (1)	
67	26° 4	2	23	-64	24	-51	6	18	295° 4	+ 5° 7		
68	29° 33	11	25	-64	Aug. 4	+75	26	126	274° 7	- 7° 0	II	
69	31° 63	11	27	-61	6	+79	41	220	252° 2	- 9° 0	I 1323 (1)	
13670	Aug. 4° 03	14	28	-83	10	+80	84	433	207° 3	+19° 0	I 1320 (2)	
71	2° 6	5	29	-57	2	- 1	12	44	225° 6	-11° 5		
72	July 31° 1	7	31	+ 1	6	+79	13	78	258° 7	+ 7° 6	II	
73	Aug. 9° 62	13	Aug. 3	-83	15	+75	104	551	133° 4	-11° 6	I 1321 (2)	
74	8° 89	12	4	-58	15	+80	31	127	143° 0	+15° 7	II	
13675	9° 6	5	4	-69	8	-16	4	9	133° 2	+11° 8		
76	12° 12	11	6	-77	16	+56	16	64	100° 4	+ 6° 8	I 1317 (3)	
77	11° 18	10	7	-50	16	+73	120	563	112° 7	-12° 6	I 1324 (1)	
78	12° 55	12	7	-66	18	+79	121	708	94° 7	+ 5° 9	II	
79	16° 78	12	11	-70	22	+73	121	637	38° 7	-12° 4	II	
13680	17° 00	12	11	-74	22	+72	37	189	35° 8	+13° 5	II	
81	19° 38	10	13	-79	22	+41	27	139	4° 3	-18° 9	I 1322 (2)	
82	17° 02	3	16	-22	18	+ 6	5	16	23° 6	-12° 7		
83	20° 73	11	16	-61	26	+79	112	589	346° 5	+ 7° 7	I 1325 (1)	
84	22° 5	3	17	-65	19	-38	3	14	323° 6	- 5° 9		
13685	23° 56	7	19	-55	25	+26	8	29	309° 1	+12° 9	II	
86	18° 4	2	20	+25	21	+40	5	21	17° 0	-15° 3		
87	23° 61	9/10	20	-48	29	+78	27	129	308° 4	-15° 5	II	
88	26° 57	13	20	-82	Sept. 1	+80	61	290	269° 3	- 7° 1	I 1323 (2)	
89	26° 5	5	20	-82	Aug. 24	-28	18	84	269° 7	+ 6° 2		
13690	27° 3	4	21	-78	24	-39	10	50	259° 7	+ 9° 0		
91	22° 3	2	24	+26	25	+41	6	18	325° 4	-11° 5		
92	Sept. 1° 13	12	26	-80	Sept. 6	+75	136	705	195° 9	- 5° 4	I 1326 (1)	
93	Aug. 30° 9	2/4	27	-47	Aug. 30	- 6	1	5	212° 6	+ 7° 2		
94	Sept. 2° 15	9	27	-75	Sept. 4	+26	46	154	182° 4	+15° 5	II	
13695	Aug. 28° 49	3	28	- 2	Aug. 30	+28	8	30	243° 9	- 7° 7		
96	Sept. 4° 41	13	29	-80	Sept. 10	+80	22	109	152° 6	+16° 7	II	
97	4° 57	11	29	-83	8	+51	33	152	150° 5	+11° 5	II	
98	5° 08	10	Sept. 1	-52	10	+71	23	85	143° 6	- 9° 6	II	
99	6° 76	12	1	-70	12	+74	31	165	121° 5	-15° 6	I 1324 (2)	

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	
13700	1940 Sept. 2°1	3	1940 Sept. 5	° +41	1940 Sept. 7	° +73			°	°	
01	11°88	11	7	-58	17	+72	17	59	183°5	-11°0	II
02	13°1	2/3	9	-60	11	-22	20	88	53°9	+15°2	I 1325 (2)
03	16°15	4/9	10	-76	18	+30	3	8	37°6	-13°6	
04	16°9	2	13	-32	14	-20	6	28	357°6	+5°9	
							4	13	0°4	+14°4	
13705	16°71	10	13	-44	22	+78	55	327	350°6	+15°4	II
06	19°66	10/12	14	-74	25	+80	102	531	311°2	-10°0	I 1327 (1)
07	14°6	4	15	+12	18	+48	11	53	17°8	+27°4	
08	22°61	13	16	-83	28	+75	21	105	272°3	-7°7	I 1323 (3)
09	23°1	6	17	-75	22	-9	14	57	265°9	-8°4	II
13710	24°83	8	19	-72	26	+21	22	101	243°0	-7°8	II
11	27°56	13	21	-81	Oct. 3	+77	79	409	207°0	-3°6	I 1326 (2)
12	20°4	3	23	+38	Sept. 25	+66	17	61	300°9	+23°4	
13	26°1	6	27	+14	Oct. 2	+81	29	134	226°4	-7°7	II
14	Oct. 1°4	2	27	-54	Sept. 28	-39	2	10	156°6	-8°2	
13715	5°46	10	29	-82	Oct. 8	+38	20	115	102°7	+5°1	II
16	6°03	9	Oct. 4	-24	12	+82	24	116	95°1	+13°0	II
17	8°20	6/10	4	-51	13	+69	2	10	66°6	+12°5	II
18	9°4	2/4	4	-66	7	-28	2	8	50°8	+15°3	
19	10°6	2	5	-72	6	-58	4	16	32°0	+13°0	
13720	12°10	12	7	-64	18	+81	44	217	15°2	-15°8	II
21	13°03	12	7	-76	18	+71	122	716	2°9	+15°5	II
22	16°46	13	10	-80	22	+81	109	552	317°6	-8°9	I 1327 (2)
23	18°24	10	12	-79	21	+42	17	92	294°0	-6°1	II
24	21°28	13	15	-76	27	+82	66	407	254°0	-17°4	I 1328 (1)
13725	24°41	13	18	-81	30	+77	45	239	212°7	-6°3	I 1326 (3)
26	16°6	2	21	+62	22	+78	13	44	315°8	-13°4	
27	26°76	3/10	22	-56	31	+60	2	7	181°7	-9°1	II
28	27°5	2	22	-67	23	-56	3	12	171°4	-11°0	
29	26°78	9	24	-35	Nov. 1	+76	23	92	181°4	-2°6	II
13730	24°8	6	25	+8	Oct. 30	+73	19	77	208°1	-11°2	I 1329 (1)
31	Nov. 1°9	5	28	-58	Nov. 1	-6	8	47	100°7	+13°8	
32	4°28	8	30	-58	6	+27	7	35	69°4	-6°9	II
33	4°73	11	30	-72	9	+60	27	144	63°5	+12°8	II
34	Oct. 30°4	3	Nov. 3	+53	5	+78	18	65	133°1	+9°2	
13735	Nov. 2°9	3	3	+6	5	+33	3	17	87°2	+8°8	
36	8°3	4/5	3	-65	7	-12	2	6	15°8	-17°2	
37	8°47	11	3	-70	13	+67	10	51	14°1	+9°0	II
38	3°4	4	5	+26	8	+67	10	30	81°0	-7°9	
39	4°7	3	7	+35	9	+60	13	41	64°4	-1°5	
13740	9°1	2	7	-22	8	-8	4	20	6°4	+8°2	
41	12°91	12	7	-73	18	+71	15	67	315°6	-10°4	I 1327 (3)
42	13°13	9	7	-74	15	+30	8	39	312°7	+7°8	II
43	12°33	10	9	-46	18	+82	53	316	323°3	+7°4	I 1330 (1)
44	14°13	8/11	9	-73	19	+72	37	194	299°6	+16°7	I 1331 (1)
13745	15°1	5	9	-79	13	-24	10	53	286°9	+9°6	
46	17°56	7	12	-69	18	+9	9	45	254°3	-16°3	I 1328 (2)
47	13°68	2	13	-10	14	+8	6	26	302°8	-10°8	
48	19°17	7	13	-78	19	+4	14	74	233°2	-11°2	II
49	16°26	8	14	-28	21	+68	51	272	271°4	-14°1	II

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	
	1940-41		1940	°	1940-41	°			°	°	
13750	Nov. 21° 2	2	Nov. 15	-77	Nov. 16	-59	9	25	206° 1	-10° 0	I 1329 (2)
51	22° 39	12	16	-74	27	+68	7	37	190° 6	- 8° 1	II
52	23° 38	13	17	-78	29	+82	27	143	177° 6	-10° 7	II
53	21° 40	2/5	18	-38	22	+11	1	4	203° 6	- 8° 8	
54	28° 82	8	23	-76	30	+18	11	54	105° 8	+12° 1	II
13755	Dec. 1° 41	13	25	-80	Dec. 7	+76	43	251	71° 8	+14° 0	II
56	Nov. 28° 1	6	27	+18	2	+82	38	221	141° 1	+12° 6	II
57	28° 1	3	28	+29	Nov. 30	+57	6	33	142° 2	+ 9° 0	
58	Dec. 8° 18	11	Dec. 3	-67	Dec. 13	+71	18	89	342° 6	+ 1° 2	II
59	8° 83	11	3	-72	13	+59	9	43	334° 0	+ 7° 5	I 1330 (2)
13760	-	-	-	-	-	-	-	-	-	-	-
61	9° 27	13	3	-78	15	+81	30	153	328° 2	+ 8° 6	I 1332 (1)
62	9° 52	11	4	-66	14	+65	41	258	324° 9	-11° 4	II
63	11° 10	10	5	-73	14	+43	17	80	304° 0	+18° 6	I 1331 (2)
64	12° 97	10/12	7	-76	18	+76	9	41	279° 5	-12° 8	II
13765	13° 97	8	8	-73	15	+21	27	129	266° 2	- 6° 3	II
66	14° 56	13	8	-80	20	+76	51	288	258° 5	-10° 2	II
67	10° 94	8	9	-24	16	+73	38	195	306° 2	+ 1° 0	II
68	8° 2	4	10	+29	13	+67	44	204	341° 8	+18° 2	I 1333 (1)
69	16° 0	2	10	-73	11	-60	4	17	239° 9	+12° 6	
13770	15° 73	12	10	-73	21	+77	47	256	243° 1	+10° 5	II
71	10° 8	4	12	+18	15	+61	11	52	307° 4	- 3° 9	
72	9° 5	3	13	+48	15	+79	17	147	324° 9	+ 2° 2	
73	19° 4	6	13	-82	18	-12	14	59	194° 4	+ 9° 4	II
74	19° 4	4	13	-81	16	-39	7	31	194° 3	+12° 9	
13775	20° 27	12	14	-77	25	+64	12	60	183° 2	-11° 1	II
76	13° 8	4	17	+47	20	+82	8	42	268° 6	+ 9° 8	
77	24° 72	11	20	-59	30	+74	40	233	124° 6	-13° 8	II
78	27° 19	11	21	-77	31	+56	10	46	92° 2	+ 6° 8	II
79	22° 8	4	23	+ 7	26	+46	6	40	149° 5	+ 8° 1	
13780	22° 0	3	25	+43	27	+71	20	114	160° 8	+11° 2	
81	Jan. 2° 98	7	28	-76	Jan. 3	+ 9	19	99	2° 6	- 8° 1	II
82	4° 72	9	29	-80	6	+26	17	92	339° 8	+13° 9	II
83	4° 64	8	29	-81	5	+ 5	7	29	340° 8	+18° 6	I 1333 (2)
84	4° 82	11	30	-74	9	+65	18	88	338° 4	+ 8° 2	I 1332 (2)

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	
				Umbræ	Whole Spots	Longitude	Latitude					Umbræ	Whole Spots	Longitude	Latitude
1154b	Jan. 1	° +21°3	1939 Dec. 30°9	2	11	° 194°1	° +20°7	1162c	Aug. 1	° +15°2	July 31°3	1	4	° 256°8	° -10°4
c	11	-28°6	1940 Jan. 13°6	1	10	13°5	+23°1	d	3	-65°3	Aug. 8°3	0	12	151°1	+32°6
1155a	Jan. 16	+29°9	Jan. 14°2	1	4	6°2	+19°0	e	4	-52°6	8°4	6	22	149°1	+2°1
b	17	-5°7	17°9	5	6	316°7	-10°7	f	6	+16°8	5°1	1	4	192°7	-14°2
c	19	+23°2	17°7	4	8	320°2	-29°9	g	6	+15°7	5°2	3	7	191°6	+10°4
d	Feb. 4	+62°6	30°6	2	10	149°8	+14°1	h	7	+57°7	3°2	2	10	217°6	+9°9
e	5	-22°4	Feb. 7°2	2	11	49°4	+4°8	i	13	+2°9	13°1	1	4	87°0	+6°7
1156a	Feb. 14	-73°6	Feb. 20°0	15	34	241°5	-10°5	j	13	-61°8	18°0	2	5	22°3	+14°2
b	24	-52°5	28°4	2	12	131°0	-19°4	k	17	+68°8	22°6	23	90	99°6	-2°6
c	Mar. 5	+65°3	29°4	3	20	117°1	+14°2	l	18	+68°8	23°6	8	17	86°8	-14°0
d	6	+22°2	Mar. 4°7	1	5	60°3	-27°0	1163a	Aug. 22	-70°3	Aug. 27°8	8	14	253°7	-8°3
1157a	Mar. 16	-42°1	Mar. 19°5	3	10	225°2	-10°2	b	25	-61°2	30°0	0	4	223°7	+14°1
b	20	-9°0	21°0	1	4	205°2	+1°5	c	26	+8°5	25°7	3	5	281°1	-15°2
c	22	+75°4	16°6	12	41	263°4	-4°1	d	26	-47°1	29°9	7	10	225°5	+10°3
d	Apr. 2	+34°3	30°7	5	20	77°4	+19°5	e	27	-56°8	31°7	4	8	201°6	+19°0
e	4	+66°8	30°5	10	28	80°6	+13°1	f	2	+27°1	31°3	1	5	206°8	+10°7
f	4	-8°2	Apr. 5°2	1	8	5°8	+24°8	g	3	+69°1	29°1	10	37	235°8	-6°9
1158a	Apr. 6	+33°7	Apr. 3°9	1	4	23°0	-13°8	h	3	+54°2	30°2	4	12	220°9	+10°3
b	7	-43°8	10°7	8	22	292°8	+19°0	i	7	-11°0	Sept. 8°2	1	5	102°8	+6°2
c	15	-77°6	21°2	5	9	153°6	-5°0	j	7	-19°4	8°8	3	6	94°4	+6°4
d	25	-17°3	26°6	1	3	82°5	-8°6	k	7	-36°6	10°1	1	4	77°0	-4°3
1159a	May 5	-64°7	May 10°5	0	11	259°3	-18°4	l	7	-67°4	12°5	11	29	46°4	+16°0
b	17	+55°5	13°2	5	19	223°7	-14°7	m	7	-76°2	13°1	4	17	37°6	+17°3
c	19	+2°4	19°2	6	22	143°6	-7°6	n	12	+1°5	12°3	1	5	48°4	-11°4
1160a	June 4	+7°0	June 3°9	1	4	296°8	-7°2	1164a	Sept. 16	+31°6	Sept. 14°0	5	21	26°4	-5°7
b	4	-38°8	7°3	1	5	251°0	-13°8	b	21	+11°5	20°5	7	28	300°4	+8°7
c	9	+20°8	7°8	1	4	245°0	+21°7	c	27	-26°7	29°4	2	6	183°1	-8°2
d	9	-21°8	11°0	1	3	202°4	+10°1	d	Oct. 1	+53°0	27°4	8	28	209°0	+13°9
e	11	-58°2	15°8	0	9	139°5	+16°2	e	4	+0°8	Oct. 4°3	2	9	118°3	-14°4
f	21	-40°2	24°5	9	21	24°2	+12°7	f	12	+0°7	12°3	1	4	12°3	-1°4
g	22	-68°8	27°5	3	12	343°3	+5°6	1165a	Oct. 20	+12°1	Oct. 19°5	5	18	278°0	-5°2
h	25	-14°0	26°4	9	38	356°4	+10°7	b	22	+21°6	20°8	1	4	259°8	+4°2
1161a	June 26	+4°3	June 26°0	4	11	3°5	+15°2	c	29	-5°2	29°8	1	6	141°9	+26°0
b	28	-12°7	29°3	1	5	319°7	-15°0	d	Nov. 3	+64°2	29°5	7	43	145°3	-8°9
c	July 2	-22°4	July 4°0	3	6	257°3	-3°4	e	8	-25°4	Nov. 10°3	2	5	349°4	+3°0
d	5	-59°1	9°9	2	5	180°4	-10°6	1166a	Nov. 10	-72°2	Nov. 15°9	3	12	276°7	-7°4
e	8	-3°8	8°6	1	3	196°5	+14°4	b	13	+51°2	9°4	3	17	1°9	+19°5
1162a	July 27	-1°1	July 27°4	2	14	307°9	+3°4	c	19	+16°8	18°0	5	19	248°4	+17°0
b	27	-24°7	29°2	1	4	284°3	-17°5	d	26	-29°2	26°7	1	4	107°4	-15°4
1167a	Dec. 10	+46°3	Dec. 6°9	7	35	359°1	-7°7	e	Dec. 4	+59°0	30°0	4	24	90°7	-11°5
1941	Jan. 4	4°8	3	13	338°8	-14°0	1167a	Dec. 24	+77°4	18°4	30	157	207°8	+11°2	
1941	Jan. 4	4°5	0	7	342°8	-11°4	c	30	-72°6	Jan. 4°8	3	13	338°8	-14°0	
1941	Jan. 5	5°5	0	14	329°9	-17°6	d	31	-55°5	4°5	0	7	342°8	-11°4	
1941	Jan. 5	5°5	0	14	329°9	-17°6	e	31	-68°4	5°5	0	14	329°9	-17°6	

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' series, 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	13505 23	1940 Jan. 10°00	1154	9	1940	0	1940	0		0	0	II
		Feb. 6°03	1155	4	Jan. 8	-22	Jan. 16	+84	85	61	-7	
2	13507 25	Jan. 14°7	1154	2	Jan. 11	-44	Jan. 12	-30	8	359	+14	II
		Feb. 11°82	1156	10	Feb. 7	-57	Feb. 16	+83	200	351	+14	
3	13510 26 44	Jan. 16°08	1155	6/8	Jan. 13	-33	Jan. 20	+56	18	341	-12	II } I 1308
		Feb. 12°78	1156	11	Feb. 9	-46	Feb. 19	+86	268	337	-14	
		Mar. 10°30	1157	10	Mar. 4	-79	Mar. 13	+42	230	347	-11	
4	13530 48	Feb. 20°13	1156	5/8	Feb. 15	-60	Feb. 22	+32	40	239	-8	II
		Mar. 18°23	1157	8	Mar. 12	-75	Mar. 19	+15	82	242	-9	II
5	13533 65	Feb. 25°99	1156	12	Feb. 20	-76	Mar. 2	+72	81	162	-13	II
		Mar. 24°3	1157	3	Mar. 27	+42	Mar. 29	+66	53	162	-12	
6	13543 69	Mar. 9°34	1156	8	Mar. 3	-78	Mar. 10	+14	22	0	-8	I 1307 (2)
		Apr. 5°11	1157	4/8	Mar. 31	-66	Apr. 7	+33	6	7	-7	II
7	13545 71	Mar. 10°58	1157	12	Mar. 5	-74	Mar. 16	+81	63	343	-8	II
		Apr. 6°29	1158	10	Apr. 3	-39	Apr. 12	+84	141	351	-8	II
8	13554 87	Mar. 25°1	1157	6	Mar. 19	-76	Mar. 24	-7	74	152	-10	I 1310 (2)
		Apr. 21°1	1158	2	Apr. 21	+3	Apr. 22	+18	8	156	-11	
9	13558 91	Mar. 25°63	1157	9	Mar. 23	-34	Mar. 31	+79	91	145	-10	II
		Apr. 21°6	1158	4	Apr. 25	+49	Apr. 28	+84	194	149	-10	
10	13559 84	Mar. 28°11	1157	8	Mar. 23	-62	Mar. 30	+26	40	112	+12	II
		Apr. 23°88	1158	10/11	Apr. 18	-70	Apr. 28	+53	64	119	+13	II
11	13578 601	Apr. 16°8	1158	2	Apr. 12	-59	Apr. 13	-44	7	213	-14	II
		May 14°42	1159	6	May 14	-2	May 19	+68	27	207	-11	
12	13589 602	Apr. 19°3	1158	2	Apr. 23	+54	Apr. 24	+70	20	180	+9	
		May 16°61	1159	3	May 15	-15	May 17	+10	19	178	+9	
13	13594 607 28 56 79 702	Apr. 30°3	1159	2	May 3	+40	May 4	+56	8	34	-13	II II II II
		May 27°39	1159	11/12	May 22	-68	June 2	+77	159	36	-12	
		June 22°72	1160	13	June 16	-84	June 28	+74	525	47	-10	
		July 20°08	1161	6	July 15	-62	July 20	+8	19	45	-10	
		Aug. 16°78	1162	12	Aug. 11	-70	Aug. 22	+73	637	39	-12	
		Sept. 13°1	1163	2/3	Sept. 9	-50	Sept. 11	-22	8	38	-14	
14	13596 622	May 12°41	1159	11	May 8	-54	May 18	+79	127	234	-9	II
		June 8°83	1160	5/7	June 7	-13	June 13	+59	12	234	-11	II

REVIVAL GROUPS OF SUNSPOTS

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	
15	13603 23	1940 May 17'1	1159 1160	6 10/11	1940 May 18	0 +14	1940 May 23	0 +81	53 49	0 172	0 +15	II II
		June 13'48			June 8	-69	June 18	+69		169	+16	
16	13604 27 59 73 98	May 21'48	1159	5	May 20	-14	May 24	+37	59	114	- 9	} I 1321 II
		June 17'2	1160	2	June 15	-24	June 16	-11	41	120	- 9	
		July 14'2	1161	2	July 19	+68	July 20	+81	49	123	-11	
		Aug. 9'62	1162	13	Aug. 3	-83	Aug. 16	+75	551	133	-12	
		Sept. 5'08	1163	10	Sept. 1	-52	Sept. 10	+71	85	144	-10	
17	13608 29 57 86	May 29'1	1159	3	May 23	-75	May 25	-46	29	13	-17	II
		June 25'36	1160	13	June 19	-84	July 1	+80	683	12	-16	
		July 22'1	1161	4	July 16	-72	July 19	-38	40	19	-14	
		Aug. 18'4	1163	2	Aug. 20	+25	Aug. 21	+40	21	17	-15	
18	13613 35 63	June 2'48	1160	8	June 1	-17	June 8	+81	120	316	-12	II } I 1318
		June 29'94	1161	12	June 24	-73	July 5	+78	272	312	-14	
		July 26'2	1161	2	July 20	-75	July 21	-63	12	325	-10	
19	13620 50	June 12'72	1160	12	June 6	-86	June 17	+64	285	180	+13	II II
		July 9'57	1161	8	July 8	-19	July 15	+78	142	164	+15	
20	13631 58 82	June 24'12	1160	10	June 21	-37	June 30	+83	87	29	-15	II II
		July 21'73	1161	3/10	July 18	-42	July 27	+74	3	23	-12	
		Aug. 17'92	1162	3	Aug. 16	-22	Aug. 18	+ 6	16	24	-13	
21	13638 66 81	June 25'93	1160	3	June 25	- 8	June 27	+20	34	5	-18	} I 1322
		July 23'23	1161	8	July 22	-13	July 29	+82	240	3	-18	
		Aug. 19'38	1162	10	Aug. 13	-79	Aug. 22	+41	139	4	-17	
22	13664 84	July 27'0	1162	5/6	July 21	-75	July 26	- 7	8	313	- 6	II
		Aug. 22'5	1162	3	Aug. 17	-65	Aug. 19	-38	14	324	- 6	
23	13672 90	July 31'1	1162	7	July 31	+ 1	Aug. 6	+79	76	259	+ 8	II
		Aug. 27'3	1163	4	Aug. 21	-78	Aug. 24	-39	50	260	+ 9	
24	13679 702	Aug. 16'78	1162	12	Aug. 11	-70	Aug. 22	+73	637	39	-12	II
		Sept. 13'1	1163	2/3	Sept. 9	-50	Sept. 11	-22	8	38	-14	
25	13695 710	Aug. 28'49	1163	3	Aug. 28	- 2	Aug. 30	+28	30	244	- 8	II
		Sept. 24'83	1164	8	Sept. 19	-72	Sept. 26	+21	101	243	- 8	
26	13701 18	Sept. 11'88	1163	11	Sept. 7	-58	Sept. 17	+72	88	54	+15	II
		Oct. 9'4	1164	2/4	Oct. 4	-66	Oct. 7	-28	8	51	+15	
27	13704 21	Sept. 15'9	1163	2	Sept. 13	-32	Sept. 14	-20	13	0	+14	II
		Oct. 13'03	1164	12	Oct. 7	-76	Oct. 18	+71	716	3	+15	
28	13716 31 54	Oct. 6'03	1164	9	Oct. 4	-24	Oct. 12	+82	116	95	+13	II II II
		Nov. 1'9	1165	5	Oct. 28	-58	Nov. 1	- 6	47	101	+14	
		Nov. 28'82	1166	8	Nov. 23	-76	Nov. 30	+18	54	106	+12	
29	13717 33 55	Oct. 8'20	1164	6/10	Oct. 4	-51	Oct. 13	+69	10	67	+12	II II II
		Nov. 4'73	1165	11	Oct. 30	-72	Nov. 9	+60	144	63	+13	
		Dec. 1'41	1166	13	Nov. 26	-80	Dec. 7	+76	251	72	+14	

REVIVAL GROUPS OF SUNSPOTS

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	
30	13720 38	1940-41			1940-41	°	1940-41	°		°	°	II
		Oct. 12°10 Nov. 8°3	1164 1165	12 4/5	Oct. 7 Nov. 3	-64 -65	Oct. 18 Nov. 7	+81 -12	217 6	15 16	-16 -17	
31	13727 28 52 75	Oct. 26°78	1165	3/10	Oct. 22	-56	Oct. 31	+60	7	182	-9	II }
		Oct. 27°5	1165	2	Oct. 22	-67	Oct. 23	-56	12	171	-11	
		Nov. 23°38	1166	13	Nov. 17	-78	Nov. 29	+82	143	178	-11	II
		Dec. 20°27	1167	12	Dec. 14	-77	Dec. 25	+64	60	183	-11	II
32	13734 57 79	Oct. 30°4	1165	3	Nov. 3	+53	Nov. 5	+78	65	133	+9	
		Nov. 26°1	1166	3	Nov. 28	+29	Nov. 30	+57	33	142	+9	
		Dec. 22°8	1167	4	Dec. 23	+7	Dec. 26	+46	40	150	+8	
33	13749 64	Nov. 16°26	1166	8	Nov. 14	-28	Nov. 21	+66	272	271	-14	II
		Dec. 12°97	1167	10/12	Dec. 7	-76	Dec. 18	+76	41	279	-13	II
34	13758 86	Dec. 8°18	1167	11	Dec. 3	-67	Dec. 13	+71	89	343	+1	II
		Jan. 5°00	1168	5/10	Jan. 1	-51	Jan. 10	+74	18	336	+4	II (1941)
35	13762 88	Dec. 9°52	1167	11	Dec. 4	-66	Dec. 14	+65	258	325	-11	II
		Jan. 6°3	1168	2	Jan. 4	-24	Jan. 5	-15	22	319	-11	
36	13767 92 805	Dec. 10°94	1167	8	Dec. 9	-24	Dec. 16	+73	195	306	+1	II
		Jan. 6°6	1168	4	Jan. 9	+36	Jan. 12	+77	100	315	+2	
		Feb. 2°8	1169	4	Feb. 4	+21	Feb. 7	+64	30	317	+3	

Reference No. 2: Group 13507 disappeared before Rotation 1155 began.
 No.13: Rotation 1158 had ended before Group 13594 appeared.
 No.17: Rotation 1162 had ended before Group 13686 appeared.
 No.18: Group 13663 disappeared before Rotation 1162 began.
 No.22: Group 13684 disappeared before Rotation 1163 began.

ROYAL OBSERVATORY, GREENWICH.

Ledgers of Groups of Sunspots

For the Year

1940

Ledger I.—Recurrent Groups

LEDGER I - RECURRENT GROUPS OF SUNSPOTS FOR THE YEAR 1940.

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 and Kodaikanal by the letters C and K respectively. The letter W indicates Washington in the one case for which a positive on glass was supplied.

The projected area of the umbrae and whole spots, given in the *second* and *third* columns, is the area as it is measured on the photograph, uncorrected for the effect of foreshortening, and expressed in millionths of the Sun's apparent 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.

LEDGER I. - RECURRENT GROUPS OF SUNSPOTS FOR THE YEAR																	
Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Lati- tude	Long. from C.M.	Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Lati- tude	Long. from C.M.		
	Umbræ	Whole Spots	Umbræ	Whole Spots					Umbræ	Whole Spots	Umbræ	Whole Spots					
No. 1306 Latitude +9°9'								No. 1306 - continued									
Group 13502 In Rotation 1154								Group 13518 Jan. 26-Feb. 7. A big spot with variable companions until Feb. 4. (probably a of Group 13502).									
13518 } " " 1155 13519 } " 13534 } " " 1156 13535 } " 13557 " " 1157 13583 " " 1158																	
Group 13502. Jan. 1-11. A giant stream of normal type developing rapidly from a pair of small spots on Jan. 1. Both of the chief components, i.e. the leader, a, and follower, b, are very large regular spots of remarkable stability over several weeks.																	
d					o o o o												
0°51'2 C	15	40	13	36	118°2	0°0	+10°5	-54°6	25°28'4 C	69	452	170	1101	129°9	+6°2	+10°1	-76°7
1°42'2 G	43	220	30	156	118°0	-0°3	+10°3	-42°8	26°28'1 C	107	865	129	1028	129°6	+5°8	+10°1	-63°8
2°48'9 G	157	780	92	453	118°5	+0°1	+10°3	-28°2	27°37'3 C	173	976	140	791	129°8	+5°9	+10°5	-49°3
3°44'1 G	495	2357	264	1253	119°9	+1°4	+10°6	-14°3	28°53'2 C	205	1175	129	740	129°3	+5°2	+10°4	-34°5
4°43'2 G	994	4400	517	2288	121°6	+3°0	+10°6	+0°5	29°28'2 C	249	1239	142	706	129°1	+5°0	+10°2	-24°8
5°29'7 C	899	5386	478	2860	121°6	+2°9	+10°4	+11°9	30°27'7 C	330	1258	175	687	128°8	+4°5	+10°1	-12°0
6°37'1 C	1042	4678	608	2722	121°7	+2°8	+10°6	+26°1	31°27'7 C	226	1277	118	664	128°6	+4°2	+9°7	+1°0
7°43'5 G	797	3623	555	2531	121°7	+2°7	+10°7	+40°1	32°27'8 C	213	1095	115	591	128°6	+4°1	+9°5	+14°1
8°30'1 C	545	2610	481	2287	121°0	+1°9	+10°4	+50°8	33°27'8 C	217	1175	126	682	128°4	+3°8	+9°6	+27°1
9°41'1 G	335	1680	453	2301	119°6	+0°4	+10°3	+64°1	34°35'2 C	160	928	112	650	128°4	+3°7	+9°5	+41°2
10°43'4 G	80	464	(149)	867	115°1	..	+10°1	+73°0	35°52'2 G	145	688	141	667	128°6	+3°7	+9°7	+56°8
									36°50'9 G	78	423	123	668	128°7	+3°7	+9°9	+69°9
									37°27'9 C	38	164	111	479	127°4	+2°3	+9°4	+78°8
Means	..	..	349	1689	120°2	..	+10°5	..	Means	..	..	133	726	128°9	..	+9°9	..
Spot a								Group 13519 Jan. 27-Feb. 8. A large stable regular spot, b, with a cluster of variable companions preceding it until Feb. 4.									
1°42'2 G	11	41	7	27	121°0	0°0	+10°3	-39°8	26°28'1 C	37	316	112	936	115°1	-4°4	+11°7	-78°3
2°48'9 G	30	214	17	120	122°4	+1°3	+9°5	-24°3	27°37'3 C	88	673	107	822	115°9	-3°7	+11°9	-63°2
3°44'1 G	177	752	92	391	125°0	+3°8	+10°3	-9°2	28°53'2 C	135	827	111	682	114°4	-5°4	+11°7	-49°4
4°43'2 G	430	1825	224	949	126°8	+5°6	+10°4	+5°7	29°28'2 C	130	765	90	531	113°7	-6°1	+11°8	-40°2
5°29'7 C	414	2387	224	1289	127°5	+6°1	+10°3	+17°8	30°27'7 C	125	798	74	477	113°3	-6°7	+12°3	-27°5
6°37'1 C	470	1990	287	1214	128°1	+6°5	+10°4	+32°5	31°27'7 C	198	992	106	535	113°4	-6°7	+12°0	-14°2
7°43'5 G	346	1562	270	1218	129°7	+8°0	+10°7	+48°1	32°27'8 C	161	606	85	320</				

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

Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Lati- tude	Long. from C.M.	Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Lati- tude	Long. from C.M.		
	Umbræ	Whole Spots	Umbræ	Whole Spots					Umbræ	Whole Spots							
No. 1306 - continued								No. 1306 - continued									
Group 13534. Feb.22-Mar.5. A large, stable regular spot. (probably a of the original Group 13502).								Group 13583. Apr. 17-22. Intermittent. One or two small spots not seen on Apr.19 and 20.									
d					o	o	o	o	d					o	o	o	o
52°597 G	28	129	69	343	129°0 + 2°2	+ 8°9	-77°9	107°343 G	2	9	5	25	126°4 -6°6	+ 7°2	-78°6		
53°284 C	34	224	49	325	129°8 + 2°9	+ 9°0	-68°1	108°349 C	4	15	5	18	126°8 -6°3	+ 7°4	-65°0		
54°374 G	72	364	66	349	129°2 + 2°2	+ 9°3	-54°3	109°340 G	0	0	0	0					
55°376 C	84	456	58	315	129°5 + 2°4	+ 9°0	-40°8	110°434 C	0	0	0	0					
56°453 G	125	559	74	330	129°2 + 2°0	+ 9°1	-26°9	111°380 G	7	23	4	13	126°4 -7°0	+ 8°3	-25°3		
57°276 C	156	595	84	321	129°4 + 2°1	+ 8°9	-15°9	112°384 G	4	11	2	6	127°2 -6°3	+ 7°7	-11°3		
58°277 C	129	644	67	335	129°2 + 1°8	+ 9°2	- 2°9										
59°281 C	80	536	42	284	128°8 + 1°3	+ 9°2	+ 9°9										
60°317 C	97	555	55	316	129°0 + 1°3	+ 9°3	+23°8										
61°373 G	94	512	62	338	128°9 + 1°1	+ 9°3	+37°6	Means	..	..	3	10	126°7	..	+ 7°6	..	
62°417 G	79	399	67	339	129°1 + 1°2	+ 9°3	+51°5										
63°339 C	42	273	50	322	128°5 + 0°5	+ 9°3	+63°1										
64°372 G	20	143	52	370	129°2 + 1°1	+ 9°4	+77°4										
Means	..	..	61	330	129°1	..	+ 9°2	..									
Group 13535. Feb.24-Mar.2. Intermittent: a tiny spot representing the end of the big follower spot, b, of Group 13502.								No. 1307. Latitude -7°6 Group 13524 in Rotation 1156 13543 " " 1157									
54°374 G	2	9	4	16	112°0 -10°7	+11°4	-71°5	Group 13524. Feb. 6-17. A stream developing from a single spot on Feb.6. The leader, a, is the chief component and is the longest lived; b is the rear spot.									
55°376 C	0	4	0	4	112°2 -10°6	+10°9	-58°1	36°509 G	2	4	3	6	346°9 0°0	- 8°7	-71°9		
56°453 G	2	9	1	7	111°8 -11°1	+11°0	-44°3	37°279 C	2	13	2	13	349°2 +2°2	- 7°8	-59°4		
57°276 C	0	0	0	0				38°335 C	14	63	10	43	351°5 +4°3	- 9°2	-43°2		
58°277 C	0	0	0	0				39°459 C	48	234	28	133	351°0 +3°7	- 5°9	-28°9		
59°281 C	0	0	0	0				40°466 G	70	282	36	146	351°4 +3°9	- 5°6	-15°3		
60°317 C	0	0	0	0				41°355 C	80	395	39	198	351°6 +4°0	- 6°3	- 3°4		
61°373 G	2	9	1	5	110°1 -13°4	+ 9°7	+18°8	42°603 G	102	531	53	275	353°2 +5°4	- 6°8	+14°7		
Means	..	..	1	4	111°5	..	+10°8	..	43°506 G	102	514	57	290	353°9 +6°0	- 6°9	+27°3	
Group 13557. Mar.21-Apr.2. A stable regular spot f the complex group 13555: (probably a of Group 13502 - 4th passage of disk).								44°381 G									
80°381 G	31	150	60	290	127°4 - 2°5	+ 9°8	-73°4	45°402 C	42	227	35	188	354°4 +6°2	- 7°3	+52°7		
81°351 C	39	227	43	247	127°2 - 2°8	+ 9°7	-60°8	46°438 G	22	133	28	170	355°7 +7°4	- 7°5	+67°7		
82°363 G	46	287	36	224	126°9 - 3°2	+ 9°7	-47°8	47°286 C	13	78	30	175	355°1 +6°6	- 7°8	+78°2		
83°488 G	102	413	63	256	126°8 - 3°5	+ 9°7	-33°1	Means	..	..	30	157	352°3	..	- 7°2	..	
84°419 G	71	426	40	239	126°6 - 3°8	+ 9°6	-21°0	Spot a									
85°341 C	86	452	46	240	126°6 - 3°9	+ 9°6	- 8°8	38°335 C	10	42	7	28	352°8 0°0	- 8°9	-41°9		
86°396 G	82	471	43	245	125°8 - 4°8	+ 9°4	+ 4°3	39°459 C	25	158	14	88	352°7 -0°3	- 6°2	-27°2		
87°331 G	98	433	54	238	126°5 - 4°2	+ 9°4	+17°3	40°466 G	48	171	24	87	354°1 +1°0	- 6°5	-12°6		
88°372 C	73	372	45	227	126°1 - 4°7	+ 9°3	+30°7	41°355 C	34	162	17	81	355°0 +1°8	- 6°6	0°0		
89°338 G	51	302	37	217	126°3 - 4°6	+ 9°5	+43°6	42°603 G	50	386	26	201	354°7 +1°3	- 7°1	+16°2		
90°380 G	42	215	41	209	125°9 - 5°2	+ 9°5	+57°0	43°506 G	69	432	39	246	355°2 +1°7	- 7°3	+28°6		
91°380 G	25	147	42	247	127°0 - 4°2	+ 9°6	+71°2	44°381 G	46	301	30	199	355°7 +2°0	- 7°5	+40°6		
92°338 G	7	38	34	182	125°9 ..	+ 9°7	+82°8	45°402 C	34	183	29	162	355°7 +1°9	- 7°5	+54°0		
Means	..	..	46	240	126°6	..	+ 9°6	..	46°438 G	20	124	26	180	355°8 +1°8	- 7°5	+67°8	
									47°286 C	13	78	30	175	355°1 +1°0	- 7°8	+78°2	

LEDGER I. - RECURRENT GROUPS OF SUNSPOTS FOR THE YEAR																	
Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Lati- tude	Long. from C.M.		Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Lati- tude	Long. from C.M.	
	Umbræ	Whole Spots	Umbræ	Whole Spots						Umbræ	Whole Spots	Umbræ	Whole Spots				
No. 1307. Group 13524 - continued								No. 1308 - continued									
Spot b								Group 13544. Mar. 4-13. A medium-sized spot with companions, dying out rather abruptly.									
d									d								
36°335 C	4	21	3	15	349°5	0°0	- 9°6	-45°2	63°339 C	19	95	45	223	346°5 +10°8	-11°7	-78°9	
39°459 C	23	78	14	45	348°2	-1°5	- 5°1	-31°7	64°372 G	70	350	80	416	345°7 + 9°9	-11°3	-66°1	
40°466 G	22	111	12	59	347°9	-1°9	- 4°6	-18°8	65°410 G	75	379	60	304	346°0 +10°1	-11°6	-52°1	
41°355 C	29	139	14	70	348°6	-1°3	- 5°2	- 6°4	66°432 G	93	435	60	279	345°4 + 9°5	-11°7	-39°3	
42°603 G	52	145	27	74	349°9	-0°2	- 6°0	+11°4	67°422 C	63	444	34	245	346°5 +10°5	-11°8	-25°1	
43°508 G	33	82	18	44	349°4	-0°8	- 6°0	+22°8	68°371 G	84	484	43	248	346°7 +10°6	-11°4	-12°4	
44°381 G	11	74	7	45	349°6	-0°8	- 5°3	+34°5	69°378 C	69	409	34	205	347°0 +10°9	-11°7	+ 1°1	
45°402 C	8	34	6	26	350°3	-0°2	- 6°1	+48°6	70°399 C	47	283	24	147	347°5 +11°3	-11°4	+15°1	
46°438 G	2	9	2	10	352°2	+1°5	- 6°8	+64°2	71°341 C	43	251	25	143	348°6 +12°3	-11°0	+28°6	
								72°333 C 26 132 17 88 348°7 +12°4 -10°7 +41°8									
Group 13543. Mar. 3-10. A small spot; a companion follows on Mar. 5. (probably a of Group 13524).								Means 42 230 346°9 .. -11°4 ..									
62°417 G	4	11	9	24	359°8	+3°5	- 8°3	-77°8	No. 1309. Latitude -4°·7								
63°339 C	4	21	5	25	359°6	+3°2	- 8°3	-65°8	Group 13537 in Rotation 1156								
64°372 G	13	35	11	29	358°4	+1°9	- 8°3	-53°4	13560 " " 1157								
65°410 G	18	46	12	29	359°5	+2°8	- 8°0	-38°6	13585 " " 1158								
66°432 G	18	31	10	17	359°5	+2°7	- 8°0	-25°2	Group 13537. Feb. 25-Mar. 8. A fairly large stream developing from a few small spots near the east limb. The leader, a, becomes a regular spot of marked stability; b is the follower.								
67°422 C	8	59	4	30	359°8	+2°8	- 8°1	-11°8	55°376 C	4	21	15	80	87°0	..	- 6°6	-83°3
68°371 G	9	31	4	16	359°8	+2°7	- 7°6	+ 0°7	56°453 G	15	110	20	153	86°6	0°0	- 7°0	-69°5
69°378 C	4	17	2	9	0°1	+2°8	- 7°4	+14°2	57°276 C	42	312	39	291	87°3 + 0°6	- 7°1	-58°0	
Means 7 22 359°6 .. - 8°0 ..								58°277 C	95	620	64	420	89°5 + 2°6	- 6°2	-42°6		
No. 1308. Latitude -12°·5								59°281 C	144	865	80	483	92°1 + 5°0	- 5°3	-28°8		
Group 13526 in Rotation 1156								60°317 C	232	1379	119	709	93°0 + 5°7	- 5°0	-12°2		
13544 " " 1157								61°373 G	247	1340	123	670	93°2 + 5°8	- 5°0	+ 1°9		
Group 13526. Feb. 9-19. A few inert spots for some days. On Feb. 14, a stream begins to develop quite rapidly and this is still growing as it passes round the west limb.								62°417 G	314	1468	164	766	93°5 + 5°9	- 4°8	+15°9		
39°459 C	4	17	3	12	334°1	0°0	-14°8	-45°8</									

LEDGER I. - RECURRENT GROUPS OF SUNSPOTS FOR THE YEAR

Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Latiti- tude	Long. from C.M.	Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Lati- tude	Long. from C.M.	
	Umbræ	Whole Spots	Umbræ	Whole Spots					Umbræ	Whole Spots	Umbræ	Whole Spots				
No. 1309. Group 13537 - continued								No. 1310. Group 13539 - continued								
d	Spot b				o	o	o	o	d	o				o	o	o
60°317 C	55	253	29	132	89°5	0°0	- 4°2	-15°7	61°373 G	70	381	63	339	147°1	+1°0	- 7°4 +55°8
61°373 G	48	280	24	140	88°7	-1°0	- 4°3	- 2°6	62°417 G	48	256	69	363	147°2	+1°0	- 7°9 +69°6
62°417 G	59	289	30	147	88°9	-1°0	- 4°4	+11°3	63°339 C	6	34	(15	84	144°6	..	- 8°9 +79°2
63°339 C	42	284	23	153	88°2	-1°8	- 4°6	+22°8	Means	..	..	48	241	146°8	..	- 7°2 ..
64°372 G	48	253	30	157	88°5	-1°7	- 4°3	+36°7	Group 13554. Mar. 19-24. A small double spot, breaking up into a tiny cluster before dying out.							
65°410 G	55	235	43	183	88°6	-1°8	- 4°1	+50°5	78°373 G	15	89	29	178	151°4	+3°1	- 9°7 -75°9
66°432 G	46	178	52	203	88°9	-1°7	- 3°8	+64°2	79°369 G	20	104	21	111	151°8	+3°3	-10°2 -62°4
67°422 C	19	144	43	324	89°2	-1°5	- 4°1	+77°6	80°381 G	33	122	25	91	151°8	+3°2	-10°0 -49°0
Group 13560. Mar.23-Apr.3. A stable regular spot with a small companion until Mar.29: (a of Group 13537).								81°351 C	13	58	8	36	151°9	+3°2	-10°2 -36°1	
82°363 G	24	101	47	201	99°1	+1°4	- 4°6	-75°6	82°363 G	13	38	7	21	152°2	+3°4	-10°4 -22°5
83°488 G	51	240	53	250	98°3	+0°4	- 4°6	-61°6	83°488 G	0	7	0	4	153°1	+4°1	-10°2 - 6°8
84°419 G	62	309	47	235	98°4	+0°4	- 4°8	-49°2	Means	..	..	15	74	152°0	..	-10°1 ..
85°341 C	51	325	32	202	99°0	+0°8	- 5°0	-36°4	No. 1311. Latitude +11°8							
86°396 G	69	389	37	210	98°6	+0°2	- 5°1	-22°9	Group 13542 in Rotation 1156							
87°331 G	95	448	48	228	99°5	+1°0	- 5°2	- 9°7	13562 " " 1157							
88°372 C	90	454	45	227	99°6	+0°9	- 5°3	+ 4°2	Group 13542. Mar. 3-8. A stream developing rapidly into one of the normal type.							
89°338 G	62	364	32	189	99°9	+1°0	- 5°0	+17°2	62°417 G	15	61	8	33	85°2	0°0	+12°4 + 7°6
90°380 G	67	342	39	198	99°8	+0°7	- 5°0	+30°9	63°339 C	106	560	60	315	85°6	+0°3	+12°2 +20°2
91°380 G	51	297	36	208	100°1	+0°9	- 5°0	+44°3	64°372 G	116	634	74	408	86°0	+0°6	+12°0 +34°2
92°338 G	47	221	43	201	99°9	+0°5	- 4°9	+56°8	65°410 G	90	462	73	376	86°5	+1°1	+11°8 +48°4
93°574 G	18	107	31	182	100°0	+0°4	- 4°6	+73°2	66°432 G	61	293	70	349	86°8	+1°3	+11°8 +62°1
Means	..	..	41	211	99°4	..	- 4°9	..	67°422 C	12	79	30	218	86°6	+3°0	+11°7 +77°0
Group 13585. Apr. 19-30. A stable regular spot. (a of Group 13537).								Means	..	..	52	283	86°4	..	+12°0	..
109°340 G	14	86	29	176	102°5	+0°2	- 4°1	-76°2	No. 1310. Latitude -8°6							
110°434 C	22	135	23	143	102°0	-0°5	- 4°6	-62°2	Group 13539 in Rotation 1156							
111°380 G	29	185	22	142	102°0	-0°7	- 4°2	-49°7	13554 " " 1157							
112°384 G	45	216	28	134	102°3	-0°6	- 4°0	-36°2	Group 13539. Feb.29-Mar.4. A stream developing towards the west limb.							
113°457 C	53	250	29	135	102°1	-0°9	- 4°1	-22°2	59°281 C	19	97	10	54	145°8	0°0	- 6°6 +26°9
114°423 C	50	263	26	134	102°1	-1°1	- 4°0	- 9°4	60°317 C	76	312	51	209	147°1	+1°2	- 6°8 +41°9
115°310 G	59	287	30	144	102°2	-1°2	- 3°9	+ 2°4	Group 13562. Mar. 24-27. One small spot on Mar.24, 25 and 27; a tiny cluster on Mar.26.							
116°314 G	61	258	32	134	101°8	-1°7	- 4°0	+15°3	83°488 G	4	18	5	23	94°9	+8°0	+11°2 -65°0
117°410 G	72	260	42	151	101°8	-1°9	- 3°7	+29°7	84°419 G	4	11	4	10	94°9	+7°9	+11°2 -52°7
118°150 K	21	159	14	103	101°6	-2°3	- 3°7	+39°3	85°341 C	9	47	6	33	94°5	+7°4	+11°9 -40°9
119°521 C	18	136	16	124	101°2	-2°9	- 3°7	+57°0	86°396 G	7	31	4	19	94°0	+6°9	+11°8 -27°5
120°363 C	18	83	24	110	101°1	-3°1	- 4°2	+68°1	Means	..	..	5	21	94°6	..	+11°5 ..
No. 1310. Latitude -8°6								Group 13562. Mar. 24-27. One small spot on Mar.24, 25 and 27; a tiny cluster on Mar.26.								
Group 13539 in Rotation 1156								83°488 G 4 18 5 23 94°9 +8°0 +11°2 -65°0								
13554 " " 1157								84°419 G 4 11 4 10 94°9 +7°9 +11°2 -52°7								
Group 13539. Feb.29-Mar.4. A stream developing towards the west limb.								85°341 C 9 47 6 33 94°5 +7°4 +11°9 -40°9								
59°281 C 19 97 10 54 145°8 0°0 - 6°6 +26°9								86°396 G 7 31 4 19 94°0 +6°9 +11°8 -27°5								
60°317 C 76 312 51 209 147°1 +1°2 - 6°8 +41°9								Means 5 21 94°6 .. +11°5 ..								

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Date U.T. Place	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							
No. 1312. Latitude +11° 9								No. 1312 - continued									
Group 13555 in Rotation 1157 13582 " " 1158 13599 " " 1159								Group 13599. May 12-24. A pair of regular spots, both dividing on May 17. The minor portions die out, those of the following spot being the first to go.									
Group 13555. Mar.20-Apr.1. A big complex spot which, though showing at times great chromospheric activity, retains its general shape throughout. Its position, 10° of longitude in front of Group 13557 with its long life-history dating from early January, is perhaps not merely fortuitous.								d o o o									
d																	
79° 369 G	44	236	139	743	135° 1	0° 0	+11° 8	-79° 1	132° 395 G	5	36	24	172	150° 8	..	+12° 3	-83° 2
80° 381 G	104	577	134	744	135° 9	+0° 7	+12° 0	-64° 9	133° 421 G	55	253	90	417	149° 5	+10° 1	+13° 2	-70° 9
81° 351 C	148	963	129	838	136° 4	+1° 1	+12° 2	-51° 6	134° 329 G	79	438	81	451	149° 4	+10° 0	+13° 1	-59° 0
82° 363 G	199	1496	135	1017	136° 6	+1° 3	+12° 3	-36° 1	135° 458 G	117	579	85	421	149° 5	+10° 0	+12° 9	-44° 0
83° 488 G	468	2127	271	1234	136° 8	+1° 4	+12° 2	-23° 1	136° 385 G	105	661	64	405	149° 2	+9° 6	+13° 1	-32° 0
84° 419 G	471	2495	254	1347	136° 9	+1° 4	+12° 1	-10° 7	137° 368 G	75	677	41	370	149° 7	+10° 0	+12° 9	-18° 5
85° 341 C	385	2433	204	1284	136° 7	+1° 1	+11° 8	+1° 3	138° 337 G	79	411	41	214	150° 3	+10° 5	+12° 6	-5° 1
86° 396 G	379	2408	207	1320	136° 1	+0° 4	+12° 3	+14° 6	139° 394 G	111	488	58	255	150° 3	+10° 5	+12° 6	+8° 9
87° 331 G	395	2019	236	1209	136° 6	+0° 9	+12° 2	+27° 4	140° 336 G	85	413	48	231	150° 6	+10° 7	+12° 3	+21° 7
88° 372 C	327	2234	232	1569	136° 2	+0° 4	+11° 8	+40° 8	141° 325 G	66	262	42	165	151° 2	+11° 2	+12° 0	+35° 3
89° 338 G	211	1739	194	1599	136° 4	+0° 5	+11° 9	+53° 7	142° 591 G	39	166	33	142	151° 2	+11° 1	+12° 1	+52° 1
90° 380 G	184	950	237	1365	136° 3	+0° 3	+12° 6	+67° 4	143° 324 G	32	103	35	114	151° 2	+11° 0	+12° 2	+61° 8
91° 380 G	22	219	(75	751	135° 6	..	+13° 4)	+79° 8	144° 334 G	14	46	31	102	152° 4	+12° 2	+11° 5	+76° 4
Means	..	..	198	1189	136° 3	..	+12° 1	..	Means	..	..	54	274	150° 4	..	+12° 5	..
Group 13582. Apr. 16-27. A stable regular spot, a, with variable companions.								No. 1313. Latitude -10° 1									
106° 350 G 30 148 63 290 144° 5 +7° 3 +11° 5 -73° 7								Group 13609 in Rotation 1159 13630 " " 1160									
107° 343 G 52 267 60 322 143° 4 +6° 1 +11° 8 -61° 6								Group 13609. May 23-June 4. A stream of normal type, the leader, a, a regular spot, alone remaining after May 30. b is the rear spot.									
108° 349 C 70 367 55 285 144° 4 +7° 0 +11° 1 -47° 4								143° 324 G 11 62 (48 272 5° 8 .. -10° 0) -83° 6									
109° 340 G 106 523 67 334 143° 7 +6° 2 +11° 5 -35° 0								144° 334 G 48 278 86 491 3° 1 0° 0 -9° 9 -72° 9									
110° 434 C 87 494 48 275 144° 0 +6° 4 +11° 0 -20° 2								145° 448 G 82 481 78 460 2° 6 -0° 6 -10° 1 -58° 7									
111° 380 G 106 507 58 286 144° 1 +6° 5 +11° 0 -7° 6								146° 511 C 115 619 80 435 3° 4 +0° 1 -10° 3 -43° 8									
112° 384 G 74 482 39 250 144° 4 +6° 7 +10° 9 +5° 9								147° 329 G 135 703 81 422 3° 8 +0° 4 -10° 1 -32° 6									
113° 457 C 59 344 32 189 144° 7 +6° 9 +10° 5 +20° 4								148° 108 K 135 678 73 368 4° 7 +1° 2 -10° 1 -21° 4									
114° 423 C 57 285 35 177 144° 8 +6° 9 +10° 5 +33° 3								149° 367 G 121 653 62 333 5° 5 +1° 8 -10° 3 -4° 0									
115° 310 G 47 219 35 162 145° 2 +7° 3 +10° 1 +45° 4								150° 339 G 138 640 71 327 5° 0 +1° 2 -10° 4 +8° 4									
116° 314 G 41 210 40 206 144° 0 +6° 0 +10° 6 +57° 5								151° 453 G 98 624 55 293 5° 8 +1° 9 -10° 1 +24° 0									
117° 410 G 23 140 41 251 144° 6 +6° 5 +10° 8 +72° 5								152° 363 G 66 394 42 248 6° 0 +2° 0 -10° 5 +36° 2									
Means	..	..	48	251	144° 3	..	+10° 9	..	153° 398 G 66 344 52 272 6° 1 +2° 0 -10° 5 +50° 0								
Spot a								154° 326 G 46 252 51 277 6° 4 +2° 2 -10° 7 +62° 6									
106° 350 G 23 128 41 227 145° 9 0° 0 +10° 6 -72° 3								155° 388 G 23 124 53 285 7° 1 +2° 8 -10° 5 +77° 3									
107° 343 G 38 214 40 223 145° 5 -0° 5 +10° 8 -59° 5								Means									
108° 349 C 54 301 40 226 146° 0 -0° 1 +10° 5 -45° 8								..									
109° 340 G 68 367 42 228 145° 7 -0° 4 +10° 7 -33° 0								..									
110° 434 C 74 414 41 228 145° 3 -0° 9 +10° 5 -18° 9								61									
111° 380 G 82 465 48 237 145° 0 -1° 3 +10° 7 -6° 7								351									
112° 384 G 63 439 33 228 145° 1 -1° 3 +10° 7 +6° 6								5° 0									
113° 457 C 59 344 32 189 144° 7 -1° 8 +10° 5 +20° 4								..									
114° 423 C 57 285 35 177 144° 8 -1° 7 +10° 5 +33° 3								-10° 3									
115° 310 G 47 219 35 162 145° 2 -1° 4 +10° 1 +45° 4								..									
116° 314 G 34 176 34 176 144° 9 -1° 8 +9° 9 +58° 4								Spot a									
117° 410 G 16 104 31 201 146° 0 -0° 8 +10° 1 +73° 9								144° 334 G 34 205 52 316 5° 0 0° 0 -9° 8 -71° 0									
								145° 448 G 64 353 58 318 5° 2 +0° 1 -10° 0 -56° 1									
								146° 511 C 93 451 63 307 5° 3 +0° 1 -10° 1 -41° 9									
								147° 329 G 112 561 66 331 5° 3 0° 0 -10° 0 -31° 1									
								148° 108 K 123 597 66 322 5° 6 +0° 2 -10° 1 -20° 5									
								149° 367 G 119 632 61 322 5° 6 0° 0 -10° 3 -3° 9									
								150° 339 G 126 598 64 305 5° 5 -0° 2 -10° 3 +8° 9									
								continued									

LEDGER I. - RECURRENT GROUPS OF SUNSPOTS FOR THE YEAR

Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Lati- tude	Long. from C.M.	Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Lati- tude	Long. from C.M.		
	Umbræ	Whole Spots	Umbræ	Whole Spots					Umbræ	Whole Spots							
No. 1313. Group 13609 - continued								No. 1314. Group 13615 - continued									
Spot a - continued								Spot a									
d								d									
151°453 G	98	524	55	293	5°8	0°0	-10°1	+24°0	154°326 G	18	98	9	57	277°8	0°0	-18°8	-26°0
152°363 G	66	394	42	248	6°0	+0°1	-10°5	+36°2	155°388 G	30	114	16	62	278°7	+1°0	-18°6	-11°1
153°398 G	66	344	52	272	6°1	+0°1	-10°5	+50°0	156°347 G	50	192	26	102	279°3	+1°7	-18°5	+2°2
154°326 G	46	252	51	277	6°4	+0°3	-10°7	+62°6	157°309 G	57	252	31	136	279°0	+1°5	-18°2	+14°7
155°388 G	23	124	53	285	7°1	+0°9	-10°5	+77°3	158°335 G	78	419	48	256	280°6	+3°2	-17°9	+29°8
Spot b								Spot b									
144°334 G	14	73	34	175	358°0	0°0	-10°0	-78°0	159°328 G	46	268	34	196	281°4	+4°1	-17°5	+43°8
145°448 G	18	128	20	142	358°2	+0°1	-10°2	-63°1	160°339 G	32	176	32	176	282°6	+5°3	-17°2	+58°4
146°511 C	22	168	17	128	358°6	+0°4	-10°4	-48°6	161°355 G	9	48	18	84	283°3	+6°1	-17°0	+72°5
147°329 G	23	142	15	91	358°6	+0°3	-10°3	-37°8	Spot b								
148°108 K	12	81	7	46	359°1	+0°7	-10°3	-27°0	154°326 G	23	55	14	34	275°6	0°0	-20°7	-28°2
149°367 G	2	21	1	11	358°0	-0°6	-11°0	-11°5	155°388 G	44	202	24	111	275°4	-0°1	-20°9	-14°4
150°339 G	7	21	4	11	358°4	-0°3	-10°7	+1°8	156°347 G	78	337	42	182	275°1	-0°3	-21°0	-2°0
Group 13630. June 20-July 1. A small decreasing regular spot (a of Group 13609) with a companion on June 27.								157°309 G 73 440 39 238 274°5 -0°8 -21°0 +10°2									
171°403 G	9	69	14	110	6°7	-1°3	-10°1	-71°1	158°335 G	69	302	40	175	273°6	-1°6	-21°5	+22°8
172°412 G	16	79	16	77	6°2	-1°9	-10°0	-58°2	159°328 G	73	300	48	198	273°2	-1°9	-21°5	+35°6
173°340 G	16	85	12	63	6°1	-2°1	-9°8	-46°0	160°339 G	44	213	36	175	272°8	-2°3	-21°7	+48°6
174°410 C	27	134	16	80	6°1	-2°2	-10°0	-31°9	161°355 G	32	152	36	173	272°4	-2°6	-21°3	+61°6
175°591 G	23	127	12	67	6°0	-2°4	-9°9	-16°3	162°343 G	16	101	31	198	271°6	-3°3	-21°2	+73°9
176°344 G	30	139	15	71	5°8	-2°7	-9°8	-6°6	Spot c								
177°336 G	25	134	13	68	5°7	-2°9	-9°8	+6°5	158°335 G	25	181	15	107	275°5	0°0	-20°2	+24°7
178°432 G	28	104	15	57	4°8	-4°0	-10°1	+20°1	159°328 G	48	295	33	204	276°4	+1°0	-20°2	+38°8
179°362 C	13	100	8	61	5°4	-3°5	-9°5	+33°0	160°339 G	34	195	30	170	276°4	+1°1	-20°2	+52°2
180°362 G	7	18	5	13	5°3	-3°7	-9°8	+46°1	161°355 G	25	117	33	153	276°6	+1°4	-20°1	+65°8
181°396 G	5	21	5	21	5°0	-4°1	-9°9	+59°5	162°343 G	7	28	19	77	276°2	+1°1	-20°1	+78°5
182°332 G	2	7	3	12	5°3	-3°9	-9°9	+72°2	Group 13641. June 27-July 2. One or two tiny spots, not seen on June 28.								
Means	..	..	11	58	5°7	..	-9°9	..	178°432 G	0	9	0	15	273°6	-1°2	-19°0	-71°1
No. 1314. Latitude -19°2								179°362 C 0 0 0 0									
Group 13615 in Rotation 1160								180°362 G 7 32 5 22 280°4 +5°8 -18°2 -38°8									
13641 " " 1161								181°396 G 20 47 12 28 280°3 +5°8 -18°1 -25°2									
Group 13615. June 3-11. A large stream of normal type forming on the disk. The leader, a, divides into two by June 8: the rear spot of the stream becomes a regular spot, b, and is more stable. Group 13617 is close by. Spot c forms in front of b.								182°332 G 19 80 11 45 278°2 +3°7 -19°4 -14°9									
154°326 G	39	151	23	91	277°0	0°0	-19°5	-26°8	183°348 G	4	14	2	8	274°1	-0°3	-18°4	-5°6
155°388 G	74	316	40	173	276°6	-0°3	-20°1	-13°2	Means	..	..	5	20	277°3	..	-18°6	..
156°347 G	128	529	68	284	276°6	-0°2	-20°0	-0°5	No. 1315. Latitude -7°6								
157°309 G	130	692	70	374	276°0	-0°7	-20°0	+11°7	Group 13619 in Rotation 1160								
158°335 G	172	902	103	538	277°3	+0°7	-19°5	+26°5	13646 " " 1161								
159°328 G	183	927	126	643	277°1	+0°6	-19°6	+39°5	Group 13619. June 6-18. A stream with a stable regular spot, a, as leader. The rest of the formation undergoes consider- able changes before dying out.								
160°339 G	119	653	106	585	277°5	+1°0	-19°5	+53°3	157°309 G	7	32	(27	122	181°8	..	-6°4	-82°5
161°355 G	73	370	95	490	276°8	+0°4	-19°7	+66°0	158°335 G	30	147	53	266	177°0	0°0	-6°5	-73°8
162°343 G	30	163	(81	424	275°6	..	-19°9	+77°9	159°328 G	68	346	70	348	177°8	+0°7	-6°6	-59°8
Means	..	..	79	397	276°9	..	-19°7	..									

LEDGER I. - RECURRENT GROUPS OF SUNSPOTS FOR THE YEAR																	
Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Lati- tude	Long. from C.M.		Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Lati- tude	Long. from C.M.	
	Umbræ	Whole Spots	Umbræ	Whole Spots						Umbræ	Whole Spots	Umbræ	Whole Spots				
No. 1315. Group 13619 - continued								No. 1316 - continued									
d																	
160°339 G	87	412	63	299	178°6	+1°3	- 6°8	-45°6	Group 13645. July 3-12. A small regular spot slowly dying out.								
161°355 G	145	729	88	441	177°6	+0°2	- 6°7	-33°2	d								
162°343 G	184	846	98	452	177°7	+0°1	- 6°9	-20°0	184°394 C	13	54	21	87	197°1	+6°5	-23°7	-68°7
163°350 G	177	1003	90	512	178°8	+1°1	- 7°3	- 5°8	185°372 G	14	88	14	89	197°2	+6°9	-23°6	-55°7
164°166 K	208	1191	106	605	179°5	+1°7	- 7°2	+ 5°9	186°381 G	18	88	14	68	196°8	+6°7	-23°3	-42°7
165°344 G	180	923	99	506	180°1	+2°1	- 7°2	+22°1	187°430 C	29	120	19	78	196°3	+6°4	-23°3	-29°3
166°348 G	158	601	99	375	180°7	+2°5	- 7°8	+36°0	188°377 G	25	125	15	74	196°1	+6°5	-23°3	-17°0
167°391 C	53	328	43	261	181°3	+3°0	- 7°7	+50°4	189°343 G	23	116	13	65	196°1	+6°7	-23°3	- 4°2
168°490 G	23	150	29	190	182°6	+4°3	- 7°7	+66°4	190°423 G	16	72	9	41	195°8	+6°6	-23°3	+ 9°8
169°341 G	9	58	23	146	183°3	+4°7	- 8°0	+78°2	191°355 C	9	36	5	22	195°6	+6°7	-23°3	+21°9
Means	..	..	72	367	179°6	..	- 7°2	..	192°357 G	14	25	10	17	195°3	+6°6	-23°2	+34°9
Spot a								193°330 G	5	12	4	10	195°3	+6°8	-23°0	+47°7	
158°335 G	18	76	26	110	181°2	0°0	- 6°4	-69°6	Means	..	..	12	55	196°2	..	-23°3	..
159°328 G	30	172	27	155	181°8	+0°5	- 6°5	-55°8	No. 1317. Latitude +6°1.								
160°339 G	50	229	34	158	181°6	+0°1	- 6°9	-42°6	Group 13633 in Rotation 1160								
161°355 G	53	294	31	171	181°7	+0°1	- 6°9	-29°1	13653 "	"	"	1161					
162°343 G	64	329	33	171	182°0	+0°2	- 7°1	-15°7	13676 "	"	"	1162					
163°350 G	71	329	36	168	182°3	+0°4	- 7°4	- 2°1	Group 13633. June 24-25. A pair of growing spots near the west limb.								
164°166 K	89	426	45	217	182°6	+0°6	- 7°6	+ 9°0	175°591 G	9	23	10	26	86°1	0°0	+ 4°6	+63°8
165°344 G	74	396	41	222	182°4	+0°2	- 7°5	+24°4	176°344 G	21	81	43	166	88°4	+2°2	+ 4°7	+76°0
166°348 G	124	444	78	280	181°4	-1°0	- 7°9	+36°7	Means	..	..	26	96	87°2	..	+ 4°6	..
167°391 C	40	277	32	222	181°6	-0°9	- 7°7	+50°7	Group 13653. July 10-22. A fairly large composite spot breaking up into separate spots which then diminish. The origin of the Group is probably represented by Group 13633.								
168°490 G	23	150	29	190	182°8	+0°1	- 7°7	+66°4	191°355 C	38	299	93	737	94°8	+6°2	+ 5°6	-78°9
169°341 G	9	58	23	146	183°3	+0°5	- 8°0	+78°2	192°357 G	108	665	127	781	95°0	+6°2	+ 6°1	-65°4
Group 13646. July 3-8. A small spot, probably a of Group 13619.								193°3									

LEDGER I. - RECURRENT GROUPS OF SUNSPOTS FOR THE YEAR

Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Lati- tude	Long. from C.M.	Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Lati- tude	Long. from C.M.		
	Umbræ	Whole Spots	Umbræ	Whole Spots					Umbræ	Whole Spots							
No. 1317 - continued								No. 1318. Group 13635 - continued									
Group 13676. Aug. 6-16. A slowly contracting regular spot with a small companion on Aug. 8 and 11, closely preceding Group 13678.								Spot b									
a					o	o	o	o					o	o	o	o	
218°403 G	16	71	33	148	99°1	+6°1	+ 7°2	-78°8	175°591 G	2	7	4	15	306°9	0°0	-13°8	-75°4
219°613 G	21	110	21	109	99°8	+6°8	+ 7°1	-80°1	176°344 G	30	81	38	101	307°4	+ 0°4	-13°8	-85°0
220°401 G	29	124	23	94	100°1	+6°8	+ 6°5	-49°4	177°336 G	37	296	33	280	306°1	- 0°9	-14°1	-53°1
221°438 G	23	94	14	57	100°3	+6°8	+ 6°9	-35°5	178°432 G	85	402	57	269	306°0	- 1°1	-14°2	-38°7
222°420 G	25	105	14	57	100°7	+7°1	+ 6°6	-22°1	179°362 C	65	491	38	285	306°6	- 0°6	-14°2	-25°8
223°392 C	29	135	15	69	100°6	+6°8	+ 7°0	- 9°3	180°362 G	67	393	36	212	306°4	- 0°9	-14°1	-12°8
224°357 G	43	140	21	70	100°6	+6°8	+ 7°0	+ 3°4	181°396 G	39	363	20	189	306°5	- 0°8	-14°5	+ 1°0
225°342 G	16	60	8	31	100°6	+6°5	+ 6°5	+16°5	182°332 G	65	240	35	130	307°0	- 0°4	-14°5	+13°9
226°330 G	16	62	9	35	100°8	+6°5	+ 6°5	+29°7	183°348 G	32	150	19	88	307°0	- 0°5	-14°5	+27°3
227°364 G	7	25	5	17	100°9	+6°5	+ 6°9	+43°5	184°394 C	9	45	6	32	307°2	- 0°4	-14°6	+41°4
228°349 G	5	16	4	14	100°4	+5°8	+ 6°8	+56°0	185°372 G	7	23	6	21	307°6	0°0	-14°8	+54°7
Means 16 64 100°4 .. + 6°8 ..								Group 13663. July 20-21. A tiny spot, probably a of Group 13635.									
								201°489 C 0 7 0 15 324°2 +10°7 -10°8 -75°4									
								202°383 G 5 9 6 10 325°2 +11°6 -10°2 -62°6									
Means 3 12 324°7 .. -10°5 ..																	
No. 1318. Latitude -12°2								No. 1319. Latitude +9°6									
Group 13635 in Rotation 1161								Group 13639 in Rotation 1161									
13663 " " 1161*								13661 " " 1161†									
Group 13635. June 24-July 5. A stream of normal type in which the follower (b) at first larger than the leader spot (a) does not survive to the west limb.								Group 13639. June 26-July 4. A small cluster when first seen, becoming a small stream of normal type. Its axis is markedly inclined to the Sun's equator.									
175°591 G	7	19	12	34	309°5	0°0	-14°1	-72°8	177°336 G	12	28	7	17	327°6	- 0°0	+ 8°7	-31°6
176°344 G	39	118	47	139	309°2	-0°4	-13°9	-63°2	178°432 G	46	166	24	88	327°3	- 0°4	+ 8°6	-17°4
177°336 G	56	360	48	309	307°0	-2°6	-14°2	-52°2	179°362 C	27	143	13	72	326°7	- 1°1	+ 9°4	- 5°7
178°432 G	196	652	125	549	309°4	-0°3	-13°7	-35°3	180°362 G	81	312	41	159	326°4	- 1°6	+ 8°6	+ 7°2
179°362 C	130	768	74	437	309°5	-0°3	-13°5	-22°9	181°396 G	101	450	54	244	326°4	- 1°7	+ 9°1	+20°9
180°362 G	162	786	85	416	310°8	+0°9	-13°5	- 8°4	182°332 G	67	342	40	205	326°8	- 1°4	+ 8°3	+33°7
181°396 G	108	751	57	394	310°7	+0°8	-13°8	+ 5°2	183°348 G	41	157	30	117	327°0	- 1°3	+ 8°6	+47°3
182°332 G	123	582	68	325	312°3	+2°3	-14°0	+19°2	184°394 C	18	105	20	118	328°8	+ 0°4	+ 9°0	+63°0
183°348 G	74	372	46	232	312°8	+2°7	-13°9	+33°1	185°372 G	12	33	25	66	327°6	- 0°9	+ 9°4	+74°7
184°394 C	31	211	24	170	314°9	+4°7	-13°7	+49°1	Means 28 120 327°2 .. + 8°9 ..								
185°372 G	35	111	40	127	315°4	+5°2	-13°7	+62°5	Group 13661. July 19-22. A single small spot diminishing to a dot.								
186°381 G	12	53	31	137	317°1	+6°8	-13°8	+77°6	200°332 G 5 18 13 45 335°6 + 5°3 +10°1 -79°3								
Means 55 272 311°6 .. -13°8 ..								201°489 C 4 31 4 35 335°8 + 5°3 +10°4 -63°8									
								202°383 G 5 12 4 10 335°6 + 5°0 +10°5 -52°2									
								203°336 G 5 12 3 8 335°6 + 4°9 +10°4 -39°6									
Spot a								Means 6 24 335°6 .. +10°4 ..									
175°591 G	5	12	8	19	311°6	0°0	-14°5	-70°7	† Group 13661 disappeared one day before Rotation 1162 began.								
176°344 G	9	37	9	38	313°0	+1°3	-14°2	-59°4									
177°336 G	12	46	9	34	313°7	+2°0	-14°2	-45°5									
178°432 G	79	270	48	165	313°6	+1°8	-13°5	-31°1									
179°362 C	65	277	36	152	314°2	+2°3	-13°0	-18°2									
180°362 G	81	312	42	162	315°4	+3°4	-12°9	- 3°8									
181°396 G	62	365	33	183	315°6	+3°6	-13°0	+10°1									
182°332 G	49	300	28	171	316°2	+4°1	-13°5	+23°1									
183°348 G	42	222	27	144	316°3	+4°1	-13°6	+36°6									
184°394 C	22	166	18	138	316°7	+4°4	-13°5	+50°9									
185°372 G	28	88	34	106	316°9	+4°6	-13°5	+64°0									
* Group 13663 disappeared two days before Rotation 1162 began.																	

* Group 13663 disappeared two days before Rotation 1162 began.

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LEDGER I. - RECURRENT GROUPS OF SUNSPOTS FOR THE YEAR																																																																																																																																																																							
Date U.T. Place	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.																																																																																																																																																								
	Umbræ	Whole Spots	Umbræ	Whole Spots					Umbræ	Whole Spots	Umbræ	Whole Spots																																																																																																																																																											
No. 1320. Latitude +18° 6 Group 13649 in Rotation 1161 13670 " " 1162 Group 13649. July 8-14. A large stream of normal type developing rapidly west of the central meridian. <i>a</i> is the leader and <i>b</i> the trailer spot.								No. 1320. Group 13670 - continued Spot <i>a</i> (probably <i>a</i> of Group 13649)																																																																																																																																																															
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193°330 G	211	1108	236	1234																																																																																																																																																																			
194°355 G	98	518	198	1032																																																																																																																																																																			
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211°119 K	68	394	69	402																																																																																																																																																																			
212°384 G	85	410	60	287																																																																																																																																																																			
213°431 G	105	543	62	320																																																																																																																																																																			
214°487 G	85	520	46	281																																																																																																																																																																			
215°337 C	98	495	51	257																																																																																																																																																																			
216°449 G	98	465	51	242																																																																																																																																																																			
217°341 G	80	414	43	224																																																																																																																																																																			
218°403 G	85	378	52	231																																																																																																																																																																			
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219°613 G	53	236	36	160	201°3	-4°3	+20°2 +41°4																																																																																																																																																																
220°401 G	53	181	43	148	201°1	-4°5	+20°3 +51°6																																																																																																																																																																
221°438 G	16	133	19	154	200°8	-4°7	+20°3 +65°0																																																																																																																																																																
222°420 G	11	53	23	113	200°5	-4°9	+20°5 +77°7																																																																																																																																																																
Spot <i>b</i>								No. 1321. Latitude -11° 3 Group 13659 in Rotation 1161 13673 " " 1162																																																																																																																																																															
<table border="1"> <tbody> <tr><td>189°343 G</td><td>14</td><td>35</td><td>7</td><td>18</td><td>207°9</td><td>0°0</td><td>+17°9 + 7°6</td></tr> <tr><td>190°423 G</td><td>60</td><td>363</td><td>34</td><td>203</td><td>209°3</td><td>+1°5</td><td>+17°9 +23°3</td></tr> <tr><td>191°355 C</td><td>60</td><td>370</td><td>37</td><td>229</td><td>207°8</td><td>+0°1</td><td>+18°1 +34°1</td></tr> <tr><td>192°357 G</td><td>131</td><td>718</td><td>97</td><td>531</td><td>207°1</td><td>-0°6</td><td>+17°7 +46°7</td></tr> <tr><td>193°330 G</td><td>117</td><td>630</td><td>115</td><td>617</td><td>206°5</td><td>-1°1</td><td>+17°9 +58°9</td></tr> <tr><td>194°355 G</td><td>64</td><td>343</td><td>103</td><td>552</td><td>206°3</td><td>-1°2</td><td>+17°6 +72°3</td></tr> <tr><td>195°380 G</td><td>5</td><td>12</td><td>27</td><td>64</td><td>206°2</td><td>..</td><td>+17°8 +85°8</td></tr> </tbody> </table>								189°343 G	14	35	7	18	207°9	0°0	+17°9 + 7°6	190°423 G	60	363	34	203	209°3	+1°5	+17°9 +23°3	191°355 C	60	370	37	229	207°8	+0°1	+18°1 +34°1	192°357 G	131	718	97	531	207°1	-0°6	+17°7 +46°7	193°330 G	117	630	115	617	206°5	-1°1	+17°9 +58°9	194°355 G	64	343	103	552	206°3	-1°2	+17°6 +72°3	195°380 G	5	12	27	64	206°2	..	+17°8 +85°8	Group 13659. July 19-20. A pair of spots forming near the west limb.																																																																																																							
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Group 13670. July 28-Aug.10. A stream of normal type. <i>a</i> is the leader spot and <i>b</i> the follower.								<table border="1"> <tbody> <tr><td>200</td></tr></tbody></table>								200																																																																																																																																																							
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Date U.T. Place	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.	
	Umbræ	Whole Spots	Umbræ	Whole Spots					Umbræ	Whole Spots	Umbræ	Whole Spots				
No. 1321. Group 13673 - continued								No. 1323. Latitude -7° 9								
d								Group 13669 in Rotation 1162								
218° 403 G	246	1124	176	813	133° 2	+8° 2	-11° 5	-42° 7	13688 " " 1163							
219° 613 G	215	1358	127	802	133° 2	+8° 1	-10° 8	-26° 7	13708 " " 1164							
220° 401 G	324	1401	176	786	133° 3	+8° 1	-11° 0	-16° 2								
221° 438 G	169	1280	89	674	133° 3	+8° 0	-11° 2	-2° 5								
222° 420 G	200	974	107	519	133° 8	+8° 4	-11° 4	+11° 0								
223° 392 C	129	1005	74	578	134° 1	+8° 6	-11° 4	+24° 2								
224° 357 G	142	866	83	440	134° 1	+8° 5	-11° 9	+36° 9								
225° 342 G	85	550	70	453	134° 4	+8° 7	-12° 1	+50° 3								
226° 330 G	34	183	40	214	133° 5	+7° 8	-11° 7	+62° 4								
227° 364 G	18	64	40	141	132° 4	+6° 6	-12° 9	+75° 0								
Means	..	..	104	551	133° 4	..	-11° 6	..								
No. 1322. Latitude -17° 6																
Group 13666 in Rotation 1161																
13681 " " 1162																
Group 13666. July 22-29. A small stream forming near the central meridian. a is the leader spot.																
203° 336 G	9	34	5	19	1° 9	0° 0	-18° 1	-13° 3								
204° 602 G	42	164	24	90	2° 2	+0° 4	-18° 5	+3° 8								
206° 449 C	58	469	33	266	2° 7	+0° 9	-18° 7	+15° 5								
206° 362 G	87	405	54	253	4° 0	+2° 2	-17° 8	+28° 9								
207° 440 G	83	348	64	269	5° 0	+3° 3	-18° 3	+44° 1								
208° 334 G	92	375	87	361	3° 3	+1° 6	-18° 5	+54° 3								
209° 337 G	46	268	71	423	4° 2	+2° 5	-18° 5	+68° 4								
210° 333 G	9	53	48	282	5° 0	..	-18° 4	+82° 4								
Means	..	..	48	240	3° 3	..	-18° 4	..								
Spot a																
204° 602 G	21	58	12	32	5° 0	0° 0	-18° 5	+6° 6								
206° 449 C	22	192	13	111	5° 6	+0° 6	-18° 4	+18° 4								
206° 362 G	62	290	40	186	6° 6	+1° 7	-18° 4	+31° 5								
207° 440 G	53	221	42	177	6° 9	+2° 0	-18° 1	+46° 0								
208° 334 G	25	159	28	165	6° 4	+1° 6	-18° 3	+57° 4								
209° 337 G	37	231	60	377	4° 9	+0° 1	-18° 2	+69° 1								
210° 333 G	9	53	48	282	5° 0	..	-18° 4	+82° 4								
Group 13681. Aug. 13-22. A large regular spot (a of Group 13666) that quickly dies out after Aug. 20.																
225° 342 G	9	53	31	182	5° 0	+1° 0	-17° 2	-79° 1								
226° 330 G	21	126	31	186	4° 1	+0° 1	-17° 2	-67° 0								
227° 364 G	44	199	41	187	4° 2	+0° 3	-17° 1	-53° 2								
228° 349 G	39	223	28	161	4° 2	+0° 3	-17° 0	-40° 2								
229° 377 G	46	249	28	152	4° 0	+0° 2	-17° 0	-26° 8								

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Date U.T. Place	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.	
	Umbræ	Whole Spots	Umbræ	Whole Spots					Umbræ	Whole Spots	Umbræ	Whole Spots				
No. 1323. Group 13688 - continued								No. 1324. Group 13677 - continued								
Spot a								Spot a								
d								d								
233° 415 C	42	208	59	291	269° 6'	0° 0'	- 7° 8'	221° 438 G	124	566	71	329	111° 4' + 1° 8'	-12° 1'	-24° 4'	
234° 433 G	68	315	61	280	269° 9' + 0° 2'	- 7° 5'	-54° 1'	222° 420 G	242	1062	130	569	112° 0' + 2° 4'	-12° 2'	-10° 8'	
235° 511 C	97	440	65	295	270° 4' + 0° 5'	- 7° 1'	-39° 3'	223° 392 C	289	1437	154	762	112° 3' + 2° 7'	-12° 2'	+ 2° 4'	
236° 365 G	103	477	60	277	270° 5' + 0° 5'	- 6° 9'	-28° 0'	224° 357 G	305	1615	169	894	112° 9' + 3° 2'	-12° 4'	+15° 7'	
237° 389 C	79	471	42	250	270° 5' + 0° 3'	- 6° 8'	-14° 4'	225° 342 G	245	1305	151	793	112° 8' + 3° 1'	-12° 7'	+28° 7'	
238° 325 G	91	420	47	218	270° 8' + 0° 5'	- 6° 7'	- 1° 8'	226° 330 G	193	904	142	665	113° 5' + 3° 8'	-12° 9'	+42° 4'	
239° 400 G	75	358	40	190	271° 0' + 0° 6'	- 6° 8'	+12° 6'	227° 364 G	158	650	163	665	114° 8' + 5° 0'	-12° 8'	+57° 4'	
240° 468 G	98	337	57	195	271° 1' + 0° 5'	- 7° 0'	+26° 9'	228° 349 G	71	342	133	655	117° 3' + 7° 5'	-12° 8'	+72° 9'	
241° 347 G	59	287	39	189	271° 2' + 0° 5'	- 6° 9'	+38° 6'	Means	..	..	120	563	112° 7'	..	-12° 6'	
242° 337 G	39	222	33	186	271° 4' + 0° 5'	- 7° 0'	+51° 8'	Spot a								
243° 337 G	27	150	33	186	271° 2' + 0° 2'	- 7° 0'	+64° 9'	219° 613 G	27	73	22	60	110° 8'	0° 0'	-12° 9'	-49° 1'
Spot b (apparently a of Group 13669)								220° 401 G	41	192	27	129	112° 5' + 1° 7'	-12° 5'	-37° 0'	
233° 415 C	7	27	16	62	261° 0' + 7° 9'	- 6° 5'	-76° 4'	221° 438 G	76	316	43	180	113° 7' + 2° 8'	-12° 2'	-22° 1'	
234° 433 G	9	59	10	67	261° 2' + 7° 9'	- 6° 5'	-62° 8'	222° 420 G	144	673	76	356	114° 2' + 3° 3'	-12° 0'	- 8° 6'	
235° 511 C	11	88	9	69	261° 5' + 8° 1'	- 6° 3'	-48° 2'	223° 392 C	213	955	113	506	114° 7' + 3° 8'	-12° 1'	+ 4° 8'	
236° 365 G	21	121	14	79	261° 6' + 8° 1'	- 6° 8'	-36° 9'	224° 357 G	202	1088	113	609	115° 3' + 4° 3'	-11° 9'	+18° 1'	
237° 389 C	15	114	8	64	262° 1' + 8° 4'	- 7° 1'	-22° 8'	225° 342 G	195	847	121	525	115° 8' + 4° 8'	-12° 4'	+31° 7'	
238° 325 G	27	139	14	72	262° 7' + 8° 9'	- 7° 4'	- 9° 9'	226° 330 G	131	618	100	470	116° 7' + 5° 7'	-12° 7'	+45° 6'	
239° 400 G	32	137	17	71	264° 0' +10° 0'	- 7° 8'	+ 5° 6'	227° 364 G	103	431	111	465	117° 1' + 6° 0'	-12° 6'	+59° 7'	
240° 468 G	18	71	10	39	265° 1' +11° 0'	- 7° 7'	+20° 9'	228° 349 G	66	333	127	643	117° 3' + 6° 2'	-12° 8'	+72° 9'	
241° 347 G																

LEDGER I. - RECURRENT GROUPS OF SUNSPOTS FOR THE YEAR

Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Lati- tude	Long. from C.M.	Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Lati- tude	Long. from C.M.			
	Umbræ	Whole Spots	Umbræ	Whole Spots					Umbræ	Whole Spots	Umbræ	Whole Spots						
No. 1325. Group 13683 - continued								No. 1326. Latitude -5°.1										
d					°	°	°											
230°347 G	273	1685	164	1006	344°8	+0°8	+ 8°7	-33°2	Group 13692 in Rotation 1163									
231°607 G	385	2118	199	1098	344°9	+0°7	+ 8°5	-16°4	13711 "	"	"	1164						
232°343 G	331	1822	166	918	345°0	+0°7	+ 8°5	- 6°6	13725 "	"	"	1165						
233°415 C	250	1464	126	741	345°5	+1°0	+ 8°0	+ 8°1	Group 13692. Aug.26-Sept.8. A stream of normal type									
234°433 G	323	1368	175	741	345°3	+0°7	+ 7°8	+21°3	developing from the east limb. The leader, a, is the most									
235°511 C	130	728	82	457	346°7	+1°9	+ 7°1	+37°0	stable component and alone survives to the west limb.									
236°365 G	100	468	78	361	348°0	+3°1	+ 6°5	+49°5	d				°	°	°	°		
237°389 C	44	262	54	320	351°2	+6°1	+ 5°9	+66°3	238°325 G	2	11	6	33	192°9	0°0	- 6°0	-79°7	
238°325 G	20	93	49	238	351°9	+6°7	+ 5°8	+79°3	239°400 G	48	326	67	459	190°3	-2°8	- 5°7	-68°1	
Means	..	..	112	589	346°5	..	+ 7°7	..	240°468 G	125	696	105	582	192°2	-1°1	- 5°4	-52°0	
Spot a								241°347 G	180	1013	119	681	192°6	-0°8	- 4°8	-40°0		
228°349 G	7	27	7	26	344°5	0°0	+ 9°2	-59°9	242°337 G	296	1427	171	821	193°5	-0°1	- 5°2	-26°1	
229°377 G	87	424	60	293	346°7	+2°0	+ 8°3	-44°1	243°337 G	295	1850	154	971	195°4	+1°6	- 5°5	-10°9	
230°347 G	141	969	82	562	347°6	+2°8	+ 8°5	-30°4	244°405 G	420	1803	216	931	195°9	+2°0	- 5°5	+ 3°7	
231°607 G	253	1204	129	614	347°7	+2°7	+ 8°2	-13°6	245°357 G	238	1444	129	784	196°5	+2°4	- 5°9	+16°8	
232°343 G	205	1131	102	566	347°6	+2°5	+ 8°2	- 4°0	246°341 G	286	1393	172	840	198°0	+3°7	- 5°9	+31°3	
233°415 C	137	1028	70	514	347°7	+2°4	+ 7°6	+10°3	247°373 G	179	855	134	644	198°1	+3°7	- 5°8	+45°1	
234°433 G	207	880	114	484	347°8	+2°4	+ 7°2	+23°8	248°348 G	109	537	113	566	200°5	+5°9	- 5°2	+60°3	
235°511 C	68	363	45	240	350°6	+5°0	+ 5°3	+40°9	249°353 G	57	238	115	481	201°8	+7°0	- 4°8	+74°9	
236°365 G	59	274	50	230	352°1	+6°4	+ 4°9	+53°6	Means	..	..	136	705	195°9	..	- 5°4	..	
237°389 C	35	211	46	276	352°9	+7°0	+ 5°3	+68°0	Spot a									
238°325 G	11	59	33	179	353°7	..	+ 5°5	+81°1	239°400 G	23	141	28	169	194°0	0°0	- 5°5	-64°4	
Spot b								240°468 G	66	390	51	304	195°1	+0°9	- 4°9	-49°1		
228°349 G	5	16	5	17	341°6	0°0	+ 9°1	-62°8	241°347 G	105	479	66	302	196°8	+2°5	- 4°0	-35°8	
229°377 G	87	342	66	260	341°5	-0°3	+ 8°9	-49°3	242°337 G	91	538	50	296	198°7	+4°2	- 3°7	-20°9	
230°347 G	132	716	82	444	341°2	-0°7	+ 9°0	-36°8	243°337 G	116	754	59	385	199°4	+4°7	- 4°5	- 6°9	
231°607 G	132	914	70	484	341°4	-0°7	+ 8°9	-19°9	244°405 G	197	903	102	470	200°4	+5°5	- 4°9	+ 8°2	
232°343 G	71	285	36	145	338°9	-3°3	+ 8°8	-12°7	245°357 G	161	974	89	536	200°8	+5°8	- 5°3	+21°1	
233°415 C	53	221	26	110	338°7	-3°7	+ 8°8	+ 1°3	246°341 G	177	899	110	557	201°3	+6°1	- 5°6	+34°6	
234°433 G	59	230	31	120	338°5	-4°0	+ 9°0	+14°5	247°373 G	111	606	87	473	201°4	+6°0	- 5°3	+48°4	
235°511 C	29	130	17	74	338°7	-4°0	+ 9°4	+29°0	248°348 G	91	474	98	512	201°6	+6°1	- 5°1	+61°4	
236°365 G	32	160	21	106	339°5	-3°3	+ 9°4	+41°0	249°353 G	57	238	115	481	201°8	+6°1	- 4°8	+74°9	
237°389 C	9	51	8	44	340°5	-2°5	+ 9°4	+55°6	Group 13711. Sept.21-Oct.3. A large stable regular spot.									
Group 13703. Sept. 10-18. A double spot dying out rapidly.								a of Group 13692.										
Six days after its disappearance, a minute ephemeral spot																		
appears near its place (a of Group 13683).																		
253°408 C	9	57	18	115	357°1	+8°7	+ 6°2	-76°2	264°346 C	9	52	31	178	207°8	..	- 3°3	-81°1	
254°353 G	20	81	22	89	357°5	+9°0	+ 6°4	-63°4	265°360 C	56	330	79	465	207°0	+8°6	- 3°7	-68°6	
255°411 G	18	56	14	43	357°4	+8°7	+ 6°4	-49°5	266°350 G	101	466	93	429	206°4	+7°8	- 3°4	-56°1	
256°503 G	0	0	0	0	..	..	..	..	267°586 G	140	709	92	468	208°5	+7°7	- 3°4	-39°7	
257°460 G	0	0	0	0	..	..	..	..	268°425 G	178	801	103	465	206°5	+7°6	- 3°2	-28°6	
258°408 C	0	0	0	0	..	..	..	..	269°521 G	152	894	79	465	208°5	+7°4	- 3°4	-14°1	
259°357 C	0	0	0	0	..	..	..	..	270°343 G	172	809	88	413	206°6	+7°3	- 3°4	- 3°2	
260°374 G	0	0	0	0	..	..	..	..	271°351 G	150	833	78	433	206°7	+7°3	- 3°6	+10°2	
261°350 G	2	7	1	4	356°4	+8°8	+ 4°7	+29°9	272°223 K	155	741	85	408	207°1	+7°5	- 3°9	+22°1	
Means	..	..	6	28	357°6	..	+ 5°9	..	273°486 G	121	580	79	377	207°2	+7°4	- 3°7	+38°9	
								274°422 G	74	437	61	358	207°6	+7°6	- 4°0	+61°6		
								275°421 G	42	232	51	281	207°6	+7°5	- 3°9	+64°8		
								276°341 C	26	149	61	350	207°9	+7°6	- 3°8	+77°2		
Means	..	..	6	28	357°6	..	+ 5°9	..	Means	..	..	79	409	207°0	..	- 3°6	..	

LEDGER I. - RECURRENT GROUPS OF SUNSPOTS FOR THE YEAR

Date U.T. Place	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.		
	Umbræ	Whole Spots	Umbræ	Whole Spots					Umbræ	Whole Spots	Umbræ	Whole Spots					
No. 1326 - continued								No. 1327. Group 13706 - continued									
Group 13725. Oct. 18-30. A stream of normal type in which at first both leader and follower, a and b respectively, are regular spots. On Oct. 24, the leader begins to break up into a cluster and so dies out.								a major stream of normal type with a large stable leader spot, a. (b is the rear spot and spot c lies between).									
d					o	o	o	o					o	o	o	o	
291.297 C	8	45	28	173	212.3	..	- 5.5	-81.0	257.460 G	2	7	4	14	306.2	0.0	-11.0	-73.6
292.296 C	41	212	57	296	212.5 +10.4	- 5.9	-67.7	258.408 C	0	0	0	0	..	..	..	..	
293.378 G	82	299	70	256	212.4 +10.1	- 5.9	-53.5	259.357 C	0	0	0	0	..	..	..	..	
294.302 C	104	488	72	331	213.2 +10.8	- 6.4	-40.5	260.374 G	52	169	32	105	309.3	+2.8	-10.6	-32.1	
295.475 G	99	608	55	343	213.4 +10.8	- 6.1	-24.8	261.350 G	139	612	78	341	310.4	+3.8	-10.3	-18.1	
296.298 C	78	534	42	284	213.2 +10.5	- 6.2	-14.2	262.405 G	261	1172	137	618	310.6	+3.8	- 9.4	- 4.0	
297.333 C	76	534	38	272	213.5 +10.6	- 6.3	- 0.2	263.357 G	387	1620	204	858	310.9	+4.0	- 9.4	+ 8.9	
298.413 G	85	462	45	245	213.2 +10.1	- 6.1	+13.7	264.346 C	299	1542	169	874	311.0	+4.0	- 9.7	+22.1	
299.442 G	80	427	46	249	213.9 +10.6	- 6.6	+28.0	265.360 C	230	1592	152	1052	312.2	+5.1	-10.0	+36.6	
300.396 C	60	324	40	217	213.6 +10.2	- 6.7	+40.3	266.350 G	196	1172	165	990	312.4	+5.2	-10.4	+49.9	
301.553 G	38	193	33	168	211.9 + 8.3	- 6.4	+53.8	267.586 G	99	547	151	838	314.1	+6.7	- 9.7	+67.9	
302.385 G	20	82	26	100	211.9 + 8.1	- 6.4	+64.8	268.425 G	34	176	133	686	315.0	+7.5	- 9.6	+79.9	
303.449 C	8	47	18	108	209.9 + 6.0	- 6.5	+76.8										
Means	..	..	45	239	212.7	..	- 6.3	..	Means	..	..	102	531	311.2	..	-10.0	..
Spot a								Spot a									
291.297 C	4	17	9	39	216.7	0.0	- 7.1	-76.6	261.350 G	74	369	41	203	312.1	0.0	-10.0	-16.4
292.296 C	15	77	17	88	217.4 + 0.5	- 7.1	-62.8	262.405 G	106	562	55	292	313.4	+1.2	- 7.9	- 1.2	
293.378 G	40	124	31	95	217.5 + 0.4	- 6.5	-48.4	263.357 G	178	806	94	427	314.8	+2.5	- 7.3	+12.8	
294.302 C	36	231	23	148	217.2	0.0	-6.7	-36.5	264.346 C	178	857	103	497	315.6	+3.2	- 7.9	+26.7
295.475 G	35	248	19	136	217.0 - 0.4	- 6.6	-21.2	265.360 C	139	911	96	629	315.9	+3.3	- 9.0	+40.3	
296.298 C	34	232	18	121	217.1 - 0.4	- 6.7	-10.3	266.350 G	126	758	113	682	316.4	+3.7	- 9.7	+53.9	
297.333 C	38	300	19	153	216.3 - 1.4	- 6.7	+ 2.6	267.586 G	72	410	120	681	317.1	+4.3	- 9.5	+70.9	
									268.425 G	27	140	119	615	317.3	..	- 9.6	+82.2
Spot b								Spot b									
291.297 C	4	28	19	134	209.8	..	- 5.0	-83.5	261.350 G	27	97	16	56	305.0	0.0	-11.2	-23.5
292.296 C	26	135	40	208	209.9	0.0	- 5.3	-70.3	262.405 G	58	270	31	146	304.4	-0.7	-11.8	-10.2
293.378 G	29	133	27	125	209.0 - 1.1	- 5.1	-56.9	263.357 G	74	241	39	128	304.0	-1.2	-11.8	+ 2.0	
294.302 C	64	227	46	163	209.2 - 1.0	- 5.5	-44.5	264.346 C	39	260	21	143	303.8	-1.5	-11.9	+14.9	
295.475 G	42	250	24	145	209.2 - 1.2	- 5.5	-29.0	265.360 C	39	221	23	133	304.0	-1.5	-11.9	+28.4	
296.298 C	40	264	22	143	209.4 - 1.2	- 5.6	-18.0	266.350 G	27	137	19	97	303.8	-1.8	-11.9	+41.3	
297.333 C	38	234	19	119	209.4 - 1.4	- 5.3	- 4.3	267.586 G	4	20	4	21	304.4	-1.3	-12.0	+58.2	
298.413 G	48	235	25	122	209.5 - 1.4	- 5.4	+10.0										
299.442 G	40	189	22	106	209.4 - 1.7	- 5.9	+23.5										
300.396 C	34	175	21	110	209.3 - 2.0	- 6.0	+36.0										
301.553 G	29	145	24	119	209.6 - 1.9	- 6.2	+51.5										
302.385 G	13	62	15	69	209.7 - 1.9	- 6.5	+62.6										
303.449 C	8	47	18	108	209.9 - 1.8	- 6.5	+76.8										
No. 1327. Latitude -9.8								Spot c									
Group 13706 in Rotation 1164								264.346 C	82	425	45	234	307.8	0.0	-10.2	+18.9	
13722 " " 1165								265.360 C	52	460	33	290	308.4	+0.5	-10.6	+32.8	
13741 " " 1166								266.350 G	43	277	33	211	308.4	+0.4	-10.8	+45.9	
Group 13706. Sept. 14-25. A small spot on Sept. 14: after a gap of two days, a tiny cluster appears which develops into								267.586 G	23	117	27	136	308.7	+0.5	-10.2	+62.5	
continued								268.425 G	7	36	14	71	308.7	+0.4	-10.0	+73.6	

LEDGER I. - RECURRENT GROUPS OF SUNSPOTS FOR THE YEAR

Date U.T. Place	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.		
	Umbræ	Whole Spots	Umbræ	Whole Spots					Umbræ	Whole Spots							
No. 1327 - continued								No. 1328. Group 13724 - continued									
Group 13722. Oct. 10-22. A large regular spot (probably a of Group 13706) that is very stable in position. From Oct. 18, however, the spot becomes elongated, and by Oct. 21 has completely divided into two spots.																	
d					o	o	o	o					o	o	o	o	
283° 394 G	36	213	113	671	317° 8	+3° 2	- 8° 3	-79° 8	295° 475 G	115	782	65	444	255° 2	+2° 8	-17° 7	+17° 0
284° 486 G	95	493	123	636	317° 5	+2° 7	- 8° 4	-65° 7	296° 298 C	115	784	71	484	255° 1	+2° 7	-18° 0	+27° 7
285° 363 G	147	693	131	617	317° 7	+2° 8	- 8° 3	-53° 9	297° 333 C	78	517	57	375	254° 4	+2° 1	-18° 1	+40° 7
286° 384 G	153	735	108	507	317° 4	+2° 4	- 8° 7	-40° 7	298° 413 G	79	372	78	368	255° 4	+3° 1	-18° 2	+55° 9
287° 638 G	178	881	101	502	317° 5	+2° 4	- 8° 9	-24° 1	299° 442 G	26	229	43	376	255° 5	+3° 2	-18° 3	+69° 6
288° 591 G	240	957	127	508	317° 3	+2° 1	- 8° 9	-11° 7	300° 396 C	9	43	40	189	254° 8	..	-18° 2	+81° 5
289° 305 C	180	860	94	447	317° 7	+2° 4	- 8° 9	- 1° 9	Spot a								
290° 404 G	214	975	113	517	317° 5	+2° 1	- 9° 3	+12° 4	288° 591 G	11	33	25	74	254° 2	0° 0	-16° 9	-74° 8
291° 297 C	178	937	101	534	317° 6	+2° 1	- 9° 0	+24° 3	289° 305 C	26	167	35	225	254° 4	+0° 2	-16° 9	-65° 2
292° 296 C	146	897	95	583	317° 8	+2° 1	- 9° 1	+37° 6	290° 404 G	60	338	51	287	255° 3	+1° 2	-17° 1	-49° 8
293° 378 G	157	854	132	549	317° 7	+1° 9	- 9° 4	+51° 8	291° 297 C	56	441	39	304	255° 9	+1° 8	-16° 9	-37° 4
294° 302 C	58	454	70	549	317° 8	+1° 9	- 9° 3	+64° 1	292° 296 C	116	631	70	379	256° 1	+2° 0	-17° 3	-24° 1
295° 475 G	20	150	70	513	318° 8	..	- 9° 7	+80° 6	293° 378 G	139	754	78	415	256° 2	+2° 1	-17° 3	- 9° 7
Means	..	..	109	552	317° 6	..	- 8° 9	..	294° 302 C	82	693	50	374	256° 0	+2° 0	-17° 5	+ 2° 3
Group 13741. Nov. 7-18. A regular spot showing a southward drift in latitude, (probably part of the divided spot, a of Group 13706).																	
311° 433 G	18	48	32	84	315° 2	-2° 7	- 9° 3	-72° 6	295° 475 G	106	725	60	413	255° 9	+1° 9	-17° 7	+17° 7
312° 422 G	18	77	19	79	315° 2	-2° 8	- 9° 5	-59° 6	296° 298 C	109	737	68	457	255° 7	+1° 7	-18° 1	+28° 3
313° 096 K	16	99	13	81	315° 3	-2° 7	- 9° 9	-50° 6	297° 333 C	72	479	53	360	255° 3	+1° 4	-17° 8	+41° 6
314° 385 G	39	136	24	84	315° 0	-3° 2	-10° 4	-33° 9	298° 413 G	79	372	78	368	255° 4	+1° 5	-18° 2	+55° 9
315° 283 C	30	169	16	93	315° 2	-3° 1	-10° 3	-21° 8	299° 442 G	26	229	43	376	255° 5	+1° 6	-18° 3	+69° 6
316° 280 C	23	131	12	68	315° 6	-2° 8	-10° 2	- 8° 3	300° 396 C	9	43	40	189	254° 8	..	-18° 2	+81° 5
317° 279 C	25	156	13	81	315° 8	-2° 7	-10° 5	+ 5° 1	Group 13746. Nov. 12-18. A small spot (a of Group 13724) slowly dying out.								
318° 391 G	24	123	13	68	316° 2	-2° 5	-10° 8	+20° 1	316° 280 C	13	63	20	96	254° 9	+1° 5	-16° 3	-69° 0
319° 401 G	20	92	12	57	316° 4	-2° 4	-11° 1	+33° 6	317° 279 C	8	59	8	57	254° 3	+1° 0	-16° 6	-58° 4
320° 633 W	7	40	6	32	316° 3	-2° 6	-11° 2	+49° 8	318° 391 G	15	77	11	55	254° 5	+1° 2	-16° 4	-41° 6
321° 423 G	9	17	9	18	315° 8	-3° 2	-11° 3	+59° 7	319° 401 G	11	48	7	29	254° 3	+1° 0	-16° 4	-28° 5
322° 282 C	2	17	3	27	315° 7	-3° 4	-11° 1	+70° 9	320° 633 W	7	27	4	15	254° 1	+0° 9	-16° 3	-12° 4
Means	..	..	15	67	315° 6	..	-10° 4	..	321° 423 G	9	24	5	13	254° 0	+0° 8	-16° 2	- 2° 1
No. 1328. Latitude -16° 9								No. 1329. Latitude -10° 6									
Group 13724 in Rotation 1165 13746 " " 1166								Group 13730 in Rotation 1165 13750 " " 1166									
Group 13724. Oct. 15-27. A stream of normal type; the leader spot, a, alone remains after Oct. 24.								Group 13730. Oct. 25-30. A small cluster or stream s Group 13725.									
288° 591 G	22	86	57	229	252° 6	0° 0	-16° 9	-76° 4	298° 413 G	15	55	8	29	207° 0	0° 0	-11° 1	+ 7° 5
289° 305 C	35	223	52	330	252° 4	-0° 2	-16° 5	-67° 2	299° 442 G	20	75	11	42	206° 8	-0° 3	-11° 7	+20° 9
290° 404 G	102	515	95	474	252° 6	+0° 1	-16° 5	-52° 5	300° 396 C	26	136	16	86	207° 8	+0° 6	-11° 2	+34° 5
291° 297 C	77	582	56	418	252° 9	+0° 4	-16° 7	-40° 4	301° 553 G	42	174	36	150	209° 8	+2° 5	-11° 0	+51° 7
292° 296 C	137	845	84	525	252° 8	+0° 3	-17° 3	-27° 4	302° 385 G	20	68	23	78	209° 1	+1° 7	-11° 2	+62° 0
293° 378 G	150	827	82	457	254° 7	+2° 2	-17° 3	-11° 2	303° 449 C	8	30	(15	57	206° 5	..	-11° 8)	+73° 4
294° 302 C	101	757	55	409	255° 0	+2° 6	-17° 4	+ 1° 3	Means	..	..	19	77	208° 1	..	-11° 2	..

LEDGER I. - RECURRENT GROUPS OF SUNSPOTS FOR THE YEAR																
Date U.T. Place	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.	
	Umbræ	Whole Spots	Umbræ	Whole Spots					Umbræ	Whole Spots	Umbræ	Whole Spots				
No. 1329 - continued								No. 1330 - continued								
Group 13750. Nov. 15-16. A single small spot representing a return or revival (on the invisible hemisphere) of Group 13730.								Group 13759. Dec. 3-13. A regular spot (a of Group 13743) that is very stable for its small size.								
d								d								
319°401 G	4	11	9	25	206°1	-3°0	-10°0	337°343 C	8	40	13	66	334°1	+5°9	+7°7	-72°2
320°633 W	0	7	0	7	207°1	-2°2	-9°8	338°453 G	13	72	12	69	333°2	+4°9	+7°8	-58°5
								339°428 G	26	89	18	63	333°8	+5°3	+7°4	-45°0
								340°491 G	17	102	10	60	333°7	+5°1	+7°8	-31°1
								341°275 C	21	98	11	53	334°0	+5°2	+7°8	-20°5
								342°372 C	15	84	8	43	334°0	+5°1	+7°6	-6°0
								343°281 C	15	75	8	38	334°3	+5°3	+7°5	+6°2
								344°437 G	15	48	8	26	334°2	+5°0	+7°4	+21°4
								345°407 G	7	26	4	16	334°2	+4°8	+7°2	+34°2
								346°425 G	7	17	5	13	334°4	+4°9	+7°1	+47°8
								347°278 C	4	21	4	21	334°6	+5°0	+7°2	+59°2
Means	..	..	9	25	206°1	..	-10°0	Means	..	..	9	43	334°0	..	+7°5	..
No. 1330. Latitude +7°5								No. 1331. Latitude +17°6								
Group 13743 in Rotation 1166.								Group 13744 in Rotation 1166								
13759 " " 1167								13763 " " 1167								
Group 13743. Nov. 9-18. A stream developing rapidly in front of Group 13742. The leader, a, is a stable regular spot and the follower, b, a cluster.								Group 13744. Nov. 9-19. A single spot on Nov. 9; nothing is then seen until Nov. 13 when a cluster appears some distance in advance of the original position. This cluster rapidly develops into a stream in which the leader a, and follower b, are regular spots.								
313°096 K	22	113	17	81	319°8	0°0	+7°4	313°096 K	2	8	3	14	292°6	0°0	+16°4	-73°3
314°385 G	130	613	73	345	322°2	+2°2	+7°9	314°385 G	0	0	0	0	..	..	..	..
315°283 C	170	1052	88	545	321°8	+1°7	+7°7	315°283 C	0	0	0	0	..	..	..	..
316°280 C	109	845	54	422	322°6	+2°3	+8°0	316°280 C	0	0	0	0	..	..	..	..
317°279 C	118	804	60	414	322°9	+2°5	+7°5	317°279 C	21	127	11	67	299°0	+6°6	+16°7	-11°7
318°391 G	83	438	47	250	324°5	+3°9	+7°1	318°391 G	109	480	57	249	300°0	+7°6	+17°0	+3°9
319°401 G	66	353	45	241	325°1	+4°4	+6°9	319°401 G	180	780	97	421	300°7	+8°4	+16°8	+17°9
320°633 W	27	146	27	147	327°1	+6°2	+6°7	320°633 W	99	491	64	312	301°9	+9°7	+16°4	+35°4
321°423 G	24	148	37	229	327°5	+6°5	+6°8	321°423 G	101	527	76	389	301°7	+9°5	+16°5	+45°6
322°282 C	4	17	(14	61	327°1	..	+7°3)	322°282 C	65	48						

ROYAL OBSERVATORY, GREENWICH.

Ledgers of Groups of Sunspots
For the Year
1940

Ledger II.—Non-Recurrent Groups

LEDGER II - NON-RECURRENT GROUPS OF SUNSPOTS FOR THE YEAR 1940.

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 and Kodaikanal by the letters C and K, respectively. The letter W indicates Washington in the one case for which a positive on glass was supplied.

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.

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

Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Lati- tude	Long. from C.M.	Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Lati- tude	Long. from C.M.		
	Umbræ	Whole Spots	Umbræ	Whole Spots					Umbræ	Whole Spots							
Group 13505								Group 13512									
Jan. 8-16. At first a small spot becoming a tiny stream that dies down to a single spot on Jan.11. Reviving activity then results in a small stream or cluster.								Jan. 16-23. A cluster forming 50° east of the central meridian, rising to a brief maximum on Jan.18 and dissipating before the west limb is reached.									
d					o	o	o	d					o	o	o	o	
7°435 G	2	6	1	3	59°4	0°0	- 6°9	-22°2	15°433 G	46	192	36	152	286°8	0°0	-19°6	-49°5
8°301 C	21	87	11	45	60°4	+0°9	- 6°8	- 9°8	16°484 G	37	292	23	185	287°1	+0°4	-19°5	-35°3
9°411 G	26	104	13	52	60°7	+1°0	- 7°3	+ 5°2	17°498 G	121	594	68	333	286°3	-0°3	-19°6	-22°8
10°434 G	4	22	2	11	59°7	-0°1	- 6°3	+17°6	18°414 G	43	233	23	123	286°0	-0°5	-19°9	-11°0
11°475 G	15	93	9	55	61°1	+1°1	- 6°7	+32°7	19°437 G	54	270	28	140	285°5	-0°8	-19°9	+ 2°0
12°515 G	17	82	12	60	61°9	+1°7	- 7°6	+47°2	20°377 C	33	184	17	98	284°6	-1°6	-20°1	+13°4
13°373 C	37	304	36	292	62°3	+2°0	- 7°7	+58°9	21°418 G	6	43	3	25	282°4	-3°7	-20°9	+24°9
14°277 C	21	109	31	165	61°9	+1°5	- 7°5	+70°4	22°520 G	6	28	4	20	287°5	+1°5	-20°1	+44°5
15°433 G	8	24	33	104	60°3	..	- 8°4	+84°0									
Means	..	..	14	85	60°9	..	- 7°1	..	Means	..	..	25	134	285°8	..	-20°0	..
Group 13508								Group 13514									
Jan. 11-22. A pair of spots near the east limb developing into a long stream of changing components.								Jan. 17-27. A stream of small spots with a sudden increase in area on Jan.23.									
10°434 G	4	24	5	34	332°9	0°0	- 9°5	-69°2	16°484 G	8	30	11	38	254°8	0°0	-16°6	-67°6
11°475 G	30	149	26	129	333°9	+0°9	- 9°7	-54°5	17°498 G	8	43	7	35	257°6	+2°8	-15°5	-51°5
12°515 G	45	262	29	174	333°8	+0°6	- 9°4	-40°9	18°414 G	9	60	6	38	259°2	+4°4	-15°5	-37°8
13°373 C	123	435	72	255	332°0	-1°3	- 9°4	-31°4	19°437 G	19	97	11	54	258°8	+4°0	-15°6	-24°7
14°277 C	102	457	54	242	333°0	-0°4	- 9°5	-18°5	20°377 C	21	83	11	43	258°3	+3°5	-15°2	-12°9
15°433 G	108	476	54	239	331°3	-2°2	- 9°3	- 5°0	21°418 G	26	74	14	38	260°0	+5°1	-15°1	+ 2°5
16°484 G	131	708	67	359	331°1	-2°6	- 9°2	+ 8°7	22°520 G	99	374	53	202	261°9	+7°0	-15°0	+18°9
17°498 G	121	529	65	286	331°1	-2°7	- 9°3	+22°0	23°499 G	69	352	42	213	263°4	+8°5	-14°8	+33°3
18°414 G	56	417	34	254	331°8	-2°1	- 9°2	+34°8	24°466 G	60	298	43	215	262°9	+8°0	-15°0	+45°6
19°437 G	45	166	36	132	334°5	+0°5	- 8°4	+51°0	25°284 C	52	295	48	273	264°2	+9°3	-14°5	+57°6
20°377 C	6	31	7	34	334°0	-0°1	- 8°7	+62°8	26°281 C	12	129	17	180	263°0	+8°1	-14°2	+69°6
21°418 G	4	13	10	34	336°9	+2°6	- 7°8	+79°4									
Means	..	..	38	181	333°0	..	- 9°1	..	Means	..	..	24	121	260°4	..	-15°2	..
Group 13510								Group 13516									
Jan. 13-20. A small cluster of tiny spots not seen on Jan.18 and 19.								Jan. 20-27. A small stream of spots of which the leader alone remains after Jan.23.									
12°515 G	2	11	1	7	341°5	0°0	-13°1	-33°2	19°437 G	48	140	25	73	267°6	0°0	-10°7	-15°9
13°373 C	12	44	6	24	341°6	0°0	-12°4	-21°8	20°377 C	66	401	32	200	267°7	0°0	-10°4	- 3°5
14°277 C	29	61	15	31	341°3	-0°3	-12°6	-10°2	21°418 G	41	235	21	121	269°2	+1°4	-10°0	+11°7
15°433 G	22	91	11	46	341°2	-0°5	-12°5	+ 4°9	22°520 G	52	229	29	129	269°9	+2°0	-10°4	+26°9
16°484 G	4	22	2	12	339°9	-1°9	-10°5	+17°5	23°499 G	39	192	26	129	271°5	+3°5	-10°7	+41°4
17°498 G	0	0	0	0	..	..	..	..	24°466 G	19	125	16	106	271°6	+3°5	-10°5	+54°3
18°414 G	0	0	0	0	..	..	..	..	25°284 C	17	84	20	98	271°9	+3°7	-10°7	+65°3
19°437 G	6	25	6	22	340°0	-2°0	-12°1	+56°5	26°281 C	2	13	4	28	270°8	+2°5	-10°4	+77°4
Means	..	..	5	18	340°9	..	-12°2	..	Means	..	..	22	110	270°0	..	-10°5	..

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

Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Lat- itude	Long. from C.M.	Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Lat- itude	Long. from C.M.		
	Umbræ	Whole Spots	Umbræ	Whole Spots					Umbræ	Whole Spots							
Group 13517								Group 13525									
Jan. 20-31. A small stream of variable spots.								Feb. 7-16. A stream of normal type whose whole life history is presented on the visible hemisphere. <i>a</i> and <i>b</i> are leader and follower respectively.									
d					o	o	o	d					o	o	o	o	
19°437 G	2	9	5	23	204°1	0°0	- 7°1	-79°4	37°279 C	8	61	8	62	351°5	0°0	+14°1	-57°1
20°377 C	2	18	3	24	203°2	-1°0	- 7°7	-68°0	38°335 C	33	206	24	151	352°1	+0°6	+14°1	-42°6
21°418 G	13	33	10	26	206°9	+2°5	- 5°9	-50°6	39°459 C	67	422	41	256	352°2	+0°6	+13°8	-27°7
22°520 G	15	67	9	42	204°6	0°0	- 6°8	-38°4	40°466 G	100	603	56	334	352°1	+0°5	+13°6	-14°6
23°499 G	11	39	6	21	208°2	+3°5	- 6°7	-21°9	41°355 C	88	458	36	244	351°7	0°0	+13°6	- 3°3
24°466 G	8	47	4	25	205°3	+0°4	- 6°8	-12°0	42°603 G	59	371	32	203	351°6	-0°1	+13°3	+13°1
25°284 C	6	40	3	20	206°0	+1°0	- 7°0	- 0°6	43°506 G	106	467	63	274	351°1	-0°7	+13°2	+24°5
26°281 C	21	107	11	55	208°9	+3°8	- 6°9	+15°5	44°381 G	84	415	55	271	350°8	-1°0	+12°8	+35°7
27°373 C	34	176	20	101	207°7	+2°4	- 7°5	+28°6	45°402 C	42	162	35	134	350°4	-1°5	+13°5	+48°7
28°532 C	21	128	15	89	207°7	+2°2	- 7°7	+43°9	46°438 G	13	52	16	66	351°1	-0°8	+13°8	+63°1
29°282 C	8	38	7	33	208°0	+2°4	- 7°6	+54°1									
30°277 C	8	56	10	69	207°2	+1°5	- 7°7	+66°4									
Means	..	..	9	44	206°5	..	- 7°1	..	Means	..	..	37	200	351°5	..	+13°6	..
Group 13520								Spot a									
Jan.30-Feb.11. A regular spot with a double umbra until it reaches the central meridian. A number of small companions then appear, but the whole group appears to be nearing extinction as it passes round the west limb.								38°335 C									
29°282 C	15	117	41	321	73°9	..	- 6°1	-80°0	39°459 C	46	281	28	169	353°5	+0°1	+13°7	-26°4
30°277 C	56	247	71	311	73°8	0°0	- 6°3	-67°0	40°466 G	74	425	41	234	353°7	+0°3	+13°4	-13°0
31°277 C	42	284	35	239	74°0	0°0	- 6°2	-53°6	41°355 C	55	357	29	189	353°3	-0°1	+13°4	- 1°7
32°276 C	63	380	41	247	74°3	+0°2	- 6°4	-40°2	42°603 G	46	254	25	140	353°3	-0°2	+13°3	+14°8
33°278 C	96	568	54	318	75°0	+0°7	- 6°4	-26°3	43°506 G	56	224	34	134	353°4	-0°1	+12°9	+26°8
34°352 C	86	573	44	292	75°1	+0°7	- 6°3	-12°1	44°381 G	33	177	22	120	353°6	0°0	+13°0	+38°5
35°522 G	117	606	58	303	75°4	+0°8	- 6°3	+ 3°6	45°402 C	25	105	22	90	352°9	-0°7	+13°5	+51°2
36°509 G	104	638	54	332	75°7	+0°9	- 6°1	+16°9	46°438 G	9	37	12	50	353°8	+0°1	+13°9	+65°8
37°279 C	91	622	51	348	75°3	+0°4	- 6°8	+26°7	Spot b								
38°335 C	80	492	53	327	75°8	+0°7	- 7°4	+41°1	38°335 C	8	55	6	42	349°5	0°0	+14°3	-45°2
39°459 C	34	247	30	220	76°2	+1°0	- 7°2	+56°3	39°459 C	21	141	13	87	349°3	-0°3	+14°1	-30°6
40°466 G	20	111	29	156	76°3	+0°9	- 7°5	+69°6	40°466 G	26	178	15	100	348°7	-0°9	+13°9	-18°0
41°355 C	0	21	0	59	75°4	..	- 8°9	+80°4	41°355 C	13	101	7	55	348°2	-1°4	+13°7	- 6°8
Means	..	..	47	281	75°2	..	- 6°6	..	42°603 G	13	117	7	63	348°0	-1°7	+13°5	+ 9°5
Group 13522								43°506 G	26	150	15	86	347°7	-2°0	+13°7	+21°1	
Jan.31-Feb.11. A small regular spot shrinking perceptibly as it passes round the west limb.								44°381 G	31	164	20	103	347°3	-2°5	+13°3	+32°2	
30°277 C	29	132	36	165	74°1	0°0	-24°5	-66°7	45°402 C	17	57	13	44	346°8	-3°0	+13°7	+45°1
31°277 C	21	121	18	105	73°8	0°0	-24°5	-53°8	46°438 G	4	15	4	16	346°8	-3°1	+13°4	+58°8
32°276 C	17	104	12	71	74°4	+0°8	-24°7	-40°1	Group 13527								
33°278 C	33	186	19	110	73°8	+0°5	-24°6	-27°5	Feb. 9-14. A pair of spots dying out just past the central meridian.								
34°352 C	34	168	18	91	73°3	+0°3	-24°9	-13°9	39°459 C	25	135	23	127	321°3	0°0	-11°8	-58°6
35°522 G	48	213	25	113	73°0	+0°3	-24°8	+ 1°2	40°466 G	21	89	15	65	320°6	-0°8	-12°5	-46°1
36°509 G	35	189	19	102	72°8	+0°4	-24°8	+14°0	41°355 C	16	61	10	37	321°5	0°0	-11°7	-33°5
37°279 C	23	151	13	86	72°3	+0°1	-24°9	+23°7	42°603 G	2	11	1	6	321°2	-0°4	-11°7	-17°3
38°335 C	17	101	11	66	71°9	0°0	-24°9	+37°2	43°506 G	7	39	4	20	321°3	-0°3	-11°7	- 5°3
39°459 C	6	29	5	24	71°7	+0°1	-24°7	+51°8	44°381 G	7	44	4	22	321°7	0°0	-11°4	+ 6°6
40°466 G	4	13	5	15	72°2	+0°8	-24°9	+65°5									
41°355 C	0	8	0	16	72°4	+1°3	-25°1	+77°4									
Means	..	..	15	80	73°0	..	-24°8	..	Means	..	..	10	46	321°3	..	-11°8	..

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

Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Lati- tude	Long. from C.M.	Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Lati- tude	Long. from C.M.		
	Umbræ	Whole Spots	Umbræ	Whole Spots					Umbræ	Whole Spots	Umbræ	Whole Spots					
Group 13528								Group 13531									
Feb. 11-20. A small composite spot, breaking up into a cluster by Feb.17 and then rapidly dying out.								Feb. 19-27. A small short-lived stream starting with a single spot on Feb.19. Only one spot, a, remains on Feb.24-26.									
d					o	o	o	d					o	o	o	o	
41°355 C	8	46	43	245	271°2	..	+ 6°9	-83°8	49°279 C	4	17	2	10	216°0	0°0	-12°7	-34°6
42°603 G	37	219	48	287	272°1	0°0	+ 6°5	-66°4	50°276 C	27	111	14	60	217°3	+1°2	-12°3	-20°2
43°508 G	50	276	45	246	272°2	0°0	+ 6°5	-54°4	51°273 C	50	227	25	114	219°0	+2°8	-11°4	- 5°4
44°381 G	74	347	53	246	271°7	-0°7	+ 7°1	-43°4	52°597 G	57	272	29	141	219°4	+3°1	-11°8	+12°5
45°402 C	52	374	31	224	271°5	-1°0	+ 6°9	-30°2	53°284 C	51	342	27	186	219°9	+3°6	-11°4	+22°0
46°438 G	59	259	32	140	271°5	-1°2	+ 6°9	-16°5	54°374 G	42	155	26	97	220°4	+4°0	-11°4	+36°9
47°286 C	40	256	21	133	269°8	-3°0	+ 7°0	- 7°1	55°376 C	19	84	15	67	222°0	+5°5	-10°9	+51°7
48°374 C	13	55	7	29	270°5	-2°5	+ 6°5	+ 8°0	56°453 G	13	55	16	67	222°7	+6°1	-10°5	+66°6
49°279 C	8	61	4	34	268°7	-4°4	+ 6°1	+18°1	57°276 C	4	8	9	17	222°7	+6°0	-10°8	+77°4
50°276 C	4	27	2	17	271°0	-2°3	+ 5°9	+33°5									
Means	..	..	27	151	271°0	..	+ 6°6	..	Means	..	..	18	84	219°9	..	-11°5	..
Group 13529								Spot a									
Feb. 13-23. A stream developing from a tiny spot on Feb.13. The leader becomes a regular spot by Feb.16. The follower is represented by a variable cluster that has died out by Feb.20.								50°276 C 13 52 7 28 218°8 0°0 -11°3 -18°7									
43°508 G 0 7 0 7 267°9 0°0 -15°9 -58°7								51°273 C 38 162 19 81 220°4 +1°5 -10°8 - 4°0									
44°381 G 22 116 16 85 268°0 +0°1 -14°2 -47°1								52°597 G 35 159 18 83 220°9 +1°9 -11°4 +14°0									
45°402 C 100 592 59 354 268°7 +0°7 -13°8 -33°0								53°284 C 30 262 16 144 221°3 +2°2 -11°1 +23°4									
46°438 G 109 602 58 318 270°1 +2°1 -14°0 -17°9								54°374 G 33 124 21 78 221°7 +2°5 -11°1 +38°2									
47°286 C 88 493 44 249 271°2 +3°1 -13°7 - 5°7								55°373 C 19 84 15 67 222°0 +2°8 -10°9 +51°7									
48°374 C 73 402 38 205 272°1 +4°0 -14°4 + 9°6								56°453 G 13 55 16 67 222°7 +3°4 -10°5 +66°6									
49°279 C 62 288 34 157 272°6 +4°5 -14°1 +22°0								57°276 C 4 8 9 17 222°7 +3°3 -10°8 +77°4									
50°276 C 36 220 22 139 274°3 +6°1 -13°4 +36°8																	
51°273 C 34 126 26 97 274°6 +6°4 -13°1 +50°2																	
52°597 G 15 72 18 89 273°9 +5°6 -12°9 +67°0																	
53°284 C 8 57 16 117 275°0 +6°7 -13°3 +77°1																	
Means	..	..	30	165	271°7	..	-13°9	..	Group 13532								
Group 13530								Feb. 19-26. Usually a small single spot, but a pair on Feb.20 and 21.									
Feb. 15-22. Intermittent. A single spot on Feb.15. Nothing is seen then until Feb.19 when a cluster appears not far from the previous position. By the next day, the cluster has become a regular spot with a companion, but the group soon dies out.								49°279 C 8 42 14 72 179°4 0°0 +11°1 -71°2									
45°402 C 4 17 4 17 241°8 0°0 -10°8 -59°9								50°276 C 10 44 11 46 178°9 -0°6 +11°0 -58°6									
46°438 G 0 0 0 0								51°273 C 12 45 9 33 179°9 +0°3 +10°5 -44°5									
47°286 C 0 0 0 0								52°597 G 4 20 2 12 177°9 -1°8 + 9°7 -29°0									
48°374 C 0 0 0 0								53°284 C 0 0 0 0									
49°279 C 27 97 14 49 238°0 -4°3 - 7°0 -12°6								54°374 G 11 41 6 22 176°4 -3°5 +12°1 - 7°1									
50°276 C 46 244 23 122 239°8 -2°7 - 7°4 + 2°3								55°376 C 4 13 2 7 176°4 -3°6 +12°0 + 6°1									
51°273 C 42 219 22 113 238°7 -3°9 - 7°2 +14°3								56°453 G 2 11 1 6 176°8 -3°3 +12°3 +20°7									
52°597 G 9 35 5 20 238°9 -3°9 - 6°9 +32°0								Means 6 25 178°0 .. +11°2 ..									
Means	..	..	8	40	239°4	..	- 7°9	..	Group 13533								
Feb. 20-Mar.2. A small decreasing regular spot with companions on Feb.23 and 24.								50°276 C 8 67 15 129 161°4 0°0 -12°6 -76°1									
51°273 C 21 80 22 83 162°3 +0°8 -13°0 -62°1								52°597 G 35 159 25 112 162°1 +0°6 -13°5 -44°8									
53°284 C 40 226 25 139 161°6 0°0 -13°8 -36°3								54°374 G 34 183 18 99 162°1 +0°5 -13°5 -21°4									

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

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Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Lati- tude	Long. from C.M.	Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Lati- tude	Long. from C.M.		
	Umbræ	Whole Spots	Umbræ	Whole Spots					Umbræ	Whole Spots	Umbræ	Whole Spots					
Group 13533 - continued								Group 13545 - continued									
d					°	°	°	d					°	°	°	°	
55°378 C	34	188	17	96	162°5	+0°8	-13°1	-7°8	69°378 C	49	285	24	142	343°8	+4°8	-8°6	-2°1
56°453 G	37	175	19	89	162°4	+0°7	-13°3	+6°3	70°399 C	39	183	20	93	344°3	+5°2	-8°8	+11°9
57°276 C	30	114	16	60	162°5	+0°7	-13°2	+17°2	71°341 C	21	94	12	53	346°6	+7°4	-8°6	+26°6
58°277 C	17	89	10	52	162°4	+0°6	-13°2	+30°3	72°333 C	26	115	17	74	346°4	+7°0	-8°1	+39°5
59°281 C	17	101	12	70	162°6	+0°7	-13°1	+43°7	73°341 C	13	43	10	35	346°8	+7°3	-8°2	+53°2
60°317 C	8	30	7	27	162°5	+0°6	-12°9	+57°3	74°338 G	9	31	11	38	346°1	+6°5	-8°3	+65°6
61°373 G	4	13	6	20	163°1	+1°1	-13°1	+71°8	75°338 C	0	9	0	27	348°7	..	-8°5	+81°4
Means	..	..	16	81	162°3	..	-13°2	..	Means	..	..	13	63	343°2	..	-8°4	..
Group 13536								Group 13546									
Feb.25-Mar.3. A wide, feeble area of disturbance denoted by a tiny spot that is lost in four of the eight days.								Mar. 8-17. A stream of variable spots.									
55°378 C	0	8	0	10	110°7	0°0	+21°3	-59°6	67°422 C	15	36	12	28	324°7	0°0	+11°6	-46°9
56°453 G	2	13	2	10	112°4	+1°8	+19°4	-43°7	68°371 G	33	91	21	60	323°7	-1°1	+11°7	-35°4
57°276 C	0	0	0	0	..	..	..	..	69°378 C	22	166	13	94	324°7	-0°2	+11°8	-21°2
58°277 C	0	0	0	0	..	..	..	..	70°399 C	64	341	35	183	324°2	-0°8	+11°5	-8°2
59°281 C	0	0	0	0	..	..	..	..	71°341 C	64	528	34	280	324°5	-0°6	+11°8	+4°5
60°317 C	0	0	0	0	..	..	..	..	72°333 C	56	281	31	158	326°1	+1°0	+11°2	+19°2
61°373 G	0	9	0	5	112°9	+2°7	+16°9	+21°6	73°341 C	39	197	25	127	328°4	+3°2	+11°2	+34°8
62°417 G	7	18	4	12	108°6	-3°5	+18°7	+29°0	74°338 G	35	172	30	147	331°8	+6°5	+10°7	+51°3
Means	..	..	1	5	110°6	..	+19°1	..	75°338 C	23	147	31	202	333°5	+8°1	+11°0	+66°2
Group 13541								Group 13548									
Mar. 1-8. A small compact stream developing from a single spot on Mar.1.								Mar. 12-19. A cluster of small spots.									
60°317 C	0	8	0	9	40°8	0°0	-17°4	-64°4	71°341 C	8	39	15	75	244°8	0°0	-8°2	-75°2
61°373 G	50	158	39	123	41°0	+0°2	-17°1	-50°3	72°333 C	15	86	17	98	242°3	-2°6	-8°9	-64°6
62°417 G	62	200	39	125	41°1	+0°4	-16°8	-36°5	73°341 C	25	98	20	77	242°2	-2°8	-8°9	-51°4
63°339 C	42	307	24	171	40°5	-0°2	-17°0	-24°9	74°338 G	55	310	35	198	241°6	-3°6	-9°3	-38°9
64°372 G	60	220	31	114	40°0	-0°7	-16°9	-11°8	75°338 C	32	185	18	103	241°6	-3°7	-9°5	-25°7
65°410 G	31	128	16	65	40°0	-0°6	-16°7	+1°9	76°362 C	26	113	14	57	241°8	-3°6	-9°5	-12°0
66°432 G	25	84	14	44	39°9	-0°7	-17°3	+15°2	77°363 C	21	81	10	40	241°9	-3°7	-9°4	+1°3
67°422 C	4	17	2	10	40°2	-0°4	-17°3	+28°6	78°373 G	2	9	1	5	242°3	-3°4	-9°4	+15°0
Means	..	..	21	83	40°4	..	-17°1	..	Means	..	..	16	82	242°3	..	-9°1	..
Group 13545								Group 13550									
Mar. 5-16. A stream of small spots. Probably its full life-history is seen from a single spot near the east limb to its last stages as a pair of spots at the west limb.								Mar. 14-25. A stable regular spot with a companion on Mar.19, 20 and 23.									
64°372 G	0	11	0	19	338°3	0°0	-7°4	-73°5	73°341 C	21	81	45	173	221°4	0°0	+21°7	-72°2
65°410 G	4	11	4	10	340°2	+1°8	-7°8	-57°9	74°338 G	29	196	34	232	221°3	+0°1	+21°3	-59°2
66°432 G	22	90	16	63	339°3	+0°7	-8°7	-45°4	75°338 C	32	200	27	188	221°4	+0°3	+21°7	-45°9
67°422 C	21	145	12	84	341°1	+2°4	-8°8	-30°5	76°362 C	47	256	32	177	220°8	-0°1	+21°6	-33°0
68°371 G	36	154	19	80	342°6	+3°8	-8°7	-16°5	77°363 C	39	274	24	167	220°5	-0°2	+21°9	-20°1
									78°373 G	57	358	33	208	220°0	-0°6	+21°8	-7°3

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

Date U.T. Place	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							
Group 13550 - continued								Group 13558 - continued									
d					°	'	"	d					°	'	"		
79°369 G	50	294	28	167	219°7	-0°7	+21°7	+5°5	86°396 G	44	208	24	113	144°4	+2°9	-9°3	+22°9
80°381 G	51	305	31	186	220°1	-0°1	+22°5	+19°3	87°331 G	24	127	15	80	146°7	+5°1	-9°7	+37°5
81°351 C	43	218	29	148	219°6	-0°5	+21°8	+31°6	88°372 C	17	81	14	65	147°1	+5°4	-10°0	+51°7
82°363 G	45	206	37	167	218°9	-1°0	+21°2	+44°2	89°338 G	9	62	10	72	148°0	+6°2	-10°3	+65°3
83°488 G	27	118	33	143	220°2	+0°5	+21°9	+60°3	90°380 G	2	9	5	22	148°1	+6°1	-10°5	+79°2
84°419 G	9	67	20	148	220°6	+1°0	+21°7	+73°0									
Means	..	..	31	174	220°4	..	+21°7	..	Means	..	..	21	91	144°7	..	-9°5	..
Group 13552								Group 13559									
Mar. 18-24. A tiny spot on Mar.18 and 19, suddenly developing into a stream of normal type. The follower spot does not survive to the west limb.								Mar. 23-30. One small spot on Mar.23; a long stream of small spots by Mar.26; a few days later only one tiny component is left.									
77°363 C	4	11	2	6	234°7	0°0	-9°7	-5°9	82°363 G	0	4	0	5	112°5	0°0	+13°8	-62°2
78°373 G	4	18	2	9	234°4	-0°4	-9°8	+7°1	83°488 G	20	60	17	49	110°8	-1°8	+11°9	-49°1
79°369 G	89	396	47	212	234°0	-0°9	-10°0	+19°8	84°419 G	20	53	13	35	112°4	-0°2	+11°8	-35°2
80°381 G	89	359	53	218	235°0	0°0	-10°5	+34°2	85°341 C	36	180	20	102	116°3	+3°6	+12°2	-19°1
81°351 C	60	234	44	174	235°7	+0°6	-10°2	+47°7	86°396 G	28	99	15	53	116°7	+3°9	+12°9	-4°8
82°363 G	15	106	16	113	237°5	+2°3	-10°6	+62°8	87°331 G	11	100	6	53	111°8	-1°0	+11°7	+2°6
83°488 G	9	36	21	83	238°3	+2°9	-10°7	+78°4	88°372 C	6	26	3	14	108°3	-4°6	+12°1	+12°9
									89°338 G	4	11	2	6	108°4	-4°6	+12°4	+25°7
Means	..	..	26	116	235°7	..	-10°2	..	Means	..	..	10	40	112°2	..	+12°4	..
Group 13553								Group 13564									
Mar. 18-28. A medium-sized spot comes over the east limb and, dividing into two parts by Mar.21, dies out before long.								Mar.26-Apr.5. A tiny stream in front of Group 13566. The leader alone remains after Mar.30.									
77°363 C	13	73	47	264	161°1	0°0	+16°7	-79°5	85°341 C	6	34	8	48	67°1	0°0	+6°6	-68°3
78°373 G	44	217	64	315	160°9	-0°2	+16°7	-66°4	86°396 G	18	69	16	60	68°4	+1°1	+7°2	-53°1
79°369 G	69	347	66	330	160°4	-0°7	+16°4	-53°8	87°331 G	31	115	21	77	69°5	+2°1	+7°4	-39°7
80°381 G	71	372	51	271	160°5	-0°6	+16°8	-40°3	88°372 C	30	137	17	78	70°5	+2°9	+7°4	-24°9
81°351 C	71	321	44	199	160°4	-0°7	+16°5	-27°6	89°338 G	24	108	12	56	71°0	+3°3	+7°2	-11°7
82°363 G	44	263	24	148	161°0	-0°1	+16°4	-13°7	90°380 G	36	111	18	57	71°4	+3°5	+6°9	+2°5
83°488 G	31	156	17	84	161°9	+0°8	+15°4	+2°0	91°380 G	25	105	13	56	71°6	+3°6	+7°1	+15°8
84°419 G	18	204	10	113	161°1	0°0	+15°0	+13°5	92°338 G	22	87	13	51	71°9	+3°8	+7°2	+28°8
85°341 C	13	60	8	36	161°7	+0°6	+14°8	+26°3	93°574 G	18	71	13	52	71°8	+3°5	+7°4	+45°0
86°396 G	13	27	9	19	162°2	+1°1	+14°8	+40°7	94°544 G	11	31	11	30	71°9	+3°4	+7°6	+57°9
87°331 G	2	14	2	13	160°9	-0°2	+14°3	+51°7	95°350 G	4	11	6	16	71°8	+3°2	+7°5	+68°4
Means	..	..	31	163	161°1	..	+15°8	..	Means	..	..	13	53	70°6	..	+7°2	..
Group 13558								Group 13566									
Mar. 23-31. A small stream of normal type of which the leader spot alone remains after Mar.27.								Mar.27-Apr.5. A small stream passing through its life-history on the Sun's visible hemisphere.									
82°363 G	29	97	18	58	141°0	0°0	-8°4	-33°7	86°396 G	4	9	4	10	59°3	0°0	+7°2	-62°2
83°488 G	82	351	44	185	142°0	+0°9	-8°8	-17°9	87°331 G	20	89	15	68	62°5	+3°1	+6°9	-46°7
84°419 G	60	266	30	133	142°4	+1°2	-9°0	-5°2	88°372 C	55	294	33	179	63°3	+3°7	+7°1	-32°1
85°341 C	51	185	26	94	143°0	+1°6	-9°5	+7°6	89°338 G	119	491	65	267	64°0	+4°3	+7°4	-18°7

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Date U.T. Place	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.	
	Umbræ	Whole Spots	Umbræ	Whole Spots						Umbræ	Whole Spots	Umbræ	Whole Spots				
Group 13566 - continued								Group 13570 - continued									
d					o	o	o	o	d					o	o	o	o
90°380 G	113	424	59	221	64°3	+ 4°4	+ 7°3	- 4°6	94°544 G	29	123	15	65	356°7	-0°3	-15°4	-17°3
91°380 G	72	432	37	228	66°8	+ 6°8	+ 6°7	+11°0	95°350 G	73	268	37	137	356°6	-0°4	-15°4	- 6°8
92°338 G	38	194	21	110	67°3	+ 7°1	+ 7°0	+24°2	96°414 G	73	330	37	168	356°1	-0°9	-15°5	+ 6°8
93°574 G	31	80	22	57	69°8	+ 9°4	+ 7°1	+43°0	97°376 G	27	154	14	84	356°2	-0°8	-15°9	+19°6
94°544 G	15	40	15	38	70°7	+10°2	+ 7°2	+56°7	98°463 G	11	40	6	25	356°5	-0°5	-15°7	+34°2
95°350 G	8	22	11	30	70°8	+10°2	+ 6°8	+67°4									
Means	..	..	28	121	65°9	..	+ 7°1	..	Means	..	..	17	73	356°7	..	-15°6	..
Group 13568								Group 13571									
Mar.27-Apr.8. A stable regular spot with companions until Apr.4.								Apr. 3-12. A small stream; the leader, <i>a</i> , remains stable after the following spots have died out by Apr.8.									
86°396 G	22	149	47	317	44°1	0°0	-11°8	-77°4	93°574 G	33	78	21	50	348°2	0°0	- 6°7	-38°6
87°331 G	62	315	68	347	45°4	+ 1°2	-11°9	-63°8	94°544 G	67	317	37	173	349°3	+1°0	- 7°2	-24°7
88°372 G	69	415	53	319	45°2	+ 1°0	-11°7	-50°2	95°350 G	58	359	29	184	349°3	+0°9	- 7°4	-14°1
89°338 G	73	451	46	284	45°2	+ 0°9	-11°8	-37°5	96°414 G	64	335	32	168	350°3	+1°7	- 8°2	+ 1°0
90°380 G	115	538	63	295	45°1	+ 0°7	-11°7	-23°8	97°376 G	64	330	33	172	352°2	+3°5	- 8°7	+15°6
91°380 G	109	492	56	251	44°7	+ 0°2	-12°2	-11°1	98°463 G	56	248	32	144	352°8	+3°7	- 8°6	+30°3
92°338 G	116	528	59	265	44°5	0°0	-12°3	+ 1°4	99°373 G	45	224	31	152	352°9	+3°9	- 8°5	+42°6
93°574 G	74	520	39	276	44°1	- 0°5	-12°7	+17°3	100°348 G	22	132	19	116	353°2	+4°1	- 8°7	+55°8
94°544 G	71	437	41	253	44°0	- 0°7	-12°6	+30°0	101°345 G	20	85	26	110	351°3	+2°0	- 8°0	+67°1
95°350 G	67	366	44	242	44°2	- 0°5	-12°9	+40°8	102°406 G	2	18	8	73	353°9	..	- 8°3	+83°7
96°414 G	54	241	46	205	43°5	- 1°3	-12°9	+54°2									
97°376 G	22	194	28	243	43°8	- 1°1	-13°0	+67°2	Means	..	..	29	141	351°0	..	- 8°0	..
98°463 G	13	58	37	164	43°3	..	-12°8	+81°0									
Means	..	..	49	275	44°5	..	-12°3	..									

LEDGER II. - NON-RECURRENT GROUPS OF SUNSPOTS FOR THE YEAR																	
Date U.T. Place	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				
Group 13573								Group 13584									
Apr. 8-13. One small spot persisting for several days with variable companions. Nothing is seen on Apr. 12.								Apr. 18-28. A changing group of small spots.									
d									d								
98°463 G	11	40	8	31	279°1	0°0	+18°8	-43°2	108°349 C	9	31	14	50	121°9	0°0	+13°6	-69°9
99°373 G	27	112	18	73	278°1	-0°9	+19°1	-32°2	109°340 G	18	52	18	51	122°0	0°0	+13°4	-56°7
100°348 G	22	69	12	39	279°6	+0°6	+18°0	-17°8	110°434 C	17	72	12	52	121°6	-0°4	+13°1	-42°6
101°345 G	13	43	7	24	279°6	+0°7	+17°9	-4°6	111°380 G	32	158	21	101	117°7	-4°4	+13°0	-34°0
102°406 G	0	0	0	0	..	..	..	..	112°384 G	63	286	36	165	116°2	-5°9	+13°8	-22°3
103°330 G	4	11	2	6	277°2	-1°5	+18°8	+18°2	113°457 C	35	219	19	117	117°3	-4°9	+13°2	-7°0
Means	..	..	8	29	278°7	..	+18°5	..	114°423 C	28	151	15	80	120°9	-1°3	+12°8	+9°4
Group 13576								Group 13592									
Apr. 11-21. A variable stream rising to a maximum near its central meridian passage and then dissipating as the west limb is reached.								Apr. 25-May 4. A medium-sized spot with companions up to May 2. On May 3, the spot disintegrates and so dies out.									
101°345 G	27	132	30	144	221°1	0°0	-11°9	-63°1	115°310 G	21	93	56	253	22°0	0°0	+9°2	-77°8
102°406 G	88	399	68	305	221°4	+0°2	-12°5	-48°8	116°314 G	36	158	45	197	21°4	-0°7	+9°0	-65°1
103°330 G	51	322	32	202	220°9	-0°4	-12°1	-37°1	117°410 G	66	258	55	214	20°8	-1°5	+9°1	-51°3
104°448 G	148	704	81	382	221°6	+0°3	-12°1	-21°7	118°150 K	25	199	18	139	20°3	-2°0	+9°1	-42°0
105°363 G	152	763	78	389	221°0	-0°4	-11°5	-10°2	119°521 C	42	201	24	113	20°2	-2°3	+9°5	-24°0
106°350 G	200	977	101	492	221°4	-0°1	-11°7	+3°2	120°363 C	35	212	19	112	20°1	-2°5	+9°3	-12°9
107°343 G	103	587	54	308	221°3	-0°3	-12°0	+16°3	121°511 C	26	123	14	64	19°9	-2°9	+9°7	+2°0
108°349 C	57	309	32	177	220°3	-1°4	-11°9	+28°5	122°556 G	18	79	10	43	20°4	-2°5	+10°1	+16°3
109°340 G	48	212	33	145	221°3	-0°4	-11°5	+42°6	123°401 G	18	84	10	49	21°1	-1°9	+9°5	+28°2
110°434 C	11	52	10	47	221°3	-0°5	-11°4	+57°1	124°436 G	23	71	17	51	22°5	-0°6	+9°4	+43°3
111°380 G	5	11	7	16	221°7	-0°2	-11°5	+70°0	Means	..	..	27	124	20°9	..	+9°4	..
Means	..	..	48	237	221°2	..	-11°8	..	Group 13593								
Group 13580								Group 13593									
Apr. 14-25. A slowly decreasing regular spot with one or two companions.								May 1-10. At first a few small spots. On May 5-6 there is increased activity resulting in a small stream of normal type.									
104°448 G	1																

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

Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Lati- tude	Long. from C.M.	Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Lati- tude	Long. from C.M.		
	Umbræ	Whole Spots	Umbræ	Whole Spots					Umbræ	Whole Spots	Umbræ	Whole Spots					
Group 13595								Group 13600									
May 6-11. A pair of small spots.								May 13-25. An elongated spot with a few companions.									
d					o	o	o	o	d					o	o	o	o
126°336 G	7	21	4	11	326°8	0°0	+11°1	+12°7	133°421 G	16	80	85	426	136°8	..	+14°9	-83°6
127°346 G	12	34	7	20	326°9	0°0	+11°2	+26°2	134°329 G	34	237	60	419	136°1	0°0	+15°1	-72°3
128°351 C	9	40	6	27	326°4	-0°6	+11°1	+39°0	135°456 G	80	385	77	370	137°0	+0°9	+14°8	-56°5
129°349 G	5	18	4	15	325°6	-1°5	+10°5	+51°4	136°385 G	82	561	61	415	136°9	+0°8	+15°1	-44°3
130°345 G	9	27	11	33	326°0	-1°2	+10°3	+64°9	137°366 G	132	648	81	395	137°0	+0°8	+14°9	-31°2
131°402 G	5	34	14	113	327°3	..	+10°1	+80°2	138°337 G	109	518	60	285	137°0	+0°8	+15°0	-18°4
Means	..	..	8	36	326°5	..	+10°7	..	139°394 G	132	643	70	331	136°6	+0°4	+15°1	-4°8
Group 13596								Group 13601									
May 8-18. A variable group.								May 14-19. An unstable stream of small spots, forming s Group 13597.									
128°351 C	8	24	7	21	233°2	0°0	-9°7	-54°2	134°329 G	2	11	1	6	205°9	0°0	-11°1	-2°5
129°349 G	5	25	3	17	230°6	-2°7	-9°0	-43°6	135°456 G	48	119	25	62	205°7	-0°3	-10°8	+12°2
130°345 G	20	93	11	52	234°4	+0°9	-9°3	-26°7	136°385 G	21	68	12	38	206°3	+0°2	-11°0	+25°1
131°402 G	20	79	10	40	235°1	+1°5	-9°3	-12°0	137°366 G	9	41	6	27	208°0	+1°8	-11°3	+39°8
132°395 G	18	68	9	34	235°4	+1°7	-8°7	+1°4	138°337 G	9	23	8	19	208°5	+2°2	-11°7	+53°1
133°421 G	86	349	45	181	233°9	+0°1	-8°5	+13°5	139°394 G	5	9	7	12	208°9	+2°5	-11°7	+67°5
134°329 G	80	396	45	223	234°7	+0°7	-8°5	+26°3	Means	..	..	10	27	207°2	..	-11°2	..
135°456 G	69	276	46	184	234°4	+0°3	-8°3	+40°9	Group 13603								
136°385 G	34	217	28	176	233°1	-1°1	-9°2	+51°9	May 18-23. A few variable spots.								
137°366 G	66	246	77	285	232°8	-1°5	-9°2	+64°6	138°337 G	30	96	16	52	169°5	0°0	+15°8	+14°1
138°337 G	16	68	43	180	234°4	-0°1	-8°7	+79°0	139°394 G	9	43	5	26	172°8	+3°3	+15°0	+31°4
Means	..	..	29	127	233°8	..	-9°0	..	140°336 G	9	23	7	17	174°8	+5°3	+14°4	+45°9
Group 13597								Group 13605									
May 9-20. A small spot on May 9 which develops into a composite spot of moderate size. It breaks up into a cluster on May 14 and is dying out by the time the west limb is reached.								May 21-29. A small stream of normal type developing quickly from the place of a small bright patch of faculae on May 20. The following spot dies out first. α is the leader spot.									
129°349 G	5	11	7	15	206°1	0°0	-8°0	-68°1	141°325 G	44	169	46	177	54°2	0°0	-6°8	-61°7
130°345 G	25	95	22	84	205°6	-0°6	-7°7	-55°5	142°591 G	50	370	34	256	55°4	+1°0	-6°0	-43°7
131°402 G	91	459	60	303	206°2	-0°2	-7°2	-40°9	143°324 G	95	447	57	287	56°1	+1°6	-5°8	-33°3
132°395 G	125	752	71	429	206°4	-0°2	-7°1	-27°6	144°334 G	85	405	45	213	57°3	+2°6	-5°7	-18°7
133°421 G	114	750	59	390	207°0	+0°3	-7°3	-13°4	145°448 G	59	305	30	152	58°4	+3°5	-5°7	-2°9
134°329 G	96	620	48	310	207°3	+0°5	-7°0	-1°1	146°511 C	42	279	22	144	58°8	+3°8	-5°8	+11°6
135°456 G	80	499	42	259	206°7	-0°3	-7°0	+13°2									
136°385 G	43	358	24	200	207°5	+0°4	-6°9	+26°3									
137°366 G	57	342	37	222	207°7	+0°4	-7°2	+39°5									
138°337 G	23	194	19	161	208°2	+0°8	-7°5	+52°8									
139°394 G	18	87	23	111	208°4	+0°8	-6°4	+67°0									
140°336 G	5	21	14	59	208°9	..	-6°0	+80°0									
Means	..	..	37	226	207°0	..	-7°2	..									

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

Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Latitude	Long. from C.M.
	Umbræ	Whole Spots	Umbræ	Whole Spots			
Group 13605 - continued							
d					o	o	o
147°329 G	53	217	29	118	59°2	+4°0	- 5°6 +22°8
148°108 K	19	97	11	58	59°2	+3°9	- 5°3 +33°1
149°367 G	9	16	7	13	60°9	+5°4	- 5°1 +51°4
Means	..	..	31	155	57°7	..	- 5°8 ..
Spot a							
141°325 G	21	80	21	79	56°3	0°0	- 5°7 -59°6
142°591 G	32	233	21	156	57°1	+0°6	- 5°6 -42°0
143°324 G	68	340	40	201	57°5	+0°9	- 5°5 -31°9
144°334 G	71	312	37	162	59°0	+2°2	- 5°5 -17°0
145°448 G	50	261	25	130	60°1	+3°1	- 5°7 - 1°2
146°511 C	35	208	18	108	60°3	+3°2	- 5°7 +13°1
147°329 G	48	190	26	104	60°2	+2°9	- 5°5 +23°8
148°108 K	17	87	10	52	60°1	+2°7	- 4°9 +34°0
149°367 G	9	16	7	13	60°9	+3°3	- 5°1 +51°4
Group 13606							
May 22-31. A small but persistent spot with one or two companions on May 27 and 28. One of these grows and alone survives on May 29.							
142°591 G	5	9	5	10	40°4	0°0	+24°0 -58°7
143°324 G	9	27	7	22	42°1	+1°9	+24°0 -47°3
144°334 G	9	18	6	12	42°8	+2°8	+23°3 -33°2
145°448 G	9	23	5	13	43°0	+3°2	+22°6 -18°3
146°511 C	4	18	2	10	43°3	+3°7	+24°3 - 3°9
147°329 G	7	25	4	14	41°8	+2°4	+22°6 + 5°4
148°108 K	14	66	8	38	41°0	+1°8	+22°9 +14°9
149°367 G	25	52	16	31	35°7	-3°3	+23°0 +26°2
150°339 G	9	44	6	31	36°6	-2°1	+22°4 +40°0
151°453 G	5	18	5	17	36°6	-1°9	+22°6 +54°8
Means	..	..	6	20	40°3	..	+23°2 ..
Group 13607							
May 22-June 2. On May 22 and 23, a single small spot that has gone by May 24. A variable stream then appears a few degrees of longitude in advance of the original position.							
142°591 G	5	11	7	15	31°4	0°0	-12°0 -67°7
143°324 G	5	14	5	13	31°6	+0°1	-12°0 -57°8
144°334 G	0	0	0	0	..	..	
145°448 G	48	252	26	141	36°1	+4°5	-12°2 -25°2
146°511 C	76	350	39	183	36°0	+4°3	-12°8 -11°2
147°329 G	91	298	47	152	36°1	+4°4	-12°4 - 0°3
148°108 K	50	372	26	191	35°0	+3°2	-12°4 + 8°9
149°367 G	57	211	33	121	36°4	+4°5	-12°5 +26°9
150°339 G	137	476	93	322	37°8	+5°8	-12°5 +41°2
151°453 G	60	348	55	321	37°9	+5°9	-11°9 +56°1
152°363 G	50	204	69	290	37°1	+5°0	-11°9 +67°3
153°398 G	7	50	(16	115	33°4	..	-12°1) +77°3
Means	..	..	36	159	35°5	..	-12°3 ..

Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Latitude	Long. from C.M.
	Umbræ	Whole Spots	Umbræ	Whole Spots			
Group 13611							
May 29-June 7. A small single spot at first that has gone by June 1. On June 2, a small cluster appears a little in advance of the original position.							
d					o	o	o
149°367 G	2	5	2	6	304°2	0°0	- 7°0 -65°3
150°339 G	5	11	4	9	305°4	+1°0	- 6°8 -51°2
151°453 G	9	30	6	19	304°7	+0°2	- 7°1 -37°1
152°363 G	0	0	0	0	..	..	
153°398 G	14	69	7	35	307°2	+2°4	- 5°6 - 8°9
154°326 G	39	144	20	72	307°2	+2°2	- 6°2 + 3°4
155°388 G	37	183	20	97	308°5	+3°3	- 6°1 +18°7
156°347 G	32	121	19	71	308°6	+3°3	- 6°4 +31°5
157°309 G	5	11	3	7	307°1	+1°6	- 5°5 +42°8
158°335 G	2	9	2	8	307°5	+1°9	- 5°4 +56°7
Means	..	..	8	32	306°7	..	- 6°2 ..
Group 13612							
May 30-June 4. Intermittent: one or two tiny spots.							
150°339 G	9	34	5	17	2°6	0°0	+11°5 + 6°0
151°453 G	0	0	0	0	..	..	
152°363 G	0	0	0	0	..	..	
153°398 G	0	0	0	0	..	..	
154°326 G	12	30	13	31	3°8	+0°8	+11°8 +60°0
155°388 G	5	11	11	25	6°8	+3°8	+10°8 +77°0
Means	..	..	5	12	4°4	..	+11°4 ..
Group 13613							
June 1-8. A small stream of normal type developing from a dot on June 1. a and b are leader and follower respectively.							
152°363 G	2	9	1	5	312°5	0°0	-11°9 -17°3
153°398 G	21	76	11	39	314°1	+1°5	-11°8 - 2°0
154°326 G	62	179	33	93	314°1	+1°4	-12°2 +10°3
155°388 G	83	327	46	185	315°2	+2°5	-11°8 +25°4
156°347 G	64	266	42	177	316°0	+3°2	-11°7 +38°9
157°309 G	34	178	28	150	315°7	+2°8	-11°5 +51°4
158°335 G	37	141	45	191	317°2	+4°2	-11°1 +66°4
159°328 G	11	55	35	173	318°2	..	-10°4 +80°6
Means	..	..	29	120	315°0	..	-11°7 ..
Spot a							
153°398 G	14	39	7	20	315°7	0°0	-11°9 - 0°4
154°326 G	30	69	16	36	317°3	+1°5	-11°7 +13°5
155°388 G	37	169	21	98	318°6	+2°7	-11°0 +28°8
156°347 G	30	165	21	114	319°2	+3°3	-11°0 +42°1
157°309 G	18	103	16	92	319°2	+3°2	-11°1 +54°9
158°335 G	16	89	22	125	319°5	+3°4	-11°0 +68°7

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

LEDGER II. - NON-RECURRENT GROUPS OF SUNSPOTS FOR THE YEAR																	
Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Lati- tude	Long. from C.M.	Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Lati- tude	Long. from C.M.		
	Umbræ	Whole Spots	Umbræ	Whole Spots					Umbræ	Whole Spots	Umbræ	Whole Spots					
Group 13613 - continued								Group 13617 - continued									
Spot b								Spot b									
d					o	o	o	o	d					o	o	o	o
153°398 G	7	37	4	19	312°7	0°0	-12°2	-3°4	157°309 G	44	174	23	92	270°0	0°0	-18°4	+5°7
154°328 G	32	110	17	57	312°5	-0°3	-12°4	+8°7	158°335 G	30	156	17	87	269°5	-0°4	-18°1	+18°7
155°388 G	44	149	24	82	311°8	-1°1	-12°3	+22°0	159°328 G	16	80	10	50	269°0	-0°9	-17°5	+31°4
156°347 G	34	101	21	63	311°4	-1°5	-12°4	+34°3	160°339 G	14	41	11	31	270°2	+0°4	-18°8	+46°0
157°309 G	11	57	8	43	311°5	-1°5	-12°3	+47°2	161°355 G	5	32	5	32	269°2	-0°5	-17°8	+58°4
158°335 G	5	9	5	9	310°7	-2°4	-12°1	+59°9									
Group 13616								Group 13620									
June 3-11. A regular spot, shrinking and so dying out.								June 6-17. A largish spot, very stable in position, but splitting into two and decreasing. On June 17 a companion appears <i>nf</i> .									
154°328 G	14	71	25	128	230°4	0°0	-14°8	-73°4	157°309 G	5	32	37	234	178°1	..	+13°3	-86°2
155°388 G	25	163	26	168	229°8	-0°6	-14°8	-60°0	158°335 G	57	302	96	507	178°6	0°0	+13°6	-72°2
156°347 G	44	176	33	134	230°2	-0°2	-14°8	-46°9	159°328 G	80	449	78	440	179°3	+0°7	+13°5	-58°3
157°309 G	23	124	14	77	230°4	-0°1	-14°8	-33°9	160°339 G	80	472	58	345	179°2	+0°5	+13°8	-45°0
158°335 G	21	82	12	45	230°5	0°0	-14°8	-20°3	161°355 G	110	573	66	344	179°3	+0°6	+13°7	-31°5
159°328 G	16	48	8	25	230°9	+0°4	-14°8	-6°7	162°343 G	122	630	66	340	179°3	+0°5	+13°5	-18°4
160°339 G	9	34	5	18	230°6	+0°1	-15°3	+6°4	163°350 G	156	649	80	331	179°4	+0°6	+13°5	-5°0
161°355 G	7	23	4	13	231°0	+0°5	-14°9	+20°2	164°166 K	111	528	58	275	179°9	+1°0	+13°4	+6°3
162°343 G	9	18	6	11	231°1	+0°6	-14°8	+33°4	165°344 G	83	355	45	195	179°9	+1°0	+13°4	+21°9
								166°348 G	53	246	33	155	180°0	+1°0	+13°2	+35°3	
								167°391 C	40	183	31	143	179°9	+0°9	+13°4	+49°0	
								168°490 G	12	48	14	55	180°2	+1°1	+13°4	+63°8	
Means	..	..	15	69	230°5	..	-14°9	..									
Group 13617								Group 13622									
June 4-11. A small stream, forming closely <i>n</i> Group 13615 with which it intermingles. <i>a</i> and <i>b</i> are leader and follower respectively.								June 7-13. Intermittent. A single small spot on June 7 and 9; a small, short-lived cluster appears on June 11.									
155°388 G	12	23	7	13	271°0	0°0	-18°2	-18°8	158°335 G	2	5	1	3	238°2	0°0	-11°4	-12°6
156°347 G	21	82	11	43	271°0	+0°1	-18°7	-6°1	159°328 G	0	0	0	0	..	..	..	..
157°309 G	106	412	56	218	271°8	+0°7	-18°7	+7°3	160°339 G	5	11	3	6	235°6	-2°8	-12°9	+11°4
158°335 G	110	479	63	271	272°5	+1°7	-18°4	+21°7	161°355 G	0	0	0	0	..	..	..	..
159°328 G	71	375	47	244	273°8	+3°1	-18°1	+36°2	162°343 G	23	67	14	41	230°5	-8°1	-10°3	+32°8
160°339 G	37	160	30	131	273°4	+2°8	-18°7	+49°2	163°350 G	7	30	5	22	230°7	-8°0	-10°3	+46°3
161°355 G	19	133	22	156	273°6	+3°0	-18°2	+62°8	164°166 K	2	9	2	9	233°0	-5°8	-9°7	+59°4
162°343 G	12	46	26	98	273°0	+2°5	-18°7	+75°3									
Means	..	..	33	147	272°5	..	-18°5	..	Means	..	..	4	12	233°6	..	-10°9	..
Spot a								Group 13623									
June 8-18. A variable group of nondescript spots, none being seen on June 13.								June 8-18. A variable group of nondescript spots, none being seen on June 13.									
157°309 G	62	238	33	126	273°0	0°0	-18°6	+8°7	159°328 G	2	7	3	10	169°0	0°0	+16°3	-68°6
158°335 G	80	323	46	184	273°8	+0°9	-18°6	+23°0	160°339 G	7	11	7	11	166°6	-2°4	+16°1	-57°6
159°328 G	25	121	17	81	276°0	+3°1	-17°2	+38°4	161°355 G	9	39	6	28	168°0	-1°0	+16°4	-42°8
160°339 G	23	119	19	100	275°1	+2°3	-18°6	+50°9	162°343 G	5	12	3	7	167°8	-1°2	+16°2	-29°9
161°355 G	14	101	17	124	275°2	+2°5	-18°3	+64°4	163°350 G	2	12	1	7	166°0	-3°0	+16°7	-18°4

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

LEDGER II. - NON-RECURRENT GROUPS OF SUNSPOTS FOR THE YEAR															
Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Lati- tude	Long. from C.M.	Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Lati- tude	Long. from C.M.
	Umbræ	Whole Spots	Umbræ	Whole Spots					Umbræ	Whole Spots					
Group 13623 - continued								Group 13629 - continued							
d					°	°	°	d					°	°	°
164°166 K	0	0	0	0	..	..	..	172°412 G	72	411	64	372	11°0	+0°1	-16°9
165°344 G	87	247	46	130	169°0	0°0	+15°5	173°340 G	92	556	65	388	11°9	+1°0	-16°4
166°348 G	66	273	38	156	170°0	+1°0	+15°5	174°410 C	145	772	84	449	12°5	+1°6	-16°0
167°391 C	29	165	19	112	170°5	+1°5	+15°4	175°591 G	235	1490	125	793	12°6	+1°7	-15°7
168°490 G	14	158	13	55	173°7	+4°7	+15°6	176°344 G	282	1497	147	783	13°0	+2°1	-15°3
169°341 G	5	18	7	25	173°7	+4°8	+15°5	177°336 G	264	1515	142	814	12°7	+1°8	-15°7
								178°432 G	270	1587	162	948	12°6	+1°7	-15°8
								179°362 C	161	1383	115	967	13°0	+2°1	-15°7
								180°362 G	183	993	166	888	12°0	+1°1	-15°8
								181°396 G	106	621	146	881	12°6	+1°8	-15°5
								182°332 G	32	186	106	624	12°9	+2°1	-15°0
Means	..	..	13	49	169°4	..	+15°9	Means	..	..	113	683	12°3	..	-15°9
Group 13625								Spot a							
June 11-19. Two or three variable spots not seen on June 14 and 15, in fairly high northern latitude, matched in southern latitude by Group 13626.								171°403 G							
162°343 G	14	35	9	23	165°7	0°0	+25°1	172°412 G	53	273	45	229	13°6	+1°0	-16°7
163°350 G	5	14	3	8	168°8	+3°1	+23°9	173°340 G	62	404	42	271	14°4	+1°8	-15°9
164°166 K	17	72	9	40	168°3	+1°0	+24°6	174°410 C	65	352	37	201	14°8	+2°2	-15°7
165°344 G	7	18	4	10	169°1	+4°1	+23°9	175°591 G	159	1167	84	619	14°1	+1°5	-15°2
166°348 G	0	0	0	0	..	..	..	176°344 G	199	1086	103	565	14°3	+1°7	-15°0
167°391 C	0	0	0	0	..	..	..	177°336 G	169	966	91	522	14°8	+2°2	-15°1
168°490 G	9	44	8	38	168°9	+4°5	+21°0	178°432 G	159	848	97	517	15°6	+3°0	-15°1
169°341 G	28	108	34	127	168°3	+4°1	+22°0	179°362 C	112	723	82	528	16°0	+3°4	-14°9
170°340 G	23	95	41	169	164°2	+0°2	+22°9	180°362 G	88	374	87	370	16°8	+4°2	-15°0
Means	..	..	12	46	167°3	..	+23°3	181°396 G	30	199	53	350	17°6	+5°0	-15°1
Group 13628								182°332 G							
June 16-28. A large regular spot with small unstable companions.								174°410 C							
167°391 C	9	94	43	450	47°3	..	-10°6	175°591 G	76	323	41	174	8°9	-0°3	-16°3
168°490 G	85	359	122	517	47°4	0°0	-10°8	176°344 G	83	411	44	218	8°5	-0°7	-16°3
169°341 G	110	704	107	683	47°2	-0°3	-10°5	177°336 G	79	464	42	246	8°5	-0°7	-16°3
170°340 G	193	844	139	608	47°2	-0°4	-10°3	178°432 G	81	529	47	307	8°7	-0°5	-16°6
171°403 G	198	1087	117	640	47°1	-0°6	-10°4	179°362 C	33	299	22	197	8°2	-1°0	-16°6
172°412 G	185	1132	100	611	46°8	-1°0	-10°1	180°362 G	72	439	59	360	8°8	-0°4	-16°5
173°340 G	229	1074	117	548	47°0	-0°9	-10°2	181°396 G	60	263	71	313	8°7	-0°5	-16°0
174°410 C	187	1000	97	520	46°8	-1°2	-10°4	182°332 G	18	102	40	230	8°8	-0°4	-15°9
175°591 G	166	848	93	475	47°1	-1°1	-9°8	Spot b							
176°344 G	159	691	99	428	47°0	-1°3	-10°0	174°410 C	18	83	11	50	9°2	0°0	-16°8
177°336 G	99	603	76	464	47°1	-1°3	-10°0	175°591 G	76	323	41	174	8°9	-0°3	-16°3
178°432 G	67	377	74	418	47°1	-1°4	-9°7	176°344 G	83	411	44	218	8°5	-0°7	-16°3
179°362 C	22	196	43	384	46°9	-1°7	-9°7	177°336 G	79	464	42	246	8°5	-0°7	-16°3
Means	..	..	99	525	47°1	..	-10°2	178°432 G	81	529	47	307	8°7	-0°5	-16°6
Group 13629								179°362 C							
June 19-July 1. A large stream of normal type. The leader, a, becomes a regular spot; the follower, b, emerges as a regular spot on June 29.								180°362 G							
170°340 G	0	7	0	37	8°2	..	-18°0	181°396 G							
171°403 G	27	207	36	285	10°9	0°0	-17°0	182°332 G							
								Group 13631							
								June 21-30. A small stream.							
								172°412 G	7	21	4	14	27°2	0°0	-15°0
								173°340 G	48	176	27	101	28°1	+0°9	-14°3
								174°410 C	22	94	12	49	28°4	+1°1	-14°0
								175°591 G	16	69	9	37	30°2	+2°9	-14°4
								176°344 G	49	194	27	107	30°2	+2°9	-14°3
								177°336 G	41	141	25	85	29°0	+1°7	-14°4
								178°432 G	32	148	23	108	28°4	+1°0	-14°3
								179°362 C	33	154	31	147	28°5	+1°1	-14°7
								180°362 G	16	92	23	132	27°1	-0°3	-15°2
								181°396 G	2	14	10	67	28°4	..	-15°8
								Means	..	..	20	87	28°6	..	-14°5

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

Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Lati- tude	Long. from C.M.	Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Lati- tude	Long. from C.M.								
	Umbræ	Whole Spots	Umbræ	Whole Spots					Umbræ	Whole Spots													
Group 13636								Group 13648 - continued															
June 24-July 5. A pair of regular spots until June 28. The remaining one shrinks to a small spot last seen within 20° of the west limb.								d o o o															
d																							
175°591 G	14	60	27	118	307°0	0°0	+ 2°6	-75°3	191°355 C	56	285	33	171	206°3	+2°1	+12°8	+32°6						
176°344 G	27	143	32	170	307°2	+0°1	+ 2°7	-65°2	192°357 G	32	267	24	197	207°6	+3°3	+12°8	+47°2						
177°336 G	34	176	28	142	307°4	+0°1	+ 2°6	-51°8	193°330 G	28	159	29	164	208°7	+4°3	+13°0	+61°1						
178°432 G	49	185	30	115	308°0	+0°5	+ 2°7	-36°7	194°355 G	9	18	16	33	208°6	+4°2	+13°1	+74°6						
179°362 C	35	160	19	87	308°7	+1°0	+ 2°6	-23°7	Means	..	..	30	158	206°6	..	+12°9	..						
180°362 G	47	157	25	80	308°2	+0°3	+ 2°6	-11°0	Group 13650														
181°396 G	18	104	9	52	309°0	+0°9	+ 2°6	+ 3°5	July 8-15. A variable cluster or stream.														
182°332 G	28	120	15	62	309°5	+1°3	+ 2°5	+16°4	189°343 G	23	67	12	36	181°7	0°0	+16°7	-18°6						
183°348 G	16	90	9	52	309°5	+1°1	+ 2°6	+29°8	190°423 G	88	390	45	199	183°3	+1°6	+15°8	- 2°7						
184°394 C	9	27	6	19	309°7	+1°1	+ 2°6	+43°9	191°355 C	89	489	46	254	183°3	+1°6	+15°5	+ 9°6						
185°372 G	5	12	4	11	309°4	+0°6	+ 2°3	+56°5	192°357 G	48	251	26	138	183°7	+2°0	+15°0	+23°3						
186°381 G	2	7	3	10	309°4	+0°4	+ 2°1	+69°9	193°330 G	71	373	45	236	184°6	+2°6	+13°8	+37°0						
Means	..	..	17	76	308°6	..	+ 2°5	..	194°355 G	34	232	27	186	185°3	+3°5	+13°5	+51°3						
Group 13642								195°380 G								7	28	8	33	185°8	+4°0	+14°5	+65°4
July 1-6. A pair of spots; only one remains on July 5 and 6.								196°395 C								4	22	9	52	185°4	+3°6	+15°0	+78°4
182°332 G	14	46	33	108	215°1	0°0	+11°2	-78°0	Means	..	..	27	142	184°1	..	+15°0	..						
183°348 G	35	113	42	129	215°3	+0°1	+11°3	-64°4	Group 13651														
184°394 C	27	135	22	107	215°3	0°0	+11°4	-50°5	July 9-16. A short-lived cluster or stream.														
185°372 G	32	127	21	79	215°6	+0°2	+11°3	-37°3	190°423 G	5	14	5	13	128°5	0°0	- 7°4	-57°5						
186°381 G	14	65	8	36	216°4	+0°9	+11°2	-23°1	191°355 C	33	130	23	92	130°9	+2°3	-10°3	-42°8						
187°430 C	4	18	2	9	216°2	+0°6	+11°4	- 9°4	192°357 G	44	193	26	114	131°0	+2°3	-10°3	-29°4						
Means	..	..	21	78	215°6	..	+11°3	..	193°330 G	41	159	22	87	131°3	+2°5	-10°4	-16°3						
Group 13647								194°355 G								51	177	27	91	132°0	+3°1	-10°4	- 2°0
July 5-13. A cluster of small spots.								195°380 G								16	64	8	34	132°2	+3°2	-10°4	+11°8
186°381 G	16	48	13	37	191°8	0°0	-12°1	-47°7	196°395 C	9	20	5	12	133°2	+4°0	-11°1	+26°2						
187°430 C	15	67	10	42	192°1	+0°2	-12°6	-33°5	197°400 C	4	18	3	12	133°0	+3°7	-11°1	+39°3						
188°377 G	16	56	9	31	193°2	+1°2	-12°7	-19°9	Means	..	..	15	57	131°5	..	-10°2	..						
189°343 G	14	72	7	37	192°9	+0°8	-10°4	- 7°4	Group 13652														
190°423 G	21	97	11	50	193°4	+1°2	-10°7	+ 7°4	July 10-16. A revival rather than a return of Group 13625. A small stream in which the leader is the largest component.														
191°355 C	22	109	12	60	193°4	+1°2	-10°8	+19°7	191°355 C	40	199	22	107	164°1	0°0	+22°7	- 9°6						
192°357 G	21	41	13	26	195°4	+3°1	-10°8	+35°0	192°357 G	121	476	64	252	165°3	+1°4	+21°5	+ 4°9						
193°330 G	5	12	4	9	195°9	+3°5	-10°7	+48°3	193°330 G	76	372	43	207	166°3	+2°5	+21°2	+18°7						
194°355 G	2	7	2	8	196°2	+3°7	-10°9	+62°2	194°355 G	52	287	32	177	166°4	+2°8	+21°5	+32°4						
Means	..	..	9	33	193°8	..	-11°3	..	195°380 G	34	149	26	115	167°8	+4°4	+21°5	+47°4						
Group 13648								196°395 C								26	167	28	176	167°4	+4°1	+21°7	+60°4
July 6-13. A stream with rapid rise to a brief maximum. The leader spot is the longest lived.								197°400 C								9	40	16	70	167°6	+4°3	+22°0	+73°9
187°430 C	40	189	22	103	204°0	0°0	+13°1	-21°6	Means	..	..	33	158	166°4	..	+21°7	..						
188°377 G	95	425	49	218	204°9	+0°8	+12°5	- 8°2	Group 13652														
189°343 G	81	441	41	225	205°8	+1°7	+12°7	+ 5°5	July 10-16. A revival rather than a return of Group 13625. A small stream in which the leader is the largest component.														
190°423 G	42	279	23	153	207°2	+3°0	+13°1	+21°2	191°355 C	40	199	22	107	164°1	0°0	+22°7	- 9°6						
									192°357 G	121	476	64	252	165°3	+1°4	+21°5	+ 4°9						
									193°330 G	76	372	43	207	166°3	+2°5	+21°2	+18°7						
									194°355 G	52	287	32	177	166°4	+2°8	+21°5	+32°4						
									195°380 G	34	149	26	115	167°8	+4°4	+21°5	+47°4						
									196°395 C	26	167	28	176	167°4	+4°1	+21°7	+60°4						
									197°400 C	9	40	16	70	167°6	+4°3	+22°0	+73°9						
									Means	..	..	33	158	166°4	..	+21°7	..						

LEDGER II. - NON-RECURRENT GROUPS OF SUNSPOTS FOR THE YEAR																	
Date U.T. Place	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				
Group 13654								Group 13664 - continued									
July 12-18. Intermittent. A cluster of small spots dying out on July 14. A tiny single spot represents its position on July 16 and 18.								d o o o o									
193°330 G	12	23	17	32	78°3	0°0	+ 6°9	-69°3	205°449 C	4	11	2	7	313°0	-0°1	- 6°1	-34°2
194°355 G	12	51	11	45	78°1	-0°3	+ 7°7	-55°9	206°362 G	0	0	0	0	..	..	..	..
195°380 G	12	44	6	29	79°2	+0°6	+ 8°2	-41°2	207°440 G	5	14	3	7	313°8	+0°4	- 6°7	- 7°1
196°395 C	0	0	0	0	..	..	..	..	Means	..	..	3	8	313°2	..	- 6°4	..
197°400 C	2	13	1	7	77°8	-1°1	+ 8°2	-15°9	Group 13665								
198°481 G	0	0	0	0	..	..	..	..	July 22-27. Intermittent. One or two tiny spots.								
199°394 C	2	9	1	5	79°7	+0°5	+ 7°8	+12°4	203°336 G	9	25	5	13	21°4	0°0	+23°6	+ 6°2
Means	..	..	5	19	78°6	..	+ 7°8	..	204°602 G	0	0	0	0	..	..	..	..
Group 13656								205°449 C									
July 15-20. A small spot, except on July 18 and 20 when there is a small cluster.								206°362 G									
196°395 C	9	40	10	44	45°4	0°0	- 9°5	-61°6	207°440 G	2	7	2	7	22°9	+2°4	+23°7	+62°0
197°400 C	7	27	5	21	45°2	-0°3	- 9°4	-48°5	208°334 G	2	5	4	9	23°4	+3°1	+23°4	+74°4
198°481 G	2	16	1	10	45°2	-0°4	- 9°3	-34°2	Means	..	..	3	8	22°3	..	+23°6	..
199°394 C	11	54	6	30	44°9	-0°8	-10°5	-22°4	Group 13668								
200°332 G	2	7	1	4	44°1	-1°7	-11°3	-10°8	July 25-Aug.4. A stream of normal type in which the leader, a, alone remains by July 31 which in turn is dying out as it passes around the west limb.								
201°489 C	4	13	2	7	45°1	-0°9	-10°0	+ 5°5	206°362 G	30	119	36	143	271°1	0°0	- 8°3	-64°0
Means	..	..	4	19	45°0	..	-10°0	..	207°440 G	53	323	41	251	272°5	+1°2	- 8°0	-48°4
Group 13658								208°334 G									
July 18-27. Intermittent. One tiny spot seen only on July 18, 23 and 27.								209°337 G									
199°394 C	2	9	1	6	25°7	0°0	-13°6	-41°6	210°333 G	67	300	35	156	274°0	+2°8	- 7°1	- 8°1
200°332 G	0	0	0	0	..	..	..	..	211°119 K	36	244	18	125	275°1	+3°3	- 7°1	+ 2°9
201°489 C	0	0	0	0	..	..	..	..	212°384 G	30	128	16	70	276°4	+4°4	- 6°8	+20°9
202°383 G	0	0	0	0	..	..	..	..	213°431 G	25	101	16	63	276°0	+3°8	- 6°5	+34°4
203°336 G	0	0	0	0	..	..	..	..	214°487 G	16	82	12	63	275°9	+3°6	- 6°6	+48°2
204°602 G	7	25	4	14	20°9	-5°2	-11°9	+22°5	215°337 C	9	40	9	41	276°0	+3°5	- 5°7	+59°6
205°449 C	0	0	0	0	..	..	..	..	216°449 G	5	11	10	23	277°1	+4°5	- 5°8	+75°4
206°362 G	0	0	0	0	..	..	..	..	Means	..	..	26	126	274°7	..	- 7°0	..
207°440 G	0	0	0	0	..	..	..	..	Spot a								
208°334 G	2	7	4	14	23°1	-3°2											

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Date U.T. Place	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.		
	Umbræ	Whole Spots	Umbræ	Whole Spots					Umbræ	Whole Spots	Umbræ	Whole Spots					
Group 13672								Group 13678 - continued									
July 31-Aug. 6. A small stream of variable spots.								Spot a									
d								d									
212°384 G	25	203	13	101	256°3	0°0	+ 7°7	+ 0°8	219°613 G	48	259	54	293	95°8	0°0	+ 6°4	-64°1
213°431 G	25	110	13	57	257°6	+1°2	+ 8°0	+16°0	220°401 G	76	362	62	297	96°7	+0°8	+ 6°8	-52°8
214°487 G	16	96	9	57	259°7	+3°1	+ 7°3	+32°0	221°438 G	82	513	52	328	97°0	+0°9	+ 6°8	-38°8
215°337 C	18	58	12	40	260°4	+3°7	+ 7°1	+44°0	222°420 G	92	508	51	279	97°6	+1°3	+ 6°8	-25°2
216°449 G	12	62	11	59	260°4	+3°5	+ 7°4	+58°7	223°392 C	89	522	45	266	97°7	+1°3	+ 6°7	-12°2
217°341 G	16	110	21	142	257°7	+0°7	+ 8°4	+87°8	224°357 G	128	563	64	282	97°7	+1°1	+ 6°5	+ 0°5
218°403 G	7	18	(18	46	255°3	..	+ 9°8)	+79°4	225°342 G	110	618	56	315	97°2	+0°5	+ 6°5	+13°1
Means	..	..	13	76	258°7	..	+ 7°6	..	226°330 G	126	623	71	349	97°1	+0°2	+ 6°3	+26°0
Group 13674								Group 13679									
Aug. 4-15. A variable stream.								Aug. 11-22. A stream in which the f part soon dies out. The large leader spot, a, that survives becomes elongated as it nears the west limb, perhaps indicating an early decay, since it does not last to the following rotation, although its place is marked by Group 13702.									
216°449 G	22	77	21	71	144°1	0°0	+14°4	-57°6	223°392 C	13	75	22	121	40°3	0°0	-12°8	-69°6
217°341 G	71	296	51	211	144°1	0°0	+15°1	-45°8	224°357 G	103	394	103	394	40°2	-0°2	-12°9	-57°0
218°403 G	99	327	59	193	143°6	-0°5	+15°4	-32°3	225°342 G	172	879	129	659	39°4	-1°0	-12°5	-44°7
219°613 G	57	320	30	170	143°1	-1°0	+15°0	-16°8	226°330 G	206	950	129	595	39°3	-1°2	-12°4	-31°8
220°401 G	64	217	33	112	143°1	-1°0	+15°1	- 6°4	227°364 G	306	1399	172	788	38°9	-1°7	-12°4	-18°5
221°438 G	57	243	29	124	142°8	-1°3	+15°1	+ 7°0	228°349 G	278	1535	147	815	38°3	-2°3	-12°3	- 6°1
222°420 G	50	251	28	136	144°1	0°0	+15°4	+21°3	229°377 G	248	1505	132	797	38°6	-2°1	-12°1	+ 7°8
223°392 C	29	122	17	74	144°7	+0°6	+15°8	+34°8	230°347 G	233	1432	133	815	38°5	-2°3	-12°5	+20°5
224°357 G	29	119	22	86	143°1	-1°0	+17°0	+45°9	231°607 G	219	1156	147	775	38°2	-2°7	-12°4	+36°9
225°342 G	30	110	27	97	140°3	-3°8	+17°3	+56°2	232°343 G	144	898	112	700	37°9	-3°0	-12°5	+46°3
226°330 G	18	89	24	121	140°6	-3°5	+17°3	+69°5	233°415 C	106	564	116	615	37°6	-3°4	-12°1	+60°2

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

Date U.T. Place	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													
Group 13680								Group 13694															
Aug. 11-22. A stable regular spot with an occasional companion.								Aug. 27-Sept.4. A stream decreasing rapidly after a maximum around Aug.30.															
d					o	o	o	o	d					o	o	o	o						
223°392 C	18	135	31	235	35°5	0°0	+13°7	-74°4	239°400 G	9	21	16	37	183°4	0°0	+15°3	-75°0						
224°357 G	39	224	40	231	35°6 +	0°1	+14°1	-61°6	240°468 G	57	168	61	176	181°6	-1°8	+15°4	-62°6						
225°342 G	60	277	45	208	35°6	0°0	+14°0	-48°5	241°347 G	105	385	82	302	182°0	-1°4	+15°4	-50°6						
226°330 G	50	300	30	183	35°8 +	0°2	+13°9	-35°3	242°337 G	107	497	67	310	183°0	-0°4	+15°5	-36°6						
227°364 G	67	355	36	192	35°7	0°0	+14°1	-21°7	243°337 G	166	513	93	285	183°1	-0°3	+15°8	-23°2						
228°349 G	73	358	37	183	35°9 +	0°2	+13°7	- 8°5	244°405 G	102	324	52	167	183°2	-0°2	+15°7	- 9°0						
229°377 G	89	361	46	184	35°3 -	0°5	+13°4	+ 4°5	245°357 G	43	134	22	69	183°3	-0°1	+15°5	+ 3°6						
230°347 G	70	392	37	207	35°1 -	0°7	+13°5	+17°1	246°341 G	30	59	16	32	183°0	-0°4	+15°5	+16°3						
231°607 G	73	306	45	187	36°0 +	0°1	+13°2	+34°7	247°373 G	9	14	5	8	179°2	-4°2	+15°0	+26°2						
232°343 G	59	256	41	178	36°0 +	0°1	+13°0	+44°4	Means	..	..	46	154	182°4	..	+15°5	..						
233°415 C	29	155	28	147	36°4 +	0°4	+12°9	+59°0	Group 13696														
234°433 G	21	87	33	135	36°2 +	0°2	+12°6	+72°2	Aug.29-Sept.10. A regular spot shrinking rapidly after Sept.6.														
Means	..	..	37	189	35°8	..	+13°5	..	241°347 G	23	87	57	214	152°6	..	+17°4	-80°0						
Group 13685								242°337 G								25	116	30	140	153°0	0°0	+17°2	-66°6
Aug. 19-25. One or two small spots.								243°337 G								27	145	23	123	152°0	-1°0	+17°0	-54°3
231°607 G	9	39	8	33	306°7	0°0	+12°4	-54°6	244°405 G	36	234	23	152	152°3	-0°6	+16°7	-39°9						
232°343 G	18	34	13	24	307°0 +	0°3	+12°5	-44°6	245°357 G	39	234	22	133	152°0	-0°9	+16°7	-27°7						
233°415 C	9	33	5	19	308°6 +	1°8	+12°4	-28°8	246°341 G	52	266	27	138	152°0	-0°9	+16°6	-14°7						
234°433 G	16	64	8	33	309°5 +	2°6	+12°9	-14°5	247°373 G	54	220	28	112	152°3	-0°6	+16°6	- 0°7						
235°511 C	17	71	8	35	309°4 +	2°5	+13°6	- 0°3	248°348 G	50	245	26	127	152°3	-0°5	+16°8	+12°1						
236°365 G	18	78	9	41	311°1 +	4°1	+13°2	+12°6	249°353 G	36	200	20	112	152°7	-0°1	+16°6	+25°8						
237°389 C	4	26	2	15	311°3 +	4°3	+13°2	+26°4	250°346 G	27	143	18	93	152°8	0°0	+16°6	+39°0						
Means	..	..	8	29	309°1	..	+12°9	..	251°413 C	22	94	18	78	153°1	+0°3	+16°7	+53°4						
Group 13687								252°396 G								11	52	13	63	153°5	+0°8	+16°7	+66°8
Aug. 20-29. A cluster of changing spots. On Aug.23, another small cluster forms in front, the whole group dying out by Aug.26. On Aug.27 activity revives, and a stream is seen developing rapidly as it passes round the west limb.								253°408 C								4	13	10	32	153°2	+0°5	+16°6	+79°9
Means	..	..	8	29	309°1	..	+12°9	..	Means	..	..	22	109	152°6	..	+16°7	..						
Group 13687								Group 13697															
Aug. 20-29. A cluster of changing spots. On Aug.23, another small cluster forms in front, the whole group dying out by Aug.26. On Aug.27 activity revives, and a stream is seen developing rapidly as it passes round the west limb.								Aug.29-Sept.8. A double spot shrinking rapidly before extinction.															
232°343 G	5	14	4	11	303°7	0°0	-15°8	-47°9	241°347 G	11	48	(38	165	149°9	..	+10°2)	-82°7						
233°415 C	44	181	29	118	304°9 +	1°2	-15°7	-32°5	242°337 G	41	247	58	341	149°8	0°0	+11°2	-69°8						
234°433 G	78	235	44	134	305°1 +	1°4	-15°8	-18°9	243°337 G	57	284	51	251	150°2	+0°3	+11°2	-56°1						
235°511 C	35	163	19	88	307°0 +	3°3	-15°3	- 2°7	244°405 G	78	342	52	228	150°3	+0°3	+11°5	-41°9						
236°365 G	20	69	11	37	307°5 +	3°8	-15°7	+ 9°0	245°357 G	70	293	40	167	150°5	+0°4	+11°5	-29°2						
237°389 C	4	18	2	11	311°8 +	8°1	-14°5	+26°9	246°341 G	77	337	41	177	149°5	-0°6	+11°9	-17°2						
238°325 G	0	0	0	0	..	..	..	..	247°373 G	61	225	30	112	151°1	+0°9	+11°6	- 1°9						
239°400 G	41	153	40	149	313°5 +	9°8	-15°5	+55°1	248°348 G	43	204	22	104	150°9	+0°6	+11°8	+10°7						
240°468 G	52	360	91	816	314°0 +	10°3	-15°7	+69°8	249°353 G	34	152	19	84	150°9	+0°5	+11°7	+24°0						
241°347 G	16	82	(48	248	310°4	..	-16°6)	+77°8	250°346 G	16	70	10	43	150°9	+0°4	+11°2	+37°1						
Means	..	..	27	129	308°4	..	-15°5	..	251°413 C	4	13	3	10	150°5	-0°1	+11°1	+50°8						
Means	..	..	27	129	308°4	..	-15°5	..	Means	..	..	33	152	150°5	..	+11°5	..						

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

Date U.T. Place	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.		
	Umbræ	Whole Spots	Umbræ	Whole Spots					Umbræ	Whole Spots	Umbræ	Whole Spots					
Group 13698								Group 13709									
Sept. 1-10. A stream of small changing spots.								Sept. 17-22. A small decreasing regular spot, with a companion till Sept.20, perhaps related to Group 13708.									
d					o	o	o	d					o	o	o	o	
244°405 G	9	20	8	17	139°9	0°0	-9°3	-52°3	260°374 G	9	34	20	74	266°2	0°0	-8°9	-75°2
245°357 G	14	77	9	50	143°5	+3°5	-8°6	-36°2	261°350 G	22	90	26	106	265°5	-0°8	-8°7	-63°0
246°341 G	48	193	27	110	142°9	+2°8	-8°8	-23°8	262°405 G	22	93	18	75	265°0	-1°5	-8°5	-49°6
247°373 G	79	241	42	128	143°1	+2°9	-9°0	-9°9	263°357 G	23	81	16	53	265°1	-1°5	-8°6	-36°9
248°348 G	68	209	36	109	143°5	+3°1	-9°1	+3°3	264°346 C	9	30	5	17	266°9	+0°2	-8°5	-22°0
249°353 G	52	159	29	87	145°3	+4°8	-9°6	+18°4	265°360 C	4	35	2	18	266°9	0°0	-7°4	-8°7
250°346 G	32	127	20	79	146°3	+5°7	-8°9	+32°5									
251°413 C	29	145	21	109	144°5	+3°8	-10°3	+44°8									
252°396 G	23	111	22	109	143°3	+2°5	-11°4	+56°6	Means	..	..	14	57	265°9	..	-8°4	..
253°408 C	8	33	13	56	144°1	+3°1	-10°8	+70°8									
Means	..	..	23	85	143°6	..	-9°6	..	Group 13710								
Group 13701								Sept. 19-26. A stream already in rapid decline as it comes round the east limb.									
Sept. 7-17. A changing stream of small spots.																	
250°346 G	7	16	7	15	55°5	0°0	+14°8	-58°3	262°405 G	34	175	60	307	242°2	0°0	-7°5	-72°4
251°413 C	17	64	12	48	52°0	-3°5	+15°1	-47°7	263°357 G	59	219	59	223	242°9	+0°6	-7°6	-59°1
252°396 G	19	77	12	48	51°2	-4°3	+15°5	-35°5	264°346 C	28	208	21	157	242°9	+0°4	-7°5	-46°0
253°408 C	22	131	12	71	52°0	-3°5	+15°7	-21°3	265°360 C	26	108	16	67	242°6	0°0	-6°8	-33°0
254°353 G	93	309	47	158	52°3	-3°2	+15°7	-8°6	266°350 G	18	52	10	29	243°2	+0°4	-7°9	-19°3
255°411 G	48	179	25	92	52°6	-3°0	+15°8	+5°7	267°586 G	4	22	2	11	244°0	+1°1	-9°4	-2°2
256°503 G	45	237	24	128	54°8	-0°8	+14°8	+22°3	268°425 G	2	16	1	8	244°4	+1°4	-9°6	+9°3
257°460 G	67	287	42	177	55°4	-0°2	+14°9	+35°6	269°521 G	7	16	4	9	241°4	-1°8	-5°9	+20°8
258°408 C	26	137	20	104	55°5	-0°1	+14°8	+48°2	Means	..	..	22	101	243°0	..	-7°8	..
259°357 C	20	101	21	113	58°1	+2°5	+14°5	+63°3									
260°374 G	2	9	3	14	53°1	-2°5	+16°0	+71°7	Group 13713								
Means	..	..	20	88	53°9	..	+15°2	..	Sept.27-Oct.2. A short stream growing to its maximum near the west limb.								
Group 13705								270°343 G 4 13 2 7 223°8 0°0 -7°5 +14°0									
Sept. 13-22. At first, small spots in a stream. On Sept.18, there is a sudden increase of activity, and the group rapidly develops. The follower becomes a short-lived regular spot; the leading part of the stream is an unstable cluster.								271°351 G 20 56 11 33 225°6 +1°7 -7°4 +29°1									
256°503 G	7	25	5	17	349°0	0°0	+16°1	-43°5	272°223 K 17 91 12 63 226°1 +2°0 -7°7 +41°1								
257°460 G	7	18	4	10	351°8	+2°8	+15°8	-28°0	273°486 G 63 273 65 281 227°6 +3°4 -7°9 +59°3								
258°408 C	27	137	15	73	350°2	+1°2	+15°7	-17°1	274°422 G 29 152 53 285 228°9 +4°5 -7°8 +72°9								
259°357 C	38	166	19	84	350°1	+1°1	+15°9	-4°7	275°421 G 4 16 (15 61 224°2 .. -8°0) +81°4								
260°374 G	32	194	17	99	348°2	-0°8	+15°9	+6°8	Means	..	..	29	134	226°4	..	-7°7	..
261°350 G	135	603	73	327	350°7	+1°7	+15°5	+22°2	Group 13715								
262°405 G	194	993	120	615	350°3	+1°3	+15°1	+35°7	Sept.29-Oct.8. A cluster of small spots developing into a variable stream and then rapidly dying out.								
263°357 G	187	1170	140	879	350°5	+1°5	+15°1	+48°5	272°223 K	0	14	0	44	103°5	..	+6°1	-81°5
264°346 C	102	712	104	739	350°8	+1°8	+15°2	+61°9	273°486 G	7	38	8	44	103°3	0°0	+6°1	-65°0
265°360 C	22	169	52	431	353°9	+4°9	+14°1	+78°3	274°422 G	25	83	21	70	102°5	-1°0	+5°0	-53°5
Means	..	..	55	327	350°6	..	+15°4	..	275°421 G	33	116	22	77	102°3	-1°3	+5°1	-40°5
									276°341 C	31	131	18	75	102°4	-1°4	+4°9	-28°3
									277°341 G	45	390	23	203	102°6	-1°4	+5°2	-14°9
									278°366 G	82	495	42	248	102°9	-1°2	+5°2	-1°0

LEDGER II. - NON-RECURRENT GROUPS OF SUNSPOTS FOR THE YEAR																
Date U.T. Place	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.
	Umbræ	Whole Spots	Umbræ	Whole Spots						Umbræ	Whole Spots	Umbræ	Whole Spots			
Group 13715 - continued								Group 13720 - continued								
d									d							
279°393 C	54	426	28	219	102°6	-1°7	+ 4°9	+12°2	285°363 G	86	451	46	244	14°7	+1°0	-16°0 + 3°1
280°349 G	27	167	15	92	103°4	-1°1	+ 4°5	+25°6	286°384 G	75	340	42	194	15°8	+2°1	-15°8 +17°7
281°377 G	4	11	3	7	102°1	-2°5	+ 5°0	+37°9	287°638 G	67	285	44	188	16°0	+2°3	-15°7 +34°4
Means	..	..	20	115	102°7	..	+ 5°1	..	288°591 G	38	233	31	186	16°3	+2°6	-15°7 +47°3
Group 13716								Group 13721								
Oct. 4-12. One or two small spots until Oct.7; on Oct.8 a stream appears in which the follower spot is the most stable.								Oct. 7-18. Revival of Group 13704. A large complex spot which undergoes considerable change as it crosses the disk. It is preceded by a small regular spot. The group is rapidly dying out as it passes round the west limb.								
277°341 G	13	47	7	26	93°9	0°0	+12°9	-23°6	280°349 G	80	569	152	1081	1°8	0°0	+15°2 -76°0
278°366 G	4	13	2	7	95°9	+1°9	+12°7	- 8°0	281°377 G	140	1128	143	1151	2°9	+1°1	+15°4 -61°3
279°393 C	6	52	3	27	96°7	+2°7	+12°0	+ 6°3	282°391 G	262	1468	192	1093	3°0	+1°2	+15°3 -47°8
280°349 G	13	45	7	24	96°5	+2°4	+12°5	+18°7	283°394 G	278	1436	171	886	2°7	+0°9	+15°7 -34°9
281°377 G	73	277	42	160	94°4	+0°3	+13°5	+30°2	284°486 G	266	1678	144	908	2°5	+0°7	+15°4 -20°7
282°391 G	65	368	45	251	94°1	-0°1	+13°7	+43°3	285°363 G	400	1965	207	1018	2°0	+0°2	+15°9 - 9°6
283°394 G	48	222	42	200	94°6	+0°3	+13°6	+57°0	286°384 G	331	1779	169	907	2°1	+0°3	+15°2 + 4°0
284°486 G	29	151	47	230	94°9	+0°6	+13°5	+71°7	287°638 G	188	1123	102	612	2°9	+1°1	+16°0 +21°3
285°363 G	13	58	(39	176	93°2	..	+13°2)	+81°6	288°591 G	128	701	78	429	2°9	+1°1	+16°0 +33°9
Means	..	..	24	116	95°1	..	+13°0	..	289°305 C	79	392	55	274	3°6	+1°8	+15°4 +44°0
Group 13717								Group 13722								
Oct. 4-13. Intermittent. One or two ephemeral spots not seen on Oct.9-12.								Oct. 12-21. A diminishing regular spot with a small companion on Oct.17.								
277°341 G	7	25	6	20	66°2	0°0	+12°6	-51°3	285°363 G	9	51	26	149	292°2	0°0	- 6°1 -79°4
278°366 G	4	16	2	10	67°0	+0°7	+12°2	-36°9	286°384 G	18	142	22	178	292°7	+0°3	- 5°9 -65°4
279°393 C	2	9	1	5	64°9	-1°4	+12°7	-25°5	287°638 G	36	229	28	176	293°2	+0°6	- 6°1 -48°4
280°349 G	11	65	6	33	66°4	0°0	+11°9	-11°4	288°591 G	51	226	32	142	293°4	+0°7	- 6°3 -35°6
281°377 G	2	13	1	8	67°9	+1°4	+12°2	+ 3°7	289°305 C	26	133	15	78	294°2	+1°4	- 6°1 -25°4
282°391 G	0	0	0	0	..	..	..									

LEDGER II. - NON-RECURRENT GROUPS OF SUNSPOTS FOR THE YEAR																	
Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Lati- tude	Long. from C.M.	Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Lati- tude	Long. from C.M.		
	Umbræ	Whole Spots	Umbræ	Whole Spots					Umbræ	Whole Spots	Umbræ	Whole Spots					
Group 13727								Group 13733 - continued									
Oct. 22-31. Intermittent. A small spot on Oct.22 and 23: a small cluster on Oct.31.																	
d					o	o	o	o					o	o	o	o	
295°475 G	9	15	8	14	182°1	0°0	- 9°4	-56°1	305°376 G	71	304	52	222	61°0	+0°1	+13°7	-46°7
296°298 C	4	15	3	11	183°1	+ 0°9	- 9°3	-44°3	306°337 C	57	328	34	198	61°6	+0°6	+13°3	-33°4
297°333 C	0	0	0	0	..	..	..	..	307°393 C	57	428	31	230	62°1	+1°1	+13°3	-19°0
298°413 G	0	0	0	0	..	..	..	..	308°381 G	58	196	30	100	63°9	+2°8	+12°5	- 4°2
299°442 G	0	0	0	0	..	..	..	..	309°401 G	47	301	25	154	64°3	+3°1	+12°6	+ 9°7
300°396 C	0	0	0	0	..	..	..	..	310°276 C	38	204	21	112	65°5	+4°3	+12°4	+22°4
301°553 G	0	0	0	0	..	..	..	..	311°433 G	28	125	18	80	66°2	+4°9	+12°5	+38°4
302°385 G	0	0	0	0	..	..	..	..	312°422 G	26	165	21	131	65°6	+4°2	+11°7	+50°8
303°449 C	0	0	0	0	..	..	..	..	313°096 K	22	114	23	116	66°2	+4°8	+11°5	+60°3
304°443 C	8	47	8	49	180°0	- 3°2	- 8°7	+60°0	Means	..	..	27	144	63°5	..	+12°8	..
Means	..	..	2	7	181°7	..	- 9°1	..	Spot a								
Group 13729																	
Oct.24-Nov.1. A small stream showing rapid decay after its maximum around Oct.28-29.																	
297°333 C	11	52	6	32	179°1	0°0	- 2°3	-34°6	303°449 C	13	64	20	97	61°9	0°0	+13°1	-71°2
298°413 G	13	55	7	29	180°4	+ 1°1	- 2°6	-19°1	304°443 C	13	87	12	81	62°3	+0°3	+12°7	-57°7
299°442 G	24	81	12	41	181°5	+ 2°0	- 2°3	- 4°4	305°376 G	42	205	30	146	62°7	+0°7	+12°4	-45°0
300°396 C	60	239	30	122	180°0	+ 0°3	- 2°5	+ 6°7	306°337 C	36	220	21	130	62°9	+0°8	+12°2	-32°1
301°553 G	112	376	60	203	180°4	+ 0°5	- 2°9	+22°3	307°393 C	34	288	18	153	63°6	+1°5	+12°5	-17°5
302°385 G	75	323	46	199	181°8	+ 1°8	- 2°8	+34°7	308°381 G	51	176	26	90	64°6	+2°4	+12°2	- 3°5
303°449 C	23	132	18	102	182°0	+ 1°8	- 2°7	+48°9	309°401 G	33	213	17	109	65°1	+2°8	+12°3	+10°5
304°443 C	8	47	9	54	184°0	+ 3°6	- 2°5	+64°0	310°276 C	38	204	21	112	65°5	+3°2	+12°4	+22°4
305°376 G	7	22	15	47	183°8	+ 3°2	- 2°6	+76°1	311°433 G	28	125	18	80	66°2	+3°8	+12°5	+38°4
Means	..	..	23	92	181°4	..	- 2°6	..	312°422 G	15	55	12	45	66°8	+4°3	+12°1	+52°0
Group 13732								Group 13737									
Oct.30-Nov.6. A few unstable spots.								Nov. 3-13. A small stream developing from a single spot on Nov.3. The f part becomes a cluster and dies out after Nov.9.									
303°449 C	6	31	6	30	74°8	0°0	- 6°4	-58°3	307°393 C	0	8	0	11	11°6	0°0	+ 8°5	-69°5
304°443 C	0	14	0	10	74°4	- 0°6	- 6°6	-45°6	308°381 G	13	49	12	45	11°2	-0°5	+ 8°8	-56°9
305°376 G	13	51	8	33	69°3	- 5°8	- 7°3	-38°4	309°401 G	31	159	22	107	11°7	-0°2	+ 8°9	-42°9
306°337 C	6	38	4	22	64°3	-10°9	- 6°1	-30°7	310°276 C	38	265	22	156	12°1	+0°1	+ 8°7	-31°0
307°393 C	36	155	19	82	66°9	- 8°5	- 6°7	-14°2	311°433 G	37	123	19	64	12°6	+0°5	+ 8°8	-15°2
308°381 G	22	112	12	57	66°8	- 8°7	- 6°9	- 1°3	312°422 G	31	117	16	58	13°1	+0°9	+ 8°9	- 1°7
309°401 G	15	75	8	39	68°3	- 7°4	- 7°4	+13°7	313°096 K	24	165	12	83	12°6	+0°3	+ 8°3	+ 6°7
310°276 C	4	15	2	9	70°3	- 5°5	- 7°8	+27°2	314°385 G	7	28	4	16	17°2	+4°7	+ 9°1	+28°3
Means	..	..	7	35	69°4	..	- 6°9	..	315°283 C	4	17	3	11	17°4	+4°8	+ 9°7	+40°4
Group 13733								Group 13742									
Oct.30-Nov.9. A variable stream; the leader, a, a regular spot, is the most stable component.								Nov. 7-15. A variable stream of small spots.									
303°449 C	17	85	27	135	60°8	0°0	+14°1	-72°3	311°433 G	2	7	4	12	314°0	0°0	+ 7°8	-73°8
304°443 C	19	112	18	107	61°2	+ 0°3	+13°7	-58°8	312°422 G	11	22	12	24	312°6	-1°5	+ 7°9	-62°2
									313°096 K	12	53	10	45	311°7	-2°5	+ 7°9	-54°2
									314°385 G	24	105	15	66	311°5	-2°9	+ 8°1	-37°4

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

Date U.T. Place	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							
Group 13742 - continued								Group 13751 - continued									
d					o	o	o	o	d				o	o	o	o	
315°283 C	19	114	10	62	313°0	-1°5	+ 7°9	-24°0	328°411 G	22	68	12	37	185°7	-7°7	- 6°6	+21°7
316°280 C	12	72	6	37	312°8	-1°9	+ 8°3	-11°1	329°284 C	25	180	16	111	187°6	-5°9	- 6°4	+35°1
317°279 C	12	90	6	45	312°5	-2°3	+ 7°5	+ 1°8	330°491 G	22	120	18	100	188°5	-5°1	- 6°7	+51°9
318°391 G	14	68	8	35	313°6	-1°4	+ 7°4	+17°5	331°459 G	4	24	5	32	191°7	-2°1	- 5°7	+67°9
319°401 G	6	39	3	23	312°8	-2°3	+ 7°2	+30°0									
Means	..	..	8	39	312°7	..	+ 7°8	..	Means	..	..	7	37	190°6	..	- 8°1	..
Group 13748								Group 13752									
Nov. 13-19. A small regular spot.								Nov. 17-29. At first, a small regular spot; on Nov.19 other spots appear <i>f</i> making a small variable stream.									
317°279 C	4	34	11	90	232°3	0°0	-11°0	-78°4	321°423 G	9	33	23	85	177°8	0°0	- 9°6	-78°3
318°391 G	15	68	18	80	232°3	-0°1	-10°8	-63°8	322°282 C	10	71	13	92	178°2	+0°3	- 9°8	-66°6
319°401 G	24	116	19	93	232°9	+0°4	-11°1	-49°9	323°433 G	35	148	30	123	177°8	-0°2	- 9°8	-51°8
320°633 W	20	80	12	50	233°2	+0°6	-11°2	-33°3	324°441 G	40	225	26	147	177°4	-0°7	-10°0	-38°9
321°423 G	44	170	25	95	233°7	+1°0	-11°2	-22°4	325°284 C	48	267	28	155	176°8	-1°4	- 9°8	-28°4
322°282 C	13	113	7	59	233°9	+1°1	-11°4	-10°9	326°496 G	60	208	31	109	177°8	-0°5	-10°6	-11°5
323°433 G	13	46	7	24	233°8	+0°9	-11°7	+ 4°2	327°287 C	57	238	30	122	177°7	-0°7	-11°0	- 1°1
									328°411 G	46	199	25	105	177°3	-1°2	-11°4	+13°3
									329°284 C	30	220	18	125	176°3	-2°3	-11°6	+23°8
Means	..	..	14	74	233°2	..	-11°2	..	330°491 G	68	316	46	213	176°7	-2°0	-11°3	+40°1
									331°459 G	22	196	19	172	178°1	-0°7	-11°8	+54°3
									332°393 G	24	194	33	268	178°9	0°0	-12°1	+67°4
									333°419 G	7	39	25	141	179°7	..	-11°9	+81°7
Means	..	..	27	143	177°6	..	-10°7	..									
Group 13749								Group 13754									
Nov. 14-21. A stream suddenly developing from a tiny cluster on Nov.14. The leader becomes a regular spot and alone remains after Nov.19.								Nov. 23-30. A small short-lived stream.									
318°391 G	9	42	5	25	268°3	0°0	-13°2	-27°8	327°287 C	4	13	8	26	103°0	0°0	+12°9	-75°8
319°401 G	192	845	103	451	269°0	+0°7	-13°1	-13°8	328°411 G	22	68	21	66	106°3	+3°2	+12°4	-57°7
320°633 W	146	746	76	388	269°5	+1°1	-13°4	+ 3°0	329°284 C	29	194	21	143	106°5	+3°3	+12°0	-46°0
321°423 G	166	732	89	393	270°7	+2°3	-13°6	+14°6	330°491 G	44	202	26	117	107°9	+4°7	+12°4	-28°7
322°282 C	95	617	56	359	271°0	+2°6	-13°7	+26°2	331°459 G	20	96	11	51	108°8	+5°5	+12°1	-15°0
323°433 G	67	360	48	259	272°3	+3°8	-14°7	+42°7	332°393 G	4	17	2	9	104°6	+1°2	+11°6	- 6°9
324°441 G	33	218	34	225	275°3	+6°8	-15°9	+59°0	333°419 G	4	22	2	11	104°5	+1°0	+11°5	+ 6°5
325°284 C	14	124	21	191	273°4	+4°8	-14°8	+68°2	334°277 C	0	13	0	7	105°1	+1°6	+11°7	+18°4
Means	..	..	51	272	271°4	..	-14°1	..									
Group 13751								Group 13755									
Nov. 16-27. A small diminishing spot that finally dies on Nov.23. On the next day, fresh activity is shown a short distance away <i>nf</i> by the formation of a small stream.								Nov.25-Dec.7. A stable regular spot with a few unstable companions.									
320°633 W	7	27	14	52	192°3	0°0	- 9°9	-74°2	329°284 C	17	141	48	398	72°6	0°0	+13°8	-79°9
321°423 G	7	31	8	37	191°7	-0°7	- 9°7	-64°4	330°491 G	46	288	55	343	71°8	-0°8	+14°3	-64°8
322°282 C	8	50	7	42	192°4	-0°1	- 9°6	-52°4	331°459 G	72	366	60	304	71°9	-0°8	+14°2	-51°9
323°433 G	15	41	10	26	192°2	-0°5	- 9°4	-37°4	332°393 G	72	447	48	295	72°3	-0°4	+13°9	-39°2
324°441 G	4	13	2	7	192°1	-0°7	- 9°5	-24°2	333°419 G	118	547	67	312	72°0	-0°8	+13°6	-26°0
325°284 C	4	13	2	7	191°5	-1°4	- 8°0	-13°7									
326°496 G	4	15	2	8	191°8	-1°3	- 8°7	+ 2°5									
327°287 C	0	6	0	3	192°0	-1°2	- 8°7	+13°2									

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

Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Lat- itude	Long. from C.M.	Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Lat- itude	Long. from C.M.		
	Umbræ	Whole Spots	Umbræ	Whole Spots					Umbræ	Whole Spots							
Group 13755 - continued								Group 13762 - continued									
d					°	°	°	d					°	°	°	°	
334°277 C	88	514	47	272	72°3	-0°5	+13°8	-14°4	342°372 C	76	581	40	308	325°0	-0°6	-11°1	-15°0
335°350 C	80	424	41	216	71°7	-1°1	+13°8	-0°9	343°281 C	96	978	49	499	324°9	-0°8	-11°5	-3°2
336°281 C	71	460	37	239	71°9	-1°0	+14°1	+11°6	344°437 G	145	963	75	501	324°1	-1°7	-11°7	+11°3
337°343 C	67	383	38	207	71°6	-1°3	+14°1	+25°3	345°407 G	89	657	50	367	324°3	-1°6	-12°0	+24°3
338°453 G	57	294	38	197	71°3	-1°6	+14°0	+39°6	346°425 G	69	397	45	258	324°9	-1°1	-11°7	+38°3
339°428 G	35	224	30	190	71°4	-1°6	+14°4	+52°6	347°278 C	30	149	24	117	324°6	-1°5	-11°9	+49°2
340°491 G	17	115	22	150	71°5	-1°5	+14°1	+66°7	348°365 C	4	17	5	20	325°8	-0°4	-12°8	+64°7
341°275 C	13	63	28	137	70°7	-2°4	+14°0	+76°2									
Means	..	..	43	251	71°8	..	+14°0	..	Means	..	..	41	258	324°9	..	-11°4	..
Group 13756								Group 13764									
Nov.27-Dec.2. A stream developing towards the west limb.								Dec. 7-18. A small regular spot shrinking to a dot by Dec.12. After a lapse of two days, another spot appears 2° nearer the equator as the origin of a small stream.									
331°459 G	7	61	4	33	141°7	0°0	+13°1	+17°9	341°275 C	8	46	17	96	278°7	0°0	-13°4	-75°8
332°393 G	37	143	22	84	140°9	-0°9	+13°5	+29°4	342°372 C	13	65	14	70	278°4	-0°4	-13°5	-61°6
333°419 G	76	284	53	197	140°9	-0°9	+12°5	+42°9	343°281 C	15	61	11	48	278°6	-0°2	-13°2	-49°5
334°277 C	51	390	44	341	141°0	-0°9	+11°9	+54°3	344°437 G	17	65	11	40	278°6	-0°3	-13°1	-34°2
335°350 C	48	315	68	450	141°2	-0°8	+12°0	+68°6	345°407 G	7	28	4	15	278°6	-0°4	-13°2	-21°4
336°281 C	10	75	(38	286	142°3	..	+11°4)	+82°0	346°425 G	2	9	1	5	278°4	-0°6	-13°1	-8°2
Means	..	..	38	221	141°1	..	+12°6	..	347°278 C	0	0	0	0	..	..	..	..
									348°365 C	0	0	0	0	..	..	..	..
									349°389 C	4	17	2	10	280°0	+0°8	-11°6	+32°4
									350°463 G	32	99	23	73	279°4	+0°1	-11°8	+46°0
									351°440 G	22	111	22	113	280°9	+1°6	-12°4	+60°3
									352°429 G	4	13	8	26	283°2	+3°8	-12°2	+75°7
Means	..	..	38	221	141°1	..	+12°6	..	Means	..	..	9	41	279°5	..	-12°8	..
Group 13758								Group 13765									
Dec. 3-13. A variable equatorial stream in which the leader is the longest lived spot.								Dec. 8-15. A short-lived stream.									
337°343 C	17	69	22	90	339°0	0°0	+2°1	-67°3	342°372 C	0	8	0	13	267°4	0°0	-6°1	-72°6
338°453 G	29	142	23	115	340°1	+0°9	+2°1	-51°6	343°281 C	23	102	24	108	266°7	-0°8	-6°4	-61°4
339°428 G	59	302	37	192	341°5	+2°1	+1°4	-37°3	344°437 G	111	454	82	335	265°9	-1°8	-6°2	-46°9
340°491 G	59	320	32	174	341°4	+1°8	+1°5	-23°4	345°407 G	78	362	48	222	265°3	-2°6	-6°0	-34°7
341°275 C	33	226	17	116	342°8	+3°1	+1°3	-11°7	346°425 G	59	302	32	164	264°4	-3°8	-6°0	-22°2
342°372 C	15	96	8	48	343°3	+3°3	+1°2	+3°3	347°278 C	30	148	16	76	265°5	-2°7	-6°5	-9°9
343°281 C	23	99	12	52	343°9	+3°8	+1°1	+15°8	348°365 C	26	176	13	89	266°1	-2°3	-6°4	+5°0
344°437 G	28	161	16	93	343°2	+2°9	+0°7	+30°4	349°389 C	4	41	2	22	266°3	-0°2	-7°0	+20°7
345°407 G	28	98	19	68	343°4	+2°9	+0°7	+43°4									
346°425 G	9	24	8	23	344°3	+3°6	+0°5	+57°7									
347°278 C	0	8	0	12	346°0	+5°1	+0°7	+70°6									
Means	..	..	18	89	342°6	..	+1°2	..	Means	..	..	27	129	266°2	..	-6°3	..
Group 13762								Group 13766									
Dec. 4-14. Two small spots on Dec.4; the leading one develops into a large regular spot with which the follower merges to form a somewhat composite structure which then dissipates.								Dec. 8-20. A spot with double umbra, slowly decreasing and dividing into two spots as the west limb is approached.									
338°453 G	15	44	19	56	325°3	0°0	-10°8	-66°4	342°372 C	17	113	52	342	259°6	..	-10°1	-80°4
339°428 G	31	143	27	125	324°8	-0°6	-10°7	-54°0	343°281 C	29	263	43	387	258°2	0°0	-9°9	-69°9
340°491 G	96	474	64	316	324°9	-0°6	-10°7	-39°9									
341°275 C	84	466	49	273	325°2	-0°3	-11°0	-29°3									

LEDGER II. - NON-RECURRENT GROUPS OF SUNSPOTS FOR THE YEAR																	
Date U.T. Place	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.	
	Umbræ	Whole Spots	Umbræ	Whole Spots						Umbræ	Whole Spots	Umbræ	Whole Spots				
Group 13766 - continued								Group 13773									
								Dec. 13-18. A regular spot dying out.									
d									d								
344.437 G	89	464	78	408	258.0	-0.3	-9.9	-54.8									
345.407 G	102	510	69	347	258.1	-0.3	-10.2	-41.9	347.278 C	2	21	8	80	193.1	..	+9.8	-82.3
346.425 G	119	614	69	358	257.7	-0.8	-10.4	-28.9	348.365 C	21	88	28	119	193.4	0.0	+9.6	-67.7
347.278 C	84	512	45	271	258.2	-0.4	-10.3	-17.2	349.389 C	13	25	11	63	194.0	+0.5	+9.4	-53.6
348.365 C	100	581	51	296	258.3	-0.5	-10.5	-2.8	350.463 G	22	93	15	61	194.3	+0.6	+9.6	-39.1
349.389 C	104	506	54	263	258.5	-0.4	-10.5	+10.9	351.440 G	20	65	11	37	194.8	+1.0	+9.3	-25.8
350.463 G	67	454	38	254	258.7	-0.3	-10.3	+25.3	352.429 G	7	33	4	17	195.6	+1.7	+9.2	-11.9
351.440 G	65	360	42	234	259.0	-0.1	-10.3	+38.4									
352.429 G	50	299	41	245	259.3	+0.1	-10.0	+51.8	Means	..	..	14	59	194.4	..	+9.4	..
353.443 G	32	156	37	181	258.7	-0.6	-9.7	+64.5									
354.281 C	21	104	43	213	259.1	-0.3	-9.8	+76.0									
Means	..	..	51	288	258.5	..	-10.2	..	Group 13775								
Group 13767								Dec. 14-25. A regular spot slowly disappearing. A small spot appears on Dec.24 and 25 within the same general area.									
Dec. 9-16. A variable stream, near the Sun's equator, developing from a tiny cluster on Dec.9.																	
343.281 C	8	36	4	20	303.8	0.0	+1.2	-24.3	348.365 C	8	38	18	86	184.0	0.0	-10.8	-77.1
344.437 G	56	182	29	93	304.2	+0.2	+1.1	-8.6	349.389 C	25	150	28	171	183.9	-0.2	-10.6	-63.7
345.407 G	68	278	34	139	304.8	+0.6	+1.0	+4.8	350.463 G	26	124	20	97	183.7	-0.5	-10.3	-49.7
346.425 G	85	332	45	177	306.4	+2.0	+1.1	+19.8	351.440 G	37	145	23	91	184.5	+0.2	-10.8	-36.1
347.278 C	117	476	70	281	307.6	+3.0	+0.9	+32.2	352.429 G	30	115	16	63	184.6	+0.2	-11.0	-22.9
348.365 C	54	364	39	269	308.0	+3.2	+1.1	+46.9	353.443 G	28	147	14	75	184.3	-0.2	-10.6	-9.9
349.389 C	54	412	54	419	308.3	+3.3	+0.6	+60.7	354.281 C	13	71	7	36	184.2	-0.4	-10.9	+1.1
350.463 G	15	93	26	162	306.6	+1.4	+1.3	+73.2	355.442 G	15	54	8	29	183.8	-0.9	-10.5	+16.0
Means	...	..	38	195	306.2	..	+1.0	..	356.236 C	8	44	4	25	183.8	-0.9	-10.6	+26.4

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

Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Lati- tude	Long. from C.M.	Date U.T. Place	Projected Area		Corrected Area		Longitude and Proper Motion	Lati- tude	Long. from C.M.		
	Umbræ	Whole Spots	Umbræ	Whole Spots					Umbræ	Whole Spots							
Group 13778								Group 13781 - continued									
Dec. 21-31. A slowly diminishing regular spot with occasional companions.																	
d					o	o	o	o	d					o	o	o	o
355°442 G	6	15	14	35	90°4	0°0	+ 7°4	-77°4	365°277 C	43	266	27	165	1°9	-0°6	- 7°9	-36°4
356°236 C	8	59	10	75	91°0	+0°5	+ 7°2	-66°4	0°312 C	50	310	27	170	2°4	-0°2	- 8°1	-22°3
357°281 C	15	92	13	77	90°7	0°0	+ 6°9	-52°9	1°430 G	35	123	18	63	3°3	+0°5	- 8°3	- 6°6
358°281 C	17	87	11	57	91°0	+0°2	+ 7°0	-39°4	2°451 G	11	33	6	17	5°4	+2°5	- 8°4	+ 6°9
359°341 C	21	100	12	56	91°5	+0°5	+ 6°9	-25°0	Means	..	..	19	99	2°6	..	- 8°1	..
360°380 C	17	79	9	40	92°4	+1°2	+ 6°5	-10°4									
361°281 C	19	83	10	42	91°7	+0°4	+ 6°7	+ 0°8	Group 13782								
362°277 C	17	75	9	39	92°9	+1°4	+ 6°6	+15°1	Dec.29-Jan.6. One or two variable spots: then a stream a little north of them. The group disappears rather suddenly soon after meridian passage.								
363°483 G	24	78	14	47	94°0	+2°4	+ 6°2	+32°1									
364°284 C	8	40	6	28	94°2	+2°4	+ 6°3	+42°8									
365°277 C	0	8	0	7	94°0	+2°1	+ 6°7	+55°7									
Means	..	..	10	46	92°2	..	+ 6°8	..	363°483 G	4	15	2	9	341°5	..	+12°9	-80°4
Group 13781								364°284 C	4	21	6	30	342°9	0°0	+12°7	-68°5	
Dec.28-Jan.3. A short-lived stream in which the follower becomes the largest component. The group dies out when just past the central meridian.								365°277 C	8	37	7	34	343°3	+0°4	+11°9	-55°0	
362°277 C	4	23	7	46	2°1	0°0	- 8°1	-75°7	0°312 C	16	82	11	60	340°3	-2°7	+12°9	-44°4
363°483 G	19	86	20	88	1°3	-1°0	- 8°0	-60°6	1°430 G	30	112	19	69	339°0	-4°0	+14°1	-30°9
364°284 C	37	187	29	145	1°9	-0°5	- 8°0	-49°5	2°451 G	34	188	19	105	337°2	-5°9	+15°4	-19°3
								3°480 G	47	257	25	136	337°5	-5°6	+15°1	- 5°4	
								4°099 K	68	394	35	208	338°1	-5°0	+14°7	+ 3°3	
								5°705 W	26	104	16	61	339°7	-3°5	+14°1	+26°1	
								Means	..	..	17	92	339°8	..	+13°9	..	

ROYAL OBSERVATORY, GREENWICH.

Total Areas of Sunspots and Faculæ

Projected and Corrected for Foreshortening
for each Day, and

Mean Areas and Mean Heliographic
Latitude of Sunspots and Faculæ

for each Rotation of the Sun
and for the Year

1940

GREENWICH PHOTO-HELIOGRAPHIC RESULTS, 1940

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 and Kodaikanal, by the letters C and K respectively. On November 16, a plate taken at the U.S. Naval Observatory, Washington, is indicated by the letter W.

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		
1940	d							1940	d								
January	1° 512	C	54	243	842	45	216	970	February	15° 402	C	345	1892	2054	228	1237	2085
	2° 422	G	80	453	1404	52	298	1711		16° 438	G	334	1766	2006	237	1259	2379
	3° 489	G	213	1070	1361	123	611	1603		17° 286	C	234	1488	1411	192	1266	1964
	4° 441	G	575	2785	1631	309	1482	2071		18° 374	C	137	853	1046	144	992	1389
	5° 432	G	1095	4778	1717	573	2493	2327		19° 279	C	129	602	803	162	778	1348
	6° 297	C	943	5691	548	502	3030	657		20° 276	C	131	713	655	87	513	1148
	7° 371	C	1071	4654	386	627	2835	497		21° 273	C	159	697	1170	104	440	1255
	8° 435	G	811	3719	1123	565	2603	1497		22° 597	G	146	687	1080	148	717	1459
	9° 301	C	586	2833	2640	509	2450	3281		23° 284	C	133	849	1213	117	767	1618
	10° 411	G	382	1849	3326	485	2419	3854		24° 374	G	163	787	1090	122	595	1370
	11° 434	G	96	553	1362	161	944	1470		25° 376	C	145	774	1911	107	579	2231
	12° 475	G	49	255	1760	37	192	2111		26° 453	G	196	932	1174	133	662	1580
	13° 515	G	73	390	843	47	261	931		27° 276	C	232	1029	1461	148	669	1706
	14° 373	C	194	876	1465	127	627	1819		28° 277	C	249	1387	748	145	826	686
	15° 277	C	160	643	1840	106	450	2534		29° 281	C	268	1633	454	149	916	509
	16° 433	G	192	819	2161	151	627	2923									
	17° 484	G	198	1083	2072	120	629	2220									
	18° 498	G	259	1181	2494	148	667	2670	March	1° 317	C	417	2310	951	234	1285	1074
	19° 414	G	129	786	1025	76	459	1213		2° 373	G	467	2422	886	294	1500	1054
	20° 437	G	217	828	1772	134	509	2378		3° 417	G	529	2413	505	360	1662	865
	21° 377	C	163	855	1121	89	474	1277		4° 339	C	445	2640	1494	327	1903	1894
	22° 418	G	101	448	1643	64	274	2139		5° 372	G	520	2863	1551	413	2349	2011
	23° 520	G	181	735	1123	101	419	1415		6° 410	G	423	1983	1914	347	1614	2132
	24° 499	G	119	583	1361	74	363	1567		7° 432	G	353	1586	1144	355	1677	1340
	25° 466	G	87	470	1685	63	346	2174		8° 422	C	157	1028	1003	201	1367	1401
	26° 284	C	144	871	2077	241	1492	2715		9° 371	G	162	760	363	87	404	574
	27° 281	C	179	1420	1225	273	2227	1647		10° 378	C	144	877	1170	73	450	1460
	28° 373	C	295	1825	735	267	1714	912		11° 399	C	150	807	943	79	423	1036
	29° 532	C	361	2130	1107	255	1511	1205		12° 341	C	181	1133	665	109	664	1022
	30° 282	C	402	2159	1112	280	1591	1404		13° 333	C	153	754	1001	99	499	1093
	31° 277	C	550	2504	1422	368	1701	1892		14° 341	C	115	483	1127	111	453	1312
										15° 338	G	130	718	1210	111	620	1415
										16° 338	C	109	629	1923	88	554	2295
										17° 362	C	118	599	539	105	529	753
										18° 363	C	94	528	291	92	525	516
										19° 373	G	126	702	719	131	721	1081
										20° 369	G	274	1384	1725	302	1567	2097
										21° 361	G	363	1896	1305	357	1809	1625
										22° 351	C	384	2051	1316	313	1691	1503
										23° 363	G	415	2596	1336	320	1954	1744
										24° 488	G	800	3555	766	530	2336	1028
										25° 419	G	726	3858	466	427	2261	629
										26° 341	C	641	3736	835	353	2055	1137
										27° 396	G	695	3939	411	428	2426	616
										28° 331	G	769	3784	567	491	2417	605
										29° 372	C	673	4041	1641	448	2707	1739
										30° 336	G	553	3528	1456	386	2690	2089
										31° 380	G	543	2598	1255	467	2378	1724
February	1° 277	C	489	2687	1685	283	1563	1954									
	2° 276	C	454	2185	1159	253	1229	1245									
	3° 278	C	488	2781	696	276	1574	774									
	4° 352	C	395	2366	1020	241	1444	1062									
	5° 522	G	368	2028	1681	277	1439	2332									
	6° 509	G	282	1555	1639	253	1368	2112									
	7° 279	C	191	1215	1074	219	1225	1461									
	8° 335	C	154	929	1288	123	752	1388									
	9° 459	C	184	1084	1134	130	772	1209									
	10° 466	G	232	1170	1422	151	758	1762									
	11° 355	C	180	1016	1193	132	814	1866									
	12° 603	G	213	1188	738	140	799	1031									
	13° 506	G	285	1368	1422	179	870	1542									
	14° 361	G	347	1692	1669	230	1103	1995									

TOTAL AREAS OF SUNSPOTS AND FACULÆ FOR EACH DAY IN THE YEAR 1940

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
1940	d								1940	d							
April	1°380	G	310	1725	1438	265	1772	2126	June	1°363	G	118	607	940	112	543	1207
	2°338	G	248	1140	2265	183	861	2859		2°398	G	108	539	905	86	461	1400
	3°574	G	196	925	1183	139	657	1305		3°326	G	217	843	1992	169	705	2351
	4°544	G	202	981	1104	130	595	1234		4°388	G	265	1168	1944	208	965	2267
	5°350	G	217	1046	1026	131	619	1403		5°347	G	289	1174	1672	173	709	1965
	6°414	G	215	993	948	148	658	1568		6°309	G	312	1492	767	236	1188	957
	7°378	G	162	914	1595	123	737	1938		7°335	G	440	2098	1164	380	1842	1731
	8°463	G	138	540	824	117	476	1013		8°328	G	441	2267	1877	373	1916	2133
	9°373	G	128	634	392	85	412	345		9°339	G	382	1834	1621	300	1455	1891
	10°348	G	120	632	1120	88	480	1243		10°355	G	384	1938	1346	299	1528	1652
	11°345	G	154	659	1522	148	655	1992		11°343	G	408	1867	1680	309	1431	1996
	12°406	G	142	643	2482	113	539	2999		12°350	G	380	1832	943	198	950	1076
	13°330	G	87	421	302	45	256	544		13°166	K	442	2253	532	238	1201	787
	14°448	G	197	883	303	136	594	511		14°344	G	449	1984	644	260	1159	902
	15°363	G	220	1017	448	136	613	669		15°348	G	365	1527	874	247	1045	942
	16°350	G	278	1292	2296	200	904	2899		16°391	C	180	1073	848	187	1309	1048
	17°343	G	193	1045	1450	141	754	2009		17°490	G	143	659	1391	186	855	1810
	18°349	C	171	905	1273	123	629	1671		18°341	G	152	888	1265	171	981	1571
	19°340	G	241	1078	720	180	827	963		19°340	G	216	946	1253	180	814	1579
	20°434	C	187	1048	1834	131	720	1919		20°403	G	232	1343	851	167	1035	1070
	21°380	G	238	1080	1599	171	707	2175		21°412	G	294	1675	1104	193	1095	1259
	22°384	G	215	1097	743	126	623	1194		22°340	G	387	1900	913	224	1112	1061
	23°457	C	164	880	1001	94	494	1224		23°410	C	399	2067	1613	219	1135	1893
	24°423	C	145	754	1298	84	441	1458		24°591	G	487	2687	509	298	1583	705
	25°310	G	177	769	1040	160	687	1460		25°344	G	664	3145	942	441	2015	1150
	26°314	G	172	782	1763	155	707	1894		26°336	G	563	3073	1352	357	1963	1581
	27°410	G	204	831	1798	212	955	2121		27°432	G	711	3513	1732	468	2354	2140
	28°150	K	58	458	852	57	431	1149		28°362	C	427	2926	995	306	2167	1277
	29°521	C	60	337	1745	40	237	2152		29°362	G	503	2390	1165	350	1710	1527
	30°363	C	53	295	1504	43	222	1844		30°396	G	360	2008	878	293	1687	1145
May	1°511	C	33	156	1012	19	87	1049	July	1°332	G	290	1377	1710	279	1389	2291
	2°556	G	29	149	408	17	85	579		2°348	G	175	758	935	132	544	1292
	3°401	G	28	115	350	16	67	424		3°394	C	112	592	1602	110	583	1875
	4°436	G	35	116	398	25	78	560		4°372	G	125	424	1624	116	419	2544
	5°589	C	26	207	1452	14	114	1672		5°381	G	76	301	2055	81	323	2392
	6°336	G	100	366	363	55	199	569		6°430	C	104	452	2085	64	272	2198
	7°346	G	98	291	1226	60	179	1743		7°377	G	150	671	1317	84	374	1690
	8°351	C	48	218	1462	36	167	1633		8°343	G	159	759	809	82	396	1219
	9°349	G	42	170	828	42	168	844		9°423	G	311	1545	162	173	850	164
	10°345	G	72	311	613	77	326	713		10°355	C	481	2650	792	361	2162	1243
	11°402	G	116	572	159	84	456	382		11°357	G	630	3271	322	484	2603	415
	12°395	G	159	886	171	110	651	394		12°330	G	589	3276	1162	515	2848	1102
	13°421	G	312	1591	1323	300	1496	1828		13°355	G	454	2534	1311	436	2368	1331
	14°329	G	328	1914	901	254	1517	1190		14°380	G	299	1728	851	201	1062	880
	15°456	G	440	1994	684	300	1368	925		15°395	C	244	1699	1620	152	1023	2112
	16°385	G	304	1937	1118	200	1275	1249		16°400	C	187	1461	662	107	804	940
	17°366	G	354	2014	1140	253	1338	1593		17°481	G	172	1183	966	101	668	1262
	18°337	G	266	1310	1038	187	911	1404		18°394	C	183	957	1464	109	563	1843
	19°394	G	286	1312	547	169	757	618		19°332	G	193	810	978	155	620	1377
	20°336	G	223	1050	376	135	621	748		20°489	C	119	567	1753	129	628	1767
	21°325	G	274	1291	308	181	830	308		21°383	G	59	246	978	69	308	1302
	22°591	G	213	1098	730	175	849	929		22°336	G	65	246	1588	89	413	2205
	23°324	G	283	1181	1141	264	1139	1555		23°602	G	59	215	699	38	127	866
	24°334	G	224	1037	1389	229	1092	1886		24°449	C	69	511	1435	41	297	1675
	25°448	G	215	1141	923	173	918	1141		25°362	G	124	545	575	95	412	774
	26°511	C	239	1273	1933	145	778	2222		26°440	G	143	692	942	110	534	1030
	27°329	G	288	1250	561	162	711	714		27°334	G	216	939	976	188	789	1246
	28°108	K	224	1255	1274	122	680	1458		28°337	G	189	970	870	208	1098	1235
	29°367	G	214	937	377	120	504	472		29°333	G	220	1057	1008	249	1289	1442
	30°339	G	298	1205	905	179	706	946		30°119	K	191	1274	1428	153	1003	1699
	31°453	G	172	920	916	121	650	1103		31°384	G	277	1482	916	173	916	1062

TOTAL AREAS OF SUNSPOTS AND FACULÆ FOR EACH DAY IN THE YEAR 1940

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		
1940	d							1940	d								
August	1° 431	G	321	1544	848	186	893	969	October	1° 422	G	136	701	1103	143	741	1370
	2° 487	G	239	1285	298	136	732	411		2° 421	G	79	364	1527	88	419	2118
	3° 337	C	245	1230	2079	163	857	2664		3° 341	C	57	280	1248	79	425	1683
	4° 449	G	335	1477	1373	306	1277	1674		4° 341	G	71	489	756	40	271	1038
	5° 341	G	386	2106	961	317	1776	1124		5° 366	G	94	535	758	52	282	892
	6° 403	G	543	2320	1214	428	1940	1991		6° 393	C	64	504	1118	34	267	1274
	7° 613	G	531	2922	1797	392	2156	1877		7° 349	G	175	1019	1907	230	1433	2704
	8° 401	G	744	3233	1122	508	2239	1038		8° 377	G	279	1657	1477	242	1526	1887
	9° 438	G	668	3763	732	432	2404	1005		9° 391	G	427	2273	1299	305	1643	1567
	10° 420	G	826	4079	389	479	2365	706		10° 394	G	437	2333	922	370	2027	1217
	11° 392	C	734	4630	1183	430	2733	1639		11° 486	G	472	2677	800	358	1966	1054
	12° 357	G	981	4621	1316	607	2848	1747		12° 383	G	657	3227	1188	450	2208	1377
	13° 342	G	834	4736	1844	572	3190	1825		13° 384	G	584	3018	599	348	1816	762
	14° 330	G	758	3956	1922	527	2736	2331		14° 638	G	469	2518	898	275	1478	1192
	15° 364	G	794	3906	2450	593	2844	3424		15° 591	G	479	2203	1021	325	1494	1413
	16° 349	G	613	3292	2326	466	2479	2464		16° 305	C	360	1807	1376	256	1324	1540
	17° 377	G	658	3451	1744	445	2329	2425		17° 404	G	402	1942	1901	289	1453	2179
	18° 347	G	680	4006	1049	459	2619	1517		18° 297	C	297	1729	1951	220	1321	2365
	19° 607	G	743	3884	467	431	2241	607		19° 296	C	337	2018	1341	243	1438	1742
	20° 343	G	634	3415	615	425	2441	776		20° 378	G	416	1846	929	300	1298	1016
	21° 415	C	544	2893	2614	441	2294	3206		21° 302	C	271	1729	888	205	1318	1037
	22° 433	G	635	2625	2428	501	2150	2867		22° 475	G	257	1597	718	226	1398	1158
	23° 511	C	321	1661	2226	203	1057	2450		23° 298	C	197	1346	1745	116	791	2075
	24° 365	G	289	1327	547	187	862	743		24° 333	C	165	1103	1449	101	679	1661
	25° 389	C	153	917	1558	113	680	2280		25° 413	G	192	944	572	138	671	613
	26° 325	G	154	686	1938	126	576	2699		26° 442	G	150	812	825	112	708	1078
	27° 400	G	226	1065	1265	193	949	1741		27° 396	C	155	742	1087	126	614	1546
	28° 468	G	366	1673	989	332	1630	1192		28° 553	G	203	813	473	139	587	421
	29° 347	G	428	2066	901	402	1891	1134		29° 385	G	133	541	1012	108	425	1229
	30° 337	G	541	2613	930	380	1865	1464		30° 449	C	74	455	1062	91	509	1469
	31° 337	G	579	2967	1976	361	1842	2249		31° 443	C	46	286	859	41	256	941
September	1° 405	G	685	2886	1543	449	1900	1986	November	1° 376	G	100	403	1045	80	315	1290
	2° 357	G	417	2270	1498	235	1283	2080		2° 337	C	63	366	216	38	220	359
	3° 341	G	569	2489	1774	346	1502	1973		3° 393	C	116	722	1397	70	442	1861
	4° 373	G	443	1855	1149	278	1196	1203		4° 381	G	133	483	2442	96	333	2979
	5° 348	G	343	1699	1238	240	1197	1321		5° 401	G	121	658	825	78	392	1069
	6° 353	G	275	1180	1237	248	1046	1693		6° 276	C	88	510	1629	50	294	1686
	7° 346	G	177	835	1316	128	553	2107		7° 433	G	125	442	767	99	330	1076
	8° 413	C	116	655	1497	80	445	1678		8° 422	G	136	534	1227	113	421	1350
	9° 396	G	121	595	1987	94	463	2154		9° 096	K	112	619	1578	105	552	1915
	10° 408	C	67	427	2255	73	434	2779		10° 385	G	217	963	864	135	601	1129
	11° 353	G	134	458	2204	90	319	2737		11° 283	C	231	1415	1125	123	760	1392
	12° 411	G	77	291	1555	60	244	2117		12° 280	C	165	1157	1337	97	652	1425
	13° 503	G	57	276	622	32	153	833		13° 279	C	213	1395	1872	123	830	2079
	14° 460	G	85	346	994	55	219	1410		14° 391	G	276	1314	1489	163	771	1765
	15° 408	C	66	357	862	42	222	888		15° 401	G	503	2284	1587	295	1340	2096
	16° 357	C	115	502	1200	90	426	1515		16° 633	W	313	1564	3969	203	1003	4173
	17° 374	G	115	574	1327	93	483	1676		17° 423	G	369	1682	490	272	1259	614
	18° 350	G	329	1454	2195	206	909	2777		18° 282	C	205	1419	2093	167	1125	2422
	19° 405	G	543	2599	698	358	1733	1002		19° 433	G	178	828	807	162	790	992
	20° 357	G	690	3261	2790	439	2116	3197		20° 441	G	77	456	818	62	379	908
	21° 346	C	503	2781	1675	360	2091	1955		21° 284	C	66	404	1669	51	353	1728
	22° 360	C	368	2423	1712	317	2131	2186		22° 496	G	68	243	1342	35	127	1915
	23° 350	G	349	1888	1551	287	1554	1977		23° 287	C	61	257	1306	38	151	1556
	24° 586	G	304	1556	1165	288	1508	1243		24° 411	G	90	335	926	58	208	1099
	25° 425	G	277	1215	1068	289	1340	1974		25° 284	C	101	735	1189	103	777	1299
	26° 521	G	188	1053	1086	108	596	1417		26° 491	G	182	933	1036	146	777	1410
	27° 343	G	202	926	2272	116	528	2535		27° 459	G	125	743	1036	99	592	1075
	28° 351	G	183	936	1243	113	557	1439		28° 393	G	148	882	676	111	703	913
	29° 223	K	172	846	631	97	516	986		29° 419	G	216	942	305	155	697	637
	30° 486	G	191	891	1434	152	702	1904		30° 277	C	143	934	1513	95	635	1868

TOTAL AREAS OF SUNSPOTS AND FACULÆ FOR EACH DAY IN THE YEAR 1940.

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		
1940	a							1940	a								
December	1° 350	C	128	739	1571	109	666	1871	December	16° 463	G	312	1596	1097	201	1027	1381
	2° 281	C	81	535	1944	75	525	2406		17° 440	G	250	1267	521	159	810	600
	3° 343	C	94	487	1798	78	400	2044		18° 429	G	176	940	1226	129	691	1914
	4° 453	G	122	593	1079	101	480	1313		19° 443	G	163	690	1048	139	589	1467
	5° 428	G	207	1019	1172	174	855	1249		20° 281	C	90	510	1377	111	635	1769
	6° 491	G	281	1470	477	197	1042	559		21° 442	G	112	601	227	119	656	348
	7° 275	C	259	1428	1354	185	1009	1645		22° 236	C	101	644	466	66	431	669
	8° 372	C	214	1457	865	164	1106	1247		23° 281	C	159	940	977	92	540	1112
	9° 281	C	280	2093	1686	189	1406	1943		24° 281	C	155	909	566	106	612	678
	10° 437	G	682	3176	1281	442	2039	1599		25° 341	C	144	748	503	82	421	752
	11° 407	G	575	2852	2355	359	1776	2667		26° 380	C	101	669	281	67	440	369
	12° 425	G	585	2662	1975	374	1704	2304		27° 281	C	81	441	602	61	339	791
	13° 278	C	446	2317	1461	313	1654	1870		28° 277	C	66	415	962	49	319	1288
	14° 365	C	350	2277	1767	264	1703	2614		29° 483	G	81	309	1146	89	349	1526
	15° 389	C	303	1886	1874	223	1565	2396		30° 284	C	73	393	1186	83	468	1721
										31° 277	C	70	446	2563	54	351	3141

**MEAN AREAS OF SUNSPOTS AND FACULÆ FOR EACH ROTATION OF THE SUN,
FROM 1940 JANUARY 15 TO 1941 JANUARY 2.**

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 years 1873-1939 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 numeration of the rotations is in continuation of Carrington's series (*Observations of Solar Spots made at Redhill* by R. C. Carrington, F.R.S.), No. 1 being the rotation commencing 1853 November 9. The dates of commencement of the rotations are given in 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
1155	1940 January 14.63	27	259	1383	1436	186	1021	1762
1156	February 10.97	27	272	1429	1209	201	1081	1515
1157	March 9.31	28	340	1814	1073	242	1309	1358
1158	April 5.61	27	155	752	1195	115	553	1503
1159	May 2.86	27	200	994	844	144	711	1081
1160	May 30.08	27	319	1553	1163	228	1125	1424
1161	June 26.28	27	287	1534	1223	215	1152	1523
1162	July 23.48	28	469	2433	1213	326	1683	1517
1163	August 19.71	27	315	1501	1471	226	1090	1843
1164	September 15.96	27	277	1443	1339	211	1126	1702
1165	October 13.24	28	221	1150	1137	157	817	1394
1166	November 9.54	27	180	953	1314	127	685	1553
1167	December 6.86	27	225	1214	1200	158	864	1531

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
1940	366	279	1434	1224	200	1039	1523

**MEAN HELIOGRAPHIC LATITUDE OF SUNSPOTS FOR EACH ROTATION OF THE SUN,
FROM 1940 JANUARY 15 TO 1941 JANUARY 2.**

The numbers given in the accompanying table have been formed as follows:-

The heliographic latitude of each Spot for each day has been multiplied by its area (corrected for foreshortening), and the sum of the products, for spots north of the equator, has been divided by the sum of the corresponding areas to form mean heliographic latitude of spotted area north of equator; similarly for spots south of the equator. In forming the mean heliographic latitude of entire spotted area, the algebraic sum of the products for spots north and south of the equator has been divided by the sum of the areas; and for the mean distance from the equator 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		
1155	1940 January 14.63	27	617	10.88	405	11.48	+2.02	11.11
1156	February 10.97	27	337	9.93	744	9.09	-3.17	9.35
1157	March 9.31	28	916	12.55	393	9.46	+5.94	11.62
1158	April 5.61	27	231	10.40	322	9.29	-1.06	9.75
1159	May 2.86	27	345	13.59	366	8.82	+2.06	11.14
1160	May 30.08	27	189	13.58	937	13.13	-8.66	13.21
1161	June 26.28	27	685	11.68	467	14.18	+1.20	12.70
1162	July 23.48	28	770	11.15	913	12.28	-1.53	11.73
1163	August 19.71	27	411	11.39	678	8.84	-1.24	9.80
1164	September 15.96	27	451	14.51	675	7.93	+1.05	10.56
1165	October 13.24	28	193	13.32	624	11.00	-5.25	11.55
1166	November 9.54	27	442	11.68	243	11.96	+3.30	11.77
1167	December 6.86	27	424	9.18	441	10.79	-1.01	10.00

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		
1940	366	500	11.65	540	10.72	+0.03	11.17

ROYAL OBSERVATORY, GREENWICH.

Observations of Solar Flocculi

Made with the

Spectroheliöscope

In the Year

1940

GREENWICH PHOTO-HELIOGRAPHIC RESULTS, 1940

OBSERVATIONS OF SOLAR FLOCCULI MADE WITH THE SPECTROHELIOSCOPE IN THE YEAR 1940

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.

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

* An analysis of the radial velocities of dark $H\alpha$ markings near sunspots, observed at the Royal Observatory, Greenwich, 1930-33, is given in *Monthly Notices*, 94, 472, 1934.

- (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 H α Flocculi							Associated Group of Sunspots					
Reference 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						°		°		
1	Jan.	5 10 ^h 3	-34 }	0.4	1.8	<i>n a</i>	13502	- 1	Jan.	5 ^d 50	+10	1689
1		5 10 ^h 4	+34 }				02	- 1				
2		5 11 ^h 6	+ 2	1.0	1.2	<i>f a</i>	02	0				
3		5 11 ^h 7	-41 to +55	0.5	1.3	<i>n</i>	02	0				
4		5 11 ^h 9	+ 5 to +45	0.9	0.7	<i>f a</i>	02	0				
5	Jan.	5 12 ^h 5	-35 to +60	2.0	0.8	<i>f a</i>	13502	0	Jan.	5 ^d 50	+10	1689
6		8 11 ^h 8	-27 to +45	0.6	0.9	<i>p b</i>	02	+39				
7		8 12 ^h 5	-45 to +44	2.0	0.3	<i>p a</i>	02	+40				
8		10 12 ^h 4	- 2 to +60	0.7	0.3	<i>n b</i>	02	+66				
9		12 12 ^h 3	-34	0.5	0.3	<i>c</i>	08	-55		16 ^h 68	- 9	181
10	Jan.	25 10 ^h 1	-26	0.4	0.8	<i>s</i>	13514	+42	Jan.	22 ^d 20	-15	121
11		25 10 ^h 2	+75	*	0.2	<i>f</i>	14	+42				
12	Mar.	2 10 ^h 8	-50 to +27	0.6	1.0	<i>n</i>	37	+ 2	Mar.	2 ^d 33	- 5	634
13		9 10 ^h 5	-41 to +65	*	0.7	<i>n</i>	45	-15		10 ^h 58	- 8	63
14		20 10 ^h 9	-45 to +65	1.3	1.2	<i>s</i>	52	+23		18 ^h 74	-10	116
15	Mar.	20 11 ^h 1	+10 to +50	0.6	0.2	<i>f a</i>	13552	+23	Mar.	18 ^h 74	-10	116
16		20 13 ^h 4	-10 to +55	2.2	0.2	<i>np a</i>	52	+24				
17		20 13 ^h 6	-22 to +60	1.1	0.2	<i>f a</i>	52	+24				
18		23 10 ^h 3	-150 to +55	1.6	0.9	<i>s</i>	55	-38		26 ^h 28	+12	1189
19		23 10 ^h 4	+19	1.4	1.0	<i>sf</i>	55	-38				
20	Mar.	27 8 ^h 3	0	2.2	0.9	<i>f</i>	13555	+14	Mar.	26 ^h 28	+12	1189
21		28 8 ^h 4	+ 8 to +50	0.6	0.7	<i>f</i>	55	+27				
22		28 8 ^h 6	-46	*	0.2	<i>sp</i>	68	-64	Apr.	2 ^d 23	-12	275
23		28 14 ^h 1	-46 to +40	2.0	1.1	<i>f</i>	55	+30	Mar.	26 ^h 28	+12	1189
24	Apr.	15 9 ^h 1	-20 to +40	0.5	0.5	<i>c</i>	76	-10	Apr.	16 ^h 12	-12	237
25	Apr.	15 9 ^h 2	+ 6	0.8	1.7	<i>f</i>	13572	+46	Apr.	11 ^h 94	-10	79
26		16 11 ^h 0	-42 to +49	0.4	1.0	<i>p a</i>	76	+ 4		16 ^h 12	-12	237
27		17 10 ^h 2	-45 to +24	0.9	0.2	<i>p b</i>	82	-60		21 ^h 94	+11	251
28		17 10 ^h 4	-19 to +28	0.6	0.6	<i>c</i>	76	+17		16 ^h 12	-12	237
29		19 9 ^h 8	+43	*	..	..	76	+42				
30	Apr.	19 11 ^h 7	+53	0.4	2.2	<i>n</i>	13582	-32	Apr.	21 ^h 94	+11	251
31		21 9 ^h 3	+12	0.9	2.4	<i>n</i>	82	- 7				
32		25 8 ^h 5	-10 to +25	3.6	1.0	<i>nf</i>	82	+45				
33		26 9 ^h 4	-55	*	2.0	<i>n</i>	82	+59				
34	May	14 8 ^h 5	-14	1.2	0.5	<i>p</i>	600	-71	May	19 ^h 75	+15	309
35	May	14 8 ^h 5	-32 to +36	0.6	0.4	<i>sp</i>	13600	-71	May	19 ^h 75	+15	309
36		14 9 ^h 0	+47	0.3	1.1	<i>np</i>	597	- 1		14 ^h 43	- 7	226
37		14 13 ^h 9	-11 to +37	1.5	0.3	<i>s</i>	97	+ 2				
38		14 14 ^h 0	+ 7 to +60 }	1.1	0.3	<i>n</i>	97	+ 2				
38		14 14 ^h 2	-15 to +55 }				97	+ 2				
39		16 13 ^h 7	- 3	2.6	0.9	<i>s a</i>	99	-28		18 ^h 71	+13	274
40	May	16 15 ^h 4	+ 5 to +60	3.5	0.5	<i>s a</i>	13599	-27	May	18 ^h 71	+13	274
41		17 13 ^h 6	-90 to +60	1.3	0.8	<i>f</i>	96	+69		12 ^h 41	- 9	127
42		17 13 ^h 6	-44 to +47	0.4	0.2	<i>nf</i>	96	+68				
43		17 14 ^h 2	-62 to +17	1.1	0.4	<i>n</i>	96	+69				
44		18 8 ^h 5	+46	1.1	0.8	<i>p</i>	97	+52		14 ^h 43	- 7	226
45	May	18 9 ^h 1	-16 to +28	0.6	0.2	<i>f</i>	13603	+17	May	17 ^h 10	+15	53
46		18 9 ^h 8	-41 to +50	2.0	0.3	<i>n</i>	599	- 4		18 ^h 71	+13	274
47		18 10 ^h 0	- 6	1.6	1.8	<i>f</i>	600	-18		19 ^h 75	+15	309
47		18 10 ^h 8	-48 to +105	3.3	0.4	<i>f</i>	599	- 4		18 ^h 71	+13	274
48		18 9 ^h 9	-13 to +39	0.3	0.2	<i>sp</i>	99	- 4				
49		20 8 ^h 8	+ 3	0.8	0.6	<i>s</i>	600	+ 8		19 ^h 75	+15	309

OBSERVATIONS OF SOLAR FLOCCULI MADE WITH THE SPECTROHELIOSCOPE IN THE YEAR													
Dark H α Flocculi							Associated Group of Sunspots						
Reference 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						o		o			
50	May	20	13.9	0	1.6	1.6	<i>p</i>	13600	+11	May	19.75	+15	309
50		20	14.0	+60	3.3	1.4	<i>p</i>	00	+11				
51		20	14.0	-20 to +46	0.7	0.8	<i>n</i>	00	+11				
52		21	9.1	-34 to +13	0.3	0.2	<i>s</i>	05	-57		25.72	- 6	155
53		21	10.2	-90 to +105	1.1	0.2	<i>s</i>	04	- 1		21.48	- 9	59
54		21	10.3	- 7 to +130	2.8	0.2	<i>sp</i>	04	- 1				
55	May	22	14.4	-16 to +35	0.6	0.2	<i>c</i>	13605	-41	May	25.72	- 6	155
56		30	11.6	+48	0.3	0.2	<i>f a</i>	07	+41		27.39	-12	159
57		31	14.2	-44 to +22	0.7	0.8	<i>f a</i>	07	+56				
58	June	4	9.7	-10 to +38	0.6	0.2	<i>np</i>	15	-13	June	5.36	-20	397
59		5	11.7	+11 to +46	0.8	0.4	<i>n</i>	15	+ 2				
60	June	5	15.0	-22 to +55	*	0.4	<i>np</i>	13615	+ 4	June	5.36	-20	397
61		7	9.6	- 1 to +55	0.9	0.2	<i>n</i>	16	-19		8.86	-15	69
62		11	11.3	+ 6	0.2	0.9	<i>c</i>	19	-16		12.71	- 7	367
63		12	8.9	-38 to +75	0.2	0.3	<i>f</i>	26	+13		11.4	-24	256
64		21	11.4	- 2	1.3	1.0	<i>f</i>	28	-16		22.72	-10	525
65	June	26	15.0	-14 to -119	1.1	0.4	<i>p</i>	13635	-44	June	29.94	-14	272
66		29	8.5	-22 to -85	0.8	0.7	<i>n</i>	29	+53		25.35	-16	683
67		29	9.6	-36 to +55	0.6	1.0	<i>n</i>	29	+54				
68		29	10.1	-31 to +43	2.5	..	<i>n</i>	29	+54				
69	July	11	9.6	-39 to +41	0.5	0.1	<i>c</i>	49	+50	July	7.6	+18	746
70	July	11	9.7	+55	0.6	0.5	<i>f a</i>	13649	+50	July	7.6	+18	746
71		12	9.4	-50 to +60	0.6	2.0	<i>s a</i>	49	+63				
72		12	9.5	+ 4	1.4	0.8	<i>f</i>	51	-15		13.54	-10	57
73		19	9.5	+ 2	1.7	1.9	<i>n</i>	53	+42		16.24	+ 7	620
74	Aug.	5	9.0	+43	*	..	<i>c</i>	73	-56	Aug.	9.62	-12	551
75	Aug.	5	15.0	+36	*	0.1	<i>c</i>	13673	-53	Aug.	9.62	-12	551
76		12	8.6	-55 to +55	1.2	0.6	<i>s</i>	79	-58		16.78	-12	637
77		12	11.8	-35	1.3	2.0	<i>sf</i>	79	-57				
78		12	11.9	-55 to +16	0.7	0.6	<i>sf</i>	79	-57				
79		15	11.8	-29 }	1.8	1.4	<i>n</i>	77	+57		11.18	-13	563
79		15	12.0	+24 }				77	+57				
80	Aug.	15	11.9	-14	2.0	1.6	<i>np</i>	13677	+57	Aug.	11.18	-13	563
81		15	11.9	- 4	2.5	0.6	<i>p</i>	77	+57				
82		15	14.3	-90 to +50	2.7	0.6	<i>p</i>	77	+58				
83		31	9.7	- 6 to +70	0.3	0.4	<i>f a</i>	92	-10	Sept.	1.13	- 5	705
84	Sept.	4	10.6	+12 to +49	0.2	0.3	<i>f a</i>	92	+44				
85	Sept.	5	9.0	-44	*	1.6	<i>nf</i>	13692	+56	Sept.	1.13	- 5	705
86		18	9.9	-29 to +40	0.6	0.2	<i>c</i>	705	+23		16.71	+15	327
87		18	10.1	+11	1.1	0.4	<i>c</i>	06	-16		19.66	-10	531
88		18	10.1	-75 }	0.3	1.7	<i>p</i>	05	+23		16.71	+15	327
88		18	10.3	+70 }				05	+23				
89		20	11.3	-60 to +65	2.3	0.5	<i>f a</i>	06	+11		19.66	-10	531
90	Nov.	15	9.6	+70	0.8	1.6	<i>sp</i>	13749	- 1	Nov.	16.26	-14	272

NOTES

Reference Number

1. During the five minutes separating the two observations, the direction of motion changed from - to +. A final measure taken at 10^h 50^m gave +15 km./sec. There was some enhanced emission within the group.

Reference Number

4. The filament ended at the outer edge of the penumbra on the *f* side of the big leader sunspot.
6. Associated with a minor solar flare (bright chromospheric eruption).

OBSERVATIONS OF SOLAR FLOCCULI MADE WITH THE SPECTROHELIOSCOPE IN THE YEAR

NOTES - continued

Reference
NumberReference
Number

7. The outward moving filament appeared to come from the outer edge of the *umbra* of a sunspot and to extend beyond the penumbra to a distance of $1\frac{1}{2}'$. The + component ended at the outer edge of the penumbra.
8. The direction of inflow to the sunspot was clockwise, the filament contracting to a small blob on the edge of the penumbra at the reading of the line-shifter = 60 km./sec. Another measure taken 23 mins. later showed no appreciable change of velocity.
12. A pair of markings, the - component of velocity being a little west of (preceding) the + component.
13. A dot at each setting (equivalent to -41 and +65 km./sec. respectively) nearly identical in position.
15. } Associated with a temporary increase in bright-
16. } ness of a patch of enhanced emission (possibly
17. } a minor solar flare).
18. Maximum velocities measured are tabulated, the separate measures being as follows:-
- | | |
|--------------------------------------|---------------|
| 10 ^h 12 ^m U.T. | - 70 km./sec. |
| 10 18 | -150 |
| 10 23 | -120 to +55 |
| 10 28 | - 4 |
- This filament was associated with enhanced emission of the normal bright flocculi surrounding the sunspot group. A major solar flare followed an hour later.
21. At the line-shifter reading equivalent to +50 km./sec., the marking contracted to a small blob.
22. A small blob with outward motion on the preceding edge of the penumbra of a small sunspot.
23. The marking at its nearest end to a sunspot became a small blob at the setting = +40 km./sec.
26. At the setting -42 km./sec., a dot: at +49 km./sec., a dot and a short streak both south-preceding the position of the - velocity.
30. Associated with a minor solar flare commencing at 11^h 40^m.
32. +25 km./sec. was measured at about the centre of the marking, and -10 km./sec. at the extremities.
33. A blob about 0'.3 in diameter.
37. } Associated with a minor solar flare.
38. }
40. Direction of inflow to sunspot - counter clockwise.

41. Maximum measured values are tabulated; the separate measures for this active flocculus associated with a medium intensity flare are as follows:-
- | | |
|---------------------------------|--------------|
| 13 ^h 37 ^m | +14 km./sec. |
| 13 53 | -60 |
| 14 00 | -90 to +60 |
| 14 09 | -36 |
| 14 20 | -20 |
| 14 40 | -10 to +33 |
- The flare lasted from 13^h 40^m to 14^h 15^m with a peak intensity at 13^h 50^m.
42. The outward component appeared to come from the umbra of a sunspot near the Sun's limb over which appeared the flare referred to in No.41.
46. } Associated with a minor flare.
47. }
48. }
50. Note change of velocity in 7 mins. Both this filament and No.51 were associated with a minor flare.
53. Nine minutes earlier, the measured value was +75 km./sec. This marking and No.54 were associated with a minor flare.
54. This progressive range of velocity along the length of this filament flowing into a sunspot was measured at 10^h 17^m. Earlier measures gave:- 10^h 4^m, -9 km./sec: 10^h 7^m, +22 km./sec: 10^h 12^m, +5 to 110 km./sec.
60. A dot moving towards the penumbra of a sunspot as the line-shifter was turned from equivalent readings -22 km./sec. to +55 km./sec.
67. } Two aspects of the same flocculus.
68. }
69. At the reading equivalent to +41 km./sec., the flocculus appeared to touch the umbra of the sunspot.
71. } Associated with a minor solar flare with peak
72. } intensity at 9^h 28^m.
73. The *n* end of the marking had a measured velocity of +37 km./sec.
79. The reversal of direction of motion occurred within 9 mins. Nos.79-81 were associated with a solar flare of importance 2.
83. On the edge of a small enhanced bright flocculus.
88. The reversal of direction of motion occurred within 11 mins. A reading at 10^h 10^m gave +4 km./sec. The marking was associated with a minor solar flare with peak intensity at 10^h 4^m.
89. The reversal in direction occurred within 3 mins. There was a minor solar flare at the time.
90. Associated with a solar flare of importance 2.

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