# GREENWICH

# PHOTO-HELIOGRAPHIC RESULTS

1951

*LONDON*

HER MAJESTY'S STATIONERY OFFICE

Price £2. os. od. net

RESULTS OF MEASURES

MADE AT THE ROYAL GREENWICH OBSERVATORY

OF

# PHOTOGRAPHS OF THE SUN

*TAKEN AT GREENWICH, THE CAPE*

*AND KODAIKANAL IN THE YEAR*

1951

UNDER THE DIRECTION OF

SIR HAROLD SPENCER JONES, Sc.D., F.R.S.

ASTRONOMER ROYAL

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


*LONDON*

HER MAJESTY'S STATIONERY OFFICE

1957

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## INTRODUCTION

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

The photographs of the Sun obtained at Greenwich were taken with the 4-inch Photoheliograph, of which the original 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 approximately 7½ inches. On 1949 May 2 this photoheliograph was moved from Greenwich to Herstmonceux Castle, Sussex. Subsequent photographs continue to be designated "Greenwich" photographs.

The photographs of the Sun obtained at the Cape Observatory were taken under the superintendence of His Majesty's Astronomer at the Cape, Dr. R. H. Stoy, and those from Kodaikanal under the superintendence of the Director, Dr. A. K. Das. At the Cape Observatory the instrument employed was a 4-inch photoheliograph giving an image of the Sun about 7½ inches in diameter; at Kodaikanal a Cooke photo-visual objective of 6 inches aperture was used, the image of the Sun which was obtained being of about the same size.

Photographs of the Sun were available for measurement on 365 days in 1951, those finally selected for measurement being supplied by the different observatories as under:

| | |
|---|---|
| Greenwich .. .. .. .. | 261 |
| Cape .. .. .. .. .. | 98 |
| Kodaikanal .. .. .. .. | 6 |
| Total .. .. .. .. .. | 365 |

The names of the measurers of the photographs for the year 1951 were as follows:

| | | |
|---|---|---|
| H. Barton | P. A. Wayman | N. Rhodes |
| P. S. Laurie | A. S. Milsom | R. W. Teague |

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

The precise zero of position-angles for the photoheliographs has been determined by three different methods.

(i) *Zero Photographs.* Plates were 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 thus produced upon the plates. The exposures were so made that the line joining the cusps passed approximately through the centre of the plates and the inclinations of the two spider-wires to this line were measured. A small correction for the inclination of the Sun's path has been applied. Two or three zero photographs were usually taken each month at Greenwich, the Cape, and Kodaikanal.

(ii) *Transits.* At Greenwich and the Cape, transits of the Sun were taken visually, the times of contact of the first and second limbs of the Sun with the two wires being noted by an eye-and-ear method. The ratio of the time taken by the Sun to pass over the NE - SW wire to the time taken to pass over the SE - NW wire was used in order to find the angle made by the Sun's path with the bisectors of the wires. From this, again incorporating a correction to allow for the inclination of the Sun's path, the orientation of the wires with respect to the N - S line could be inferred. Transits were usually taken at Greenwich and the Cape on four or more days during each month.

(iii) *Supplementary Zero Photographs.* At Greenwich supplementary partial images of the Sun were occasionally recorded on otherwise normal photographs, a second exposure being made after clamping the instrument firmly for 130 seconds. The small portion of the Sun's limb visible at the western edge of the plate could be used, together with the main image which it does not intersect, to deduce the orientation of the wires in a way similar to that used for the zero photographs. About six supplementary zero photographs were taken at Greenwich each month. The values for the zero of position-angles deduced from them were given half weight in the adoption of zero-corrections to be used in the reduction of photographs.

The following table gives the zero-corrections determined by the various methods at Greenwich and the Cape during 1951, together with the adopted values.

| Greenwich | (i) | (ii) | (iii) | Adopted Value |
|---|---|---|---|---|
| 1951 | ° ′ | ° ′ | ° ′ | ° ′ |
| January | −0 01 | −0 11 | 0 00 | 0 00 |
| February | −0 04 | −0 02 | 0 00 | 0 00 |
| March | −0 01 | −0 01 | 0 00 | 0 00 |
| April | +0 10 | +0 03 | −0 02 | 0 00 |
| May | +0 02 | +0 03 | 0 00 | 0 00 |
| June | −0 05 | +0 04 | −0 06 | 0 00 |
| July | −0 09 | 0 00 | −0 03 | −0 06 |
| August | +0 02 | – | −0 08 | −0 06 |
| September | −0 12 | −0 10 | −0 08 | −0 06 |
| October | −0 11 | −0 12 | −0 12 | −0 15 |
| November | −0 21 | −0 16 | −0 20 | −0 15 |
| December | −0 11 | −0 16 | −0 06 | −0 15 |

| Cape | (i) | (ii) | Adpoted Value |
|---|---|---|---|
| 1951 | ° ′ | ° ′ | ° ′ |
| January | +0 28 | +0 37 | +0 36 |
| February | +0 31 | +0 37 | +0 36 |
| March | +0 36 | +0 37 | +0 36 |
| April | +0 36 | +0 36 | +0 36 |
| May | +0 40 | +0 36 | +0 36 |
| June | +0 37 | +0 36 | +0 36 |
| July | +0 32 | +0 36 | +0 36 |
| August | +0 39 | +0 36 | +0 36 |
| September | +0 36 | +0 36 | +0 36 |
| October | +0 42 | +0 38 | +0 36 |
| November | +0 40 | +0 38 | +0 36 |
| December | +0 42 | +0 37 | +0 36 |

In the case of the few Kodaikanal photographs individual values were adopted, as indicated by the appropriate zero photographs.

The measures of the photographs were made with a large position-micrometer that 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 a similar screw-action about a pivot in its circumference. This pivot, 90° distant from that of the upper plate, is mounted on a third circular plate, with a position-circle graduated in divisions of 30 minutes of arc, which may be rotated 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 centre of rotation of the position-circle. When this has been done, a Ramsden eyepiece, having at its anterior 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 adjusted so that the centre of the eyepiece moves 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 from a scale and vernier to 1/250th of an inch, corresponding to 0.001 of the Sun's radius for images 8 inches in diameter. The position-angle is read from 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° below the photograph.

Nearly all photographs were measured independently for spot positions and areas by two measurers but sometimes only one measure of area was made.

In the case of large or complex groups of spots, the chief components were measured individually; so also in the case of groups near to the east or west limbs of the Sun where the effects of foreshortening are appreciable. In other cases the position of the centre of a group was estimated by the measurer at the micrometer.

In this respect a difference has been made from the practice during years prior to 1916 when, in the Daily Results (§1.), components of groups were given separately, and in the Ledgers (§3.) combination into groups was made.

When required, corrections have been applied to the measured distances and position-angles to allow for differential refraction. The details of this correction were given in the *Introduction* for 1909. It is necessary to apply this correction to about twenty per cent of the photographs taken at Greenwich in the months October to March.

§1. *Positions and Areas of Sunspots and Faculæ for each Day in the Year 1951.*

In this section the measured positions and areas of sunspots and faculae are given for each day. The positions of sunspots are referred firstly to a system of apparent polar co-ordinates on the Sun's disk and secondly to a system of heliographic co-ordinates. The positions of faculæ are given only in apparent polar co-ordinates.

The calculations of heliographic longitude and latitude are made from formulae given by W. de la Rue, B. Stewart and B. Loewy, *Phil. Trans.*, 1869. The system of heliographic co-ordinates may be defined as follows. The inclination of the Sun's axis to the ecliptic is assumed to be 82°45′, the longitude of the ascending node of the Sun's equator on the ecliptic for 1951.0 to be 75°04′.6, 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, is taken as the zero meridian and longitudes increase from east to west. The mean synodic rotation-period is 27.2753 days; synodic rotation-periods are counted from 1853 November 9, in continuation of Carrington's series.

Let r be the measured distance of a spot from the centre of the Sun's apparent disk and $\chi$ the position-angle of the spot from the Sun's axis, R the measured radius of the Sun on the photograph, S the tabular semi-diameter of the Sun in arc, and $\rho$, $\rho'$ 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. $\rho$ - the heliocentric angle - is obtained from the following equations:

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

If $B_o$ and $\phi$ are the heliographic latitudes and $L_o$ and $\lambda$ the heliographic longitudes of the Earth and the spot respectively,

$$\sin \phi = \cos \rho \sin B_o + \sin \rho \cos B_o \cos \chi$$

$$\sin (L_o - \lambda) = \sin \chi \sin \rho \sec \phi$$

$\chi$ is found from the position-angle measured eastwards from the north point of the Sun's disk by subtracting P, the position-angle of the north end of the Sun's axis also measured eastwards from the north point. The three quantities P, $B_o$ and $L_o$ for the time of the exposure of each photograph are derived from the *Ephemeris for Physical Observations of the Sun*, given on p.394 of the *Nautical Almanac* for 1951.

§2. *General Catalogue of Groups of Sunspots for 1951.*

This catalogue first contains particulars of every group of sunspots which lasted for two or more days during 1951. The group numbers are in continuation of

those given in 1950 and previous years; the Mount Wilson group numbers are also given. The table includes an indication of those groups which may be considered to be members of "recurrent series" of groups, as contained in Ledger I below (§3.).

Spot groups seen on one day only are given in a separate table, where they receive a distinctive numeration.

"Revival" groups of spots have been tabulated in series in a table following the General Catalogue.

§3. *Ledgers of the Areas and Heliographic Positions of Groups of Sunspots for 1951.*

The groups of which details are given in these ledgers have been abstracted from a general ledger of all spot groups seen throughout the year. Apart from the groups, there are printed in a similar manner details of individual components of the principal groups. This has been done in all cases where it appeared probable that an individual component lasted to the second or third rotation after its first appearance.

*Ledger I. - Recurrent Groups.* The groups contained in this ledger were selected upon the following plan, reference being made to the General Catalogue:- If any spot when first seen was 60° or more to the east of the central meridian, the catalogue and, if necessary, the Daily Results also (§1.), were searched some fifteen to 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, a search was made fifteen to sixteen days later. When there appeared to be a case of probable continuity between groups in consecutive rotations of the Sun, the character of the groups, their areas and their longitude and latitude have been carefully compared before accepting them as a recurrent group.

*Ledger II. - Non-Recurrent Groups.* This ledger contains those groups lasting for six days or longer which are not members of recurrent series.

§4. *Total Areas, Mean Areas and Mean Heliographic Latitudes of Sunspots and Faculæ in the Year 1951.*

This section contains total areas of sunspots and faculæ for each day in the year, together with mean areas and mean heliographic latitudes of sunspots and faculæ for each Rotation of the Sun during 1951. Similar annual mean values are also given.

§5. *Observations of Solar Filaments and Solar Flares made with the Spectrohelioscopes in the Year 1951.*

This section contains (1) measures of line-of-sight velocities of dark $H\alpha$ filaments seen on the Sun's disk near sunspots and (2) observations of solar flares in $H\alpha$ light. The observations were made principally with a spectrohelioscope lent by the Mount Wilson Observatory in the autumn of 1929 and set up at Greenwich in

the south attic of the Main Building and, since 1950 February, at Herstmonceux in a spectrohelioscope room forming the ground floor of the dome housing the photo-heliograph. The instrument is of a type described by G. E. Hale in the *Astrophysical Journal*, **70**, 265, 1929. The spectrum is formed by a Rowland grating ruled with 14,438 lines to the inch. The first order spectrum around $H\alpha$ is normally used, the scale being 1 mm. = 4.35 A. The width of the second slit is 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 portion 28 mm. x 6 mm. is rendered visible by the rotating rectangular prisms. The eyepiece used gives an overall magnification of x40, approximately. A second spectrohelioscope of similar design, presented in 1949 by Mr. A. M. Newbegin, is also available when required so that simultaneous observations can be made by two observers. The observations during 1951 were made by H. Barton, P. S. Laurie, N. Rhodes and R. W. Teague.

ROYAL GREENWICH OBSERVATORY

# *Positions and Areas of Sunspots and Faculæ*

For each day in the year

1951

GREENWICH PHOTO-HELIOGRAPHIC RESULTS, 1951

## Positions and Areas of Sunspots and Faculæ for each Day in the Year 1951.

Col.1. (1) Time when photograph was taken expressed in days and decimals of a day reckoning from midnight at commencement of year. (2) Place of observation – Greenwich (G), Cape of Good Hope (C), Kodaikanal (K). (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 and expressed 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 and the total areas of spots and faculæ for the day.

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 |
| 1951 | | | ° | ° | ° | | | | 1951 | | | ° | ° | ° | | | |
| 0.463 | | .972 | 263.8 | | | | | 249 | | 16678 | .281 | 124.1 | 356.7 | -12.5 | 26 | 227 | |
| G | | .872 | 250.1 | | | | | 141 | | 16679 | .962 | 107.9 | 296.2 | -18.2 | 0 | 24 | 166 *c* |
| | | .807 | 265.4 | | | | | 127 | | | .907 | 63.3 | | | | | 160 |
| | 16676 | .914 | 283.7 | 125.3 | +11.2 | 7 | 40 | 451 *c* | | | .908 | 70.5 | | | | | 136 |
| | 16678 | .900 | 101.5 | 356.7 | -11.7 | 7 | 32 | 443 *s* | Jan.5 | | | (+0.3) | (10.4) | (-3.5) | (26) | (251) | (895) |
| | | .819 | 96.6 | | | | | 263 | | | | | | | | | |
| | | .862 | 114.7 | | | | | 233 | | | | | | | | | |
| | | .880 | 68.0 | | | | | 157 | 5.426 | | .954 | 278.6 | | | | | 103 |
| | | .946 | 64.2 | | | | | 213 | C | | .873 | 258.2 | | | | | 117 |
| | | .975 | 75.9 | | | | | 119 | | 16678 | .148 | 189.0 | 356.7 | -11.9 | 61 | 497 | |
| Jan.1 | | | (+2.2) | (60.7) | (-3.1) | (14) | (72) | (2396) | | 16679 | .869 | 109.7 | 295.7 | -18.8 | 2 | 10 | 150 *c* |
| | | | | | | | | | | | .783 | 62.6 | | | | | 234 |
| | | | | | | | | | | | .980 | 100.5 | | | | | 180 |
| 1.337 | | .944 | 250.6 | | | | | 110 | Jan.6 | | | (-0.2) | (355.3) | (-3.6) | (63) | (507) | (784) |
| C | | .901 | 263.9 | | | | | 119 | | | | | | | | | |
| | 16676 | .977 | 282.3 | 125.8 | +11.3 | 0 | 25 | 222 *c* | | | | | | | | | |
| | 16678 | .787 | 101.7 | 357.6 | -11.2 | 6 | 25 | 147 *s* | 6.455 | | .947 | 259.0 | | | | | 216 |
| | | .901 | 114.5 | | | | | 59 | G | | .896 | 285.7 | | | | | 254 |
| | | .981 | 68.3 | | | | | 159 | | | .853 | 251.1 | | | | | 99 |
| Jan.2 | | | (+1.7) | (49.2) | (-3.2) | (6) | (50) | (816) | | | .780 | 293.5 | | | | | 118 |
| | | | | | | | | | | 16678 | .301 | 241.1 | 357.4 | -11.9 | 144 | 683 | |
| | | | | | | | | | | 16679 | .708 | 110.6 | 298.1 | -17.2 | 0 | 6 | 51 *f* |
| | | | | | | | | | | 16680 | .941 | 76.9 | 273.1 | +10.9 | 0 | 9 | 57 *c* |
| 2.478 | | .970 | 250.9 | | | | | 131 | | 16681 | .964 | 103.3 | 267.0 | -13.8 | 4 | 24 | 408 *c* |
| G | | .968 | 262.1 | | | | | 190 | Jan.7 | | | (-0.7) | (341.8) | (-3.8) | (148) | (722) | (1203) |
| | | .897 | 269.5 | | | | | 60 | | | | | | | | | |
| | | .896 | 247.3 | | | | | 85 | | | | | | | | | |
| | 16678 | .640 | 105.7 | 355.1 | -12.5 | 31 | 205 | | 7.293 | | .965 | 257.6 | | | | | 196 |
| | | .835 | 91.2 | | | | | 58 | C | | .891 | 247.6 | | | | | 125 |
| | | .872 | 78.3 | | | | | 98 | | | .877 | 290.8 | | | | | 215 |
| | | .889 | 66.7 | | | | | 175 | | | .836 | 253.0 | | | | | 86 |
| | | .939 | 72.9 | | | | | 249 | | *1302a* | .926 | 283.1 | 37.0 | +10.6 | 3 | 10 | 214 *p* |
| Jan.3 | | | (+1.2) | (34.1) | (-3.3) | (31) | (205) | (1046) | | 16678 | .475 | 253.0 | 358.2 | -11.3 | 101 | 557 | |
| | | | | | | | | | | 16680 | .865 | 74.6 | 272.7 | +11.3 | 2 | 6 | 60 *c* |
| | | | | | | | | | | 16681 | .889 | 104.2 | 268.1 | -14.4 | 2 | 14 | 225 *c* |
| 3.288 | | .889 | 288.4 | | | | | 90 | Jan.8 | | | (-1.2) | (330.7) | (-3.8) | (108) | (587) | (1121) |
| C | | .804 | 282.1 | | | | | 79 | | | | | | | | | |
| | 16678 | .490 | 109.7 | 355.4 | -12.5 | 28 | 192 | | | | | | | | | | |
| | *1301b* | .745 | 33.4 | 353.4 | +35.4 | 3 | 17 | | 8.409 | | .968 | 287.1 | | | | | 255 |
| | | .868 | 71.5 | | | | | 188 | G | | .946 | 245.6 | | | | | 181 |
| | | .965 | 69.4 | | | | | 256 | | | .887 | 252.0 | | | | | 151 |
| Jan.4 | | | (+0.8) | (23.5) | (-3.4) | (31) | (209) | (613) | | 16678 | .662 | 256.6 | 357.0 | -11.8 | 93 | 623 | 134 *p* |
| | | | | | | | | | | *1302b* | .346 | 140.7 | 302.6 | -19.3 | 0 | 5 | |
| | | | | | | | | | | 16680 | .684 | 68.8 | 275.6 | +11.2 | 1 | 15 | |
| 4.284 | | .965 | 286.1 | | | | | 137 | | *1302c* | .685 | 113.5 | 274.6 | -18.8 | 5 | 16 | 80 *f* |
| C | | .924 | 300.1 | | | | | 148 | | | .943 | 71.7 | | | | | 64 |
| | | .890 | 280.0 | | | | | 148 | Jan.9 | | | (-1.7) | (316.0) | (-4.0) | (99) | (659) | (865) |

Group 16678. Jan. 1 - 12. A stream, rapidly developing from a small spot; the leading portion becomes composite by January 6 but soon breaks up again into single spots. The whole is dying out as it passes round the limb.
Group 16679. Jan. 5 - 7. One or two tiny spots.
Group 16680. Jan. 7 - 12. A single spot, except on January 10 when there is a pair.
Group 16681. Jan. 7 - 8. A small spot.

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 |
| 1951 | | | ° | ° | ° | | | | 1951 | | | ° | ° | ° | | | |
| 9.283 | | .954 | 253.0 | | | | | 154 | 14.493 | | .972 | 262.2 | | | | | 136 |
| C | *1302d* | .942 | 299.0 | 10.2 | +25.5 | 3 | 15 | 58 *c* | G | | .960 | 301.2 | | | | | 76 |
| | 16678 | .812 | 258.1 | 358.6 | -12.1 | 92 | 441 | 694 *c* | | | .891 | 252.2 | | | | | 189 |
| | 16682 | .488 | 105.5 | 276.0 | -11.1 | 7 | 22 | | | 16683 | .995 | 289.8 | 317.9 | +19.1 | 0 | 19 | 545 *c* |
| | 16680 | .541 | 62.0 | 275.5 | +11.1 | 15 | 43 | | | 16685 | .604 | 56.1 | 204.7 | +15.7 | 2 | 18 | |
| Jan.10 | | | (-2.1) | (304.5) | (- 4.1) | (117) | (521) | (906) | Jan.15 | | | (-4.6) | (235.9) | (- 4.6) | (2) | (37) | (946) |
| 10.126 | | .932 | 287.3 | | | | | 109 | 15.456 | | .971 | 253.2 | | | | | 178 |
| K | | .924 | 301.1 | | | | | 226 | G | | .816 | 259.2 | | | | | 112 |
| | 16678 | .906 | 257.7 | 358.4 | -12.9 | 74 | 416 | 484 *c* | | 16685 | .456 | 40.6 | 205.3 | +15.7 | 29 | 116 | |
| | 16683 | .498 | 317.7 | 313.9 | +17.6 | 14 | 61 | | | | .935 | 97.2 | | | | | 392 |
| | 16680 | .377 | 44.1 | 277.9 | +11.6 | 4 | 13 | | Jan.16 | | | (-5.0) | (223.2) | (- 4.7) | (29) | (116) | (682) |
| | 16682 | .344 | 110.2 | 274.3 | -10.8 | 1 | 6 | | | | | | | | | | |
| Jan.11 | | | (-2.5) | (293.4) | (- 4.2) | (93) | (496) | (819) | | | | | | | | | |
| | | | | | | | | | 16.620 | | .938 | 259.0 | | | | | 109 |
| | | | | | | | | | G | | .863 | 253.4 | | | | | 85 |
| 11.520 | | .948 | 247.5 | | | | | 268 | | 16685 | .349 | 6.8 | 205.5 | +15.4 | 30 | 187 | |
| G | | .939 | 291.1 | | | | | 217 | | 16686 | .986 | 76.9 | 129.1 | +12.1 | 0 | 20 | 53 *c* |
| | | .861 | 299.0 | | | | | 190 | | | .815 | 90.6 | | | | | 56 |
| | | .812 | 290.7 | | | | | 220 | | | .818 | 99.7 | | | | | 84 |
| | 16678 | .984 | 257.0 | 355.4 | -13.6 | 19 | 103 | 526 *f* | | | .912 | 95.0 | | | | | 79 |
| | 16683 | .719 | 297.7 | 316.5 | +16.3 | 3 | 14 | | Jan.17 | | | (-5.6) | (207.9) | (- 4.8) | (30) | (207) | (466) |
| | *1302e* | .618 | 262.1 | 313.1 | - 8.2 | 3 | 16 | | | | | | | | | | |
| | 16684 | .680 | 304.0 | 311.5 | +18.8 | 7 | 75 | | | | | | | | | | |
| | 16680 | .286 | 345.4 | 279.3 | +11.7 | 1 | 7 | | 17.284 | | .973 | 259.0 | | | | | 155 |
| | *1302f* | .218 | 144.6 | 267.6 | -14.4 | 1 | 11 | | C | | .932 | 254.0 | | | | | 185 |
| Jan.12 | | | (-3.2) | (275.1) | (- 4.3) | (34) | (226) | (1421) | | 16685 | .360 | 341.4 | 206.0 | +15.0 | 33 | 212 | |
| | | | | | | | | | | 16686 | .953 | 75.7 | 128.7 | +12.0 | 24 | 119 | 594 *c* |
| | | | | | | | | | Jan.18 | | | (-5.9) | (199.2) | (- 4.9) | (57) | (331) | (934) |
| 12.385 | | .928 | 280.0 | | | | | 72 | | | | | | | | | |
| G | | .909 | 289.7 | | | | | 415 | | | | | | | | | |
| | 16683 | .843 | 292.8 | 317.6 | +16.4 | 2 | 10 | 106 *f* | | | | | | | | | |
| | 16684 | .793 | 298.0 | 311.2 | +18.8 | 11 | 71 | 179 *c* | 18.286 | | .942 | 108.5 | | | | | 76 |
| | | .910 | 66.4 | | | | | 52 | C | 16685 | .468 | 315.2 | 205.8 | +14.6 | 28 | 161 | |
| Jan.13 | | | (-3.6) | (263.7) | (- 4.4) | (13) | (81) | (824) | | 16687 | .294 | 321.6 | 196.6 | + 8.3 | 7 | 60 | |
| | | | | | | | | | | 16686 | .851 | 72.6 | 130.1 | +11.9 | 6 | 35 | 274 *c* |
| | | | | | | | | | | | .948 | 95.5 | | | | | 161 |
| 13.435 | | .980 | 293.7 | | | | | 320 | Jan.19 | | | (-6.4) | (186.0) | (- 5.0) | (41) | (256) | (511) |
| G | | .966 | 284.4 | | | | | 410 | | | | | | | | | |
| | | .904 | 263.1 | | | | | 151 | | | | | | | | | |
| | | .873 | 301.9 | | | | | 165 | 19.309 | 16685 | .625 | 301.7 | 205.7 | +14.8 | 32 | 173 | |
| | 16683 | .931 | 290.0 | 315.7 | +16.7 | 0 | 12 | 189 *c* | C | 16687 | .472 | 296.0 | 197.7 | + 7.3 | 19 | 127 | |
| | 16684 | .911 | 292.6 | 312.1 | +18.4 | 11 | 42 | 422 *c* | | 16686 | .728 | 68.0 | 129.0 | +12.1 | 11 | 43 | 122 *c* |
| | 16685 | .758 | 64.3 | 204.8 | +16.0 | 5 | 18 | 135 *c* | | 16688 | .810 | 92.8 | 118.4 | - 5.2 | 2 | 8 | 162 *sf* |
| Jan.14 | | | (-4.1) | (249.9) | (- 4.5) | (16) | (72) | (1792) | Jan.20 | | | (-6.8) | (172.5) | (- 5.1) | (64) | (351) | (284) |

Group 16682. Jan. 10 - 11. A pair of tiny spots on January 10; a single spot on the next day.
Group 16683. Jan. 11 - 15. A short stream of small spots on January 11; only one remains on the other days.
Group 16684. Jan. 12 - 14. A small single spot on January 12 and 13; a pair on January 14.
Group 16685. Jan. 14 - 23. A changing stream with a brief maximum on January 18.
Group 16686. Jan. 17 - 23. A small spot which dies out just past the central meridian.
Group 16687. Jan. 19 - 24. A string of small spots.
Group 16688. Jan. 20 - 24. A tiny spot.

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 |
| 1951 | | | ° | ° | ° | | | | 1951 | | | ° | ° | ° | | | |
| 20.078 | | .921 | 255.4 | | | | | 123 | 24.284 | 16692 | .671 | 68.9 | 67.7 | + 9.7 | 58 | 356 | |
| K | 16685 | .736 | 295.2 | 205.7 | +14.5 | 21 | 144 | 160 *c* | C | 16689 | .650 | 97.0 | 66.4 | - 8.7 | 44 | 276 | |
| | 16687 | .639 | 286.1 | 200.4 | + 6.1 | 8 | 35 | | | 16690 | .713 | 101.9 | 61.6 | -12.3 | 9 | 48 | |
| | 16686 | .614 | 61.4 | 129.0 | +12.8 | 10 | 36 | | | 16693 | .829 | 76.9 | 52.7 | + 7.7 | 146 | 921 | 432 *c* |
| | 16688 | .689 | 91.4 | 118.8 | - 4.7 | 1 | 11 | | Jan.25 | | | (-9.1) | (107.0) | (- 5.5) | (257) | (1601) | (432) |
| | | .880 | 98.4 | | | | | 180 | | | | | | | | | |
| Jan.21 | | | (-7.2) | (162.4) | (- 5.1) | (40) | (226) | (463) | | | | | | | | | |
| | | | | | | | | | 25.126 | | .870 | 258.1 | | | | | 214 |
| | | | | | | | | | K | 16694 | .294 | 110.5 | 79.7 | -11.2 | 12 | 67 | |
| 21.290 | 16685 | .885 | 290.0 | 205.6 | +15.0 | 25 | 117 | 479 *c* | | 16692 | .523 | 61.2 | 68.3 | + 9.6 | 57 | 355 | |
| C | 16687 | .830 | 279.8 | 201.4 | + 5.1 | 4 | 25 | 196 *c* | | 16689 | .490 | 96.5 | 66.6 | - 8.0 | 56 | 276 | |
| | 16686 | .419 | 43.7 | 129.2 | +12.6 | 6 | 17 | | | 16690 | .573 | 103.8 | 61.3 | -12.4 | 11 | 64 | |
| | 16688 | .464 | 91.0 | 118.8 | - 5.0 | 0 | 3 | | | 16693 | .709 | 73.8 | 52.7 | + 7.3 | 163 | 883 | 298 *f* |
| | 16689 | .990 | 98.0 | 64.2 | - 8.6 | 7 | 34 | 274 *c* | | 16695 | .994 | 63.4 | 15.8 | +25.6 | 18 | 88 | 284 *sp* |
| | 16690 | .996 | 101.7 | 60.8 | -12.1 | 0 | 21 | | | | .933 | 106.6 | | | | | 160 |
| | | .828 | 75.7 | | | | | 84 | Jan.26 | | | (-9.4) | (95.9) | (- 5.6) | (317) | (1733) | (956) |
| | | .895 | 69.3 | | | | | 151 | | | | | | | | | |
| Jan.22 | | | (-7.7) | (146.4) | (- 5.2) | (42) | (217) | (1184) | | | | | | | | | |
| | | | | | | | | | 26.380 | | .900 | 266.8 | | | | | 198 |
| | | | | | | | | | G | | .814 | 288.6 | | | | | 159 |
| 22.389 | 16685 | .972 | 287.0 | 206.0 | +15.1 | 15 | 77 | 449 *c* | | 16694 | .113 | 196.0 | 81.2 | -11.9 | 4 | 42 | |
| G | 16687 | .923 | 280.2 | 197.9 | + 7.2 | 11 | 65 | 362 *c* | | 16692 | .282 | 29.3 | 71.4 | + 8.6 | 47 | 340 | |
| | 16691 | .195 | 270.4 | 143.1 | - 5.2 | 8 | 52 | | | 16689 | .210 | 101.2 | 67.5 | - 7.9 | 41 | 247 | |
| | 16686 | .312 | 9.0 | 129.0 | +12.5 | 5 | 12 | | | 16690 | .315 | 113.2 | 62.2 | -12.5 | 12 | 79 | |
| | 16688 | .218 | 90.0 | 119.3 | - 5.2 | 4 | 8 | | | 16693 | .493 | 64.3 | 52.9 | + 7.2 | 196 | 1394 | |
| | 16692 | .921 | 78.5 | 66.3 | + 8.4 | 5 | 28 | 165 *n* | | 16695 | .938 | 60.9 | 15.2 | +24.7 | 13 | 77 | 237 *c* |
| | 16689 | .925 | 97.9 | 64.0 | - 9.3 | 55 | 231 | 769 *c* | | 16696 | .988 | 63.5 | 2.4 | +25.0 | 6 | 35 | 464 *s* |
| | 16690 | .945 | 101.2 | 60.6 | -12.3 | 23 | 103 | | | | .821 | 65.9 | | | | | 104 |
| | 16693 | .985 | 81.8 | 52.9 | + 7.1 | 130 | 634 | 389 *c* | | | .822 | 117.0 | | | | | 114 |
| | | .902 | 60.0 | | | | | 213 | | | .874 | 106.8 | | | | | 122 |
| Jan.23 | | | (-8.2) | (131.9) | (- 5.3) | (256) | (1210) | (2347) | | | .937 | 98.1 | | | | | 307 |
| | | | | | | | | | Jan.27 | | | (-10.0) | (79.4) | (- 5.7) | (319) | (2214) | (1705) |
| 23.457 | 16687 | .994 | 279.5 | 200.3 | + 8.7 | 0 | 31 | 173 *c* | | | | | | | | | |
| G | 16691 | .430 | 269.9 | 143.3 | - 4.9 | 4 | 14 | | 27.412 | | .945 | 264.2 | | | | | 180 |
| | 16688 | .041 | 272.8 | 120.2 | - 5.3 | 1 | 4 | | G | | .918 | 285.6 | | | | | 380 |
| | 16692 | .801 | 73.9 | 66.8 | + 9.4 | 28 | 158 | 189 *c* | | 16694 | .294 | 249.2 | 82.0 | -11.5 | 4 | 12 | |
| | 16689 | .791 | 97.3 | 65.5 | - 9.1 | 50 | 255 | 252 *c* | | 16692 | .272 | 337.1 | 71.9 | + 8.7 | 71 | 363 | |
| | 16690 | .831 | 101.2 | 61.6 | -12.3 | 23 | 83 | 302 *c* | | 16689 | .053 | 223.9 | 67.9 | - 8.0 | 34 | 177 | |
| | 16693 | .922 | 79.6 | 52.0 | + 7.4 | 148 | 984 | 401 *c* | | 16690 | .136 | 152.6 | 62.1 | -12.7 | 12 | 53 | |
| Jan.24 | | | (-8.7) | (117.9) | (- 5.4) | (254) | (1529) | (1317) | | 16693 | .307 | 46.1 | 53.0 | + 6.6 | 173 | 1208 | |

Group 16689. Jan.22-Feb.3. A regular spot followed by a few changing companions until January 31.
Group 16690. Jan. 22 - 30. A small spot, with occasional tiny companions, immediately *s* Group 16689.
Group 16691. Jan. 23 - 24. A few tiny spots on January 23, of which only one remains on the next day.
Group 16692. Jan.23-Feb.3. A stream, developing quickly from a small spot on January 23. The leader soon becomes regular and is the only stable component.
Group 16693. Jan.23-Feb.4. A composite spot leading a string of spots which rapidly increase in area after January 26. These remain fairly stable until January 31, when they begin to break up and die out.
Group 16694. Jan.26-Feb.1. A few small variable spots.
Group 16695. Jan.26-Feb.6. A small regular spot with occasional companions.
Group 16696. Jan.27-Feb.1. A few small 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 |
| 1951 | | | ° | ° | ° | | | | 1951 | | | ° | ° | ° | | | |
| | 16695 | .844 | 56.6 | 15.5 | +24.0 | 22 | 93 | 172 *c* | | | .920 | 301.0 | | | | | 164 |
| | 16696 | .927 | 60.4 | 3.5 | +24.6 | 12 | 40 | 323 *c* | | | .794 | 256.7 | | | | | 303 |
| | | .817 | 99.4 | | | | | 93 | | 16694 | .933 | 260.0 | 81.5 | -11.5 | 16 | 50 | 410 *c* |
| | | .927 | 103.2 | | | | | 430 | | 16689 | .850 | 266.7 | 70.4 | - 6.0 | 19 | 104 | 137 *sf* |
| Jan.28 | | | ( -10.4) | (65.8) | ( - 5.8) | (328) | (1946) | (1578) | | 16692 | .865 | 284.9 | 69.7 | + 9.6 | 75 | 376 | 271 *c* |
| | | | | | | | | | | 16693 | .722 | 286.8 | 56.0 | + 7.7 | 147 | 983 | |
| | | | | | | | | | | 16695 | .516 | 357.1 | 13.6 | +24.8 | 12 | 31 | |
| 28.586 | | .922 | 265.1 | | | | | 152 | | 16696 | .551 | 19.6 | 0.3 | +25.1 | 1 | 4 | |
| G | 16694 | .511 | 257.5 | 80.9 | -11.4 | 2 | 9 | | | 16697 | .490 | 101.9 | 342.9 | -11.1 | 9 | 43 | |
| | 16692 | .429 | 307.5 | 70.5 | + 9.7 | 85 | 505 | | | | .802 | 60.9 | | | | | 126 |
| | 16689 | .325 | 264.9 | 69.4 | - 7.2 | 39 | 178 | | | | .849 | 49.9 | | | | | 61 |
| | 16690 | .241 | 241.1 | 62.8 | -12.3 | 6 | 24 | | | | .906 | 64.9 | | | | | 267 |
| | 16693 | .225 | 344.5 | 53.9 | + 6.7 | 253 | 1591 | | | | .926 | 100.0 | | | | | 71 |
| | ***1302g*** | .412 | 44.7 | 33.3 | +11.4 | 4 | 14 | | Feb.1 | | | ( -12.1) | (12.0) | ( - 6.1) | (279) | (1591) | (2019) |
| | 16695 | .710 | 46.9 | 15.9 | +24.2 | 24 | 68 | 126 *f* | | | | | | | | | |
| | 16696 | .826 | 54.7 | 2.7 | +24.6 | 8 | 26 | 143 *f* | | | | | | | | | |
| | | .822 | 103.0 | | | | | 208 | | | | | | | | | |
| | | .892 | 109.1 | | | | | 167 | 32.293 | | .979 | 258.9 | | | | | 175 |
| | | .934 | 99.0 | | | | | 90 | C | | .883 | 256.5 | | | | | 189 |
| | | .961 | 73.7 | | | | | 96 | | 16689 | .933 | 266.1 | 70.7 | - 5.9 | 23 | 152 | 148 *sf* |
| Jan.29 | | | ( -10.9) | (50.4) | ( - 5.8) | (421) | (2415) | (982) | | 16692 | .938 | 282.5 | 69.6 | + 9.5 | 58 | 419 | 288 *c* |
| | | | | | | | | | | 16693 | .845 | 283.3 | 57.5 | + 7.8 | 127 | 850 | 264 *c* |
| | | | | | | | | | | 16695 | .540 | 336.3 | 15.2 | +23.6 | 20 | 96 | |
| 29.505 | 16694 | .664 | 259.1 | 79.8 | -11.6 | 22 | 92 | | | 16697 | .295 | 107.1 | 345.0 | -10.8 | 6 | 37 | |
| G | 16692 | .589 | 295.7 | 70.7 | + 9.8 | 58 | 389 | | | | .819 | 62.1 | | | | | 127 |
| | 16689 | .517 | 266.5 | 69.4 | - 6.8 | 32 | 156 | | | | .967 | 74.9 | | | | | 81 |
| | 16690 | .435 | 253.6 | 63.4 | -12.4 | 1 | 6 | | Feb.2 | | | ( -12.5) | (1.6) | ( - 6.1) | (234) | (1554) | (1272) |
| | 16693 | .353 | 310.1 | 53.9 | + 7.4 | 241 | 1251 | | | | | | | | | | |
| | ***1302h*** | .214 | 348.7 | 40.6 | + 6.2 | 5 | 20 | | | | | | | | | | |
| | 16695 | .612 | 36.5 | 14.8 | +24.0 | 28 | 95 | | | | | | | | | | |
| | 16696 | .724 | 47.3 | 2.5 | +24.6 | 5 | 24 | 82 *f* | 33.291 | | .937 | 256.5 | | | | | 207 |
| | | .953 | 70.9 | | | | | 230 | C | 16689 | .990 | 265.3 | 70.5 | - 5.6 | 14 | 117 | 318 *s* |
| Jan.30 | | | ( -11.3) | (38.2) | ( - 5.9) | (392) | (2033) | (312) | | 16692 | .988 | 281.1 | 67.9 | + 9.9 | 69 | 384 | 460 *c* |
| | | | | | | | | | | 16693 | .947 | 281.0 | 58.1 | + 8.3 | 110 | 752 | 588 *f* |
| | | | | | | | | | | 16695 | .644 | 318.1 | 16.2 | +23.1 | 30 | 74 | |
| 30.285 | 16694 | .788 | 259.7 | 80.2 | -11.8 | 11 | 93 | | | 16697 | .086 | 156.5 | 346.4 | -10.7 | 58 | 178 | |
| C | 16692 | .709 | 290.2 | 70.3 | + 9.7 | 60 | 405 | | | | .914 | 99.3 | | | | | 115 |
| | 16689 | .664 | 266.7 | 69.7 | - 6.7 | 31 | 149 | | | | .928 | 73.3 | | | | | 154 |
| | 16693 | .491 | 296.7 | 54.1 | + 7.4 | 144 | 1359 | | Feb.3 | | | ( -12.9) | (348.4) | ( - 6.2) | (281) | (1505) | (1842) |
| | 16695 | .554 | 23.2 | 14.2 | +24.6 | 11 | 41 | | | | | | | | | | |
| | 16696 | .646 | 39.6 | 1.2 | +24.4 | 3 | 12 | | | | | | | | | | |
| | | .882 | 69.0 | | | | | 242 | 34.292 | 16693 | .995 | 279.3 | 58.2 | + 8.6 | 19 | 120 | 768 *f* |
| | | .966 | 64.4 | | | | | 298 | C | 16698 | .719 | 284.3 | 19.5 | + 5.8 | 6 | 26 | |
| Jan.31 | | | ( -11.6) | (28.0) | ( - 6.0) | (260) | (2059) | (540) | | 16695 | .762 | 308.7 | 15.5 | +23.7 | 15 | 74 | |
| | | | | | | | | | | 16697 | .222 | 246.1 | 347.1 | -11.2 | 31 | 149 | |
| | | | | | | | | | | 16699 | .196 | 148.1 | 329.1 | -15.7 | 2 | 13 | |
| 31.496 | | .971 | 287.3 | | | | | 111 | | | .787 | 66.9 | | | | | 94 |
| G | | .944 | 278.1 | | | | | 98 | Feb.4 | | | ( -13.3) | (335.2) | ( - 6.2) | (73) | (382) | (862) |

Group 16697. Feb. 1 - 9. Small spots forming a stream, of which the leader alone remains by February 8.
Group 16698. Feb. 4 - 6. A pair of tiny spots on February 4; a single spot on the other days.
Group 16699. Feb. 4 - 10. One or two tiny spots until February 9. On the next day there is a big increase in area.

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 |
| 1951 | | | ° | ° | ° | | | | 1951 | | | ° | ° | ° | | | |
| 35.417 | | .973 | 277.3 | | | | | 115 | | 16702 | .584 | 90.4 | 246.8 | - 5.5 | 1 | 13 | |
| G | | .953 | 291.7 | | | | | 160 | | 16700 | .679 | 67.7 | 243.1 | + 9.9 | 10 | 32 | |
| | | .915 | 241.7 | | | | | 93 | | 16703 | .951 | 83.2 | 211.6 | + 4.4 | 13 | 74 | 324 *f* |
| | | .848 | 291.1 | | | | | 92 | | | .950 | 72.4 | | | | | 172 |
| | | .764 | 255.9 | | | | | 134 | Feb.8 | | | (-14.8) | (282.6) | ( - 6.5) | (44) | (210) | (1264) |
| | 16698 | .879 | 279.9 | 20.6 | + 5.6 | 2 | 11 | 99 *c* | | | | | | | | | |
| | 16695 | .881 | 301.5 | 15.5 | +23.9 | 11 | 55 | 299 *c* | | | | | | | | | |
| | 16697 | .471 | 258.5 | 348.3 | -11.0 | 21 | 132 | | 39.482 | | .950 | 244.5 | | | | | 76 |
| | 16699 | .218 | 225.0 | 329.5 | -15.1 | 4 | 20 | | G | | .905 | 290.0 | | | | | 213 |
| | 16700 | .984 | 78.3 | 242.4 | +10.3 | 0 | 30 | 140 *c* | | | .888 | 297.8 | | | | | 129 |
| Feb.5 | | | (-13.7) | (320.4) | ( - 6.3) | (38) | (248) | (1132) | | | .886 | 305.7 | | | | | 158 |
| | | | | | | | | | | 16697 | .991 | 259.7 | 350.1 | -11.1 | 0 | 14 | 221 *c* |
| | | | | | | | | | | 16699 | .883 | 256.9 | 329.4 | -14.6 | 0 | 7 | 129 *c* |
| 36.425 | | .934 | 264.5 | | | | | 174 | | 16702 | .341 | 89.7 | 246.9 | - 6.1 | 2 | 14 | |
| G | | .927 | 288.7 | | | | | 120 | | 16700 | .475 | 55.0 | 243.7 | + 9.7 | 4 | 35 | |
| | | .874 | 256.5 | | | | | 204 | | 16701 | .542 | 88.3 | 234.1 | - 4.6 | 11 | 41 | |
| | | .761 | 249.5 | | | | | 164 | | 16703 | .839 | 80.7 | 211.0 | + 4.1 | 14 | 69 | 306 *f* |
| | 16698 | .963 | 278.2 | 20.4 | + 6.0 | 0 | 7 | 190 *c* | | 16704 | .994 | 102.7 | 182.1 | -13.3 | 18 | 114 | 105 *c* |
| | 16695 | .953 | 297.7 | 14.4 | +24.0 | 0 | 22 | 390 *c* | | | .899 | 69.3 | | | | | 184 |
| | 16697 | .692 | 260.8 | 351.1 | -11.0 | 12 | 88 | | | | .947 | 93.3 | | | | | 83 |
| | 16699 | .410 | 247.4 | 330.2 | -15.0 | 0 | 11 | | Feb.9 | | | (-15.3) | (266.9) | ( - 6.6) | (49) | (294) | (1604) |
| | *1303a* | .448 | 10.2 | 302.4 | +19.6 | 2 | 13 | | | | | | | | | | |
| | 16700 | .908 | 75.6 | 244.1 | +10.2 | 9 | 31 | 156 *c* | | | | | | | | | |
| | 16701 | .960 | 92.7 | 233.4 | - 4.4 | 0 | 12 | 77 *c* | 40.293 | | .947 | 291.6 | | | | | 156 |
| Feb.6 | | | (-14.1) | (307.2) | ( - 6.4) | (23) | (184) | (1475) | C | | .936 | 303.2 | | | | | 112 |
| | | | | | | | | | | | .866 | 295.8 | | | | | 87 |
| | | | | | | | | | | 16699 | .952 | 255.9 | 329.2 | -15.4 | 27 | 80 | 160 *c* |
| 37.464 | | .961 | 257.9 | | | | | 239 | | *1303d* | .262 | 221.1 | 266.6 | -17.8 | 4 | 20 | |
| G | | .941 | 301.7 | | | | | 206 | | 16700 | .339 | 37.6 | 244.2 | + 9.1 | 11 | 68 | |
| | | .883 | 253.3 | | | | | 346 | | 16701 | .370 | 86.6 | 234.5 | - 4.9 | 13 | 43 | |
| | 16697 | .838 | 260.8 | 350.8 | -11.2 | 21 | 98 | 272 *c* | | 16705 | .709 | 70.8 | 213.8 | + 8.6 | 9 | 48 | |
| | 16699 | .612 | 252.9 | 330.7 | -15.4 | 0 | 4 | | | 16703 | .725 | 77.8 | 211.1 | + 4.2 | 21 | 78 | 66 *f* |
| | 16702 | .767 | 91.9 | 243.3 | - 5.6 | 10 | 39 | 59 *c* | | 16704 | .956 | 102.0 | 182.5 | -13.4 | 29 | 170 | 179 *c* |
| | 16700 | .818 | 72.3 | 241.3 | +10.5 | 2 | 11 | 162 *c* | | | .844 | 67.1 | | | | | 94 |
| | *1303b* | .938 | 107.9 | 223.1 | -19.0 | 0 | 6 | 63 *s* | | | .883 | 94.8 | | | | | 107 |
| | 16703 | .993 | 84.6 | 211.2 | + 4.5 | 16 | 90 | 85 *c* | Feb.10 | | | (-15.6) | (256.2) | ( - 6.6) | (114) | (507) | (961) |
| | | .868 | 91.2 | | | | | 76 | | | | | | | | | |
| Feb.7 | | | (-14.5) | (293.5) | ( - 6.4) | (49) | (248) | (1508) | | | | | | | | | |
| | | | | | | | | | 41.587 | | .972 | 290.6 | | | | | 159 |
| | | | | | | | | | G | | .921 | 295.7 | | | | | 124 |
| 38.292 | | .979 | 289.1 | | | | | 60 | | | .877 | 251.6 | | | | | 85 |
| C | | .946 | 252.8 | | | | | 240 | | 16706 | .389 | 339.6 | 247.2 | +14.7 | 25 | 96 | |
| | | .795 | 294.7 | | | | | 121 | | 16700 | .282 | 339.6 | 244.9 | + 8.6 | 13 | 86 | |
| | 16697 | .926 | 260.4 | 350.9 | -11.3 | 17 | 72 | 296 *f* | | 16705 | .519 | 60.6 | 212.1 | + 8.7 | 36 | 114 | |
| | 16699 | .721 | 255.5 | 328.7 | -15.0 | 3 | 15 | 51 *c* | | 16703 | .509 | 70.0 | 210.7 | + 4.1 | 14 | 79 | |
| | *1303c* | .242 | 20.4 | 277.8 | + 6.5 | 0 | 4 | | | 16704 | .840 | 102.2 | 181.7 | -13.9 | 24 | 114 | 145 *c* |

Group 16700. Feb. 5 - 16. A few small variable spots, not seen on February 13.
Group 16701. Feb. 6 - 10. A single spot on February 6. Nothing is then seen until February 9 when one or two small spots reappear.
Group 16702. Feb. 7 - 9. A pair of small spots on February 7; a single spot on February 8 and 9.
Group 16703. Feb. 7 - 17. A small, slowly-diminishing regular spot with occasional companions.
Group 16704. Feb. 9 - 19. A small spot, with a tiny companion on February 11.
Group 16705. Feb. 10 - 15. A small stream appearing immediately *n* Group 16703.
Group 16706. Feb. 11 - 13. A pair of spots, appearing suddenly just past the central meridian.

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

| U.T. | Group No. | MEASURES Dist. | MEASURES Pos. Angle | POSITION Long. | POSITION Lat. | AREA Umbræ | AREA Whole Spots | AREA Faculæ |
|---|---|---|---|---|---|---|---|---|
| 1951 | | | ° | ° | ° | | | |
| | 16707 | .992 | 77.8 | 158.2 | +11.1 | 0 | 38 | 85 *c* |
| | | .959 | 101.8 | | | | | 144 |
| Feb.11 | | | (-16.0) | (239.2) | ( - 6.7) | (112) | (527) | (742) |
| 42.400 | | .974 | 291.6 | | | | | 152 |
| G | *1303e* | .646 | 249.4 | 267.9 | -18.3 | 1 | 8 | |
| | 16706 | .480 | 319.3 | 247.3 | +15.0 | 12 | 55 | |
| | 16700 | .387 | 313.1 | 245.0 | + 8.8 | 4 | 24 | |
| | 16705 | .382 | 46.3 | 212.3 | + 8.8 | 24 | 123 | |
| | 16703 | .352 | 58.9 | 211.0 | + 4.1 | 7 | 37 | |
| | 16704 | .723 | 102.5 | 182.1 | -13.7 | 16 | 81 | 76 *f* |
| | 16707 | .957 | 75.7 | 157.6 | +11.5 | 60 | 303 | 139 *c* |
| | | .906 | 102.5 | | | | | 132 |
| | | .934 | 94.6 | | | | | 66 |
| Feb.12 | | | (-16.3) | (228.5) | ( - 6.7) | (124) | (631) | (565) |
| 43.293 | | .936 | 283.0 | | | | | 59 |
| C | | .897 | 261.6 | | | | | 71 |
| | 16706 | .607 | 305.0 | 247.5 | +14.5 | 2 | 24 | |
| | 16705 | .282 | 16.5 | 212.1 | + 8.8 | 7 | 60 | |
| | 16703 | .210 | 28.6 | 210.9 | + 3.8 | 13 | 46 | |
| | 16704 | .571 | 104.2 | 182.1 | -13.7 | 15 | 51 | |
| | 16707 | .872 | 72.6 | 158.8 | +11.5 | 34 | 237 | 131 *c* |
| | 16708 | .904 | 89.4 | 152.1 | - 2.4 | 0 | 5 | 99 *c* |
| Feb.13 | | | (-16.6) | (216.7) | ( - 6.8) | (71) | (423) | (360) |
| 44.292 | | .973 | 260.4 | | | | | 98 |
| C | | .907 | 252.5 | | | | | 173 |
| | 16700 | .729 | 288.0 | 247.8 | + 7.9 | 4 | 25 | 98 *c* |
| | 16703 | .229 | 320.9 | 211.9 | + 3.5 | 9 | 32 | |
| | 16705 | .317 | 333.6 | 211.8 | + 9.7 | 2 | 22 | |
| | 16704 | .376 | 110.1 | 182.4 | -13.8 | 9 | 34 | |
| | 16707 | .743 | 68.1 | 159.1 | +11.2 | 47 | 275 | 152 *c* |
| | 16708 | .765 | 87.2 | 153.9 | - 2.3 | 4 | 23 | 68 *c* |
| | | .862 | 96.8 | | | | | 82 |
| | | .968 | 77.6 | | | | | 123 |
| Feb.14 | | | (-17.0) | (203.6) | ( - 6.8) | (75) | (411) | (794) |
| 45.291 | | .960 | 251.5 | | | | | 111 |
| C | 16700 | .851 | 283.3 | 246.8 | + 7.5 | 6 | 28 | 448 *n* |
| | 16703 | .409 | 294.5 | 212.2 | + 3.4 | 4 | 21 | |
| | 16705 | .438 | 304.3 | 211.7 | + 7.9 | 1 | 4 | |
| | 16704 | .186 | 132.6 | 182.3 | -13.9 | 4 | 19 | |
| | 16707 | .585 | 58.9 | 159.8 | +11.7 | 41 | 225 | |
| | 16708 | .617 | 84.3 | 152.7 | - 1.8 | 4 | 25 | |

| U.T. | Group No. | MEASURES Dist. | MEASURES Pos. Angle | POSITION Long. | POSITION Lat. | AREA Umbræ | AREA Whole Spots | AREA Faculæ |
|---|---|---|---|---|---|---|---|---|
| 1951 | | | ° | ° | ° | | | |
| | 16709 | .891 | 74.3 | 129.8 | +10.7 | 2 | 11 | 199 *c* |
| | | .966 | 99.1 | | | | | 99 |
| Feb.15 | | | (-17.3) | (190.4) | ( - 6.8) | (62) | (333) | (857) |
| 46.386 | | .951 | 264.7 | | | | | 174 |
| C | | .851 | 266.1 | | | | | 123 |
| | 16700 | .949 | 280.0 | 246.2 | + 7.2 | 0 | 13 | 420 *n* |
| | 16703 | .615 | 284.3 | 212.5 | + 3.2 | 3 | 12 | |
| | 16704 | .164 | 219.3 | 182.1 | -14.1 | 3 | 18 | |
| | 16707 | .411 | 39.9 | 160.4 | +11.7 | 25 | 163 | |
| | 16708 | .424 | 79.7 | 151.4 | - 1.9 | 1 | 9 | |
| | 16709 | .762 | 69.1 | 129.7 | +11.0 | 3 | 18 | 113 *c* |
| Feb.16 | | | (-17.7) | (176.0) | ( - 6.9) | (35) | (233) | (830) |
| 47.293 | | .987 | 281.2 | | | | | 191 |
| C | | .948 | 264.8 | | | | | 189 |
| | 16703 | .745 | 280.7 | 211.1 | + 3.3 | 3 | 17 | 79 *c* |
| | 16704 | .328 | 246.7 | 182.1 | -14.0 | 3 | 11 | |
| | 16707 | .329 | 10.6 | 160.6 | +11.9 | 22 | 133 | |
| | 16709 | .629 | 62.7 | 129.5 | +11.0 | 6 | 16 | |
| | | .963 | 74.4 | | | | | 146 |
| Feb.17 | | | (-18.0) | (164.1) | ( - 6.9) | (34) | (177) | (605) |
| 48.425 | | .930 | 284.4 | | | | | 359 |
| G | | .877 | 293.8 | | | | | 146 |
| | | .859 | 280.4 | | | | | 222 |
| | 16704 | .553 | 255.9 | 182.4 | -13.6 | 2 | 8 | |
| | 16707 | .375 | 328.7 | 160.5 | +11.8 | 22 | 131 | |
| | 16709 | .457 | 49.5 | 128.5 | +10.6 | 2 | 10 | |
| | 16710 | .973 | 77.7 | 74.4 | +10.1 | 4 | 28 | 326 *c* |
| | | .875 | 68.7 | | | | | 85 |
| | | .891 | 98.4 | | | | | 185 |
| | | .903 | 75.0 | | | | | 251 |
| | | .966 | 95.1 | | | | | 207 |
| | | .977 | 103.6 | | | | | 191 |
| Feb.18 | | | (-18.4) | (149.1) | ( - 7.0) | (30) | (177) | (1972) |
| 49.367 | | .954 | 280.1 | | | | | 353 |
| G | | .941 | 291.1 | | | | | 134 |
| | 16704 | .718 | 257.9 | 182.7 | -13.5 | 3 | 8 | |
| | 16707 | .514 | 307.6 | 161.2 | +11.8 | 20 | 114 | |
| | 16709 | .360 | 21.6 | 128.9 | +12.5 | 0 | 4 | |
| | 16710 | .890 | 75.1 | 76.1 | + 9.8 | 0 | 14 | 355 *f* |
| | 16711 | .974 | 77.7 | 61.7 | +10.3 | 105 | 728 | 581 *c* |
| | | .803 | 99.0 | | | | | 69 |

Group 16707. Feb. 11 - 23. A pair of spots. The leader, a regular spot, alone remains by February 22.
Group 16708. Feb. 13 - 16. One or two tiny spots.
Group 16709. Feb. 15 - 19. A few tiny spots.
Group 16710. Feb. 18 - 26. Return of Group 16692. An intermittent tiny spot.
Group 16711. Feb. 19-Mar. 3. Return of Group 16693. A composite spot which at first becomes elongated and then disintegrates to form a stream in which the principal nucleus is the leader.

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

| U.T. | Group No. | MEASURES Dist. | MEASURES Pos. Angle | POSITION Long. | POSITION Lat. | AREA Umbræ | AREA Whole Spots | AREA Faculæ |
|---|---|---|---|---|---|---|---|---|
| 1951 | | | ° | ° | ° | | | |
| | | .807 | 68.1 | | | | | 133 |
| | | .883 | 94.5 | | | | | 127 |
| | | .923 | 103.4 | | | | | 175 |
| | | .955 | 66.7 | | | | | 80 |
| | | .959 | 85.5 | | | | | 153 |
| | | .968 | 95.3 | | | | | 267 |
| Feb.19 | | | (-18.7) | (136.7) | (- 7.0) | (128) | (868) | (2427) |
| 50.296 | | .836 | 253.2 | | | | | 99 |
| C | 16707 | .658 | 297.2 | 161.1 | +11.9 | 12 | 101 | |
| | 16711 | .901 | 75.0 | 62.5 | +10.3 | 97 | 789 | 1071 *c* |
| | | .844 | 103.2 | | | | | 113 |
| | | .980 | 77.4 | | | | | 248 |
| Feb.20 | | | (-19.0) | (124.5) | (- 7.0) | (109) | (890) | (1531) |
| 51.382 | | .939 | 256.9 | | | | | 310 |
| G | 16707 | .812 | 289.7 | 161.3 | +11.4 | 11 | 82 | 124 *n* |
| | 16710 | .652 | 63.7 | 73.8 | +11.1 | 3 | 12 | |
| | 16711 | .784 | 70.3 | 61.7 | +10.7 | 78 | 691 | 481 *c* |
| | | .768 | 102.9 | | | | | 99 |
| | | .906 | 74.3 | | | | | 328 |
| Feb.21 | | | (-19.3) | (110.2) | (- 7.1) | (92) | (785) | (1342) |
| 52.459 | | .939 | 260.5 | | | | | 196 |
| G | | .878 | 271.2 | | | | | 96 |
| | 16707 | .929 | 285.0 | 161.9 | +11.1 | 12 | 35 | 274 *n* |
| | 16710 | .467 | 50.2 | 74.7 | +10.7 | 1 | 8 | |
| | 16711 | .616 | 62.2 | 62.5 | +10.7 | 83 | 668 | |
| | | .787 | 71.8 | | | | | 222 |
| | | .960 | 98.5 | | | | | 155 |
| Feb.22 | | | (-19.6) | (96.0) | (- 7.1) | (96) | (711) | (943) |
| 53.415 | | .931 | 268.9 | | | | | 290 |
| G | | .835 | 287.9 | | | | | 167 |
| | 16707 | .985 | 282.7 | 161.4 | +11.1 | 0 | 11 | 284 *n* |
| | 16710 | .324 | 26.1 | 75.1 | + 9.8 | 1 | 10 | |
| | 16711 | .461 | 49.0 | 62.7 | +10.9 | 95 | 763 | |
| | | .911 | 59.3 | | | | | 132 |
| | | .945 | 101.8 | | | | | 214 |
| Feb.23 | | | (-19.9) | (83.4) | (- 7.1) | (96) | (784) | (1087) |
| 54.296 | | .975 | 267.9 | | | | | 150 |
| C | | .889 | 286.8 | | | | | 251 |
| | 16711 | .339 | 26.2 | 63.1 | +10.5 | 86 | 873 | |
| | | .956 | 102.9 | | | | | 291 |
| Feb.24 | | | (-20.1) | (71.8) | (- 7.2) | (86) | (873) | (692) |
| 1951 | | | ° | ° | ° | | | |
| 55.341 | | .931 | 285.8 | | | | | 185 |
| C | 16711 | .310 | 341.4 | 63.8 | + 9.8 | 93 | 914 | |
| | | .882 | 102.0 | | | | | 372 |
| | | .982 | 102.5 | | | | | 218 |
| Feb.25 | | | (-20.4) | (58.1) | (- 7.2) | (93) | (914) | (775) |
| 56.380 | 16710 | .593 | 297.2 | 76.6 | + 9.6 | 1 | 8 | |
| G | 16711 | .451 | 310.7 | 64.6 | +10.3 | 130 | 806 | |
| | 16712 | .903 | 100.9 | 339.2 | -12.9 | 5 | 17 | 325 *f* |
| | | .802 | 101.5 | | | | | 313 |
| | | .955 | 71.3 | | | | | 80 |
| | | .963 | 103.7 | | | | | 249 |
| | | .969 | 62.7 | | | | | 88 |
| | | .970 | 107.9 | | | | | 111 |
| Feb.26 | | | (-20.7) | (44.4) | (- 7.2) | (136) | (831) | (1166) |
| 57.483 | | .893 | 290.6 | | | | | 192 |
| G | 16711 | .637 | 296.0 | 65.2 | +10.3 | 118 | 618 | 79 *p* |
| | 16712 | .751 | 101.2 | 340.9 | -13.1 | 5 | 20 | 198 *f* |
| | | .874 | 104.8 | | | | | 368 |
| | | .883 | 66.4 | | | | | 144 |
| | | .897 | 57.7 | | | | | 93 |
| Feb.27 | | | (-21.0) | (29.8) | (- 7.2) | (123) | (638) | (1074) |
| 58.407 | | .955 | 287.5 | | | | | 217 |
| G | 16711 | .774 | 289.9 | 65.3 | +10.4 | 95 | 563 | 627 *c* |
| | 16713 | .261 | 319.9 | 27.4 | + 4.4 | 2 | 15 | |
| | 16712 | .603 | 102.1 | 340.6 | -13.0 | 3 | 13 | |
| | 16714 | .729 | 103.1 | 330.8 | -14.4 | 7 | 28 | 98 *c* |
| | | .857 | 60.5 | | | | | 109 |
| | | .962 | 68.5 | | | | | 99 |
| Feb.28 | | | (-21.3) | (17.7) | (- 7.2) | (107) | (619) | (1150) |
| 59.392 | | .943 | 259.7 | | | | | 147 |
| G | | .911 | 308.7 | | | | | 84 |
| | | .897 | 252.7 | | | | | 86 |
| | | .814 | 257.7 | | | | | 66 |
| | 16711 | .890 | 285.3 | 65.2 | +10.1 | 94 | 513 | 1350 *c* |
| | 16713 | .441 | 294.5 | 28.3 | + 3.9 | 15 | 63 | |
| | 16712 | .434 | 105.7 | 339.4 | -13.2 | 5 | 23 | |
| | 16714 | .584 | 105.9 | 329.3 | -15.1 | 2 | 8 | |
| | | .873 | 50.1 | | | | | 153 |
| | | .902 | 62.1 | | | | | 228 |
| Mar.1 | | | (-21.5) | (4.7) | (- 7.2) | (116) | (607) | (2114) |

Group 16712. Feb.26-Mar.8. A single small spot until February 27; on the next day a variable stream appears but dies out before reaching the limb.
Group 16713. Feb.28-Mar.5. A few small spots.
Group 16714. Feb.28-Mar.1. One or two tiny 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 |
| 1951 | | | ° | ° | ° | | | | 1951 | | | ° | ° | ° | | | |
| 60.304 | | .928 | 255.0 | | | | | 192 | | 16715 | .839 | 289.5 | 339.7 | +12.0 | 6 | 16 | 229 *n* |
| C | 16711 | .969 | 282.4 | 66.3 | +10.0 | 110 | 408 | 1389 *c* | | 16712 | .775 | 258.0 | 337.0 | -13.8 | 9 | 31 | 253 *c* |
| | 16713 | .603 | 286.3 | 28.0 | + 3.8 | 16 | 74 | | | 16717 | .804 | 309.2 | 329.3 | +25.3 | 2 | 8 | 72 *c* |
| | 16712 | .236 | 115.8 | 340.2 | -12.9 | 6 | 46 | | | 16719 | .141 | 165.5 | 283.8 | -15.0 | 10 | 36 | |
| Mar.2 | | | (-21.8) | (352.7) | ( - 7.2) | (132) | (528) | (1581) | | 16716 | .736 | 71.6 | 241.2 | + 8.3 | 3 | 8 | 169 *f* |
| | | | | | | | | | | 16718 | .919 | 71.8 | 222.2 | +13.5 | 23 | 194 | 258 *f* |
| | | | | | | | | | | | .935 | 80.5 | | | | | 138 |
| 61.368 | | .945 | 282.8 | | | | | 465 | Mar.7 | | | (-22.9) | (285.9) | ( - 7.2) | (53) | (293) | (1601) |
| G | 16711 | .997 | 280.6 | 62.5 | + 9.9 | 12 | 79 | 316 *c* | | | | | | | | | |
| | 16713 | .799 | 280.8 | 30.4 | + 4.1 | 3 | 21 | 128 *c* | | | | | | | | | |
| | 16712 | .117 | 158.2 | 336.2 | -13.4 | 14 | 92 | | 66.428 | | .879 | 241.0 | | | | | 156 |
| | | .910 | 106.2 | | | | | 188 | G | | .875 | 296.6 | | | | | 170 |
| Mar.3 | | | (-22.0) | (338.7) | ( - 7.2) | (29) | (192) | (1097) | | | .850 | 305.4 | | | | | 217 |
| | | | | | | | | | | 16715 | .950 | 285.1 | 341.4 | +11.8 | 3 | 11 | 374 *n* |
| | | | | | | | | | | 16712 | .899 | 255.8 | 336.7 | -15.8 | 5 | 25 | 635 *c* |
| 62.430 | | .902 | 301.7 | | | | | 147 | | 16719 | .257 | 238.3 | 285.0 | -14.7 | 6 | 26 | |
| G | 16713 | .927 | 277.1 | 31.7 | + 3.7 | 3 | 15 | 240 *c* | | 16718 | .808 | 67.8 | 222.0 | +13.2 | 22 | 222 | 175 *f* |
| | 16715 | .380 | 330.7 | 335.6 | +12.2 | 4 | 26 | | | | .893 | 80.2 | | | | | 145 |
| | 16712 | .181 | 224.9 | 332.2 | -14.5 | 12 | 95 | | | | .981 | 112.6 | | | | | 212 |
| | | .957 | 77.1 | | | | | 150 | Mar.8 | | | (-23.2) | (272.0) | ( - 7.2) | (36) | (284) | (2084) |
| Mar.4 | | | (-22.3) | (324.7) | ( - 7.2) | (19) | (136) | (537) | | | | | | | | | |
| | | | | | | | | | 67.305 | | .957 | 284.3 | | | | | 189 |
| 63.408 | | .970 | 298.1 | | | | | 133 | C | | .944 | 298.3 | | | | | 166 |
| G | | .887 | 256.1 | | | | | 188 | | | .935 | 254.9 | | | | | 459 |
| | 16713 | .972 | 276.7 | 27.2 | + 4.7 | 0 | 8 | 283 *c* | | | .814 | 301.9 | | | | | 165 |
| | 16715 | .515 | 308.8 | 335.9 | +12.2 | 6 | 28 | | | 16719 | .454 | 252.7 | 286.8 | -14.2 | 5 | 12 | |
| | 16712 | .404 | 251.1 | 334.9 | -14.1 | 13 | 125 | | | 16718 | .689 | 62.3 | 221.8 | +13.1 | 46 | 220 | 99 *f* |
| | 16716 | .966 | 79.5 | 238.4 | + 8.1 | 4 | 34 | 180 *c* | | | .906 | 65.4 | | | | | 119 |
| | | .893 | 73.9 | | | | | 286 | | | .936 | 112.7 | | | | | 262 |
| Mar.5 | | | (-22.5) | (311.8) | ( - 7.2) | (23) | (195) | (1070) | Mar.9 | | | (-23.3) | (260.4) | ( - 7.2) | (51) | (232) | (1459) |
| 64.373 | | .961 | 255.1 | | | | | 188 | 68.488 | | .900 | 294.5 | | | | | 165 |
| G | | .878 | 255.1 | | | | | 362 | C | 16719 | .683 | 257.2 | 288.1 | -14.0 | 1 | 6 | |
| | | .779 | 257.7 | | | | | 229 | | 16718 | .507 | 49.6 | 221.7 | +12.5 | 36 | 194 | |
| | 16715 | .685 | 297.3 | 337.5 | +12.7 | 9 | 33 | 64 *p* | Mar.10 | | | (-23.6) | (244.9) | ( - 7.2) | (37) | (200) | (165) |
| | 16712 | .597 | 256.7 | 335.7 | -13.7 | 10 | 52 | | | | | | | | | | |
| | 16717 | .687 | 319.8 | 328.4 | +25.3 | 0 | 18 | | | | | | | | | | |
| | 16716 | .884 | 76.3 | 239.0 | + 8.5 | 4 | 21 | 132 *c* | 69.431 | | .968 | 291.1 | | | | | 159 |
| | 16718 | .984 | 74.4 | 221.9 | +13.8 | 36 | 252 | 199 *c* | C | 16719 | .827 | 257.6 | 288.6 | -14.3 | 2 | 5 | 92 *f* |
| | | .890 | 65.3 | | | | | 156 | | 16718 | .380 | 29.0 | 221.6 | +12.2 | 30 | 158 | |
| Mar.6 | | | (-22.7) | (299.1) | ( - 7.2) | (59) | (376) | (1330) | | 16720 | .536 | 86.8 | 200.1 | - 4.4 | 26 | 121 | |
| | | | | | | | | | Mar.11 | | | (-23.8) | (232.4) | ( - 7.2) | (58) | (284) | (251) |
| 65.377 | | .954 | 251.7 | | | | | 126 | | | | | | | | | |
| G | | .923 | 258.9 | | | | | 279 | 70.369 | | .956 | 285.9 | | | | | 111 |
| | | .868 | 246.3 | | | | | 77 | G | 16719 | .932 | 257.4 | 289.7 | -14.3 | 0 | 5 | 260 *f* |

Group 16715. Mar. 4 - 8. A pair of spots of which only one remains by March 7.
Group 16716. Mar. 5 - 7. A pair of spots on March 5 and 6; a single spot on March 7.
Group 16717. Mar. 6 - 7. A pair of tiny spots on March 6; one spot on March 7.
Group 16718. Mar. 6 - 18. A stable regular spot, with a tiny companion on March 10 and 11.
Group 16719. Mar. 7 - 13. A small spot, with a companion for the first two days.
Group 16720. Mar. 11 - 19. A pair of nearly regular spots, appearing suddenly. After the second day they slowly diminish, the follower alone remaining on March 19.

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 |
| 1951 | | | ° | ° | ° | | | | 1951 | | | ° | ° | ° | | | |
| | 16718 | .336 | 355.7 | 221.6 | +12.3 | 35 | 181 | | 76.412 | | .933 | 276.7 | | | | | 188 |
| | 16720 | .335 | 81.9 | 200.8 | - 4.1 | 50 | 253 | | G | | .918 | 286.2 | | | | | 152 |
| | 16721 | .978 | 92.7 | 142.0 | - 4.2 | 0 | 21 | 151 *f* | | | .897 | 295.5 | | | | | 168 |
| | | .912 | 88.5 | | | | | 138 | | 16718 | .992 | 283.5 | 221.1 | +12.4 | 27 | 160 | 176 *f* |
| | | .941 | 99.0 | | | | | 193 | | 16720 | .893 | 267.3 | 203.8 | - 5.6 | 7 | 28 | 307 *c* |
| Mar.12 | | | (-23.9) | (220.1) | (- 7.2) | (85) | (460) | (853) | | 16722 | .889 | 72.7 | 80.5 | +11.8 | 150 | 793 | 405 *f* |
| | | | | | | | | | | 16723 | .980 | 85.2 | 62.5 | + 3.2 | 32 | 175 | 167 *f* |
| | | | | | | | | | | | .805 | 60.1 | | | | | 195 |
| 71.302 | | .944 | 295.0 | | | | | 122 | | | .841 | 99.3 | | | | | 126 |
| C | | .914 | 252.2 | | | | | 214 | | | .969 | 76.3 | | | | | 537 |
| | 16719 | .986 | 256.1 | 289.5 | -14.8 | 0 | 12 | 230 *f* | Mar.18 | | | (-24.9) | (140.4) | (- 7.1) | (216) | (1156) | (2421) |
| | 16718 | .405 | 325.7 | 221.3 | +12.5 | 30 | 160 | | | | | | | | | | |
| | 16720 | .120 | 67.5 | 201.4 | - 4.5 | 44 | 231 | | | | | | | | | | |
| | 16721 | .901 | 91.4 | 143.4 | - 4.4 | 0 | 10 | 161 *f* | 77.383 | | .967 | 288.1 | | | | | 205 |
| | | .802 | 85.1 | | | | | 85 | G | | .845 | 242.1 | | | | | 165 |
| | | .971 | 66.3 | | | | | 131 | | 16720 | .940 | 265.7 | 198.0 | - 6.5 | 3 | 10 | 243 *n* |
| Mar.13 | | | (-24.1) | (207.8) | (- 7.2) | (74) | (413) | (943) | | 16724 | .556 | 301.3 | 156.4 | +10.5 | 2 | 12 | |
| | | | | | | | | | | 16722 | .777 | 68.1 | 80.3 | +12.1 | 175 | 837 | 209 *f* |
| | | | | | | | | | | 16723 | .915 | 83.1 | 62.3 | + 3.4 | 27 | 173 | 264 *f* |
| 72.406 | | .945 | 249.4 | | | | | 174 | | | .907 | 73.9 | | | | | 560 |
| G | | .906 | 285.9 | | | | | 135 | Mar.19 | | | (-25.1) | (127.6) | (- 7.1) | (207) | (1032) | (1646) |
| | 16718 | .565 | 304.7 | 221.5 | +12.4 | 31 | 145 | | | | | | | | | | |
| | 16720 | .162 | 285.1 | 202.2 | - 4.7 | 43 | 214 | | | | | | | | | | |
| | 16721 | .763 | 90.1 | 143.4 | - 4.7 | 3 | 14 | 141 *f* | | | | | | | | | |
| | | .885 | 64.1 | | | | | 123 | 78.362 | 16724 | .716 | 292.0 | 157.0 | +10.4 | 10 | 39 | 30 *p* |
| | | .948 | 73.2 | | | | | 102 | G | 16725 | .458 | 18.2 | 106.0 | +18.8 | 2 | 11 | |
| Mar.14 | | | (-24.3) | (193.2) | (- 7.2) | (77) | (373) | (675) | | 16722 | .631 | 60.9 | 80.5 | +12.1 | 178 | 868 | |
| | | | | | | | | | | 16723 | .797 | 80.2 | 63.0 | + 3.4 | 43 | 210 | 114 *c* |
| | | | | | | | | | | | .781 | 69.0 | | | | | 274 |
| 73.364 | | .980 | 283.7 | | | | | 162 | | | .870 | 82.5 | | | | | 179 |
| G | | .910 | 288.7 | | | | | 224 | | | .895 | 73.6 | | | | | 176 |
| | 16718 | .712 | 295.3 | 221.7 | +12.3 | 28 | 135 | | | | .906 | 64.0 | | | | | 160 |
| | 16720 | .398 | 274.2 | 204.0 | - 4.9 | 22 | 122 | | | | .983 | 99.6 | | | | | 205 |
| Mar.15 | | | (-24.5) | (180.6) | (- 7.2) | (50) | (257) | (386) | Mar.20 | | | (-25.2) | (114.7) | (- 7.0) | (233) | (1128) | (1138) |
| | | | | | | | | | | | | | | | | | |
| 74.300 | 16718 | .837 | 289.8 | 221.8 | +12.3 | 19 | 198 | 218 *c* | 79.362 | | .969 | 244.1 | | | | | 98 |
| C | 16720 | .565 | 271.3 | 202.7 | - 5.1 | 14 | 73 | | G | 16724 | .857 | 286.4 | 157.9 | +10.2 | 11 | 48 | 126 *c* |
| | | .962 | 67.0 | | | | | 200 | | 16725 | .455 | 349.9 | 106.3 | +19.5 | 1 | 7 | |
| Mar.16 | | | (-24.6) | (168.3) | (- 7.1) | (33) | (271) | (418) | | 16722 | .481 | 47.6 | 80.3 | +12.4 | 192 | 864 | |
| | | | | | | | | | | 16726 | .565 | 63.5 | 70.9 | + 8.5 | 0 | 4 | |
| | | | | | | | | | | 16723 | .637 | 75.6 | 63.5 | + 3.6 | 49 | 196 | |
| 75.308 | | .937 | 279.6 | | | | | 145 | | 16727 | .899 | 72.3 | 40.4 | +12.5 | 5 | 15 | 84 *n* |
| C | 16718 | .936 | 285.9 | 221.8 | +12.1 | 13 | 155 | 243 *f* | | *1304a* | .915 | 96.3 | 34.9 | - 8.6 | 0 | 7 | 126 *c* |
| | 16720 | .750 | 269.0 | 203.7 | - 5.5 | 6 | 31 | 188 *c* | | | .769 | 63.5 | | | | | 129 |
| | 16722 | .975 | 75.9 | 80.0 | +12.0 | 104 | 860 | 395 *c* | | | .950 | 102.0 | | | | | 182 |
| | | .913 | 65.2 | | | | | 284 | | | .975 | 65.2 | | | | | 73 |
| Mar.17 | | | (-24.8) | (155.0) | (- 7.1) | (123) | (1046) | (1255) | Mar.21 | | | (-25.3) | (101.5) | (- 7.0) | (258) | (1141) | (818) |

Group 16721. Mar. 12 - 14. A tiny spot.
Group 16722. Mar. 17 - 29. A large stable regular spot. The umbra is divided by a bright "bridge" on March 25.
Group 16723. Mar. 18 - 30. A stable regular spot.
Group 16724. Mar. 19 - 22. A single small spot on March 19 and 22; a pair on March 20 and 21.
Group 16725. Mar. 20 - 22. A tiny spot on March 20; a pair on the other days.
Group 16726. Mar. 21 - 29. A few small spots with a brief maximum on March 24, appearing between Groups 16722 and 16723.
Group 16727. Mar. 21 - 28. One or two tiny spots, not seen on March 25.

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

| U.T. | Group No. | MEASURES Dist. | MEASURES Pos. Angle | POSITION Long. | POSITION Lat. | AREA Umbræ | AREA Whole Spots | AREA Faculæ |
|---|---|---|---|---|---|---|---|---|
| 1951 | | | ° | ° | ° | | | |
| 80.580 | 16724 | .975 | 282.1 | 160.9 | +10.1 | 4 | 20 | 273 *nf* |
| G | *1304b* | .818 | 294.5 | 135.9 | +15.4 | 0 | 8 | 79 *sp* |
| | 16725 | .551 | 324.5 | 105.3 | +20.0 | 0 | 8 | |
| | 16728 | .086 | 241.7 | 89.9 | - 9.3 | 2 | 10 | |
| | 16722 | .341 | 15.4 | 80.2 | +12.1 | 206 | 815 | |
| | 16726 | .348 | 39.3 | 72.7 | + 8.7 | 4 | 27 | |
| | 16723 | .410 | 65.1 | 63.7 | + 3.4 | 34 | 189 | |
| | 16727 | .741 | 66.7 | 41.6 | +12.0 | 8 | 28 | 117 *c* |
| | 16729 | .990 | 79.4 | 5.2 | + 9.4 | 88 | 703 | 299 *c* |
| | | .787 | 99.2 | | | | | 157 |
| | | .887 | 104.2 | | | | | 147 |
| | | .915 | 60.1 | | | | | 150 |
| | | .986 | 105.3 | | | | | 193 |
| Mar.22 | | | (-25.5) | (85.5) | ( - 7.0) | (346) | (1808) | (1415) |
| 81.310 | | .987 | 281.5 | | | | | 142 |
| C | | .940 | 268.2 | | | | | 171 |
| | | .911 | 288.4 | | | | | 133 |
| | 16728 | .232 | 255.6 | 89.0 | -10.0 | 15 | 66 | |
| | 16722 | .335 | 347.5 | 80.1 | +12.1 | 177 | 871 | |
| | 16726 | .281 | 26.3 | 68.7 | + 7.7 | 7 | 49 | |
| | 16723 | .273 | 48.6 | 64.1 | + 3.6 | 40 | 202 | |
| | 16730 | .380 | 59.4 | 56.8 | + 4.6 | 0 | 2 | |
| | 16727 | .624 | 60.5 | 42.3 | +12.1 | 6 | 17 | |
| | 16729 | .947 | 77.7 | 6.5 | + 9.3 | 87 | 612 | 380 *c* |
| | | .783 | 103.3 | | | | | 146 |
| | | .873 | 56.5 | | | | | 149 |
| | | .948 | 103.5 | | | | | 140 |
| Mar.23 | | | (-25.5) | (75.9) | ( - 6.9) | (332) | (1819) | (1261) |
| 82.305 | | .978 | 285.5 | | | | | 212 |
| C | 16728 | .433 | 260.6 | 88.3 | -10.3 | 42 | 212 | |
| | 16722 | .433 | 318.3 | 79.8 | +12.2 | 235 | 1042 | |
| | 16726 | .277 | 342.3 | 67.6 | + 8.4 | 21 | 156 | |
| | 16723 | .184 | 351.3 | 64.3 | + 3.6 | 44 | 181 | |
| | 16730 | .218 | 28.7 | 56.7 | + 4.1 | 0 | 5 | |
| | 16727 | .434 | 45.7 | 44.3 | +11.1 | 0 | 5 | |
| | 16731 | .602 | 93.9 | 25.5 | - 7.8 | 14 | 54 | |
| | 16729 | .848 | 74.7 | 7.0 | + 9.1 | 76 | 543 | 221 *c* |
| | | .956 | 99.6 | | | | | 223 |
| | | .967 | 75.4 | | | | | 703 |
| Mar.24 | | | (-25.7) | (62.7) | ( - 6.9) | (432) | (2198) | (1359) |

| U.T. | Group No. | MEASURES Dist. | MEASURES Pos. Angle | POSITION Long. | POSITION Lat. | AREA Umbræ | AREA Whole Spots | AREA Faculæ |
|---|---|---|---|---|---|---|---|---|
| 1951 | | | ° | ° | ° | | | |
| 83.370 | | .842 | 298.0 | | | | | 214 |
| G | 16728 | .639 | 262.6 | 88.6 | -10.0 | 85 | 402 | |
| | 16722 | .591 | 301.6 | 79.6 | +12.1 | 246 | 1027 | |
| | 16726 | .414 | 308.3 | 67.8 | + 8.3 | 18 | 122 | |
| | 16723 | .321 | 302.8 | 64.3 | + 3.3 | 48 | 198 | |
| | 16730 | .234 | 326.2 | 56.2 | + 4.3 | 2 | 14 | |
| | 16731 | .358 | 93.4 | 27.7 | - 7.7 | 2 | 17 | |
| | 16729 | .703 | 69.4 | 7.1 | + 9.1 | 80 | 465 | |
| | 16732 | .974 | 72.1 | 334.7 | +15.6 | 4 | 20 | 445 *p* |
| | | .879 | 72.0 | | | | | 508 |
| | | .887 | 100.3 | | | | | 190 |
| | | .964 | 104.3 | | | | | 155 |
| Mar.25 | | | (-25.8) | (48.7) | ( - 6.9) | (485) | (2265) | (1512) |
| 84.323 | | .894 | 291.0 | | | | | 404 |
| C | 16728 | .787 | 262.6 | 88.3 | -10.0 | 65 | 453 | 189 *c* |
| | 16722 | .731 | 293.6 | 79.1 | +12.0 | 228 | 998 | 122 *c* |
| | 16726 | .561 | 296.4 | 66.5 | + 8.6 | 9 | 55 | |
| | 16723 | .502 | 288.8 | 64.4 | + 3.3 | 31 | 145 | |
| | 16727 | .310 | 335.1 | 43.7 | + 9.5 | 1 | 11 | |
| | 16729 | .537 | 61.6 | 7.7 | + 8.8 | 72 | 465 | |
| | 16732 | .886 | 69.5 | 337.3 | +14.6 | 4 | 27 | 348 *n* |
| | 16733 | .851 | 101.2 | 337.3 | -13.1 | 0 | 9 | 261 *f* |
| Mar.26 | | | (-25.8) | (36.1) | ( - 6.8) | (410) | (2163) | (1324) |
| 85.683 | | .821 | 295.8 | | | | | 125 |
| G | 16728 | .936 | 262.2 | 88.2 | - 9.7 | 74 | 349 | 351 *c* |
| | 16722 | .896 | 287.0 | 79.1 | +11.9 | 234 | 1044 | 273 *c* |
| | 16726 | .775 | 287.4 | 66.5 | + 8.9 | 7 | 24 | 156 *c* |
| | 16723 | .738 | 281.2 | 64.5 | + 3.6 | 30 | 148 | 89 *c* |
| | *1304c* | .577 | 287.4 | 51.6 | + 4.2 | 1 | 8 | |
| | 16727 | .513 | 304.8 | 43.5 | +10.8 | 4 | 17 | |
| | 16729 | .320 | 33.0 | 8.1 | + 8.8 | 62 | 347 | |
| | 16733 | .628 | 103.8 | 339.4 | -13.9 | 12 | 71 | |
| | | .917 | 66.4 | | | | | 143 |
| Mar.27 | | | (-26.0) | (18.2) | ( - 6.8) | (424) | (2008) | (1137) |
| 86.362 | | .948 | 274.0 | | | | | 155 |
| G | | .782 | 291.6 | | | | | 258 |
| | 16728 | .970 | 260.8 | 85.8 | -10.5 | 36 | 206 | 414 *c* |
| | 16722 | .954 | 285.0 | 79.4 | +12.1 | 230 | 954 | 650 *c* |

Group 16728. Mar. 22 - 28. A short stream, appearing near the central meridian. The follower is the largest and most stable component.
Group 16729. Mar.22-Apr.3. A stream, led by a regular spot with a double umbra. By March 30 this spot is the sole survivor.
Group 16730. Mar. 23 - 25. A tiny spot.
Group 16731. Mar. 24 - 25. A pair of small spots on March 24; a single spot on March 25.
Group 16732. Mar. 25 - 26. A small spot on March 25; a pair on March 26.
Group 16733. Mar.26-Apr.3. Two or three small spots.

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

| U.T. | Group No. | MEASURES | | POSITION | | AREA | | | U.T. | Group No. | MEASURES | | POSITION | | AREA | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dist. | Pos. Angle | Long. | Lat. | Umbræ | Whole Spots | Faculæ | | | Dist. | Pos. Angle | Long. | Lat. | Umbræ | Whole Spots | Faculæ |
| 1951 | | | ° | ° | ° | | | | 1951 | | | ° | ° | ° | | | |
| | 16726 | .865 | 284.4 | 67.0 | + 8.9 | 4 | 18 | 247 *n* | | 16729 | .834 | 284.0 | 9.1 | + 7.9 | 10 | 44 | 261 *c* |
| | 16723 | .830 | 278.8 | 64.2 | + 3.5 | 28 | 138 | 181 *c* | | 16733 | .435 | 253.2 | 339.7 | -13.1 | 5 | 25 | |
| | 16727 | .625 | 296.2 | 43.8 | +10.5 | 1 | 10 | | | 16735 | .692 | 107.6 | 271.1 | -16.8 | 18 | 64 | 75 *f* |
| | 16729 | .269 | 3.5 | 8.3 | + 8.8 | 35 | 303 | | Apr.1 | | | (-26.2) | (314.5) | ( - 6.5) | (33) | (133) | (718) |
| | 16734 | .472 | 43.4 | 349.8 | +13.7 | 1 | 7 | | | | | | | | | | |
| | 16733 | .497 | 105.8 | 339.8 | -13.6 | 15 | 72 | | | | | | | | | | |
| | | .977 | 101.5 | | | | | 179 | 91.365 | | .941 | 290.2 | | | | | 98 |
| Mar.28 | | | (-26.0) | (9.2) | ( - 6.7) | (350) | (1708) | (2084) | G | | .903 | 256.9 | | | | | 179 |
| | | | | | | | | | | 16729 | .924 | 281.3 | 9.1 | + 7.8 | 12 | 52 | 381 *nf* |
| | | | | | | | | | | *1305a* | .800 | 289.3 | 353.4 | +11.2 | 0 | 3 | 271 *n* |
| 87.302 | | .956 | 287.2 | | | | | 270 | | 16733 | .601 | 256.3 | 339.9 | -13.4 | 1 | 9 | |
| C | | .884 | 292.3 | | | | | 194 | | 16735 | .544 | 111.2 | 271.3 | -16.9 | 10 | 40 | |
| | | .865 | 282.3 | | | | | 224 | | | .906 | 74.1 | | | | | 183 |
| | 16722 | .993 | 282.3 | 78.2 | +11.3 | 106 | 647 | 154 *c* | Apr.2 | | | (-26.3) | (303.2) | ( - 6.5) | (23) | (104) | (1112) |
| | 16726 | .953 | 281.5 | 67.4 | + 8.7 | 3 | 18 | 111 *c* | | | | | | | | | |
| | 16723 | .930 | 276.5 | 64.3 | + 3.5 | 26 | 108 | 122 *c* | | | | | | | | | |
| | 16729 | .326 | 323.7 | 8.0 | + 8.6 | 32 | 214 | | 92.391 | | .963 | 256.1 | | | | | 163 |
| | 16734 | .375 | 18.5 | 349.8 | +14.1 | 1 | 5 | | G | | .913 | 285.9 | | | | | 356 |
| | 16733 | .315 | 114.2 | 339.7 | -13.8 | 9 | 49 | | | | .836 | 294.6 | | | | | 355 |
| | | .879 | 99.4 | | | | | 167 | | 16729 | .987 | 279.7 | 9.1 | + 8.5 | 0 | 27 | 357 *n* |
| | | .966 | 106.9 | | | | | 171 | | 16733 | .766 | 257.9 | 339.8 | -13.4 | 3 | 10 | 155 *p* |
| Mar.29 | | | (-26.1) | (356.8) | ( - 6.7) | (177) | (1041) | (1413) | | 16735 | .337 | 124.3 | 272.8 | -17.0 | 1 | 19 | |
| | | | | | | | | | | 16736 | .939 | 74.2 | 222.2 | +12.4 | 13 | 60 | 191 *c* |
| | | | | | | | | | | | .862 | 76.1 | | | | | 98 |
| 88.478 | | .968 | 280.4 | | | | | 339 | Apr.3 | | | (-26.3) | (289.7) | ( - 6.4) | (17) | (116) | (1675) |
| G | | .955 | 292.5 | | | | | 154 | | | | | | | | | |
| | | .913 | 287.3 | | | | | 183 | | | | | | | | | |
| | 16723 | .995 | 274.5 | 64.9 | + 3.8 | 19 | 129 | 97 *c* | 93.663 | | .984 | 285.1 | | | | | 367 |
| | 16729 | .525 | 297.9 | 9.1 | + 8.3 | 25 | 103 | | G | | .936 | 290.1 | | | | | 328 |
| | 16733 | .124 | 153.7 | 338.7 | -12.9 | 2 | 16 | | | | .910 | 257.2 | | | | | 367 |
| | 16735 | .931 | 105.5 | 272.0 | -16.8 | 25 | 144 | 258 *c* | | | .777 | 247.3 | | | | | 79 |
| | | .838 | 106.7 | | | | | 151 | | 16735 | .204 | 164.1 | 269.6 | -17.5 | 10 | 50 | |
| Mar.30 | | | (-26.1) | (341.3) | ( - 6.6) | (71) | (392) | (1182) | | 16737 | .530 | 49.1 | 248.6 | +14.5 | 2 | 11 | |
| | | | | | | | | | | 16736 | .810 | 69.1 | 222.2 | +12.8 | 15 | 55 | 114 *c* |
| | | | | | | | | | | | .836 | 93.8 | | | | | 147 |
| 89.305 | | .969 | 284.7 | | | | | 179 | | | .954 | 96.0 | | | | | 212 |
| C | | .896 | 257.7 | | | | | 188 | Apr.4 | | | (-26.3) | (272.9) | ( - 6.3) | (27) | (116) | (1614) |
| | | .883 | 300.2 | | | | | 262 | | | | | | | | | |
| | | .873 | 266.0 | | | | | 120 | | | | | | | | | |
| | 16729 | .661 | 290.6 | 9.0 | + 8.3 | 17 | 79 | | 94.617 | | .977 | 286.6 | | | | | 163 |
| | 16733 | .199 | 229.8 | 339.4 | -13.9 | 2 | 7 | | G | | .939 | 254.1 | | | | | 327 |
| | 16735 | .852 | 105.8 | 271.7 | -16.9 | 24 | 110 | 217 *c* | | | .936 | 295.8 | | | | | 213 |
| Mar.31 | | | (-26.2) | (330.4) | ( - 6.6) | (43) | (196) | (966) | | *1305b* | .511 | 262.2 | 291.0 | - 9.4 | 5 | 13 | |
| | | | | | | | | | | 16735 | .266 | 214.0 | 269.3 | -18.9 | 9 | 40 | |
| | | | | | | | | | | 16737 | .382 | 23.4 | 251.3 | +14.2 | 33 | 135 | |
| 90.512 | | .960 | 300.7 | | | | | 137 | | 16736 | .679 | 63.6 | 221.9 | +12.6 | 9 | 39 | |
| G | | .952 | 256.6 | | | | | 245 | | 16738 | .835 | 67.2 | 207.6 | +15.1 | 0 | 5 | 162 *c* |

Group 16734. Mar. 28 - 29. A tiny spot.
Group 16735. Mar.30-Apr.8. Two or three small spots, of which only one remains by April 6.
Group 16736. Apr. 3 - 11. Return of Group 16718. A small, slowly-diminishing spot.
Group 16737. Apr. 4 - 12. A bi-polar group growing from a tiny spot on April 4. The leader, a composite spot, is at first the larger component but begins to die out fairly rapidly after April 9. The follower becomes regular and is the longest-lived.
Group 16738. Apr. 5 - 6. A tiny spot.

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 |
| 1951 | | | ° | ° | ° | | | | 1951 | | | ° | ° | ° | | | |
| | 16739 | .965 | 99.3 | 184.9 | -10.6 | 4 | 17 | 151 *f* | | 16739 | .483 | 99.8 | 181.7 | -10.0 | 10 | 33 | |
| | | .862 | 93.2 | | | | | 142 | | 16741 | .729 | 88.0 | 163.9 | - 2.7 | 12 | 48 | 101 *f* |
| Apr.5 | | | (-26.4) | (260.3) | ( - 6.3) | (60) | (249) | (1158) | | | .892 | 74.6 | | | | | 192 |
| | | | | | | | | | | | .945 | 67.4 | | | | | 186 |
| | | | | | | | | | Apr.9 | | | (-26.4) | (210.5) | ( - 6.0) | (193) | (955) | (939) |
| 95.316 | | .947 | 248.2 | | | | | 249 | | | | | | | | | |
| C | 16735 | .356 | 228.8 | 267.5 | -19.4 | 14 | 39 | | | | | | | | | | |
| | 16737 | .349 | 358.7 | 251.6 | +14.1 | 50 | 248 | | | | | | | | | | |
| | 16736 | .573 | 57.1 | 221.7 | +12.7 | 9 | 38 | | 99.372 | | .932 | 251.3 | | | | | 305 |
| | 16738 | .736 | 61.9 | 208.9 | +15.7 | 1 | 7 | | G | 16737 | .824 | 291.3 | 249.6 | +13.7 | 121 | 682 | 265 *c* |
| | 16740 | .821 | 98.6 | 195.6 | -10.6 | 11 | 36 | 144 *c* | | 16742 | .471 | 262.6 | 225.7 | - 8.7 | 10 | 79 | |
| | 16739 | .909 | 98.2 | 185.4 | -10.0 | 5 | 11 | 253 *f* | | 16736 | .499 | 309.1 | 220.9 | +12.8 | 2 | 6 | |
| Apr.6 | | | (-26.4) | (251.1) | ( - 6.2) | (90) | (379) | (646) | | 16740 | .077 | 164.3 | 196.4 | -10.2 | 6 | 30 | |
| | | | | | | | | | | 16739 | .223 | 105.1 | 185.1 | - 9.2 | 2 | 9 | |
| | | | | | | | | | | 16741 | .533 | 84.7 | 165.7 | - 2.3 | 5 | 40 | |
| 96.362 | | .952 | 299.2 | | | | | 126 | | | .856 | 64.1 | | | | | 182 |
| G | | .849 | 255.2 | | | | | 151 | | | .944 | 93.7 | | | | | 208 |
| | 16735 | .534 | 242.8 | 267.4 | -19.4 | 8 | 19 | | Apr.10 | | | (-26.3) | (197.6) | ( - 6.0) | (146) | (846) | (960) |
| | 16737 | .417 | 324.0 | 251.8 | +13.7 | 73 | 450 | | | | | | | | | | |
| | 16736 | .415 | 39.6 | 221.6 | +12.7 | 7 | 27 | | | | | | | | | | |
| | 16740 | .657 | 99.0 | 196.2 | -10.6 | 28 | 96 | | | | | | | | | | |
| | 16739 | .783 | 97.6 | 185.5 | - 9.8 | 3 | 7 | 182 *f* | 100.616 | 16737 | .941 | 287.3 | 248.7 | +14.1 | 88 | 473 | 511 *c* |
| | 16741 | .974 | 92.8 | 160.3 | - 4.1 | 0 | 9 | 137 *c* | G | 16742 | .710 | 264.1 | 226.5 | - 8.3 | 13 | 70 | |
| | | .948 | 74.5 | | | | | 155 | | 16736 | .690 | 295.9 | 220.5 | +12.9 | 0 | 3 | |
| Apr.7 | | | (-26.4) | (237.3) | ( - 6.2) | (119) | (608) | (751) | | 16740 | .265 | 250.6 | 195.8 | -10.7 | 17 | 118 | |
| | | | | | | | | | | 16739 | .095 | 230.7 | 185.4 | - 9.3 | 1 | 6 | |
| | | | | | | | | | | 16741 | .261 | 77.4 | 166.4 | - 2.5 | 2 | 9 | |
| 97.645 | | .943 | 260.4 | | | | | 198 | | *1305c* | .556 | 60.4 | 151.7 | +10.7 | 2 | 8 | |
| G | | .846 | 253.4 | | | | | 162 | | 16743 | .973 | 94.6 | 104.2 | - 5.9 | 0 | 19 | 303 *c* |
| | 16735 | .731 | 248.6 | 266.5 | -19.7 | 3 | 12 | 65 *sp* | | 16744 | .990 | 97.1 | 98.8 | - 7.9 | 0 | 24 | |
| | 16737 | .596 | 303.0 | 251.2 | +13.7 | 136 | 721 | | | | .845 | 98.3 | | | | | 150 |
| | 16736 | .323 | 357.2 | 221.3 | +12.6 | 5 | 14 | | Apr.11 | | | (-26.3) | (181.1) | ( - 5.9) | (123) | (730) | (964) |
| | 16740 | .410 | 101.8 | 196.4 | -10.4 | 22 | 111 | | | | | | | | | | |
| | 16739 | .627 | 98.4 | 181.5 | -10.0 | 9 | 45 | | | | | | | | | | |
| | 16741 | .837 | 86.9 | 163.7 | - 3.0 | 12 | 41 | 125 *c* | 101.446 | | .785 | 291.3 | | | | | 165 |
| | | .952 | 76.2 | | | | | 143 | C | 16737 | .978 | 286.1 | 245.9 | +14.4 | 47 | 254 | 338 *c* |
| Apr.8 | | | (-26.4) | (220.4) | ( - 6.1) | (187) | (944) | (693) | | 16742 | .849 | 263.9 | 228.5 | - 8.3 | 4 | 21 | 191 *c* |
| | | | | | | | | | | 16740 | .428 | 258.7 | 195.3 | -10.0 | 31 | 225 | |
| | | | | | | | | | | 16739 | .279 | 251.1 | 185.7 | -10.8 | 4 | 11 | |
| 98.391 | | .977 | 259.8 | | | | | 113 | | 16743 | .903 | 93.0 | 105.6 | - 5.2 | 5 | 43 | 158 *c* |
| G | | .867 | 253.2 | | | | | 347 | | 16744 | .948 | 96.3 | 98.4 | - 7.8 | 29 | 184 | 338 *c* |
| | 16737 | .699 | 297.0 | 250.2 | +13.8 | 149 | 804 | | | 16745 | .984 | 76.0 | 92.3 | +12.7 | 60 | 534 | 468 *c* |
| | 16736 | .367 | 330.7 | 221.1 | +12.7 | 7 | 15 | | | | .948 | 65.9 | | | | | 141 |
| | 16740 | .258 | 107.2 | 196.1 | -10.2 | 15 | 55 | | Apr.12 | | | (-26.3) | (170.2) | ( - 5.8) | (180) | (1272) | (1799) |

Group 16739. Apr. 5 - 12. A single small spot, except on April 8 and 9, when there is a pair.
Group 16740. Apr. 6 - 15. A variable group with a brief maximum on April 12.
Group 16741. Apr. 7 - 11. A small spot, with a tiny companion on April 8 and 9.
Group 16742. Apr. 10 - 13. A spot, suddenly appearing in the western hemisphere and then dying out again.
Group 16743. Apr. 11 - 22. A stream of changing spots, of which the leading component slowly assumes a regular outline and alone remains by April 20.
Group 16744. Apr. 11 - 23. A small variable stream, slowly dying out.
Group 16745. Apr. 12 - 25. Return of Group 16722. A great complex group. Between April 16 and 20 it consists of an elongated mass with numerous nuclei and undergoes very little change. By April 21 the rear part begins to disintegrate and decrease in area. During this period the leader becomes more regular in outline.

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 |
| 1951 | | | ° | ° | ° | | | | 1951 | | | ° | ° | ° | | | |
| 102.625 | | .937 | 287.9 | | | | | 164 | 106.324 | | .954 | 259.6 | | | | | 197 |
| G | | .870 | 267.2 | | | | | 131 | C | | .855 | 268.2 | | | | | 130 |
| | 16742 | .973 | 262.2 | 231.7 | - 8.9 | 4 | 19 | 281 *nf* | | 16743 | .053 | 273.5 | 108.8 | - 5.2 | 46 | 246 | |
| | 16740 | .669 | 261.8 | 196.6 | - 9.7 | 27 | 156 | | | 16744 | .167 | 111.2 | 96.8 | - 8.8 | 2 | 11 | |
| | 16743 | .743 | 92.0 | 106.6 | - 5.3 | 23 | 106 | 85 *c* | | 16745 | .424 | 46.6 | 87.5 | +11.8 | 416 | 2303 | |
| | 16744 | .847 | 96.2 | 96.5 | - 8.3 | 37 | 209 | 388 *c* | | | .808 | 80.3 | | | | | 155 |
| | 16745 | .938 | 74.0 | 87.2 | +12.8 | 288 | 1859 | 1072 *c* | | | .838 | 62.8 | | | | | 218 |
| | | .936 | 87.3 | | | | | 119 | Apr.17 | | | (-26.0) | (105.8) | (- 5.4) | (464) | (2560) | (700) |
| Apr.13 | | | (-26.2) | (154.6) | (- 5.7) | (379) | (2349) | (2240) | | | | | | | | | |
| | | | | | | | | | 107.397 | | .916 | 270.1 | | | | | 199 |
| 103.365 | | .985 | 262.5 | | | | | 203 | G | | .873 | 285.1 | | | | | 133 |
| G | | .965 | 285.6 | | | | | 190 | | | .825 | 295.9 | | | | | 188 |
| | | .942 | 267.4 | | | | | 159 | | 16743 | .312 | 270.4 | 109.8 | - 4.9 | 31 | 248 | |
| | 16740 | .785 | 262.6 | 196.8 | - 9.3 | 22 | 113 | 257 *c* | | 16748 | .407 | 357.5 | 92.7 | +18.6 | 15 | 62 | |
| | 16746 | .526 | 264.8 | 176.7 | - 7.6 | 4 | 32 | | | 16744 | .079 | 166.6 | 90.5 | - 9.7 | 8 | 68 | |
| | 16743 | .609 | 91.1 | 107.4 | - 5.2 | 23 | 178 | | | 16745 | .296 | 12.0 | 88.0 | +11.5 | 372 | 2485 | |
| | 16744 | .743 | 96.1 | 96.8 | - 8.3 | 30 | 175 | 248 *c* | | 16747 | .383 | 50.1 | 74.4 | + 9.1 | 1 | 5 | |
| | 16745 | .872 | 71.8 | 87.0 | +12.8 | 297 | 1911 | 1375 *c* | | | .960 | 79.3 | | | | | 151 |
| Apr.14 | | | (-26.2) | (144.9) | (- 5.7) | (376) | (2409) | (2432) | Apr.18 | | | (-25.9) | (91.6) | (- 5.3) | (427) | (2868) | (671) |
| 104.391 | 16740 | .919 | 262.5 | 198.4 | - 9.1 | 12 | 46 | 314 *c* | | | | | | | | | |
| G | 16746 | .753 | 263.9 | 180.3 | - 8.2 | 2 | 14 | 186 *c* | 108.088 | | .931 | 287.9 | | | | | 193 |
| | 16743 | .401 | 89.8 | 107.7 | - 5.0 | 38 | 305 | | K | 16743 | .469 | 269.9 | 110.5 | - 4.8 | 47 | 229 | |
| | 16744 | .587 | 97.5 | 95.4 | - 8.9 | 8 | 59 | | | 16748 | .441 | 338.0 | 92.5 | +18.8 | 8 | 30 | |
| | 16745 | .735 | 67.4 | 87.5 | +12.4 | 315 | 2205 | 604 *c* | | 16744 | .169 | 244.3 | 91.3 | - 9.4 | 9 | 45 | |
| | | .928 | 77.6 | | | | | 274 | | 16745 | .301 | 343.9 | 87.4 | +11.5 | 473 | 2553 | |
| | | .938 | 84.8 | | | | | 199 | | 16747 | .273 | 26.7 | 75.4 | + 8.8 | 0 | 7 | |
| | | .939 | 69.7 | | | | | 252 | | | .936 | 78.2 | | | | | 171 |
| Apr.15 | | | (-26.1) | (131.3) | (- 5.6) | (375) | (2629) | (1829) | | | .965 | 103.7 | | | | | 269 |
| | | | | | | | | | Apr.19 | | | (-25.9) | (82.5) | (- 5.3) | (537) | (2864) | (633) |
| 105.329 | | .971 | 259.2 | | | | | 439 | | | | | | | | | |
| G | | .891 | 263.7 | | | | | 251 | 109.333 | 16743 | .719 | 268.9 | 111.9 | - 4.4 | 42 | 201 | |
| | 16743 | .184 | 89.5 | 108.3 | - 4.5 | 67 | 295 | | G | 16744 | .424 | 258.6 | 90.8 | - 9.5 | 2 | 25 | |
| | 16744 | .430 | 101.1 | 93.7 | - 9.7 | 10 | 34 | | | 16748 | .564 | 316.5 | 90.3 | +19.9 | 1 | 5 | |
| | 16745 | .587 | 60.4 | 87.6 | +12.1 | 383 | 2343 | | | 16745 | .463 | 307.0 | 88.1 | +11.3 | 314 | 2378 | |
| | 16747 | .760 | 74.1 | 71.5 | + 8.3 | 2 | 7 | 85 *f* | | 16749 | .840 | 100.4 | 8.7 | -11.5 | 4 | 17 | 141 *c* |
| | | .792 | 64.1 | | | | | 111 | | 16750 | .860 | 105.2 | 6.7 | -15.7 | 14 | 61 | 111 *c* |
| | | .889 | 74.9 | | | | | 224 | | | .844 | 55.7 | | | | | 167 |
| | | .891 | 82.9 | | | | | 184 | | | .926 | 73.6 | | | | | 339 |
| | | .911 | 66.0 | | | | | 216 | | | .963 | 101.2 | | | | | 214 |
| Apr.16 | | | (-26.1) | (118.9) | (- 5.5) | (462) | (2679) | (1510) | Apr.20 | | | (-25.8) | (66.0) | (- 5.2) | (377) | (2687) | (972) |

Group 16746. Apr. 14 - 15. A few faint spots.
Group 16747. Apr. 16 - 19. A tiny spot, not seen on April 17.
Group 16748. Apr. 18 - 21. A pair of small spots on April 18 and 19, of which only the rear one remains on April 20 and 21.
Group 16749. Apr. 20 - 26. A few small variable spots, immediately *n* Group 16750.
Group 16750. Apr. 20–May 1. A stream in which the leader is the largest and most stable component. The following part, a collection of small spots, condenses into a regular spot by April 28.

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 |
| 1951 | | | ° | ° | ° | | | | 1951 | | | ° | ° | ° | | | |
| 110.327 | | .961 | 261.5 | | | | | 230 | | 16753 | .351 | 71.6 | 353.3 | + 1.8 | 18 | 60 | |
| G | 16743 | .861 | 268.1 | 112.3 | - 4.2 | 31 | 166 | 277 *f* | | 16752 | .556 | 48.7 | 346.9 | +17.1 | 89 | 470 | |
| | 16744 | .628 | 260.9 | 91.7 | - 9.7 | 6 | 23 | | | 16754 | .922 | 95.1 | 305.4 | - 6.6 | 19 | 79 | 226 *c* |
| | 16748 | .704 | 306.1 | 90.1 | +20.4 | 0 | 3 | | | | .799 | 92.9 | | | | | 103 |
| | 16745 | .630 | 295.1 | 88.3 | +11.3 | 236 | 1885 | | Apr.24 | | | (-25.3) | (12.7) | ( - 4.8) | (439) | (2536) | (2991) |
| | 16751 | .370 | 41.3 | 38.6 | +11.1 | 7 | 38 | | | | | | | | | | |
| | 16749 | .691 | 100.7 | 9.3 | -11.0 | 11 | 82 | | | | | | | | | | |
| | 16750 | .727 | 106.5 | 6.8 | -15.4 | 12 | 79 | 79 *f* | 114.327 | | .915 | 280.6 | | | | | 389 |
| | 16752 | .929 | 69.7 | 347.6 | +16.7 | 15 | 48 | 391 *c* | G | | .868 | 289.3 | | | | | 185 |
| | | .868 | 73.1 | | | | | 248 | | | .848 | 297.2 | | | | | 191 |
| | | .871 | 99.7 | | | | | 193 | | 16745 | .994 | 287.2 | 82.0 | +16.5 | 31 | 167 | 335 *c* |
| | | .959 | 103.5 | | | | | 188 | | 16750 | .244 | 219.2 | 9.3 | -15.5 | 83 | 522 | |
| Apr.21 | | | (-25.7) | (52.9) | ( - 5.1) | (318) | (2324) | (1606) | | 16749 | .195 | 227.2 | 8.5 | -12.2 | 9 | 46 | |
| | | | | | | | | | | 16755 | .323 | 14.4 | 355.4 | +13.4 | 1 | 6 | |
| | | | | | | | | | | 16753 | .148 | 43.3 | 354.3 | + 1.5 | 15 | 47 | |
| 111.390 | 16743 | .963 | 267.0 | 113.3 | - 4.2 | 20 | 143 | 194 *f* | | 16752 | .439 | 33.2 | 345.6 | +16.9 | 96 | 482 | |
| C | 16744 | .790 | 261.2 | 91.1 | -10.0 | 3 | 14 | 220 *c* | | 16754 | .798 | 95.0 | 307.1 | - 6.8 | 46 | 211 | 250 *c* |
| | 16745 | .786 | 289.2 | 88.0 | +11.7 | 203 | 1770 | 573 *c* | | | .928 | 106.2 | | | | | 165 |
| | 16751 | .275 | 357.2 | 39.7 | +10.8 | 12 | 40 | | Apr.25 | | | (-25.2) | (0.1) | ( - 4.7) | (281) | (1481) | (1515) |
| | 16749 | .500 | 102.5 | 9.3 | -10.5 | 13 | 72 | | | | | | | | | | |
| | 16750 | .547 | 110.6 | 7.0 | -15.3 | 25 | 130 | | | | | | | | | | |
| | 16752 | .826 | 65.0 | 347.4 | +17.3 | 61 | 350 | 352 *c* | 115.344 | | .952 | 278.0 | | | | | 211 |
| | | .858 | 102.8 | | | | | 165 | G | | .932 | 289.5 | | | | | 271 |
| Apr.22 | | | (-25.6) | (38.9) | ( - 5.0) | (337) | (2519) | (1504) | | | .896 | 298.0 | | | | | 165 |
| | | | | | | | | | | | .819 | 287.4 | | | | | 173 |
| | | | | | | | | | | 16750 | .413 | 241.9 | 8.7 | -15.4 | 117 | 712 | |
| 112.327 | 16744 | .901 | 261.2 | 90.9 | -10.0 | 6 | 16 | 379 *c* | | 16749 | .377 | 246.3 | 7.3 | -12.9 | 9 | 46 | |
| G | 16745 | .894 | 286.9 | 87.5 | +12.7 | 217 | 1641 | 870 *c* | | 16753 | .210 | 296.5 | 357.4 | + 0.9 | 4 | 9 | |
| | 16751 | .349 | 325.7 | 38.0 | +11.9 | 5 | 26 | | | 16752 | .384 | 4.0 | 345.0 | +17.8 | 73 | 458 | |
| | 16749 | .306 | 110.5 | 9.6 | -10.8 | 13 | 52 | | | 16754 | .633 | 94.3 | 307.4 | - 6.3 | 42 | 234 | |
| | 16750 | .345 | 123.3 | 9.2 | -15.5 | 61 | 357 | | | 16756 | .947 | 101.0 | 275.1 | -11.9 | 11 | 35 | 296 *f* |
| | 16753 | .588 | 80.3 | 351.2 | + 1.7 | 11 | 49 | | | | .938 | 107.9 | | | | | 136 |
| | 16752 | .708 | 59.3 | 347.0 | +17.3 | 74 | 418 | 166 *f* | | | .993 | 75.2 | | | | | 138 |
| | 16754 | .986 | 95.9 | 305.9 | - 6.7 | 0 | 20 | 110 *c* | Apr.26 | | | (-25.1) | (346.6) | ( - 4.6) | (256) | (1494) | (1390) |
| | | .906 | 92.8 | | | | | 80 | | | | | | | | | |
| Apr.23 | | | (-25.5) | (26.5) | ( - 4.9) | (387) | (2579) | (1605) | | | | | | | | | |
| | | | | | | | | | 116.438 | | .943 | 283.6 | | | | | 151 |
| | | | | | | | | | G | 16750 | .618 | 251.1 | 9.3 | -15.1 | 179 | 1054 | |
| 113.371 | | .953 | 260.4 | | | | | 339 | | 16753 | .450 | 282.1 | 358.2 | + 1.4 | 3 | 16 | |
| G | | .922 | 271.7 | | | | | 131 | | 16752 | .430 | 331.1 | 344.7 | +17.6 | 78 | 430 | |
| | | .832 | 295.1 | | | | | 147 | | 16757 | .171 | 90.7 | 322.4 | - 4.5 | 5 | 28 | |
| | | .815 | 281.5 | | | | | 262 | | 16754 | .408 | 95.0 | 308.2 | - 6.1 | 37 | 224 | |
| | 16745 | .966 | 285.0 | 85.8 | +13.1 | 237 | 1437 | 1783 *c* | | 16756 | .837 | 101.1 | 275.4 | -11.7 | 8 | 37 | 176 *f* |
| | 16750 | .192 | 162.5 | 9.3 | -15.3 | 69 | 461 | | | | .871 | 110.1 | | | | | 160 |
| | 16749 | .134 | 147.3 | 8.5 | -11.2 | 4 | 14 | | | | .946 | 72.2 | | | | | 240 |
| | 16755 | .389 | 48.1 | 355.7 | +10.4 | 3 | 15 | | Apr.27 | | | (-24.9) | (332.2) | ( - 4.5) | (310) | (1789) | (727) |

Group 16751. Apr. 21 - 23. A pair of spots on April 21 and 22; a single spot on April 23.
Group 16752. Apr.21-May 2. A stream of normal type, in which only the leader and follower, both regular spots, remain after April 28.
Group 16753. Apr. 23 - 28. A pair of spots, of which only one remains by April 26.
Group 16754. Apr.23-May 5. A regular spot, followed by a distant companion until May 2.
Group 16755. Apr. 24 - 25. A tiny spot.
Group 16756. Apr.26-May 2. A small spot.
Group 16757. Apr.27-May 3. A bi-polar group, appearing near the central meridian. The leader, a regular spot, is the more stable component.

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

| U.T. | Group No. | MEASURES Dist. | MEASURES Pos. Angle | POSITION Long. | POSITION Lat. | AREA Umbræ | AREA Whole Spots | AREA Faculæ |
|---|---|---|---|---|---|---|---|---|
| 1951 | | | ° | ° | ° | | | |
| 117.371 | | .967 | 282.8 | | | | | 183 |
| G | | .851 | 281.9 | | | | | 225 |
| | 16750 | .768 | 254.0 | 9.4 | -15.0 | 333 | 1538 | 158 c |
| | 16753 | .636 | 278.2 | 358.7 | + 1.8 | 1 | 6 | |
| | 16752 | .545 | 312.1 | 344.8 | +17.4 | 69 | 417 | |
| | 16757 | .070 | 272.8 | 323.8 | - 4.2 | 46 | 188 | |
| | 16754 | .185 | 103.0 | 309.4 | - 6.7 | 34 | 199 | |
| | 16756 | .706 | 102.4 | 275.2 | -11.9 | 6 | 29 | |
| | | .813 | 112.6 | | | | | 125 |
| | | .850 | 69.7 | | | | | 276 |
| | | .956 | 74.2 | | | | | 334 |
| | | .962 | 100.1 | | | | | 171 |
| Apr.28 | | | (-24.8) | (319.8) | (- 4.4) | (489) | (2377) | (1472) |
| 118.443 | | .948 | 282.1 | | | | | 186 |
| C | | .814 | 289.2 | | | | | 109 |
| | 16750 | .895 | 255.1 | 9.1 | -15.2 | 105 | 707 | 575 c |
| | 16752 | .694 | 301.4 | 344.0 | +17.8 | 50 | 358 | |
| | 16757 | .327 | 267.8 | 324.8 | - 4.8 | 81 | 426 | |
| | 16754 | .083 | 238.4 | 309.8 | - 6.8 | 32 | 185 | |
| | 16756 | .519 | 105.8 | 275.2 | -11.8 | 6 | 27 | |
| | | .853 | 70.8 | | | | | 329 |
| | | .933 | 97.4 | | | | | 156 |
| Apr.29 | | | (-24.6) | (305.7) | (- 4.3) | (274) | (1703) | (1355) |
| 119.364 | | .902 | 285.6 | | | | | 177 |
| G | | .882 | 275.4 | | | | | 162 |
| | | .825 | 257.1 | | | | | 130 |
| | 16750 | .967 | 255.6 | 9.1 | -15.0 | 130 | 741 | 895 c |
| | 16752 | .803 | 296.4 | 342.5 | +18.1 | 74 | 380 | 613 c |
| | 16757 | .521 | 268.2 | 324.9 | - 4.5 | 71 | 368 | |
| | 16754 | .292 | 260.3 | 310.3 | - 6.8 | 32 | 160 | |
| | 16756 | .337 | 114.6 | 275.3 | -12.0 | 8 | 21 | |
| | | .778 | 69.0 | | | | | 152 |
| | | .844 | 98.3 | | | | | 110 |
| Apr.30 | | | (-24.5) | (293.5) | (- 4.2) | (315) | (1670) | (2239) |
| 120.335 | | .961 | 273.7 | | | | | 234 |
| G | | .958 | 258.5 | | | | | 175 |
| | | .947 | 282.5 | | | | | 228 |
| | | .870 | 254.1 | | | | | 149 |
| | 16750 | .990 | 251.9 | 3.2 | -18.5 | 24 | 134 | 321 c |
| | 16752 | .907 | 292.1 | 342.6 | +18.1 | 76 | 368 | 562 c |
| | 16757 | .718 | 267.8 | 326.5 | - 4.4 | 58 | 326 | |
| | 16754 | .500 | 263.3 | 310.6 | - 6.9 | 30 | 140 | |
| | 16758 | .235 | 175.7 | 279.6 | -17.6 | 5 | 21 | |
| | 16756 | .165 | 147.3 | 275.5 | -12.1 | 5 | 18 | |
| May 1 | | | (-24.3) | (280.7) | (- 4.1) | (198) | (1007) | (1669) |

| U.T. | Group No. | MEASURES Dist. | MEASURES Pos. Angle | POSITION Long. | POSITION Lat. | AREA Umbræ | AREA Whole Spots | AREA Faculæ |
|---|---|---|---|---|---|---|---|---|
| 1951 | | | ° | ° | ° | | | |
| 121.322 | | .942 | 254.2 | | | | | 200 |
| G | 16752 | .971 | 290.5 | 341.2 | +18.8 | 74 | 502 | 602 c |
| | 16757 | .859 | 267.3 | 326.8 | - 4.4 | 43 | 254 | 173 c |
| | 16754 | .679 | 264.2 | 310.3 | - 6.8 | 28 | 134 | |
| | 16758 | .331 | 224.3 | 281.6 | -17.5 | 8 | 30 | |
| | 16756 | .192 | 223.1 | 275.3 | -11.9 | 3 | 7 | |
| | | .928 | 99.9 | | | | | 217 |
| May 2 | | | (-24.1) | (267.6) | (- 4.0) | (156) | (927) | (1192) |
| 122.327 | 16757 | .960 | 266.6 | 328.0 | - 4.4 | 37 | 184 | 199 c |
| C | 16754 | .835 | 263.9 | 310.9 | - 7.2 | 20 | 139 | 117 c |
| | 16758 | .515 | 240.7 | 282.3 | -17.9 | 12 | 72 | |
| | *1306a* | .272 | 19.1 | 249.1 | +11.0 | 0 | 5 | |
| | 16759 | .908 | 101.9 | 189.1 | -12.4 | 0 | 5 | 179 c |
| | | .808 | 97.9 | | | | | 133 |
| May 3 | | | (-23.9) | (254.3) | (- 3.9) | (69) | (405) | (628) |
| 123.633 | | .962 | 249.9 | | | | | 184 |
| G | | .864 | 255.3 | | | | | 101 |
| | 16754 | .955 | 263.6 | 309.9 | - 7.2 | 30 | 143 | 309 c |
| | 16758 | .712 | 248.3 | 281.0 | -18.0 | 36 | 168 | 60 *p* |
| | 16760 | .606 | 75.4 | 201.1 | + 5.7 | 3 | 13 | |
| | 16759 | .759 | 100.9 | 188.0 | -10.7 | 0 | 6 | 80 c |
| May 4 | | | (-23.7) | (237.1) | (- 3.8) | (69) | (330) | (734) |
| 124.359 | | .946 | 254.7 | | | | | 120 |
| G | 16754 | .992 | 263.1 | 310.3 | - 7.3 | 38 | 191 | 256 *f* |
| | 16758 | .816 | 250.3 | 281.3 | -18.2 | 45 | 245 | 204 c |
| | 16760 | .461 | 71.1 | 201.6 | + 5.2 | 0 | 3 | |
| May 5 | | | (-23.5) | (227.5) | (- 3.7) | (83) | (439) | (580) |
| 125.338 | | .835 | 288.5 | | | | | 115 |
| C | | .764 | 298.3 | | | | | 102 |
| | 16758 | .913 | 251.1 | 280.0 | -18.7 | 40 | 250 | 253 c |
| May 6 | | | (-23.3) | (214.5) | (- 3.6) | (40) | (250) | (470) |
| 126.498 | | .902 | 291.3 | | | | | 278 |
| C | | .775 | 289.0 | | | | | 191 |
| | 16758 | .979 | 251.2 | 277.8 | -19.1 | 31 | 238 | 170 c |
| | *1306b* | .561 | 303.7 | 228.0 | +15.0 | 2 | 13 | |
| | 16761 | .870 | 98.9 | 138.8 | - 9.4 | 4 | 13 | 223 c |
| | 16762 | .986 | 81.7 | 119.7 | + 7.6 | 38 | 251 | 161 c |
| May 7 | | | (-23.1) | (199.2) | (- 3.5) | (75) | (515) | (1023) |

Group 16758. May 1 - 7. At first a pair of small spots. On May 4 a short stream appears.
Group 16759. May 3 - 4. A tiny spot on May 3; a pair on May 4.
Group 16760. May 4 - 5. A tiny spot.
Group 16761. May 7 - 13. A few small spots, not seen on May 9 and 10.
Group 16762. May 7 - 19. A stable regular spot, with a few tiny companions on May 14.

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 |
| 1951. | | | ° | ° | ° | | | | 1951 | | | ° | ° | ° | | | |
| 127.650 | | .963 | 290.2 | | | | | 187 | | | .821 | 100.2 | | | | | 149 |
| G | | .919 | 283.8 | | | | | 343 | | | .902 | 94.8 | | | | | 110 |
| | | .891 | 294.0 | | | | | 80 | May 11 | | | (-22.2) | (148.7) | ( - 3.1) | (587) | (3660) | (2089) |
| | 16761 | .702 | 100.4 | 139.7 | - 9.7 | 1 | 8 | | | | | | | | | | |
| | 16762 | .904 | 80.4 | 120.3 | + 7.1 | 29 | 216 | 253 *f* | | | | | | | | | |
| | | .922 | 94.8 | | | | | 197 | 131.304 | | .912 | 259.2 | | | | | 151 |
| | | .970 | 88.0 | | | | | 115 | G | 16764 | .496 | 246.0 | 163.5 | -14.3 | 5 | 30 | |
| May 8 | | | (-22.8) | (184.0) | ( - 3.4) | (30) | (224) | (1175) | | 16761 | .145 | 203.8 | 139.1 | -10.6 | 9 | 39 | |
| | | | | | | | | | | 16762 | .318 | 57.2 | 120.1 | + 6.9 | 30 | 145 | |
| | | | | | | | | | | 16763 | .772 | 70.3 | 87.6 | +13.1 | 444 | 2922 | 554 *c* |
| 128.322 | | .958 | 285.0 | | | | | 416 | | 16766 | .827 | 81.2 | 80.7 | + 5.5 | 38 | 208 | 221 *c* |
| C | | .843 | 293.7 | | | | | 101 | | 16765 | .842 | 87.3 | 78.7 | + 0.7 | 30 | 182 | 178 *c* |
| | 16762 | .829 | 78.9 | 120.2 | + 7.3 | 33 | 207 | 129 *c* | | 16767 | .888 | 76.8 | 74.5 | +10.3 | 31 | 197 | 284 *c* |
| | 16763 | .991 | 75.5 | 94.1 | +13.9 | 65 | 412 | 121 *c* | May 12 | | | (-22.0) | (135.7) | ( - 3.0) | (587) | (3723) | (1388) |
| | | .836 | 92.7 | | | | | 130 | | | | | | | | | |
| | | .939 | 80.1 | | | | | 269 | | | | | | | | | |
| | | .945 | 97.9 | | | | | 205 | | | | | | | | | |
| | | .950 | 88.6 | | | | | 139 | 132.390 | | .941 | 261.7 | | | | | 266 |
| May 9 | | | (-22.7) | (175.1) | ( - 3.3) | (98) | (619) | (1510) | G | 16761 | .341 | 248.1 | 140.0 | -10.0 | 6 | 21 | |
| | | | | | | | | | | 16762 | .173 | 6.1 | 120.2 | + 6.9 | 37 | 161 | |
| | | | | | | | | | | 16768 | .259 | 29.2 | 114.0 | +10.1 | 5 | 34 | |
| 129.371 | | .941 | 287.8 | | | | | 150 | | 16763 | .621 | 64.1 | 86.4 | +13.3 | 557 | 3571 | |
| G | 16764 | .201 | 194.1 | 164.1 | -14.4 | 10 | 37 | | | 16766 | .661 | 77.9 | 81.0 | + 5.7 | 42 | 190 | |
| | 16762 | .674 | 75.6 | 120.2 | + 7.2 | 24 | 177 | | | 16765 | .696 | 86.1 | 77.5 | + 0.6 | 29 | 133 | |
| | 16763 | .959 | 74.1 | 89.3 | +14.2 | 463 | 2250 | 482 *c* | | 16767 | .745 | 73.5 | 75.0 | +10.2 | 27 | 188 | 246 *f* |
| | 16765 | .983 | 88.4 | 82.1 | + 1.0 | 5 | 24 | 139 *c* | | 16769 | .948 | 76.9 | 51.1 | +11.4 | 11 | 78 | 328 *f* |
| | 16766 | .988 | 83.9 | 80.8 | + 5.5 | 44 | 274 | 163 *c* | | | .802 | 80.8 | | | | | 136 |
| | | .833 | 98.2 | | | | | 107 | | | .916 | 105.9 | | | | | 127 |
| | | .877 | 79.2 | | | | | 446 | | | .940 | 65.6 | | | | | 258 |
| | | .883 | 60.8 | | | | | 92 | May 13 | | | (-21.7) | (121.3) | ( - 2.9) | (714) | (4376) | (1361) |
| | | .934 | 100.1 | | | | | 182 | | | | | | | | | |
| | | .959 | 108.0 | | | | | 71 | | | | | | | | | |
| May 10 | | | (-22.4) | (161.2) | ( - 3.2) | (546) | (2762) | (1832) | 133.440 | | .970 | 278.7 | | | | | 115 |
| | | | | | | | | | G | | .857 | 253.3 | | | | | 149 |
| | | | | | | | | | | 16762 | .278 | 306.8 | 120.3 | + 6.9 | 38 | 166 | |
| 130.319 | | .810 | 259.6 | | | | | 93 | | 16768 | .256 | 331.4 | 114.5 | +10.3 | 3 | 9 | |
| G | 16764 | .328 | 234.5 | 164.6 | -13.9 | 7 | 39 | | | 16770 | .186 | 17.0 | 104.3 | + 7.5 | 6 | 24 | |
| | 16761 | .198 | 127.7 | 139.6 | -10.0 | 11 | 47 | | | 16763 | .440 | 52.4 | 86.5 | +13.0 | 696 | 3812 | |
| | 16762 | .505 | 70.1 | 120.2 | + 7.1 | 28 | 188 | | | 16766 | .472 | 72.9 | 80.6 | + 5.5 | 27 | 144 | |
| | 16763 | .881 | 72.8 | 89.0 | +13.5 | 404 | 2552 | 795 *c* | | 16765 | .514 | 84.9 | 76.7 | + 0.3 | 17 | 77 | |
| | 16766 | .937 | 83.0 | 79.8 | + 5.5 | 55 | 300 | 322 *c* | | 16767 | .576 | 67.2 | 74.8 | +10.5 | 22 | 136 | |
| | 16765 | .936 | 88.1 | 79.6 | + 0.7 | 34 | 158 | 207 *c* | | 16769 | .850 | 74.6 | 50.8 | +11.5 | 8 | 67 | 364 *f* |
| | 16767 | .971 | 78.5 | 73.6 | +10.4 | 48 | 376 | 224 *c* | | | .879 | 60.1 | | | | | 226 |
| | | .791 | 80.3 | | | | | 189 | May 14 | | | (-21.4) | (107.4) | ( - 2.7) | (817) | (4435) | (854) |

Group 16763. May 9 - 22. Return of Group 16745; third appearance. A complex and unusually large group, led by a stable regular spot. The main component, a large spot with numerous nuclei, undergoes only slight change throughout its transit. This giant group is the fourth largest in the Greenwich records.

Group 16764. May 10 - 12. A few small spots.

Group 16765. May 10 - 19. A string of small variable spots.

Group 16766. May 10 - 21. A regular spot with occasional companions. By May 19 it begins to break up and die out.

Group 16767. May 11 - 22. A slowly-diminishing regular spot with a few companions.

Group 16768. May 13 - 15. A small spot.

Group 16769. May 13 - 22. A small composite spot which begins to diminish slowly after May 16.

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

| U.T. | Group No. | MEASURES | | POSITION | | AREA | | | U.T. | Group No. | MEASURES | | POSITION | | AREA | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dist. | Pos. Angle | Long. | Lat. | Umbræ | Whole Spots | Faculæ | | | Dist. | Pos. Angle | Long. | Lat. | Umbræ | Whole Spots | Faculæ |
| 1951 | | | ° | ° | ° | | | | 1951 | | | ° | ° | ° | | | |
| 134.470 | | .943 | 254.3 | | | | | 176 | | 16762 | .831 | 279.5 | 121.1 | + 6.5 | 32 | 146 | 97 *c* |
| G | 16762 | .480 | 289.7 | 120.8 | + 6.9 | 23 | 143 | | | 16770 | .678 | 283.4 | 107.2 | + 7.2 | 3 | 7 | |
| | 16768 | .406 | 304.0 | 113.7 | +10.6 | 1 | 8 | | | 16772 | .563 | 317.9 | 89.7 | +22.4 | 1 | 5 | |
| | *1306c* | .451 | 326.1 | 109.2 | +19.3 | 3 | 10 | | | 16763 | .417 | 308.7 | 85.1 | +12.8 | 658 | 4207 | |
| | 16771 | .182 | 276.9 | 104.2 | - 1.3 | 2 | 12 | | | 16766 | .286 | 299.0 | 80.2 | + 5.6 | 24 | 108 | |
| | 16770 | .251 | 315.3 | 104.0 | + 7.7 | 10 | 30 | | | 16765 | .202 | 284.9 | 76.9 | + 0.6 | 3 | 18 | |
| | 16772 | .430 | 11.5 | 88.5 | +22.2 | 3 | 10 | | | 16767 | .291 | 327.7 | 74.8 | +11.8 | 22 | 124 | |
| | 16763 | .301 | 27.9 | 85.5 | +12.8 | 674 | 3811 | | | 16769 | .336 | 46.1 | 51.5 | +11.1 | 25 | 135 | |
| | 16766 | .279 | 57.5 | 80.2 | + 6.0 | 33 | 152 | | | 16777 | .300 | 100.2 | 48.5 | - 5.3 | 1 | 5 | |
| | 16765 | .323 | 78.1 | 75.5 | + 1.3 | 14 | 74 | | | 16774 | .820 | 106.3 | 11.5 | -14.7 | 50 | 254 | 150 *c* |
| | 16767 | .403 | 53.7 | 74.5 | +11.2 | 28 | 156 | | | 16775 | .899 | 65.3 | 4.9 | +20.9 | 30 | 213 | 238 *c* |
| | 16769 | .699 | 71.1 | 51.6 | +11.1 | 22 | 118 | 231 *f* | | *1306d* | .902 | 110.5 | 2.3 | -19.4 | 0 | 6 | 196 *c* |
| | 16773 | .888 | 101.3 | 31.4 | -11.2 | 0 | 5 | 83 *c* | | 16776 | .922 | 104.5 | 358.9 | -14.2 | 36 | 124 | 247 *c* |
| | 16774 | .989 | 104.4 | 12.1 | -14.7 | 46 | 269 | 130 *c* | | | .886 | 93.5 | | | | | 110 |
| May 15 | | | (-21.1) | (93.8) | ( - 2.6) | (859) | (4798) | (620) | | | .941 | 73.4 | | | | | 283 |
| | | | | | | | | | May 17 | | | (-20.5) | (65.7) | ( - 2.4) | (885) | (5352) | (1758) |
| 135.401 | | .871 | 259.9 | | | | | 207 | | | | | | | | | |
| G | 16762 | .651 | 283.8 | 120.9 | + 7.0 | 21 | 147 | | 137.353 | | .921 | 264.1 | | | | | 197 |
| | 16770 | .449 | 292.3 | 106.2 | + 7.5 | 3 | 9 | | G | | .876 | 284.9 | | | | | 176 |
| | 16771 | .395 | 273.7 | 104.6 | - 0.9 | 1 | 10 | | | | .781 | 282.9 | | | | | 237 |
| | 16772 | .435 | 344.4 | 88.7 | +22.2 | 3 | 14 | | | 16762 | .916 | 278.3 | 121.3 | + 6.7 | 20 | 146 | 141 *c* |
| | 16763 | .273 | 346.7 | 85.2 | +12.8 | 675 | 4031 | | | 16763 | .547 | 297.5 | 85.4 | +12.5 | 708 | 4715 | |
| | 16766 | .145 | 8.3 | 80.3 | + 5.7 | 26 | 127 | | | 16766 | .431 | 289.5 | 79.7 | + 6.1 | 21 | 107 | |
| | 16765 | .122 | 49.5 | 76.2 | + 2.1 | 6 | 42 | | | 16765 | .376 | 277.3 | 77.5 | + 0.6 | 1 | 5 | |
| | 16767 | .268 | 25.7 | 74.7 | +11.4 | 22 | 141 | | | 16767 | .411 | 306.9 | 75.3 | +12.1 | 18 | 95 | |
| | 16769 | .550 | 65.5 | 51.0 | +11.0 | 34 | 218 | | | 16778 | .344 | 310.5 | 71.1 | +10.6 | 10 | 53 | |
| | 16773 | .755 | 102.1 | 33.0 | -10.8 | 1 | 14 | 126 *c* | | 16769 | .237 | 16.3 | 51.8 | +10.8 | 18 | 101 | |
| | 16774 | .942 | 104.9 | 11.3 | -14.9 | 60 | 254 | 177 *c* | | 16777 | .156 | 128.1 | 48.6 | - 7.8 | 1 | 5 | |
| | 16775 | .977 | 68.3 | 5.8 | +20.6 | 5 | 32 | 345 *f* | | 16774 | .713 | 108.5 | 11.5 | -14.7 | 44 | 256 | |
| | 16776 | .990 | 103.7 | 359.5 | -13.9 | 7 | 93 | 577 *sp* | | 16775 | .816 | 61.9 | 5.4 | +21.1 | 90 | 457 | 133 *c* |
| | | .856 | 75.3 | | | | | 154 | | 16776 | .849 | 105.6 | 358.3 | -14.4 | 13 | 88 | 247 *c* |
| | | .877 | 97.3 | | | | | 99 | | 16779 | .984 | 68.5 | 337.7 | +20.7 | 0 | 38 | 93 *c* |
| | | .961 | 116.3 | | | | | 182 | | | .906 | 69.9 | | | | | 254 |
| | | .967 | 84.1 | | | | | 131 | | | .944 | 76.7 | | | | | 69 |
| | | .974 | 76.1 | | | | | 108 | May 18 | | | (-20.3) | (55.7) | ( - 2.3) | (944) | (6066) | (1547) |
| May 16 | | | (-20.9) | (81.5) | ( - 2.5) | (864) | (5132) | (2106) | | | | | | | | | |
| | | | | | | | | | 138.356 | | .933 | 289.8 | | | | | 119 |
| 136.595 | | .966 | 258.9 | | | | | 173 | G | | .893 | 269.2 | | | | | 163 |
| G | | .834 | 262.3 | | | | | 133 | | | .831 | 258.8 | | | | | 182 |
| | | .794 | 287.1 | | | | | 131 | | 16762 | .984 | 277.1 | 121.5 | + 6.5 | 25 | 293 | 139 *c* |

Group 16770. May 14 - 19. A few variable spots, not seen on May 18.
Group 16771. May 15 - 20. A pair of tiny spots, seen only on May 15, 16 and 20.
Group 16772. May 15 - 17. A tiny spot.
Group 16773. May 15 - 16. A tiny spot on May 15; a pair on May 16.
Group 16774. May 15 - 27. Return of Group 16750. A stable regular spot.
Group 16775. May 16 - 28. One or two small spots at the east limb, quickly developing into a bi-polar group. On May 21 the follower begins to split into two and slowly declines.
Group 16776. May 16 - 26. A few small variable spots until May 20, when there is a spurt of activity for a few days. After this, the group slowly dies out.
Group 16777. May 17 - 18. A tiny spot.
Group 16778. May 18 - 20. One or two small spots.
Group 16779. May 18 - 22. A small spot.

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

| U.T. | Group No. | MEASURES Dist. | MEASURES Pos. Angle | POSITION Long. | POSITION Lat. | AREA Umbræ | AREA Whole Spots | AREA Faculæ |
|---|---|---|---|---|---|---|---|---|
| 1951 | | | ° | ° | ° | | | |
| | 16770 | .909 | 278.9 | 107.0 | + 7.1 | 2 | 11 | 351 *c* |
| | 16763 | .711 | 290.6 | 85.2 | +12.8 | 692 | 4865 | 350 *c* |
| | 16766 | .627 | 280.8 | 80.4 | + 5.0 | 23 | 84 | |
| | 16765 | .566 | 272.8 | 76.7 | - 0.2 | 0 | 3 | |
| | 16767 | .584 | 294.2 | 75.3 | +11.9 | 14 | 53 | |
| | 16778 | .535 | 294.2 | 72.0 | +10.7 | 14 | 57 | |
| | 16769 | .279 | 324.6 | 51.8 | +10.9 | 12 | 55 | |
| | 16774 | .547 | 114.4 | 11.5 | -14.9 | 48 | 234 | |
| | 16775 | .686 | 55.2 | 5.4 | +21.2 | 163 | 841 | |
| | 16776 | .705 | 108.2 | 358.9 | -14.2 | 10 | 50 | |
| | 16779 | .923 | 66.4 | 337.9 | +20.7 | 12 | 41 | 235 *f* |
| | 16780 | .950 | 95.7 | 330.7 | - 6.1 | 17 | 115 | 150 *f* |
| | | .927 | 73.4 | | | | | 150 |
| May 19 | | | (-20.0) | (42.4) | (- 2.2) | (1032) | (6702) | (1839) |
| 139.363 | | .936 | 276.7 | | | | | 281 |
| G | | .911 | 258.5 | | | | | 178 |
| | 16771 | .976 | 269.9 | 106.3 | - 0.6 | 4 | 29 | 188 *c* |
| | 16763 | .856 | 286.1 | 86.3 | +12.6 | 546 | 4182 | 821 *c* |
| | 16766 | .785 | 277.1 | 80.3 | + 4.2 | 11 | 46 | 84 *c* |
| | 16767 | .750 | 288.3 | 75.7 | +12.2 | 8 | 44 | |
| | 16778 | .689 | 288.1 | 70.7 | +10.7 | 8 | 32 | |
| | 16769 | .444 | 300.3 | 52.0 | +11.0 | 10 | 45 | |
| | 16774 | .372 | 127.1 | 11.3 | -14.9 | 49 | 242 | |
| | 16775 | .547 | 43.3 | 5.4 | +21.4 | 161 | 951 | |
| | 16776 | .528 | 114.6 | 359.5 | -14.5 | 52 | 210 | |
| | 16781 | .624 | 60.7 | 354.8 | +16.0 | 3 | 10 | |
| | 16779 | .824 | 62.9 | 337.6 | +20.7 | 8 | 30 | 357 *c* |
| | 16780 | .854 | 96.0 | 330.7 | - 6.2 | 9 | 95 | 166 *f* |
| May 20 | | | (-19.7) | (29.1) | (- 2.1) | (869) | (5916) | (2075) |
| 140.307 | | .942 | 262.2 | | | | | 229 |
| G | 16763 | .938 | 284.4 | 85.0 | +12.8 | 591 | 4002 | 1396 *c* |
| | 16766 | .907 | 276.0 | 81.2 | + 4.6 | 6 | 27 | 355 *sf* |
| | 16767 | .863 | 285.3 | 74.7 | +12.1 | 5 | 26 | 239 *f* |
| | 16769 | .621 | 289.9 | 52.9 | +10.7 | 5 | 35 | |
| | 16774 | .245 | 158.5 | 11.3 | -15.0 | 42 | 257 | |
| | 16775 | .433 | 25.6 | 5.1 | +21.0 | 195 | 1049 | |
| | 16776 | .355 | 127.8 | 359.8 | -14.3 | 60 | 342 | |
| | 16781 | .478 | 49.1 | 354.6 | +16.4 | 26 | 78 | |
| | 16779 | .701 | 57.4 | 337.6 | +20.6 | 10 | 29 | 71 *f* |
| | 16780 | .724 | 96.8 | 330.5 | - 6.2 | 18 | 96 | 121 *f* |
| | 16782 | .998 | 110.4 | 289.8 | -20.5 | 52 | 353 | 62 *p* |
| | | .933 | 95.6 | | | | | 282 |
| May 21 | | | (-19.4) | (16.6) | (- 1.9) | (1010) | (6294) | (2755) |
| 141.324 | | .963 | 284.7 | | | | | 439 |
| G | | .959 | 271.7 | | | | | 498 |
| | 16763 | .991 | 282.7 | 84.6 | +12.4 | 276 | 2099 | 1033 *c* |
| | 16767 | .953 | 282.9 | 74.4 | +11.7 | 0 | 15 | |
| | 16769 | .773 | 285.9 | 52.1 | +11.0 | 2 | 9 | 160 *c* |
| | 16774 | .269 | 210.7 | 11.2 | -15.1 | 43 | 244 | |
| | 16775 | .391 | 354.5 | 5.4 | +21.0 | 186 | 1153 | |
| | 16776 | .221 | 166.3 | 0.0 | -14.2 | 49 | 252 | |
| | 16781 | .348 | 23.9 | 354.7 | +16.7 | 75 | 498 | |
| | 16779 | .553 | 46.7 | 337.7 | +21.1 | 4 | 16 | |
| | 16780 | .542 | 98.7 | 330.6 | - 6.2 | 16 | 94 | |
| | 16782 | .961 | 110.8 | 289.8 | -20.5 | 101 | 550 | 831 *c* |
| May 22 | | | (-19.1) | (3.1) | (- 1.8) | (752) | (4930) | (2961) |
| 142.540 | | .974 | 283.7 | | | | | 154 |
| C | | .884 | 284.0 | | | | | 282 |
| | 16774 | .464 | 239.1 | 11.3 | -15.2 | 40 | 217 | |
| | 16775 | .487 | 322.3 | 5.5 | +21.0 | 193 | 1088 | |
| | 16776 | .311 | 224.9 | 0.0 | -14.3 | 24 | 176 | |
| | 16781 | .345 | 337.8 | 354.8 | +16.9 | 115 | 747 | |
| | 16780 | .294 | 106.3 | 330.6 | - 6.3 | 19 | 99 | |
| | 16782 | .859 | 112.9 | 289.6 | -20.4 | 123 | 629 | 415 *f* |
| | | .961 | 75.9 | | | | | 158 |
| May 23 | | | (-18.7) | (347.0) | (- 1.7) | (514) | (2956) | (1009) |
| 143.382 | | .959 | 262.6 | | | | | 127 |
| G | | .946 | 296.6 | | | | | 167 |
| | | .937 | 282.8 | | | | | 323 |
| | 16774 | .619 | 246.5 | 11.9 | -15.5 | 41 | 212 | |
| | 16775 | .596 | 308.4 | 5.6 | +20.3 | 172 | 1025 | |
| | 16776 | .471 | 242.0 | 1.2 | -14.2 | 14 | 85 | |
| | 16781 | .450 | 314.8 | 355.3 | +16.9 | 157 | 983 | |
| | 16780 | .125 | 134.6 | 330.8 | - 6.6 | 18 | 101 | |
| | 16782 | .755 | 116.0 | 289.7 | -20.4 | 119 | 592 | 536 *f* |
| | | .867 | 74.1 | | | | | 103 |
| | | .949 | 74.2 | | | | | 179 |
| May 24 | | | (-18.4) | (335.9) | (- 1.6) | (521) | (2998) | (1435) |
| 144.329 | | .976 | 283.9 | | | | | 232 |
| G | | .911 | 255.9 | | | | | 206 |
| | | .864 | 281.3 | | | | | 232 |
| | 16774 | .762 | 250.7 | 11.5 | -15.5 | 41 | 196 | 116 *c* |
| | 16775 | .731 | 299.7 | 5.8 | +20.1 | 157 | 917 | 129 *c* |
| | 16776 | .625 | 248.6 | 0.2 | -14.3 | 15 | 78 | |

Group 16780. May 19 - 30. Return of Group 16757. A stable regular spot which declines after May 26.
Group 16781. May 20 - 29. A small spot growing into a moderate-sized composite structure by May 23. On the next day it begins to divide, forming a stream, the leader of which nearly merges with the follower of Group 16775.
Group 16782. May 21-June 3. Return of Group 16758. A stable regular spot.

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 |
| 1951 | | | ° | ° | ° | | | | 1951 | | | ° | ° | ° | | | |
| | 16781 | .592 | 302.3 | 354.8 | +17.1 | 157 | 966 | | | 16781 | .996 | 287.3 | 350.4 | +17.1 | 0 | 74 | |
| | 16780 | .162 | 234.6 | 331.0 | - 6.8 | 23 | 91 | | | 16780 | .909 | 262.9 | 331.5 | - 6.8 | 6 | 21 | 179 *f* |
| | 16782 | .619 | 122.1 | 289.5 | -20.4 | 111 | 573 | 176 *sf* | | 16784 | .535 | 263.5 | 298.5 | - 4.3 | 0 | 5 | |
| | 16783 | .981 | 76.7 | 245.4 | +12.7 | 40 | 330 | 327 *p* | | 16782 | .495 | 227.2 | 289.1 | -20.5 | 96 | 532 | |
| | | .797 | 72.0 | | | | | 166 | | 16783 | .429 | 55.5 | 245.2 | +13.1 | 64 | 383 | |
| | | .892 | 116.1 | | | | | 151 | | | .965 | 82.8 | | | | | 164 |
| May 25 | | | (-18.1) | (323.4) | ( - 1.5) | (544) | (3151) | (1735) | May 29 | | | (-16.7) | (266.4) | ( - 1.0) | (166) | (1015) | (910) |
| 145.331 | 16774 | .884 | 253.1 | 11.3 | -15.5 | 23 | 179 | 162 *c* | | | | | | | | | |
| C | 16775 | .854 | 294.8 | 5.5 | +20.1 | 160 | 831 | 302 *c* | 149.315 | | .963 | 300.6 | | | | | 209 |
| | 16781 | .740 | 295.4 | 354.4 | +17.5 | 130 | 1087 | | G | | .958 | 289.1 | | | | | 375 |
| | 16776 | .813 | 253.8 | 3.4 | -13.9 | 3 | 15 | 309 *c* | | | .887 | 273.4 | | | | | 142 |
| | 16780 | .369 | 255.0 | 331.0 | - 6.8 | 28 | 89 | | | 16780 | .963 | 263.2 | 331.5 | - 6.8 | 4 | 9 | 271 *f* |
| | 16782 | .466 | 134.3 | 289.4 | -20.2 | 114 | 557 | | | 16784 | .658 | 264.8 | 298.3 | - 4.1 | 0 | 5 | |
| | 16783 | .913 | 75.1 | 245.5 | +12.9 | 49 | 344 | 178 *c* | | 16782 | .599 | 235.4 | 289.1 | -20.6 | 91 | 501 | |
| | | .967 | 79.2 | | | | | 207 | | 16783 | .317 | 39.8 | 245.4 | +13.1 | 75 | 398 | |
| May 26 | | | (-17.8) | (310.1) | ( - 1.4) | (507) | (3102) | (1158) | | 16785 | .874 | 106.2 | 197.5 | -14.5 | 0 | 9 | 106 *c* |
| | | | | | | | | | | | .925 | 80.4 | | | | | 148 |
| | | | | | | | | | May 30 | | | (-16.4) | (257.4) | ( - 0.9) | (170) | (922) | (1251) |
| 146.430 | | .909 | 279.8 | | | | | 163 | | | | | | | | | |
| G | 16774 | .974 | 254.2 | 12.1 | -15.7 | 24 | 150 | 837 *f* | | | | | | | | | |
| | 16775 | .948 | 291.5 | 5.1 | +19.9 | 133 | 874 | 398 *c* | | | | | | | | | |
| | 16781 | .873 | 290.9 | 354.2 | +17.5 | 116 | 878 | 271 *c* | 150.307 | 16782 | .744 | 242.4 | 288.9 | -20.7 | 106 | 539 | 158 *c* |
| | 16780 | .594 | 260.2 | 331.6 | - 6.8 | 11 | 60 | | G | 16783 | .244 | 356.5 | 245.2 | +13.2 | 79 | 374 | |
| | 16784 | .049 | 161.0 | 294.7 | - 3.8 | 1 | 4 | | | *1307b* | .137 | 160.9 | 241.7 | - 8.2 | 2 | 9 | |
| | 16782 | .344 | 162.2 | 289.2 | -20.2 | 102 | 593 | | | 16785 | .758 | 108.1 | 196.5 | -14.1 | 4 | 17 | 93 *c* |
| | 16783 | .793 | 72.4 | 244.9 | +13.1 | 62 | 368 | 387 *c* | | 16786 | .974 | 93.8 | 167.7 | - 3.8 | 0 | 11 | 154 *c* |
| | | .803 | 60.2 | | | | | 99 | May 31 | | | (-16.0) | (244.3) | ( - 0.8) | (191) | (950) | (405) |
| May 27 | | | (-17.4) | (295.6) | ( - 1.2) | (449) | (2927) | (2155) | | | | | | | | | |
| 147.429 | | .973 | 245.1 | | | | | 98 | 151.309 | | .946 | 256.5 | | | | | 147 |
| G | | .964 | 254.5 | | | | | 559 | G | | .928 | 266.5 | | | | | 122 |
| | | .831 | 306.1 | | | | | 118 | | | .835 | 235.2 | | | | | 145 |
| | | .828 | 295.4 | | | | | 188 | | 16782 | .869 | 246.6 | 289.1 | -20.4 | 83 | 442 | 537 *c* |
| | 16775 | .994 | 290.4 | 5.0 | +20.1 | 245 | 1166 | 766 *c* | | 16783 | .338 | 314.7 | 245.2 | +13.1 | 78 | 368 | |
| | 16781 | .965 | 288.6 | 355.8 | +17.6 | 114 | 824 | | | 16785 | .595 | 112.5 | 196.7 | -13.6 | 3 | 9 | |
| | *1307a* | .921 | 258.7 | 349.0 | -10.8 | 6 | 23 | 88 *c* | | 16786 | .910 | 93.6 | 165.8 | - 3.5 | 13 | 73 | 144 *c* |
| | 16780 | .760 | 262.0 | 331.5 | - 6.8 | 7 | 32 | 44 *c* | June 1 | | | (-15.7) | (231.0) | ( - 0.6) | (177) | (892) | (1095) |
| | 16784 | .252 | 258.3 | 296.7 | - 4.0 | 1 | 5 | | | | | | | | | | |
| | 16782 | .347 | 198.5 | 289.1 | -20.2 | 102 | 541 | | | | | | | | | | |
| | 16783 | .637 | 67.7 | 245.3 | +13.1 | 68 | 396 | | | | | | | | | | |
| May 28 | | | (-17.1) | (282.4) | ( - 1.1) | (543) | (2987) | (1861) | 152.305 | 16782 | .952 | 248.7 | 288.7 | -20.4 | 97 | 467 | 670 *f* |
| | | | | | | | | | G | 16787 | .718 | 288.1 | 262.0 | +12.5 | 0 | 12 | 123 *p* |
| | | | | | | | | | | 16783 | .510 | 297.9 | 245.3 | +13.3 | 67 | 332 | |
| 148.634 | | .984 | 257.8 | | | | | 93 | | 16785 | .459 | 125.5 | 195.0 | -15.8 | 3 | 10 | |
| G | | .938 | 301.9 | | | | | 170 | | 16786 | .779 | 93.7 | 166.9 | - 3.2 | 5 | 35 | 141 *c* |
| | | .925 | 292.9 | | | | | 304 | June 2 | | | (-15.3) | (217.8) | ( - 0.5) | (172) | (856) | (934) |

Group 16783. May 25-June 6. A stable regular spot.
Group 16784. May 27 - 30. A small spot.
Group 16785. May 30-June 2. A pair of tiny spots.
Group 16786. May 31-June 3. A pair of small spots.
Group 16787. June 2 - 3. A tiny spot.

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 |
| 1951 | | | ° | ° | ° | | | | 1951 | | | ° | ° | ° | | | |
| 153.360 | | .965 | 259.3 | | | | | 77 | | | .821 | 78.9 | | | | | 240 |
| G | | .945 | 287.2 | | | | | 270 | | | .825 | 90.9 | | | | | 137 |
| | | .942 | 275.7 | | | | | 101 | | | .946 | 93.3 | | | | | 202 |
| | | .832 | 297.9 | | | | | 83 | | | .947 | 105.8 | | | | | 205 |
| | 16782 | .996 | 249.6 | 288.4 | -20.4 | 64 | 282 | 422 *f* | June 6 | | | (-13.7) | (164.9) | (0.0) | (531) | (3037) | (2371) |
| | 16787 | .866 | 284.4 | 262.8 | +12.2 | 0 | 2 | 186 *n* | | | | | | | | | |
| | 16783 | .688 | 289.6 | 245.4 | +13.0 | 83 | 381 | 80 *p* | | | | | | | | | |
| | 16786 | .593 | 95.3 | 167.7 | - 3.5 | 9 | 27 | | 157.561 | | .881 | 257.3 | | | | | 97 |
| | | .844 | 97.4 | | | | | 81 | G | 16789 | .147 | 210.0 | 152.5 | - 7.2 | 106 | 728 | |
| | | .916 | 104.1 | | | | | 91 | | 16788 | .191 | 162.8 | 145.0 | -10.4 | 22 | 131 | |
| | | .968 | 96.7 | | | | | 1037 | | 16790 | .789 | 78.9 | 96.9 | + 8.7 | 107 | 928 | 224 *c* |
| June 3 | | | (-14.9) | (203.9) | (- 0.4) | (156) | (692) | (2428) | | 16791 | .818 | 69.8 | 95.3 | +16.4 | 16 | 166 | 151 *c* |
| | | | | | | | | | | 16792 | .863 | 73.8 | 89.9 | +13.9 | 213 | 934 | 416 *c* |
| | | | | | | | | | | 16793 | .985 | 81.8 | 68.6 | + 8.0 | 14 | 130 | 75 *c* |
| 154.437 | | .946 | 286.5 | | | | | 298 | | | .844 | 90.2 | | | | | 102 |
| G | | .885 | 298.3 | | | | | 98 | | | .905 | 63.3 | | | | | 520 |
| | 16783 | .840 | 285.9 | 245.4 | +13.1 | 63 | 334 | 448 *c* | | | .937 | 85.0 | | | | | 299 |
| | 16788 | .733 | 104.9 | 143.6 | -11.1 | 6 | 30 | 76 *f* | June 7 | | | (-13.2) | (148.3) | (+ 0.1) | (478) | (3017) | (1884) |
| | | .887 | 98.1 | | | | | 142 | | | | | | | | | |
| | | .927 | 82.7 | | | | | 182 | | | | | | | | | |
| | | .956 | 72.9 | | | | | 116 | 158.319 | | .855 | 281.7 | | | | | 121 |
| | | .970 | 92.7 | | | | | 196 | G | *1307c* | .967 | 256.9 | 212.8 | -12.6 | 0 | 17 | 144 *c* |
| | | .979 | 82.5 | | | | | 221 | | 16789 | .288 | 243.5 | 153.2 | - 7.2 | 97 | 667 | |
| June 4 | | | (-14.5) | (189.6) | (- 0.3) | (69) | (364) | (1777) | | 16788 | .220 | 213.6 | 145.3 | -10.3 | 14 | 97 | |
| | | | | | | | | | | 16790 | .675 | 77.9 | 96.5 | + 8.3 | 116 | 1063 | |
| | | | | | | | | | | 16791 | .717 | 67.1 | 94.9 | +16.3 | 21 | 172 | |
| 155.533 | 16783 | .947 | 283.7 | 245.6 | +12.9 | 46 | 346 | 607 *f* | | 16792 | .778 | 71.9 | 88.7 | +14.1 | 175 | 971 | 235 *c* |
| G | 16789 | .439 | 106.2 | 150.1 | - 7.1 | 5 | 25 | | | 16793 | .953 | 80.5 | 66.3 | + 9.1 | 104 | 574 | 316 *c* |
| | 16788 | .544 | 110.0 | 143.9 | -10.7 | 19 | 74 | | | | .837 | 60.9 | | | | | 346 |
| | 16790 | .974 | 81.6 | 98.5 | + 8.2 | 107 | 612 | 265 *c* | | | .843 | 79.1 | | | | | 233 |
| | 16791 | .989 | 73.2 | 94.2 | +16.6 | 7 | 59 | 327 *nf* | | | .865 | 89.3 | | | | | 273 |
| | 16792 | .993 | 77.6 | 92.4 | +12.3 | 130 | 712 | 367 *p* | | | .943 | 65.1 | | | | | 212 |
| | | .905 | 78.4 | | | | | 326 | | | .949 | 73.9 | | | | | 163 |
| | | .917 | 92.6 | | | | | 273 | June 8 | | | (-12.9) | (138.2) | (+ 0.2) | (527) | (3561) | (2043) |
| June 5 | | | (-14.0) | (175.1) | (- 0.1) | (314) | (1828) | (2165) | | | | | | | | | |
| | | | | | | | | | 159.335 | | .940 | 280.5 | | | | | 160 |
| 156.304 | 16783 | .987 | 283.0 | 245.1 | +12.8 | 48 | 348 | 375 *f* | G | 16789 | .495 | 255.5 | 153.5 | - 6.8 | 106 | 657 | |
| G | 16789 | .271 | 118.6 | 151.1 | - 7.4 | 61 | 304 | | | 16788 | .395 | 243.3 | 145.7 | - 9.9 | 7 | 45 | |
| | 16788 | .392 | 117.7 | 144.3 | -10.4 | 17 | 94 | | | 16790 | .486 | 73.3 | 96.9 | + 8.3 | 163 | 1151 | |
| | 16790 | .930 | 81.3 | 97.0 | + 8.0 | 76 | 611 | 280 *c* | | 16791 | .556 | 59.4 | 95.0 | +16.6 | 20 | 165 | |
| | 16791 | .945 | 72.7 | 95.3 | +16.3 | 42 | 326 | 586 *c* | | 16792 | .613 | 67.3 | 89.3 | +13.9 | 190 | 951 | |
| | 16792 | .969 | 76.2 | 89.9 | +13.4 | 287 | 1354 | 346 *c* | | 16793 | .860 | 80.1 | 66.0 | + 8.7 | 110 | 793 | 295 *c* |

Group 16788. June 4 - 9. A small stream of variable spots.

Group 16789. June 5 - 13. A pair of spots appearing suddenly immediately *p* Group 16788. These quickly form a bi-polar group, of which the follower breaks up after June 10. The leader, a regular spot, is the sole surivor at the limb.

Group 16790. June 5 - 17. A stream in which the leader, a double spot, is the first to break up and die out. The follower, more stable, has a large disturbed area on its northern and preceding boundaries until June 12.

Group 16791. June 5 - 14. A pair of spots, slowly dying out.

Group 16792. June 5 - 18. Return of Group 16763; fourth appearance. A stream, the leader of which is a stable regular spot preceded by a very close companion. The composite follower slowly diminishes.

Group 16793. June 7 - 19. A pair of regular spots, of which the leader divides into two between June 13 and 15 and then re-combines. On June 14 small spots appear between the principal components to form a stream; these and the follower however, soon die out and the leader alone remains at the west limb.

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

| U.T. | Group No. | MEASURES Dist. | MEASURES Pos. Angle | POSITION Long. | POSITION Lat. | AREA Umbræ | AREA Whole Spots | AREA Faculæ |
|---|---|---|---|---|---|---|---|---|
| 1951 | | | ° | ° | ° | | | |
| | | .787 | 51.1 | | | | | 196 |
| | | .807 | 72.4 | | | | | 174 |
| | | .875 | 62.5 | | | | | 195 |
| | | .951 | 70.8 | | | | | 213 |
| June 9 | | | (-12.5) | (124.8) | (+0.3) | (596) | (3762) | (1233) |
| 160.443 | 16789 | .694 | 259.9 | 153.4 | - 6.6 | 72 | 524 | 76 *p* |
| C | 16790 | .255 | 58.5 | 97.5 | + 8.1 | 122 | 995 | |
| | 16791 | .377 | 42.3 | 94.8 | +16.6 | 14 | 96 | |
| | 16792 | .433 | 57.4 | 88.1 | +13.9 | 154 | 922 | |
| | 16793 | .699 | 77.7 | 66.5 | + 8.9 | 92 | 688 | 145 *c* |
| | | .875 | 65.1 | | | | | 97 |
| | | .903 | 75.1 | | | | | 200 |
| June 10 | | | (-12.1) | (110.1) | (+0.5) | (454) | (3225) | (518) |
| 161.292 | | .952 | 263.3 | | | | | 185 |
| G | 16789 | .824 | 261.5 | 153.8 | - 6.6 | 71 | 429 | 239 *c* |
| | 16790 | .146 | 14.2 | 96.8 | + 8.7 | 113 | 872 | |
| | 16791 | .278 | 11.3 | 95.7 | +16.3 | 14 | 67 | |
| | 16792 | .301 | 39.0 | 87.7 | +14.1 | 205 | 1038 | |
| | 16793 | .552 | 74.1 | 66.5 | + 9.2 | 106 | 602 | |
| | | .828 | 74.1 | | | | | 174 |
| | | .920 | 58.5 | | | | | 159 |
| June 11 | | | (-11.7) | (98.9) | (+0.6) | (509) | (3008) | (757) |
| 162.469 | 16789 | .953 | 263.3 | 155.2 | - 6.1 | 60 | 344 | 401 *f* |
| G | 16794 | .939 | 279.4 | 152.8 | + 9.0 | 0 | 7 | 112 *c* |
| | 16790 | .272 | 298.8 | 97.2 | + 8.2 | 73 | 640 | |
| | 16791 | .323 | 322.0 | 95.1 | +15.4 | 11 | 46 | |
| | 16792 | .241 | 339.6 | 88.2 | +13.7 | 166 | 869 | |
| | 16793 | .311 | 62.6 | 67.1 | + 8.9 | 85 | 543 | |
| | 16795 | .981 | 102.5 | 5.1 | -12.1 | 156 | 1910 | 413 *p* |
| | | .975 | 69.7 | | | | | 316 |
| June 12 | | | (-11.2) | (83.3) | (+0.7) | (551) | (4359) | (1242) |
| 163.380 | | .816 | 265.6 | | | | | 89 |
| G | 16789 | .998 | 263.9 | 157.2 | - 6.0 | 15 | 88 | 189 *f* |
| | 16794 | .984 | 279.1 | 150.6 | + 9.1 | 0 | 14 | 130 *c* |
| | *1307d* | .939 | 265.0 | 140.7 | - 4.4 | 7 | 30 | 3115 |
| | 16796 | .700 | 275.8 | 115.3 | + 4.6 | 5 | 16 | |
| | 16790 | .464 | 286.1 | 97.8 | + 8.0 | 80 | 535 | |
| | 16791 | .466 | 301.8 | 95.3 | +14.9 | 8 | 81 | |

| U.T. | Group No. | MEASURES Dist. | MEASURES Pos. Angle | POSITION Long. | POSITION Lat. | AREA Umbræ | AREA Whole Spots | AREA Faculæ |
|---|---|---|---|---|---|---|---|---|
| 1951 | | | ° | ° | ° | | | |
| | 16792 | .372 | 307.0 | 88.9 | +13.7 | 150 | 814 | |
| | 16793 | .151 | 24.0 | 67.7 | + 8.7 | 89 | 526 | |
| | 16795 | .927 | 103.8 | 4.2 | -12.5 | 323 | 2018 | 483 *c* |
| | 16797 | .967 | 72.8 | 356.6 | +16.9 | 16 | 112 | 359 *s* |
| | | .930 | 120.0 | | | | | 131 |
| | | .932 | 65.6 | | | | | 408 |
| June 13 | | | (-10.8) | (71.2) | (+0.8) | (693) | (4234) | (2100) |
| 164.323 | | .925 | 277.9 | | | | | 204 |
| G | | .812 | 267.2 | | | | | 114 |
| | | .790 | 284.4 | | | | | 140 |
| | *1307e* | .929 | 266.0 | 126.7 | - 3.4 | 3 | 19 | 204 *c* |
| | 16796 | .856 | 274.5 | 117.4 | + 4.3 | 0 | 9 | 173 *c* |
| | 16790 | .650 | 280.5 | 98.8 | + 7.5 | 69 | 430 | |
| | 16791 | .636 | 290.3 | 96.5 | +13.4 | 6 | 53 | |
| | 16792 | .540 | 294.8 | 89.0 | +13.8 | 129 | 852 | |
| | 16793 | .206 | 310.7 | 67.8 | + 8.6 | 106 | 552 | |
| | 16798 | .840 | 59.7 | 5.5 | +25.6 | 0 | 6 | 169 *s* |
| | 16795 | .822 | 106.0 | 5.0 | -12.5 | 426 | 2128 | 377 *c* |
| | 16797 | .890 | 71.8 | 357.2 | +16.5 | 13 | 76 | 312 *c* |
| | | .847 | 117.4 | | | | | 167 |
| | | .909 | 62.6 | | | | | 281 |
| | | .966 | 85.4 | | | | | 124 |
| June 14 | | | (-10.4) | (58.8) | (+0.9) | (752) | (4125) | (2265) |
| 165.327 | | .988 | 265.6 | | | | | 277 |
| G | | .939 | 274.9 | | | | | 226 |
| | | .931 | 282.2 | | | | | 171 |
| | | .914 | 266.5 | | | | | 183 |
| | | .840 | 290.4 | | | | | 287 |
| | 16790 | .799 | 278.3 | 98.1 | + 7.2 | 51 | 317 | 204 *c* |
| | 16792 | .707 | 288.8 | 88.9 | +13.8 | 124 | 741 | |
| | 16793 | .419 | 287.7 | 69.2 | + 8.2 | 79 | 460 | |
| | 16795 | .679 | 109.7 | 4.8 | -12.4 | 396 | 2168 | 79 *f* |
| | 16799 | .766 | 105.8 | 356.9 | -11.4 | 16 | 88 | 110 *c* |
| | 16797 | .779 | 69.7 | 356.1 | +16.3 | 20 | 90 | 133 *c* |
| | | .818 | 58.6 | | | | | 109 |
| | | .837 | 113.6 | | | | | 151 |
| | | .890 | 85.4 | | | | | 96 |
| | | .943 | 71.3 | | | | | 178 |
| | | .960 | 98.7 | | | | | 143 |
| | | .973 | 63.6 | | | | | 222 |
| June 15 | | | (-10.0) | (45.5) | (+1.0) | (686) | (3864) | (2569) |

Group 16794. June 12 - 13. A tiny spot.
Group 16795. June 12 - 24. A great composite spot. On June 16 it begins to become elongated, the principal nucleus being at the rear. By the time the group reaches the limb this nucleus has detached itself and become a regular spot.
Group 16796. June 13 - 14. A pair of tiny spots on June 13; a single spot on the next day.
Group 16797.. June 13 - 23. Return of Group 16781. Small variable spots.
Group 16798. June 14 - 20. One or two faint spots, not seen on June 15 and 17.
Group 16799. June 15 - 25. A stream, forming immediately behind Group 16795. At first the rear spot is the principal component but by June 20 the leading part coalesces into a composite structure and becomes the larger member.

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 |
| 1951 | | | ° | ° | ° | | | | 1951 | | | ° | ° | ° | | | |
| 166.316 | | .956 | 264.6 | | | | | 155 | | 16800 | .848 | 73.1 | 308.0 | +15.0 | 50 | 289 | 333 *c* |
| G | | .933 | 286.2 | | | | | 608 | | 16802 | .987 | 111.5 | 285.7 | -20.9 | 42 | 209 | 271 *c* |
| | | .890 | 255.4 | | | | | 131 | June 18 | | | (-8.7) | (4.9) | (+1.4) | (638) | (3900) | (2662) |
| | | .876 | 292.2 | | | | | 83 | | | | | | | | | |
| | | .809 | 300.0 | | | | | 408 | | | | | | | | | |
| | 16790 | .907 | 277.6 | 97.2 | +7.4 | 41 | 220 | 588 *c* | 169.365 | | .905 | 292.7 | | | | | 147 |
| | 16792 | .846 | 285.6 | 89.2 | +13.8 | 124 | 633 | 447 *c* | G | 16793 | .983 | 276.4 | 71.2 | +6.5 | 43 | 197 | 261 *c* |
| | *1307 f* | .768 | 273.6 | 82.4 | +3.5 | 2 | 7 | 125 *c* | | 16801 | .942 | 281.6 | 62.0 | +11.4 | 0 | 7 | 250 *c* |
| | 16793 | .632 | 280.6 | 71.0 | +7.6 | 52 | 296 | | | 16798 | .438 | 331.5 | 5.2 | +24.0 | 3 | 21 | |
| | 16798 | .565 | 45.8 | 6.1 | +24.1 | 3 | 11 | | | 16795 | .318 | 223.3 | 4.8 | -11.8 | 332 | 2199 | |
| | 16795 | .504 | 117.8 | 5.3 | -12.5 | 327 | 2115 | | | 16799 | .212 | 191.1 | 354.4 | -10.4 | 44 | 306 | |
| | 16799 | .607 | 110.0 | 357.0 | -11.0 | 50 | 259 | | | 16797 | .260 | 352.7 | 354.0 | +16.4 | 30 | 164 | |
| | 16797 | .624 | 64.8 | 356.5 | +16.3 | 12 | 59 | | | 16800 | .718 | 70.1 | 307.8 | +15.2 | 38 | 264 | 136 *f* |
| | 16800 | .994 | 75.4 | 308.9 | +14.6 | 40 | 162 | 86 *c* | | 16802 | .938 | 112.9 | 284.7 | -20.8 | 46 | 257 | 340 *c* |
| | | .878 | 67.0 | | | | | 156 | | | .929 | 105.3 | | | | | 180 |
| | | .886 | 102.0 | | | | | 98 | | | .959 | 76.8 | | | | | 193 |
| | | .936 | 58.4 | | | | | 123 | | | .962 | 121.9 | | | | | 104 |
| June 16 | | | (-9.6) | (32.4) | (+1.2) | (651) | (3762) | (3008) | June 19 | | | (-8.3) | (352.0) | (+1.5) | (536) | (3415) | (1611) |
| 167.375 | | .935 | 294.6 | | | | | 225 | 170.328 | | .967 | 279.8 | | | | | 224 |
| G | | .903 | 272.3 | | | | | 252 | G | | .938 | 287.3 | | | | | 192 |
| | | .890 | 300.1 | | | | | 239 | | | .919 | 296.6 | | | | | 122 |
| | | .806 | 294.2 | | | | | 145 | | 16795 | .497 | 241.4 | 5.7 | -12.3 | 300 | 2043 | |
| | 16790 | .975 | 276.6 | 95.4 | +6.7 | 31 | 225 | 183 *c* | | 16798 | .546 | 313.4 | 4.7 | +23.3 | 3 | 17 | |
| | 16792 | .948 | 283.9 | 89.4 | +13.5 | 104 | 636 | 684 *c* | | 16799 | .342 | 232.3 | 355.2 | -10.5 | 95 | 511 | |
| | 16793 | .806 | 277.7 | 71.8 | +6.9 | 39 | 213 | 353 *c* | | 16797 | .369 | 315.2 | 355.0 | +16.7 | 23 | 135 | |
| | 16801 | .673 | 286.0 | 59.6 | +11.7 | 1 | 8 | | | 16800 | .549 | 63.8 | 308.7 | +15.3 | 50 | 233 | |
| | 16795 | .332 | 135.4 | 4.7 | -12.4 | 299 | 2358 | | | 16802 | .848 | 116.1 | 284.9 | -20.9 | 46 | 254 | 461 *f* |
| | 16797 | .455 | 54.5 | 355.8 | +16.4 | 12 | 50 | | | | .929 | 125.2 | | | | | 109 |
| | 16799 | .461 | 117.7 | 353.9 | -11.1 | 50 | 258 | | | | .945 | 70.3 | | | | | 139 |
| | 16800 | .947 | 74.7 | 307.7 | +14.8 | 43 | 299 | 202 *c* | June 20 | | | (-7.8) | (339.3) | (+1.6) | (517) | (3193) | (1247) |
| | | .788 | 62.0 | | | | | 300 | | | | | | | | | |
| June 17 | | | (-9.1) | (18.4) | (+1.3) | (579) | (4047) | (2583) | | | | | | | | | |
| | | | | | | | | | 171.321 | | .951 | 260.2 | | | | | 82 |
| | | | | | | | | | G | | .936 | 284.0 | | | | | 129 |
| | | | | | | | | | | | .933 | 299.1 | | | | | 222 |
| 168.393 | | .973 | 272.1 | | | | | 271 | | | .837 | 253.0 | | | | | 122 |
| G | | .959 | 281.3 | | | | | 202 | | | .771 | 242.2 | | | | | 112 |
| | | .957 | 296.7 | | | | | 228 | | 16795 | .666 | 249.4 | 5.6 | -12.1 | 269 | 1950 | |
| | | .942 | 290.3 | | | | | 204 | | 16799 | .544 | 248.7 | 356.9 | -9.8 | 142 | 850 | |
| | | .884 | 298.1 | | | | | 232 | | 16797 | .532 | 301.8 | 354.3 | +17.8 | 13 | 81 | |
| | 16792 | .990 | 284.0 | 86.6 | +14.1 | 85 | 417 | 381 *c* | | 16800 | .369 | 49.5 | 309.2 | +15.5 | 39 | 203 | |
| | 16793 | .925 | 276.7 | 72.3 | +6.7 | 30 | 204 | 256 *c* | | 16802 | .727 | 121.4 | 284.7 | -20.8 | 45 | 243 | 231 *f* |
| | 16801 | .833 | 283.1 | 60.6 | +11.7 | 0 | 8 | 284 *c* | | 16803 | .982 | 78.3 | 247.1 | +11.8 | 23 | 155 | 242 *p* |
| | 16798 | .380 | 356.8 | 6.2 | +23.6 | 1 | 10 | | | | .809 | 133.8 | | | | | 128 |
| | 16795 | .235 | 180.9 | 5.1 | -12.1 | 357 | 2344 | | | | .890 | 66.0 | | | | | 138 |
| | 16797 | .311 | 32.7 | 354.9 | +16.4 | 29 | 154 | | | | .931 | 122.6 | | | | | 93 |
| | 16799 | .285 | 140.1 | 354.2 | -11.2 | 44 | 265 | | June 21 | | | (-7.4) | (326.1) | (+1.8) | (531) | (3482) | (1499) |

Group 16800. June 16 - 28. A stable regular spot, followed by a distant companion until June 22.
Group 16801. June 17 - 19. A tiny spot.
Group 16802. June 18 - 30. Return of Group 16782; third appearance. A regular spot which, on June 23, begins to divide into two parts and slowly die out.
Group 16803. June 21-July 3. Return of Group 16783. A stable regular spot with a distant companion on June 27 and 29.

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 |
| 1951 | | | ° | ° | ° | | | | 1951 | | | ° | ° | ° | | | |
| 172.342 | | .884 | 246.8 | | | | | 172 | | 16800 | .779 | 287.6 | 310.0 | +15.1 | 32 | 216 | 168 *c* |
| G | | .837 | 288.6 | | | | | 122 | | 16802 | .541 | 221.2 | 282.4 | -21.8 | 22 | 144 | |
| | | .816 | 299.0 | | | | | 175 | | *1308a* | .399 | 351.1 | 263.8 | +25.4 | 1 | 10 | |
| | 16795 | .818 | 254.1 | 5.9 | -11.8 | 246 | 1995 | 354 *c* | | 16803 | .276 | 54.4 | 246.7 | +11.5 | 25 | 144 | |
| | 16799 | .729 | 255.3 | 358.0 | - 9.3 | 120 | 1095 | | | *1308b* | .676 | 114.6 | 220.6 | -14.9 | 3 | 20 | |
| | 16797 | .700 | 293.8 | 354.7 | +17.8 | 11 | 42 | | | 16804 | .972 | 78.8 | 183.6 | +11.4 | 15 | 70 | 224 *c* |
| | 16800 | .243 | 13.0 | 309.4 | +15.5 | 41 | 177 | | June 26 | | | ( -5.2) | (259.9) | ( + 2.3) | (98) | (604) | (1032) |
| | 16802 | .590 | 131.0 | 284.2 | -21.0 | 36 | 232 | | | | | | | | | | |
| | 16803 | .913 | 77.8 | 247.1 | +11.9 | 30 | 160 | 330 *f* | | | | | | | | | |
| June 22 | | | ( -7.0) | (312.6) | ( + 1.9) | (484) | (3701) | (1153) | 177.543 | | .967 | 302.4 | | | | | 112 |
| | | | | | | | | | G | 16800 | .927 | 284.4 | 311.5 | +14.3 | 12 | 61 | 438 *nf* |
| | | | | | | | | | | 16802 | .709 | 234.8 | 282.4 | -22.1 | 10 | 62 | 89 *p* |
| 173.333 | | .959 | 248.6 | | | | | 124 | | 16803 | .158 | 342.4 | 246.6 | +11.1 | 24 | 139 | |
| C | | .944 | 289.1 | | | | | 100 | | 16804 | .867 | 78.0 | 184.0 | +11.7 | 5 | 33 | 149 *c* |
| | | .912 | 280.9 | | | | | 149 | | 16805 | .985 | 96.2 | 164.3 | - 5.6 | 0 | 14 | 190 *c* |
| | | .899 | 296.9 | | | | | 182 | | | .975 | 113.2 | | | | | 51 |
| | | .879 | 243.5 | | | | | 128 | June 27 | | | ( -4.6) | (243.8) | ( + 2.5) | (51) | (309) | (1029) |
| | 16795 | .923 | 256.3 | 5.6 | -11.8 | 193 | 1975 | 358 *c* | | | | | | | | | |
| | 16799 | .861 | 257.9 | 357.8 | - 9.3 | 140 | 1017 | 204 *c* | | | | | | | | | |
| | 16797 | .840 | 290.5 | 355.4 | +18.6 | 2 | 8 | 143 *c* | 178.362 | 16800 | .981 | 284.0 | 311.8 | +14.2 | 5 | 23 | 412 *nf* |
| | 16800 | .287 | 323.1 | 309.7 | +15.1 | 35 | 204 | | C | 16802 | .807 | 240.1 | 281.7 | -22.0 | 11 | 38 | 154 *c* |
| | 16802 | .468 | 147.8 | 284.0 | -21.3 | 28 | 226 | | | 16803 | .275 | 302.6 | 246.5 | +11.0 | 25 | 123 | |
| | 16803 | .795 | 76.9 | 247.5 | +11.6 | 25 | 137 | 225 *f* | | 16804 | .752 | 76.9 | 184.7 | +11.5 | 7 | 27 | 70 *c* |
| June 23 | | | ( -6.5) | (299.5) | ( + 2.0) | (423) | (3567) | (1613) | | 16805 | .930 | 97.1 | 165.1 | - 5.6 | 0 | 12 | 274 *f.* |
| | | | | | | | | | | | .867 | 95.8 | | | | | 116 |
| | | | | | | | | | June 28 | | | ( -4.2) | (232.9) | ( + 2.6) | (48) | (223) | (1026) |
| 174.396 | | .953 | 244.6 | | | | | 218 | | | | | | | | | |
| C | | .951 | 295.4 | | | | | 179 | 179.358 | | .912 | 255.6 | | | | | 190 |
| | | .940 | 284.9 | | | | | 297 | G | | .883 | 230.6 | | | | | 86 |
| | 16795 | .985 | 257.1 | 4.6 | -12.4 | 98 | 1091 | 551 *c* | | | .825 | 221.4 | | | | | 77 |
| | 16799 | .965 | 259.6 | 359.4 | - 9.4 | 111 | 688 | | | 16802 | .911 | 244.6 | 281.9 | -21.7 | 8 | 22 | 421 *f* |
| | 16800 | .457 | 299.9 | 309.5 | +15.1 | 35 | 183 | | | 16803 | .459 | 289.0 | 245.9 | +11.0 | 29 | 141 | |
| | 16802 | .404 | 175.6 | 283.5 | -21.6 | 37 | 169 | | | 16804 | .588 | 74.2 | 184.7 | +11.4 | 3 | 9 | |
| | 16803 | .631 | 74.0 | 247.3 | +11.6 | 26 | 148 | | | 16805 | .823 | 98.8 | 165.2 | - 5.6 | 2 | 8 | 217 *f* |
| June 24 | | | ( -6.0) | (285.4) | ( + 2.1) | (307) | (2279) | (1245) | | | .905 | 80.4 | | | | | 59 |
| | | | | | | | | | | | .912 | 99.9 | | | | | 316 |
| | | | | | | | | | June 29 | | | ( -3.8) | (219.8) | ( + 2.7) | (42) | (180) | (1366) |
| 175.326 | | .976 | 285.6 | | | | | 198 | | | | | | | | | |
| G | | .893 | 290.2 | | | | | 223 | | | | | | | | | |
| | 16799 | .990 | 259.8 | 354.2 | - 9.7 | 23 | 143 | 507 *c* | 180.320 | | .952 | 254.7 | | | | | 216 |
| | 16800 | .621 | 291.8 | 309.6 | +15.1 | 43 | 221 | | G | | .947 | 233.8 | | | | | 114 |
| | 16802 | .424 | 199.4 | 281.8 | -21.3 | 34 | 175 | | | 16802 | .976 | 247.2 | 282.0 | -21.5 | 0 | 4 | 370 *f* |
| | 16803 | .465 | 69.0 | 246.9 | +11.5 | 30 | 147 | | | 16803 | .641 | 283.2 | 246.2 | +10.6 | 21 | 126 | |
| June 25 | | | ( -5.6) | (273.1) | ( + 2.2) | (130) | (686) | (928) | | 16804 | .406 | 68.4 | 184.5 | +11.2 | 1 | 4 | |
| | | | | | | | | | | 16805 | .716 | 101.2 | 162.3 | - 6.0 | 0 | 6 | |
| | | | | | | | | | | | .811 | 102.0 | | | | | 157 |
| 176.322 | | .966 | 260.0 | | | | | 110 | | | .914 | 106.3 | | | | | 163 |
| G | | .957 | 288.0 | | | | | 165 | | | .946 | 96.2 | | | | | 324 |
| | | .932 | 295.3 | | | | | 141 | | | .983 | 71.2 | | | | | 112 |
| | | .920 | 303.9 | | | | | 224 | June 30 | | | ( -3.4) | (207.0) | ( + 2.8) | (22) | (140) | (1456) |

Group 16804. June 26 - 30. A small spot, with a tiny companion on June 26 and 27.
Group 16805. June 27-July 4. One or two tiny variable spots, not seen on July 1.

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 |
| 1951 | | | ° | ° | ° | | | | 1951 | | | ° | ° | ° | | | |
| 181.361 | | .922 | 294.9 | | | | | 163 | 184.448 | | .925 | 252.7 | | | | | 211 |
| G | | .804 | 260.3 | | | | | 62 | G | 16805 | .211 | 221.2 | 160.4 | - 5.9 | 0 | 5 | |
| | 16803 | .798 | 281.1 | 245.8 | +10.6 | 23 | 130 | 211 *c* | | *1308c* | .532 | 145.4 | 133.3 | -22.9 | 1 | 13 | |
| | | .834 | 98.1 | | | | | 281 | | 16807 | .711 | 81.3 | 107.3 | + 8.4 | 6 | 23 | |
| | | .919 | 69.9 | | | | | 233 | | 16808 | .897 | 77.1 | 88.8 | +13.0 | 39 | 241 | 347 *c* |
| | | .935 | 82.3 | | | | | 250 | | 16809 | .974 | 86.1 | 75.6 | + 4.5 | 30 | 150 | 390 *p* |
| | | .966 | 101.5 | | | | | 308 | | | .790 | 71.9 | | | | | 262 |
| July 1 | | | (-2.9) | (193.2) | ( + 2.9) | (23) | (130) | (1508) | | | .819 | 84.7 | | | | | 241 |
| | | | | | | | | | | | .869 | 108.7 | | | | | 162 |
| | | | | | | | | | | | .875 | 97.1 | | | | | 167 |
| 182.307 | | .920 | 261.3 | | | | | 140 | | | .909 | 62.5 | | | | | 371 |
| G | | .918 | 243.5 | | | | | 86 | July 4 | | | ( -1.5) | (152.4) | ( + 3.2) | (76) | (432) | (2151) |
| | | .844 | 295.1 | | | | | 90 | | | | | | | | | |
| | 16803 | .909 | 280.2 | 245.9 | +10.5 | 17 | 99 | 369 *f* | | | | | | | | | |
| | 16805 | .363 | 116.5 | 161.7 | - 6.4 | 4 | 15 | | 185.308 | | .970 | 253.2 | | | | | 117 |
| | 16806 | .894 | 81.1 | 117.5 | + 9.3 | 0 | 8 | 122 *c* | G | 16807 | .562 | 80.1 | 107.1 | + 8.3 | 3 | 15 | |
| | | .783 | 107.3 | | | | | 65 | | 16808 | .800 | 76.9 | 88.3 | +12.5 | 30 | 231 | 140 *c* |
| | | .791 | 97.7 | | | | | 103 | | 16809 | .908 | 86.7 | 75.8 | + 4.4 | 27 | 137 | 203 *c* |
| | | .810 | 69.3 | | | | | 196 | | | .792 | 52.3 | | | | | 129 |
| | | .822 | 84.0 | | | | | 130 | | | .831 | 86.3 | | | | | 370 |
| | | .891 | 103.4 | | | | | 252 | | | .880 | 64.0 | | | | | 356 |
| | | .919 | 92.8 | | | | | 175 | | | .921 | 72.7 | | | | | 182 |
| | | .959 | 80.9 | | | | | 301 | | | .940 | 78.7 | | | | | 235 |
| | | .968 | 73.9 | | | | | 318 | July 5 | | | ( -1.1) | (141.0) | ( + 3.3) | (60) | (383) | (1732) |
| July 2 | | | (-2.5) | (180.7) | ( + 3.0) | (21) | (122) | (2347) | | | | | | | | | |
| | | | | | | | | | 186.307 | | .958 | 276.6 | | | | | 79 |
| 183.303 | | .980 | 260.9 | | | | | 160 | G | 16810 | .876 | 276.1 | 188.9 | + 7.0 | 5 | 12 | 111 *c* |
| G | | .956 | 272.9 | | | | | 116 | | 16811 | .673 | 281.6 | 169.7 | +10.3 | 6 | 31 | |
| | | .909 | 256.5 | | | | | 124 | | *1308d* | .116 | 332.6 | 130.9 | + 9.3 | 1 | 12 | |
| | 16803 | .980 | 280.0 | 246.1 | +10.4 | 22 | 113 | 242 *f* | | *1308e* | .361 | 135.2 | 112.8 | -11.5 | 3 | 6 | |
| | 16805 | .186 | 159.2 | 163.7 | - 6.9 | 6 | 19 | | | 16808 | .644 | 74.0 | 88.6 | +12.8 | 32 | 181 | |
| | 16807 | .875 | 82.3 | 106.5 | + 8.2 | 2 | 9 | 323 *c* | | 16809 | .792 | 87.0 | 75.5 | + 4.4 | 21 | 102 | 207 *n* |
| | 16808 | .979 | 78.3 | 89.1 | +12.1 | 22 | 122 | 347 *c* | | 16812 | .985 | 99.3 | 48.6 | - 8.5 | 25 | 155 | 194 *c* |
| | | .780 | 79.8 | | | | | 162 | | | .787 | 70.5 | | | | | 150 |
| | | .789 | 93.1 | | | | | 150 | | | .829 | 59.2 | | | | | 267 |
| | | .795 | 104.8 | | | | | 110 | | | .905 | 80.8 | | | | | 254 |
| | | .912 | 73.1 | | | | | 741 | | | .928 | 70.5 | | | | | 154 |
| | | .912 | 93.6 | | | | | 126 | | | .934 | 55.6 | | | | | 175 |
| | | .921 | 101.6 | | | | | 112 | July 6 | | | ( -0.6) | (127.8) | ( + 3.4) | (93) | (499) | (1591) |
| | | .929 | 64.6 | | | | | 241 | | | | | | | | | |
| | | .938 | 84.4 | | | | | 297 | | | | | | | | | |
| | | .947 | 110.1 | | | | | 114 | 187.312 | | .790 | 256.2 | | | | | 150 |
| July 3 | | | (-2.0) | (167.5) | ( + 3.1) | (52) | (263) | (3365) | G | 16810 | .965 | 275.7 | 189.3 | + 6.4 | 17 | 66 | 143 *n* |

* Group 16806. July 2 - 9. One or two tiny spots, seen only on July 2 and 7 to 9.
Group 16807. July 3 - 7. Small spots, not seen on July 6.
Group 16808. July 3 - 14. Return of Group 16792; fifth appearance. A regular spot, with two companions between July 4 and 8.
Group 16809. July 4 - 14. Return of Group 16793. A slowly-diminishing regular spot, with occasional companions.
Group 16810. July 6 - 7. A tiny spot on July 6; a pair on July 7.
Group 16811. July 6 - 9. One or two small spots.
Group 16812. July 6 - 9. A few 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 |
| 1951 | | | ° | ° | ° | | | | 1951 | | | ° | ° | ° | | | |
| | 16811 | .826 | 280.0 | 170.0 | +10.3 | 17 | 78 | 84 *c* | | 16817 | .901 | 100.8 | 24.3 | - 8.0 | 144 | 811 | 967 *c* |
| | 16806 | .132 | 320.8 | 119.3 | + 9.4 | 0 | 7 | | | 16818 | .978 | 100.6 | 10.6 | - 9.5 | 92 | 792 | |
| | 16807 | .142 | 37.6 | 109.5 | + 9.9 | 4 | 14 | | July 9 | | | ( +0.8) | (87.4) | ( + 3.8) | (327) | (2130) | (2012) |
| | 16808 | .449 | 69.0 | 89.2 | +12.4 | 26 | 151 | | | | | | | | | | |
| | 16809 | .622 | 87.6 | 76.1 | + 4.2 | 18 | 87 | | | | | | | | | | |
| | 16812 | .925 | 100.8 | 48.0 | - 8.6 | 18 | 84 | 310 *c* | 190.480 | | .961 | 252.7 | | | | | 122 |
| | 16813 | .971 | 81.6 | 38.3 | + 9.0 | 25 | 217 | 200 *c* | G | | .930 | 263.1 | | | | | 212 |
| | | .781 | 51.8 | | | | | 78 | | | .802 | 254.5 | | | | | 92 |
| | | .827 | 63.6 | | | | | 118 | | | .776 | 274.0 | | | | | 92 |
| | | .843 | 78.6 | | | | | 180 | | 16814 | .585 | 279.1 | 108.1 | + 8.5 | 4 | 11 | |
| | | .849 | 70.3 | | | | | 65 | | 16816 | .484 | 304.9 | 97.3 | +19.6 | 3 | 17 | |
| | | .905 | 53.0 | | | | | 107 | | 16808 | .341 | 297.3 | 90.5 | +12.7 | 11 | 64 | |
| July 7 | | | ( -0.2) | (114.5) | ( + 3.5) | (125) | (704) | (1435) | | 16809 | .053 | 273.8 | 75.5 | + 4.1 | 7 | 30 | |
| | | | | | | | | | | 16813 | .589 | 78.3 | 36.8 | +10.0 | 34 | 185 | |
| | | | | | | | | | | 16817 | .763 | 104.1 | 24.3 | - 8.1 | 120 | 772 | 142 *c* |
| 188.368 | | .893 | 261.4 | | | | | 208 | | 16818 | .896 | 102.9 | 10.3 | - 9.7 | 97 | 823 | 909 *c* |
| G | 16811 | .934 | 279.8 | 169.6 | +10.4 | 19 | 115 | 166 *c* | | | .926 | 115.5 | | | | | 187 |
| | 16806 | .314 | 289.5 | 117.9 | + 9.5 | 1 | 11 | | | | .928 | 75.7 | | | | | 239 |
| | 16814 | .129 | 291.3 | 107.4 | + 6.3 | 0 | 7 | | | | .931 | 66.5 | | | | | 171 |
| | 16815 | .131 | 343.7 | 102.6 | +10.9 | 0 | 4 | | July 10 | | | ( +1.3) | (72.5) | ( + 3.9) | (276) | (1902) | (2166) |
| | 16816 | .276 | 3.1 | 99.6 | +19.6 | 2 | 13 | | | | | | | | | | |
| | 16808 | .242 | 51.4 | 89.4 | +12.3 | 15 | 113 | | | | | | | | | | |
| | 16809 | .415 | 88.5 | 76.0 | + 4.0 | 10 | 69 | | 191.576 | | .975 | 263.5 | | | | | 144 |
| | 16812 | .809 | 103.9 | 48.1 | - 8.9 | 15 | 67 | 248 *c* | G | | .936 | 288.7 | | | | | 113 |
| | 16813 | .900 | 81.1 | 36.3 | + 9.6 | 48 | 284 | 235 *c* | | | .904 | 279.4 | | | | | 262 |
| | 16817 | .974 | 98.8 | 24.5 | - 7.7 | 126 | 621 | 407 *c* | | | .871 | 271.0 | | | | | 112 |
| | 16818 | .995 | 99.5 | 17.2 | - 9.0 | 43 | 235 | | | | .866 | 259.7 | | | | | 201 |
| | | .784 | 70.9 | | | | | 83 | | | .798 | 285.5 | | | | | 240 |
| July 8 | | | ( +0.3) | (100.5) | ( + 3.7) | (279) | (1539) | (1347) | | 16808 | .552 | 287.3 | 90.6 | +12.8 | 8 | 44 | |
| | | | | | | | | | | 16809 | .294 | 272.1 | 75.1 | + 4.5 | 3 | 13 | |
| | | | | | | | | | | 16813 | .367 | 73.5 | 37.2 | + 9.7 | 28 | 127 | |
| 189.357 | | .971 | 262.3 | | | | | 213 | | 16817 | .580 | 109.7 | 24.8 | - 7.9 | 114 | 696 | |
| G | | .928 | 256.0 | | | | | 138 | | 16818 | .755 | 106.6 | 11.0 | - 9.7 | 105 | 783 | 280 *c* |
| | | .843 | 250.6 | | | | | 153 | | | .848 | 70.3 | | | | | 380 |
| | | .805 | 262.1 | | | | | 120 | | | .883 | 104.3 | | | | | 894 |
| | 16811 | .987 | 279.2 | 168.5 | + 9.7 | 15 | 97 | 209 *c* | | | .891 | 118.9 | | | | | 227 |
| | 16806 | .523 | 281.6 | 118.5 | + 9.3 | 0 | 3 | | July 11 | | | ( +1.7) | (58.0) | ( + 4.0) | (258) | (1663) | (2853) |
| | 16814 | .370 | 287.9 | 108.3 | +10.1 | 1 | 5 | | | | | | | | | | |
| | 16815 | .265 | 297.2 | 101.2 | +10,6 | 1 | 7 | | | | | | | | | | |
| | 16816 | .320 | 328.4 | 97.6 | +19.5 | 0 | 8 | | 192.304 | | .949 | 276.7 | | | | | 246 |
| | 16808 | .161 | 342.6 | 90.2 | +12.6 | 15 | 71 | | G | | .926 | 267.1 | | | | | 136 |
| | 16809 | .206 | 87.1 | 75.6 | + 4.3 | 7 | 59 | | | | .926 | 256.9 | | | | | 182 |
| | 16812 | .657 | 108.4 | 48.4 | - 9.0 | 12 | 52 | | | | .922 | 285.1 | | | | | 183 |
| | 16813 | .770 | 81.0 | 37.2 | + 9.3 | 40 | 225 | 212 *c* | | | .807 | 292.6 | | | | | 349 |

Group 16813. July 7 - 15. A small stream led by a small regular spot which becomes double for a day or two. The group dies out just past the central meridian.
Group 16814. July 8 - 12. One or two tiny spots, not seen on July 11.
Group 16815. July 8 - 9. One or two tiny spots.
Group 16816. July 8 - 10. One or two tiny spots.
Group 16817. July 8 - 20. A stable regular spot, followed by a few variable companions.
Group 16818. July 8 - 20. Return of Group 16795. A stream, in which the only stable component is in the leading part. This eventually becomes a regular spot and alone remains at the 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. | Umbræ | Whole Spots | Faculæ | | | Dist. | Pos. Angle | Long. | Lat. | Umbræ | Whole Spots | Faculæ |
| 1951 | | | ° | ° | ° | | | | 1951 | | | ° | ° | ° | | | |
| | | .783 | 281.0 | | | | | 213 | 195.400 | | .945 | 285.8 | | | | | 226 |
| | 16814 | .850 | 278.6 | 106.6 | + 9.4 | 2 | 11 | 201 *c* | G | | .938 | 276.1 | | | | | 270 |
| | 16808 | .678 | 284.7 | 90.5 | +12.9 | 10 | 44 | | | | .900 | 298.9 | | | | | 329 |
| | 16809 | .447 | 272.3 | 74.9 | + 4.7 | 3 | 13 | | | | .806 | 290.7 | | | | | 194 |
| | 16813 | .190 | 61.6 | 38.7 | + 9.2 | 13 | 57 | | | 16819 | .829 | 278.9 | 63.4 | + 9.8 | 2 | 14 | 147 *c* |
| | 16817 | .451 | 116.9 | 24.5 | - 8.0 | 136 | 741 | | | 16813 | .529 | 279.6 | 39.1 | + 8.8 | 1 | 8 | |
| | 16818 | .638 | 111.1 | 11.4 | -10.0 | 133 | 866 | | | 16817 | .376 | 235.5 | 25.6 | - 8.0 | 124 | 681 | |
| | | .795 | 107.7 | | | | | 710 | | 16818 | .261 | 198.4 | 12.2 | - 9.9 | 85 | 563 | |
| | | .797 | 123.3 | | | | | 129 | | 16820 | .371 | 160.5 | 0.0 | -16.0 | 4 | 30 | |
| | | .805 | 57.2 | | | | | 155 | | | .805 | 73.6 | | | | | 159 |
| | | .812 | 72.8 | | | | | 196 | | | .911 | 66.9 | | | | | 180 |
| | | .914 | 129.7 | | | | | 155 | July 15 | | | ( +3.5) | ( 7.4) | ( + 4.4) | (216) | (1296) | (1505) |
| | | .956 | 68.1 | | | | | 225 | | | | | | | | | |
| July 12 | | | ( +2.1) | ( 48.4) | ( + 4.1) | (297) | (1732) | (3080) | | | | | | | | | |
| | | | | | | | | | 196.302 | | .959 | 287.9 | | | | | 202 |
| | | | | | | | | | G | | .956 | 298.4 | | | | | 358 |
| | | | | | | | | | | | .890 | 306.7 | | | | | 181 |
| 193.299 | | .950 | 271.5 | | | | | 145 | | | .851 | 290.1 | | | | | 193 |
| G | | .932 | 282.5 | | | | | 377 | | 16819 | .945 | 278.2 | 66.5 | + 9.1 | 3 | 29 | 350 *c* |
| | | .870 | 293.4 | | | | | 385 | | 16821 | .810 | 255.6 | 47.9 | - 8.9 | 0 | 8 | 229 *c* |
| | | .816 | 272.4 | | | | | 183 | | 16817 | .540 | 247.3 | 25.6 | - 8.2 | 112 | 708 | |
| | 16808 | .824 | 283.1 | 90.5 | +13.1 | 8 | 34 | 188 *c* | | 16818 | .377 | 230.1 | 12.5 | - 9.7 | 53 | 366 | |
| | 16809 | .629 | 273.7 | 74.1 | + 5.5 | 1 | 10 | | | 16820 | .350 | 193.7 | 0.4 | -15.4 | 5 | 24 | |
| | 16813 | .107 | 324.7 | 38.8 | + 9.1 | 8 | 42 | | | *1309a* | .836 | 100.9 | 300.0 | - 6.6 | 5 | 8 | 60 *f* |
| | 16817 | .274 | 140.9 | 25.2 | - 8.2 | 130 | 685 | | | | .806 | 65.4 | | | | | 101 |
| | 16818 | .466 | 121.7 | 11.5 | -10.4 | 99 | 681 | | | | .871 | 73.3 | | | | | 70 |
| | | .854 | 70.9 | | | | | 149 | | | .929 | 78.8 | | | | | 92 |
| | | .949 | 61.1 | | | | | 163 | | | .946 | 104.1 | | | | | 140 |
| | | .977 | 73.4 | | | | | 133 | | | .966 | 115.9 | | | | | 184 |
| July 13 | | | ( +2.5) | ( 35.2) | ( + 4.1) | (246) | (1452) | (1723) | July 16 | | | ( +3.9) | (355.5) | ( + 4.4) | (178) | (1143) | (2160) |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 197.304 | | .970 | 280.0 | | | | | 224 |
| 194.303 | | .945 | 295.8 | | | | | 216 | G | | .962 | 297.3 | | | | | 124 |
| G | | .919 | 251.9 | | | | | 198 | | | .962 | 290.5 | | | | | 146 |
| | | .918 | 273.7 | | | | | 361 | | | .945 | 289.3 | | | | | 192 |
| | | .825 | 297.4 | | | | | 254 | | | .905 | 302.9 | | | | | 135 |
| | | .818 | 287.0 | | | | | 115 | | | .828 | 279.7 | | | | | 243 |
| | 16808 | .930 | 282.6 | 90.6 | +13.3 | 9 | 31 | 501 *mp* | | 16821 | .912 | 257.0 | 46.4 | - 9.9 | 0 | 26 | 312 *c* |
| | 16809 | .799 | 274.0 | 75.0 | + 5.7 | 0 | 4 | 170 *c* | | 16817 | .715 | 253.9 | 26.0 | - 8.2 | 128 | 621 | 92 *p* |
| | 16819 | .640 | 280.4 | 61.6 | +10.0 | 4 | 15 | | | 16818 | .543 | 244.1 | 11.8 | - 9.8 | 51 | 332 | |
| | 16813 | .304 | 286.4 | 39.1 | + 9.0 | 5 | 19 | | | 16820 | .465 | 219.1 | 0.0 | -16.7 | 1 | 5 | |
| | 16817 | .223 | 195.6 | 25.5 | - 8.0 | 109 | 623 | | | | .855 | 109.3 | | | | | 122 |
| | 16818 | .300 | 145.6 | 12.1 | -10.0 | 95 | 687 | | | | .860 | 79.7 | | | | | 130 |
| | | .881 | 59.0 | | | | | 126 | | | .920 | 120.3 | | | | | 256 |
| | | .915 | 73.0 | | | | | 250 | | | .956 | 112.1 | | | | | 86 |
| July 14 | | | ( +3.0) | ( 22.0) | ( + 4.3) | (222) | (1379) | (2191) | July 17 | | | ( +4.3) | (342.2) | ( + 4.5) | (180) | (984) | (2062) |

Group 16819. July 14 - 16. Two or three tiny spots.
Group 16820. July 15 - 21. A small spot, not seen on July 19 and 20.
Group 16821. July 16 - 17. A pair of tiny spots on July 16; three spots on the next day.

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 |
| 1951 | | | ° | ° | ° | | | | 1951 | | | ° | ° | ° | | | |
| 198.321 | | .940 | 289.0 | | | | | 151 | | | .919 | 246.3 | | | | | 335 |
| G | | .920 | 279.5 | | | | | 268 | | | .902 | 264.1 | | | | | 59 |
| | 16817 | .857 | 257.6 | 26.3 | - 8.1 | 101 | 564 | 399 *c* | | | .882 | 302.5 | | | | | 68 |
| | 16818 | .730 | 252.0 | 13.4 | - 9.7 | 38 | 256 | 171 *p* | | | .859 | 286.0 | | | | | 67 |
| | 16820 | .614 | 234.0 | 0.0 | -17.2 | 1 | 9 | | | 16820 | .970 | 251.1 | 2.8 | -17.0 | 0 | 4 | 466*np* |
| | 16822 | .955 | 96.6 | 256.8 | - 4.9 | 30 | 164 | 342 *f* | | 16824 | .481 | 144.3 | 272.3 | -18.2 | 0 | 2 | |
| | | .846 | 124.0 | | | | | 182 | | 16822 | .557 | 106.5 | 257.1 | - 4.9 | 31 | 160 | |
| | | .884 | 115.2 | | | | | 159 | | 16823 | .675 | 79.3 | 247.1 | +10.8 | 1 | 3 | |
| | | .933 | 73.5 | | | | | 133 | | | .883 | 64.9 | | | | | 49 |
| | | .966 | 85.3 | | | | | 272 | | | .927 | 23.7 | | | | | 77 |
| July 18 | | | ( +4.8) | (328.8) | ( + 4.6) | (170) | (993) | (2077) | July 21 | | | ( +6.1) | (289.4) | ( + 4.9) | (32) | (169) | (1951) |
| 199.566 | | .928 | 303.0 | | | | | 117 | 202.378 | | .974 | 297.1 | | | | | 126 |
| G | | .886 | 263.3 | | | | | 124 | G | | .972 | 253.2 | | | | | 232 |
| | | .840 | 290.0 | | | | | 149 | | | .955 | 244.0 | | | | | 161 |
| | | .827 | 235.3 | | | | | 275 | | | .948 | 283.8 | | | | | 143 |
| | | .801 | 258.1 | | | | | 134 | | | .881 | 233.5 | | | | | 174 |
| | | .780 | 284.3 | | | | | 107 | | | .850 | 287.3 | | | | | 152 |
| | | .774 | 245.3 | | | | | 77 | | 16824 | .399 | 172.4 | 271.9 | -18.2 | 8 | 24 | |
| | 16817 | .970 | 260.6 | 27.1 | - 7.9 | 103 | 481 | 465*sf* | | 16822 | .351 | 118.4 | 257.1 | - 4.8 | 21 | 149 | |
| | 16818 | .890 | 256.3 | 13.5 | - 9.9 | 31 | 152 | 593*sf* | | 16825 | .938 | 97.6 | 206.3 | - 5.3 | 3 | 13 | 231 *c* |
| | 16822 | .834 | 98.9 | 256.8 | - 4.7 | 41 | 209 | 405 *f* | | 16826 | .978 | 96.1 | 198.0 | - 4.8 | 41 | 216 | 295 *c* |
| | 16823 | .909 | 80.8 | 246.7 | +10.4 | 2 | 11 | 162 *f* | July 22 | | | ( +6.5) | (275.1) | ( + 5.0) | (73) | (402) | (1514) |
| | | .857 | 85.9 | | | | | 210 | | | | | | | | | |
| | | .952 | 69.0 | | | | | 130 | | | | | | | | | |
| July 19 | | | ( +5.3) | (312.3) | ( + 4.8) | (177) | (853) | (2948) | 203.381 | | .946 | 288.2 | | | | | 105 |
| | | | | | | | | | G | | .934 | 263.8 | | | | | 57 |
| | | | | | | | | | | | .919 | 298.2 | | | | | 101 |
| 200.303 | | .893 | 249.0 | | | | | 470 | | | .798 | 286.9 | | | | | 119 |
| G | | .890 | 280.4 | | | | | 181 | | *1309b* | .560 | 250.2 | 293.7 | - 6.5 | 0 | 7 | |
| | | .872 | 288.9 | | | | | 164 | | 16824 | .429 | 203.6 | 272.2 | -18.1 | 8 | 40 | |
| | | .858 | 256.4 | | | | | 219 | | 16822 | .188 | 155.1 | 257.3 | - 4.7 | 19 | 120 | |
| | | .843 | 240.7 | | | | | 224 | | 16827 | .435 | 97.6 | 236.4 | + 1.3 | 18 | 71 | |
| | | .832 | 297.8 | | | | | 146 | | 16825 | .821 | 100.3 | 207.8 | - 5.5 | 8 | 36 | 126 *c* |
| | 16817 | .996 | 262.0 | 26.6 | - 7.5 | 48 | 367 | 176*sf* | | 16826 | .901 | 98.4 | 198.5 | - 5.3 | 29 | 165 | 454 *c* |
| | 16818 | .956 | 258.2 | 14.1 | - 9.8 | 39 | 163 | 858*sf* | | | .921 | 86.2 | | | | | 132 |
| | 16822 | .731 | 101.1 | 256.8 | - 4.8 | 27 | 199 | 298 *f* | | | .983 | 81.9 | | | | | 154 |
| | 16823 | .825 | 80.2 | 247.0 | +10.8 | 4 | 8 | 138*nf* | July 23 | | | ( +7.0) | (261.8) | ( + 5.1) | (82) | (439) | (1248) |
| | | .773 | 87.4 | | | | | 58 | | | | | | | | | |
| July 20 | | | ( +5.6) | (302.6) | ( + 4.8) | (118) | (737) | (2932) | | | | | | | | | |
| | | | | | | | | | 204.303 | | .935 | 299.0 | | | | | 154 |
| | | | | | | | | | G | | .891 | 285.8 | | | | | 252 |
| 201.301 | | .964 | 281.7 | | | | | 137 | | | .779 | 295.6 | | | | | 234 |
| G | | .945 | 287.5 | | | | | 122 | | 16824 | .520 | 221.0 | 270.5 | -18.1 | 4 | 17 | |
| | | .940 | 257.1 | | | | | 361 | | 16822 | .215 | 218.0 | 257.2 | - 4.5 | 14 | 92 | |
| | | .933 | 236.5 | | | | | 89 | | 16823 | .098 | 357.8 | 249.8 | +10.8 | 7 | 16 | |
| | | .926 | 295.3 | | | | | 121 | | 16827 | .220 | 108.0 | 237.6 | + 1.2 | 30 | 148 | |

Group 16822. July 18 - 29. A small, slowly-diminishing, regular spot.
Group 16823. July 19 - 25. Return of Group 16803; third appearance. A tiny spot, not seen on July 23 and 24.
Group 16824. July 21 - 25. A pair of small spots.
Group 16825. July 22 - 25. One or two tiny spots.
Group 16826. July 22-Aug. 1. A very short stream, dying out before reaching the limb.
Group 16827. July 23 - 30. A stream, near the solar equator, led by a small regular spot which alone remains by July 28.

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

| U.T. | Group No. | MEASURES Dist. | MEASURES Pos. Angle | POSITION Long. | POSITION Lat. | AREA Umbræ | AREA Whole Spots | AREA Faculæ |
|---|---|---|---|---|---|---|---|---|
| 1951 | | | ° | ° | ° | | | |
| | 16825 | .666 | 103.2 | 209.2 | - 4.8 | 3 | 9 | |
| | 16826 | .777 | 101.3 | 199.9 | - 5.4 | 24 | 140 | 87 *f* |
| | | .883 | 97.6 | | | | | 258 |
| | | .933 | 82.0 | | | | | 159 |
| July 24 | | | (+7.4) | (249.6) | (+ 5.2) | (82) | (422) | (1144) |
| 205.302 G | | .971 | 285.8 | | | | | 152 |
| | | .923 | 296.9 | | | | | 173 |
| | | .887 | 289.6 | | | | | 136 |
| | | .859 | 260.1 | | | | | 123 |
| | | .803 | 279.3 | | | | | 73 |
| | 16824 | .676 | 235.8 | 272.3 | -18.1 | 1 | 11 | |
| | 16822 | .392 | 245.4 | 257.3 | - 4.5 | 15 | 87 | |
| | 16823 | .258 | 292.4 | 250.4 | +10.7 | 1 | 7 | |
| | 16827 | .079 | 196.0 | 237.6 | + 0.9 | 25 | 88 | |
| | 16828 | .371 | 117.8 | 217.2 | - 5.0 | 4 | 12 | |
| | 16825 | .454 | 111.6 | 211.4 | - 4.9 | 0 | 5 | |
| | 16826 | .609 | 106.6 | 200.6 | - 5.8 | 26 | 114 | |
| | 16829 | .816 | 83.2 | 181.6 | + 8.6 | 0 | 4 | 172 *f* |
| | | .769 | 99.8 | | | | | 176 |
| | | .906 | 102.4 | | | | | 108 |
| July 25 | | | (+7.8) | (236.4) | (+ 5.2) | (72) | (328) | (1113) |
| 206.635 G | | .973 | 291.3 | | | | | 187 |
| | | .938 | 278.7 | | | | | 116 |
| | | .938 | 258.2 | | | | | 106 |
| | | .928 | 240.3 | | | | | 200 |
| | | .926 | 285.9 | | | | | 85 |
| | | .926 | 250.1 | | | | | 85 |
| | | .898 | 230.9 | | | | | 92 |
| | | .834 | 239.9 | | | | | 219 |
| | 16822 | .639 | 256.4 | 257.2 | - 4.4 | 16 | 72 | |
| | 16827 | .326 | 257.1 | 237.2 | + 1.0 | 10 | 59 | |
| | 16828 | .180 | 171.7 | 217.3 | - 4.8 | 5 | 25 | |
| | 16826 | .357 | 122.4 | 201.2 | - 5.9 | 25 | 120 | |
| | 16829 | .572 | 81.2 | 184.0 | + 9.4 | 1 | 16 | |
| | | .836 | 112.7 | | | | | 88 |
| | | .931 | 82.2 | | | | | 140 |
| | | .933 | 98.3 | | | | | 152 |
| | | .960 | 110.1 | | | | | 130 |
| July 26 | | | (+8.3) | (218.8) | (+ 5.4) | (57) | (292) | (1600) |
| 207.392 G | | .924 | 243.0 | | | | | 201 |
| | 16822 | .762 | 259.5 | 257.3 | - 4.4 | 11 | 55 | 89 *c* |
| | 16830 | .611 | 236.8 | 240.6 | -14.9 | 4 | 19 | |

| U.T. | Group No. | MEASURES Dist. | MEASURES Pos. Angle | POSITION Long. | POSITION Lat. | AREA Umbræ | AREA Whole Spots | AREA Faculæ |
|---|---|---|---|---|---|---|---|---|
| 1951 | | | ° | ° | ° | | | |
| | 16827 | .502 | 262.0 | 238.5 | + 0.7 | 8 | 33 | |
| | 16828 | .254 | 227.9 | 219.6 | - 4.5 | 4 | 19 | |
| | 16826 | .225 | 152.8 | 202.9 | - 6.1 | 19 | 94 | |
| | | .924 | 99.5 | | | | | 119 |
| | | .939 | 82.5 | | | | | 99 |
| July 27 | | | (+8.7) | (208.8) | (+ 5.4) | (46) | (220) | (508) |
| 208.304 G | | .965 | 245.4 | | | | | 173 |
| | | .956 | 281.8 | | | | | 69 |
| | | .865 | 277.3 | | | | | 132 |
| | | .824 | 255.6 | | | | | 202 |
| | 16822 | .878 | 262.2 | 257.2 | - 4.1 | 9 | 35 | 138 *s* |
| | 16830 | .766 | 244.7 | 242.4 | -15.2 | 34 | 159 | 98 *c* |
| | 16827 | .717 | 264.6 | 242.1 | 0.0 | 4 | 20 | |
| | 16828 | .428 | 248.0 | 220.0 | - 4.1 | 3 | 14 | |
| | 16826 | .234 | 211.8 | 203.8 | - 6.0 | 19 | 75 | |
| | 16831 | .352 | 117.5 | 178.5 | - 4.1 | 3 | 12 | |
| | | .817 | 84.4 | | | | | 138 |
| | | .898 | 94.0 | | | | | 150 |
| | | .926 | 103.2 | | | | | 105 |
| | | .935 | 76.4 | | | | | 121 |
| | | .939 | 83.0 | | | | | 314 |
| July 28 | | | (+9.0) | (196.7) | (+ 5.5) | (72) | (315) | (1640) |
| 209.367 C | | .949 | 273.5 | | | | | 77 |
| | | .932 | 258.9 | | | | | 212 |
| | | .911 | 280.1 | | | | | 128 |
| | 16822 | .967 | 264.2 | 257.0 | - 4.1 | 0 | 35 | 90 *f* |
| | 16830 | .894 | 249.4 | 242.7 | -15.5 | 56 | 276 | 128 *c* |
| | 16827 | .865 | 266.9 | 242.1 | + 0.2 | 0 | 9 | 108 *f* |
| | 16826 | .418 | 241.5 | 204.2 | - 6.3 | 15 | 58 | |
| | 16832 | .205 | 212.7 | 188.9 | - 4.3 | 2 | 18 | |
| | 16831 | .175 | 164.7 | 180.0 | - 4.1 | 1 | 7 | |
| | | .824 | 79.1 | | | | | 206 |
| | | .876 | 105.9 | | | | | 92 |
| | | .922 | 91.7 | | | | | 114 |
| | | .923 | 82.4 | | | | | 201 |
| | | .964 | 74.4 | | | | | 379 |
| July 29 | | | (+9.5) | (182.6) | (+ 5.6) | (74) | (403) | (1735) |
| 210.306 G | | .963 | 258.9 | | | | | 146 |
| | | .941 | 279.7 | | | | | 175 |
| | | .921 | 289.9 | | | | | 110 |
| | | .790 | 257.4 | | | | | 112 |
| | 16827 | .952 | 267.9 | 242.0 | - 0.2 | 0 | 8 | 200 *f* |

Group 16828. July 25 - 31. A small spot, not seen on July 29 and 30.
Group 16829. July 25 - 26. A tiny spot on July 25; a pair on July 26.
Group 16830. July 27 - 31. A short stream, developing near the west limb.
Group 16831. July 28-Aug. 4. A pair of small spots which, after July 30, suddenly increase in area and become composite.
Group 16832. July 29-Aug. 2. One or two tiny spots, not seen on July 30 and 31.

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 |
| 1951 | | | ° | ° | ° | | | | 1951 | | | ° | ° | ° | | | |
| | 16830 | .962 | 251.7 | 241.6 | -15.8 | 79 | 409 | 329 *c* | 213.302 | | .958 | 263.0 | | | | | 229 |
| | 16826 | .601 | 250.5 | 204.8 | - 6.8 | 17 | 40 | | G | 16832 | .869 | 261.1 | 189.8 | - 4.7 | 0 | 9 | 164 *c* |
| | 16831 | .230 | 221.2 | 178.9 | - 4.2 | 3 | 7 | | | 16831 | .781 | 261.7 | 181.1 | - 2.8 | 50 | 272 | 96 *c* |
| | 16833 | .574 | 115.5 | 138.6 | - 9.4 | 1 | 9 | | | 16833 | .291 | 205.7 | 137.9 | - 9.3 | 23 | 89 | |
| | 16834 | .663 | 82.4 | 128.6 | + 9.3 | 3 | 12 | | | 16834 | .062 | 339.5 | 131.9 | + 9.3 | 0 | 4 | |
| | | .829 | 83.6 | | | | | 164 | | 16836 | .560 | 69.9 | 97.6 | +16.1 | 1 | 8 | |
| | | .833 | 95.1 | | | | | 140 | | 16835 | .844 | 87.2 | 72.9 | + 5.5 | 0 | 8 | 133 *f* |
| | | .851 | 106.5 | | | | | 192 | | 16837 | .902 | 81.7 | 65.9 | +10.0 | 0 | 10 | 140 *n* |
| | | .933 | 73.4 | | | | | 647 | | | .891 | 61.2 | | | | | 331 |
| | | .953 | 63.4 | | | | | 121 | | | .923 | 71.5 | | | | | 103 |
| | | .967 | 87.0 | | | | | 232 | | | .965 | 99.0 | | | | | 226 |
| July 30 | | | ( +9.9) | (170.2) | ( + 5.7) | (103) | (485) | (2568) | Aug. 2 | | | ( +11.1) | (130.6) | ( + 5.9) | (74) | (400) | (1422) |
| 211.303 | 16830 | .992 | 253.4 | 237.6 | -15.6 | 27 | 122 | 130 *c* | 214.305 | | .962 | 263.7 | | | | | 310 |
| G | 16828 | .871 | 260.9 | 216.5 | - 5.0 | 0 | 20 | 179 *c* | G | | .947 | 272.9 | | | | | 71 |
| | 16826 | .770 | 256.4 | 205.7 | - 6.7 | 7 | 43 | 123 *c* | | | .913 | 279.1 | | | | | 105 |
| | 16831 | .408 | 248.1 | 179.2 | - 3.4 | 15 | 104 | | | | .878 | 254.3 | | | | | 114 |
| | 16833 | .414 | 127.9 | 137.8 | - 9.3 | 12 | 66 | | | 16831 | .910 | 264.2 | 182.1 | - 2.8 | 38 | 164 | 192 *c* |
| | 16834 | .434 | 79.3 | 131.5 | + 9.8 | 3 | 12 | | | 16833 | .453 | 234.4 | 139.1 | - 9.7 | 10 | 50 | |
| | | .785 | 80.1 | | | | | 174 | | 16836 | .385 | 60.8 | 96.9 | +16.3 | 5 | 17 | |
| | | .797 | 68.9 | | | | | 207 | | 16835 | .689 | 87.9 | 73.7 | + 5.7 | 0 | 3 | |
| | | .891 | 92.8 | | | | | 156 | | 16837 | .755 | 83.0 | 68.1 | + 9.1 | 14 | 61 | 129 *f* |
| | | .902 | 73.7 | | | | | 450 | | | .851 | 57.1 | | | | | 207 |
| | | .923 | 61.5 | | | | | 297 | | | .884 | 101.4 | | | | | 171 |
| | | .923 | 84.4 | | | | | 273 | | | .915 | 69.7 | | | | | 135 |
| July 31 | | | ( +10.3) | (157.0) | ( + 5.7) | (64) | (367) | (1989) | | | .934 | 79.3 | | | | | 197 |
| | | | | | | | | | | | .962 | 104.3 | | | | | 207 |
| | | | | | | | | | | | .964 | 59.0 | | | | | 222 |
| 212.653 | | .981 | 263.8 | | | | | 186 | Aug. 3 | | | ( +11.5) | (117.3) | ( + 5.9) | (67) | (295) | (2060) |
| G | 16826 | .935 | 261.0 | 207.2 | - 6.3 | 7 | 19 | 201 *nf* | | | | | | | | | |
| | 16832 | .802 | 260.8 | 191.5 | - 3.8 | 0 | 10 | 102 *c* | | | | | | | | | |
| | 16831 | .678 | 259.4 | 180.9 | - 2.8 | 39 | 262 | | 215.426 | 16831 | .988 | 265.9 | 182.9 | - 3.0 | 13 | 85 | 135 *c* |
| | 16833 | .266 | 175.2 | 137.9 | - 9.6 | 18 | 81 | | C | 16833 | .662 | 246.6 | 140.5 | -10.5 | 6 | 25 | |
| | 16834 | .131 | 63.6 | 132.4 | + 9.1 | 1 | 4 | | | 16837 | .532 | 84.7 | 70.3 | + 7.9 | 18 | 114 | |
| | 16835 | .920 | 86.5 | 72.1 | + 5.5 | 0 | 6 | 326 *n* | | 16838 | .952 | 83.6 | 30.0 | + 7.9 | 11 | 58 | 162 *c* |
| | | .776 | 72.4 | | | | | 100 | | 16840 | .978 | 82.9 | 24.1 | + 8.2 | 21 | 85 | |
| | | .799 | 58.2 | | | | | 163 | | 16839 | .962 | 99.3 | 29.6 | - 7.2 | 40 | 272 | 200 *c* |
| | | .826 | 83.6 | | | | | 232 | | | .840 | 109.3 | | | | | 106 |
| | | .911 | 71.0 | | | | | 193 | | | .850 | 82.5 | | | | | 108 |
| | | .928 | 61.6 | | | | | 336 | | | .969 | 107.1 | | | | | 111 |
| Aug. 1 | | | ( +10.8) | (139.2) | ( + 5.8) | (65) | (382) | (1839) | Aug. 4 | | | ( +11.9) | (102.5) | ( + 6.0) | (109) | (639) | (822) |

Group 16833. July 30-Aug. 5. A stream of changing spots, of which one remains on August 5.
Group 16834. July 30-Aug. 2. A pair of tiny spots on July 30 and 31; a single spot on the other days.
Group 16835. Aug. 1 - 3. A tiny spot.
Group 16838. Aug. 2 - 7. One or two tiny spots.
Group 16837. Aug. 2 - 13. A stream of small variable spots which gradually increase in area and coalesce into a composite structure on August 9, after which the group begins to break up and decline.
Group 16838. Aug. 4 - 15. A stable regular spot, followed by a few companions between August 7 and 9.
Group 16839. Aug. 4 - 15. Return of Group 16817. A stable regular spot.
Group 16840. Aug. 4 - 16. At first a pair of spots; by August 8 other spots appear, forming a stream of normal type, the follower of which soon breaks up and dies out.

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

| U. T. | Group No. | MEASURES Dist. | MEASURES Pos. Angle | POSITION Long. | POSITION Lat. | AREA Umbræ | AREA Whole Spots | AREA Faculæ |
|---|---|---|---|---|---|---|---|---|
| 1951 | | | ° | ° | ° | | | |
| 216.452 | | .917 | 250.1 | | | | | 156 |
| G | | .903 | 275.9 | | | | | 164 |
| | 16833 | .848 | 253.1 | 144.5 | -10.8 | 5 | 11 | 117 *f* |
| | 16837 | .331 | 83.0 | 69.7 | + 8.0 | 25 | 234 | |
| | 16838 | .838 | 84.7 | 31.9 | + 7.8 | 29 | 163 | 127 *c* |
| | 16839 | .872 | 101.5 | 29.8 | - 6.9 | 48 | 297 | 188 *f* |
| | 16840 | .911 | 83.9 | 23.1 | + 8.0 | 30 | 185 | 214 *c* |
| | | .917 | 110.7 | | | | | 156 |
| | | .953 | 71.9 | | | | | 104 |
| | | .973 | 102.4 | | | | | 562 |
| Aug. 5 | | | (+12.3) | (89.0) | (+ 6.1) | (137) | (890) | (1788) |
| 217.322 | | .963 | 275.6 | | | | | 154 |
| C | | .893 | 255.4 | | | | | 158 |
| | 16837 | .135 | 75.6 | 69.9 | + 7.9 | 28 | 257 | |
| | 16838 | .696 | 86.4 | 33.2 | + 6.9 | 28 | 178 | |
| | 16839 | .752 | 105.0 | 30.5 | - 7.1 | 57 | 354 | 104 *f* |
| | 16840 | .818 | 84.0 | 22.3 | + 8.4 | 46 | 253 | 191 *c* |
| | 16841 | .886 | 78.7 | 14.6 | +12.8 | 2 | 17 | |
| | | .822 | 115.7 | | | | | 87 |
| | | .930 | 108.2 | | | | | 435 |
| | | .948 | 72.2 | | | | | 234 |
| | | .950 | 100.6 | | | | | 308 |
| Aug. 6 | | | (+12.6) | (77.4) | (+ 6.1) | (161) | (1059) | (1671) |
| 218.354 | | .951 | 256.8 | | | | | 264 |
| G | | .945 | 277.4 | | | | | 145 |
| | | .901 | 264.8 | | | | | 109 |
| | | .898 | 266.1 | | | | | 104 |
| | | .843 | 276.6 | | | | | 173 |
| | *1309c* | .687 | 283.0 | 107.1 | +13.4 | 1 | 6 | |
| | 16836 | .526 | 294.2 | 93.9 | +17.8 | 1 | 5 | |
| | 16837 | .142 | 280.6 | 71.9 | + 7.7 | 20 | 131 | |
| | 16842 | .291 | 31.8 | 54.4 | +20.4 | 3 | 6 | |
| | 16838 | .502 | 86.4 | 33.6 | + 7.2 | 36 | 207 | |
| | 16839 | .577 | 111.0 | 31.1 | - 6.7 | 66 | 307 | |
| | 16843 | .617 | 115.0 | 29.3 | -10.0 | 6 | 29 | |
| | 16840 | .657 | 84.3 | 22.6 | + 8.5 | 27 | 181 | |
| | 16841 | .748 | 77.0 | 15.4 | +13.8 | 4 | 10 | 104 *f* |
| | 16844 | .992 | 102.4 | 342.7 | -11.4 | 19 | 96 | 220 *c* |
| | | .842 | 107.0 | | | | | 980 |
| | | .864 | 78.6 | | | | | 72 |
| | | .883 | 70.7 | | | | | 170 |
| | | .928 | 63.6 | | | | | 116 |
| | | .956 | 111.7 | | | | | 366 |
| Aug. 7 | | | (+13.0) | (63.8) | (+ 6.2) | (183) | (978) | (2823) |

| U. T. | Group No. | MEASURES Dist. | MEASURES Pos. Angle | POSITION Long. | POSITION Lat. | AREA Umbræ | AREA Whole Spots | AREA Faculæ |
|---|---|---|---|---|---|---|---|---|
| 1951 | | | ° | ° | ° | | | |
| 219.345 | | .969 | 286.4 | | | | | 173 |
| G | | .917 | 264.5 | | | | | 148 |
| | | .910 | 277.4 | | | | | 259 |
| | | .839 | 281.0 | | | | | 250 |
| | | .787 | 289.4 | | | | | 164 |
| | 16837 | .353 | 275.0 | 71.4 | + 7.7 | 32 | 302 | |
| | 16838 | .274 | 85.7 | 34.8 | + 7.2 | 45 | 219 | |
| | 16839 | .402 | 123.2 | 31.0 | - 6.7 | 53 | 340 | |
| | 16843 | .440 | 128.7 | 30.4 | -10.0 | 15 | 91 | |
| | 16840 | .487 | 82.8 | 21.5 | + 9.0 | 41 | 224 | |
| | 16844 | .952 | 104.7 | 340.7 | -11.9 | 58 | 402 | 231 *c* |
| | | .787 | 106.5 | | | | | 158 |
| | | .798 | 120.8 | | | | | 209 |
| | | .827 | 67.5 | | | | | 121 |
| | | .885 | 123.0 | | | | | 142 |
| | | .925 | 120.4 | | | | | 104 |
| | | .955 | 60.6 | | | | | 106 |
| Aug. 8 | | | (+13.4) | (50.7) | (+ 6.3) | (244) | (1578) | (2065) |
| 220.312 | | .944 | 281.8 | | | | | 258 |
| G | | .937 | 269.6 | | | | | 103 |
| | | .861 | 287.0 | | | | | 438 |
| | | .801 | 297.2 | | | | | 114 |
| | | .796 | 271.8 | | | | | 160 |
| | 16837 | .553 | 274.5 | 71.6 | + 7.8 | 65 | 540 | |
| | 16838 | .045 | 60.9 | 35.6 | + 7.6 | 39 | 181 | |
| | 16839 | .256 | 151.4 | 30.8 | - 6.7 | 66 | 317 | |
| | 16843 | .306 | 154.6 | 30.3 | - 9.7 | 17 | 71 | |
| | 16840 | .319 | 77.6 | 19.5 | + 9.9 | 73 | 368 | |
| | 16844 | .863 | 107.8 | 341.0 | -11.9 | 83 | 490 | 150 *c* |
| | | .808 | 120.6 | | | | | 144 |
| Aug. 9 | | | (+13.8) | (37.9) | (+ 6.3) | (343) | (1967) | (1367) |
| 221.645 | | .961 | 287.0 | | | | | 535 |
| G | | .946 | 267.6 | | | | | 157 |
| | | .940 | 296.4 | | | | | 193 |
| | | .935 | 255.9 | | | | | 165 |
| | | .925 | 275.6 | | | | | 298 |
| | | .865 | 288.9 | | | | | 132 |
| | | .831 | 297.7 | | | | | 224 |
| | 16837 | .781 | 275.0 | 71.9 | + 7.9 | 32 | 254 | 253 *c* |
| | 16838 | .273 | 275.0 | 36.1 | + 7.5 | 33 | 176 | |
| | 16843 | .331 | 215.5 | 31.5 | - 9.3 | 6 | 18 | |
| | 16839 | .292 | 218.8 | 30.9 | - 6.8 | 53 | 267 | |
| | 16840 | .055 | 357.2 | 20.5 | + 9.5 | 73 | 474 | |
| | 16844 | .684 | 115.4 | 341.3 | -12.1 | 66 | 500 | 85 *c* |

Group 16841. Aug. 6 - 7. A tiny spot.
Group 16842. Aug. 7 - 13. One or two tiny spots, seen only on August 7, 12 and 13.
Group 16843. Aug. 7 - 14. A few changing spots, immediately s Group 16839.
Group 16844. Aug. 7 - 19. A stream, whose principal component is a regular spot which divides into two by August 12. The whole group is dying out as it approaches the 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. | Umbræ | Whole Spots | Faculæ | | | Dist. | Pos. Angle | Long. | Lat. | Umbræ | Whole Spots | Faculæ |
| 1951 | | | ° | ° | ° | | | | 1951 | | | ° | ° | ° | | | |
| | *1309d* | .852 | 99.4 | 323.1 | - 4.5 | 0 | 5 | 86 *f* | 225.299 | | .966 | 288.9 | | | | | 270 |
| | | .902 | 73.1 | | | | | 158 | G | | .911 | 307.2 | | | | | 192 |
| | | .968 | 64.8 | | | | | 98 | | 16838 | .896 | 275.4 | 36.1 | + 8.1 | 24 | 159 | 263 *c* |
| Aug.10 | | | ( +14.2) | (20.3) | ( + 6.4) | (263) | (1694) | (2384) | | 16839 | .870 | 258.3 | 30.9 | - 6.8 | 41 | 236 | 173 *c* |
| | | | | | | | | | | 16843 | .863 | 253.2 | 29.1 | -10.9 | 0 | 9 | 256 *s* |
| | | | | | | | | | | 16840 | .754 | 277.0 | 21.2 | + 9.6 | 73 | 440 | 207 *c* |
| 222.435 | | .934 | 287.1 | | | | | 148 | | 16844 | .365 | 209.3 | 342.5 | -12.0 | 21 | 121 | |
| C | | .919 | 295.9 | | | | | 168 | | 16845 | .912 | 112.7 | 270.3 | -17.5 | 0 | 19 | 294 *f* |
| | 16837 | .882 | 275.5 | 72.0 | + 7.9 | 52 | 279 | 527 *c* | | | .899 | 80.7 | | | | | 104 |
| | 16838 | .440 | 273.4 | 36.0 | + 7.2 | 39 | 184 | | | | .913 | 121.9 | | | | | 111 |
| | 16843 | .459 | 236.6 | 32.5 | - 8.7 | 1 | 6 | | | | .952 | 99.0 | | | | | 148 |
| | 16839 | .421 | 237.5 | 30.7 | - 7.1 | 41 | 281 | | Aug.14 | | | ( +15.5) | (332.0) | ( + 6.6) | (159) | (984) | (2018) |
| | 16840 | .192 | 283.4 | 20.6 | + 8.8 | 78 | 500 | | | | | | | | | | |
| | 16844 | .558 | 123.3 | 341.4 | -12.1 | 74 | 360 | | | | | | | | | | |
| | | .768 | 100.5 | | | | | 90 | 226.540 | | .910 | 211.2 | | | | | 300 |
| | | .815 | 69.9 | | | | | 86 | G | | .839 | 244.4 | | | | | 239 |
| | | .947 | 66.3 | | | | | 75 | | | .786 | 256.3 | | | | | 177 |
| Aug.11 | | | ( +14.5) | (9.8) | ( + 6.4) | (285) | (1610) | (1094) | | | .786 | 286.0 | | | | | 102 |
| | | | | | | | | | | 16838 | .985 | 276.4 | 36.2 | + 7.5 | 25 | 195 | 130 *c* |
| | | | | | | | | | | 16839 | .971 | 261.5 | 30.5 | - 6.5 | 47 | 226 | 161 *f* |
| | | | | | | | | | | 16840 | .922 | 277.4 | 23.3 | + 9.4 | 60 | 366 | 340 *c* |
| 223.361 | | .955 | 290.3 | | | | | 153 | | 16844 | .551 | 236.2 | 343.4 | -11.8 | 14 | 69 | |
| G | | .920 | 297.5 | | | | | 144 | | 16845 | .786 | 119.2 | 269.6 | -17.9 | 33 | 135 | 93 *c* |
| | | .849 | 255.1 | | | | | 125 | | 16846 | .940 | 107.8 | 248.4 | -14.2 | 0 | 20 | 190 *p* |
| | | .845 | 302.6 | | | | | 124 | | | .962 | 110.1 | | | | | 281 |
| | | .789 | 312.9 | | | | | 78 | Aug.15 | | | ( +16.0) | (315.6) | ( + 6.7) | (179) | (1011) | (2013) |
| | 16837 | .952 | 277.8 | 70.4 | + 9.4 | 30 | 119 | 593 *c* | | | | | | | | | |
| | 16842 | .845 | 289.5 | 55.3 | +19.9 | 5 | 21 | 152 *c* | | | | | | | | | |
| | 16838 | .619 | 273.7 | 36.0 | + 7.4 | 29 | 135 | | 227.300 | | .923 | 250.2 | | | | | 355 |
| | 16839 | .585 | 248.8 | 30.8 | - 6.7 | 54 | 224 | | G | | .906 | 238.6 | | | | | 214 |
| | 16843 | .570 | 242.9 | 28.4 | - 9.4 | 5 | 21 | | | | .876 | 256.6 | | | | | 260 |
| | 16840 | .389 | 278.7 | 20.4 | + 9.3 | 85 | 532 | | | | .867 | 285.6 | | | | | 188 |
| | 16844 | .421 | 137.8 | 340.9 | -11.8 | 58 | 298 | | | | .792 | 243.2 | | | | | 160 |
| | | .858 | 64.3 | | | | | 155 | | 16840 | .981 | 278.5 | 24.9 | + 9.6 | 60 | 376 | 435 *c* |
| | | .891 | 82.7 | | | | | 130 | | 16844 | .680 | 244.2 | 344.1 | -11.9 | 8 | 30 | |
| Aug.12 | | | ( +14.9) | (357.6) | ( + 6.5) | (266) | (1350) | (1654) | | 16845 | .677 | 126.6 | 270.7 | -18.2 | 19 | 109 | |
| | | | | | | | | | | *1310a* | .665 | 85.4 | 263.7 | + 8.0 | 0 | 5 | |
| | | | | | | | | | | 16846 | .872 | 110.4 | 248.3 | -14.1 | 2 | 9 | 155 *c* |
| 224.361 | | .954 | 260.6 | | | | | 143 | | 16847 | .927 | 111.6 | 241.3 | -17.1 | 30 | 169 | 363 *c* |
| G | | .926 | 300.0 | | | | | 144 | | | .918 | 93.9 | | | | | 129 |
| | | .905 | 252.8 | | | | | 132 | | | .945 | 80.4 | | | | | 97 |
| | | .898 | 277.9 | | | | | 90 | Aug.16 | | | ( +16.2) | (305.5) | ( + 6.7) | (119) | (698) | (2356) |
| | 16837 | .994 | 279.8 | 68.9 | +10.4 | 0 | 61 | 212 *f* | | | | | | | | | |
| | 16842 | .942 | 289.0 | 55.6 | +20.0 | 7 | 26 | 232 *c* | | | | | | | | | |
| | 16838 | .781 | 274.6 | 36.0 | + 7.7 | 30 | 132 | 73 *c* | 228.335 | | .963 | 255.0 | | | | | 304 |
| | 16839 | .747 | 255.0 | 30.8 | - 6.7 | 38 | 212 | | C | | .930 | 286.2 | | | | | 194 |
| | 16843 | .736 | 249.5 | 28.7 | -10.3 | 4 | 13 | | | | .909 | 246.2 | | | | | 242 |
| | 16840 | .594 | 277.1 | 20.9 | + 9.4 | 68 | 484 | | | 16844 | .823 | 250.7 | 344.2 | -11.7 | 4 | 27 | 174 *f* |
| | 16844 | .324 | 172.0 | 341.8 | -12.1 | 42 | 218 | | | 16845 | .532 | 141.4 | 271.5 | -18.2 | 18 | 115 | |
| | 16845 | .983 | 109.7 | 268.0 | -17.9 | 0 | 13 | 137 *c* | | 16847 | .820 | 117.0 | 242.0 | -17.6 | 19 | 148 | 309 *c* |
| Aug.13 | | | ( +15.2) | (344.4) | ( + 6.5) | (189) | (1159) | (1163) | Aug.17 | | | ( +16.6) | (291.9) | ( + 6.7) | (41) | (290) | (1223) |

Group 16845. Aug. 13 - 25. A stream, in which the leader is a small, slowly-diminishing spot. The follower, a small composite spot, eventually becomes the largest component.

Group 16846. Aug. 15 - 16. A tiny spot.

Group 16847. Aug. 16 - 25. Return of Group 16830. A group of small variable scattered 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 |
| 1951 | | | ° | ° | ° | | | | 1951 | | | ° | ° | ° | | | |
| 229.303 | | .942 | 239.8 | | | | | 185 | | 16850 | .964 | 97.8 | 152.6 | - 5.6 | 4 | 17 | 120 *c* |
| G | | .930 | 294.0 | | | | | 192 | | | .825 | 100.4 | | | | | 136 |
| | 16844 | .927 | 253.9 | 344.5 | -12.1 | 3 | 18 | 311 *f* | | | .874 | 80.3 | | | | | 214 |
| | 16845 | .444 | 162.9 | 271.2 | -18.3 | 34 | 169 | | Aug.22 | | | (+18.2) | (226.0) | (+ 6.9) | (66) | (398) | (1110) |
| | 16847 | .707 | 124.1 | 241.3 | -17.9 | 35 | 140 | 102 *c* | | | | | | | | | |
| | | .852 | 98.5 | | | | | 83 | | | | | | | | | |
| | | .912 | 104.7 | | | | | 77 | 234.306 | | .958 | 254.5 | | | | | 71 |
| | | .937 | 96.1 | | | | | 145 | G | | .895 | 274.9 | | | | | 164 |
| Aug.18 | | | (+16.9) | (279.1) | (+ 6.8) | (72) | (327) | (1095) | | 16845 | .867 | 243.7 | 267.8 | -18.6 | 53 | 343 | 569 *c* |
| | | | | | | | | | | 16848 | .793 | 239.8 | 259.1 | -18.7 | 6 | 19 | |
| 230.372 | 16844 | .975 | 256.1 | 339.9 | -11.8 | 0 | 24 | 292 *c* | | 16847 | .645 | 236.6 | 246.6 | -15.0 | 3 | 23 | |
| G | 16845 | .430 | 194.1 | 271.2 | -17.8 | 28 | 176 | | | 16849 | .677 | 86.7 | 170.1 | + 7.4 | 3 | 12 | |
| | 16848 | .433 | 168.8 | 259.8 | -18.2 | 11 | 54 | | | 16850 | .882 | 100.1 | 152.4 | - 5.5 | 5 | 15 | 178 *f* |
| | 16847 | .555 | 137.1 | 241.6 | -17.6 | 19 | 128 | | | | .758 | 73.1 | | | | | 55 |
| | | .840 | 98.3 | | | | | 168 | | | .804 | 82.4 | | | | | 213 |
| | | .940 | 97.2 | | | | | 193 | | | .934 | 81.1 | | | | | 164 |
| Aug.19 | | | (+17.3) | (264.9) | (+ 6.8) | (58) | (382) | (653) | Aug.23 | | | (+18.5) | (212.9) | (+ 7.0) | (70) | (412) | (1414) |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 235.514 | | .946 | 275.9 | | | | | 87 |
| 231.369 | | .954 | 262.6 | | | | | 131 | G | | .933 | 259.6 | | | | | 125 |
| G | | .940 | 293.8 | | | | | 126 | | 16845 | .960 | 248.5 | 267.0 | -18.3 | 38 | 233 | 439 *c* |
| | | .895 | 285.7 | | | | | 152 | | 16848 | .913 | 245.9 | 258.4 | -18.6 | 0 | 11 | 107 *c* |
| | 16845 | .510 | 215.4 | 269.7 | -17.9 | 38 | 253 | | | 16847 | .822 | 246.4 | 248.0 | -14.8 | 0 | 8 | 472 *c* |
| | 16848 | .454 | 200.4 | 261.3 | -18.3 | 19 | 94 | | | 16851 | .727 | 236.9 | 236.7 | -18.0 | 1 | 10 | 85 *sp* |
| | 16847 | .460 | 157.7 | 241.2 | -18.3 | 11 | 62 | | | 16849 | .450 | 91.9 | 170.3 | + 5.4 | 1 | 9 | |
| | *1310b* | .844 | 100.2 | 195.4 | - 4.8 | 0 | 13 | 160 *c* | | 16850 | .707 | 105.5 | 154.0 | - 5.8 | 1 | 5 | 74 *f* |
| | 16849 | .990 | 83.9 | 169.5 | + 7.0 | 0 | 17 | 159 *c* | | | .927 | 72.5 | | | | | 127 |
| | | .892 | 77.4 | | | | | 121 | | | .938 | 82.7 | | | | | 189 |
| Aug.20 | | | (+17.6) | (251.7) | (+ 6.9) | (68) | (439) | (849) | Aug.24 | | | (+18.9) | (197.0) | (+ 7.0) | (41) | (276) | (1705) |
| | | | | | | | | | | | | | | | | | |
| 232.300 | | .948 | 287.3 | | | | | 160 | 236.322 | | .957 | 260.8 | | | | | 150 |
| G | | .883 | 256.5 | | | | | 140 | C | | .841 | 240.7 | | | | | 233 |
| | 16845 | .625 | 228.5 | 268.9 | -18.5 | 43 | 254 | | | 16845 | .988 | 249.5 | 264.1 | -18.9 | 13 | 91 | 238 *f* |
| | 16848 | .565 | 220.7 | 262.2 | -19.0 | 16 | 101 | | | 16847 | .891 | 248.5 | 245.5 | -15.5 | 0 | 10 | 324 *c* |
| | 16847 | .406 | 183.5 | 240.9 | -16.9 | 8 | 36 | | | | .928 | 79.5 | | | | | 205 |
| | 16849 | .938 | 85.1 | 169.4 | + 6.9 | 7 | 20 | 459 *c* | | | .971 | 73.4 | | | | | 172 |
| | | .882 | 107.1 | | | | | 114 | Aug.25 | | | (+19.1) | (186.3) | (+ 7.0) | (13) | (101) | (1322) |
| Aug.21 | | | (+17.9) | (239.4) | (+ 6.9) | (74) | (411) | (873) | | | | | | | | | |
| | | | | | | | | | 237.468 | 16851 | .945 | 247.4 | 238.0 | -18.6 | 0 | 8 | 468 *c* |
| 233.320 | | .933 | 295.0 | | | | | 171 | G | *1310c* | .201 | 300.2 | 181.4 | +12.8 | 1 | 11 | |
| G | | .907 | 252.9 | | | | | 129 | | | .836 | 79.6 | | | | | 141 |
| | 16845 | .767 | 238.9 | 269.6 | -18.4 | 51 | 328 | 155 *c* | | | .915 | 68.4 | | | | | 224 |
| | 16848 | .717 | 234.0 | 263.8 | -19.4 | 4 | 8 | | | | .956 | 89.2 | | | | | 161 |
| | 16847 | .490 | 210.6 | 241.2 | -18.2 | 3 | 33 | | | | .957 | 75.9 | | | | | 240 |
| | 16849 | .813 | 86.2 | 171.4 | + 7.1 | 4 | 12 | 185 *f* | Aug.26 | | | (+19.4) | (171.2) | (+ 7.1) | (1) | (19) | (1234) |

Group 16848. Aug. 19 - 24. A short stream of small variable spots, immediately *f* Group 16845.
Group 16849. Aug. 20 - 24. A small variable spot.
Group 16850. Aug. 22 - 24. A tiny spot.
Group 16851. Aug. 24 - 26. A tiny spot, not seen on August 25.

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

| U. T. | Group No. | MEASURES Dist. | MEASURES Pos. Angle | POSITION Long. | POSITION Lat. | AREA Umbræ | AREA Whole Spots | AREA Faculæ |
|---|---|---|---|---|---|---|---|---|
| 1951 | | | ° | ° | ° | | | |
| 238.450 | | .828 | 259.1 | | | | | 146 |
| G | | .776 | 73.4 | | | | | 126 |
| | | .865 | 72.1 | | | | | 349 |
| | | .886 | 87.0 | | | | | 200 |
| | | .941 | 65.5 | | | | | 266 |
| | | .969 | 83.3 | | | | | 318 |
| Aug.27 | | | (+19.7) | (158.2) | (+7.1) | (0) | (0) | (1405) |
| 239.325 | | .920 | 262.0 | | | | | 111 |
| C | | .818 | 260.2 | | | | | 186 |
| | | .790 | 72.0 | | | | | 246 |
| | | .793 | 90.9 | | | | | 159 |
| | | .891 | 59.5 | | | | | 211 |
| | | .925 | 83.0 | | | | | 358 |
| | | .944 | 67.9 | | | | | 225 |
| Aug.28 | | | (+20.0) | (146.6) | (+7.1) | (0) | (0) | (1496) |
| 240.301 | *1310d* | .936 | 262.9 | 202.1 | -4.1 | 20 | 83 | 297 *c* |
| G | 16852 | .420 | 272.7 | 158.6 | +7.6 | 3 | 10 | |
| | *1310e* | .246 | 28.4 | 126.6 | +19.5 | 0 | 4 | |
| | *1310f* | .776 | 82.9 | 82.5 | +10.0 | 0 | 4 | 194*sf* |
| | | .844 | 67.6 | | | | | 144 |
| | | .858 | 55.2 | | | | | 137 |
| | | .900 | 79.8 | | | | | 325 |
| | | .906 | 92.4 | | | | | 154 |
| | | .951 | 58.4 | | | | | 154 |
| | | .952 | 67.4 | | | | | 338 |
| Aug.29 | | | (+20.2) | (133.7) | (+7.1) | (23) | (101) | (1743) |
| 241.646 | | .924 | 281.2 | | | | | 154 |
| G | | .806 | 275.6 | | | | | 201 |
| | 16853 | .967 | 83.8 | 40.2 | +7.8 | 0 | 17 | 152 *c* |
| | 16854 | .981 | 80.5 | 36.3 | +10.7 | 35 | 161 | 171 *c* |
| | 16855 | .996 | 96.8 | 32.3 | -6.0 | 0 | 74 | 94 *p* |
| | | .864 | 57.9 | | | | | 185 |
| | | .883 | 69.4 | | | | | 223 |
| | | .918 | 107.6 | | | | | 165 |
| | | .945 | 60.6 | | | | | 242 |
| Aug.30 | | | (+20.6) | (116.0) | (+7.2) | (35) | (252) | (1587) |
| 242.457 | | .933 | 260.4 | | | | | 78 |
| G | | .909 | 282.9 | | | | | 142 |
| | | .851 | 275.7 | | | | | 256 |
| | 16853 | .904 | 84.2 | 40.1 | +8.3 | 2 | 8 | 108 *s* |

| U. T. | Group No. | MEASURES Dist. | MEASURES Pos. Angle | POSITION Long. | POSITION Lat. | AREA Umbræ | AREA Whole Spots | AREA Faculæ |
|---|---|---|---|---|---|---|---|---|
| 1951 | | | ° | ° | ° | | | |
| | 16855 | .962 | 98.0 | 32.2 | -5.6 | 16 | 99 | 94 *c* |
| | 16854 | .955 | 81.1 | 31.8 | +10.6 | 48 | 374 | 338 *c* |
| | | .891 | 57.4 | | | | | 194 |
| | | .916 | 101.6 | | | | | 98 |
| Aug.31 | | | (+20.8) | (105.2) | (+7.2) | (66) | (481) | (1308) |
| 243.303 | | .963 | 279.2 | | | | | 229 |
| G | | .867 | 256.7 | | | | | 148 |
| | 16852 | .885 | 275.4 | 156.7 | +8.1 | 13 | 42 | 140 *c* |
| | *1310g* | .328 | 315.6 | 108.2 | +20.5 | 0 | 4 | |
| | 16856 | .269 | 46.2 | 82.4 | +17.8 | 0 | 3 | |
| | 16853 | .803 | 88.4 | 40.6 | +5.6 | 0 | 12 | 113*sf* |
| | 16854 | .872 | 81.8 | 32.9 | +10.7 | 59 | 330 | 434 *c* |
| | 16855 | .893 | 100.0 | 32.2 | -5.6 | 18 | 90 | 108*sf* |
| | | .786 | 59.2 | | | | | 151 |
| | | .947 | 110.8 | | | | | 211 |
| | | .973 | 101.8 | | | | | 106 |
| Sept.1 | | | (+21.0) | (94.1) | (+7.2) | (90) | (481) | (1640) |
| 244.295 | | .934 | 260.3 | | | | | 172 |
| G | 16852 | .963 | 276.3 | 155.9 | +8.0 | 4 | 26 | 171 *p* |
| | 16856 | .190 | 356.6 | 81.7 | +18.1 | 5 | 26 | |
| | *1310h* | .722 | 90.6 | 34.8 | +4.6 | 0 | 12 | 74 *c* |
| | 16854 | .740 | 81.9 | 33.0 | +10.8 | 58 | 376 | 151 *c* |
| | 16855 | .772 | 103.1 | 32.2 | -5.3 | 18 | 80 | 95*sf* |
| | | .922 | 100.3 | | | | | 146 |
| | | .948 | 111.0 | | | | | 177 |
| Sept.2 | | | (+21.3) | (81.0) | (+7.2) | (85) | (520) | (986) |
| 245.308 | | .870 | 275.8 | | | | | 133 |
| G | | .867 | 287.5 | | | | | 114 |
| | 16856 | .307 | 308.5 | 82.2 | +17.9 | 4 | 16 | |
| | 16854 | .581 | 81.7 | 32.0 | +10.7 | 57 | 396 | |
| | 16855 | .614 | 108.8 | 32.0 | -5.6 | 17 | 83 | |
| | | .863 | 72.5 | | | | | 107 |
| | | .876 | 116.1 | | | | | 187 |
| | | .913 | 102.8 | | | | | 105 |
| Sept.3 | | | (+21.5) | (67.6) | (+7.2) | (78) | (495) | (646) |
| 246.313 | | .936 | 284.0 | | | | | 160 |
| C | | .866 | 277.2 | | | | | 192 |
| | | .779 | 289.4 | | | | | 165 |
| | 16856 | .513 | 293.7 | 83.8 | +18.2 | 0 | 5 | |
| | 16854 | .364 | 79.3 | 33.1 | +10.6 | 67 | 358 | |

Group 16852. Aug.29-Sept.2. A small spot on August 29 and September 2; a pair on September 1.
Group 16853. Aug.30-Sept.1. A tiny spot on August 30 and 31; three on September 1.
Group 16854. Aug.30-Sept.11. Return of Group 16838. A pair of spots, of which the leader is regular in outline. On September 4 other spots appear to form a long stream and after September 8 the whole begins to decline and die out.
Group 16855. Aug.30-Sept.11. Return of Group 16839; third appearance. A small regular spot, with a couple of companions after September 8.
Group 16856. Sept. 1 - 4. One or two tiny 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 |
| 1951 | | | ° | ° | ° | | | | 1951 | | | ° | ° | ° | | | |
| | 16855 | .440 | 118.7 | 31.6 | - 5.5 | 18 | 75 | | | *1310k* | .551 | 119.6 | 344.8 | - 9.4 | 1 | 11 | |
| | 16857 | .957 | 95.2 | 342.0 | - 2.8 | 41 | 240 | 227 *c* | | 16857 | .547 | 106.6 | 342.2 | - 2.8 | 67 | 400 | |
| | | .917 | 120.8 | | | | | 191 | | 16859 | .729 | 101.8 | 328.3 | - 3.5 | 0 | 8 | 151 *c* |
| | | .930 | 106.6 | | | | | 173 | | 16860 | .902 | 90.1 | 309.4 | + 3.0 | 21 | 84 | 190 *f* |
| Sept.4 | | | ( +21.8) | ( 54.3) | ( + 7.2) | ( 126) | ( 678) | ( 1108) | | | .898 | 100.5 | | | | | 64 |
| | | | | | | | | | | | .962 | 43.0 | | | | | 74 |
| | | | | | | | | | | | .965 | 79.5 | | | | | 77 |
| 247.577 | | .966 | 278.5 | | | | | 180 | Sept.7 | | | ( +22.5) | ( 13.7) | ( + 7.2) | ( 143) | ( 751) | ( 2116) |
| G | | .859 | 287.4 | | | | | 638 | | | | | | | | | |
| | | .847 | 273.5 | | | | | 165 | | | | | | | | | |
| | | .784 | 303.1 | | | | | 127 | 250.332 | | .959 | 300.2 | | | | | 122 |
| | 16854 | .083 | 43.3 | 34.3 | +10.7 | 55 | 318 | | C | | .933 | 291.2 | | | | | 136 |
| | 16855 | .241 | 153.3 | 31.4 | - 5.2 | 9 | 64 | | | | .929 | 279.6 | | | | | 338 |
| | 16858 | .747 | 112.7 | 353.1 | -11.6 | 0 | 4 | 233 *f* | | | .852 | 300.9 | | | | | 191 |
| | 16857 | .843 | 97.7 | 341.1 | - 2.5 | 58 | 447 | 606 *f* | | | .829 | 287.7 | | | | | 88 |
| | | .875 | 107.1 | | | | | 112 | | 16854 | .574 | 275.8 | 36.4 | + 9.2 | 24 | 118 | |
| Sept.5 | | | ( +22.1) | ( 37.6) | ( + 7.2) | ( 122) | ( 833) | ( 2061) | | 16855 | .542 | 248.3 | 31.5 | - 5.3 | 8 | 34 | |
| | | | | | | | | | | 16858 | .384 | 150.5 | 350.1 | -12.4 | 5 | 15 | |
| | | | | | | | | | | 16857 | .365 | 118.2 | 342.5 | - 3.0 | 68 | 390 | |
| 248.302 | | .945 | 286.2 | | | | | 411 | | 16859 | .611 | 105.8 | 325.3 | - 3.7 | 3 | 11 | |
| G | | .920 | 276.3 | | | | | 129 | | 16860 | .791 | 91.9 | 309.1 | + 2.9 | 12 | 53 | 160 *f* |
| | | .892 | 268.7 | | | | | 155 | | 16861 | .982 | 85.7 | 281.8 | + 5.6 | 47 | 238 | 398 *c* |
| | | .858 | 290.9 | | | | | 215 | | | .974 | 73.8 | | | | | 72 |
| | | .835 | 301.2 | | | | | 147 | Sept.8 | | | ( +22.7) | ( 1.2) | ( + 7.2) | ( 167) | ( 859) | ( 1505) |
| | *1310i* | .792 | 278.1 | 80.9 | +10.8 | 2 | 11 | 227 *c* | | | | | | | | | |
| | 16854 | .131 | 292.4 | 35.1 | +10.0 | 46 | 223 | | | | | | | | | | |
| | 16855 | .224 | 196.0 | 31.6 | - 5.2 | 12 | 63 | | 251.402 | | .961 | 253.3 | | | | | 85 |
| | 16858 | .648 | 118.2 | 352.5 | -11.9 | 4 | 28 | | C | | .937 | 287.5 | | | | | 185 |
| | 16857 | .739 | 100.6 | 341.6 | - 2.8 | 91 | 446 | 153 *c* | | | .929 | 273.5 | | | | | 161 |
| | 16859 | .875 | 98.8 | 328.2 | - 4.1 | 4 | 24 | 271 *c* | | | .909 | 296.7 | | | | | 195 |
| | 16860 | .979 | 88.4 | 309.9 | + 3.0 | 17 | 65 | 101 *c* | | 16854 | .764 | 275.3 | 37.2 | + 8.7 | 10 | 69 | 152 *c* |
| | | .794 | 114.0 | | | | | 93 | | 16855 | .758 | 253.1 | 34.0 | - 7.8 | 32 | 115 | 113 *c* |
| | | .837 | 65.3 | | | | | 72 | | 16858 | .319 | 182.7 | 348.0 | -11.3 | 11 | 71 | |
| | | .875 | 127.6 | | | | | 81 | | 16857 | .194 | 156.9 | 342.7 | - 3.0 | 74 | 365 | |
| | | .944 | 74.4 | | | | | 129 | | 16860 | .624 | 94.5 | 308.7 | + 2.8 | 13 | 51 | |
| Sept.6 | | | ( +22.2) | ( 28.1) | ( + 7.2) | ( 176) | ( 860) | ( 2184) | | 16862 | .884 | 74.2 | 284.3 | +17.3 | 13 | 72 | 160 *c* |
| | | | | | | | | | | 16861 | .947 | 85.6 | 275.5 | + 6.5 | 156 | 834 | 660 *c* |
| | | | | | | | | | | | .964 | 110.7 | | | | | 242 |
| 249.385 | | .952 | 291.3 | | | | | 285 | Sept.9 | | | ( +22.9) | ( 347.1) | ( + 7.2) | ( 309) | ( 1577) | ( 1953) |
| G | | .932 | 277.5 | | | | | 324 | | | | | | | | | |
| | | .914 | 300.1 | | | | | 438 | | | | | | | | | |
| | | .846 | 291.4 | | | | | 194 | 252.328 | | .961 | 288.3 | | | | | 163 |
| | | .824 | 279.3 | | | | | 319 | C | | .939 | 296.9 | | | | | 220 |
| | 16854 | .378 | 277.1 | 35.9 | + 9.3 | 43 | 196 | | | 16854 | .895 | 276.3 | 38.8 | + 8.8 | 4 | 37 | 389 *c* |
| | 16855 | .371 | 236.1 | 31.6 | - 5.0 | 10 | 46 | | | 16855 | .886 | 256.5 | 35.2 | - 8.4 | 33 | 204 | 128 *c* |
| | *1310j* | .325 | 161.3 | 7.6 | -10.7 | 1 | 6 | | | 16858 | .364 | 213.9 | 346.8 | -10.4 | 9 | 37 | |

Group 16857. Sept. 4 - 15. A stable regular spot, with a few small companions until September 7.
Group 16858. Sept. 5 - 14. A few small variable spots, not seen on September 7.
Group 16859. Sept. 6 - 13. A few variable spots, not seen on September 9 and 10.
Group 16860. Sept. 6 - 11. A small spot, dying out before reaching the central meridian.
Group 16861. Sept. 8 - 21. A stream, led by a diminishing double spot. The follower, a composite spot, increases in area and, after a few days, divides into three separate spots, in a line inclined to the axis of the group. By September 16 these are also breaking up and diminishing.
Group 16862. Sept. 9 - 17. A pair of spots until September 11, after which only the leader remains.

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 |
| 1951 | | | ° | ° | ° | | | | 1951 | | | ° | ° | ° | | | |
| | 16857 | .225 | 218.9 | 343.0 | - 2.9 | 67 | 387 | | 255.559 | | .958 | 245.3 | | | | | 203 |
| | 16860 | .444 | 98.6 | 308.9 | + 2.6 | 8 | 39 | | G | 16858 | .848 | 252.7 | 347.4 | -10.5 | 2 | 5 | 151 *c* |
| | 16862 | .762 | 73.5 | 285.2 | +17.2 | 18 | 98 | 87 *c* | | 16857 | .793 | 260.8 | 343.6 | - 2.8 | 66 | 380 | 148 *f* |
| | 16861 | .865 | 86.7 | 274.8 | + 6.4 | 129 | 829 | 457 *c* | | 16859 | .606 | 252.5 | 327.5 | - 4.6 | 0 | 6 | |
| | | .920 | 114.1 | | | | | 359 | | 16862 | .200 | 27.3 | 286.7 | +17.4 | 5 | 23 | |
| | | .987 | 105.1 | | | | | 451 | | 16861 | .318 | 88.8 | 273.6 | + 7.2 | 89 | 653 | |
| Sept.10 | | | ( +23.1) | (334.9) | ( + 7.2) | (268) | (1631) | (2254) | | 16865 | .637 | 130.5 | 261.7 | -18.2 | 18 | 72 | |
| | | | | | | | | | | 16863 | .658 | 118.0 | 255.9 | -12.2 | 27 | 139 | |
| | | | | | | | | | | 16864 | .760 | 118.4 | 248.3 | -16.0 | 0 | 7 | 74 *c* |
| | | | | | | | | | | 16866 | .872 | 118.6 | 237.6 | -20.5 | 2 | 9 | 336 *c* |
| 253.347 | | .897 | 248.0 | | | | | 128 | | 16867 | .875 | 83.3 | 230.8 | + 9.3 | 11 | 50 | 174 *c* |
| G | | .888 | 277.1 | | | | | 245 | | | .974 | 97.0 | | | | | 171 |
| | | .800 | 238.3 | | | | | 188 | Sept.13 | | | ( +23.7) | (292.2) | ( + 7.2) | (220) | (1344) | (1257) |
| | 16854 | .968 | 277.1 | 37.5 | + 8.7 | 0 | 10 | 171 *c* | | | | | | | | | |
| | 16855 | .967 | 259.5 | 35.0 | - 8.2 | 48 | 182 | 184 *c* | | | | | | | | | |
| | 16858 | .508 | 235.5 | 346.5 | -10.1 | 5 | 32 | | 256.310 | | .949 | 245.4 | | | | | 141 |
| | 16857 | .406 | 245.7 | 343.1 | - 2.8 | 80 | 389 | | G | | .851 | 247.7 | | | | | 75 |
| | 16859 | .237 | 213.9 | 329.0 | - 4.1 | 5 | 18 | | | | .763 | 256.9 | | | | | 79 |
| | 16860 | .227 | 108.9 | 309.0 | + 2.8 | 6 | 28 | | | 16858 | .947 | 256.3 | 351.4 | -10.4 | 0 | 3 | 266 *c* |
| | 16862 | .589 | 70.3 | 286.0 | +17.3 | 17 | 79 | | | 16857 | .886 | 263.1 | 343.7 | - 2.6 | 73 | 324 | 273 *f* |
| | 16861 | .727 | 87.2 | 274.6 | + 6.9 | 147 | 933 | 142 *c* | | 16862 | .194 | 337.1 | 286.8 | +17.4 | 8 | 28 | |
| | 16863 | .932 | 106.0 | 255.3 | -12.0 | 7 | 12 | 266 *c* | | 16861 | .152 | 88.9 | 273.5 | + 7.3 | 93 | 610 | |
| | 16864 | .971 | 108.8 | 248.4 | -16.2 | 14 | 55 | | | 16865 | .539 | 142.2 | 262.0 | -18.4 | 19 | 76 | |
| | | .828 | 119.1 | | | | | 253 | | 16863 | .545 | 125.3 | 255.4 | -11.9 | 16 | 76 | |
| Sept.11 | | | ( +23.3) | (321.4) | ( + 7.2) | (329) | (1738) | (1577) | | 16864 | .683 | 122.1 | 245.5 | -15.5 | 3 | 12 | |
| | | | | | | | | | | 16866 | .773 | 122.6 | 238.8 | -19.4 | 2 | 32 | 199 *c* |
| | | | | | | | | | | 16867 | .783 | 83.7 | 230.4 | + 9.4 | 7 | 31 | 148 *c* |
| | | | | | | | | | | 16868 | .968 | 78.4 | 205.9 | +13.0 | 0 | 4 | 122 *c* |
| 254.600 | | .970 | 278.6 | | | | | 311 | | | .945 | 98.6 | | | | | 130 |
| G | | .933 | 245.8 | | | | | 233 | Sept.14 | | | ( +23.9) | (282.3) | ( + 7.2) | (221) | (1196) | (1433) |
| | | .911 | 263.6 | | | | | 176 | | | | | | | | | |
| | | .868 | 286.0 | | | | | 108 | | | | | | | | | |
| | | .866 | 256.6 | | | | | 112 | 257.313 | | .962 | 253.9 | | | | | 189 |
| | 16858 | .728 | 248.4 | 348.2 | -10.3 | 7 | 39 | 86 *p* | C | | .874 | 255.9 | | | | | 205 |
| | 16857 | .641 | 256.4 | 343.3 | - 3.0 | 64 | 341 | | | 16857 | .970 | 265.3 | 344.3 | - 2.8 | 53 | 335 | 264 *c* |
| | 16859 | .456 | 244.8 | 329.2 | - 4.6 | 5 | 26 | | | 16862 | .346 | 301.9 | 286.9 | +17.4 | 5 | 14 | |
| | 16862 | .349 | 58.4 | 286.8 | +17.4 | 10 | 45 | | | ***1311a*** | .437 | 190.5 | 273.9 | -18.2 | 0 | 18 | |
| | 16861 | .512 | 88.2 | 274.0 | + 7.1 | 112 | 726 | | | 16861 | .077 | 264.2 | 273.5 | + 6.7 | 67 | 417 | |
| | 16865 | .764 | 121.4 | 261.7 | -18.2 | 5 | 19 | | | 16865 | .458 | 165.3 | 262.1 | -19.0 | 22 | 119 | |
| | 16863 | .792 | 111.8 | 256.2 | -12.4 | 32 | 213 | 150 *c* | | 16863 | .401 | 145.7 | 255.8 | -12.2 | 5 | 25 | |
| | 16864 | .874 | 112.8 | 248.2 | -15.9 | 5 | 18 | 225 *f* | | 16867 | .599 | 85.2 | 232.1 | + 8.7 | 9 | 44 | |
| | 16866 | .949 | 114.6 | 238.0 | -20.5 | 3 | 14 | 327 *c* | | 16868 | .894 | 79.3 | 205.1 | +12.8 | 12 | 54 | 127 *c* |
| | 16867 | .964 | 82.4 | 229.7 | + 9.2 | 13 | 65 | 200 *c* | | | .824 | 103.3 | | | | | 99 |
| | | .891 | 105.8 | | | | | 118 | | | .901 | 98.1 | | | | | 124 |
| Sept.12 | | | ( +23.6) | (304.9) | ( + 7.2) | (256) | (1506) | (2046) | Sept.15 | | | ( +24.1) | (269.1) | ( + 7.2) | (173) | (1026) | (1008) |

Group 16863. Sept. 11 - 17. A few spots, with a maximum on September 12.
Group 16864. Sept. 11 - 14. A small spot.
Group 16865. Sept. 12 - 20. A stream of small variable spots, of which the leader alone remains by September 17.
Group 16866. Sept. 12 - 14. A small spot.
Group 16867. Sept. 12 - 20. A small spot, followed by a tiny companion until September 17.
Group 16868. Sept. 14 - 26. A tiny spot on September 14 which by September 16 has become a stream led by a nearly regular spot. Within a few days the rear position has grown into a fair-sized composite spot which by September 24 has completely absorbed the leader. The whole group appears to be dying out as it passes round the 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. | Umbræ | Whole Spots | Faculæ | | | Dist. | Pos. Angle | Long. | Lat. | Umbræ | Whole Spots | Faculæ |
| 1951 | | | ° | ° | ° | | | | 1951 | | | ° | ° | ° | | | |
| 258.374 | | .962 | 263.8 | | | | | 374 | | 16865 | .821 | 240.4 | 264.7 | -19.3 | 3 | 19 | 189 *p* |
| G | | .831 | 267.8 | | | | | 131 | | 16867 | .294 | 277.5 | 232.8 | + 9.0 | 5 | 26 | |
| | 16862 | .542 | 291.2 | 286.9 | +17.5 | 5 | 15 | | | 16868 | .218 | 63.5 | 204.2 | +12.5 | 59 | 615 | |
| | *1311b* | .457 | 287.6 | 281.7 | +14.4 | 0 | 4 | | | 16869 | .701 | 75.9 | 171.2 | +14.9 | 53 | 342 | |
| | 16861 | .310 | 269.6 | 273.2 | + 6.7 | 65 | 451 | | | 16870 | .905 | 83.3 | 150.4 | + 9.1 | 42 | 224 | 281 *c* |
| | 16865 | .460 | 196.8 | 263.1 | -18.9 | 16 | 59 | | | | .923 | 98.9 | | | | | 121 |
| | 16863 | .343 | 184.6 | 256.7 | -12.7 | 3 | 19 | | | | .965 | 80.8 | | | | | 169 |
| | 16867 | .412 | 83.1 | 230.7 | + 9.4 | 11 | 36 | | Sept.19 | | | ( +24.7) | ( 215.7) | ( + 7.1) | ( 197) | ( 1437) | ( 1877) |
| | 16868 | .763 | 79.0 | 205.1 | +13.0 | 53 | 305 | 187 *c* | | | | | | | | | |
| | | .785 | 101.3 | | | | | 177 | | | | | | | | | |
| | | .875 | 80.2 | | | | | 89 | 262.328 | | .969 | 287.5 | | | | | 143 |
| | | .955 | 74.4 | | | | | 143 | G | | .763 | 237.7 | | | | | 173 |
| | | .973 | 83.6 | | | | | 168 | | 16861 | .918 | 275.0 | 269.9 | + 7.4 | 14 | 46 | 619 *c* |
| Sept.16 | | | ( +24.2) | ( 255.1) | ( + 7.2) | ( 153) | ( 889) | ( 1269) | | 16865 | .916 | 245.1 | 264.5 | -19.4 | 0 | 2 | 365 *c* |
| | | | | | | | | | | 16867 | .473 | 277.5 | 231.2 | + 9.8 | 0 | 2 | |
| | | | | | | | | | | 16868 | .093 | 343.4 | 204.5 | +12.2 | 97 | 706 | |
| 259.359 | | .939 | 287.2 | | | | | 98 | | 16869 | .530 | 72.7 | 171.4 | +15.1 | 111 | 555 | |
| G | | .909 | 268.8 | | | | | 214 | | 16870 | .778 | 83.7 | 151.5 | + 9.3 | 38 | 174 | 131 *c* |
| | 16862 | .712 | 287.6 | 287.3 | +17.5 | 0 | 5 | | | 16871 | .860 | 82.5 | 143.2 | +10.0 | 0 | 2 | 167 *f* |
| | 16861 | .506 | 272.0 | 272.6 | + 7.2 | 50 | 468 | | | | .830 | 103.9 | | | | | 125 |
| | 16865 | .573 | 219.7 | 264.9 | -19.4 | 7 | 35 | | | | .923 | 70.3 | | | | | 111 |
| | 16863 | .417 | 215.7 | 256.5 | -12.8 | 1 | 12 | | | | .948 | 94.1 | | | | | 167 |
| | 16867 | .174 | 79.2 | 232.2 | + 8.9 | 5 | 19 | | Sept.20 | | | ( +24.9) | ( 202.9) | ( + 7.1) | ( 260) | ( 1487) | ( 2001) |
| | 16868 | .602 | 77.6 | 205.1 | +13.2 | 51 | 246 | | | | | | | | | | |
| | | .930 | 76.6 | | | | | 158 | | | | | | | | | |
| | | .940 | 85.2 | | | | | 457 | 263.497 | | .963 | 250.2 | | | | | 280 |
| Sept.17 | | | ( +24.4) | ( 242.1) | ( + 7.2) | ( 114) | ( 785) | ( 927) | G | | .884 | 246.2 | | | | | 229 |
| | | | | | | | | | | | .830 | 236.4 | | | | | 196 |
| | | | | | | | | | | 16861 | .987 | 276.2 | 268.6 | + 7.2 | 12 | 33 | 359 *f* |
| 260.380 | | .955 | 270.7 | | | | | 113 | | 16872 | .750 | 251.1 | 233.2 | - 9.1 | 28 | 64 | 89 *c* |
| G | | .821 | 287.2 | | | | | 205 | | 16868 | .308 | 288.4 | 204.7 | +12.4 | 91 | 641 | |
| | | .812 | 278.8 | | | | | 130 | | 16869 | .304 | 60.1 | 171.6 | +15.5 | 95 | 531 | |
| | 16861 | .697 | 271.5 | 272.9 | + 6.2 | 48 | 324 | 198 *c* | | 16873 | .278 | 89.7 | 171.2 | + 6.9 | 10 | 42 | |
| | 16865 | .701 | 232.4 | 264.6 | -19.4 | 10 | 30 | 112 *p* | | 16870 | .579 | 83.8 | 151.9 | + 9.4 | 20 | 121 | |
| | 16867 | .081 | 292.3 | 232.9 | + 8.9 | 4 | 22 | | | | .884 | 83.2 | | | | | 119 |
| | 16868 | .418 | 75.2 | 204.2 | +12.7 | 41 | 286 | | | | .889 | 102.3 | | | | | 121 |
| | 16869 | .839 | 76.6 | 171.1 | +15.1 | 25 | 135 | 122 *c* | | | .928 | 73.9 | | | | | 254 |
| | 16870 | .974 | 82.2 | 151.0 | + 9.2 | 20 | 93 | 257 *c* | Sept.21 | | | ( +25.0) | ( 187.4) | ( + 7.1) | ( 256) | ( 1432) | ( 1647) |
| | | .844 | 87.1 | | | | | 261 | | | | | | | | | |
| | | .945 | 98.3 | | | | | 109 | | | | | | | | | |
| Sept.18 | | | ( +24.6) | ( 228.6) | ( + 7.2) | ( 148) | ( 890) | ( 1507) | 264.322 | | .941 | 248.7 | | | | | 289 |
| | | | | | | | | | G | | .904 | 238.1 | | | | | 240 |
| | | | | | | | | | | | .797 | 279.9 | | | | | 115 |
| 261.352 | | .926 | 287.0 | | | | | 207 | | 16872 | .866 | 255.6 | 234.3 | - 8.7 | 18 | 69 | 208 *c* |
| G | | .886 | 242.9 | | | | | 164 | | 16868 | .477 | 282.8 | 204.8 | +12.3 | 86 | 577 | |
| | 16861 | .827 | 274.5 | 271.8 | + 7.7 | 35 | 211 | 746 *c* | | 16873 | .085 | 85.4 | 171.6 | + 7.5 | 17 | 90 | |

Group 16869. Sept. 18 - 28. A rapidly-developing bi-polar group. The leader, a regular spot, is the most stable component; the follower dies out before reaching the limb.

Group 16870. Sept. 18 - 29. A variable stream of which the follower is at first the principal component. Between September 22 and 25 the whole group is a conglomeration of small spots but on September 26 it takes more the form of a stream.

Group 16871. Sept. 20 - 26. One or two tiny spots, not seen on September 21.

Group 16872. Sept. 21 - 24. A few small spots.

Group 16873. Sept. 21 - 28. Small changing 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 |
| 1951 | | | ° | ° | ° | | | | 1951 | | | ° | ° | ° | | | |
| | 16869 | .174 | 29.3 | 171.4 | +15.8 | 93 | 452 | | | 16874 | .677 | 87.5 | 92.4 | + 6.8 | 3 | 12 | |
| | 16870 | .388 | 83.9 | 153.6 | + 8.9 | 24 | 141 | | | 16875 | .876 | 70.5 | 73.7 | +20.4 | 0 | 7 | 151 *c* |
| | 16871 | .567 | 82.2 | 141.8 | +10.3 | 0 | 4 | | | | .781 | 62.1 | | | | | 141 |
| | | .837 | 75.1 | | | | | 160 | | | .879 | 80.4 | | | | | 262 |
| | | .900 | 84.9 | | | | | 128 | | | .905 | 55.9 | | | | | 130 |
| | | .955 | 69.0 | | | | | 299 | Sept.25 | | | ( +25.5) | (135.2) | ( + 7.0) | (150) | (840) | (1262) |
| Sept.22 | | | ( +25.1) | (176.5) | ( + 7.1) | (238) | (1333) | (1439) | | | | | | | | | |
| | | | | | | | | | 268.347 | 16868 | .986 | 282.2 | 204.9 | +13.2 | 26 | 117 | 250 *c* |
| 265.645 | | .963 | 244.3 | | | | | 145 | G | 16869 | .788 | 284.0 | 175.6 | +15.2 | 73 | 463 | 113 *c* |
| G | | .939 | 279.7 | | | | | 168 | | 16873 | .739 | 275.3 | 171.3 | + 8.6 | 1 | 8 | 94 *p* |
| | 16872 | .977 | 260.3 | 235.3 | - 7.8 | 9 | 62 | 288 *c* | | 16870 | .598 | 274.8 | 160.3 | + 8.3 | 30 | 279 | |
| | 16868 | .724 | 280.1 | 205.7 | +12.1 | 78 | 494 | 77 *p* | | 16871 | .408 | 280.5 | 147.4 | +10.5 | 2 | 11 | |
| | 16869 | .290 | 301.6 | 173.9 | +15.5 | 52 | 311 | | | 16876 | .980 | 101.2 | 46.6 | - 9.5 | 5 | 22 | 177 *c* |
| | 16873 | .234 | 272.7 | 172.7 | + 7.5 | 8 | 33 | | | | .793 | 78.7 | | | | | 130 |
| | 16870 | .029 | 51.5 | 157.8 | + 8.0 | 17 | 85 | | | | .799 | 52.2 | | | | | 90 |
| | 16871 | .273 | 77.7 | 143.5 | +10.0 | 0 | 4 | | | | .894 | 69.6 | | | | | 144 |
| | 16874 | .919 | 84.7 | 92.0 | + 7.7 | 3 | 11 | 168 *c* | | | .937 | 58.8 | | | | | 142 |
| | | .850 | 72.1 | | | | | 250 | | | .971 | 82.8 | | | | | 162 |
| | | .931 | 65.2 | | | | | 258 | Sept.26 | | | ( +25.6) | (123.4) | ( + 6.9) | (137) | (900) | (1302) |
| | | .963 | 76.7 | | | | | 132 | | | | | | | | | |
| Sept.23 | | | ( +25.3) | (159.1) | ( + 7.0) | (167) | (1000) | (1486) | | | | | | | | | |
| | | | | | | | | | 269.457 | | .936 | 260.0 | | | | | 63 |
| | | | | | | | | | G | 16869 | .919 | 283.5 | 176.3 | +15.1 | 69 | 323 | 298 *c* |
| | | | | | | | | | | 16873 | .904 | 276.2 | 173.9 | + 8.6 | 8 | 36 | 215 *c* |
| 266.373 | | .978 | 279.8 | | | | | 148 | | 16870 | .804 | 275.1 | 162.6 | + 8.2 | 22 | 128 | 245 *c* |
| G | | .864 | 259.6 | | | | | 123 | | 16875 | .596 | 63.5 | 74.1 | +21.1 | 4 | 15 | |
| | 16872 | .996 | 258.4 | 232.7 | -10.8 | 0 | 22 | 130 *f* | | 16876 | .903 | 104.1 | 46.4 | - 9.6 | 5 | 10 | 143 *c* |
| | 16868 | .820 | 280.5 | 205.0 | +12.6 | 44 | 404 | 237 *c* | | | .890 | 83.5 | | | | | 191 |
| | 16869 | .437 | 291.4 | 174.4 | +15.5 | 47 | 323 | | | | .890 | 64.9 | | | | | 159 |
| | 16873 | .411 | 275.1 | 173.8 | + 8.5 | 10 | 30 | | | | .900 | 55.1 | | | | | 173 |
| | 16870 | .181 | 277.1 | 159.9 | + 8.2 | 21 | 119 | | | | .971 | 100.5 | | | | | 115 |
| | 16871 | .040 | 53.0 | 147.7 | + 8.4 | 1 | 7 | | | | .978 | 78.5 | | | | | 254 |
| | 16874 | .820 | 86.2 | 94.2 | + 7.1 | 3 | 12 | 196 *c* | Sept.27 | | | ( +25.7) | (108.8) | ( + 6.9) | (108) | (512) | (1856) |
| | | .772 | 72.4 | | | | | 84 | | | | | | | | | |
| | | .842 | 65.7 | | | | | 217 | | | | | | | | | |
| | | .889 | 76.4 | | | | | 97 | 270.316 | 16869 | .982 | 283.4 | 177.6 | +14.4 | 47 | 243 | 310 *f* |
| | | .927 | 119.4 | | | | | 90 | G | 16873 | .967 | 277.3 | 173.2 | + 8.8 | 8 | 42 | 308 *c* |
| | | .949 | 57.4 | | | | | 204 | | 16870 | .899 | 276.2 | 161.8 | + 8.5 | 26 | 130 | 356 *c* |
| | | .962 | 79.4 | | | | | 275 | | *1311c* | .047 | 117.6 | 95.0 | + 5.5 | 1 | 6 | |
| | | .963 | 69.4 | | | | | 247 | | 16875 | .431 | 53.5 | 75.7 | +21.1 | 10 | 43 | |
| Sept.24 | | | ( +25.4) | (149.5) | ( + 7.0) | (126) | (917) | (2048) | | | .784 | 107.2 | | | | | 126 |
| | | | | | | | | | | | .805 | 61.3 | | | | | 151 |
| | | | | | | | | | | | .806 | 83.2 | | | | | 218 |
| 267.454 | | .939 | 263.0 | | | | | 135 | | | .906 | 54.0 | | | | | 179 |
| G | 16868 | .931 | 281.6 | 204.5 | +13.4 | 57 | 347 | 443 *c* | | | .914 | 101.4 | | | | | 178 |
| | 16873 | .644 | 273.0 | 175.4 | + 7.2 | 5 | 16 | | | | .916 | 111.6 | | | | | 116 |
| | 16869 | .621 | 286.6 | 173.2 | +15.7 | 58 | 347 | | | | .917 | 87.7 | | | | | 167 |
| | 16870 | .404 | 275.3 | 159.1 | + 8.6 | 27 | 109 | | | | .923 | 77.6 | | | | | 227 |
| | 16871 | .223 | 281.5 | 147.9 | + 9.4 | 0 | 2 | | Sept.28 | | | ( +25.8) | (97.4) | ( + 6.8) | (92) | (464) | (2336) |

Group 16874. Sept. 23 - 25. A tiny spot on September 23; a pair on the other days.
Group 16875. Sept. 25-Oct. 4. One or two tiny spots, not seen on September 26.
Group 16876. Sept. 26 - 27. A small spot.

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 |
| 1951 | | | ° | ° | ° | | | | 1951 | | | ° | ° | ° | | | |
| 271.383 | | .908 | 278.1 | | | | | 296 | 276.310 | | .938 | 276.2 | | | | | 199 |
| G | 16870 | .977 | 277.3 | 161.6 | + 8.6 | 16 | 92 | 323 *c* | G | | .930 | 296.3 | | | | | 157 |
| | 16875 | .268 | 17.8 | 78.3 | +21.5 | 5 | 21 | | | | .844 | 279.2 | | | | | 163 |
| | | .794 | 111.0 | | | | | 156 | | 16875 | .879 | 289.3 | 80.1 | +20.1 | 2 | 9 | 273 *c* |
| | | .803 | 77.7 | | | | | 208 | | 16877 | .694 | 276.5 | 62.4 | + 9.3 | 40 | 271 | |
| Sept.29 | | | (+25.9) | (83.3) | ( + 6.8) | (21) | (113) | (983) | | 16879 | .546 | 107.2 | 346.9 | - 3.7 | 56 | 229 | |
| | | | | | | | | | | | .775 | 99.4 | | | | | 283 |
| | | | | | | | | | | | .908 | 90.0 | | | | | 100 |
| 272.366 | | .956 | 280.3 | | | | | 188 | Oct.4 | | | (+26.2) | (18.3) | ( + 6.6) | (98) | (509) | (1175) |
| G | 16875 | .291 | 330.8 | 79.1 | +21.3 | 5 | 14 | | | | | | | | | | |
| | 16877 | .151 | 76.9 | 61.9 | + 8.7 | 5 | 25 | | | | | | | | | | |
| | 16878 | .910 | 73.6 | 4.2 | +17.8 | 0 | 2 | 138 *n* | 277.337 | | .969 | 292.9 | | | | | 223 |
| | 16879 | .994 | 94.1 | 347.4 | - 3.3 | 40 | 263 | 79 *c* | G | | .954 | 281.6 | | | | | 264 |
| | | .909 | 101.6 | | | | | 133 | | | .935 | 254.7 | | | | | 203 |
| | | .913 | 116.8 | | | | | 131 | | | .906 | 304.1 | | | | | 275 |
| | | .918 | 88.5 | | | | | 70 | | | .862 | 291.3 | | | | | 274 |
| Sept.30 | | | (+26.0) | (70.4) | ( + 6.8) | (50) | (304) | (739) | | | .791 | 249.4 | | | | | 173 |
| | | | | | | | | | | 16877 | .845 | 276.6 | 62.8 | + 9.0 | 15 | 138 | 287 *c* |
| | | | | | | | | | | 16879 | .353 | 119.5 | 346.9 | - 3.8 | 38 | 192 | |
| 273.344 | | .933 | 263.2 | | | | | 153 | | 16880 | .950 | 86.5 | 292.8 | + 5.4 | 3 | 14 | 356 *c* |
| G | | .865 | 283.4 | | | | | 211 | | | .952 | 74.5 | | | | | 116 |
| | 16875 | .436 | 306.9 | 79.4 | +21.3 | 10 | 27 | | Oct.5 | | | (+26.3) | (4.8) | ( + 6.5) | (56) | (344) | (2171) |
| | 16877 | .096 | 298.2 | 62.4 | + 9.3 | 23 | 120 | | | | | | | | | | |
| | 16878 | .797 | 71.6 | 4.7 | +18.7 | 2 | 7 | 125 *c* | | | | | | | | | |
| | 16879 | .946 | 96.0 | 347.3 | - 3.4 | 41 | 249 | 149 *c* | | | | | | | | | |
| | | .816 | 108.2 | | | | | 100 | 278.345 | | .954 | 292.1 | | | | | 154 |
| | | .846 | 123.6 | | | | | 192 | G | | .951 | 300.8 | | | | | 115 |
| | | .942 | 109.0 | | | | | 138 | | | .910 | 285.8 | | | | | 107 |
| Oct.1 | | | (+26.0) | (57.5) | ( + 6.7) | (76) | (403) | (1068) | | | .891 | 256.9 | | | | | 220 |
| | | | | | | | | | | | .859 | 268.9 | | | | | 109 |
| | | | | | | | | | | | .826 | 295.3 | | | | | 134 |
| 274.625 | | .939 | 283.5 | | | | | 112 | | | .812 | 277.4 | | | | | 172 |
| G | | .858 | 294.3 | | | | | 228 | | 16877 | .958 | 277.4 | 65.3 | + 8.9 | 15 | 69 | 345 *c* |
| | | .847 | 275.3 | | | | | 198 | | 16879 | .199 | 155.9 | 346.9 | - 4.1 | 41 | 199 | |
| | 16875 | .652 | 293.8 | 79.9 | +20.3 | 12 | 26 | | | | .875 | 87.7 | | | | | 323 |
| | 16877 | .371 | 278.7 | 62.3 | + 9.4 | 48 | 314 | | | | .935 | 78.7 | | | | | 317 |
| | 16879 | .815 | 98.9 | 347.0 | - 3.3 | 58 | 250 | 194 *c* | | | .935 | 53.9 | | | | | 100 |
| | | .863 | 112.9 | | | | | 172 | Oct.6 | | | (+26.3) | (351.5) | ( + 6.4) | (56) | (268) | (2096) |
| | | .941 | 96.1 | | | | | 301 | | | | | | | | | |
| Oct.2 | | | (+26.1) | (40.6) | ( + 6.6) | (118) | (590) | (1205) | | | | | | | | | |
| | | | | | | | | | 279.394 | | .954 | 257.3 | | | | | 148 |
| | | | | | | | | | G | | .927 | 277.9 | | | | | 193 |
| 275.309 | | .925 | 279.0 | | | | | 112 | | | .903 | 296.3 | | | | | 245 |
| C | | .925 | 289.6 | | | | | 225 | | | .862 | 253.1 | | | | | 180 |
| | | .860 | 297.6 | | | | | 80 | | | .809 | 280.9 | | | | | 232 |
| | 16875 | .759 | 291.2 | 80.3 | +20.3 | 5 | 14 | | | 16879 | .241 | 220.7 | 346.6 | - 4.2 | 35 | 204 | |
| | 16877 | .518 | 277.0 | 62.7 | + 9.2 | 46 | 294 | | | *1312a* | .869 | 79.9 | 276.9 | +11.9 | 0 | 9 | 397 *c* |
| | 16879 | .713 | 101.4 | 347.2 | - 3.4 | 54 | 246 | 142 *f* | | | .780 | 90.6 | | | | | 170 |
| | | .871 | 93.6 | | | | | 164 | | | .909 | 53.1 | | | | | 133 |
| | | .923 | 104.6 | | | | | 161 | | | .943 | 112.1 | | | | | 149 |
| Oct.3 | | | (+26.2) | (31.5) | ( + 6.6) | (105) | (554) | (884) | Oct.7 | | | (+26.3) | (337.6) | ( + 6.4) | (35) | (213) | (1847) |

Group 16877. Sept.30–Oct.6. A compact group of small spots, with rapid rise and decline.
Group 16878. Sept.30–Oct.1. A small spot.
Group 16879. Sept.30–Oct.12. Return of Group 16857. A stable regular spot.
Group 16880. Oct. 5 - 12. Intermittent. One or two tiny 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 |
| 1951 | | | ° | ° | ° | | | | 1951 | | | ° | ° | ° | | | |
| 280.307 | | .936 | 254.9 | | | | | 258 | 283.380 | | .918 | 248.9 | | | | | 154 |
| G | | .923 | 269.9 | | | | | 101 | G | 16879 | .893 | 261.1 | 347.2 | - 5.1 | 32 | 204 | 127 *c* |
| | | .912 | 300.7 | | | | | 203 | | 16880 | .156 | 260.5 | 293.9 | + 4.6 | 2 | 11 | |
| | | .907 | 280.7 | | | | | 437 | | 16886 | .292 | 204.3 | 292.1 | - 9.3 | 1 | 5 | |
| | | .857 | 288.5 | | | | | 133 | | 16882 | .649 | 111.2 | 247.5 | - 8.7 | 94 | 538 | |
| | 16879 | .402 | 243.7 | 346.7 | - 4.3 | 47 | 208 | | | 16881 | .631 | 83.0 | 245.9 | + 9.1 | 20 | 172 | |
| | 16881 | .970 | 82.0 | 249.1 | + 9.3 | 4 | 18 | 137 *c* | | 16883 | .749 | 116.0 | 241.2 | -14.7 | 12 | 58 | 90 *f* |
| | 16882 | .983 | 100.0 | 247.6 | - 8.6 | 48 | 380 | 162 *c* | | 16885 | .931 | 80.4 | 216.1 | +11.1 | 42 | 235 | 269 *f* |
| | | .799 | 82.1 | | | | | 316 | | | .828 | 108.2 | | | | | 198 |
| | | .824 | 115.9 | | | | | 138 | | | .883 | 123.2 | | | | | 194 |
| | | .845 | 48.9 | | | | | 114 | | | .933 | 99.2 | | | | | 137 |
| | | .901 | 109.2 | | | | | 235 | Oct.11 | | | ( +26.4) | ( 285.1) | ( + 6.1) | ( 203) | ( 1223) | ( 1169) |
| Oct.8 | | | ( +26.3) | ( 325.6) | ( + 6.3) | ( 99) | ( 606) | ( 2234) | | | | | | | | | |
| | | | | | | | | | 284.377 | | .896 | 251.4 | | | | | 161 |
| 281.448 | | .960 | 284.0 | | | | | 157 | G | 16879 | .971 | 263.2 | 347.1 | - 5.0 | 27 | 187 | 160 *c* |
| G | | .886 | 239.1 | | | | | 185 | | 16884 | .829 | 262.8 | 327.1 | - 2.5 | 15 | 63 | 220 *c* |
| | 16879 | .615 | 254.2 | 346.9 | - 4.5 | 37 | 198 | | | 16880 | .379 | 266.0 | 294.1 | + 4.1 | 2 | 12 | |
| | *1312b* | .407 | 229.6 | 328.8 | - 9.3 | 0 | 5 | | | 16886 | .432 | 229.3 | 291.3 | -10.5 | 1 | 5 | |
| | 16880 | .317 | 92.2 | 292.1 | + 5.3 | 4 | 30 | | | 16882 | .482 | 120.8 | 247.2 | - 8.7 | 108 | 619 | |
| | 16881 | .893 | 82.6 | 247.0 | + 9.4 | 36 | 198 | 226 *c* | | 16881 | .439 | 80.9 | 245.9 | + 9.5 | 16 | 85 | |
| | 16882 | .909 | 102.0 | 246.9 | - 8.2 | 78 | 485 | | | 16883 | .606 | 124.4 | 240.9 | -14.7 | 37 | 160 | |
| | 16883 | .945 | 106.8 | 242.2 | -13.6 | 17 | 76 | 751 *c* | | 16885 | .826 | 80.6 | 216.0 | +11.2 | 47 | 229 | 149 *f* |
| | | .826 | 117.0 | | | | | 189 | | | .916 | 77.0 | | | | | 186 |
| | | .916 | 113.5 | | | | | 219 | Oct.12 | | | ( +26.4) | ( 271.9) | ( + 6.1) | ( 253) | ( 1360) | ( 876) |
| | | .925 | 92.3 | | | | | 81 | | | | | | | | | |
| Oct.9 | | | ( +26.4) | ( 310.6) | ( + 6.3) | ( 172) | ( 992) | ( 1808) | | | | | | | | | |
| | | | | | | | | | 285.301 | | .959 | 252.6 | | | | | 143 |
| | | | | | | | | | C | 16884 | .925 | 264.8 | 326.7 | - 2.5 | 8 | 39 | 145 *c* |
| 282.314 | | .953 | 243.0 | | | | | 165 | | 16882 | .335 | 139.8 | 247.1 | - 8.9 | 84 | 620 | |
| G | | .923 | 273.6 | | | | | 168 | | 16881 | .240 | 73.8 | 246.2 | + 9.6 | 9 | 55 | |
| | | .896 | 286.2 | | | | | 180 | | 16883 | .465 | 140.3 | 241.9 | -15.1 | 15 | 105 | |
| | 16879 | .757 | 258.2 | 346.9 | - 4.7 | 36 | 211 | | | 16885 | .691 | 80.2 | 215.9 | +11.1 | 50 | 268 | 72 *f* |
| | 16884 | .479 | 253.4 | 326.3 | - 2.3 | 2 | 13 | | | | .833 | 75.5 | | | | | 158 |
| | 16882 | .811 | 105.5 | 247.1 | - 8.7 | 91 | 505 | 309 *c* | | | .960 | 85.6 | | | | | 132 |
| | 16881 | .797 | 83.4 | 246.0 | + 9.0 | 32 | 201 | 162 *c* | | | .969 | 77.5 | | | | | 320 |
| | 16883 | .866 | 109.7 | 242.3 | -13.7 | 4 | 24 | 271 *c* | Oct.13 | | | ( +26.4) | ( 259.7) | ( + 6.0) | ( 166) | ( 1087) | ( 970) |
| | 16885 | .991 | 79.8 | 216.0 | +10.9 | 65 | 292 | 189 *c* | | | | | | | | | |
| | | .794 | 119.3 | | | | | 212 | | | | | | | | | |
| | | .827 | 95.0 | | | | | 63 | 286.575 | | .789 | 271.3 | | | | | 305 |
| | | .907 | 78.6 | | | | | 100 | G | 16882 | .265 | 195.5 | 247.0 | - 8.9 | 90 | 592 | |
| | | .936 | 112.8 | | | | | 213 | | 16881 | .090 | 317.1 | 246.4 | + 9.6 | 3 | 25 | |
| | | .937 | 119.2 | | | | | 214 | | 16883 | .353 | 178.0 | 242.2 | -14.7 | 9 | 53 | |
| Oct.10 | | | ( +26.4) | ( 299.1) | ( + 6.2) | ( 230) | ( 1246) | ( 2246) | | 16885 | .455 | 77.4 | 216.1 | +11.0 | 50 | 221 | |

Group 16881. Oct. 8 - 15. A stream of variable spots, dying out just past the central meridian.
Group 16882. Oct. 8 - 20. A stable regular spot with variable companions.
Group 16883. Oct. 9 - 20. A variable stream, immediately s Group 16882, the leading part of which is growing as it passes round the limb.
Group 16884. Oct. 10 - 13. A few small spots, not seen on October 11.
Group 16885. Oct. 10 - 22. A regular spot, with one or two companions between October 16 and 18.
Group 16886. Oct. 11 - 12. One or two faint 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 |
| 1951 | | | ° | ° | ° | | | | 1951 | | | ° | ° | ° | | | |
| | | .864 | 76.3 | | | | | 231 | 291.394 | | .919 | 277.8 | | | | | 302 |
| | | .869 | 85.7 | | | | | 255 | G | | .809 | 229.6 | | | | | 122 |
| | | .946 | 68.7 | | | | | 243 | | 16883 | .958 | 253.0 | 250.3 | -14.5 | 80 | 493 | 511 *c* |
| | | .964 | 82.4 | | | | | 320 | | 16882 | .940 | 259.1 | 248.0 | - 8.3 | 84 | 586 | 481 *c* |
| Oct.14 | | | (+26.3) | (242.9) | (+ 5.9) | (152) | (891) | (1354) | | 16885 | .608 | 281.5 | 216.6 | +11.3 | 42 | 196 | |
| | | | | | | | | | | 16888 | .205 | 288.5 | 190.7 | + 9.1 | 31 | 162 | |
| | | | | | | | | | | 16887 | .864 | 73.7 | 119.6 | +16.9 | 7 | 36 | 146 *c* |
| 287.378 | | .900 | 280.1 | | | | | 291 | | | .978 | 67.3 | | | | | 209 |
| G | | .895 | 257.9 | | | | | 216 | Oct.19 | | | (+26.1) | (179.4) | (+ 5.5) | (244) | (1473) | (1771) |
| | | .861 | 270.6 | | | | | 337 | | | | | | | | | |
| | | .767 | 278.3 | | | | | 121 | | | | | | | | | |
| | 16881 | .269 | 282.1 | 247.7 | + 8.8 | 3 | 27 | | 292.303 | | .965 | 276.3 | | | | | 141 |
| | 16882 | .355 | 225.1 | 247.0 | - 8.8 | 96 | 649 | | C | | .911 | 235.5 | | | | | 205 |
| | 16883 | .405 | 209.3 | 244.1 | -15.0 | 12 | 132 | | | 16883 | .992 | 253.8 | 248.0 | -15.2 | 15 | 286 | 382 *f* |
| | 16885 | .288 | 71.2 | 216.3 | +10.9 | 42 | 219 | | | 16882 | .988 | 260.7 | 247.4 | - 8.3 | 76 | 479 | 231 *f* |
| | | .779 | 80.5 | | | | | 254 | | 16885 | .760 | 280.1 | 216.9 | +11.2 | 38 | 208 | 102 *c* |
| | | .800 | 65.5 | | | | | 95 | | 16888 | .410 | 280.2 | 191.4 | + 9.2 | 47 | 328 | |
| | | .905 | 69.7 | | | | | 232 | | ***1312c*** | .164 | 63.9 | 158.8 | + 9.6 | 2 | 13 | |
| | | .915 | 83.5 | | | | | 369 | | | .929 | 66.4 | | | | | 224 |
| Oct.15 | | | (+26.3) | (232.3) | (+ 5.8) | (153) | (1027) | (1915) | Oct.20 | | | (+26.0) | (167.4) | (+ 5.5) | (178) | (1314) | (1285) |
| 288.331 | | .960 | 257.1 | | | | | 164 | 293.407 | | .945 | 255.1 | | | | | 184 |
| G | | .953 | 274.1 | | | | | 235 | G | | .940 | 236.8 | | | | | 209 |
| | | .826 | 279.4 | | | | | 303 | | | .889 | 265.1 | | | | | 119 |
| | 16883 | .560 | 233.4 | 247.3 | -14.3 | 16 | 129 | | | 16885 | .897 | 280.0 | 216.9 | +11.4 | 30 | 184 | 184 *c* |
| | 16882 | .514 | 242.0 | 247.0 | - 8.7 | 129 | 729 | | | 16888 | .659 | 277.8 | 194.0 | + 9.2 | 42 | 218 | |
| | 16885 | .113 | 37.5 | 215.8 | +10.9 | 46 | 228 | | | 16887 | .469 | 67.2 | 126.3 | +15.2 | 0 | 4 | |
| | | .788 | 65.9 | | | | | 153 | | | .822 | 65.1 | | | | | 173 |
| | | .790 | 82.6 | | | | | 261 | | | .941 | 80.5 | | | | | 291 |
| | | .925 | 73.1 | | | | | 121 | | | .945 | 63.6 | | | | | 226 |
| Oct.16 | | | (+26.3) | (219.8) | (+ 5.8) | (191) | (1086) | (1237) | Oct.21 | | | (+26.0) | (152.8) | (+ 5.4) | (72) | (406) | (1386) |
| 289.515 | | .939 | 278.6 | | | | | 386 | 294.345 | | .928 | 266.4 | | | | | 177 |
| C | 16883 | .751 | 244.9 | 248.6 | -14.5 | 37 | 241 | | G | 16885 | .971 | 280.4 | 217.0 | +11.3 | 45 | 191 | 291 *c* |
| | 16882 | .710 | 251.7 | 246.9 | - 8.7 | 91 | 745 | | | 16888 | .813 | 277.4 | 194.9 | + 9.1 | 21 | 146 | 328 *c* |
| | 16885 | .229 | 295.6 | 216.2 | +11.2 | 39 | 208 | | | | .835 | 63.3 | | | | | 450 |
| Oct.17 | | | (+26.2) | (204.1) | (+ 5.7) | (167) | (1194) | (386) | | | .854 | 80.3 | | | | | 285 |
| | | | | | | | | | | | .955 | 70.7 | | | | | 221 |
| | | | | | | | | | | | .958 | 83.4 | | | | | 191 |
| 290.318 | | .966 | 282.0 | | | | | 196 | | | .958 | 55.1 | | | | | 191 |
| C | | .815 | 276.8 | | | | | 184 | Oct.22 | | | (+25.9) | (140.4) | (+ 5.3) | (66) | (337) | (2134) |
| | 16883 | .856 | 249.6 | 249.2 | -14.2 | 31 | 215 | 364 *c* | | | | | | | | | |
| | 16882 | .828 | 255.7 | 247.5 | - 8.5 | 99 | 708 | 369 *c* | | | | | | | | | |
| | 16885 | .397 | 285.6 | 216.3 | +11.3 | 32 | 192 | | 295.385 | | .805 | 284.6 | | | | | 195 |
| | 16887 | .948 | 74.0 | 121.5 | +16.9 | 6 | 46 | 193 *c* | G | 16888 | .926 | 277.4 | 194.8 | + 8.9 | 18 | 71 | 241 *c* |
| Oct.18 | | | (+26.2) | (193.5) | (+ 5.6) | (168) | (1161) | (1306) | | ***1312d*** | .255 | 36.4 | 117.6 | +16.9 | 0 | 13 | |

Group 16887. Oct. 18 - 21. A small spot, not seen on October 20.
Group 16888. Oct. 19 - 23. A short-lived stream, appearing suddenly just past the central meridian.

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 |
| 1951 | | | ° | ° | ° | | | | 1951 | | | ° | ° | ° | | | |
| | 16889 | .870 | 84.8 | 66.1 | + 7.1 | 2 | 9 | 223 *f* | | | .825 | 283.2 | | | | | 194 |
| | | .770 | 80.0 | | | | | 121 | | | .809 | 294.8 | | | | | 131 |
| | | .802 | 57.2 | | | | | 330 | | 16891 | .421 | 278.9 | 97.7 | + 8.1 | 2 | 7 | |
| | | .874 | 71.2 | | | | | 169 | | 16889 | .103 | 65.3 | 67.6 | + 7.2 | 2 | 20 | |
| | | .971 | 67.2 | | | | | 100 | | 16890 | .738 | 109.8 | 28.1 | -11.1 | 6 | 19 | 85 *f* |
| Oct.23 | | | ( +25.8) | (126.7) | ( + 5.2) | (20) | (93) | (1379) | | 16892 | .876 | 102.6 | 13.4 | - 8.6 | 59 | 385 | 421 *c* |
| | | | | | | | | | | 16894 | .953 | 102.4 | 2.2 | -10.3 | 40 | 348 | |
| | | | | | | | | | | 16893 | .912 | 78.6 | 7.0 | +12.4 | 22 | 138 | 249 *f* |
| 296.379 | | .921 | 278.9 | | | | | 730 | | | .878 | 53.5 | | | | | 103 |
| G | | .842 | 292.8 | | | | | 163 | | | .901 | 109.8 | | | | | 130 |
| | 16889 | .724 | 85.1 | 67.2 | + 7.1 | 3 | 19 | 51 *f* | | | .927 | 67.6 | | | | | 102 |
| | | .869 | 84.3 | | | | | 210 | Oct.27 | | | ( +25.4) | (73.0) | ( + 4.8) | (131) | (917) | (1814) |
| | | .923 | 65.3 | | | | | 200 | | | | | | | | | |
| | | .947 | 76.5 | | | | | 169 | | | | | | | | | |
| Oct.24 | | | ( +25.7) | (113.6) | ( + 5.1) | (3) | (19) | (1523) | 300.481 | | .941 | 266.2 | | | | | 112 |
| | | | | | | | | | G | | .935 | 278.8 | | | | | 117 |
| | | | | | | | | | | | .901 | 288.4 | | | | | 201 |
| 297.385 | | .958 | 286.2 | | | | | 95 | | 16891 | .601 | 277.6 | 96.4 | + 8.3 | 12 | 73 | |
| G | | .943 | 275.8 | | | | | 169 | | 16895 | .416 | 306.8 | 80.0 | +18.8 | 1 | 6 | |
| | | .907 | 293.4 | | | | | 169 | | 16896 | .143 | 58.4 | 52.5 | + 8.9 | 0 | 5 | |
| | | .854 | 280.3 | | | | | 230 | | 16892 | .746 | 105.4 | 13.1 | - 8.3 | 68 | 479 | 252 *c* |
| | 16889 | .561 | 84.0 | 66.2 | + 7.5 | 7 | 27 | | | 16894 | .855 | 104.5 | 2.5 | - 9.8 | 35 | 239 | |
| | 16890 | .953 | 104.0 | 29.7 | -11.7 | 7 | 15 | 222 *c* | | 16893 | .797 | 78.0 | 6.7 | +12.4 | 21 | 108 | 168 *c* |
| | | .774 | 82.1 | | | | | 73 | | 16897 | .952 | 96.0 | 348.1 | - 4.2 | 6 | 39 | 144 *c* |
| | | .817 | 64.7 | | | | | 76 | | | .832 | 123.8 | | | | | 119 |
| | | .905 | 44.5 | | | | | 81 | | | .896 | 100.1 | | | | | 148 |
| | | .907 | 58.2 | | | | | 208 | | | .928 | 65.3 | | | | | 73 |
| | | .922 | 75.6 | | | | | 183 | | | .936 | 53.4 | | | | | 87 |
| Oct.25 | | | ( +25.6) | (100.3) | ( + 5.0) | (14) | (42) | (1506) | Oct.28 | | | ( +25.2) | (59.5) | ( + 4.7) | (143) | (949) | (1421) |
| 298.303 | | .947 | 280.6 | | | | | 223 | 301.430 | | .953 | 289.0 | | | | | 197 |
| C | 16891 | .147 | 298.0 | 95.7 | + 8.7 | 3 | 11 | | G | | .944 | 278.5 | | | | | 126 |
| | 16889 | .334 | 81.9 | 68.8 | + 7.4 | 3 | 17 | | | | .804 | 293.5 | | | | | 277 |
| | 16890 | .876 | 106.1 | 29.2 | -11.5 | 4 | 18 | 139 *c* | | 16891 | .761 | 277.0 | 96.6 | + 8.3 | 17 | 95 | 132 *c* |
| | 16892 | .969 | 100.6 | 13.8 | - 9.0 | 46 | 304 | 217 *c* | | 16895 | .587 | 293.7 | 81.1 | +17.4 | 2 | 8 | |
| | 16893 | .984 | 78.4 | 7.9 | +12.3 | 25 | 151 | 101 *c* | | 16896 | .139 | 309.7 | 53.2 | + 9.6 | 2 | 12 | |
| | | .931 | 79.3 | | | | | 72 | | 16892 | .590 | 110.9 | 13.3 | - 8.3 | 76 | 497 | 100 *f* |
| Oct.26 | | | ( +25.5) | (88.2) | ( + 4.9) | (81) | (501) | (752) | | 16894 | .727 | 108.6 | 2.7 | -10.1 | 42 | 171 | |
| | | | | | | | | | | 16893 | .654 | 76.4 | 6.6 | +12.4 | 20 | 125 | |
| | | | | | | | | | | 16897 | .870 | 97.5 | 347.4 | - 4.2 | 9 | 44 | 206 *f* |
| 299.457 | | .961 | 284.4 | | | | | 163 | | | .935 | 111.5 | | | | | 117 |
| G | | .951 | 264.0 | | | | | 141 | | | .942 | 89.2 | | | | | 81 |
| | | .877 | 256.0 | | | | | 95 | Oct.29 | | | ( +25.1) | (47.0) | ( + 4.6) | (168) | (952) | (1236) |

Group 16889. Oct. 23 - 27. A few small spots, dying out before reaching the central meridian.
Group 16890. Oct. 25 - 27. A few tiny spots.
Group 16891. Oct. 26 - 31. A few small spots.
Group 16892. Oct. 26-Nov. 6. A single spot on October 26. On the next day there is a double spot, the two components of which separate and join with other spots to form a normal stream.
Group 16893. Oct. 26-Nov. 7. A regular spot with occasional companions.
Group 16894. Oct. 27-Nov. 7. A stream of variable spots, immediately *f* Group 16892.
Group 16895. Oct. 28 - 29. A tiny spot.
Group 16896. Oct. 28-Nov. 3. Two or three tiny spots, not seen on October 30 and 31.
Group 16897. Oct. 28-Nov. 2. Return of Group 16879; third appearance. A faint spot.

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

| U.T. | Group No. | MEASURES Dist. | MEASURES Pos. Angle | POSITION Long. | POSITION Lat. | AREA Umbræ | AREA Whole Spots | AREA Faculæ |
|---|---|---|---|---|---|---|---|---|
| 1951 | | | ° | ° | ° | | | |
| 302.613 | | .909 | 294.3 | | | | | 157 |
| G | 16891 | .917 | 277.7 | 98.1 | + 8.9 | 22 | 153 | 223 *c* |
| | 16892 | .370 | 125.9 | 13.8 | - 8.2 | 84 | 479 | |
| | 16893 | .443 | 70.7 | 6.2 | +12.4 | 21 | 123 | |
| | 16894 | .543 | 117.0 | 2.1 | -10.3 | 26 | 149 | |
| | 16897 | .697 | 100.5 | 348.2 | - 4.0 | 6 | 22 | 86 *f* |
| | | .853 | 96.0 | | | | | 163 |
| | | .907 | 109.2 | | | | | 156 |
| Oct.30 | | | ( +24.9) | (31.4) | ( + 4.5) | (159) | (926) | (785) |
| 303.581 | | .939 | 297.5 | | | | | 132 |
| G | | .918 | 288.8 | | | | | 160 |
| | | .857 | 289.1 | | | | | 158 |
| | | .817 | 300.2 | | | | | 142 |
| | 16891 | .985 | 277.4 | 99.0 | + 8.0 | 17 | 149 | 182 *c* |
| | 16892 | .237 | 160.6 | 14.1 | - 8.5 | 64 | 358 | |
| | 16893 | .252 | 54.6 | 6.5 | +12.7 | 21 | 97 | |
| | 16894 | .372 | 131.5 | 2.2 | -10.0 | 20 | 176 | |
| | 16897 | .526 | 105.0 | 348.1 | - 4.0 | 4 | 15 | |
| | | .781 | 97.3 | | | | | 132 |
| | | .934 | 73.0 | | | | | 127 |
| | | .966 | 105.2 | | | | | 118 |
| | | .978 | 84.8 | | | | | 155 |
| Oct.31 | | | ( +24.8) | (18.6) | ( + 4.4) | (126) | (795) | (1306) |
| 304.413 | | .951 | 281.1 | | | | | 176 |
| G | | .944 | 291.4 | | | | | 138 |
| | | .899 | 302.4 | | | | | 162 |
| | | .865 | 276.0 | | | | | 127 |
| | | .812 | 293.9 | | | | | 97 |
| | 16896 | .707 | 281.5 | 52.4 | +11.1 | 9 | 40 | 99 *p* |
| | 16892 | .256 | 207.7 | 14.6 | - 8.7 | 67 | 422 | |
| | 16893 | .149 | 6.6 | 6.7 | +12.8 | 22 | 96 | |
| | 16894 | .264 | 161.8 | 2.9 | -10.2 | 26 | 146 | |
| | 16897 | .350 | 114.2 | 349.1 | - 4.1 | 1 | 12 | |
| | | .839 | 72.2 | | | | | 124 |
| | | .935 | 105.4 | | | | | 147 |
| | | .945 | 93.0 | | | | | 160 |
| | | .949 | 82.4 | | | | | 305 |
| Nov.1 | | | ( +24.6) | ( 7.7) | ( + 4.3) | (125) | (716) | (1535) |
| 305.595 | | .884 | 291.6 | | | | | 163 |
| G | 16896 | .867 | 280.8 | 52.2 | +11.5 | 6 | 26 | 231 *c* |
| | 16892 | .452 | 239.4 | 15.2 | - 9.4 | 51 | 312 | |
| | 16893 | .291 | 302.6 | 6.6 | +13.1 | 18 | 80 | |
| 1951 | | | ° | ° | ° | | | |
| 16894 | | .302 | 217.2 | 2.7 | - 9.7 | 11 | 53 | |
| | ***1313a*** | .261 | 11.6 | 348.9 | +19.0 | 0 | 6 | |
| | 16897 | .163 | 145.6 | 346.8 | - 3.6 | 0 | 2 | |
| | | .822 | 83.8 | | | | | 230 |
| | | .938 | 81.4 | | | | | 330 |
| | | .958 | 105.2 | | | | | 208 |
| Nov.2 | | | ( +24.4) | (352.1) | ( + 4.2) | (86) | (479) | (1162) |
| 306.373 | | .781 | 247.6 | | | | | 126 |
| G | 16896 | .955 | 280.4 | 54.8 | +11.2 | 0 | 15 | 235 *c* |
| | 16892 | .583 | 247.8 | 14.8 | - 9.3 | 40 | 325 | |
| | 16893 | .441 | 292.0 | 6.5 | +13.2 | 17 | 92 | |
| | 16894 | .416 | 238.0 | 2.6 | - 8.9 | 6 | 25 | |
| | | .784 | 83.1 | | | | | 106 |
| | | .898 | 77.9 | | | | | 236 |
| | | .899 | 108.3 | | | | | 162 |
| | | .913 | 86.7 | | | | | 111 |
| | | .981 | 102.3 | | | | | 222 |
| Nov.3 | | | ( +24.3) | (341.8) | ( + 4.1) | (63) | (457) | (1198) |
| 307.295 | | .976 | 281.5 | | | | | 119 |
| C | | .888 | 251.3 | | | | | 172 |
| | | .882 | 281.9 | | | | | 151 |
| | 16892 | .734 | 252.8 | 14.8 | - 9.6 | 34 | 186 | 81 *c* |
| | 16894 | .573 | 248.1 | 2.1 | - 8.8 | 4 | 23 | |
| | 16893 | .611 | 285.7 | 6.6 | +12.8 | 5 | 40 | |
| | 16898 | .918 | 102.5 | 264.5 | - 9.7 | 5 | 16 | 111 *f* |
| | 16899 | .968 | 104.7 | 255.9 | -13.1 | 67 | 431 | 299 *c* |
| | 16900 | .985 | 97.5 | 250.5 | - 6.6 | 70 | 443 | 145 *c* |
| | | .776 | 111.9 | | | | | 117 |
| | | .798 | 77.5 | | | | | 203 |
| | | .944 | 114.5 | | | | | 128 |
| Nov.4 | | | ( +24.1) | (329.7) | ( + 4.1) | (185) | (1139) | (1526) |
| 308.292 | | .957 | 253.5 | | | | | 173 |
| C | | .950 | 285.1 | | | | | 174 |
| | 16892 | .864 | 256.6 | 14.7 | - 9.5 | 14 | 112 | 213 *c* |
| | 16894 | .747 | 252.6 | 2.7 | -10.2 | 9 | 51 | |
| | 16893 | .772 | 283.6 | 6.6 | +12.9 | 6 | 16 | 137 *c* |
| | 16898 | .793 | 105.8 | 265.9 | -10.0 | 3 | 11 | 124 *f* |
| | 16899 | .890 | 106.8 | 255.7 | -13.0 | 64 | 458 | 208 *c* |
| | 16900 | .933 | 98.5 | 248.5 | - 6.4 | 56 | 428 | 223 *c* |
| | | .870 | 114.6 | | | | | 111 |
| | | .920 | 81.6 | | | | | 112 |
| | | .972 | 108.8 | | | | | 301 |
| Nov.5 | | | ( +23.9) | (316.5) | ( + 3.9) | (152) | (1076) | (1776) |

Group 16898. Nov. 4 - 5. A small spot.
Group 16899. Nov. 4 - 16. Return of Group 16883. A regular spot, with a few companions on November 10 and 11.
Group 16900. Nov. 4 - 16. Return of Group 16882. A spot, elongated in a latitudinal direction, which at first has a double umbra. On November 7 the umbra becomes divided into three. There are a few tiny companions until November 12.

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

| U.T. | Group No. | MEASURES Dist. | MEASURES Pos. Angle | POSITION Long. | POSITION Lat. | AREA Umbræ | AREA Whole Spots | AREA Faculæ |
|---|---|---|---|---|---|---|---|---|
| 1951 | | | ° | ° | ° | | | |
| 309.399 | 16892 | .961 | 259.1 | 14.7 | - 9.3 | 7 | 39 | 510 c |
| G | 16894 | .887 | 255.3 | 2.6 | -11.1 | 28 | 165 | |
| | 16893 | .905 | 282.5 | 6.7 | +12.9 | 5 | 15 | 206 c |
| | *1313b* | .154 | 58.6 | 294.3 | + 8.3 | 0 | 5 | |
| | 16899 | .755 | 110.9 | 255.7 | -12.9 | 57 | 388 | 222 s |
| | 16900 | .817 | 100.5 | 248.2 | - 6.3 | 81 | 456 | 239 c |
| | | .908 | 108.7 | | | | | 480 |
| | | .939 | 117.9 | | | | | 121 |
| | | .966 | 79.5 | | | | | 243 |
| Nov.6 | | | (+23.7) | (301.9) | ( + 3.8) | (178) | (1068) | (2021) |
| 310.497 | | .857 | 261.0 | | | | | 123 |
| G | 16893 | .980 | 282.3 | 6.2 | +12.8 | 10 | 22 | 135 c |
| | 16894 | .977 | 257.5 | 3.8 | -11.4 | 25 | 110 | 310 c |
| | 16899 | .588 | 118.3 | 255.4 | -13.0 | 71 | 391 | |
| | 16900 | .653 | 104.3 | 248.0 | - 6.4 | 68 | 425 | 114 c |
| | 16901 | .867 | 81.7 | 227.3 | + 9.0 | 4 | 31 | 210 c |
| | | .795 | 116.1 | | | | | 207 |
| | | .915 | 121.5 | | | | | 130 |
| | | .940 | 96.7 | | | | | 80 |
| Nov.7 | | | (+23.5) | (287.4) | ( + 3.7) | (178) | (979) | (1309) |
| 311.292 | | .948 | 263.0 | | | | | 157 |
| C | 16899 | .459 | 127.9 | 255.3 | -12.9 | 59 | 383 | |
| | 16900 | .508 | 109.5 | 248.3 | - 6.6 | 47 | 339 | |
| | 16901 | .734 | 80.9 | 230.0 | + 9.1 | 0 | 4 | 140 c |
| | | .886 | 123.7 | | | | | 214 |
| Nov.8 | | | (+23.3) | (277.0) | ( + 3.6) | (106) | (726) | (511) |
| 312.174 | | .915 | 262.3 | | | | | 220 |
| K | *1313c* | .140 | 21.5 | 262.3 | +10.9 | 2 | 10 | |
| | 16899 | .334 | 148.3 | 255.0 | -12.9 | 61 | 382 | |
| | 16900 | .346 | 119.8 | 247.8 | - 6.5 | 72 | 452 | |
| | 16901 | .614 | 78.3 | 227.8 | + 9.9 | 2 | 13 | |
| | 16902 | .760 | 104.9 | 217.5 | - 8.9 | 2 | 9 | 105 c |
| | | .790 | 78.7 | | | | | 181 |
| | | .939 | 79.7 | | | | | 190 |
| Nov.9 | | | (+23.1) | (265.3) | ( + 3.5) | (139) | (866) | (696) |
| 313.411 | 16899 | .312 | 198.8 | 254.9 | -13.8 | 60 | 360 | |
| G | 16900 | .183 | 172.4 | 247.6 | - 7.0 | 64 | 364 | |
| | 16901 | .347 | 72.7 | 229.5 | + 9.1 | 21 | 87 | |
| | 16902 | .529 | 113.3 | 219.6 | - 9.1 | 1 | 6 | |
| | | .751 | 78.6 | | | | | 118 |
| | | .866 | 82.6 | | | | | 126 |
| | | .926 | 73.4 | | | | | 244 |
| Nov.10 | | | (+22.8) | (249.0) | ( + 3.4) | (146) | (817) | (488) |

| U.T. | Group No. | MEASURES Dist. | MEASURES Pos. Angle | POSITION Long. | POSITION Lat. | AREA Umbræ | AREA Whole Spots | AREA Faculæ |
|---|---|---|---|---|---|---|---|---|
| 1951 | | | ° | ° | ° | | | |
| 314.440 | | .910 | 269.5 | | | | | 188 |
| G | | .910 | 254.4 | | | | | 131 |
| | | .885 | 282.6 | | | | | 254 |
| | | .841 | 277.8 | | | | | 121 |
| | 16903 | .706 | 290.4 | 279.0 | +16.6 | 3 | 13 | |
| | 16899 | .435 | 229.8 | 255.4 | -13.1 | 38 | 318 | |
| | 16900 | .293 | 231.2 | 248.7 | - 7.3 | 47 | 314 | |
| | 16901 | .124 | 31.8 | 231.7 | + 9.3 | 6 | 52 | |
| | *1313d* | .306 | 59.7 | 219.9 | +12.0 | 2 | 14 | |
| | 16902 | .344 | 125.6 | 219.2 | - 8.3 | 2 | 8 | |
| | | .827 | 75.0 | | | | | 158 |
| | | .829 | 84.8 | | | | | 69 |
| | | .920 | 65.6 | | | | | 193 |
| | | .948 | 79.2 | | | | | 245 |
| Nov.11 | | | (+22.6) | (235.5) | ( + 3.3) | (98) | (719) | (1359) |
| 315.576 | | .965 | 268.8 | | | | | 239 |
| G | | .932 | 279.3 | | | | | 268 |
| | | .928 | 248.7 | | | | | 110 |
| | | .794 | 247.1 | | | | | 153 |
| | 16903 | .854 | 288.1 | 278.4 | +17.0 | 9 | 54 | 109 c |
| | 16899 | .621 | 244.1 | 255.4 | -13.2 | 34 | 275 | |
| | 16900 | .502 | 249.7 | 248.7 | - 7.2 | 54 | 269 | |
| | 16901 | .176 | 310.0 | 228.3 | + 9.5 | 4 | 46 | |
| | *1313e* | .819 | 77.5 | 165.9 | +12.0 | 0 | 8 | 138 c |
| | | .843 | 63.5 | | | | | 141 |
| | | .907 | 106.9 | | | | | 91 |
| | | .955 | 84.0 | | | | | 101 |
| Nov.12 | | | (+22.3) | (220.5) | ( + 3.1) | (101) | (652) | (1350) |
| 316.293 | | .942 | 276.4 | | | | | 123 |
| C | 16903 | .919 | 287.8 | 277.4 | +17.6 | 5 | 14 | 182 c |
| | 16899 | .728 | 248.6 | 254.9 | -13.1 | 28 | 212 | |
| | 16900 | .629 | 254.5 | 248.5 | - 7.2 | 44 | 213 | |
| | 16901 | .337 | 288.6 | 229.8 | + 9.1 | 4 | 29 | |
| | 16904 | .195 | 232.4 | 219.9 | - 3.7 | 1 | 4 | |
| | | .901 | 82.5 | | | | | 173 |
| Nov.13 | | | (+22.1) | (211.0) | ( + 3.1) | (82) | (472) | (478) |
| 317.419 | | .768 | 239.1 | | | | | 188 |
| G | 16899 | .873 | 253.0 | 255.0 | -13.2 | 56 | 261 | 488 c |
| | 16900 | .804 | 259.1 | 248.7 | - 6.9 | 42 | 246 | 144 c |
| | 16901 | .562 | 282.8 | 229.8 | + 9.6 | 2 | 21 | |
| | 16904 | .435 | 255.5 | 221.0 | - 3.6 | 10 | 45 | |
| | | .932 | 73.4 | | | | | 163 |
| Nov.14 | | | (+21.8) | (196.2) | ( + 2.9) | (110) | (573) | (983) |

Group 16901. Nov. 7 - 15. A group of small variable spots, with maximum area on November 10.
Group 16902. Nov. 9 - 11. One or two tiny spots.
Group 16903. Nov. 11 - 13. A small spot.
Group 16904. Nov. 13 - 17. A pair of small spots.

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

| U.T. | Group No. | MEASURES Dist. | MEASURES Pos. Angle | POSITION Long. | POSITION Lat. | AREA Umbræ | AREA Whole Spots | AREA Faculæ |
|---|---|---|---|---|---|---|---|---|
| 1951 | | | ° | ° | ° | | | |
| 318.581 | | .927 | 277.7 | | | | | 58 |
| G | | .889 | 247.1 | | | | | 509 |
| | 16899 | .969 | 255.1 | 255.1 | -13.7 | 44 | 183 | 297 *c* |
| | 16900 | .932 | 261.1 | 248.8 | - 7.2 | 30 | 190 | 417 *f* |
| | 16901 | .788 | 278.5 | 232.7 | + 8.4 | 0 | 3 | 144 *c* |
| | 16904 | .654 | 261.2 | 221.1 | - 3.6 | 23 | 116 | |
| | ***1313f*** | .385 | 256.9 | 202.8 | - 2.4 | 2 | 6 | |
| | 16905 | .541 | 82.1 | 148.4 | + 6.6 | 2 | 13 | |
| | | .885 | 64.7 | | | | | 122 |
| | | .978 | 82.7 | | | | | 233 |
| Nov.15 | | | ( +21.5) | (180.9) | ( + 2.8) | (101) | (511) | (1780) |
| 319.296 | | .928 | 253.0 | | | | | 309 |
| C | | .923 | 243.3 | | | | | 184 |
| | | .861 | 279.5 | | | | | 124 |
| | 16899 | .993 | 255.9 | 253.5 | -13.7 | 33 | 163 | 79 *c* |
| | 16900 | .977 | 262.1 | 248.4 | - 7.1 | 18 | 156 | 234 *f* |
| | 16904 | .756 | 263.5 | 220.0 | - 3.1 | 13 | 58 | 69 *c* |
| | 16905 | .386 | 79.3 | 149.1 | + 6.5 | 2 | 13 | |
| | 16906 | .935 | 84.2 | 102.2 | + 6.4 | 3 | 8 | 203 *c* |
| | 16907 | .985 | 73.0 | 91.3 | +17.2 | 23 | 130 | 151 *p* |
| Nov.16 | | | ( +21.3) | (171.4) | ( + 2.7) | (92) | (528) | (1353) |
| 320.298 | | .935 | 241.4 | | | | | 181 |
| C | | .927 | 279.5 | | | | | 216 |
| | 16904 | .888 | 265.0 | 220.4 | - 3.2 | 7 | 40 | 124 *c* |
| | 16905 | .163 | 62.0 | 149.9 | + 8.1 | 4 | 30 | |
| | 16906 | .824 | 84.8 | 102.8 | + 5.7 | 0 | 4 | 113 *c* |
| | 16907 | .928 | 72.1 | 90.6 | +17.5 | 34 | 202 | 147 *c* |
| | 16908 | .993 | 69.4 | 74.6 | +20.8 | 33 | 171 | 115 *p* |
| | | .926 | 57.3 | | | | | 220 |
| | | .941 | 80.0 | | | | | 147 |
| Nov.17 | | | ( +21.0) | (158.2) | ( + 2.6) | (78) | (447) | (1263) |
| 321.302 | | .968 | 265.0 | | | | | 198 |
| C | | .858 | 283.4 | | | | | 132 |
| | 16905 | .104 | 313.7 | 149.3 | + 6.5 | 9 | 44 | |
| | 16909 | .720 | 79.3 | 99.4 | + 9.4 | 16 | 108 | |
| | 16907 | .841 | 71.0 | 88.8 | +17.3 | 39 | 206 | 179 *c* |
| | 16908 | .937 | 68.5 | 76.2 | +21.0 | 35 | 231 | 249 *c* |
| | | .844 | 81.2 | | | | | 121 |
| | | .853 | 56.7 | | | | | 169 |
| | | .947 | 86.7 | | | | | 274 |
| Nov.18 | | | ( +20.7) | (145.0) | ( + 2.5) | (99) | (589) | (1322) |

| U.T. | Group No. | MEASURES Dist. | MEASURES Pos. Angle | POSITION Long. | POSITION Lat. | AREA Umbræ | AREA Whole Spots | AREA Faculæ |
|---|---|---|---|---|---|---|---|---|
| 1951 | | | ° | ° | ° | | | |
| 322.463 | | .957 | 236.0 | | | | | 119 |
| G | | .944 | 266.0 | | | | | 147 |
| | | .936 | 280.3 | | | | | 238 |
| | | .828 | 286.2 | | | | | 233 |
| | 16910 | .747 | 239.2 | 172.9 | -20.7 | 7 | 23 | 63 *p* |
| | 16905 | .352 | 281.6 | 150.4 | + 6.2 | 6 | 38 | |
| | 16909 | .484 | 75.8 | 101.5 | + 8.8 | 17 | 89 | |
| | 16907 | .671 | 67.0 | 89.7 | +16.9 | 20 | 122 | 115 *c* |
| | 16908 | .830 | 66.1 | 75.6 | +20.9 | 28 | 174 | 247 *c* |
| | | .791 | 56.6 | | | | | 173 |
| | | .826 | 83.8 | | | | | 202 |
| | | .932 | 57.2 | | | | | 223 |
| | | .939 | 84.2 | | | | | 213 |
| Nov.19 | | | ( +20.4) | (129.7) | ( + 2.3) | (78) | (446) | (1973) |
| 323.381 | | .935 | 274.7 | | | | | 153 |
| G | | .902 | 284.3 | | | | | 227 |
| | | .894 | 293.3 | | | | | 117 |
| | 16910 | .863 | 244.2 | 173.6 | -20.8 | 2 | 15 | 138 *c* |
| | 16905 | .569 | 277.7 | 152.0 | + 6.2 | 4 | 21 | |
| | 16909 | .273 | 67.2 | 102.9 | + 8.2 | 26 | 135 | |
| | 16907 | .528 | 60.3 | 89.1 | +17.0 | 23 | 116 | |
| | 16908 | .710 | 61.9 | 75.6 | +21.1 | 31 | 178 | 222 *f* |
| | ***1313g*** | .762 | 83.5 | 68.2 | + 6.4 | 2 | 14 | 80 *c* |
| | | .835 | 51.1 | | | | | 187 |
| | | .849 | 81.3 | | | | | 133 |
| | | .965 | 54.9 | | | | | 90 |
| Nov.20 | | | ( +20.1) | (117.6) | ( + 2.2) | (88) | (479) | (1347) |
| 324.358 | | .962 | 281.0 | | | | | 178 |
| G | | .961 | 246.4 | | | | | 97 |
| | | .883 | 284.6 | | | | | 229 |
| | 16909 | .114 | 15.0 | 103.0 | + 8.4 | 21 | 145 | |
| | 16907 | .351 | 43.1 | 90.3 | +16.8 | 21 | 124 | |
| | 16908 | .565 | 54.6 | 75.3 | +20.9 | 28 | 169 | |
| | | .952 | 71.6 | | | | | 142 |
| Nov.21 | | | ( +19.8) | (104.7) | ( + 2.1) | (70) | (438) | (646) |
| 325.373 | | .962 | 279.7 | | | | | 205 |
| G | 16905 | .882 | 275.8 | 153.0 | + 6.1 | 2 | 14 | 163 *c* |
| | 16909 | .236 | 298.9 | 103.3 | + 8.5 | 18 | 130 | |
| | 16907 | .261 | 12.6 | 87.9 | +16.7 | 18 | 111 | |
| | 16908 | .424 | 38.4 | 75.0 | +21.3 | 35 | 202 | |
| | | .856 | 73.1 | | | | | 127 |

Group 16905. Nov. 15 - 22. A pair of spots until November 19. A single spot on November 20 and 22, nothing being seen on November 21.
Group 16906. Nov. 16 - 17. A faint spot.
Group 16907. Nov. 16 - 26. A diminishing regular spot, followed by a distant companion until November 23.
Group 16908. Nov. 17 - 29. A stable regular spot.
Group 16909. Nov. 18 - 27. A pair of spots on November 18. The leader soon becomes regular and alone remains by November 24.
Group 16910. Nov. 19 - 20. A close pair of small spots, of which only one remains on November 20.

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 |
| 1951 | | | ° | ° | ° | | | | 1951 | | | ° | ° | ° | | | |
| | | .859 | 110.7 | | | | | 149 | | 16909 | .894 | 280.1 | 102.0 | + 9.7 | 30 | 100 | 233 c |
| | | .894 | 53.9 | | | | | 175 | | 16907 | .808 | 290.4 | 91.2 | +17.2 | 0 | 8 | 212 c |
| | | .942 | 102.7 | | | | | 243 | | 16913 | .644 | 244.6 | 75.8 | -14.8 | 3 | 16 | |
| Nov.22 | | | ( +19.5) | (91.3) | ( + 2.0) | (73) | (457) | (1062) | | 16908 | .643 | 303.2 | 74.3 | +21.8 | 35 | 169 | |
| | | | | | | | | | | 16912 | .610 | 75.2 | 2.4 | +10.1 | 24 | 148 | |
| | | | | | | | | | | 16914 | .879 | 79.1 | 337.9 | +10.3 | 42 | 189 | 199 c |
| 326.291 | | .949 | 275.2 | | | | | 148 | Nov.26 | | | ( +18.1) | (39.0) | ( + 1.5) | (139) | (660) | (947) |
| C | | .778 | 283.8 | | | | | 92 | | | | | | | | | |
| | 16911 | .440 | 274.7 | 105.2 | + 3.8 | 3 | 32 | | | | | | | | | | |
| | 16909 | .412 | 287.6 | 102.5 | + 8.9 | 27 | 142 | | | | | | | | | | |
| | 16907 | .307 | 325.4 | 89.6 | +16.4 | 16 | 78 | | 330.286 | | .910 | 303.4 | | | | | 175 |
| | 16908 | .340 | 12.6 | 74.7 | +21.2 | 31 | 163 | | C | | .905 | 289.3 | | | | | 341 |
| | 16912 | .979 | 79.7 | 1.1 | +10.5 | 36 | 221 | 335 c | | | .787 | 248.0 | | | | | 153 |
| | | .857 | 105.4 | | | | | 306 | | 16909 | .967 | 279.4 | 101.6 | + 9.4 | 15 | 114 | 174 c |
| | | .968 | 103.4 | | | | | 172 | | 16908 | .767 | 297.4 | 73.5 | +21.6 | 33 | 134 | 122 c |
| Nov.23 | | | ( +19.2) | (79.2) | ( + 1.9) | (113) | (636) | (1053) | | 16915 | .716 | 277.0 | 72.0 | + 6.0 | 25 | 154 | 72 p |
| | | | | | | | | | | 16912 | .430 | 68.4 | 2.7 | +10.4 | 22 | 147 | |
| | | | | | | | | | | 16914 | .749 | 76.8 | 338.9 | +10.7 | 18 | 135 | 141 c |
| 327.144 | 16911 | .603 | 274.7 | 104.9 | + 4.2 | 4 | 30 | | Nov.27 | | | ( +17.8) | (26.6) | ( + 1.4) | (113) | (684) | (1178) |
| K | 16909 | .578 | 283.3 | 102.6 | + 9.1 | 20 | 121 | | | | | | | | | | |
| | 16907 | .465 | 303.9 | 91.6 | +16.6 | 13 | 73 | | | | | | | | | | |
| | 16908 | .355 | 342.7 | 74.5 | +21.5 | 30 | 161 | | | | | | | | | | |
| | 16912 | .919 | 79.1 | 1.6 | +10.7 | 28 | 164 | 216 p | 331.539 | | .951 | 287.4 | | | | | 285 |
| | | .760 | 109.6 | | | | | 226 | C | | .916 | 253.6 | | | | | 124 |
| | | .911 | 103.3 | | | | | 268 | | | .874 | 304.2 | | | | | 150 |
| Nov.24 | | | ( +18.9) | (68.0) | ( + 1.8) | (95) | (549) | (710) | | 16908 | .908 | 293.6 | 73.5 | +21.8 | 22 | 104 | 212 c |
| | | | | | | | | | | 16915 | .889 | 276.6 | 72.6 | + 6.4 | 69 | 572 | 208 c |
| | | | | | | | | | | 16912 | .221 | 41.2 | 1.6 | +10.7 | 19 | 86 | |
| 328.415 | | .949 | 287.2 | | | | | 119 | | 16914 | .513 | 71.0 | 340.7 | +10.6 | 18 | 58 | |
| G | 16911 | .820 | 274.6 | 106.1 | + 4.7 | 3 | 23 | 106 c | | | .908 | 71.6 | | | | | 144 |
| | 16909 | .779 | 280.7 | 101.9 | + 9.3 | 22 | 124 | 207 c | | | .940 | 84.6 | | | | | 152 |
| | 16907 | .682 | 293.3 | 91.9 | +16.8 | 6 | 27 | | Nov.28 | | | ( +17.4) | (10.1) | ( + 1.2) | (128) | (820) | (1275) |
| | 16913 | .474 | 234.5 | 74.6 | -14.4 | 7 | 48 | | | | | | | | | | |
| | 16908 | .499 | 313.2 | 74.1 | +21.3 | 21 | 153 | | | | | | | | | | |
| | 16912 | .763 | 77.6 | 2.2 | +10.4 | 27 | 127 | 134 c | 332.347 | | .964 | 254.5 | | | | | 148 |
| | 16914 | .964 | 79.9 | 336.8 | +10.2 | 24 | 167 | 325 c | C | | .900 | 303.2 | | | | | 132 |
| | | .764 | 107.1 | | | | | 159 | | | .831 | 314.7 | | | | | 93 |
| | | .853 | 99.1 | | | | | 156 | | 16908 | .966 | 292.1 | 73.5 | +21.6 | 19 | 120 | 210 f |
| | | .949 | 93.3 | | | | | 154 | | 16915 | .953 | 275.7 | 71.5 | + 5.7 | 121 | 887 | 342 c |
| | | .958 | 105.7 | | | | | 169 | | 16912 | .172 | 347.4 | 1.6 | +10.7 | 7 | 39 | |
| Nov.25 | | | ( +18.5) | (51.2) | ( + 1.6) | (110) | (669) | (1529) | | 16914 | .360 | 62.5 | 340.5 | +10.5 | 12 | 56 | |
| | | | | | | | | | | 16916 | .905 | 82.9 | 294.8 | + 6.9 | 9 | 44 | 205 c |
| | | | | | | | | | | | .852 | 70.8 | | | | | 163 |
| 329.347 | | .813 | 304.1 | | | | | 172 | | | .939 | 65.1 | | | | | 75 |
| G | 16911 | .932 | 274.4 | 107.5 | + 4.6 | 5 | 30 | 131 c | Nov.29 | | | ( +17.1) | (359.4) | ( + 1.1) | (168) | (1146) | (1368) |

Group 16911. Nov. 23 - 26. A small spot, except on November 24, when there is a pair.
Group 16912. Nov. 23-Dec. 5. A nearly regular spot, preceded by a few small companions until December 1. There is a sudden increase in area on December 4.
Group 16913. Nov. 25 - 26. A pair of small spots on November 25; a single spot on November 26.
Group 16914. Nov. 25-Dec. 2. A stream of small spots, dying out just past the central meridian.
Group 16915. Nov. 27 - 30. A rapidly-growing cluster, forming near the west limb.
Group 16916. Nov. 29-Dec. 1. A pair of small spots on November 29 and 30; a single spot on December 1.

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 |
| 1951 | | | ° | ° | ° | | | | 1951 | | | ° | ° | ° | | | |
| 333.428 | 16915 | .995 | 276.1 | 69.2 | + 6.2 | 0 | 62 | 143 *f* | | 16917 | .674 | 111.1 | 254.2 | -13.7 | 1 | 6 | 69 *f* |
| G | 16912 | .351 | 297.7 | 3.5 | +10.3 | 21 | 82 | | | | .785 | 102.5 | | | | | 150 |
| | 16914 | .186 | 28.3 | 340.1 | +10.4 | 2 | 18 | | | | .841 | 115.9 | | | | | 250 |
| | 16916 | .769 | 81.3 | 295.4 | + 7.3 | 6 | 21 | 82 *c* | | | .927 | 68.7 | | | | | 132 |
| | | .855 | 77.8 | | | | | 126 | | | .939 | 94.5 | | | | | 135 |
| | | .887 | 58.8 | | | | | 140 | Dec.4 | | | ( +15.1) | (294.4) | ( + 0.5) | (32) | (247) | (1495) |
| | | .935 | 70.9 | | | | | 242 | | | | | | | | | |
| | | .971 | 103.0 | | | | | 215 | | | | | | | | | |
| Nov.30 | | | ( +16.6) | (345.2) | ( + 1.0) | (29) | (183) | (948) | 338.283 | | .933 | 261.7 | | | | | 129 |
| | | | | | | | | | C | | .854 | 281.7 | | | | | 208 |
| | | | | | | | | | | | .853 | 270.6 | | | | | 99 |
| 334.518 | | .899 | 305.0 | | | | | 119 | | 16912 | .992 | 278.6 | 3.7 | + 8.6 | 29 | 235 | 328 *c* |
| G | | .810 | 256.2 | | | | | 144 | | 16919 | .992 | 93.9 | 198.7 | - 3.8 | 0 | 34 | 98 *c* |
| | 16912 | .554 | 286.6 | 3.3 | + 9.8 | 8 | 39 | | | | .962 | 79.1 | | | | | 169 |
| | 16914 | .192 | 333.4 | 335.8 | +10.7 | 3 | 25 | | Dec.5 | | | ( +14.7) | (281.2) | ( + 0.3) | (29) | (269) | (1031) |
| | 16916 | .607 | 78.9 | 294.0 | + 7.3 | 1 | 8 | | | | | | | | | | |
| | 16917 | .976 | 104.1 | 254.2 | -13.6 | 4 | 38 | 128 *c* | | | | | | | | | |
| | | .763 | 73.6 | | | | | 109 | 339.584 | | .954 | 261.2 | | | | | 172 |
| | | .888 | 69.2 | | | | | 106 | G | | .953 | 281.2 | | | | | 284 |
| | | .899 | 104.6 | | | | | 246 | | | .945 | 271.8 | | | | | 165 |
| | | .988 | 94.2 | | | | | 139 | | 16920 | .438 | 240.4 | 286.8 | -12.2 | 10 | 39 | |
| Dec.1 | | | ( +16.2) | (330.8) | ( + 0.8) | (16) | (110) | (991) | | 16921 | .340 | 243.1 | 281.8 | - 8.6 | 5 | 14 | |
| | | | | | | | | | | 16919 | .929 | 94.4 | 196.0 | - 4.0 | 11 | 63 | 252 *c* |
| | | | | | | | | | | | .897 | 74.7 | | | | | 166 |
| 335.418 | | .905 | 255.5 | | | | | 266 | | | .942 | 114.4 | | | | | 198 |
| G | 16912 | .701 | 284.4 | 2.4 | +10.5 | 7 | 35 | 106 *p* | | | .946 | 84.8 | | | | | 99 |
| | 16914 | .318 | 305.0 | 334.2 | +11.2 | 1 | 6 | | Dec.6 | | | ( +14.2) | (264.0) | ( + 0.2) | (26) | (116) | (1336) |
| | 16917 | .911 | 105.2 | 254.4 | -13.5 | 5 | 16 | 132 *np* | | | | | | | | | |
| | 16918 | .944 | 98.6 | 248.7 | - 7.9 | 3 | 14 | 237 *n* | | | | | | | | | |
| | | .826 | 113.7 | | | | | 119 | 340.453 | | .854 | 288.0 | | | | | 144 |
| | | .964 | 112.1 | | | | | 168 | G | 16920 | .593 | 249.4 | 287.0 | -11.9 | 39 | 133 | |
| Dec.2 | | | ( +15.9) | (318.9) | ( + 0.7) | (16) | (71) | (1028) | | 16921 | .511 | 252.8 | 282.1 | - 8.6 | 2 | 17 | |
| | | | | | | | | | | 16922 | .377 | 234.0 | 270.7 | -12.7 | 7 | 30 | |
| | | | | | | | | | | 16919 | .823 | 94.1 | 197.5 | - 3.3 | 6 | 26 | 143 *f* |
| 336.398 | | .877 | 254.1 | | | | | 259 | | | .905 | 112.6 | | | | | 138 |
| G | 16912 | .840 | 281.3 | 2.5 | + 9.8 | 8 | 52 | 243 *c* | | | .936 | 74.2 | | | | | 218 |
| | 16917 | .801 | 107.6 | 254.4 | -13.7 | 3 | 14 | 109 *c* | Dec.7 | | | ( +13.8) | (252.6) | ( + 0.1) | (54) | (206) | (643) |
| | 16918 | .847 | 99.5 | 248.8 | - 7.7 | 1 | 8 | 288 *nf* | | | | | | | | | |
| | | .926 | 111.8 | | | | | 314 | | | | | | | | | |
| Dec.3 | | | ( +15.5) | (306.0) | ( + 0.6) | (12) | (74) | (1213) | 341.283 | | .933 | 288.2 | | | | | 137 |
| | | | | | | | | | C | 16920 | .736 | 254.1 | 287.8 | -11.6 | 32 | 207 | 59 *c* |
| | | | | | | | | | | 16922 | .531 | 245.3 | 271.2 | -12.8 | 4 | 15 | |
| 337.282 | | .945 | 290.7 | | | | | 79 | | 16923 | .285 | 107.4 | 225.9 | - 4.9 | 7 | 31 | |
| C | | .939 | 255.9 | | | | | 246 | | 16919 | .701 | 95.1 | 197.5 | - 3.6 | 6 | 32 | 114 *f* |
| | | .837 | 258.3 | | | | | 110 | | | .916 | 76.5 | | | | | 193 |
| | 16912 | .941 | 279.1 | 4.2 | + 8.7 | 31 | 241 | 324 *c* | Dec.8 | | | ( +13.5) | (241.7) | (0.0) | (49) | (285) | (503) |

Group 16917. Dec. 1 - 4. Return of Group 16899; third appearance. A small spot.
Group 16918. Dec. 2 - 3. Return of Group 16900; third appearance. A tiny spot.
Group 16919. Dec. 5 - 16. One or two small spots, not seen from December 10 to 14.
Group 16920. Dec. 6 - 10. A regular spot followed by a companion.
Group 16921. Dec. 6 - 7. A pair of tiny spots.
Group 16922. Dec. 7 - 8. A pair of tiny spots.
Group 16923. Dec. 8 - 15. A pair of small variable spots.

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

| U. T. | Group No. | MEASURES Dist. | MEASURES Pos. Angle | POSITION Long. | POSITION Lat. | AREA Umbræ | AREA Whole Spots | AREA Faculæ |
|---|---|---|---|---|---|---|---|---|
| 1951 | | | ° | ° | ° | | | |
| 342.422 | | .945 | 278.3 | | | | | 223 |
| G | | .886 | 268.0 | | | | | 88 |
| | | .861 | 284.3 | | | | | 138 |
| | 16920 | .889 | 257.3 | 288.7 | -11.4 | 24 | 151 | 263 *c* |
| | 16923 | .077 | 189.9 | 227.5 | - 4.5 | 2 | 15 | |
| | 16919 | .478 | 97.2 | 198.5 | - 3.6 | 2 | 9 | |
| | | .871 | 72.3 | | | | | 193 |
| Dec.9 | | | (+13.0) | (226.7) | (- 0.2) | (28) | (175) | (905) |
| 343.280 | | .944 | 281.8 | | | | | 172 |
| C | | .902 | 292.5 | | | | | 115 |
| | | .814 | 255.3 | | | | | 216 |
| | 16920 | .967 | 258.0 | 290.1 | -11.7 | 16 | 103 | 225 *c* |
| | 16924 | .119 | 3.9 | 214.8 | + 6.5 | 15 | 74 | |
| | | .950 | 70.8 | | | | | 172 |
| Dec.10 | | | (+12.6) | (215.3) | (- 0.3) | (31) | (177) | (900) |
| 344.392 | | .935 | 254.6 | | | | | 339 |
| G | | .909 | 242.0 | | | | | 117 |
| | | .813 | 249.2 | | | | | 96 |
| | | .775 | 262.1 | | | | | 215 |
| | 16924 | .288 | 296.5 | 215.7 | + 6.9 | 28 | 126 | |
| | | .877 | 67.2 | | | | | 158 |
| Dec.11 | | | (+12.2) | (200.7) | (- 0.4) | (28) | (126) | (925) |
| 345.466 | | .959 | 241.7 | | | | | 143 |
| G | | .947 | 250.5 | | | | | 251 |
| | | .905 | 259.6 | | | | | 176 |
| | | .891 | 268.9 | | | | | 208 |
| | | .840 | 243.1 | | | | | 249 |
| | 16925 | .648 | 239.2 | 222.6 | -19.8 | 6 | 23 | |
| | 16924 | .528 | 283.5 | 217.5 | + 6.5 | 6 | 35 | |
| | | .954 | 70.5 | | | | | 125 |
| Dec.12 | | | (+11.7) | (186.5) | (- 0.6) | (12) | (58) | (1152) |
| 346.399 | | .972 | 268.1 | | | | | 328 |
| G | | .942 | 252.3 | | | | | 185 |
| | | .930 | 259.9 | | | | | 153 |
| | | .918 | 243.7 | | | | | 360 |

| U. T. | Group No. | MEASURES Dist. | MEASURES Pos. Angle | POSITION Long. | POSITION Lat. | AREA Umbræ | AREA Whole Spots | AREA Faculæ |
|---|---|---|---|---|---|---|---|---|
| 1951 | | | ° | ° | ° | | | |
| | 16923 | .803 | 264.0 | 227.3 | - 5.2 | 22 | 98 | 102 *c* |
| | 16925 | .802 | 245.2 | 224.8 | -20.1 | 2 | 11 | 94 *c* |
| | 16924 | .702 | 280.5 | 218.1 | + 6.8 | 9 | 40 | |
| | 16926 | .954 | 80.8 | 102.2 | + 8.5 | 3 | 15 | 146 *c* |
| | | .926 | 62.3 | | | | | 100 |
| | | .940 | 72.3 | | | | | 126 |
| Dec.13 | | | (+11.3) | (174.2) | (- 0.7) | (36) | (164) | (1594) |
| 347.473 | 16923 | .932 | 264.8 | 228.6 | - 5.1 | 22 | 126 | 228 *c* |
| G | 16925 | .907 | 248.3 | 223.6 | -19.9 | 0 | 2 | 354 *p* |
| | 16924 | .856 | 278.5 | 218.4 | + 6.8 | 9 | 34 | 132 *f* |
| | *1314a* | .494 | 334.0 | 173.9 | +25.5 | 0 | 5 | |
| | 16927 | .994 | 81.2 | 76.8 | + 8.6 | 48 | 417 | 417 *c* |
| | | .860 | 79.6 | | | | | 126 |
| | | .954 | 69.6 | | | | | 243 |
| Dec.14 | | | (+10.8) | (160.1) | (- 0.8) | (79) | (584) | (1500) |
| 348.283 | | .967 | 247.8 | | | | | 129 |
| C | | .911 | 279.5 | | | | | 156 |
| | 16923 | .991 | 265.0 | 231.4 | - 5.0 | 7 | 61 | 212 *f* |
| | 16919 | .751 | 266.1 | 197.8 | - 3.5 | 3 | 13 | 74 *c* |
| | 16927 | .954 | 80.9 | 77.4 | + 8.4 | 28 | 321 | 573 *c* |
| | | .845 | 64.2 | | | | | 179 |
| | | .961 | 64.1 | | | | | 278 |
| Dec.15 | | | (+10.4) | (149.4) | (- 0.9) | (38) | (395) | (1601) |
| 349.276 | | .956 | 281.0 | | | | | 133 |
| C | 16919 | .893 | 266.4 | 199.3 | - 3.7 | 2 | 11 | 148 *c* |
| | 16928 | .822 | 78.6 | 81.9 | + 8.7 | 11 | 55 | 587 *c* |
| | 16927 | .889 | 80.0 | 74.3 | + 8.3 | 66 | 636 | |
| | | .808 | 64.1 | | | | | 126 |
| | | .940 | 66.5 | | | | | 136 |
| | | .943 | 55.8 | | | | | 170 |
| Dec.16 | | | (+10.0) | (136.3) | (- 1.1) | (79) | (702) | (1300) |
| 350.468 | | .954 | 264.3 | | | | | 184 |
| G | | .904 | 287.0 | | | | | 162 |
| | | .820 | 298.6 | | | | | 197 |
| | 16926 | .370 | 65.1 | 100.9 | + 7.8 | 2 | 9 | |

Group 16924. Dec. 10 - 14. A few small spots, of which only the leader remains by December 12.
Group 16925. Dec. 12 - 14. A pair of tiny spots on December 12; a single spot on the other days.
Group 16926. Dec. 13 - 17. Tiny spots, seen only on December 13 and 17.
Group 16927. Dec. 14 - 27. Return of Group 16915. A stream, which at first consists of three spots. By December 17 the leading pair begins to coalesce and become composite. On December 18 other small spots appear between the main components and grow rapidly, joining with the leading nucleus to form a composite spot. The follower, also composite, begins to break up after December 24, and is dying out as it passes round the limb.
Group 16928. Dec. 16 - 25. A stream of small variable spots, forming immediately *p* Group 16927. The whole moves forward in longitude.

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

| U.T. | Group No. | MEASURES Dist. | MEASURES Pos. Angle | POSITION Long. | POSITION Lat. | AREA Umbræ | AREA Whole Spots | AREA Faculæ |
|---|---|---|---|---|---|---|---|---|
| 1951 | | | ° | ° | ° | | | |
| | 16928 | .632 | 74.7 | 82.7 | + 8.6 | 12 | 65 | |
| | 16929 | .684 | 105.9 | 78.6 | -11.7 | 12 | 55 | |
| | 16927 | .738 | 77.8 | 74.0 | + 8.1 | 108 | 808 | 374 c |
| | | .856 | 50.5 | | | | | 156 |
| | | .893 | 62.2 | | | | | 119 |
| Dec.17 | | | (+9.4) | (120.6) | (- 1.2) | (134) | (937) | (1192) |
| 351.291 | | .899 | 296.0 | | | | | 154 |
| C | | .884 | 280.5 | | | | | 166 |
| | *1314b* | .271 | 2.3 | 109.2 | +14.3 | 1 | 11 | |
| | 16928 | .465 | 68.7 | 83.9 | + 8.5 | 9 | 64 | |
| | 16929 | .539 | 109.9 | 78.8 | -11.7 | 23 | 118 | |
| | 16927 | .609 | 74.5 | 73.6 | + 8.3 | 146 | 870 | |
| | | .978 | 99.5 | | | | | 186 |
| Dec.18 | | | (+9.1) | (109.8) | (- 1.3) | (179) | (1063) | (506) |
| 352.306 | | .955 | 280.2 | | | | | 181 |
| C | | .808 | 293.2 | | | | | 109 |
| | 16928 | .279 | 52.2 | 83.6 | + 8.5 | 11 | 90 | |
| | 16929 | .337 | 121.2 | 79.4 | -11.4 | 36 | 146 | |
| | 16927 | .424 | 65.5 | 73.5 | + 8.8 | 148 | 953 | |
| | | .918 | 71.0 | | | | | 170 |
| | | .932 | 100.4 | | | | | 341 |
| Dec.19 | | | (+8.6) | (96.4) | (- 1.4) | (195) | (1189) | (801) |
| 353.441 | | .889 | 291.1 | | | | | 131 |
| C | 16930 | .324 | 286.1 | 99.6 | + 3.6 | 14 | 65 | |
| | 16928 | .156 | 343.6 | 84.0 | + 6.9 | 4 | 25 | |
| | 16929 | .177 | 181.5 | 81.8 | -11.7 | 19 | 75 | |
| | 16927 | .229 | 37.7 | 73.4 | + 8.8 | 129 | 1126 | |
| | | .824 | 103.0 | | | | | 256 |
| | | .926 | 80.7 | | | | | 141 |
| | | .949 | 98.5 | | | | | 196 |
| Dec.20 | | | (+8.1) | (81.5) | (- 1.6) | (166) | (1291) | (724) |
| 354.404 | | .892 | 283.9 | | | | | 124 |
| G | 16930 | .502 | 279.8 | 98.4 | + 3.4 | 13 | 87 | |
| | 16928 | .357 | 297.2 | 87.4 | + 7.7 | 4 | 21 | |
| | 16929 | .286 | 234.8 | 82.5 | -11.1 | 9 | 34 | |
| | 16927 | .198 | 338.5 | 73.0 | + 8.9 | 148 | 1263 | |
| | | .775 | 105.6 | | | | | 94 |
| | | .877 | 103.6 | | | | | 183 |
| | | .882 | 89.0 | | | | | 193 |
| | | .895 | 54.4 | | | | | 150 |
| | | .972 | 71.4 | | | | | 408 |
| Dec.21 | | | (+7.6) | (68.8) | (- 1.7) | (174) | (1405) | (1152) |

| U.T. | Group No. | MEASURES Dist. | MEASURES Pos. Angle | POSITION Long. | POSITION Lat. | AREA Umbræ | AREA Whole Spots | AREA Faculæ |
|---|---|---|---|---|---|---|---|---|
| 1951 | | | ° | ° | ° | | | |
| 355.283 | 16930 | .667 | 277.5 | 98.5 | + 3.7 | 16 | 115 | |
| C | 16929 | .482 | 249.8 | 84.5 | -11.2 | 5 | 24 | |
| | 16927 | .329 | 304.8 | 73.0 | + 9.0 | 163 | 1291 | |
| | | .814 | 76.7 | | | | | 104 |
| | | .910 | 70.3 | | | | | 277 |
| | | .944 | 80.8 | | | | | 141 |
| Dec.22 | | | (+7.2) | (57.2) | (- 1.8) | (184) | (1430) | (522) |
| 356.303 | 16930 | .840 | 275.3 | 100.5 | + 3.4 | 7 | 46 | 176 c |
| C | 16929 | .666 | 255.5 | 84.7 | -11.0 | 1 | 14 | |
| | 16927 | .525 | 290.9 | 73.4 | + 9.1 | 167 | 1289 | |
| | | .831 | 71.0 | | | | | 352 |
| Dec.23 | | | (+6.7) | (43.8) | (- 1.9) | (175) | (1349) | (528) |
| 357.280 | | .895 | 294.6 | | | | | 242 |
| C | | .785 | 255.8 | | | | | 153 |
| | 16930 | .916 | 275.3 | 96.7 | + 4.0 | 5 | 23 | 317 c |
| | 16928 | .835 | 281.9 | 86.4 | + 8.7 | 15 | 66 | 212 c |
| | 16927 | .696 | 285.3 | 73.5 | + 9.0 | 146 | 1255 | |
| Dec.24 | | | (+6.2) | (30.9) | (- 2.1) | (166) | (1344) | (924) |
| 358.321 | | .984 | 274.1 | | | | | 227 |
| C | | .961 | 290.1 | | | | | 177 |
| | | .907 | 258.1 | | | | | 191 |
| | | .874 | 297.8 | | | | | 138 |
| | | .841 | 308.7 | | | | | 130 |
| | 16928 | .946 | 279.9 | 87.4 | + 8.6 | 12 | 65 | 269 c |
| | 16927 | .843 | 282.5 | 73.5 | + 9.3 | 135 | 1126 | 468 c |
| | 16931 | .526 | 53.4 | 351.3 | +15.8 | 2 | 14 | |
| Dec.25 | | | (+5.7) | (17.2) | (- 2.2) | (149) | (1205) | (1600) |
| 359.277 | | .960 | 256.8 | | | | | 190 |
| C | | .940 | 304.7 | | | | | 218 |
| | | .922 | 295.6 | | | | | 165 |
| | 16927 | .941 | 280.9 | 73.9 | + 9.4 | 121 | 878 | 909 c |
| | *1314c* | .366 | 19.5 | 357.3 | +17.8 | 1 | 6 | |
| | 16931 | .385 | 34.7 | 351.5 | +16.1 | 3 | 14 | |
| | | .918 | 86.1 | | | | | 156 |
| | | .942 | 98.1 | | | | | 178 |
| | | .960 | 76.5 | | | | | 146 |
| Dec.26 | | | (+5.3) | (4.6) | (- 2.3) | (125) | (898) | (1962) |
| 360.484 | | .936 | 296.3 | | | | | 97 |
| G | 16927 | .988 | 281.1 | 68.9 | +10.5 | 0 | 58 | 248 c |

Group 16929. Dec. 17 - 23. A stream of small changing spots, of which only one remains by December 22.
Group 16930. Dec. 20 - 24. A stream of small variable spots, of which only one remains by December 24.
Group 16931. Dec. 25 - 28. Two or three tiny spots, not seen on December 27.

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

| U. T. | Group No. | MEASURES Dist. | MEASURES Pos. Angle | POSITION Long. | POSITION Lat. | AREA Umbræ | AREA Whole Spots | AREA Faculæ |
|---|---|---|---|---|---|---|---|---|
| 1951 | | | ° | ° | ° | | | |
| | 16932 | .759 | 84.1 | 299.8 | + 2.8 | 39 | 242 | 116 *c* |
| | | .814 | 100.0 | | | | | 144 |
| | | .931 | 70.1 | | | | | 123 |
| | | .968 | 100.9 | | | | | 423 |
| Dec.27 | | | (+4.7) | (348.7) | (- 2.5) | (39) | (300) | (1151) |
| | | | | | | | | |
| 361.422 | | .812 | 257.8 | | | | | 139 |
| G | 16931 | .383 | 322.2 | 350.3 | +15.0 | 2 | 12 | |
| | 16932 | .601 | 82.5 | 299.8 | + 2.4 | 103 | 731 | |
| | ***1315a*** | .922 | 100.1 | 269.2 | -10.3 | 0 | 3 | 334 *c* |
| Dec.28 | | | (+4.2) | (336.3) | (- 2.6) | (105) | (746) | (473) |
| | | | | | | | | |
| 362.289 | | .893 | 258.7 | | | | | 161 |
| C | 16932 | .436 | 78.9 | 299.7 | + 2.4 | 85 | 580 | |
| | 16933 | .691 | 67.2 | 284.1 | +13.5 | 0 | 8 | |
| | | .790 | 103.0 | | | | | 151 |
| | | .928 | 107.2 | | | | | 207 |
| | | .943 | 92.8 | | | | | 154 |
| Dec.29 | | | (+3.8) | (324.9) | (- 2.7) | (85) | (588) | (673) |
| | | | | | | | | |
| 363.301 | | .956 | 255.6 | | | | | 203 |
| C | | .879 | 264.1 | | | | | 130 |

| U. T. | Group No. | MEASURES Dist. | MEASURES Pos. Angle | POSITION Long. | POSITION Lat. | AREA Umbræ | AREA Whole Spots | AREA Faculæ |
|---|---|---|---|---|---|---|---|---|
| 1951 | | | ° | ° | ° | | | |
| | | .835 | 283.2 | | | | | 159 |
| | | .808 | 253.0 | | | | | 131 |
| | | .765 | 298.4 | | | | | 147 |
| | 16932 | .211 | 68.6 | 300.3 | + 1.7 | 56 | 507 | |
| | 16933 | .520 | 57.7 | 284.8 | +13.5 | 12 | 82 | |
| | | .825 | 108.5 | | | | | 114 |
| | | .835 | 94.1 | | | | | 154 |
| | | .947 | 103.3 | | | | | 192 |
| | | .955 | 112.9 | | | | | 339 |
| | | .975 | 95.5 | | | | | 230 |
| Dec.30 | | | (+3.3) | (311.6) | (- 2.8) | (68) | (589) | (1799) |
| | | | | | | | | |
| 364.282 | | .950 | 305.3 | | | | | 125 |
| C | | .936 | 276.1 | | | | | 111 |
| | | .935 | 260.9 | | | | | 203 |
| | | .900 | 283.9 | | | | | 119 |
| | | .843 | 293.8 | | | | | 211 |
| | 16932 | .082 | 331.7 | 300.9 | + 1.3 | 65 | 440 | |
| | 16933 | .357 | 36.7 | 286.1 | +13.8 | 27 | 115 | |
| | 16934 | .932 | 108.5 | 230.4 | -18.3 | 5 | 29 | 346 *c* |
| | | .874 | 117.3 | | | | | 212 |
| | | .902 | 95.0 | | | | | 172 |
| | | .968 | 84.5 | | | | | 196 |
| Dec.31 | | | (+2.9) | (298.7) | (- 2.9) | (97) | (584) | (1695) |

Group 16932. Dec.27-1952 Jan.5. A stream, suddenly appearing in the eastern hemisphere. The leader becomes a regular spot and alone remains by January 4. The follower, a composite spot, declines after December 29. The whole group shows an equatorward drift.

Group 16933. Dec.29-1952 Jan.3. A group of small variable spots.

Group 16934. Dec.31-1952 Jan.3. A small spot on December 31; a pair of spots afterwards.

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ROYAL GREENWICH OBSERVATORY

# *General Catalogue of Groups of Sunspots*

For the year 1951

GREENWICH PHOTO-HELIOGRAPHIC RESULTS, 1951

# General Catalogue of Groups of Sunspots for the Year 1951.

Groups of sunspots, lasting for two or more days, are numbered in the *first* column in continuation of the group-numbers given in 1950 and the previous years. Groups seen only once are not included in this catalogue but are given with a distinctive numeration in a following table on p.C 62.

The *second* column gives the corresponding Mount Wilson group number, as identified from the bi-monthly summaries of the Mount Wilson magnetic observations of sunspots published in *Publications of the Astronomical Society of the Pacific*.

The *third* column gives the U.T. of the central meridian passage of each group as deduced from its mean longitude (given in the *eleventh* 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 *fourth* 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 *sixth* and *eighth* 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 *ninth* and *tenth* columns are corrected for the effect of foreshortening and are expressed in millionths of the Sun's visible hemisphere.

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

The *thirteenth* 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 different latitudes after an interval of 27 days, a drift forwards corresponding to an increase in heliographic longitude.

| Latitude | Drift *forwards.* | Latitude | Drift *backwards.* |
|---|---|---|---|
| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G. | Mt.W. | | | Date | Long. from Central Meridian | Date | Long. from Central Meridian | Umbræ | Whole Spots | Longitude | Latitude | |
| | | 1951 | | 1951 | ° | 1951 | ° | | | ° | ° | |
| 16678 | 10562 | Jan. 6.29 | 12 | Jan. 1 | -64 | Jan. 12 | +80 | 60 | 354 | 357.1 | -12.0 | II |
| 79 | 64 | 10.9 | 3 | 5 | -74 | 7 | -44 | 1 | 13 | 296.7 | -18.1 | |
| 16680 | 10567 | 12.47 | 6 | 7 | -69 | 12 | + 4 | 4 | 16 | 275.7 | +11.3 | II |
| 81 | 65 | 13.1 | 2 | 7 | -75 | 8 | -63 | 3 | 19 | 267.6 | -14.1 | |
| 82 | .. | 12.5 | 2 | 10 | -28 | 11 | -19 | 4 | 14 | 275.2 | -11.0 | |
| 83 | 72 pt. | 9.4 | 5 | 11 | +20 | 15 | +82 | 5 | 24 | 315.9 | +16.8 | |
| 84 | 72 pt. | 9.7 | 3 | 12 | +36 | 14 | +62 | 10 | 63 | 311.6 | +18.7 | |
| 16685 | 10574 | 17.80 | 10 | 14 | -45 | 23 | +74 | 22 | 122 | 205.5 | +15.2 | II |
| 86 | 75 | 23.6 | 7 | 17 | -79 | 23 | - 3 | 9 | 40 | 129.2 | +12.3 | II |
| 87 | 76 | 18.3 | 6 | 19 | +11 | 24 | +82 | 10 | 62 | 198.8 | + 6.8 | II |
| 88 | 77 | 24.37 | 5 | 20 | -54 | 24 | + 2 | 2 | 7 | 119.1 | - 5.1 | |
| 89 | 79 | 28.25 | 13 | 22 | -82 | Feb. 3 | +82 | 39 | 200 | 68.0 | - 7.6 | II |
| 16690 | 10580 | 28.70 | 9 | 22 | -86 | Jan. 30 | +25 | 12 | 58 | 62.0 | -12.4 | II |
| 91 | 78 | 22.5 | 2 | 23 | +11 | 24 | +25 | 6 | 33 | 143.2 | - 5.0 | |
| 92 | 81 | 28.15 | 12 | 23 | -66 | Feb. 3 | +80 | 56 | 340 | 69.3 | + 9.4 | I 1623 (1) |
| 93 | 82 | 29.30 | 13 | 23 | -79 | 4 | +83 | 165 | 1068 | 54.1 | + 7.4 | I 1624 (1) |
| 94 | 83 | 27.28 | 7 | 26 | -16 | 1 | +70 | 10 | 52 | 80.8 | -11.6 | II |
| 16695 | 10584 | Feb. 1.26 | 12 | 26 | -80 | 6 | +67 | 17 | 66 | 15.1 | +24.1 | II |
| 96 | 85 | 2.3 | 6 | 27 | -77 | 1 | -12 | 6 | 24 | 2.1 | +24.7 | II |
| 97 | 87 | 3.34 | 9 | Feb. 1 | -29 | 9 | +83 | 22 | 100 | 347.8 | -11.0 | II |
| 98 | 89 | Jan. 31.9 | 3 | 4 | +44 | 6 | +73 | 3 | 15 | 20.2 | + 5.8 | |
| 99 | 88 | Feb. 4.72 | 7 | 4 | - 6 | 10 | +73 | 5 | 21 | 329.5 | -15.2 | II |
| 16700 | 10592) 10602) | 11.18 | 11/12 | 5 | -78 | 16 | +70 | 5 | 32 | 244.5 | + 9.1 | II |
| 01 | 10596 | 12.0 | 3/5 | 6 | -74 | 10 | -22 | 5 | 19 | 234.0 | - 4.7 | |
| 02 | 94 | 11.1 | 3 | 7 | -50 | 9 | -20 | 4 | 22 | 245.7 | - 5.7 | |
| 03 | 95 | 13.70 | 11 | 7 | -82 | 17 | +47 | 10 | 46 | 211.4 | + 3.8 | II |
| 04 | 97 | 15.91 | 11 | 9 | -85 | 19 | +46 | 11 | 51 | 182.2 | -13.8 | II |
| 16705 | 10600 | 13.63 | 6 | 10 | -42 | 15 | +21 | 13 | 62 | 212.3 | + 8.8 | II |
| 06 | 10599 | 11.0 | 3 | 11 | + 8 | 13 | +31 | 13 | 58 | 247.3 | +14.7 | |
| 07 | 10601 | 17.58 | 13 | 11 | -81 | 23 | +78 | 26 | 151 | 160.3 | +11.6 | II |
| 08 | 03 | 18.2 | 4 | 13 | -65 | 16 | -25 | 2 | 16 | 152.5 | - 2.1 | |
| 09 | 04 | 19.9 | 5 | 15 | -61 | 19 | - 8 | 3 | 12 | 129.3 | +11.2 | |
| 16710 | 10608 | 24.05 | 6/9 | 18 | -75 | 26 | +32 | 1 | 9 | 75.1 | +10.2 | I 1623 (2) |
| 11 | 05 | 24.91 | 13 | 19 | -75 | Mar. 3 | +84 | 99 | 694 | 63.7 | +10.4 | I 1624 (2) |
| 12 | 09 | Mar. 3.45 | 11 | 26 | -65 | 8 | +65 | 8 | 49 | 337.5 | -13.7 | II |
| 13 | 07 | Feb. 27.6 | 6 | 28 | +10 | 5 | +75 | 6 | 33 | 28.8 | + 4.1 | II |
| 14 | 10 | Mar. 4.0 | 2 | 28 | -47 | 1 | -35 | 4 | 18 | 330.0 | -14.8 | |
| 16715 | 10611 | 3.4 | 5 | Mar. 4 | +11 | 8 | +69 | 6 | 23 | 338.0 | +12.2 | |
| 16 | .. | 10.9 | 3 | 5 | -73 | 7 | -45 | 4 | 21 | 239.5 | + 8.3 | |
| 17 | .. | 4.1 | 2 | 6 | +29 | 7 | +43 | 1 | 13 | 328.8 | +25.3 | |
| 18 | 13 | 12.24 | 13 | 6 | -77 | 18 | +81 | 29 | 184 | 221.7 | +12.7 | I 1625 (1) |
| 19 | 12 | 7.29 | 7 | 7 | - 2 | 13 | +82 | 4 | 15 | 287.0 | -14.4 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G. | Mt.W. | | | Date | Long. from Central Meridian | Date | Long. from Central Meridian | Umbræ | Whole Spots | Longitude | Latitude | |
| | | 1951 | | 1951 | ° | 1951 | ° | | | ° | ° | |
| 16720 | 10614 | Mar. 13.75 | 9 | Mar. 11 | -32 | Mar. 19 | +70 | 24 | 120 | 201.9 | - 5.0 | II |
| 21 | 15 | 18.2 | 3 | 12 | -78 | 14 | -50 | 1 | 15 | 142.9 | - 4.4 | |
| 22 | 16 | 23.00 | 13 | 17 | -75 | 29 | +81 | 196 | 914 | 79.9 | +12.1 | I 1626 (1) |
| 23 | 17 | 24.23 | 13 | 18 | -78 | 30 | +84 | 36 | 172 | 63.8 | + 3.4 | II |
| 24 | 18 | 17.1 | 4 | 19 | +29 | 22 | +75 | 7 | 30 | 158.0 | +10.3 | |
| 16725 | 10619 | 21.03 | 3 | 20 | - 9 | 22 | +20 | 1 | 9 | 105.9 | +19.4 | |
| 26 | 21 | 23.88 | 9 | 21 | -31 | 29 | +71 | 8 | 53 | 68.3 | + 8.5 | II |
| 27 | 22 | 25.82 | 7/8 | 21 | -61 | 28 | +35 | 3 | 13 | 42.8 | +11.2 | II |
| 28 | 23 | 22.4. | 7 | 22 | + 4 | 28 | +77 | 46 | 243 | 88.3 | -10.0 | II |
| 29 | 24 | 28.44 | 13 | 22 | -80 | Apr. 3 | +79 | 42 | 271 | 8.2 | + 8.6 | II |
| 16730 | .. | 24.77 | 3 | 23 | -19 | Mar. 25 | + 8 | 1 | 7 | 56.6 | + 4.3 | |
| 31 | 10625 | 27.4 | 2 | 24 | -37 | 25 | -21 | 8 | 36 | 26.6 | - 7.8 | |
| 32 | 26 | 30.9 | 2 | 25 | -74 | 26 | -59 | 4 | 24 | 336.0 | +15.1 | |
| 33 | 27 | 30.63 | 9 | 26 | -59 | Apr. 3 | +50 | 5 | 30 | 339.3 | -13.5 | II |
| 34 | .. | 29.8 | 2 | 28 | -19 | Mar. 29 | - 7 | 1 | 6 | 349.8 | +13.9 | |
| 16735 | 10628 | Apr. 4.89 | 10 | 30 | -69 | Apr. 8 | +46 | 12 | 54 | 269.9 | -17.9 | II |
| 36 | 29 | 8.56 | 9 | Apr. 3 | -68 | 11 | +39 | 7 | 29 | 221.5 | +12.7 | I 1625 (2) |
| 37 | 30 | 6.41 | 9 | 4 | -24 | 12 | +76 | 78 | 420 | 249.9 | +14.0 | II |
| 38 | .. | 9.6 | 2 | 5 | -53 | 6 | -42 | 0 | 6 | 208.2 | +15.4 | |
| 39 | 33 | 11.37 | 8 | 5 | -75 | 12 | +16 | 5 | 17 | 184.4 | -10.0 | II |
| 16740 | 10632 | 10.46 | 10 | 6 | -56 | 15 | +67 | 19 | 99 | 196.4 | -10.1 | II |
| 41 | 34 | 12.9 | 5 | 7 | -77 | 11 | -15 | 6 | 29 | 164.0 | - 2.9 | |
| 42 | 35 | 8.1 | 4 | 10 | +28 | 13 | +77 | 8 | 47 | 228.1 | - 8.6 | |
| 43 | 37 | 17.09 | 12 | 11 | -77 | 22 | +74 | 31 | 182 | 108.9 | - 4.9 | II |
| 44 | 38 | 18.24 | 13 | 11 | -82 | 23 | +64 | 12 | 72 | 93.7 | - 9.2 | II |
| 16745 | 10639 | 18.71 | 14 | 12 | -78 | 25 | +82 | 313 | 2064 | 87.5 | +12.1 | I 1626 (2) |
| 46 | 40 | 11.8 | 2 | 14 | +32 | 15 | +49 | 3 | 23 | 178.5 | - 7.9 | |
| 47 | 41 | 19.7 | 3/4 | 16 | -47 | 19 | - 7 | 1 | 5 | 73.8 | + 8.7 | |
| 48 | 42 | 18.4 | 4 | 18 | + 1 | 21 | +37 | 6 | 25 | 91.4 | +19.4 | |
| 49 | 43 | 24.67 | 7 | 20 | -57 | 26 | +21 | 9 | 47 | 8.7 | -11.4 | II |
| 16750 | 10644 | 24.69 | 12 | 20 | -59 | May 1 | +82 | 103 | 578 | 8.5 | -15.3 | I 1627 (1) |
| 51 | 45 | 22.40 | 3 | 21 | -14 | Apr. 23 | +12 | 8 | 35 | 38.8 | +11.3 | |
| 52 | 46 | 26.48 | 12 | 21 | -65 | May 2 | +74 | 69 | 390 | 344.9 | +17.6 | II |
| 53 | 47 | 25.67 | 6 | 23 | -35 | Apr. 28 | +39 | 9 | 31 | 355.5 | + 1.5 | II |
| 54 | 48 | 29.19 | 13 | 23 | -81 | May 5 | +83 | 32 | 168 | 309.0 | - 6.7 | II |
| 16755 | .. | 25.7 | 2 | 24 | -17 | Apr. 25 | - 5 | 2 | 10 | 355.6 | +11.9 | |
| 56 | 10650 | May 1.74 | 7 | 26 | -72 | May 2 | + 8 | 7 | 25 | 275.3 | -11.9 | II |
| 57 | 49 | Apr. 27.96 | 7 | 27 | -10 | 3 | +74 | 49 | 253 | 325.3 | - 4.5 | I 1628 (1) |
| 58 | 51 | May 1.31 | 7 | May 1 | - 1 | 7 | +79 | 24 | 131 | 281.0 | -18.0 | I 1629 (1) |
| 59 | 54 | 8.3 | 2 | 3 | -65 | 4 | -49 | 0 | 6 | 188.6 | -11.6 | |

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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G. | Mt.W. | | | Date | Long. from Central Meridian | Date | Long. from Central Meridian | Umbræ | Whole Spots | Longitude | Latitude | |
| | | 1951 | | 1951 | ° | 1951 | ° | | | ° | ° | |
| 16760 | 10655 | May 7.3 | 2 | May 4 | -36 | May 5 | -26 | 2 | 8 | 201.4 | + 5.4 | |
| 61 | 59 } 66 } | 12.02 | 5/7 | 7 | -60 | 13 | +19 | 4 | 18 | 139.4 | - 9.9 | |
| 62 | 60 | 13.45 | 13 | 7 | -80 | 19 | +79 | 29 | 184 | 120.5 | + 7.0 | II |
| 63 | 62 | 16.03 | 14 | 9 | -81 | 22 | +82 | 592 | 3743 | 86.4 | +13.0 | I 1626 (3) |
| 64 | 61 | 10.2 | 3 | 10 | + 3 | 12 | +28 | 7 | 35 | 164.1 | -14.2 | |
| 16765 | 10665 | 16.68 | 10 | 10 | -79 | 19 | +34 | 14 | 72 | 77.7 | + 0.8 | II |
| 66 | 63 | 16.48 | 12 | 10 | -80 | 21 | +65 | 28 | 136 | 80.4 | + 5.4 | II |
| 67 | 64 | 16.91 | 12 | 11 | -75 | 22 | +71 | 20 | 129 | 74.8 | +11.3 | II |
| 68 | .. | 13.94 | 3 | 13 | + 7 | 15 | +20 | 3 | 17 | 114.1 | +10.3 | |
| 69 | 67 | 18.66 | 10 | 13 | -70 | 22 | +49 | 15 | 86 | 51.7 | +11.0 | II |
| 16770 | 10668 | 14.57 | 5/6 | 14 | - 3 | 19 | +65 | 4 | 14 | 105.7 | + 7.4 | |
| 71 | 69 | 14.6 | 3/6 | 15 | +10 | 20 | +77 | 1 | 8 | 105.0 | - 0.9 | |
| 72 | .. | 15.83 | 3 | 15 | - 5 | 17 | +24 | 2 | 10 | 89.0 | +22.3 | |
| 73 | .. | 20.1 | 2 | 15 | -62 | 16 | -48 | 0 | 10 | 32.2 | -11.0 | |
| 74 | 71 | 21.69 | 13 | 15 | -82 | 27 | +76 | 42 | 225 | 11.5 | -15.1 | I 1627 (2) |
| 16775 | 10673 | 22.15 | 13 | 16 | -76 | 28 | +83 | 137 | 786 | 5.4 | +20.7 | II |
| 76 | 72 | 22.56 | 11 | 16 | -82 | 26 | +53 | 28 | 142 | 0.0 | -14.2 | II |
| 77 | 74 | 18.9 | 2 | 17 | -17 | 18 | - 7 | 1 | 5 | 48.6 | - 6.6 | |
| 78 | .. | 17.2 | 3 | 18 | +15 | 20 | +42 | 11 | 47 | 71.3 | +10.7 | |
| 79 | 75 | 24.2 | 5 | 18 | -78 | 22 | -25 | 7 | 31 | 337.7 | +20.8 | |
| 16780 | 10676 | 24.75 | 12 | 19 | -72 | 30 | +74 | 15 | 75 | 331.0 | - 6.5 | I 1628 (2) |
| 81 | 77 | 22.95 | 10 | 20 | -34 | 29 | +84 | 99 | 675 | 354.8 | +17.0 | I 1630 (1) |
| 82 | 78 | 27.91 | 14 | 21 | -87 | June 3 | +84 | 104 | 543 | 289.3 | -20.4 | I 1629 (2) |
| 83 | 79 | 31.23 | 13 | 25 | -78 | 6 | +80 | 64 | 363 | 245.3 | +13.0 | I 1631 (1) |
| 84 | 80 | 27.32 | 4 | 27 | - 1 | May 30 | +41 | 0 | 5 | 297.0 | - 4.0 | |
| 16785 | 10683 | June 3.9 | 4 | 30 | -60 | June 2 | -23 | 2 | 11 | 196.4 | -14.5 | |
| 86 | 84 | 6.1 | 4 | 31 | -77 | 3 | -36 | 7 | 36 | 167.0 | - 3.5 | |
| 87 | 85 | May 29.9 | 2 | June 2 | +44 | 3 | +59 | 0 | 7 | 262.4 | +12.4 | |
| 88 | 86 | June 7.84 | 6 | 4 | -46 | 9 | +21 | 14 | 80 | 144.6 | -10.5 | II |
| 89 | 88 | 7.21 | 9 | 5 | -25 | 13 | +86 | 72 | 460 | 152.8 | - 6.9 | II |
| 16790 | 10687 | 11.41 | 13 | 5 | -77 | 17 | +77 | 88 | 661 | 97.3 | + 7.9 | II |
| 91 | 89 | 11.56 | 10 | 5 | -81 | 14 | +38 | 17 | 130 | 95.3 | +15.8 | II |
| 92 | 90 | 12.04 | 14 | 5 | -83 | 18 | +82 | 168 | 893 | 88.9 | +13.8 | I 1626 (4) |
| 93 | 91 | 13.58 | 13 | 7 | -80 | 19 | +79 | 78 | 471 | 68.6 | + 8.2 | I 1632 (1) |
| 94 | .. | 7.3 | 2 | 12 | +70 | 13 | +79 | 0 | 10 | 151.7 | + 9.0 | |
| 16795 | 10692 | 18.37 | 13 | 12 | -78 | 24 | +79 | 302 | 2100 | 5.2 | -12.2 | I 1633 (1) |
| 96 | 95 | 10.0 | 2 | 13 | +44 | 14 | +59 | 2 | 12 | 116.4 | + 4.4 | |
| 97 | 93 | 19.10 | 11 | 13 | -75 | 23 | +56 | 16 | 88 | 355.5 | +16.9 | I 1630 (2) |
| 98 | 98 | 18.34 | 5/7 | 14 | -53 | 20 | +25 | 1 | 9 | 5.5 | +24.1 | |
| 99 | 96 | 19.04 | 11 | 15 | -49 | 25 | +81 | 81 | 534 | 356.4 | -10.3 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G. | Mt.W. | | | Date | Long. from Central Meridian | Date | Long. from Central Meridian | Umbræ | Whole Spots | Longitude | Latitude | |
| | | 1951 | | 1951 | ° | 1951 | ° | | | ° | ° | |
| 16800 | 10697 | June 22.58 | 13 | June 16 | -84 | June 28 | +79 | 35 | 198 | 309.4 | +15.0 | II |
| 01 | .. | 14.2 | 3 | 17 | +41 | 19 | +70 | 0 | 8 | 60.7 | +11.6 | |
| 02 | 99 | 24.55 | 13 | 18 | -79 | 30 | +75 | 28 | 157 | 283.4 | -21.4 | I 1629 (3) |
| 03 | 10700 | 27.33 | 13 | 21 | -79 | July 3 | +79 | 25 | 136 | 246.6 | +11.2 | I 1631 (2) |
| 04 | 02 | July 2.0 | 5 | 26 | -76 | June 30 | -22 | 6 | 29 | 184.3 | +11.4 | |
| 16805 | 10703 | 3.63 | 7/8 | 27 | -80 | July 4 | + 8 | 2 | 10 | 163.2 | - 6.0 | II |
| 06 | 17 | 7.02 | 4/8 | July 2 | -63 | 9 | +31 | 0 | 4 | 118.3 | + 9.4 | |
| 07 | 05 | 7.8 | 4/5 | 3 | -61 | 7 | - 5 | 3 | 12 | 107.6 | + 8.7 | |
| 08 | 06 | 9.18 | 12 | 3 | -78 | 14 | +69 | 19 | 111 | 89.7 | +12.7 | I 1626 (5) |
| 09 | 08 | 10.27 | 11 | 4 | -77 | 14 | +53 | 12 | 61 | 75.4 | + 4.6 | I 1632 (2) |
| 16810 | 10709 | 1.7 | 2 | 6 | +61 | 7 | +75 | 11 | 39 | 189.1 | + 6.7 | |
| 11 | 10 | 3.1 | 4 | 6 | +42 | 9 | +81 | 14 | 75 | 169.8 | +10.3 | |
| 12 | 13 | 12.3 | 4 | 6 | -79 | 9 | -39 | 18 | 90 | 48.3 | - 8.8 | |
| 13 | 12 | 13.10 | 9 | 7 | -76 | 15 | +32 | 22 | 129 | 37.9 | + 9.3 | II |
| 14 | .. | 7.8 | 4/5 | 8 | + 7 | 12 | +58 | 1 | 7 | 107.6 | + 8.6 | |
| 16815 | 10714 | 8.3 | 2 | 8 | + 2 | 9 | +14 | 0 | 6 | 101.9 | +10.8 | |
| 16 | 18 | 8.54 | 3 | 8 | - 1 | 10 | +25 | 2 | 13 | 98.2 | +19.6 | |
| 17 | 15 | 14.05 | 13 | 8 | -76 | 20 | +84 | 121 | 667 | 25.3 | - 8.0 | I 1634 (1) |
| 18 | 16 | 15.05 | 13 | 8 | -83 | 20 | +72 | 76 | 539 | 12.0 | - 9.8 | I 1633 (2) |
| 19 | 20 | 11.1 | 3 | 14 | +40 | 16 | +71 | 3 | 19 | 63.8 | + 9.6 | |
| 16820 | 10721 | 15.91 | 5/7 | 15 | - 7 | 21 | +73 | 2 | 10 | 0.6 | -16.5 | |
| 21 | .. | 12.4 | 2 | 16 | +52 | 17 | +64 | 0 | 17 | 47.0 | - 9.4 | |
| 22 | 22 | 23.74 | 12 | 18 | -72 | 29 | +74 | 20 | 115 | 257.1 | - 4.6 | II |
| 23 | 23, 28 | 24.41 | 5/7 | 19 | -66 | 25 | +14 | 2 | 6 | 248.2 | +10.7 | I 1631 (3) |
| 24 | 24 | 22.62 | 5 | 21 | -17 | 25 | +36 | 4 | 19 | 271.8 | -18.1 | |
| 16825 | .. | 27.4 | 4 | 22 | -69 | 25 | -25 | 4 | 16 | 208.7 | - 5.1 | |
| 26 | 10726 | 27.87 | 11 | 22 | -77 | Aug. 1 | +68 | 21 | 99 | 202.4 | - 5.9 | II |
| 27 | 29 | 25.09 | 8 | 23 | -25 | July 30 | +72 | 12 | 54 | 239.2 | + 0.6 | II |
| 28 | 25 | 26.69 | 5/7 | 25 | -19 | 31 | +60 | 2 | 13 | 218.1 | - 4.7 | |
| 29 | .. | 29.4 | 2 | 25 | -55 | 26 | -35 | 0 | 10 | 182.8 | + 9.0 | |
| 16830 | 10730 | 24.9 | 5 | 27 | +32 | 31 | +81 | 43 | 216 | 241.8 | -15.4 | I 1635 (1) |
| 31 | 32 | 29.56 | 8 | 28 | -18 | Aug. 4 | +80 | 21 | 118 | 180.1 | - 3.5 | II |
| 32 | 31 | 28.8 | 3/5 | 29 | + 6 | 2 | +59 | 0 | 7 | 190.1 | - 4.3 | |
| 33 | 34 | Aug. 1.63 | 7 | 30 | -32 | 5 | +56 | 11 | 47 | 139.5 | - 9.8 | II |
| 34 | 33, 35 | 2.26 | 4 | 30 | -42 | 2 | + 1 | 2 | 8 | 131.1 | + 9.4 | |
| 16835 | 10738 | 6.7 | 3 | Aug. 1 | -67 | 3 | -44 | 0 | 6 | 72.9 | + 5.6 | |
| 36 | 37 | 4.91 | 3/6 | 2 | -33 | 7 | +30 | 1 | 5 | 96.1 | +16.7 | |
| 37 | 40 | 6.86 | 12 | 2 | -65 | 13 | +84 | 29 | 209 | 70.3 | + 8.3 | II |
| 38 | 42 | 9.57 | 12 | 4 | -72 | 15 | +81 | 31 | 163 | 34.5 | + 7.5 | I 1636 (1) |
| 39 | 41 pt. | 9.86 | 12 | 4 | -73 | 15 | +75 | 50 | 278 | 30.6 | - 6.8 | I 1634 (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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G. | Mt.W. | | | Date | Long. from Central Meridian | Date | Long. from Central Meridian | Umbræ | Whole Spots | Longitude | Latitude | |
| | | 1951 | | 1951 | ° | 1951 | ° | | | ° | ° | |
| 16840 | 10743 | Aug. 10.52 | 13 | Aug. 4 | -78 | Aug. 16 | +79 | 57 | 344 | 21.9 | + 9.0 | II |
| 41 | .. | 11.0 | 2 | 6 | -63 | 7 | -48 | 3 | 14 | 15.0 | +13.3 | |
| 42 | 46} | 8.01 | 3/7 | 7 | - 9 | 13 | +71 | 2 | 8 | 55.1 | +20.1 | |
| 43 | 50} 41 pt. | 9.91 | 8 | 7 | -34 | 14 | +57 | 7 | 32 | 30.0 | - 9.8 | II |
| 44 | 47 | 13.53 | 13 | 7 | -81 | 19 | +75 | 36 | 213 | 342.1 | -11.9 | II |
| 16845 | 10751 | 19.02 | 13 | 13 | -76 | 25 | +78 | 30 | 179 | 269.6 | -18.1 | II |
| 46 | .. | 20.6 | 2 | 15 | -67 | 16 | -57 | 1 | 14 | 248.4 | -14.2 | |
| 47 | 52 | 21.03 | 10 | 16 | -64 | 25 | +59 | 13 | 76 | 243.0 | -16.9 | I 1635 (2) |
| 48 | 54 | 19.69 | 6 | 19 | - 5 | 24 | +61 | 9 | 48 | 260.8 | -18.7 | II |
| 49 | 56 | 26.5 | 5 | 20 | -82 | 24 | -27 | 4 | 13 | 170.3 | + 6.7 | |
| 16850 | 10757 | 27.8 | 3 | 22 | -73 | 24 | -43 | 3 | 12 | 153.0 | - 5.6 | |
| 51 | 55 | 21.5 | 2/3 | 24 | +40 | 26 | +67 | 0 | 6 | 237.4 | -18.3 | |
| 52 | 66 | 27.5 | 3/5 | 29 | +25 | Sept. 2 | +75 | 4 | 16 | 157.1 | + 7.9 | |
| 53 | .. | Sept. 5.4 | 3 | 30 | -76 | 1 | -54 | 1 | 12 | 40.3 | + 7.2 | |
| 54 | 63 | 5.79 | 13 | 30 | -80 | 11 | +76 | 39 | 234 | 34.8 | + 9.9 | I 1636 (2) |
| 16855 | 10764 | 5.96 | 13 | 30 | -84 | 11 | +74 | 20 | 95 | 32.5 | - 6.1 | I 1634 (3) |
| 56 | 65 | 2.18 | 4 | Sept. 1 | -12 | 4 | +30 | 2 | 12 | 82.5 | +18.0 | |
| 57 | 69 | 9.73 | 12 | 4 | -72 | 15 | +75 | 67 | 370 | 342.8 | - 2.8 | I 1637 (1) |
| 58 | 71 | 9.23 | 9/10 | 5 | -44 | 14 | +69 | 4 | 23 | 349.3 | -11.0 | II |
| 59 | 72 | 10.86 | 6/8 | 6 | -60 | 13 | +35 | 2 | 12 | 327.9 | - 4.1 | II |
| 16860 | 10773 | 12.3 | 6 | 6 | -78 | 11 | -12 | 13 | 53 | 309.2 | + 2.8 | II |
| 61 | 75 | 14.99 | 14 | 8 | -79 | 21 | +81 | 84 | 542 | 273.3 | + 6.9 | II |
| 62 | 74 | 14.00 | 9 | 9 | -63 | 17 | +45 | 9 | 42 | 286.3 | +17.4 | II |
| 63 | 77 | 16.30 | 7 | 11 | -66 | 17 | +14 | 13 | 71 | 256.0 | -12.3 | II |
| 64 | 76 | 16.9 | 4 | 11 | -73 | 14 | -37 | 6 | 23 | 247.6 | -15.9 | |
| 16865 | 10779 | 15.75 | 9 | 12 | -43 | 20 | +62 | 11 | 48 | 263.3 | -18.9 | II |
| 66 | 80 | 17.7 | 3 | 12 | -67 | 14 | -44 | 2 | 18 | 238.1 | -20.1 | |
| 67 | 78 | 18.16 | 9 | 12 | -75 | 20 | +28 | 7 | 33 | 231.4 | + 9.2 | II |
| 68 | 81 | 20.17 | 13 | 14 | -76 | 26 | +82 | 56 | 390 | 204.9 | +12.7 | II |
| 69 | 84 | 22.59 | 11 | 18 | -58 | 28 | +80 | 68 | 378 | 173.0 | +15.4 | II |
| 16870 | 10786 | 23.82 | 12 | 18 | -78 | 29 | +78 | 25 | 141 | 156.8 | + 8.7 | II |
| 71 | .. | 24.69 | 6/7 | 20 | -60 | 26 | +24 | 0 | 4 | 145.2 | + 9.8 | II |
| 72 | 87 | 17.9 | 4 | 21 | +46 | 24 | +83 | 18 | 65 | 234.3 | - 8.5 | |
| 73 | 85 | 22.60 | 8 | 21 | -16 | 28 | +76 | 8 | 37 | 172.9 | + 8.0 | II |
| 74 | 88 | 28.7 | 3 | 23 | -67 | 25 | -43 | 3 | 12 | 92.9 | + 7.2 | |
| 16875 | 10791 | 29.80 | 9/10 | 25 | -62 | Oct. 4 | +62 | 5 | 18 | 77.8 | +20.8 | II |
| 76 | 89 | Oct. 2.2 | 2 | 26 | -77 | Sept. 27 | -62 | 5 | 16 | 46.5 | - 9.6 | |
| 77 | 92 | Sept. 30.94 | 7 | 30 | - 8 | Oct. 6 | +74 | 27 | 176 | 62.8 | + 9.1 | II |
| 78 | .. | Oct. 5.4 | 2 | 30 | -66 | 1 | -53 | 1 | 4 | 4.4 | +18.2 | |
| 79 | 93 | 6.69 | 13 | 30 | -83 | 12 | +75 | 42 | 215 | 347.0 | - 4.1 | I 1637 (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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G. | Mt.W. | | | Date | Long. from Central Meridian | Date | Long. from Central Meridian | Umbræ | Whole Spots | Longitude | Latitude | |
| | | 1951 | | 1951 | ° | 1951 | ° | | | ° | ° | |
| 16880 | 10799 | Oct. 10.76 | 4/8 | Oct. 5 | -72 | Oct. 12 | +22 | 1 | 8 | 293.2 | + 4.8 | |
| 81 | 95 | 14.28 | 8 | 8 | -76 | 15 | +15 | 15 | 98 | 246.8 | + 9.3 | II |
| 82 | 96 | 14.25 | 13 | 8 | -78 | 20 | +80 | 91 | 596 | 247.2 | - 8.6 | I 1638 (1) |
| 83 | 97 | 14.45 | 12 | 9 | -68 | 20 | +81 | 25 | 153 | 244.6 | -14.5 | I 1639 (1) |
| 84 | 98 | 8.2 | 3/4 | 10 | +27 | 13 | +67 | 6 | 29 | 326.7 | - 2.4 | |
| 16885 | 10800 | 16.59 | 13 | 10 | -83 | 22 | +77 | 42 | 215 | 216.3 | +11.2 | II |
| 86 | 01 | 10.9 | 2 | 11 | + 7 | 12 | +19 | 1 | 5 | 291.7 | - 9.9 | |
| 87 | 04 | 23.7 | 3/4 | 18 | -72 | 21 | -26 | 3 | 22 | 122.5 | +16.3 | |
| 88 | 03 | 18.3 | 5 | 19 | +11 | 23 | +68 | 32 | 185 | 193.2 | + 9.1 | |
| 89 | 07 | 27.9 | 5 | 23 | -61 | 27 | - 5 | 3 | 18 | 67.2 | + 7.3 | |
| 16890 | 10808 | 30.8 | 3 | 25 | -71 | 27 | -45 | 6 | 17 | 29.0 | -11.4 | |
| 91 | 10 | 25.6 | 6 | 26 | + 8 | 31 | +80 | 11 | 68 | 96.9 | + 8.5 | II |
| 92 | 09 pt. | 31.92 | 12 | 26 | -74 | Nov. 6 | +73 | 51 | 325 | 14.2 | - 8.9 | II |
| 93 | 11 | Nov. 1.50 | 13 | 26 | -80 | 7 | +79 | 16 | 79 | 6.6 | +12.7 | II |
| 94 | 09 pt. | 1.80 | 12 | 27 | -71 | 7 | +76 | 23 | 138 | 2.6 | -10.1 | II |
| 16895 | 10812 | Oct. 26.9 | 2 | 28 | +20 | Oct. 29 | +34 | 2 | 7 | 80.6 | +18.1 | |
| 96 | 14 | 28.97 | 5/7 | 28 | - 7 | Nov. 3 | +73 | 2 | 14 | 53.0 | +10.5 | |
| 97 | 13 | Nov. 2.9 | 6 | 28 | -71 | 2 | - 5 | 4 | 22 | 348.0 | - 4.0 | I 1637 (3) |
| 98 | 16 | 9.2 | 2 | Nov. 4 | -65 | 5 | -51 | 4 | 14 | 265.2 | - 9.8 | |
| 99 | 17 | 9.93 | 13 | 4 | -74 | 16 | +82 | 53 | 337 | 255.3 | -13.2 | I 1639 (2) |
| 16900 | 10818 | 10.46 | 13 | 4 | -79 | 16 | +77 | 52 | 321 | 248.4 | - 6.8 | I 1638 (2) |
| 01 | 21 | 11.88 | 9 | 7 | -60 | 15 | +52 | 5 | 32 | 229.7 | + 9.2 | II |
| 02 | 22 | 12.7 | 3 | 9 | -48 | 11 | -16 | 2 | 8 | 218.8 | - 8.8 | |
| 03 | 23 | 8.2 | 3 | 11 | +44 | 13 | +66 | 6 | 27 | 278.3 | +17.1 | |
| 04 | 25 | 12.6 | 5 | 13 | + 9 | 17 | +62 | 11 | 53 | 220.5 | - 3.4 | |
| 16905 | 10827 | 17.90 | 7/8 | 15 | -32 | 22 | +62 | 4 | 22 | 150.3 | + 6.6 | II |
| 06 | 29 pt. | 21.5 | 2 | 16 | -69 | 17 | -55 | 2 | 6 | 102.5 | + 6.0 | |
| 07 | 28 | 22.47 | 11 | 16 | -80 | 26 | +52 | 19 | 107 | 90.1 | +16.9 | II |
| 08 | 31 | 23.64 | 13 | 17 | -84 | 29 | +74 | 29 | 163 | 74.6 | +21.3 | II |
| 09 | 30 | 21.56 | 10 | 18 | -46 | 27 | +75 | 21 | 121 | 102.1 | + 9.0 | II |
| 16910 | .. | 16.2 | 2 | 19 | +43 | 20 | +56 | 4 | 19 | 173.2 | -20.8 | |
| 11 | 10829 pt. | 21.3 | 4 | 23 | +26 | 26 | +68 | 4 | 29 | 105.9 | + 4.3 | |
| 12 | 32 | 29.12 | 13 | 23 | -78 | Dec. 5 | +82 | 20 | 115 | 2.4 | +10.2 | II |
| 13 | 33 | 23.6 | 2 | 25 | +23 | Nov. 26 | +37 | 5 | 32 | 75.2 | -14.6 | |
| 14 | 34 | 30.96 | 8 | 25 | -74 | Dec. 2 | +15 | 15 | 82 | 338.1 | +10.6 | II |
| 16915 | 10835 | 23.8 | 4 | 27 | +45 | Nov. 30 | +84 | 72 | 538 | 72.0 | + 6.0 | I 1640 (1) |
| 16 | 37 | Dec. 4.3 | 3 | 29 | -65 | Dec. 1 | -37 | 5 | 24 | 294.7 | + 7.2 | |
| 17 | 38 | 7.3 | 4 | Dec. 1 | -77 | 4 | -40 | 3 | 18 | 254.3 | -13.6 | I 1639 (3) |
| 18 | 40 | 7.7 | 2 | 2 | -70 | 3 | -57 | 2 | 11 | 248.8 | - 7.8 | I 1638 (3) |
| 19 | 39 } 50 } | 11.61 | 7/12 | 5 | -82 | 16 | +63 | 3 | 14 | 197.8 | - 3.6 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G. | Mt.W. | | | Date | Long. from Central Meridian | Date | Long. from Central Meridian | Umbræ | Whole Spots | Longitude | Latitude | |
| | | 1951-52 | | 1951 | ° | 1951-52 | ° | | | ° | ° | |
| 16920 | 10841 | Dec. 4.8 | 5 | Dec. 6 | +23 | Dec. 10 | +75 | 24 | 127 | 288.1 | -11.8 | |
| 21 | .. | 5.2 | 2 | 6 | +18 | 7 | +30 | 4 | 16 | 282.0 | - 8.6 | |
| 22 | 42 | 6.1 | 2 | 7 | +18 | 8 | +30 | 6 | 22 | 271.0 | -12.8 | |
| 23 | 45 | 9.37 | 5/8 | 8 | -16 | 15 | +82 | 8 | 39 | 227.3 | - 4.9 | |
| 24 | 46 | 10.16 | 5 | 10 | 0 | 14 | +58 | 13 | 62 | 216.9 | + 6.7 | |
| 16925 | 10847 | 9.6 | 3 | 12 | +36 | 14 | +64 | 3 | 12 | 223.7 | -19.9 | |
| 26 | .. | 18.9 | 2/5 | 13 | -72 | 17 | -20 | 1 | 5 | 101.6 | + 8.2 | |
| 27 | 49 } 55 } | 21.02 | 14 | 14 | -83 | 27 | +80 | 125 | 985 | 73.9 | + 8.8 | I 1640 (2) |
| 28 | 48 | 20.20 | 8/10 | 16 | -54 | 25 | +70 | 8 | 45 | 84.7 | + 8.3 | II |
| 29 | 52 | 20.44 | 7 | 17 | -42 | 23 | +41 | 15 | 67 | 81.5 | -11.4 | II |
| 16930 | 10853 | 19.1 | 5 | 20 | +18 | 24 | +66 | 11 | 67 | 98.7 | + 3.6 | |
| 31 | .. | 27.31 | 3/4 | 25 | -26 | 28 | +14 | 2 | 10 | 351.0 | +15.6 | |
| 32 | 56 | 31.07 | 10 | 27 | -49 | Jan. 5 | +73 | 57 | 372 | 301.4 | + 1.3 | II |
| 33 | 57 | Jan. 1.36 | 6 | 29 | -41 | 3 | +26 | 13 | 60 | 284.5 | +13.6 | II |
| 34 | 59 | 5.6 | 4 | 31 | -68 | 3 | -28 | 6 | 28 | 229.0 | -19.2 | |

## GENERAL CATALOGUE OF SUNSPOTS

### SUNSPOTS SEEN ON ONE DAY ONLY

The group of sunspots tabulated below were seen on one day only and appear in the *Daily Results* with a distinctive numeration, 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 | |
|---|---|---|---|---|---|---|---|
| | | | | Umbræ | Whole Spots | Longitude | Latitude |
| | 1951 | ° | 1951 | | | ° | ° |
| *1301b* | Jan. 4 | -30.1 | Jan. 6.6 | 3 | 17 | 353.4 | +35.4 |
| *1302a* | Jan. 8 | +66.3 | Jan. 3.3 | 3 | 10 | 37.0 | +10.6 |
| *b* | 9 | -13.4 | 10.4 | 0 | 5 | 302.6 | -19.3 |
| *c* | 9 | -41.4 | 12.6 | 5 | 16 | 274.6 | -18.8 |
| *d* | 10 | +65.7 | 5.3 | 3 | 15 | 10.2 | +25.5 |
| *e* | 12 | +38.0 | 9.6 | 3 | 16 | 313.1 | - 8.2 |
| *f* | 12 | - 7.5 | 13.1 | 1 | 11 | 267.6 | -14.4 |
| *g* | 29 | -17.1 | 30.9 | 4 | 14 | 33.3 | +11.4 |
| *h* | 30 | + 2.4 | 30.3 | 5 | 20 | 40.6 | + 6.2 |
| *1303a* | Feb. 6 | - 4.8 | Feb. 6.8 | 2 | 13 | 302.4 | +19.6 |
| *b* | 7 | -70.4 | 12.8 | 0 | 6 | 223.1 | -19.0 |
| *c* | 8 | - 4.8 | 8.7 | 0 | 4 | 277.8 | + 6.5 |
| *d* | 10 | +10.4 | 9.5 | 4 | 20 | 266.6 | -17.8 |
| *e* | 12 | +39.4 | 9.4 | 1 | 8 | 267.9 | -18.3 |
| *1304a* | Mar. 21 | -66.6 | Mar. 26.4 | 0 | 7 | 34.9 | - 8.6 |
| *b* | 22 | +50.4 | 18.8 | 0 | 8 | 135.9 | +15.4 |
| *c* | 27 | +33.4 | 25.1 | 1 | 8 | 51.6 | + 4.2 |
| *1305a* | Apr. 2 | +50.2 | Mar. 29.6 | 0 | 3 | 353.4 | +11.2 |
| *b* | 5 | +30.7 | Apr. 3.3 | 5 | 13 | 291.0 | - 9.4 |
| *c* | 11 | -29.4 | 13.8 | 2 | 8 | 151.7 | +10.7 |
| *1306a* | May 3 | - 5.2 | May 3.7 | 0 | 5 | 249.1 | +11.0 |
| *b* | 7 | +28.8 | 5.3 | 2 | 13 | 228.0 | +15.0 |
| *c* | 15 | +15.4 | 14.3 | 3 | 10 | 109.2 | +19.3 |
| *d* | 17 | -63.4 | 22.4 | 0 | 6 | 2.3 | -19.4 |
| *1307a* | May 28 | +66.6 | May 23.4 | 6 | 23 | 349.0 | -10.8 |
| *b* | 31 | - 2.6 | 31.5 | 2 | 9 | 241.7 | - 8.2 |
| *1307c* | June 8 | +74.6 | June 2.7 | 0 | 17 | 212.8 | -12.6 |
| *d* | 13 | +69.5 | 8.1 | 7 | 30 | 140.7 | - 4.4 |
| *e* | 14 | +67.9 | 9.2 | 3 | 19 | 126.7 | - 3.4 |
| *f* | 16 | +50.0 | 12.5 | 2 | 7 | 82.4 | + 3.5 |
| *1308a* | June 26 | + 3.9 | June 26.0 | 1 | 10 | 263.8 | +25.4 |
| *b* | 26 | -39.3 | 29.3 | 3 | 20 | 220.6 | -14.9 |
| *c* | July 4 | -19.1 | July 5.9 | 1 | 13 | 133.3 | -22.9 |
| *d* | 6 | + 3.1 | 6.1 | 1 | 12 | 130.9 | + 9.3 |
| *e* | 6 | -15.0 | 7.4 | 3 | 6 | 112.8 | -11.5 |
| *1309a* | July 16 | -55.5 | July 20.5 | 5 | 8 | 300.0 | - 6.6 |
| *b* | 23 | +31.9 | 21.0 | 0 | 7 | 293.7 | - 6.5 |
| *c* | Aug. 7 | +43.3 | Aug. 4.1 | 1 | 6 | 107.1 | +13.4 |
| *d* | 10 | -57.2 | 15.0 | 0 | 5 | 323.1 | - 4.5 |
| *1310a* | Aug. 16 | -41.8 | Aug. 19.5 | 0 | 5 | 263.7 | + 8.0 |
| *b* | 20 | -56.3 | 24.6 | 0 | 13 | 195.4 | - 4.8 |
| *c* | 26 | +10.2 | 25.7 | 1 | 11 | 181.4 | +12.8 |
| *d* | 29 | +68.4 | 24.1 | 20 | 83 | 202.1 | - 4.1 |
| *e* | 29 | - 7.1 | 29.8 | 0 | 4 | 126.6 | +19.5 |
| *f* | 29 | -51.2 | Sept. 2.2 | 0 | 4 | 82.5 | +10.0 |
| *g* | Sept. 1 | +14.1 | Aug. 31.2 | 0 | 4 | 108.2 | +20.5 |
| *h* | 2 | -46.2 | Sept. 5.8 | 0 | 12 | 34.8 | + 4.6 |
| *i* | 6 | +52.8 | 2.3 | 2 | 11 | 80.9 | +10.8 |
| *j* | 7 | - 6.1 | 7.9 | 1 | 6 | 7.6 | -10.7 |
| *k* | 7 | -28.9 | 9.6 | 1 | 11 | 344.8 | - 9.4 |
| *1311a* | Sept. 15 | + 4.8 | Sept. 14.9 | 0 | 18 | 273.9 | -18.2 |
| *b* | 16 | +26.6 | 14.4 | 0 | 4 | 281.7 | +14.4 |
| *c* | 28 | - 2.4 | 28.5 | 1 | 6 | 95.0 | + 5.5 |
| *1312a* | Oct. 7 | -60.7 | Oct. 12.0 | 0 | 9 | 276.9 | +11.9 |
| *b* | 9 | +18.2 | 8.1 | 0 | 5 | 328.8 | - 9.3 |

GENERAL CATALOGUE OF SUNSPOTS

SUNSPOTS SEEN ON ONE DAY ONLY

| 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 |
| | 1951 | ° | 1951 | | | ° | ° | | 1951 | ° | 1951 | | | ° | ° |
| *1312c* | Oct. 20 | - 8.6 | Oct. 21.0 | 2 | 13 | 158.8 | + 9.6 | *1313g* | Nov. 20 | -49.4 | Nov. 24.1 | 2 | 14 | 68.2 | + 6.4 |
| *d* | 23 | - 9.1 | 24.1 | 0 | 13 | 117.6 | +16.9 | | | | | | | | |
| | | | | | | | | *1314a* | Dec. 14 | +13.8 | Dec. 13.4 | 0 | 5 | 173.9 | +25.5 |
| *1313a* | Nov. 2 | - 3.2 | Nov. 2.8 | 0 | 6 | 348.9 | +19.0 | *b* | 18 | - 0.6 | 18.3 | 1 | 11 | 109.2 | +14.3 |
| *b* | 6 | - 7.6 | 7.0 | 0 | 5 | 294.3 | + 8.3 | c | 26 | - 7.3 | 26.8 | 1 | 6 | 357.3 | +17.8 |
| c | 9 | - 3.0 | 9.4 | 2 | 10 | 262.3 | +10.9 | | | | | | | | |
| *d* | 11 | -15.6 | 12.6 | 2 | 14 | 219.9 | +12.0 | | | | | | | | |
| *e* | 12 | -54.6 | 16.7 | 0 | 8 | 165.9 | +12.0 | | | | | | | | |
| *f* | 15 | +21.9 | 13.9 | 2 | 6 | 202.8 | - 2.4 | *1315a* | Dec. 28 | -67.1 | Jan. 2.5 | 0 | 3 | 269.2 | -10.3 |

| Greenwich Number | Mt. Wilson Number |
|---|---|
| *1301b* | 10563 |
| *1302a* | 10568 |
| *b* | 70 |
| c | 71 |
| *d* | 69 |
| *f* | 73 |
| *1303a* | 10591 |
| c | 93 |
| *d* | 98 |
| *1304b* | 10620 |
| *1305c* | 10635 |
| *1306a* | 10653 |

| Greenwich Number | Mt. Wilson Number |
|---|---|
| *1306b* | 10657 |
| c | 70 |
| *1307a* | 10681 |
| *b* | 82 |
| *d* | 94 |
| *1308b* | 10701 |
| c | 07 |
| *e* | 11 |
| *1309b* | 10727 |
| c | 39 |
| *d* | 49 |
| *1310a* | 10753 |
| *b* | 58 |

| Greenwich Number | Mt. Wilson Number |
|---|---|
| *1310c* | 10759 |
| *f* | 61 |
| *g* | 67 |
| *1311a* | 10783 |
| c | 90 |
| *1312a* | 10794 |
| c | 10805 |
| *d* | 06 |
| *1313a* | 10815 |
| *b* | 19 |
| c | 20 |
| *d* | 24 |
| *f* | 26 |

## 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 | |
| | | 1951 | | | 1951 | ° | 1951 | ° | | ° | ° | |
| 1 | 16698 | Jan. 31.9 | 1303* | 3 | Feb. 4 | +44 | Feb. 6 | +73 | 15 | 20 | + 6 | |
| | 713 | Feb. 27.6 | 1303 | 6 | Feb. 28 | +10 | Mar. 5 | +75 | 33 | 29 | + 4 | II |
| 2 | 16699 | Feb. 4.72 | 1303† | 7 | Feb. 4 | - 6 | Feb. 10 | +73 | 21 | 330 | -15 | II |
| | 714 | Mar. 4.0 | 1303 | 2 | Feb. 28 | -47 | Mar. 1 | -35 | 18 | 330 | -15 | |
| 3 | 16700 | Feb. 11.18 | 1303 | 11/12 | Feb. 5 | -78 | Feb. 16 | +70 | 32 | 244 | + 9 | II |
| | 716 | Mar. 10.9 | 1304 | 3 | Mar. 5 | -73 | Mar. 7 | -45 | 21 | 240 | + 8 | |
| 4 | 16707 | Feb. 17.58 | 1303 | 13 | Feb. 11 | -81 | Feb. 23 | +78 | 151 | 160 | +12 | II |
| | 724 | Mar. 17.1 | 1304 | 4 | Mar. 19 | +29 | Mar. 22 | +75 | 30 | 158 | +10 | |
| 5 | 16710 | Feb. 24.05 | 1303 | 6/9 | Feb. 18 | -75 | Feb. 26 | +32 | 9 | 75 | +10 | I 1623 (2) |
| | 722 | Mar. 23.00 | 1304 | 13 | Mar. 17 | -75 | Mar. 29 | +81 | 914 | 80 | +12 | } I 1626 |
| | 745 | Apr. 18.71 | 1305 | 14 | Apr. 12 | -78 | Apr. 25 | +82 | 2064 | 87 | +12 | |
| | 763 | May 16.03 | 1306 | 14 | May 9 | -81 | May 22 | +82 | 3743 | 86 | +13 | |
| | 792 | June 12.04 | 1307 | 14 | June 5 | -83 | June 18 | +82 | 893 | 89 | +14 | |
| | 808 | July 9.18 | 1308 | 12 | July 3 | -78 | July 14 | +69 | 111 | 90 | +13 | |
| 6 | 16711 | Feb. 24.91 | 1303 | 13 | Feb. 19 | -75 | Mar. 3 | +84 | 694 | 64 | +10 | I 1624 (2) |
| | 726 | Mar. 23.88 | 1304 | 9 | Mar. 21 | -31 | Mar. 29 | +71 | 53 | 68 | + 9 | II |
| | 747 | Apr. 19.7 | 1305 | 3/4 | Apr. 16 | -47 | Apr. 19 | - 7 | 5 | 74 | + 9 | |
| | 767 | May 16.91 | 1306 | 12 | May 11 | -75 | May 22 | +71 | 129 | 75 | +11 | II |
| | 793 | June 13.58 | 1307 | 13 | June 7 | -80 | June 19 | +79 | 471 | 69 | + 8 | } I 1632 |
| | 809 | July 10.27 | 1308 | 11 | July 4 | -77 | July 14 | +53 | 61 | 75 | + 5 | |
| | 835 | Aug. 6.7 | 1309 | 3 | Aug. 1 | -67 | Aug. 3 | -44 | 6 | 73 | + 6 | |
| 7 | 16712 | Mar. 3.45 | 1304 | 11 | Feb. 26 | -65 | Mar. 8 | +65 | 49 | 338 | -14 | II |
| | 733 | Mar. 30.63 | 1305 | 9 | Mar. 26 | -59 | Apr. 3 | +50 | 30 | 339 | -13 | II |
| 8 | 16715 | Mar. 3.4 | 1304 | 5 | Mar. 4 | +11 | Mar. 8 | +69 | 23 | 338 | +12 | |
| | 732 | Mar. 30.9 | 1304 | 2 | Mar. 25 | -74 | Mar. 26 | -59 | 24 | 336 | +15 | |
| 9 | 16727 | Mar. 25.82 | 1304 | 7/8 | Mar. 21 | -61 | Mar. 28 | +35 | 13 | 43 | +11 | II |
| | 751 | Apr. 22.40 | 1305 | 3 | Apr. 21 | -14 | Apr. 23 | +12 | 35 | 39 | +11 | |
| 10 | 16728 | Mar. 22.4 | 1304 | 7 | Mar. 22 | + 4 | Mar. 28 | +77 | 243 | 88 | -10 | II |
| | 744 | Apr. 18.24 | 1305 | 13 | Apr. 11 | -82 | Apr. 23 | +64 | 72 | 94 | - 9 | II |

* Group 16698 does not appear until after Rotation 1302 has ended.
† Group 16699 does not appear until after Rotation 1302 has ended.

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 | |
| | | 1951 | | | 1951 | ° | 1951 | ° | | ° | ° | |
| 11 | 16734 | Mar. 29.8 | 1305 | 2 | Mar. 28 | -19 | Mar. 29 | - 7 | 6 | 350 | +14 | |
| | 755 | Apr. 25.7 | 1305* | 2 | Apr. 24 | -17 | Apr. 25 | - 5 | 10 | 356 | +12 | |
| 12 | 16739 | Apr. 11.37 | 1305 | 8 | Apr. 5 | -75 | Apr. 12 | +16 | 17 | 184 | -10 | II |
| | 759 | May 8.3 | 1306 | 2 | May 3 | -65 | May 4 | -49 | 6 | 189 | -12 | |
| 13 | 16748 | Apr. 18.4 | 1305 | 4 | Apr. 18 | + 1 | Apr. 21 | +37 | 25 | 91 | +19 | |
| | 772 | May 15.83 | 1306 | 3 | May 15 | - 5 | May 17 | +24 | 10 | 89 | +22 | |
| 14 | 16761 | May 12.02 | 1306 | 5/7 | May 7 | -60 | May 13 | +19 | 18 | 139 | -10 | |
| | 788 | June 7.84 | 1307 | 6 | June 4 | -46 | June 9 | +21 | 80 | 145 | -10 | II |
| 15 | 16776 | May 22.56 | 1306 | 11 | May 16 | -82 | May 26 | +53 | 142 | 0 | -14 | II |
| | 795 | June 18.37 | 1307 | 13 | June 12 | -78 | June 24 | +79 | 2100 | 5 | -12 | |
| | 818 | July 15.05 | 1308 | 13 | July 8 | -83 | July 20 | +72 | 539 | 12 | -10 | } I 1633 |
| 16 | 16786 | June 6.1 | 1307 | 4 | May 31 | -77 | June 3 | -36 | 36 | 167 | - 4 | |
| | 805 | July 3.63 | 1308 | 7/8 | June 27 | -80 | July 4 | + 8 | 10 | 163 | - 6 | II |
| 17 | 16790 | June 11.41 | 1307 | 13 | June 5 | -77 | June 17 | +77 | 661 | 97 | + 8 | II |
| | 807 | July 7.8 | 1308 | 4/5 | July 3 | -61 | July 7 | - 5 | 12 | 108 | + 9 | |
| 18 | 16801 | June 14.2 | 1307 | 3 | June 17 | +41 | June 19 | +70 | 8 | 61 | +12 | |
| | 819 | July 11.1 | 1308 | 3 | July 14 | +40 | July 16 | +71 | 19 | 64 | +10 | |
| | 837 | Aug. 6.86 | 1309 | 12 | Aug. 2 | -65 | Aug. 13 | +84 | 209 | 70 | + 8 | II |
| 19 | 16804 | July 2.0 | 1308 | 5 | June 26 | -76 | June 30 | -22 | 29 | 184 | +11 | |
| | 829 | July 29.4 | 1309 | 2 | July 25 | -55 | July 26 | -35 | 10 | 183 | + 9 | |
| 20 | 16813 | July 13.10 | 1308 | 9 | July 7 | -76 | July 15 | +32 | 129 | 38 | + 9 | II |
| | 838 | Aug. 9.57 | 1309 | 12 | Aug. 4 | -72 | Aug. 15 | +81 | 163 | 34 | + 8 | } I 1636 |
| | 854 | Sept. 5.79 | 1310 | 13 | Aug. 30 | -80 | Sept.11 | +76 | 234 | 35 | +10 | |
| 21 | 16816 | July 8.54 | 1308 | 3 | July 8 | - 1 | July 10 | +25 | 13 | 98 | +20 | |
| | 836 | Aug. 4.91 | 1309 | 3/6 | Aug. 2 | -33 | Aug. 7 | +30 | 5 | 96 | +17 | |
| 22 | 16824 | July 22.62 | 1309 | 5 | July 21 | -17 | July 25 | +36 | 19 | 272 | -18 | |
| | 845 | Aug. 19.02 | 1310 | 13 | Aug. 13 | -76 | Aug. 25 | +78 | 179 | 270 | -18 | II } |
| | 848 | Aug. 19.69 | 1310 | 6 | Aug. 19 | - 5 | Aug. 24 | +61 | 48 | 261 | -19 | II |
| | 865 | Sept.15.75 | 1311 | 9 | Sept.12 | -43 | Sept.20 | +62 | 48 | 263 | -19 | II |
| 23 | 16844 | Aug. 13.53 | 1310 | 13 | Aug. 7 | -81 | Aug. 19 | +75 | 213 | 342 | -12 | II |
| | 858 | Sept. 9.23 | 1311 | 9/10 | Sept. 5 | -44 | Sept.14 | +69 | 23 | 349 | -11 | II |

* Group 16755 dies out before Rotation 1306 begins.

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 | |
| | | 1951 | | | 1951 | ° | 1951 | ° | | ° | ° | |
| 24 | 16846 | Aug. 20.6 | 1310 | 2 | Aug. 15 | -67 | Aug. 16 | -57 | 14 | 248 | -14 | |
| | 864 | Sept.16.9 | 1311 | 4 | Sept.11 | -73 | Sept.14 | -37 | 23 | 248 | -16 | |
| | 883 | Oct. 14.45 | 1312 | 12 | Oct. 9 | -68 | Oct. 20 | +81 | 153 | 245 | -14 | |
| | 899 | Nov. 9.93 | 1313 | 13 | Nov. 4 | -74 | Nov. 16 | +82 | 337 | 255 | -13 | I 1639 |
| | 917 | Dec. 7.3 | 1314 | 4 | Dec. 1 | -77 | Dec. 4 | -40 | 18 | 254 | -14 | |
| 25 | 16847 | Aug. 21.03 | 1310 | 10 | Aug. 16 | -64 | Aug. 25 | +59 | 76 | 243 | -17 | I 1635 (2) |
| | 851 | Aug. 21.5 | 1310 | 2/3 | Aug. 24 | +40 | Aug. 26 | +67 | 6 | 237 | -18 | |
| | 866 | Sept.17.7 | 1311 | 3 | Sept.12 | -67 | Sept.14 | -44 | 18 | 238 | -20 | |
| 26 | 16849 | Aug. 26.5 | 1310 | 5 | Aug. 20 | -82 | Aug. 24 | -27 | 13 | 170 | + 7 | |
| | 873 | Sept.22.60 | 1311 | 8 | Sept.21 | -16 | Sept.28 | +76 | 37 | 173 | + 8 | II |
| 27 | 16852 | Aug. 27.5 | 1310 | 3/5 | Aug. 29 | +25 | Sept. 2 | +75 | 16 | 157 | + 8 | |
| | 870 | Sept.23.82 | 1311 | 12 | Sept.18 | -78 | Sept.29 | +78 | 141 | 157 | + 9 | II |
| 28 | 16856 | Sept. 2.18 | 1310 | 4 | Sept. 1 | -12 | Sept. 4 | +30 | 12 | 83 | +18 | |
| | 875 | Sept.29.80 | 1311 | 9/10 | Sept.25 | -62 | Oct. 4 | +62 | 18 | 78 | +21 | II |
| | 895 | Oct. 26.9 | 1312 | 2 | Oct. 28 | +20 | Oct. 29 | +34 | 7 | 81 | +18 | |
| 29 | 16859 | Sept.10.86 | 1311 | 6/8 | Sept. 6 | -60 | Sept.13 | +35 | 12 | 328 | - 4 | II |
| | 884 | Oct. 8.2 | 1312 | 3/4 | Oct. 10 | +27 | Oct. 13 | +67 | 29 | 327 | - 2 | |
| 30 | 16868 | Sept.20.17 | 1311 | 13 | Sept.14 | -76 | Sept.26 | +82 | 390 | 205 | +13 | II |
| | 885 | Oct. 16.59 | 1312 | 13 | Oct. 10 | -83 | Oct. 22 | +77 | 215 | 216 | +11 | II |
| 31 | 16874 | Sept.28.7 | 1311 | 3 | Sept.23 | -67 | Sept.25 | -43 | 12 | 93 | + 7 | |
| | 891 | Oct. 25.6 | 1312 | 6 | Oct. 26 | + 8 | Oct. 31 | +80 | 68 | 97 | + 8 | II |
| | 909 | Nov. 21.56 | 1313 | 10 | Nov. 18 | -46 | Nov. 27 | +75 | 121 | 102 | + 9 | II |
| | 926 | Dec. 18.9 | 1314 | 2/5 | Dec. 13 | -72 | Dec. 17 | -20 | 5 | 102 | + 8 | |
| | 941 | Jan. 15.09 | 1315 | 12 | Jan. 9 | -76 | Jan. 20 | +72 | 496 | 104 | + 6 | II (1952) |
| 32 | 16877 | Sept.30.94 | 1311 | 7 | Sept.30 | - 8 | Oct. 6 | +74 | 176 | 63 | + 9 | II |
| | 889 | Oct. 27.9 | 1312 | 5 | Oct. 23 | -61 | Oct. 27 | - 5 | 18 | 67 | + 7 | |
| | 915 | Nov. 23.8 | 1313 | 4 | Nov. 27 | +45 | Nov. 30 | +84 | 538 | 72 | + 6 | |
| | 927 | Dec. 21.02 | 1314 | 14 | Dec. 14 | -83 | Dec. 27 | +80 | 985 | 74 | + 9 | I 1640 |
| 33 | 16893 | Nov. 1.50 | 1312 | 13 | Oct. 26 | -80 | Nov. 7 | +79 | 79 | 7 | +13 | II |
| | 912 | Nov. 29.12 | 1313 | 13 | Nov. 23 | -78 | Dec. 5 | +82 | 115 | 2 | +10 | II |
| 34 | 16898 | Nov. 9.2 | 1313 | 2 | Nov. 4 | -65 | Nov. 5 | -51 | 14 | 265 | -10 | |
| | 922 | Dec. 6.1 | 1314 | 2 | Dec. 7 | +18 | Dec. 8 | +30 | 22 | 271 | -13 | |
| 35 | 16904 | Nov. 12.6 | 1313 | 5 | Nov. 13 | + 9 | Nov. 17 | +62 | 53 | 220 | - 3 | |
| | 923 | Dec. 9.37 | 1314 | 5/8 | Dec. 8 | -16 | Dec. 15 | +82 | 39 | 227 | - 5 | |

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 | |
| | | 1951 | | | 1951 | ° | 1951 | ° | | ° | ° | |
| 36 | 16913 | Nov. 23.6 | 1313 | 2 | Nov. 25 | +23 | Nov. 26 | +37 | 32 | 75 | -15 | |
| | 929 | Dec. 20.44 | 1314 | 7 | Dec. 17 | -42 | Dec. 23 | +41 | 67 | 81 | -11 | II |
| 37 | 16924 | Dec. 10.16 | 1314 | 5 | Dec. 10 | 0 | Dec. 14 | +58 | 62 | 217 | + 7 | |
| | 937 | Jan. 6.3 | 1315 | 3 | Jan. 1 | -64 | Jan. 3 | -38 | 14 | 220 | + 7 | |
| 38 | 16925 | Dec. 9.6 | 1314 | 3 | Dec. 12 | +36 | Dec. 14 | +64 | 12 | 224 | -20 | |
| | 934 | Jan. 5.6 | 1315 | 4 | Dec. 31 | -68 | Jan. 3 | -28 | 28 | 229 | -19 | |
| 39 | 16928 | Dec. 20.20 | 1314 | 8/10 | Dec. 16 | -54 | Dec. 25 | +70 | 45 | 85 | + 8 | II |
| | 943 | Jan. 16.3 | 1315 | 3 | Jan. 11 | -63 | Jan. 13 | -36 | 26 | 88 | + 8 | |

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ROYAL GREENWICH OBSERVATORY

# *Ledgers of Groups of Sunspots*

## For the year 1951

Ledger I :

Recurrent Groups

Ledger II :

Non-Recurrent Groups

GREENWICH PHOTO-HELIOGRAPHIC RESULTS, 1951

## LEDGERS OF GROUPS OF SUNSPOTS FOR THE YEAR 1951.

### LEDGER I. - RECURRENT GROUPS

### LEDGER II. - NON-RECURRENT GROUPS

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 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 (increasing longitude) 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 $80^{\circ}$ or more from the Sun's central meridian, the measures for that day are not included in taking the mean area or the mean 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

## No. 1623. Latitude +9°.8.

Group 16692 in Rotation 1302
" 16710 " " 1303

Group 16692. Jan. 23-Feb. 3. A stream, developing quickly from a small spot on January 23. The leader, *a*, soon becomes regular and is the only stable component.

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|---|
| | | | | | ° | ° | ° | ° |
| 22.389 G | 4 | 22 | 5 | 28 | 66.3 | 0.0 | + 8.4 | -65.6 |
| 23.457 G | 33 | 189 | 28 | 158 | 66.8 | +0.4 | + 9.4 | -51.1 |
| 24.284 C | 86 | 527 | 58 | 356 | 67.7 | +1.2 | + 9.7 | -39.3 |
| 25.126 K | 97 | 602 | 57 | 355 | 68.3 | +1.7 | + 9.6 | -27.6 |
| 26.380 G | 90 | 650 | 47 | 340 | 71.4 | +4.6 | + 8.6 | - 8.0 |
| 27.412 G | 135 | 699 | 71 | 363 | 71.9 | +5.0 | + 8.7 | + 6.1 |
| 28.586 G | 152 | 907 | 85 | 505 | 70.5 | +3.5 | + 9.7 | +20.1 |
| 29.505 G | 94 | 627 | 58 | 389 | 70.7 | +3.6 | + 9.8 | +32.5 |
| 30.285 C | 82 | 573 | 60 | 405 | 70.3 | +3.1 | + 9.7 | +42.3 |
| 31.496 G | 74 | 375 | 75 | 376 | 69.7 | +2.4 | + 9.6 | +57.7 |
| 32.293 C | 38 | 285 | 58 | 419 | 69.6 | +2.2 | + 9.5 | +68.0 |
| 33.291 C | 20 | 107 | 69 | 384 | 67.9 | +0.3 | + 9.9 | +79.5 |
| **Means** | .. | .. | 56 | 340 | 69.3 | .. | + 9.4 | .. |

Spot *a*

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 23.457 G | 20 | 102 | 16 | 81 | 69.3 | 0.0 | + 9.0 | -48.6 |
| 24.284 C | 50 | 347 | 32 | 226 | 69.4 | 0.0 | + 9.2 | -37.6 |
| 25.126 K | 65 | 372 | 37 | 212 | 71.2 | +1.7 | + 9.0 | -24.7 |
| 26.380 G | 68 | 408 | 35 | 212 | 73.3 | +3.7 | + 8.4 | - 6.1 |
| 27.412 G | 100 | 508 | 52 | 264 | 73.8 | +4.0 | + 8.7 | + 8.0 |
| 28.586 G | 89 | 490 | 51 | 279 | 74.0 | +4.1 | + 9.5 | +23.6 |
| 29.505 G | 61 | 384 | 39 | 246 | 73.7 | +3.7 | + 9.4 | +35.5 |
| 30.285 C | 67 | 345 | 50 | 255 | 73.3 | +3.2 | + 9.3 | +45.3 |
| 31.496 G | 35 | 163 | 38 | 179 | 73.2 | +3.0 | + 9.2 | +61.2 |
| 32.293 C | 19 | 115 | 32 | 191 | 72.7 | +2.4 | + 9.0 | +71.1 |
| 33.291 C | 10 | 61 | 44 | 268 | 70.7 | .. | + 9.3 | +82.3 |

Group 16710. Feb. 18-28. An intermittent tiny spot.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 48.425 G | 2 | 13 | 4 | 28 | 74.4 | +2.2 | +10.1 | -74.7 |
| 49.367 G | 0 | 13 | 0 | 14 | 76.1 | +3.8 | + 9.8 | -60.6 |
| 50.296 C | 0 | 0 | 0 | 0 | .. | .. | .. | .. |
| 51.382 G | 4 | 18 | 3 | 12 | 73.8 | +1.3 | +11.1 | -36.4 |
| 52.459 G | 2 | 15 | 1 | 8 | 74.7 | +2.1 | +10.7 | -21.3 |
| 53.415 G | 2 | 18 | 1 | 10 | 75.1 | +2.4 | + 9.8 | - 8.3 |
| 54.296 C | 0 | 0 | 0 | 0 | .. | .. | .. | .. |
| 55.341 C | 0 | 0 | 0 | 0 | .. | .. | .. | .. |
| 56.380 G | 2 | 13 | 1 | 8 | 76.6 | +3.5 | + 9.6 | +32.2 |
| **Means** | .. | .. | 1 | 9 | 75.1 | .. | +10.2 | .. |

## No. 1624. Latitude +8°.9.

Group 16693 in Rotation 1302
" 16711 " " 1303

Group 16693. Jan. 23-Feb. 4. A composite spot, *a*, leading a string of spots which rapidly increase in area after January 26. These remain fairly stable until January 31, when they begin to break up and die out.

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|---|
| | | | | | ° | ° | ° | ° |
| 22.389 G | 46 | 225 | 130 | 634 | 52.9 | 0.0 | + 7.1 | -79.0 |
| 23.457 G | 113 | 773 | 148 | 984 | 52.0 | -1.0 | + 7.4 | -65.9 |
| 24.284 C | 163 | 1016 | 146 | 921 | 52.7 | -0.4 | + 7.7 | -54.3 |
| 25.126 K | 230 | 1237 | 163 | 883 | 52.7 | -0.5 | + 7.3 | -43.2 |
| 26.380 G | 340 | 2421 | 196 | 1394 | 52.9 | -0.5 | + 7.2 | -26.5 |
| 27.412 G | 329 | 2300 | 173 | 1208 | 53.0 | -0.5 | + 6.6 | -12.8 |
| 28.586 G | 489 | 3086 | 253 | 1591 | 53.9 | +0.2 | + 6.7 | + 3.5 |
| 29.505 G | 452 | 2338 | 241 | 1251 | 53.9 | +0.1 | + 7.4 | +15.7 |
| 30.285 C | 249 | 2360 | 144 | 1359 | 54.1 | +0.2 | + 7.4 | +26.1 |
| 31.496 G | 202 | 1343 | 147 | 983 | 56.0 | +1.9 | + 7.7 | +44.0 |
| 32.293 C | 135 | 905 | 127 | 850 | 57.5 | +3.3 | + 7.8 | +55.9 |
| 33.291 C | 71 | 485 | 110 | 752 | 58.1 | +3.8 | + 8.3 | +69.7 |
| 34.292 C | 4 | 25 | (19 | 120 | 58.2 | .. | + 8.6) | +83.0 |
| **Means** | .. | .. | 165 | 1068 | 54.1 | | + 7.4 | .. |

Spot *a*

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 22.389 G | 46 | 225 | 130 | 634 | 52.9 | 0.0 | + 7.1 | -79.0 |
| 23.457 G | 87 | 647 | 104 | 770 | 53.9 | +0.9 | + 7.5 | -64.0 |
| 24.284 C | 130 | 786 | 110 | 668 | 54.6 | +1.5 | + 7.7 | -52.4 |
| 25.126 K | 125 | 586 | 84 | 393 | 55.9 | +2.7 | + 6.9 | -40.0 |
| 26.380 G | 201 | 1249 | 113 | 699 | 56.0 | +2.6 | + 7.2 | -23.4 |
| 27.412 G | 191 | 1552 | 99 | 807 | 55.8 | +2.3 | + 7.1 | -10.0 |
| 28.586 G | 326 | 1710 | 170 | 889 | 56.9 | +3.2 | + 7.4 | + 6.5 |
| 29.505 G | 343 | 1782 | 185 | 962 | 57.1 | +3.3 | + 7.8 | +18.9 |
| 30.285 C | 180 | 1599 | 106 | 943 | 56.9 | +3.0 | + 7.6 | +28.9 |
| 31.496 G | 165 | 1113 | 124 | 835 | 58.1 | +4.0 | + 8.0 | +46.1 |
| 32.293 C | 121 | 809 | 116 | 777 | 58.6 | +4.4 | + 8.0 | +57.0 |
| 33.291 C | 69 | 466 | 108 | 732 | 58.6 | +4.3 | + 8.1 | +70.2 |
| 34.292 C | 4 | 25 | (19 | 120 | 58.2 | .. | + 8.6) | +83.0 |

Group 16711. Feb. 19-Mar. 3. A composite spot which at first becomes elongated and then disintegrates to form a stream in which the principal nucleus is the leader.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 49.367 G | 50 | 346 | 105 | 728 | 61.7 | +5.3 | +10.3 | -75.0 |
| 50.296 C | 84 | 687 | 97 | 789 | 62.5 | +6.0 | +10.3 | -62.0 |
| 51.382 G | 97 | 865 | 78 | 691 | 61.7 | +5.1 | +10.7 | -48.5 |
| 52.459 G | 129 | 1046 | 83 | 668 | 62.5 | +5.8 | +10.7 | -33.5 |
| 53.415 G | 171 | 1362 | 95 | 763 | 62.7 | +5.8 | +10.9 | -20.7 |
| 54.296 C | 162 | 1647 | 86 | 873 | 63.1 | +6.1 | +10.5 | - 8.7 |
| 55.341 C | 177 | 1727 | 93 | 914 | 63.8 | +6.7 | + 9.8 | + 5.7 |

LEDGER I. - RECURRENT GROUPS OF SUNSPOTS

## No. 1624. Group 16711 - *continued*

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|---|
| | | | | | ° | ° | ° | ° |
| 56.380 G | 232 | 1441 | 130 | 806 | 64.6 | +7.3 | +10.3 | +20.2 |
| 57.483 G | 182 | 957 | 118 | 618 | 65.2 | +7.8 | +10.3 | +35.4 |
| 58.407 G | 119 | 709 | 95 | 563 | 65.3 | +7.8 | +10.4 | +47.6 |
| 59.392 G | 84 | 462 | 94 | 513 | 65.2 | +7.6 | +10.1 | +60.5 |
| 60.304 C | 55 | 202 | 110 | 408 | 66.3 | +8.5 | +10.0 | +73.6 |
| 61.368 G | 2 | 13 | (12 | 79 | 62.5 | .. | + 9.9) | +83.8 |
| **Means** | .. | .. | 99 | 694 | 63.7 | .. | +10.4 | .. |

## No. 1625. Latitude +12°7.

Group 16718 in Rotation 1304
" 16736 " " 1305

Group 16718. Mar. 6-18. A stable regular spot, with a tiny companion on March 10 and 11.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 64.373 G | 13 | 92 | 36 | 252 | 221.9 | 0.0 | +13.8 | -77.2 |
| 65.377 G | 18 | 154 | 23 | 194 | 222.2 | +0.2 | +13.5 | -63.7 |
| 66.428 G | 26 | 264 | 22 | 222 | 222.0 | 0.0 | +13.2 | -50.0 |
| 67.305 C | 68 | 322 | 46 | 220 | 221.8 | -0.3 | +13.1 | -38.6 |
| 68.488 C | 62 | 333 | 36 | 194 | 221.7 | -0.5 | +12.5 | -23.2 |
| 69.431 C | 55 | 292 | 30 | 158 | 221.6 | -0.6 | +12.2 | -10.8 |
| 70.369 G | 66 | 341 | 35 | 181 | 221.6 | -0.7 | +12.3 | + 1.5 |
| 71.302 C | 55 | 290 | 30 | 160 | 221.3 | -1.0 | +12.5 | +13.5 |
| 72.406 G | 51 | 241 | 31 | 145 | 221.5 | -0.9 | +12.4 | +28.3 |
| 73.364 G | 40 | 190 | 28 | 135 | 221.7 | -0.8 | +12.3 | +41.1 |
| 74.300 C | 21 | 218 | 19 | 198 | 221.8 | -0.7 | +12.3 | +53.5 |
| 75.308 C | 9 | 111 | 13 | 155 | 221.8 | -0.8 | +12.1 | +66.8 |
| 76.412 G | 7 | 42 | 27 | 160 | 221.1 | .. | +12.4 | +80.7 |
| **Means** | .. | .. | 29 | 184 | 221.7 | .. | +12.7 | .. |

Group 16736. Apr. 3-11. A small, slowly-diminishing spot.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 92.391 G | 9 | 42 | 13 | 60 | 222.2 | -1.5 | +12.4 | -67.5 |
| 93.663 G | 18 | 65 | 15 | 55 | 222.2 | -1.6 | +12.8 | -50.7 |
| 94.617 G | 13 | 58 | 9 | 39 | 221.9 | -1.9 | +12.6 | -38.4 |
| 95.316 C | 15 | 63 | 9 | 38 | 221.7 | -2.2 | +12.7 | -29.4 |
| 96.362 G | 13 | 49 | 7 | 27 | 221.6 | -2.3 | +12.7 | -15.7 |
| 97.645 G | 9 | 27 | 5 | 14 | 221.3 | -2.7 | +12.6 | + 0.9 |
| 98.391 G | 13 | 27 | 7 | 15 | 221.1 | -3.0 | +12.7 | +10.6 |
| 99.372 G | 4 | 11 | 2 | 6 | 220.9 | -3.2 | +12.8 | +23.3 |
| 100.616 G | 0 | 4 | 0 | 3 | 220.5 | -3.7 | +12.9 | +39.4 |
| **Means** | .. | .. | 7 | 29 | 221.5 | .. | +12.7 | .. |

## No. 1626. Latitude +12°7.

Group 16722 in Rotation 1304
" 16745 " " 1305
" 16763 " " 1306
" 16792 " " 1307
" 16808 " " 1308

Group 16722. Mar. 17-29. A large stable regular spot. The umbra is divided by a bright "bridge" on March 25.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | ° | ° | ° | ° |
| 75.308 C | 47 | 389 | 104 | 860 | 80.0 | 0.0 | +12.0 | -75.0 |
| 76.412 G | 139 | 734 | 150 | 793 | 80.5 | +0.4 | +11.8 | -59.9 |
| 77.383 G | 221 | 1059 | 175 | 837 | 80.3 | +0.2 | +12.1 | -47.3 |
| 78.362 G | 278 | 1357 | 178 | 868 | 80.5 | +0.3 | +12.1 | -34.2 |
| 79.362 G | 336 | 1516 | 192 | 864 | 80.3 | 0.0 | +12.4 | -21.2 |
| 80.580 G | 389 | 1538 | 206 | 815 | 80.2 | -0.1 | +12.1 | - 5.3 |
| 81.310 C | 334 | 1644 | 177 | 871 | 80.1 | -0.3 | +12.1 | + 4.2 |
| 82.305 C | 428 | 1894 | 235 | 1042 | 79.8 | -0.6 | +12.2 | +17.1 |
| 83.370 G | 397 | 1656 | 246 | 1027 | 79.6 | -0.9 | +12.1 | +30.9 |
| 84.323 C | 312 | 1367 | 228 | 998 | 79.1 | -1.5 | +12.0 | +43.0 |
| 85.683 G | 209 | 932 | 234 | 1044 | 79.1 | -1.6 | +11.9 | +60.9 |
| 86.362 G | 140 | 582 | 230 | 954 | 79.4 | -1.3 | +12.1 | +70.2 |
| 87.302 C | 26 | 159 | 106 | 647 | 78.2 | .. | +11.3 | +81.4 |
| **Means** | .. | .. | 196 | 914 | 79.9 | .. | +12.1 | .. |

Group 16745. Apr. 12-25. A great complex group. Between April 16 and 20 it consists of an elongated mass with numerous nuclei, and undergoes very little change. By April 21 the rear part begins to disintegrate and decrease in area. During this period the leader, *a*, becomes more regular in outline.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 101.446 C | 22 | 195 | (60 | 534 | 92.3 | .. | +12.7) | -77.9 |
| 102.625 G | 208 | 1288 | 288 | 1859 | 87.2 | +5.5 | +12.8 | -67.4 |
| 103.365 G | 304 | 1877 | 297 | 1911 | 87.0 | +5.2 | +12.8 | -57.9 |
| 104.391 G | 434 | 2966 | 315 | 2205 | 87.5 | +5.6 | +12.4 | -43.8 |
| 105.329 G | 623 | 3772 | 383 | 2343 | 87.6 | +5.7 | +12.1 | -31.3 |
| 106.324 C | 754 | 4151 | 416 | 2303 | 87.5 | +5.5 | +11.8 | -18.3 |
| 107.397 G | 711 | 4749 | 372 | 2485 | 88.0 | +5.9 | +11.5 | - 3.6 |
| 108.088 K | 897 | 4844 | 473 | 2553 | 87.4 | +5.3 | +11.5 | + 4.9 |
| 109.333 G | 553 | 4216 | 314 | 2378 | 88.1 | +5.9 | +11.3 | +22.1 |
| 110.327 G | 363 | 2929 | 236 | 1885 | 88.3 | +6.1 | +11.3 | +35.4 |
| 111.390 C | 242 | 2160 | 203 | 1770 | 88.0 | +5.7 | +11.7 | +49.1 |
| 112.327 G | 185 | 1440 | 217 | 1641 | 87.5 | +5.1 | +12.7 | +61.0 |
| 113.371 G | 111 | 662 | 237 | 1437 | 85.8 | +3.4 | +13.1 | +73.1 |
| 114.327 G | 7 | 38 | (31 | 167 | 82.0 | .. | +16.5) | +81.9 |
| **Means** | .. | .. | 313 | 2064 | 87.5 | .. | +12.1 | .. |

LEDGER I. - RECURRENT GROUPS OF SUNSPOTS

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|
| **No. 1626.** Group 16745 - *continued* | | | | | | | |
| Spot *a* | | | | | | | |
| | | | | | ° ° | ° | ° |
| 101.446 C | 22 | 195 | 60 | 534 | 92.3 0.0 | +12.7 | -77.9 |
| 102.625 G | 123 | 562 | 149 | 680 | 91.2 -1.2 | +12.5 | -63.4 |
| 103.365 G | 188 | 806 | 169 | 725 | 91.2 -1.2 | +12.2 | -53.7 |
| 104.391 G | 228 | 1044 | 155 | 710 | 91.7 -0.8 | +11.8 | -39.6 |
| 105.329 G | 310 | 1220 | 183 | 720 | 92.0 -0.5 | +11.5 | -26.9 |
| 106.324 C | 331 | 1458 | 179 | 787 | 92.4 -0.2 | +11.7 | -13.4 |
| 107.397 G | 281 | 1244 | 146 | 647 | 92.6 -0.1 | +11.7 | + 1.0 |
| 108.088 K | 340 | 1504 | 180 | 797 | 92.7 0.0 | +11.4 | +10.2 |
| 109.333 G | 241 | 1233 | 140 | 715 | 92.6 -0.2 | +11.4 | +26.6 |
| 110.327 G | 160 | 922 | 109 | 627 | 92.8 -0.1 | +11.2 | +39.9 |
| 111.390 C | 107 | 671 | 97 | 611 | 93.2 +0.3 | +11.5 | +54.3 |
| 112.327 G | 81 | 495 | 110 | 673 | 93.4 +0.4 | +11.4 | +66.9 |
| 113.371 G | 41 | 269 | 116 | 759 | 91.3 -1.8 | +10.9 | +78.6 |
| Group 16763. May 9-22. A complex and unusually large group, led by a stable regular spot, *a*. The main component, a large spot with numerous nuclei, undergoes only slight change throughout its transit. This giant group is the fourth largest in the Greenwich records. | | | | | | | |
| 128.322 C | 18 | 114 | (65 | 412 | 94.1 .. | +13.9) | -81.0 |
| 129.371 G | 251 | 1204 | 463 | 2250 | 89.3 +5.8 | +14.2 | -71.9 |
| 130.319 G | 378 | 2362 | 404 | 2552 | 89.0 +5.5 | +13.5 | -59.7 |
| 131.304 G | 570 | 3714 | 444 | 2922 | 87.6 +4.0 | +13.1 | -48.1 |
| 132.390 G | 887 | 5654 | 557 | 3571 | 86.4 +2.7 | +13.3 | -34.9 |
| 133.440 G | 1247 | 6835 | 696 | 3812 | 86.5 +2.8 | +13.0 | -20.9 |
| 134.470 G | 1284 | 7257 | 674 | 3811 | 85.5 +1.7 | +12.8 | - 8.3 |
| 135.401 G | 1293 | 7736 | 675 | 4031 | 85.2 +1.4 | +12.8 | + 3.7 |
| 136.595 G | 1190 | 7622 | 658 | 4207 | 85.1 +1.2 | +12.8 | +19.4 |
| 137.353 G | 1185 | 7912 | 708 | 4715 | 85.4 +1.4 | +12.5 | +29.7 |
| 138.356 G | 966 | 6845 | 692 | 4865 | 85.2 +1.2 | +12.8 | +42.8 |
| 139.363 G | 566 | 4371 | 546 | 4182 | 86.3 +2.2 | +12.6 | +57.2 |
| 140.307 G | 364 | 2521 | 591 | 4002 | 85.0 +0.8 | +12.8 | +68.4 |
| 141.324 G | 75 | 589 | (276 | 2099 | 84.6 .. | +12.4) | +81.5 |
| **Means** | .. | .. | 592 | 3743 | 86.4 .. | +13.0 | .. |
| Spot *a* | | | | | | | |
| 128.322 C | 18 | 114 | 65 | 412 | 94.1 .. | +13.9 | -81.0 |
| 129.371 G | 78 | 331 | 108 | 460 | 93.8 -0.3 | +14.0 | -67.4 |
| 130.319 G | 100 | 506 | 92 | 466 | 93.9 -0.3 | +13.7 | -54.8 |
| 131.304 G | 123 | 673 | 87 | 478 | 93.5 -0.7 | +13.5 | -42.2 |
| 132.390 G | 178 | 880 | 105 | 519 | 93.8 -0.5 | +13.4 | -27.5 |
| 133.440 G | 178 | 910 | 96 | 491 | 94.0 -0.3 | +13.3 | -13.4 |
| 134.470 G | 169 | 862 | 88 | 448 | 93.8 -0.6 | +13.1 | 0.0 |
| 135.401 G | 196 | 878 | 104 | 465 | 93.9 -0.6 | +12.9 | +12.4 |
| 136.595 G | 132 | 748 | 78 | 441 | 93.9 -0.6 | +12.6 | +28.2 |
| 137.353 G | 123 | 666 | 81 | 440 | 94.0 -0.6 | +12.8 | +38.3 |

*continued*

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|
| **No. 1626.** Group 16763. Spot *a* - *continued* | | | | | | | |
| | | | | | ° ° | ° | ° |
| 138.356 G | 109 | 529 | 92 | 444 | 94.1 -0.6 | +12.9 | +51.7 |
| 139.363 G | 64 | 392 | 79 | 482 | 93.9 -0.8 | +12.9 | +64.8 |
| 140.307 G | 32 | 181 | 81 | 456 | 94.4 -0.4 | +13.1 | +77.8 |
| Group 16792. June 5-18. A stream, the leader, *a*, of which is a stable regular spot preceded by a very close companion. The composite follower slowly diminishes. | | | | | | | |
| 155.533 G | 32 | 175 | (130 | 712 | 92.4 .. | +12.3) | -82.7 |
| 156.304 G | 140 | 635 | 287 | 1354 | 89.9 +4.7 | +13.4 | -75.0 |
| 157.561 G | 211 | 924 | 213 | 934 | 89.9 +4.6 | +13.9 | -58.4 |
| 158.319 G | 221 | 1219 | 175 | 971 | 88.7 +3.4 | +14.1 | -49.5 |
| 159.335 G | 299 | 1486 | 190 | 951 | 89.3 +3.9 | +13.9 | -35.5 |
| 160.443 C | 281 | 1674 | 154 | 922 | 88.1 +2.7 | +13.9 | -22.0 |
| 161.292 G | 391 | 1973 | 205 | 1038 | 87.7 +2.2 | +14.1 | -11.2 |
| 162.469 G | 319 | 1672 | 166 | 869 | 88.2 +2.6 | +13.7 | + 4.9 |
| 163.380 G | 280 | 1518 | 150 | 814 | 88.9 +3.3 | +13.7 | +17.7 |
| 164.323 G | 217 | 1437 | 129 | 852 | 89.0 +3.3 | +13.8 | +30.2 |
| 165.327 G | 175 | 1037 | 124 | 741 | 88.9 +3.1 | +13.8 | +43.4 |
| 166.316 G | 131 | 669 | 124 | 633 | 89.2 +3.4 | +13.8 | +56.8 |
| 167.375 G | 65 | 395 | 104 | 636 | 89.4 +3.5 | +13.5 | +71.0 |
| 168.393 G | 19 | 95 | 85 | 417 | 86.6 .. | +14.1 | +81.7 |
| **Means** | .. | .. | 168 | 893 | 88.9 .. | +13.8 | .. |
| Spot *a* | | | | | | | |
| 155.533 G | 32 | 175 | 130 | 712 | 92.4 .. | +12.3 | -82.7 |
| 156.304 G | 133 | 584 | 253 | 1110 | 90.5 -5.3 | +13.2 | -74.4 |
| 157.561 G | 172 | 754 | 163 | 716 | 91.2 -4.7 | +13.8 | -57.1 |
| 158.319 G | 177 | 943 | 135 | 717 | 91.1 -4.8 | +13.7 | -47.1 |
| 159.335 G | 253 | 1155 | 157 | 716 | 91.2 -4.8 | +13.5 | -33.6 |
| 160.443 C | 225 | 1206 | 122 | 651 | 91.2 -4.9 | +13.4 | -18.9 |
| 161.292 G | 304 | 1375 | 158 | 715 | 91.2 -4.9 | +13.3 | - 7.7 |
| 162.469 G | 240 | 1289 | 125 | 670 | 91.0 -5.2 | +13.5 | + 7.7 |
| 163.380 G | 231 | 1234 | 125 | 666 | 90.8 -5.2 | +13.5 | +19.6 |
| 164.323 G | 171 | 1197 | 103 | 718 | 90.7 -5.6 | +13.6 | +31.9 |
| 165.327 G | 143 | 859 | 104 | 627 | 91.1 -5.3 | +13.7 | +45.6 |
| 166.316 G | 122 | 614 | 117 | 589 | 90.5 -6.0 | +13.6 | +58.1 |
| 167.375 G | 58 | 353 | 96 | 586 | 90.7 -5.8 | +13.7 | +72.3 |
| 168.393 G | 14 | 67 | 74 | 356 | 89.7 .. | +13.5 | +84.8 |
| Group 16808. July 3-14. A regular spot, with two companions between July 4 and 8. | | | | | | | |
| 183.303 G | 9 | 51 | 22 | 122 | 89.1 -8.4 | +12.1 | -78.4 |
| 184.448 G | 35 | 215 | 39 | 241 | 88.8 -8.8 | +13.0 | -63.6 |
| 185.308 G | 37 | 279 | 30 | 231 | 88.3 -9.4 | +12.5 | -52.7 |

LEDGER I. - RECURRENT GROUPS OF SUNSPOTS

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|
| **No. 1626.** Group 16808 - *continued* | | | | | | | |
| | | | | | ° ° | ° | ° |
| 186.307 G | 49 | 278 | 32 | 181 | 88.6 -9.1 | +12.8 | -39.2 |
| 187.312 G | 46 | 268 | 26 | 151 | 89.2 -8.6 | +12.4 | -25.3 |
| 188.368 G | 30 | 222 | 15 | 113 | 89.4 -8.5 | +12.3 | -11.1 |
| 189.357 G | 30 | 139 | 15 | 71 | 90.2 -7.7 | +12.6 | + 2.8 |
| 190.480 G | 21 | 120 | 11 | 64 | 90.5 -7.5 | +12.7 | +18.0 |
| 191.576 G | 14 | 74 | 8 | 44 | 90.6 -7.5 | +12.8 | +32.6 |
| 192.304 G | 14 | 65 | 10 | 44 | 90.5 -7.6 | +12.9 | +42.1 |
| 193.299 G | 9 | 39 | 8 | 34 | 90.5 -7.7 | +13.1 | +55.3 |
| 194.303 G | 7 | 23 | 9 | 31 | 90.6 -7.6 | +13.3 | +68.6 |
| **Means** | .. | .. | 19 | 111 | 89.7 .. | +12.7 | .. |

**No. 1627.** Latitude -15°2.

Group 16750 in Rotation 1305
" 16774 " " 1306

Group 16750. Apr.20-May 1. A stream in which the leader, *a*, is the largest and most stable component. The following part, a collection of small spots, condenses into a regular spot, *b*, by April 28.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 109.333 G | 14 | 63 | 14 | 61 | 6.7 0.0 | -15.7 | -59.3 |
| 110.327 G | 16 | 108 | 12 | 79 | 6.8 +0.1 | -15.4 | -46.1 |
| 111.390 C | 42 | 218 | 25 | 130 | 7.0 +0.3 | -15.3 | -31.9 |
| 112.327 G | 113 | 668 | 61 | 357 | 9.2 +2.5 | -15.5 | -17.3 |
| 113.371 G | 136 | 904 | 69 | 461 | 9.3 +2.6 | -15.3 | - 3.4 |
| 114.327 G | 160 | 1010 | 83 | 522 | 9.3 +2.5 | -15.5 | + 9.2 |
| 115.344 G | 213 | 1292 | 117 | 712 | 8.7 +1.9 | -15.4 | +22.1 |
| 116.438 G | 280 | 1659 | 179 | 1054 | 9.3 +2.5 | -15.1 | +37.1 |
| 117.371 G | 217 | 1078 | 333 | 1538 | 9.4 +2.6 | -15.0 | +49.6 |
| 118.443 C | 92 | 622 | 105 | 707 | 9.1 +2.3 | -15.2 | +63.4 |
| 119.364 G | 62 | 356 | 130 | 741 | 9.1 +2.3 | -15.0 | +75.6 |
| 120.335 G | 7 | 39 | (24 | 134 | 3.2 .. | -18.5) | +82.5 |
| **Means** | .. | .. | 103 | 578 | 8.5 .. | -15.3 | .. |
| Spot *a* | | | | | | | |
| 111.390 C | 22 | 92 | 13 | 53 | 9.9 0.0 | -14.5 | -29.0 |
| 112.327 G | 77 | 429 | 41 | 227 | 10.7 +0.8 | -14.7 | -15.8 |
| 113.371 G | 102 | 673 | 52 | 343 | 11.0 +1.1 | -14.7 | - 1.7 |
| 114.327 G | 106 | 626 | 55 | 326 | 11.4 +1.5 | -14.5 | +11.3 |
| 115.344 G | 154 | 732 | 86 | 410 | 11.7 +1.8 | -14.3 | +25.1 |
| 116.438 G | 212 | 1049 | 138 | 682 | 11.8 +1.8 | -14.2 | +39.6 |
| 117.371 G | 163 | 703 | 295 | 1272 | 11.7 +1.7 | -13.9 | +51.9 |
| 118.443 C | 68 | 438 | 82 | 530 | 11.5 +1.5 | -13.9 | +65.8 |
| 119.364 G | 48 | 263 | 110 | 605 | 11.5 +1.5 | -13.7 | +78.0 |

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|
| **No. 1627.** Group 16750 - *continued* | | | | | | | |
| Spot *b* | | | | | | | |
| | | | | | ° ° | ° | ° |
| 116.438 G | 68 | 610 | 41 | 372 | 5.3 0.0 | -16.3 | +33.1 |
| 117.371 G | 54 | 375 | 38 | 266 | 4.4 -0.9 | -17.2 | +44.6 |
| 118.443 C | 24 | 184 | 23 | 177 | 4.0 -1.3 | -18.0 | +58.3 |
| 119.364 G | 14 | 93 | 20 | 136 | 3.8 -1.5 | -18.1 | +70.3 |
| 120.335 G | 7 | 39 | 24 | 134 | 3.2 .. | -18.5 | +82.5 |
| Group 16774. May 15-27. A stable regular spot. | | | | | | | |
| 134.470 G | 14 | 82 | 46 | 269 | 12.1 .. | -14.7 | -81.7 |
| 135.401 G | 41 | 173 | 60 | 254 | 11.3 +1.1 | -14.9 | -70.2 |
| 136.595 G | 57 | 292 | 50 | 254 | 11.5 +1.3 | -14.7 | -54.2 |
| 137.353 G | 62 | 360 | 44 | 256 | 11.5 +1.3 | -14.7 | -44.2 |
| 138.356 G | 80 | 390 | 48 | 234 | 11.5 +1.3 | -14.9 | -30.9 |
| 139.363 G | 91 | 449 | 49 | 242 | 11.3 +1.1 | -14.9 | -17.8 |
| 140.307 G | 80 | 495 | 42 | 257 | 11.3 +1.1 | -15.0 | - 5.3 |
| 141.324 G | 82 | 469 | 43 | 244 | 11.2 +1.0 | -15.1 | + 8.1 |
| 142.540 C | 71 | 388 | 40 | 217 | 11.3 +1.1 | -15.2 | +24.3 |
| 143.382 G | 64 | 332 | 41 | 212 | 11.9 +1.6 | -15.5 | +36.0 |
| 144.329 G | 53 | 254 | 41 | 196 | 11.5 +1.2 | -15.5 | +48.1 |
| 145.331 C | 22 | 169 | 23 | 179 | 11.3 +1.0 | -15.5 | +61.2 |
| 146.430 G | 11 | 69 | 24 | 150 | 12.1 +1.8 | -15.7 | +76.5 |
| **Means** | .. | .. | 42 | 225 | 11.5 .. | -15.1 | .. |

**No. 1628.** Latitude -5°5.

Group 16757 in Rotation 1306
" 16780 " " 1307

Group 16757. Apr.27-May 3. A bi-polar group, appearing near the central meridian. The leader, *a*, a regular spot, is the more stable component.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 116.438 G | 9 | 54 | 5 | 28 | 322.4 0.0 | - 4.5 | - 9.8 |
| 117.371 G | 91 | 377 | 46 | 188 | 323.8 +1.2 | - 4.2 | + 4.0 |
| 118.443 C | 153 | 801 | 81 | 426 | 324.8 +2.1 | - 4.8 | +19.1 |
| 119.364 G | 120 | 624 | 71 | 368 | 324.9 +2.0 | - 4.5 | +31.4 |
| 120.335 G | 82 | 454 | 58 | 326 | 326.5 +3.5 | - 4.4 | +45.8 |
| 121.322 G | 43 | 256 | 43 | 254 | 326.8 +3.6 | - 4.4 | +59.2 |
| 122.327 C | 20 | 101 | 37 | 184 | 328.0 +4.6 | - 4.4 | +73.7 |
| **Means** | .. | .. | 49 | 253 | 325.3 .. | - 4.5 | .. |

LEDGER I. - RECURRENT GROUPS OF SUNSPOTS

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | Lati-tude | Long. from C.M. |
|---|---|---|---|---|---|---|---|
| **No. 1628.** Group 16757 - *continued* | | | | | | | |
| Spot *a* | | | | | ° | ° | ° |
| 117.371 G | 59 | 237 | 30 | 118 | 325.2 | 0.0 | - 3.8 | + 5.4 |
| 118.443 C | 79 | 442 | 43 | 239 | 327.3 | +2.0 | - 3.4 | +21.6 |
| 119.364 G | 59 | 313 | 36 | 191 | 328.5 | +3.0 | - 3.6 | +35.0 |
| 120.335 G | 48 | 288 | 36 | 216 | 329.2 | +3.5 | - 3.8 | +48.5 |
| 121.322 G | 34 | 188 | 35 | 196 | 328.9 | +3.0 | - 4.0 | +61.3 |
| 122.327 C | 18 | 88 | 34 | 167 | 329.3 | +3.3 | - 4.2 | +75.0 |
| Spot *b* | | | | | | | |
| 116.438 G | 9 | 54 | 5 | 28 | 322.4 | 0.0 | - 4.5 | - 9.8 |
| 117.371 G | 32 | 140 | 16 | 70 | 321.1 | -1.5 | - 4.9 | + 1.3 |
| 118.443 C | 74 | 359 | 38 | 187 | 321.2 | -1.5 | - 5.4 | +15.5 |
| 119.364 G | 61 | 311 | 35 | 177 | 321.4 | -1.5 | - 5.2 | +27.9 |
| 120.335 G | 34 | 166 | 22 | 110 | 321.8 | -1.2 | - 5.3 | +41.1 |
| 121.322 G | 9 | 68 | 8 | 58 | 322.0 | -1.2 | - 4.7 | +54.4 |
| 122.327 G | 2 | 13 | 3 | 17 | 322.0 | -1.4 | - 4.7 | +67.7 |
| Group 16780. May 19-30. A stable regular spot which declines after May 26. | | | | | | | |
| 138.356 G | 11 | 73 | 17 | 115 | 330.7 | +2.0 | - 6.1 | -71.7 |
| 139.363 G | 9 | 100 | 9 | 95 | 330.7 | +1.8 | - 6.2 | -58.4 |
| 140.307 G | 25 | 133 | 18 | 96 | 330.5 | +1.5 | - 6.2 | -46.1 |
| 141.324 G | 27 | 160 | 16 | 94 | 330.6 | +1.4 | - 6.2 | -32.5 |
| 142.540 C | 36 | 191 | 19 | 99 | 330.6 | +1.2 | - 6.3 | -16.4 |
| 143.382 G | 37 | 202 | 18 | 101 | 330.8 | +1.3 | - 6.6 | - 5.1 |
| 144.329 G | 46 | 179 | 23 | 91 | 331.0 | +1.3 | - 6.8 | + 7.6 |
| 145.331 C | 51 | 164 | 28 | 89 | 331.0 | +1.2 | - 6.8 | +20.9 |
| 146.430 G | 18 | 96 | 11 | 60 | 331.6 | +1.6 | - 6.8 | +36.0 |
| 147.429 G | 9 | 41 | 7 | 32 | 331.5 | +1.3 | - 6.8 | +49.1 |
| 148.634 G | 5 | 18 | 6 | 21 | 331.5 | +1.1 | - 6.8 | +65.1 |
| 149.315 G | 2 | 5 | 4 | 9 | 331.5 | +1.0 | - 6.8 | +74.1 |
| **Means** | .. | .. | 15 | 75 | 331.0 | .. | - 6.5 | .. |
| **No. 1629.** Latitude -19°.9. | | | | | | | |
| Group 16758 in Rotation 1306 | | | | | | | |
| " 16782 " " 1307 | | | | | | | |
| " 16802 " " 1308 | | | | | | | |
| Group 16758. May 1-7. At first a pair of small spots. On May 4 a short stream appears. | | | | | | | |
| 120.335 G | 9 | 41 | 5 | 21 | 279.6 | 0.0 | -17.6 | - 1.1 |
| 121.322 G | 14 | 57 | 8 | 30 | 281.6 | +2.1 | -17.5 | +14.0 |

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | Lati-tude | Long. from C.M. |
|---|---|---|---|---|---|---|---|
| **No. 1629.** Group 16758 - *continued* | | | | | | | |
| | | | | | ° | ° | ° | ° |
| 122.327 C | 20 | 123 | 12 | 72 | 282.3 | +2.9 | -17.9 | +28.0 |
| 123.633 G | 50 | 236 | 36 | 168 | 281.0 | +1.8 | -18.0 | +43.9 |
| 124.359 G | 52 | 283 | 45 | 245 | 281.3 | +2.1 | -18.2 | +53.8 |
| 125.338 C | 33 | 203 | 40 | 250 | 280.0 | +1.0 | -18.7 | +65.5 |
| 126.498 C | 13 | 99 | (31 | 238 | 277.8 | .. | -19.1) | +78.6 |
| **Means** | .. | .. | 24 | 131 | 281.0 | .. | -18.0 | .. |
| Group 16782. May 21-June 3. A stable regular spot. | | | | | | | |
| 140.307 G | 7 | 48 | 52 | 353 | 289.8 | .. | -20.5 | -86.8 |
| 141.324 G | 57 | 311 | 101 | 550 | 289.8 | +12.4 | -20.5 | -73.3 |
| 142.540 C | 127 | 648 | 123 | 629 | 289.6 | +12.3 | -20.4 | -57.4 |
| 143.382 G | 156 | 779 | 119 | 592 | 289.7 | +12.7 | -20.4 | -46.2 |
| 144.329 G | 174 | 895 | 111 | 573 | 289.5 | +12.6 | -20.4 | -33.9 |
| 145.331 C | 204 | 995 | 114 | 557 | 289.4 | +12.6 | -20.2 | -20.7 |
| 146.430 G | 192 | 1118 | 102 | 593 | 289.2 | +12.5 | -20.2 | - 6.4 |
| 147.429 G | 192 | 1021 | 102 | 541 | 289.1 | +12.5 | -20.2 | + 6.7 |
| 148.634 G | 169 | 934 | 96 | 532 | 289.1 | +12.6 | -20.5 | +22.7 |
| 149.315 G | 147 | 808 | 91 | 501 | 289.1 | +12.7 | -20.6 | +31.7 |
| 150.307 G | 142 | 719 | 106 | 539 | 288.9 | +12.6 | -20.7 | +44.6 |
| 151.309 G | 83 | 442 | 83 | 442 | 289.1 | +12.9 | -20.4 | +58.1 |
| 152.305 G | 60 | 290 | 97 | 467 | 288.7 | +12.6 | -20.4 | +70.9 |
| 153.360 G | 12 | 53 | 64 | 282 | 288.4 | .. | -20.4 | +84.5 |
| **Means** | .. | .. | 104 | 543 | 289.3 | .. | -20.4 | .. |
| Group 16802. June 18-30. A regular spot which, on June 23, begins to divide into two parts and slowly die out. | | | | | | | |
| 168.393 G | 14 | 69 | 42 | 209 | 285.7 | +11.4 | -20.9 | -79.2 |
| 169.365 G | 32 | 180 | 46 | 257 | 284.7 | +10.5 | -20.8 | -67.3 |
| 170.328 G | 49 | 270 | 46 | 254 | 284.9 | +10.8 | -20.9 | -54.4 |
| 171.321 G | 62 | 333 | 45 | 243 | 284.7 | +10.8 | -20.8 | -41.4 |
| 172.342 G | 58 | 374 | 36 | 232 | 284.2 | +10.4 | -21.0 | -28.4 |
| 173.333 C | 49 | 397 | 28 | 226 | 284.0 | +10.3 | -21.3 | -15.5 |
| 174.396 C | 67 | 308 | 37 | 169 | 283.5 | + 9.9 | -21.6 | - 1.9 |
| 175.326 G | 60 | 314 | 34 | 175 | 281.8 | + 8.3 | -21.3 | + 8.7 |
| 176.322 G | 37 | 242 | 22 | 144 | 282.4 | + 9.0 | -21.8 | +22.5 |
| 177.543 G | 14 | 88 | 10 | 62 | 282.4 | + 9.1 | -22.1 | +38.6 |
| 178.362 C | 13 | 45 | 11 | 38 | 281.7 | + 8.5 | -22.0 | +48.8 |
| 179.358 G | 5 | 14 | 8 | 22 | 281.9 | + 8.9 | -21.7 | +62.1 |
| 180.320 G | 0 | 2 | 0 | 4 | 282.0 | + 9.1 | -21.5 | +75.0 |
| **Means** | .. | .. | 28 | 157 | 283.4 | .. | -21.4 | .. |

LEDGER I. - RECURRENT GROUPS OF SUNSPOTS

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|
| **No. 1630.** Latitude +16°.9. | | | | | | | |
| Group 16781 in Rotation 1307 | | | | | | | |
| " 16797 " " 1308 | | | | | | | |
| Group 16781. May 20-29. A small spot growing into a moderate-sized composite structure by May 23. On the next day it begins to divide, forming a stream, the leader, *a*, of which nearly merges with *b* of Group 16775. | | | | | | | |
| | | | | | ° ° | ° | ° |
| 139.363 G | 5 | 16 | 3 | 10 | 354.8 0.0 | +16.0 | -34.3 |
| 140.307 G | 46 | 137 | 26 | 78 | 354.6 -0.2 | +16.4 | -22.0 |
| 141.324 G | 142 | 939 | 75 | 498 | 354.7 0.0 | +16.7 | - 8.4 |
| 142.540 C | 216 | 1403 | 115 | 747 | 354.8 +0.1 | +16.9 | + 7.8 |
| 143.382 G | 280 | 1766 | 157 | 983 | 355.3 +0.6 | +16.9 | +19.4 |
| 144.329 G | 252 | 1558 | 157 | 966 | 354.8 +0.1 | +17.1 | +31.4 |
| 145.331 C | 171 | 1449 | 130 | 1087 | 354.4 -0.2 | +17.5 | +44.3 |
| 146.430 G | 105 | 838 | 116 | 878 | 354.2 -0.4 | +17.5 | +58.6 |
| 147.429 G | 61 | 442 | 114 | 824 | 355.8 +1.2 | +17.6 | +73.4 |
| 148.634 G | 0 | 14 | (0 | 74 | 350.4 .. | +17.1) | +84.0 |
| **Means** | .. | .. | 99 | 675 | 354.8 .. | +17.0 | .. |
| Spot *a* | | | | | | | |
| 142.540 C | 56 | 324 | 30 | 175 | 357.8 0.0 | +16.2 | +10.8 |
| 143.382 G | 124 | 559 | 71 | 319 | 358.1 +0.3 | +16.3 | +22.2 |
| 144.329 G | 110 | 518 | 70 | 332 | 358.5 +0.8 | +16.6 | +35.1 |
| 145.331 C | 87 | 537 | 70 | 430 | 358.4 +0.7 | +17.2 | +48.3 |
| 146.430 G | 64 | 268 | 75 | 314 | 358.6 +0.9 | +17.6 | +63.0 |
| 147.429 G | 27 | 190 | 61 | 428 | 358.6 +0.9 | +17.9 | +76.2 |
| Spot *b* | | | | | | | |
| 142.540 C | 160 | 1079 | 85 | 572 | 353.4 0.0 | +17.0 | + 6.4 |
| 143.382 G | 156 | 1207 | 86 | 664 | 353.4 0.0 | +17.2 | +17.5 |
| 144.329 G | 142 | 1040 | 87 | 634 | 353.2 -0.1 | +17.4 | +29.8 |
| 145.331 C | 84 | 912 | 60 | 657 | 352.5 -0.8 | +17.6 | +42.4 |
| 146.430 G | 41 | 570 | 41 | 564 | 353.0 -0.3 | +17.6 | +57.4 |
| 147.429 G | 34 | 252 | 53 | 396 | 352.4 -0.9 | +17.4 | +70.0 |
| 148.634 G | 0 | 14 | (0 | 74 | 350.4 .. | +17.1) | +84.0 |
| Group 16797. June 13-23. Small variable spots. | | | | | | | |
| 163.380 G | 9 | 58 | 16 | 112 | 356.6 -0.6 | +16.9 | -74.6 |
| 164.323 G | 12 | 70 | 13 | 76 | 357.2 +0.1 | +16.5 | -61.6 |
| 165.327 G | 26 | 113 | 20 | 90 | 356.1 -1.0 | +16.3 | -49.4 |
| 166.316 G | 19 | 93 | 12 | 59 | 356.5 -0.6 | +16.3 | -35.9 |
| 167.375 G | 21 | 90 | 12 | 50 | 355.8 -1.3 | +16.4 | -22.6 |
| 168.393 G | 56 | 291 | 29 | 154 | 354.9 -2.1 | +16.4 | -10.0 |
| 169.365 G | 56 | 316 | 30 | 164 | 354.0 -3.0 | +16.4 | + 2.0 |
| 170.328 G | 42 | 251 | 23 | 135 | 355.0 -2.0 | +16.7 | +15.7 |
| **No. 1630.** Group 16797 - *continued* | | | | | | | |
| | | | | | ° ° | ° | ° |
| 171.321 G | 23 | 139 | 13 | 81 | 354.3 -2.6 | +17.8 | +28.2 |
| 172.342 G | 16 | 60 | 11 | 42 | 354.7 -2.2 | +17.8 | +42.1 |
| 173.333 C | 2 | 9 | 2 | 8 | 355.4 -1.5 | +18.6 | +55.9 |
| **Means** | .. | .. | 16 | 88 | 355.5 .. | +16.9 | .. |
| **No. 1631.** Latitude +11°.8. | | | | | | | |
| Group 16783 in Rotation 1307 | | | | | | | |
| " 16803 " " 1308 | | | | | | | |
| " 16823 " " 1309 | | | | | | | |
| Group 16783. May 25-June 8. A stable regular spot. | | | | | | | |
| 144.329 G | 16 | 131 | 40 | 330 | 245.4 0.0 | +12.7 | -78.0 |
| 145.331 C | 40 | 282 | 49 | 344 | 245.5 0.0 | +12.9 | -64.6 |
| 146.430 G | 76 | 449 | 62 | 368 | 244.9 -0.7 | +13.1 | -50.7 |
| 147.429 G | 105 | 609 | 68 | 396 | 245.3 -0.4 | +13.1 | -37.1 |
| 148.634 G | 117 | 696 | 64 | 383 | 245.2 -0.5 | +13.1 | -21.2 |
| 149.315 G | 142 | 751 | 75 | 398 | 245.4 -0.4 | +13.1 | -12.0 |
| 150.307 G | 151 | 719 | 79 | 374 | 245.2 -0.7 | +13.2 | + 0.9 |
| 151.309 G | 147 | 695 | 78 | 368 | 245.2 -0.8 | +13.1 | +14.2 |
| 152.305 G | 115 | 573 | 67 | 332 | 245.3 -0.8 | +13.3 | +27.5 |
| 153.360 G | 120 | 552 | 83 | 381 | 245.4 -0.8 | +13.0 | +41.5 |
| 154.437 G | 69 | 363 | 63 | 334 | 245.4 -0.9 | +13.1 | +55.8 |
| 155.533 G | 30 | 225 | 46 | 346 | 245.6 -0.8 | +12.9 | +70.5 |
| 156.304 G | 16 | 115 | 48 | 348 | 245.1 .. | +12.8 | +80.2 |
| **Means** | .. | .. | 64 | 363 | 245.3 .. | +13.0 | .. |
| Group 16803. June 21-July 3. A stable regular spot with a distant companion on June 27 and 29. | | | | | | | |
| 171.321 G | 9 | 60 | 23 | 155 | 247.1 -0.6 | +11.8 | -79.0 |
| 172.342 G | 25 | 132 | 30 | 160 | 247.1 -0.7 | +11.9 | -65.5 |
| 173.333 C | 31 | 167 | 25 | 137 | 247.5 -0.4 | +11.6 | -52.0 |
| 174.396 C | 40 | 232 | 26 | 148 | 247.3 -0.7 | +11.6 | -38.1 |
| 175.326 G | 53 | 263 | 30 | 147 | 246.9 -1.1 | +11.5 | -26.2 |
| 176.322 G | 49 | 277 | 25 | 144 | 246.7 -1.4 | +11.5 | -13.2 |
| 177.543 G | 48 | 273 | 24 | 139 | 246.6 -1.6 | +11.1 | + 2.8 |
| 178.362 C | 49 | 236 | 25 | 123 | 246.5 -1.8 | +11.0 | +13.6 |
| 179.358 G | 51 | 254 | 29 | 141 | 245.9 -2.5 | +11.0 | +26.1 |
| 180.320 G | 32 | 194 | 21 | 126 | 246.2 -2.3 | +10.6 | +39.2 |
| 181.361 G | 28 | 157 | 23 | 130 | 245.8 -2.7 | +10.6 | +52.6 |
| 182.307 G | 14 | 83 | 17 | 99 | 245.9 -2.7 | +10.5 | +65.2 |
| 183.303 G | 9 | 46 | 22 | 113 | 246.1 -2.6 | +10.4 | +78.6 |
| **Means** | .. | .. | 25 | 136 | 246.6 .. | +11.2 | .. |

LEDGER I. - RECURRENT GROUPS OF SUNSPOTS

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|
| **No. 1631** - *continued* | | | | | | | |
| Group 16823. July 19-25. A tiny spot, not seen on July 23 and 24. | | | | | | | |
| | | | | | ° | ° | ° |
| 199.566 G | 2 | 9 | 2 | 11 | 246.7 | -3.4 | +10.4 | -65.6 |
| 200.303 G | 5 | 9 | 4 | 8 | 247.0 | -3.2 | +10.8 | -55.6 |
| 201.301 G | 2 | 5 | 1 | 3 | 247.1 | -3.1 | +10.8 | -42.3 |
| 202.378 G | 0 | 0 | 0 | 0 | .. | .. | .. | .. |
| 203.381 G | 0 | 0 | 0 | 0 | .. | .. | .. | .. |
| 204.303 G | 14 | 32 | 7 | 16 | 249.8 | -0.7 | +10.8 | + 0.2 |
| 205.302 G | 2 | 14 | 1 | 7 | 250.4 | -0.2 | +10.7 | +14.0 |
| **Means** | .. | .. | 2 | 6 | 248.2 | .. | +10.7 | .. |
| **No. 1632.** Latitude +6°.4. | | | | | | | |
| Group 16793 in Rotation 1307<br>" 16809 " " 1308 | | | | | | | |
| Group 16793. June 7-19. A pair of regular spots, of which the leader, *a*, divides into two between June 13 and 15 and then re-combines. On June 14 small spots appear between the principal components to form a stream; these and the follower, *b*, however, soon die out and *a* alone remains at the west limb. | | | | | | | |
| 157.561 G | 5 | 46 | (14 | 130 | 68.6 | .. | + 8.0) | -79.7 |
| 158.319 G | 64 | 350 | 104 | 574 | 66.3 | 0.0 | + 9.1 | -71.9 |
| 159.335 G | 115 | 810 | 110 | 793 | 66.0 | -0.5 | + 8.7 | -58.8 |
| 160.443 C | 134 | 975 | 92 | 688 | 66.5 | -0.1 | + 8.9 | -43.6 |
| 161.292 G | 177 | 1003 | 106 | 602 | 66.5 | -0.3 | + 9.2 | -32.4 |
| 162.469 G | 162 | 1034 | 85 | 543 | 67.1 | +0.1 | + 8.9 | -16.2 |
| 163.380 G | 175 | 1039 | 89 | 526 | 67.7 | +0.6 | + 8.7 | - 3.5 |
| 164.323 G | 208 | 1083 | 106 | 552 | 67.8 | +0.6 | + 8.6 | + 9.0 |
| 165.327 G | 143 | 831 | 79 | 460 | 69.2 | +1.8 | + 8.2 | +23.7 |
| 166.316 G | 81 | 459 | 52 | 296 | 71.0 | +3.4 | + 7.6 | +38.6 |
| 167.375 G | 46 | 254 | 39 | 213 | 71.8 | +4.1 | + 6.9 | +53.4 |
| 168.393 G | 23 | 157 | 30 | 204 | 72.3 | +4.4 | + 6.7 | +67.4 |
| 169.365 G | 16 | 74 | 43 | 197 | 71.2 | +3.2 | + 6.5 | +79.2 |
| **Means** | .. | .. | 78 | 471 | 68.6 | .. | + 8.2 | .. |
| Spot *a* | | | | | | | |
| 157.561 G | 5 | 46 | 14 | 130 | 68.6 | 0.0 | + 8.0 | -79.7 |
| 158.319 G | 46 | 242 | 66 | 348 | 68.8 | +0.1 | + 7.7 | -69.4 |
| 159.335 G | 78 | 430 | 69 | 378 | 69.5 | +0.6 | + 7.5 | -55.3 |
| 160.443 C | 94 | 533 | 62 | 352 | 70.3 | +1.2 | + 7.6 | -39.8 |
| 161.292 G | 92 | 575 | 52 | 328 | 70.6 | +1.4 | + 7.5 | -28.3 |
| 162.469 G | 102 | 651 | 52 | 332 | 71.1 | +1.7 | + 7.2 | -12.2 |
| 163.380 G | 106 | 693 | 53 | 346 | 71.1 | +1.6 | + 7.0 | - 0.1 |

*continued*

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|
| **No. 1632.** Group 16793. Spot *a* - *continued* | | | | | | | |
| | | | | | ° | ° | ° |
| 164.323 G | 150 | 762 | 76 | 389 | 70.8 | +1.1 | + 7.5 | +12.0 |
| 165.327 G | 88 | 476 | 49 | 267 | 71.6 | +1.8 | + 7.0 | +26.1 |
| 166.316 G | 62 | 335 | 40 | 218 | 71.9 | +1.9 | + 7.0 | +39.5 |
| 167.375 G | 46 | 254 | 39 | 213 | 71.8 | +1.6 | + 6.9 | +53.4 |
| 168.393 G | 23 | 157 | 30 | 204 | 72.3 | +2.0 | + 6.7 | +67.4 |
| 169.365 G | 16 | 74 | 43 | 197 | 71.2 | +0.7 | + 6.5 | +79.2 |
| Spot *b* | | | | | | | |
| 158.319 G | 18 | 108 | 38 | 226 | 62.2 | 0.0 | +10.1 | -76.0 |
| 159.335 G | 32 | 327 | 36 | 363 | 62.0 | -0.4 | +10.2 | -62.8 |
| 160.443 C | 40 | 442 | 30 | 336 | 61.8 | -0.7 | +10.7 | -48.3 |
| 161.292 G | 85 | 428 | 54 | 274 | 61.5 | -1.2 | +11.2 | -37.4 |
| 162.469 G | 60 | 383 | 33 | 211 | 61.5 | -1.4 | +11.6 | -21.8 |
| 163.380 G | 69 | 346 | 36 | 180 | 61.8 | -1.2 | +11.7 | - 9.4 |
| 164.323 G | 37 | 187 | 19 | 95 | 61.2 | -1.9 | +11.5 | + 2.4 |
| 165.327 G | 14 | 69 | 7 | 37 | 61.1 | -2.2 | +11.4 | +15.6 |
| Group 16809. July 4-14. A slowly-diminishing regular spot, with occasional companions. | | | | | | | |
| 184.448 G | 14 | 69 | 30 | 150 | 75.6 | +2.8 | + 4.5 | -76.8 |
| 185.308 G | 23 | 116 | 27 | 137 | 75.8 | +2.8 | + 4.4 | -65.2 |
| 186.307 G | 25 | 125 | 21 | 102 | 75.5 | +2.4 | + 4.4 | -52.3 |
| 187.312 G | 28 | 136 | 18 | 87 | 76.1 | +2.8 | + 4.2 | -38.4 |
| 188.368 G | 18 | 125 | 10 | 69 | 76.0 | +2.5 | + 4.0 | -24.5 |
| 189.357 G | 14 | 116 | 7 | 59 | 75.6 | +2.0 | + 4.3 | -11.8 |
| 190.480 G | 14 | 58 | 7 | 30 | 75.5 | +1.7 | + 4.1 | + 3.0 |
| 191.576 G | 5 | 25 | 3 | 13 | 75.1 | +1.1 | + 4.5 | +17.1 |
| 192.304 G | 5 | 23 | 3 | 13 | 74.9 | +0.8 | + 4.7 | +26.5 |
| 193.299 G | 2 | 16 | 1 | 10 | 74.1 | -0.1 | + 5.5 | +38.9 |
| 194.303 G | 0 | 5 | 0 | 4 | 75.0 | +0.6 | + 5.7 | +53.0 |
| **Means** | .. | .. | 12 | 61 | 75.4 | .. | + 4.6 | .. |
| **No. 1633.** Latitude -11°.0. | | | | | | | |
| Group 16795 in Rotation 1307<br>" 16818 " " 1308 | | | | | | | |
| Group 16795. June 12-24. A great composite spot. On June 16 it begins to become elongated, the principal nucleus being at the rear. By the time the group reaches the limb this nucleus has detached itself and become a regular spot. | | | | | | | |
| 162.469 G | 62 | 758 | 156 | 1910 | 5.1 | 0.0 | -12.1 | -78.2 |
| 163.380 G | 245 | 1529 | 323 | 2018 | 4.2 | -1.0 | -12.5 | -67.0 |
| 164.323 G | 490 | 2446 | 426 | 2128 | 5.0 | -0.3 | -12.5 | -53.8 |

LEDGER I. - RECURRENT GROUPS OF SUNSPOTS

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|
| **No. 1633.** Group 16795 - *continued* | | | | | | | |
| | | | | | ° ° | ° | ° |
| 165.327 G | 582 | 3188 | 396 | 2168 | 4.8 -0.6 | -12.4 | -40.7 |
| 166.316 G | 564 | 3647 | 327 | 2115 | 5.3 -0.2 | -12.5 | -27.1 |
| 167.375 G | 564 | 4449 | 299 | 2358 | 4.7 -0.9 | -12.4 | -13.7 |
| 168.393 G | 700 | 4597 | 357 | 2344 | 5.1 -0.6 | -12.1 | + 0.2 |
| 169.365 G | 626 | 4149 | 332 | 2199 | 4.8 -1.0 | -11.8 | +12.8 |
| 170.328 G | 517 | 3523 | 300 | 2043 | 5.7 -0.1 | -12.3 | +26.4 |
| 171.321 G | 402 | 2911 | 269 | 1950 | 5.6 -0.3 | -12.1 | +39.5 |
| 172.342 G | 286 | 2301 | 246 | 1995 | 5.9 -0.1 | -11.8 | +53.3 |
| 173.333 C | 150 | 1535 | 193 | 1975 | 5.6 -0.5 | -11.8 | +66.1 |
| 174.396 C | 38 | 396 | (98 | 1091 | 4.6 .. | -12.4) | +79.2 |
| **Means** | .. | .. | 302 | 2100 | 5.2 .. | -12.2 | .. |
| Group 16818. July 8-20. A stream, in which the only stable component is in the leading part. This eventually becomes a regular spot, *a*, and alone remains at the limb. | | | | | | | |
| 188.368 G | 9 | 49 | (43 | 235 | 17.2 .. | - 9.0) | -83.3 |
| 189.357 G | 39 | 337 | 92 | 792 | 10.6 +2.9 | - 9.5 | -76.8 |
| 190.480 G | 86 | 730 | 97 | 823 | 10.3 +2.5 | - 9.7 | -62.2 |
| 191.576 G | 136 | 1022 | 105 | 783 | 11.0 +3.1 | - 9.7 | -47.0 |
| 192.304 G | 203 | 1329 | 133 | 866 | 11.4 +3.5 | -10.0 | -37.0 |
| 193.299 G | 174 | 1199 | 99 | 681 | 11.5 +3.5 | -10.4 | -23.7 |
| 194.303 G | 180 | 1312 | 95 | 687 | 12.1 +4.0 | -10.0 | - 9.9 |
| 195.400 G | 164 | 1083 | 85 | 563 | 12.2 +4.0 | - 9.9 | + 4.8 |
| 196.302 G | 99 | 681 | 53 | 366 | 12.5 +4.2 | - 9.7 | +17.0 |
| 197.304 G | 85 | 552 | 51 | 332 | 11.8 +3.4 | - 9.8 | +29.6 |
| 198.321 G | 51 | 351 | 38 | 256 | 13.4 +4.9 | - 9.7 | +44.6 |
| 199.566 G | 28 | 139 | 31 | 152 | 13.5 +4.9 | - 9.9 | +61.2 |
| 200.303 G | 23 | 97 | 39 | 163 | 14.1 +5.4 | - 9.8 | +71.5 |
| **Means** | .. | .. | 76 | 539 | 12.0 .. | - 9.8 | .. |
| Spot *a* | | | | | | | |
| 190.480 G | 49 | 430 | 52 | 460 | 11.7 0.0 | -10.2 | -60.8 |
| 191.576 G | 69 | 578 | 51 | 428 | 12.5 +0.7 | -10.3 | -45.5 |
| 192.304 G | 92 | 640 | 59 | 410 | 12.8 +0.9 | -10.1 | -35.6 |
| 193.299 G | 83 | 621 | 46 | 348 | 13.3 +1.3 | -10.4 | -21.9 |
| 194.303 G | 92 | 744 | 48 | 387 | 13.7 +1.6 | -10.4 | - 8.3 |
| 195.400 G | 113 | 732 | 59 | 381 | 14.4 +2.2 | -10.3 | + 7.0 |
| 196.302 G | 76 | 524 | 41 | 283 | 13.7 +1.4 | -10.0 | +18.2 |
| 197.304 G | 62 | 425 | 38 | 259 | 13.6 +1.3 | -10.0 | +31.4 |
| 198.321 G | 44 | 291 | 33 | 215 | 14.0 +1.6 | - 9.9 | +45.2 |
| 199.566 G | 23 | 111 | 26 | 123 | 14.0 +1.4 | - 9.8 | +61.7 |
| 200.303 G | 23 | 97 | 39 | 163 | 14.1 +1.5 | - 9.8 | +71.5 |

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|
| **No. 1634.** Latitude -7°.0. | | | | | | | |
| Group 16817 in Rotation 1308 | | | | | | | |
| " 16839 " " 1309 | | | | | | | |
| " 16855 " " 1310 | | | | | | | |
| Group 16817. July 8-20. A stable regular spot, followed by a few variable companions. | | | | | | | |
| | | | | | ° ° | ° | ° |
| 188.368 G | 58 | 286 | 126 | 621 | 24.5 0.0 | - 7.7 | -76.0 |
| 189.357 G | 122 | 693 | 144 | 811 | 24.3 -0.3 | - 8.0 | -63.1 |
| 190.480 G | 155 | 993 | 120 | 772 | 24.3 -0.5 | - 8.1 | -48.2 |
| 191.576 G | 185 | 1132 | 114 | 696 | 24.8 -0.2 | - 7.9 | -33.2 |
| 192.304 G | 247 | 1333 | 136 | 741 | 24.5 -0.6 | - 8.0 | -23.9 |
| 193.299 G | 250 | 1314 | 130 | 685 | 25.2 0.0 | - 8.2 | -10.0 |
| 194.303 G | 213 | 1220 | 109 | 623 | 25.5 +0.1 | - 8.0 | + 3.5 |
| 195.400 G | 229 | 1262 | 124 | 681 | 25.6 0.0 | - 8.0 | +18.2 |
| 196.302 G | 190 | 1203 | 112 | 708 | 25.6 -0.1 | - 8.2 | +30.1 |
| 197.304 G | 180 | 876 | 128 | 621 | 26.0 +0.2 | - 8.2 | +43.8 |
| 198.321 G | 104 | 582 | 101 | 564 | 26.3 +0.3 | - 8.1 | +57.5 |
| 199.566 G | 51 | 238 | 103 | 481 | 27.1 +0.9 | - 7.9 | +74.8 |
| 200.303 G | 9 | 69 | 48 | 367 | 26.6 .. | - 7.5 | +84.0 |
| **Means** | .. | .. | 121 | 667 | 25.3 .. | - 8.0 | .. |
| Group 16839. Aug. 4-15. A stable regular spot. | | | | | | | |
| 215.426 C | 22 | 151 | 40 | 272 | 29.6 +1.0 | - 7.2 | -72.9 |
| 216.452 G | 48 | 294 | 48 | 297 | 29.8 +1.1 | - 6.9 | -59.2 |
| 217.322 C | 75 | 466 | 57 | 354 | 30.5 +1.6 | - 7.1 | -46.9 |
| 218.354 G | 108 | 504 | 66 | 307 | 31.1 +2.1 | - 6.7 | -32.7 |
| 219.345 G | 96 | 618 | 53 | 340 | 31.0 +1.8 | - 6.7 | -19.7 |
| 220.312 G | 126 | 609 | 66 | 317 | 30.8 +1.5 | - 6.7 | - 7.1 |
| 221.645 G | 101 | 513 | 53 | 267 | 30.9 +1.4 | - 6.8 | +10.6 |
| 222.435 C | 75 | 511 | 41 | 281 | 30.7 +1.1 | - 7.1 | +20.9 |
| 223.361 G | 87 | 362 | 54 | 224 | 30.8 +1.0 | - 6.7 | +33.2 |
| 224.361 G | 50 | 282 | 38 | 212 | 30.8 +0.9 | - 6.7 | +46.4 |
| 225.299 G | 41 | 234 | 41 | 236 | 30.9 +0.8 | - 6.8 | +58.9 |
| 226.540 G | 23 | 110 | 47 | 226 | 30.5 +0.2 | - 6.5 | +74.9 |
| **Means** | .. | .. | 50 | 278 | 30.6 .. | - 6.8 | .. |
| Group 16855. Aug.30-Sept.11. A small regular spot, with a couple of companions after September 8. | | | | | | | |
| 241.646 G | 0 | 14 | 0 | 74 | 32.3 .. | - 6.0 | -83.7 |
| 242.457 G | 9 | 55 | 16 | 99 | 32.2 -0.5 | - 5.6 | -73.0 |
| 243.303 G | 16 | 82 | 18 | 90 | 32.2 -0.6 | - 5.6 | -61.9 |
| 244.295 G | 23 | 103 | 18 | 80 | 32.2 -0.7 | - 5.3 | -48.8 |
| 245.308 G | 27 | 132 | 17 | 83 | 32.0 -1.1 | - 5.6 | -35.6 |
| 246.313 C | 33 | 134 | 18 | 75 | 31.6 -1.6 | - 5.5 | -22.7 |
| 247.577 G | 18 | 123 | 9 | 64 | 31.4 -2.0 | - 5.2 | - 6.2 |
| 248.302 G | 23 | 123 | 12 | 63 | 31.6 -2.0 | - 5.2 | + 3.5 |

LEDGER I. - RECURRENT GROUPS OF SUNSPOTS

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|---|
| **No. 1634.** Group 16855 - *continued* | | | | | | | | |
| | | | | | ° | ° | ° | ° |
| 249.385 G | 18 | 86 | 10 | 46 | 31.6 | -2.1 | - 5.0 | +17.9 |
| 250.332 C | 13 | 57 | 8 | 34 | 31.5 | -2.4 | - 5.3 | +30.3 |
| 251.402 C | 42 | 151 | 32 | 115 | 34.0 | 0.0 | - 7.8 | +46.9 |
| 252.328 C | 31 | 193 | 33 | 204 | 35.2 | +1.0 | - 8.4 | +60.3 |
| 253.347 G | 25 | 93 | 48 | 182 | 35.0 | +0.7 | - 8.2 | +73.6 |
| Means | .. | .. | 20 | 95 | 32.5 | .. | - 6.1 | .. |

**No. 1635.** Latitude -16°.1.

Group 16830 in Rotation 1309
" 16847 " " 1310

Group 16830. July 27-31. A short stream, developing near the west limb.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 207.392 G | 7 | 30 | 4 | 19 | 240.6 | 0.0 | -14.9 | +31.8 |
| 208.304 G | 43 | 203 | 34 | 159 | 242.4 | +1.8 | -15.2 | +45.7 |
| 209.367 C | 49 | 250 | 56 | 276 | 242.7 | +2.1 | -15.5 | +60.1 |
| 210.306 G | 44 | 216 | 79 | 409 | 241.6 | +1.0 | -15.8 | +71.4 |
| 211.303 G | 7 | 32 | (27 | 122 | 237.6 | .. | -15.6) | +80.6 |
| Means | .. | .. | 43 | 216 | 241.8 | .. | -15.4 | .. |

Group 16847. Aug. 16-25. A group of small variable scattered spots.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 227.300 G | 23 | 128 | 30 | 169 | 241.3 | +0.9 | -17.1 | -64.2 |
| 228.335 C | 22 | 170 | 19 | 148 | 242.0 | +1.6 | -17.6 | -49.9 |
| 229.303 G | 50 | 199 | 35 | 140 | 241.3 | +0.9 | -17.9 | -37.8 |
| 230.372 G | 32 | 210 | 19 | 128 | 241.6 | +1.2 | -17.6 | -23.3 |
| 231.369 G | 19 | 109 | 11 | 62 | 241.2 | +0.8 | -18.3 | -10.5 |
| 232.300 G | 14 | 66 | 8 | 36 | 240.9 | +0.5 | -16.9 | + 1.5 |
| 233.320 G | 5 | 57 | 3 | 33 | 241.2 | +0.8 | -18.2 | +15.2 |
| 234.306 G | 5 | 36 | 3 | 23 | 246.6 | +6.2 | -15.0 | +33.7 |
| 235.514 G | 0 | 9 | 0 | 8 | 248.0 | +7.7 | -14.8 | +51.0 |
| 236.322 C | 0 | 9 | 0 | 10 | 245.5 | +5.2 | -15.5 | +59.2 |
| Means | .. | .. | 13 | 76 | 243.0 | .. | -16.9 | .. |

**No. 1636.** Latitude +8°.7.

Group 16838 in Rotation 1309
" 16854 " " 1310

Group 16838. Aug. 4-15. A stable regular spot, followed by a few companions between August 7 and 9.

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|---|
| **No. 1636.** Group 16838 - *continued* | | | | | | | | |
| | | | | | ° | ° | ° | ° |
| 215.426 C | 7 | 36 | 11 | 58 | 30.0 | 0.0 | + 7.9 | -72.5 |
| 216.452 G | 32 | 179 | 29 | 163 | 31.9 | +1.8 | + 7.8 | -57.1 |
| 217.322 C | 40 | 258 | 28 | 178 | 33.2 | +3.0 | + 6.9 | -44.2 |
| 218.354 G | 63 | 361 | 36 | 207 | 33.6 | +3.2 | + 7.2 | -30.2 |
| 219.345 G | 85 | 419 | 45 | 219 | 34.8 | +4.3 | + 7.2 | -15.9 |
| 220.312 G | 78 | 362 | 39 | 181 | 35.6 | +5.0 | + 7.6 | - 2.3 |
| 221.645 G | 64 | 339 | 33 | 176 | 36.1 | +5.3 | + 7.5 | +15.8 |
| 222.435 C | 69 | 329 | 39 | 184 | 36.0 | +5.1 | + 7.2 | +26.2 |
| 223.361 G | 46 | 211 | 29 | 135 | 36.0 | +5.0 | + 7.4 | +38.4 |
| 224.361 G | 37 | 165 | 30 | 132 | 36.0 | +4.8 | + 7.7 | +51.6 |
| 225.299 G | 21 | 142 | 24 | 159 | 36.1 | +4.8 | + 8.1 | +64.1 |
| 226.540 G | 9 | 69 | 25 | 195 | 36.2 | .. | + 7.5 | +80.6 |
| Means | .. | .. | 31 | 163 | 34.5 | .. | + 7.5 | .. |

Group 16854. Aug. 30-Sept. 11. A pair of spots, of which the leader is regular in outline. On September 4 other spots appear to form a long stream, and after September 8 the whole begins to decline and die out.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 241.646 G | 14 | 64 | (35 | 161 | 36.3 | .. | +10.7) | -79.7 |
| 242.457 G | 30 | 216 | 48 | 374 | 31.8 | -1.7 | +10.6 | -73.4 |
| 243.303 G | 57 | 315 | 59 | 330 | 32.9 | -0.7 | +10.7 | -61.2 |
| 244.295 G | 78 | 501 | 58 | 376 | 33.0 | -0.8 | +10.8 | -48.0 |
| 245.308 G | 94 | 646 | 57 | 396 | 32.0 | -1.9 | +10.7 | -35.6 |
| 246.313 C | 124 | 664 | 67 | 358 | 33.1 | -0.9 | +10.6 | -21.2 |
| 247.577 G | 109 | 633 | 55 | 318 | 34.3 | +0.1 | +10.7 | - 3.3 |
| 248.302 G | 91 | 441 | 46 | 223 | 35.1 | +0.8 | +10.0 | + 7.0 |
| 249.385 G | 76 | 359 | 43 | 196 | 35.9 | +1.5 | + 9.3 | +22.2 |
| 250.332 C | 39 | 190 | 24 | 118 | 36.4 | +1.9 | + 9.2 | +35.2 |
| 251.402 C | 13 | 88 | 10 | 69 | 37.2 | +2.5 | + 8.7 | +50.1 |
| 252.328 C | 4 | 33 | 4 | 37 | 38.8 | +4.0 | + 8.8 | +63.9 |
| 253.347 G | 0 | 5 | 0 | 10 | 37.5 | +2.6 | + 8.7 | +76.1 |
| Means | .. | .. | 39 | 234 | 34.8 | .. | + 9.9 | .. |

**No. 1637.** Latitude -3°.7.

Group 16857 in Rotation 1311
" 16879 " " 1312
" 16897 " " 1313

Group 16857. Sept. 4-15. A stable regular spot, with a few small companions until September 7.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 246.313 C | 24 | 141 | 41 | 240 | 342.0 | 0.0 | - 2.8 | -72.3 |
| 247.577 G | 63 | 479 | 58 | 447 | 341.1 | -1.1 | - 2.5 | -56.5 |
| 248.302 G | 123 | 602 | 91 | 446 | 341.6 | -0.8 | - 2.8 | -46.5 |
| 249.385 G | 114 | 676 | 67 | 400 | 342.2 | -0.3 | - 2.8 | -31.5 |
| 250.332 C | 125 | 723 | 68 | 390 | 342.5 | -0.2 | - 3.0 | -18.7 |
| 251.402 C | 145 | 716 | 74 | 365 | 342.7 | -0.2 | - 3.0 | - 4.4 |

LEDGER I. - RECURRENT GROUPS OF SUNSPOTS

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|---|
| **No. 1637.** Group 16857 - *continued* | | | | | | | | |
| | | | | | ° | ° | ° | ° |
| 252.328 C | 131 | 758 | 67 | 387 | 343.0 | -0.1 | - 2.9 | + 8.1 |
| 253.347 G | 145 | 708 | 80 | 389 | 343.1 | -0.2 | - 2.8 | +21.7 |
| 254.600 G | 99 | 524 | 64 | 341 | 343.3 | -0.2 | - 3.0 | +38.4 |
| 255.559 G | 81 | 463 | 66 | 380 | 343.6 | -0.1 | - 2.8 | +51.4 |
| 256.310 G | 68 | 303 | 73 | 324 | 343.7 | -0.1 | - 2.6 | +61.4 |
| 257.313 C | 26 | 166 | 53 | 335 | 344.3 | +0.3 | - 2.8 | +75.2 |
| **Means** | .. | .. | 67 | 370 | 342.8 | .. | - 2.8 | .. |
| Group 16879. Sept.30-Oct.12. A stable regular spot. | | | | | | | | |
| 272.366 G | 9 | 60 | 40 | 263 | 347.4 | .. | - 3.3 | -83.0 |
| 273.344 G | 27 | 164 | 41 | 249 | 347.3 | +0.5 | - 3.4 | -70.2 |
| 274.625 G | 67 | 291 | 58 | 250 | 347.0 | -0.1 | - 3.3 | -53.6 |
| 275.309 C | 76 | 346 | 54 | 246 | 347.2 | 0.0 | - 3.4 | -44.3 |
| 276.310 G | 94 | 381 | 56 | 229 | 346.9 | -0.5 | - 3.7 | -31.4 |
| 277.337 G | 72 | 363 | 38 | 192 | 346.9 | -0.7 | - 3.8 | -17.9 |
| 278.345 G | 81 | 390 | 41 | 199 | 346.9 | -0.8 | - 4.1 | - 4.6 |
| 279.394 G | 67 | 394 | 35 | 204 | 346.6 | -1.3 | - 4.2 | + 9.0 |
| 280.307 G | 85 | 379 | 47 | 208 | 346.7 | -1.4 | - 4.3 | +21.1 |
| 281.448 G | 58 | 315 | 37 | 198 | 346.9 | -1.4 | - 4.5 | +36.3 |
| 282.314 G | 47 | 278 | 36 | 211 | 346.9 | -1.5 | - 4.7 | +47.8 |
| 283.380 G | 29 | 185 | 32 | 204 | 347.2 | -1.4 | - 5.1 | +62.1 |
| 284.377 G | 13 | 91 | 27 | 187 | 347.1 | -1.7 | - 5.0 | +75.2 |
| **Means** | .. | .. | 42 | 215 | 347.0 | .. | - 4.1 | .. |
| Group 16897. Oct.28-Nov.2. A faint spot. | | | | | | | | |
| 300.481 G | 4 | 24 | 6 | 39 | 348.1 | -3.6 | - 4.2 | -71.4 |
| 301.430 G | 9 | 44 | 9 | 44 | 347.4 | -4.5 | - 4.2 | -59.6 |
| 302.613 G | 9 | 31 | 6 | 22 | 348.2 | -3.8 | - 4.0 | -43.2 |
| 303.581 G | 7 | 26 | 4 | 15 | 348.1 | -4.2 | - 4.0 | -30.5 |
| 304.413 G | 2 | 22 | 1 | 12 | 349.1 | -3.3 | - 4.1 | -18.6 |
| 305.595 G | 0 | 4 | 0 | 2 | 346.8 | -5.8 | - 3.6 | - 5.3 |
| **Means** | .. | .. | 4 | 22 | 348.0 | .. | - 4.0 | .. |

**No. 1638.** Latitude -7°.8.

Group 16882 in Rotation 1312
" 16900 " " 1313
" 16918 " " 1314

Group 16882. Oct. 8-20. A stable regular spot with variable companions.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 280.307 G | 18 | 143 | 48 | 380 | 247.6 | 0.0 | - 8.6 | -78.0 |
| 281.448 G | 66 | 406 | 78 | 485 | 246.9 | -0.9 | - 8.2 | -63.7 |
| 282.314 G | 107 | 592 | 91 | 505 | 247.1 | -0.8 | - 8.7 | -52.0 |
| 283.380 G | 145 | 825 | 94 | 538 | 247.5 | -0.5 | - 8.7 | -37.6 |
| 284.377 G | 189 | 1084 | 108 | 619 | 247.2 | -1.0 | - 8.7 | -24.7 |
| 285.301 C | 159 | 1170 | 84 | 620 | 247.1 | -1.2 | - 8.9 | -12.6 |
| 286.575 G | 173 | 1139 | 90 | 592 | 247.0 | -1.5 | - 8.9 | + 4.1 |
| 287.378 G | 182 | 1225 | 96 | 649 | 247.0 | -1.6 | - 8.8 | +14.7 |
| 288.331 G | 222 | 1257 | 129 | 729 | 247.0 | -1.7 | - 8.7 | +27.2 |
| 289.515 C | 128 | 1049 | 91 | 745 | 246.9 | -2.0 | - 8.7 | +42.8 |
| 290.318 C | 111 | 796 | 99 | 708 | 247.5 | -1.5 | - 8.5 | +54.0 |
| 291.394 G | 58 | 404 | 84 | 586 | 248.0 | -1.2 | - 8.3 | +68.6 |
| 292.303 C | 24 | 152 | 76 | 479 | 247.4 | .. | - 8.3 | +80.0 |
| **Means** | .. | .. | 91 | 596 | 247.2 | .. | - 8.6 | .. |

Group 16900. Nov. 4-16. A spot, elongated in a latitudinal direction, which at first has a double umbra. On November 7 the umbra becomes divided into three. There are a few tiny companions until November 12.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 307.295 C | 25 | 157 | (70 | 443 | 250.5 | .. | - 6.6) | -79.2 |
| 308.292 C | 40 | 305 | 56 | 428 | 248.5 | -3.0 | - 6.4 | -68.0 |
| 309.399 G | 92 | 524 | 81 | 456 | 248.2 | -3.5 | - 6.3 | -53.7 |
| 310.497 G | 103 | 646 | 68 | 425 | 248.0 | -3.9 | - 6.4 | -39.4 |
| 311.292 C | 81 | 583 | 47 | 339 | 248.3 | -3.7 | - 6.6 | -28.7 |
| 312.174 K | 136 | 851 | 72 | 452 | 247.8 | -4.3 | - 6.5 | -17.5 |
| 313.411 G | 123 | 712 | 64 | 364 | 247.6 | -4.7 | - 7.0 | - 1.4 |
| 314.440 G | 90 | 604 | 47 | 314 | 248.7 | -3.7 | - 7.3 | +13.2 |
| 315.576 G | 94 | 465 | 54 | 269 | 248.7 | -3.9 | - 7.2 | +28.2 |
| 316.293 C | 68 | 333 | 44 | 213 | 248.5 | -4.2 | - 7.2 | +37.5 |
| 317.419 G | 50 | 293 | 42 | 246 | 248.7 | -4.1 | - 6.9 | +52.5 |
| 318.581 G | 22 | 140 | 30 | 190 | 248.8 | -4.2 | - 7.2 | +67.9 |
| 319.296 C | 8 | 68 | 18 | 156 | 248.4 | -4.7 | - 7.1 | +77.0 |
| **Means** | .. | .. | 52 | 321 | 248.4 | .. | - 6.8 | .. |
| Group 16918. Dec. 2-3. A tiny spot. | | | | | | | | |
| 335.418 G | 2 | 9 | 3 | 14 | 248.7 | -6.7 | - 7.9 | -70.2 |
| 336.398 G | 2 | 9 | 1 | 8 | 248.8 | -6.7 | - 7.7 | -57.2 |
| **Means** | .. | .. | 2 | 11 | 248.8 | .. | - 7.8 | .. |

**No. 1639.** Latitude -13°.7.

Group 16883 in Rotation 1312
" 16899 " " 1313
" 16917 " " 1314

Group 16883. Oct. 9-20. A variable stream, immediately s Group 16882, the leading part of which is growing as it passes round the limb.

LEDGER I. - RECURRENT GROUPS OF SUNSPOTS

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|---|
| **No. 1639.** Group 16883 - *continued* | | | | | | | | |
| | | | | | ° | ° | ° | ° |
| 281.448 G | 11 | 49 | 17 | 76 | 242.2 | 0.0 | -13.6 | -68.4 |
| 282.314 G | 4 | 24 | 4 | 24 | 242.3 | +0.1 | -13.7 | -56.8 |
| 283.380 G | 16 | 76 | 12 | 58 | 241.2 | -1.1 | -14.7 | -43.9 |
| 284.377 G | 60 | 257 | 37 | 160 | 240.9 | -1.4 | -14.7 | -31.0 |
| 285.301 C | 26 | 189 | 15 | 105 | 241.9 | -0.5 | -15.1 | -17.8 |
| 286.575 G | 16 | 100 | 9 | 53 | 242.2 | -0.2 | -14.7 | - 0.7 |
| 287.378 G | 22 | 240 | 12 | 132 | 244.1 | +1.6 | -15.0 | +11.8 |
| 288.331 G | 26 | 211 | 16 | 129 | 247.3 | +4.8 | -14.3 | +27.5 |
| 289.515 C | 49 | 319 | 37 | 241 | 248.6 | +6.0 | -14.5 | +44.5 |
| 290.318 C | 32 | 223 | 31 | 215 | 249.2 | +6.6 | -14.2 | +55.7 |
| 291.394 G | 47 | 282 | 80 | 493 | 250.3 | +7.7 | -14.5 | +70.9 |
| 292.303 C | 4 | 75 | (15 | 286 | 248.0 | .. | -15.2) | +80.6 |
| **Means** | .. | .. | 25 | 153 | 244.6 | .. | -14.5 | .. |
| Group 16899. Nov. 4-16. A regular spot, with a few companions on November 10 and 11. | | | | | | | | |
| 307.295 C | 34 | 220 | 67 | 431 | 255.9 | +12.6 | -13.1 | -73.8 |
| 308.292 C | 59 | 420 | 64 | 458 | 255.7 | +12.3 | -13.0 | -60.8 |
| 309.399 G | 75 | 510 | 57 | 388 | 255.7 | +12.3 | -12.9 | -46.2 |
| 310.497 G | 114 | 631 | 71 | 391 | 255.4 | +11.9 | -13.0 | -32.0 |
| 311.292 C | 106 | 684 | 59 | 383 | 255.3 | +11.8 | -12.9 | -21.7 |
| 312.174 K | 116 | 721 | 61 | 382 | 255.0 | +11.4 | -12.9 | -10.3 |
| 313.411 G | 114 | 692 | 60 | 360 | 254.9 | +11.3 | -13.8 | + 5.9 |
| 314.440 G | 70 | 578 | 38 | 318 | 255.4 | +11.7 | -13.1 | +19.9 |
| 315.576 G | 53 | 429 | 34 | 275 | 255.4 | +11.7 | -13.2 | +34.9 |
| 316.293 C | 38 | 291 | 28 | 212 | 254.9 | +11.2 | -13.1 | +43.9 |
| 317.419 G | 55 | 256 | 56 | 261 | 255.0 | +11.2 | -13.2 | +58.8 |
| 318.581 G | 22 | 92 | 44 | 183 | 255.1 | +11.3 | -13.7 | +74.2 |
| 319.296 C | 8 | 40 | 33 | 163 | 253.5 | .. | -13.7 | +82.1 |
| **Means** | .. | .. | 53 | 337 | 255.3 | .. | -13.2 | .. |
| Group 16917. Dec. 1-4. A small spot. | | | | | | | | |
| 334.518 G | 2 | 17 | 4 | 38 | 254.2 | +10.3 | -13.6 | -76.6 |
| 335.418 G | 4 | 13 | 5 | 16 | 254.4 | + 9.8 | -13.5 | -64.5 |
| 336.398 G | 4 | 17 | 3 | 14 | 254.4 | + 9.8 | -13.7 | -51.6 |
| 337.282 C | 2 | 9 | 1 | 6 | 254.2 | + 9.5 | -13.7 | -40.2 |
| **Means** | .. | .. | 3 | 18 | 254.3 | .. | -13.6 | .. |

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|---|
| **No. 1640.** Latitude +7°.4. | | | | | | | | |
| Group 16915 in Rotation 1313<br>" 16927 " " 1314 | | | | | | | | |
| Group 16915. Nov. 27-30. A rapidly-growing cluster, forming near the west limb. | | | | | | | | |
| | | | | | ° | ° | ° | ° |
| 330.286 C | 36 | 215 | 25 | 154 | 72.0 | 0.0 | + 6.0 | +45.4 |
| 331.539 C | 65 | 539 | 69 | 572 | 72.6 | +0.4 | + 6.4 | +62.5 |
| 332.347 C | 74 | 544 | 121 | 887 | 71.5 | -0.8 | + 5.7 | +72.1 |
| 333.428 G | 0 | 13 | (0 | 62 | 69.2 | .. | + 6.2) | +84.0 |
| **Means** | .. | .. | 72 | 538 | 72.0 | .. | + 6.0 | .. |
| Group 16927. Dec. 14-27. A stream, which at first consists of three spots. By December 17 the leading pair begins to coalesce and become composite. On December 18 other small spots appear between the main components and grow rapidly, joining with the leading nucleus to form a composite spot. The follower, also composite, begins to break up after December 24, and is dying out as it passes round the limb. | | | | | | | | |
| 347.473 G | 11 | 95 | 48 | 417 | 76.8 | .. | + 8.6 | -83.3 |
| 348.283 C | 17 | 196 | 28 | 321 | 77.4 | +2.8 | + 8.4 | -72.0 |
| 349.276 C | 60 | 581 | 66 | 636 | 74.3 | -0.5 | + 8.3 | -62.0 |
| 350.468 G | 143 | 1088 | 108 | 808 | 74.0 | -1.0 | + 8.1 | -46.6 |
| 351.291 C | 232 | 1387 | 146 | 870 | 73.6 | -1.5 | + 8.3 | -36.2 |
| 352.306 C | 268 | 1724 | 148 | 953 | 73.5 | -1.7 | + 8.8 | -22.9 |
| 353.441 C | 250 | 2190 | 129 | 1126 | 73.4 | -2.0 | + 8.8 | - 8.1 |
| 354.404 G | 289 | 2476 | 148 | 1263 | 73.0 | -2.5 | + 8.9 | + 4.2 |
| 355.283 C | 310 | 2454 | 163 | 1291 | 73.0 | -2.7 | + 9.0 | +15.8 |
| 356.303 C | 287 | 2202 | 167 | 1289 | 73.4 | -2.4 | + 9.1 | +29.6 |
| 357.280 C | 208 | 1807 | 146 | 1255 | 73.5 | -2.5 | + 9.0 | +42.6 |
| 358.321 C | 146 | 1207 | 135 | 1126 | 73.5 | -2.6 | + 9.3 | +56.3 |
| 359.277 C | 79 | 575 | 121 | 878 | 73.9 | -2.4 | + 9.4 | +69.3 |
| 360.484 G | 0 | 18 | (0 | 58 | 68.9 | .. | +10.5) | +80.2 |
| **Means** | .. | .. | 125 | 985 | 73.9 | .. | + 8.8 | .. |

LEDGER II. - NON-RECURRENT GROUPS OF SUNSPOTS

### Group 16678

Jan. 1-12. A stream, rapidly developing from a small spot; the leading portion becomes composite by January 6 but soon breaks up again into single spots. The whole is dying out as it passes round the limb.

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|---|
| | | | | | ° | ° | ° | ° |
| 0.463 G | 6 | 28 | 7 | 32 | 356.7 | 0.0 | -11.7 | -64.0 |
| 1.337 C | 8 | 31 | 6 | 25 | 357.6 | +0.8 | -11.2 | -51.6 |
| 2.478 G | 47 | 315 | 31 | 205 | 355.1 | -1.8 | -12.5 | -39.0 |
| 3.288 C | 48 | 334 | 28 | 192 | 355.4 | -1.5 | -12.5 | -28.1 |
| 4.284 C | 50 | 432 | 26 | 227 | 356.7 | -0.3 | -12.5 | -13.7 |
| 5.426 C | 121 | 986 | 61 | 497 | 356.7 | -0.4 | -11.9 | + 1.4 |
| 6.455 G | 274 | 1298 | 144 | 683 | 357.4 | +0.2 | -11.9 | +15.6 |
| 7.293 C | 178 | 982 | 101 | 557 | 358.2 | +1.0 | -11.3 | +27.5 |
| 8.409 G | 139 | 926 | 93 | 623 | 357.0 | -0.3 | -11.8 | +41.0 |
| 9.283 C | 107 | 516 | 92 | 441 | 358.6 | +1.2 | -12.1 | +54.1 |
| 10.126 K | 60 | 348 | 74 | 416 | 358.4 | +1.0 | -12.9 | +65.0 |
| 11.520 G | 6 | 34 | 19 | 103 | 355.4 | .. | -13.6 | +80.3 |
| **Means** | .. | .. | 60 | 354 | 357.1 | .. | -12.0 | .. |

### Group 16680

Jan. 7-12. A single spot, except on January 10 when there is a pair.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 6.455 G | 0 | 6 | 0 | 9 | 273.1 | 0.0 | +10.9 | -68.7 |
| 7.293 C | 2 | 6 | 2 | 6 | 272.7 | -0.5 | +11.3 | -58.0 |
| 8.409 G | 2 | 22 | 1 | 15 | 275.6 | +2.3 | +11.2 | -40.4 |
| 9.283 C | 25 | 71 | 15 | 43 | 275.5 | +2.1 | +11.1 | -29.0 |
| 10.126 K | 8 | 24 | 4 | 13 | 277.9 | +4.5 | +11.6 | -15.5 |
| 11.520 G | 2 | 13 | 1 | 7 | 279.3 | +5.7 | +11.7 | + 4.2 |
| **Means** | .. | .. | 4 | 16 | 275.7 | .. | +11.3 | .. |

### Group 16685

Jan. 14-23. A changing stream with a brief maximum on January 18.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 13.435 G | 6 | 24 | 5 | 18 | 204.8 | 0.0 | +16.0 | -45.1 |
| 14.493 G | 4 | 28 | 2 | 18 | 204.7 | -0.1 | +15.7 | -31.2 |
| 15.456 G | 52 | 206 | 29 | 116 | 205.3 | +0.5 | +15.7 | -17.9 |
| 16.620 G | 55 | 350 | 30 | 187 | 205.5 | +0.7 | +15.4 | - 2.4 |
| 17.284 C | 62 | 395 | 33 | 212 | 206.0 | +1.2 | +15.0 | + 6.8 |
| 18.286 C | 50 | 284 | 28 | 161 | 205.8 | +0.9 | +14.6 | +19.8 |
| 19.309 C | 50 | 270 | 32 | 173 | 205.7 | +0.8 | +14.8 | +33.2 |
| 20.078 K | 28 | 195 | 21 | 144 | 205.7 | +0.8 | +14.5 | +43.3 |
| 21.290 C | 23 | 109 | 25 | 117 | 205.6 | +0.7 | +15.0 | +59.2 |
| 22.389 G | 7 | 37 | 15 | 77 | 206.0 | +1.1 | +15.1 | +74.1 |
| **Means** | .. | .. | 22 | 122 | 205.5 | .. | +15.2 | .. |

### Group 16686

Jan. 17-23. A small spot which dies out just past the central meridian.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | ° | ° | ° | ° |
| 16.620 G | 0 | 7 | 0 | 20 | 129.1 | 0.0 | +12.1 | -78.8 |
| 17.284 C | 15 | 73 | 24 | 119 | 128.7 | -0.4 | +12.0 | -70.5 |
| 18.286 C | 6 | 37 | 6 | 35 | 130.1 | +0.9 | +11.9 | -55.9 |
| 19.309 C | 15 | 59 | 11 | 43 | 129.0 | -0.3 | +12.1 | -43.5 |
| 20.078 K | 16 | 57 | 10 | 36 | 129.0 | -0.3 | +12.8 | -33.4 |
| 21.290 C | 10 | 31 | 6 | 17 | 129.2 | -0.2 | +12.6 | -17.2 |
| 22.389 G | 9 | 22 | 5 | 12 | 129.0 | -0.5 | +12.5 | - 2.9 |
| **Means** | .. | .. | 9 | 40 | 129.2 | .. | +12.3 | .. |

### Group 16687

Jan. 19-24. A string of small spots.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 18.286 C | 14 | 114 | 7 | 60 | 196.6 | 0.0 | + 8.3 | +10.6 |
| 19.309 C | 32 | 222 | 19 | 127 | 197.7 | +0.9 | + 7.3 | +25.2 |
| 20.078 K | 13 | 54 | 8 | 35 | 200.4 | +3.5 | + 6.1 | +38.0 |
| 21.290 C | 4 | 27 | 4 | 25 | 201.4 | +4.3 | + 5.1 | +55.0 |
| 22.389 G | 8 | 50 | 11 | 65 | 197.9 | +0.7 | + 7.2 | +66.0 |
| 23.457 G | 0 | 7 | 0 | 31 | 200.3 | .. | + 8.7 | +82.4 |
| **Means** | .. | .. | 10 | 62 | 198.8 | .. | + 6.8 | .. |

### Group 16689

Jan. 22-Feb. 3. A regular spot, *a*, followed by a few changing companions until January 31.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 21.290 C | 2 | 10 | 7 | 34 | 64.2 | .. | - 8.6 | -82.2 |
| 22.389 G | 42 | 176 | 55 | 231 | 64.0 | 0.0 | - 9.3 | -67.9 |
| 23.457 G | 61 | 315 | 50 | 255 | 65.5 | +1.3 | - 9.1 | -52.4 |
| 24.284 C | 67 | 422 | 44 | 276 | 66.4 | +2.1 | - 8.7 | -40.6 |
| 25.126 K | 97 | 482 | 56 | 276 | 66.6 | +2.2 | - 8.0 | -29.3 |
| 26.380 G | 80 | 484 | 41 | 247 | 67.5 | +2.9 | - 7.9 | -11.9 |
| 27.412 G | 68 | 354 | 34 | 177 | 67.9 | +3.2 | - 8.0 | + 2.1 |
| 28.586 G | 74 | 336 | 39 | 178 | 69.4 | +4.5 | - 7.2 | +19.0 |
| 29.505 G | 56 | 269 | 32 | 156 | 69.4 | +4.4 | - 6.8 | +31.2 |
| 30.285 C | 46 | 222 | 31 | 149 | 69.7 | +4.6 | - 6.7 | +41.7 |
| 31.496 G | 20 | 111 | 19 | 104 | 70.4 | +5.1 | - 6.0 | +58.4 |
| 32.293 C | 17 | 111 | 23 | 152 | 70.7 | +5.3 | - 5.9 | +69.1 |
| 33.291 C | 4 | 34 | 14 | 117 | 70.5 | .. | - 5.6 | +82.1 |
| **Means** | .. | .. | 39 | 200 | 68.0 | .. | - 7.6 | .. |

LEDGER II. - NON-RECURRENT GROUPS OF SUNSPOTS

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | | Lati-tude | Long. from C.M. |
|---|---|---|---|---|---|---|---|---|
| **Group 16689 - *continued*** | | | | | | | | |
| **Spot *a*** | | | | | | | | |
| | | | | | ° | ° | ° | ° |
| 21.290 C | 2 | 10 | 7 | 34 | 64.2 | .. | - 8.6 | -82.2 |
| 22.389 G | 33 | 126 | 41 | 155 | 65.3 | 0.0 | - 9.0 | -66.6 |
| 23.457 G | 50 | 263 | 40 | 208 | 66.9 | +1.4 | - 8.7 | -51.0 |
| 24.284 C | 63 | 401 | 41 | 261 | 67.0 | +1.4 | - 8.5 | -40.0 |
| 25.126 K | 89 | 434 | 51 | 247 | 67.0 | +1.3 | - 7.9 | -28.9 |
| 26.380 G | 76 | 453 | 39 | 231 | 67.8 | +1.9 | - 7.8 | -11.6 |
| 27.412 G | 61 | 326 | 30 | 163 | 68.5 | +2.5 | - 7.8 | + 2.7 |
| 28.586 G | 74 | 336 | 39 | 178 | 69.4 | +3.2 | - 7.2 | +19.0 |
| 29.505 G | 56 | 269 | 32 | 156 | 69.4 | +3.1 | - 6.8 | +31.2 |
| 30.285 C | 46 | 222 | 31 | 149 | 69.7 | +3.3 | - 6.7 | +41.7 |
| 31.496 G | 20 | 111 | 19 | 104 | 70.4 | +3.8 | - 6.0 | +58.4 |
| 32.293 C | 17 | 111 | 23 | 152 | 70.7 | +4.0 | - 5.9 | +69.1 |
| 33.291 C | 4 | 34 | 14 | 117 | 70.5 | .. | - 5.6 | +82.1 |
| **Group 16690** | | | | | | | | |
| Jan. 22-30. A small spot, with occasional tiny companions, immediately *s* Group 16689. | | | | | | | | |
| 21.290 C | 0 | 4 | 0 | 21 | 60.8 | .. | -12.1 | -85.6 |
| 22.389 G | 15 | 68 | 23 | 103 | 60.6 | 0.0 | -12.3 | -71.3 |
| 23.457 G | 26 | 93 | 23 | 83 | 61.6 | +0.9 | -12.3 | -56.3 |
| 24.284 C | 13 | 67 | 9 | 48 | 61.6 | +0.9 | -12.3 | -45.4 |
| 25.126 K | 18 | 105 | 11 | 64 | 61.3 | +0.5 | -12.4 | -34.6 |
| 26.380 G | 22 | 150 | 12 | 79 | 62.2 | +1.3 | -12.5 | -17.2 |
| 27.412 G | 24 | 104 | 12 | 53 | 62.1 | +1.1 | -12.7 | - 3.7 |
| 28.586 G | 11 | 46 | 6 | 24 | 62.8 | +1.8 | -12.3 | +12.4 |
| 29.505 G | 2 | 11 | 1 | 6 | 63.4 | +2.3 | -12.4 | +25.2 |
| **Means** | .. | .. | 12 | 58 | 62.0 | .. | -12.4 | .. |
| **Group 16694** | | | | | | | | |
| Jan. 28-Feb. 1. A few small variable spots. | | | | | | | | |
| 25.126 K | 24 | 129 | 12 | 67 | 79.7 | 0.0 | -11.2 | -16.2 |
| 26.380 G | 9 | 83 | 4 | 42 | 81.2 | +1.4 | -11.9 | + 1.8 |
| 27.412 G | 7 | 24 | 4 | 12 | 82.0 | +2.1 | -11.5 | +16.2 |
| 28.586 G | 4 | 15 | 2 | 9 | 80.9 | +0.9 | -11.4 | +30.5 |
| 29.505 G | 33 | 137 | 22 | 92 | 79.8 | -0.3 | -11.6 | +41.6 |
| 30.285 C | 13 | 115 | 11 | 93 | 80.2 | +0.1 | -11.8 | +52.2 |
| 31.496 G | 11 | 35 | 16 | 50 | 81.5 | +1.3 | -11.5 | +69.5 |
| **Means** | .. | .. | 10 | 52 | 80.8 | .. | -11.6 | .. |
| **Group 16695** | | | | | | | | |
| Jan. 26-Feb. 6. A small regular spot with occasional companions. | | | | | | | | |
| | | | | | ° | ° | ° | ° |
| 25.126 K | 4 | 20 | 18 | 88 | 15.8 | .. | +25.6 | -80.1 |
| 26.380 G | 9 | 54 | 13 | 77 | 15.2 | 0.0 | +24.7 | -64.2 |
| 27.412 G | 24 | 100 | 22 | 93 | 15.5 | +0.6 | +24.0 | -50.3 |
| 28.586 G | 33 | 95 | 24 | 68 | 15.9 | +1.2 | +24.2 | -34.5 |
| 29.505 G | 45 | 150 | 28 | 95 | 14.8 | +0.4 | +24.0 | -23.4 |
| 30.285 C | 19 | 69 | 11 | 41 | 14.2 | 0.0 | +24.6 | -13.8 |
| 31.496 G | 20 | 54 | 12 | 31 | 13.6 | -0.4 | +24.8 | + 1.6 |
| 32.293 C | 34 | 161 | 20 | 96 | 15.2 | +1.4 | +23.6 | +13.6 |
| 33.291 C | 46 | 113 | 30 | 74 | 16.2 | +2.7 | +23.1 | +27.8 |
| 34.292 C | 20 | 96 | 15 | 74 | 15.5 | +2.2 | +23.7 | +40.3 |
| 35.417 G | 11 | 52 | 11 | 55 | 15.5 | +2.5 | +23.9 | +55.1 |
| 36.425 G | 0 | 13 | 0 | 22 | 14.4 | +1.7 | +24.0 | +67.2 |
| **Means** | .. | .. | 17 | 66 | 15.1 | .. | +24.1 | .. |
| **Group 16696** | | | | | | | | |
| Jan. 27-Feb. 1. A few small variable spots. | | | | | | | | |
| 26.380 G | 2 | 11 | 6 | 35 | 2.4 | 0.0 | +25.0 | -77.0 |
| 27.412 G | 9 | 30 | 12 | 40 | 3.5 | +1.4 | +24.6 | -62.3 |
| 28.586 G | 9 | 30 | 8 | 26 | 2.7 | +0.9 | +24.6 | -47.7 |
| 29.505 G | 7 | 33 | 5 | 24 | 2.5 | +0.9 | +24.6 | -35.7 |
| 30.285 C | 4 | 19 | 3 | 12 | 1.2 | -0.2 | +24.4 | -26.8 |
| 31.496 G | 2 | 7 | 1 | 4 | 0.3 | -0.8 | +25.1 | -11.7 |
| **Means** | .. | .. | 6 | 24 | 2.1 | .. | +24.7 | .. |
| **Group 16697** | | | | | | | | |
| Feb. 1-9. Small spots forming a stream, of which the leader alone remains by February 8. | | | | | | | | |
| 31.496 G | 16 | 76 | 9 | 43 | 342.9 | 0.0 | -11.1 | -29.1 |
| 32.293 C | 12 | 71 | 6 | 37 | 345.0 | +2.0 | -10.8 | -16.6 |
| 33.291 C | 116 | 357 | 58 | 178 | 346.4 | +3.3 | -10.7 | - 2.0 |
| 34.292 C | 59 | 289 | 31 | 149 | 347.1 | +3.9 | -11.2 | +11.9 |
| 35.417 G | 37 | 230 | 21 | 132 | 348.3 | +5.0 | -11.0 | +27.9 |
| 36.425 G | 17 | 128 | 12 | 88 | 351.1 | +7.7 | -11.0 | +43.9 |
| 37.464 G | 22 | 107 | 21 | 98 | 350.8 | +7.3 | -11.2 | +57.3 |
| 38.292 C | 13 | 55 | 17 | 72 | 350.9 | +7.3 | -11.3 | +68.3 |
| 39.482 G | 0 | 4 | 0 | 14 | 350.1 | .. | -11.1 | +83.2 |
| **Means** | .. | .. | 22 | 100 | 347.8 | .. | -11.0 | .. |

LEDGER II. - NON-RECURRENT GROUPS OF SUNSPOTS

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|---|
| **Group 16699** | | | | | | | | |
| Feb. 4–10. One or two tiny spots until February 9. On the next day there is a big increase in area. | | | | | | | | |
| | | | | | ° | ° | ° | ° |
| 34.292 C | 4 | 25 | 2 | 13 | 329.1 | 0.0 | −15.7 | − 6.1 |
| 35.417 G | 8 | 39 | 4 | 20 | 329.5 | +0.4 | −15.1 | + 9.1 |
| 36.425 G | 0 | 20 | 0 | 11 | 330.2 | +1.1 | −15.0 | +23.0 |
| 37.464 G | 0 | 7 | 0 | 4 | 330.7 | +1.6 | −15.4 | +37.2 |
| 38.292 C | 4 | 21 | 3 | 15 | 328.7 | −0.5 | −15.0 | +46.1 |
| 39.482 G | 0 | 7 | 0 | 7 | 329.4 | +0.2 | −14.6 | +62.5 |
| 40.293 C | 17 | 50 | 27 | 80 | 329.2 | 0.0 | −15.4 | +73.0 |
| **Means** | .. | .. | 5 | 21 | 329.5 | .. | −15.2 | .. |
| **Group 16700** | | | | | | | | |
| Feb. 5–16. A few small variable spots, not seen on February 13. | | | | | | | | |
| 35.417 G | 0 | 11 | 0 | 30 | 242.4 | 0.0 | +10.3 | −78.0 |
| 36.425 G | 8 | 26 | 9 | 31 | 244.1 | +1.6 | +10.2 | −63.1 |
| 37.464 G | 2 | 13 | 2 | 11 | 241.3 | −1.4 | +10.5 | −52.2 |
| 38.292 C | 14 | 47 | 10 | 32 | 243.1 | +0.3 | + 9.9 | −39.5 |
| 39.482 G | 8 | 61 | 4 | 35 | 243.7 | +0.8 | + 9.7 | −23.2 |
| 40.293 C | 21 | 130 | 11 | 68 | 244.2 | +1.2 | + 9.1 | −12.0 |
| 41.587 G | 24 | 166 | 13 | 86 | 244.9 | +1.7 | + 8.6 | + 5.7 |
| 42.400 G | 8 | 44 | 4 | 24 | 245.0 | +1.7 | + 8.8 | +16.5 |
| 43.293 C | 0 | 0 | 0 | 0 | .. | .. | .. | .. |
| 44.292 C | 6 | 35 | 4 | 25 | 247.8 | +4.3 | + 7.9 | +44.2 |
| 45.291 C | 6 | 30 | 6 | 28 | 246.8 | +3.2 | + 7.5 | +56.4 |
| 46.386 C | 0 | 8 | 0 | 13 | 246.2 | +2.4 | + 7.2 | +70.2 |
| **Means** | .. | .. | 5 | 32 | 244.5 | .. | + 9.1 | .. |
| **Group 16703** | | | | | | | | |
| Feb. 7–17. A small, slowly-diminishing regular spot with occasional companions. | | | | | | | | |
| 37.464 G | 4 | 22 | 16 | 90 | 211.2 | .. | + 4.5 | −82.3 |
| 38.292 C | 8 | 46 | 13 | 74 | 211.6 | 0.0 | + 4.4 | −71.0 |
| 39.482 G | 15 | 76 | 14 | 69 | 211.0 | −0.8 | + 4.1 | −55.9 |
| 40.293 C | 29 | 109 | 21 | 78 | 211.1 | −0.9 | + 4.2 | −45.1 |
| 41.587 G | 24 | 135 | 14 | 79 | 210.7 | −1.5 | + 4.1 | −28.5 |
| 42.400 G | 13 | 70 | 7 | 37 | 211.0 | −1.3 | + 4.1 | −17.5 |
| 43.293 C | 25 | 90 | 13 | 46 | 210.9 | −1.6 | + 3.8 | − 5.8 |
| 44.292 C | 17 | 63 | 9 | 32 | 211.9 | −0.8 | + 3.5 | + 8.3 |
| 45.291 C | 8 | 38 | 4 | 21 | 212.2 | −0.7 | + 3.4 | +21.8 |
| 46.386 C | 4 | 19 | 3 | 12 | 212.5 | −0.5 | + 3.2 | +36.5 |
| 47.293 C | 4 | 23 | 3 | 17 | 211.1 | −2.1 | + 3.3 | +47.0 |
| **Means** | .. | .. | 10 | 46 | 211.4 | .. | + 3.8 | .. |
| **Group 16704** | | | | | | | | |
| Feb. 9–19. A small spot, with a tiny companion on February 11. | | | | | | | | |
| | | | | | ° | ° | ° | ° |
| 39.482 G | 4 | 26 | 18 | 114 | 182.1 | .. | −13.3 | −84.8 |
| 40.293 C | 17 | 101 | 29 | 170 | 182.5 | 0.0 | −13.4 | −73.7 |
| 41.587 G | 26 | 125 | 24 | 114 | 181.7 | −0.9 | −13.9 | −57.5 |
| 42.400 G | 22 | 113 | 16 | 81 | 182.1 | −0.5 | −13.7 | −46.4 |
| 43.293 C | 25 | 84 | 15 | 51 | 182.1 | −0.5 | −13.7 | −34.6 |
| 44.292 C | 17 | 63 | 9 | 34 | 182.4 | −0.3 | −13.8 | −21.2 |
| 45.291 C | 8 | 38 | 4 | 19 | 182.3 | −0.4 | −13.9 | − 8.1 |
| 46.386 C | 6 | 36 | 3 | 18 | 182.1 | −0.7 | −14.1 | + 6.1 |
| 47.293 C | 6 | 21 | 3 | 11 | 182.1 | −0.7 | −14.0 | +18.0 |
| 48.425 G | 4 | 13 | 2 | 8 | 182.4 | −0.4 | −13.6 | +33.3 |
| 49.367 G | 4 | 11 | 3 | 8 | 182.7 | −0.2 | −13.5 | +46.0 |
| **Means** | .. | .. | 11 | 51 | 182.2 | .. | −13.8 | .. |
| **Group 16705** | | | | | | | | |
| Feb. 10–15. A small stream appearing immediately *n* Group 16703. | | | | | | | | |
| 40.293 C | 13 | 67 | 9 | 48 | 213.8 | 0.0 | + 8.6 | −42.4 |
| 41.587 G | 62 | 196 | 36 | 114 | 212.1 | −1.9 | + 8.7 | −27.1 |
| 42.400 G | 44 | 227 | 24 | 123 | 212.3 | −1.8 | + 8.8 | −16.2 |
| 43.293 C | 14 | 114 | 7 | 60 | 212.1 | −2.1 | + 8.8 | − 4.6 |
| 44.292 C | 4 | 43 | 2 | 22 | 211.8 | −2.5 | + 9.7 | + 8.2 |
| 45.291 C | 2 | 8 | 1 | 4 | 211.7 | −2.7 | + 7.9 | +21.3 |
| **Means** | .. | .. | 13 | 62 | 212.3 | .. | + 8.8 | .. |
| **Group 16707** | | | | | | | | |
| Feb. 11–23. A pair of spots. The leader, *a*, a regular spot, alone remains by February 22. | | | | | | | | |
| 41.587 G | 0 | 8 | 0 | 38 | 158.2 | .. | +11.1 | −81.0 |
| 42.400 G | 34 | 173 | 60 | 303 | 157.6 | 0.0 | +11.5 | −70.9 |
| 43.293 C | 34 | 233 | 34 | 237 | 158.8 | +1.1 | +11.5 | −57.9 |
| 44.292 C | 63 | 367 | 47 | 275 | 159.1 | +1.3 | +11.2 | −44.5 |
| 45.291 C | 65 | 367 | 41 | 225 | 159.8 | +2.0 | +11.7 | −30.6 |
| 46.386 C | 46 | 299 | 25 | 163 | 160.4 | +2.5 | +11.7 | −15.6 |
| 47.293 C | 42 | 252 | 22 | 133 | 160.6 | +2.6 | +11.9 | − 3.5 |
| 48.425 G | 41 | 242 | 22 | 131 | 160.5 | +1.4 | +11.8 | +11.4 |
| 49.367 G | 35 | 197 | 20 | 114 | 161.2 | +1.0 | +11.8 | +24.5 |
| 50.296 C | 19 | 153 | 12 | 101 | 161.1 | +0.8 | +11.9 | +36.6 |
| 51.382 G | 13 | 96 | 11 | 82 | 161.3 | +0.9 | +11.4 | +51.1 |
| 52.459 G | 9 | 26 | 12 | 35 | 161.9 | +1.4 | +11.1 | +65.9 |
| 53.415 G | 0 | 4 | 0 | 11 | 161.4 | +0.9 | +11.1 | +78.0 |
| **Means** | .. | .. | 26 | 151 | 160.3 | .. | +11.6 | .. |

LEDGER II. - NON-RECURRENT GROUPS OF SUNSPOTS

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | | Lati-tude | Long. from C.M. |
|---|---|---|---|---|---|---|---|---|
| **Group 16707 - *continued*** | | | | | | | | |
| **Spot *a*** | | | | | | | | |
| | | | | | ° | ° | ° | ° |
| 41.587 G | 0 | 4 | 0 | 14 | 158.7 | .. | +11.4 | -80.5 |
| 42.400 G | 17 | 92 | 27 | 144 | 159.2 | 0.0 | +11.8 | -69.3 |
| 43.293 C | 21 | 132 | 20 | 125 | 161.0 | +1.7 | +11.7 | -55.7 |
| 44.292 C | 38 | 212 | 27 | 153 | 161.5 | +2.1 | +11.5 | -42.1 |
| 45.291 C | 36 | 235 | 22 | 141 | 161.9 | +2.5 | +11.8 | -28.5 |
| 46.386 C | 38 | 244 | 21 | 132 | 161.9 | +2.4 | +11.6 | -14.1 |
| 47.293 C | 38 | 223 | 20 | 118 | 161.7 | +2.1 | +11.8 | - 2.4 |
| 48.425 G | 39 | 222 | 21 | 120 | 160.9 | +1.2 | +11.8 | +11.8 |
| 49.367 G | 35 | 197 | 20 | 114 | 161.2 | +1.4 | +11.8 | +24.5 |
| 50.296 C | 17 | 145 | 11 | 96 | 161.3 | +1.4 | +11.8 | +36.8 |
| 51.382 G | 13 | 92 | 11 | 79 | 161.5 | +1.5 | +11.4 | +51.3 |
| 52.459 G | 9 | 26 | 12 | 35 | 161.9 | +1.8 | +11.1 | +65.9 |
| 53.415 G | 0 | 4 | 0 | 11 | 161.4 | +1.3 | +11.1 | +78.0 |
| **Group 16712** | | | | | | | | |
| Feb. 26-Mar. 8. A single small spot until February 27; on the next day a variable stream appears but dies out before reaching the limb. | | | | | | | | |
| 56.380 G | 4 | 15 | 5 | 17 | 339.2 | 0.0 | -12.9 | -65.2 |
| 57.483 G | 7 | 26 | 5 | 20 | 340.9 | +1.7 | -13.1 | -48.9 |
| 58.407 G | 4 | 20 | 3 | 13 | 340.6 | +1.3 | -13.0 | -37.1 |
| 59.392 G | 9 | 42 | 5 | 23 | 339.4 | +0.1 | -13.2 | -25.3 |
| 60.304 G | 12 | 89 | 6 | 46 | 340.2 | +0.8 | -12.9 | -12.5 |
| 61.368 G | 28 | 183 | 14 | 92 | 336.2 | -3.2 | -13.4 | - 2.5 |
| 62.430 G | 22 | 185 | 12 | 95 | 332.2 | -7.3 | -14.5 | + 7.5 |
| 63.408 G | 24 | 226 | 13 | 125 | 334.9 | -4.6 | -14.1 | +23.1 |
| 64.373 G | 17 | 84 | 10 | 52 | 335.7 | -3.9 | -13.7 | +36.6 |
| 65.377 G | 11 | 39 | 9 | 31 | 337.0 | -2.6 | -13.8 | +51.1 |
| 66.428 G | 4 | 22 | 5 | 25 | 336.7 | -2.9 | -15.8 | +64.7 |
| **Means** | .. | .. | 8 | 49 | 337.5 | .. | -13.7 | .. |
| **Group 16713** | | | | | | | | |
| Feb. 28-Mar. 5. A few small spots. | | | | | | | | |
| 58.407 G | 4 | 28 | 2 | 15 | 27.4 | 0.0 | + 4.4 | + 9.7 |
| 59.392 G | 28 | 113 | 15 | 63 | 28.3 | +0.7 | + 3.9 | +23.6 |
| 60.304 C | 25 | 118 | 16 | 74 | 28.0 | +0.3 | + 3.8 | +35.3 |
| 61.368 G | 4 | 26 | 3 | 21 | 30.4 | +2.5 | + 4.1 | +51.7 |
| 62.430 G | 2 | 11 | 3 | 15 | 31.7 | +3.6 | + 3.7 | +67.0 |
| 63.408 G | 0 | 4 | 0 | 8 | 27.2 | -1.1 | + 4.7 | +75.4 |
| **Means** | .. | .. | 6 | 33 | 28.8 | .. | + 4.1 | .. |
| **Group 16719** | | | | | | | | |
| Mar. 7-13. A small spot, with a companion for the first two days. | | | | | | | | |
| | | | | | ° | ° | ° | ° |
| 65.377 G | 20 | 71 | 10 | 36 | 283.8 | 0.0 | -15.0 | - 2.1 |
| 66.428 G | 11 | 50 | 6 | 26 | 285.0 | +1.2 | -14.7 | +13.0 |
| 67.305 C | 9 | 21 | 5 | 12 | 286.8 | +2.9 | -14.2 | +26.4 |
| 68.488 C | 2 | 9 | 1 | 6 | 288.1 | +4.2 | -14.0 | +43.2 |
| 69.431 C | 2 | 6 | 2 | 5 | 288.6 | +4.7 | -14.3 | +56.2 |
| 70.369 G | 0 | 4 | 0 | 5 | 289.7 | +5.8 | -14.3 | +69.6 |
| 71.302 C | 0 | 4 | 0 | 12 | 289.5 | .. | -14.8 | +81.7 |
| **Means** | .. | .. | 4 | 15 | 287.0 | .. | -14.4 | .. |
| **Group 16720** | | | | | | | | |
| Mar. 11-19. A pair of nearly regular spots, appearing suddenly. After the second day they slowly diminish, the follower alone remaining on March 19. | | | | | | | | |
| 69.431 C | 43 | 203 | 26 | 121 | 200.1 | 0.0 | - 4.4 | -32.3 |
| 70.369 G | 93 | 475 | 50 | 253 | 200.8 | +0.5 | - 4.1 | -19.3 |
| 71.302 C | 87 | 458 | 44 | 231 | 201.4 | +1.0 | - 4.5 | - 6.4 |
| 72.406 G | 84 | 420 | 43 | 214 | 202.2 | +1.6 | - 4.7 | + 9.0 |
| 73.364 G | 40 | 223 | 22 | 122 | 204.0 | +3.2 | - 4.9 | +23.4 |
| 74.300 C | 22 | 119 | 14 | 73 | 202.7 | +1.8 | - 5.1 | +34.4 |
| 75.308 C | 8 | 40 | 6 | 31 | 203.7 | +2.6 | - 5.5 | +48.7 |
| 76.412 G | 6 | 24 | 7 | 28 | 203.8 | +2.5 | - 5.6 | +63.4 |
| 77.383 G | 2 | 7 | 3 | 10 | 198.0 | -3.5 | - 6.5 | +70.4 |
| **Means** | .. | .. | 24 | 120 | 201.9 | .. | - 5.0 | .. |
| **Group 16723** | | | | | | | | |
| Mar. 18-30. A stable regular spot. | | | | | | | | |
| 76.412 G | 13 | 71 | 32 | 175 | 62.5 | 0.0 | + 3.2 | -77.9 |
| 77.383 G | 22 | 141 | 27 | 173 | 62.3 | -0.4 | + 3.4 | -65.3 |
| 78.362 G | 53 | 256 | 43 | 210 | 63.0 | +0.1 | + 3.4 | -51.7 |
| 79.362 G | 75 | 301 | 49 | 196 | 63.5 | +0.5 | + 3.6 | -38.0 |
| 80.580 G | 62 | 343 | 34 | 189 | 63.7 | +0.4 | + 3.4 | -21.8 |
| 81.310 C | 77 | 389 | 40 | 202 | 64.1 | +0.7 | + 3.6 | -11.8 |
| 82.305 C | 86 | 355 | 44 | 181 | 64.3 | +0.7 | + 3.6 | + 1.6 |
| 83.370 G | 91 | 373 | 48 | 198 | 64.3 | +0.5 | + 3.3 | +15.6 |
| 84.323 C | 54 | 250 | 31 | 145 | 64.4 | +0.5 | + 3.3 | +28.3 |
| 85.683 G | 40 | 200 | 30 | 148 | 64.5 | +0.3 | + 3.6 | +46.3 |
| 86.362 G | 31 | 155 | 28 | 138 | 64.2 | -0.1 | + 3.5 | +55.0 |
| 87.302 C | 19 | 80 | 26 | 108 | 64.3 | -0.2 | + 3.5 | +67.5 |
| 88.478 G | 4 | 27 | 19 | 129 | 64.9 | .. | + 3.8 | +83.6 |
| **Means** | .. | .. | 36 | 172 | 63.8 | .. | + 3.4 | .. |

LEDGER II. - NON-RECURRENT GROUPS OF SUNSPOTS

### Group 16726

Mar. 21-29. A few small spots with a brief maximum on March 24, appearing between Groups 16722 and 16723.

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|---|
| | | | | | ° | ° | ° | ° |
| 79.362 G | 0 | 7 | 0 | 4 | 70.9 | 0.0 | + 8.5 | -30.6 |
| 80.580 G | 8 | 51 | 4 | 27 | 72.7 | +1.7 | + 8.7 | -12.8 |
| 81.310 C | 13 | 94 | 7 | 49 | 68.7 | -2.5 | + 7.7 | - 7.2 |
| 82.305 C | 41 | 299 | 21 | 156 | 67.6 | -3.7 | + 8.4 | + 4.9 |
| 83.370 G | 33 | 222 | 18 | 122 | 67.8 | -3.6 | + 8.3 | +19.1 |
| 84.323 C | 15 | 87 | 9 | 55 | 66.5 | -5.1 | + 8.6 | +30.4 |
| 85.683 G | 9 | 31 | 7 | 24 | 66.5 | -5.2 | + 8.9 | +48.3 |
| 86.362 G | 4 | 18 | 4 | 18 | 67.0 | -4.8 | + 8.9 | +57.8 |
| 87.302 C | 2 | 11 | 3 | 18 | 67.4 | -4.6 | + 8.7 | +70.6 |
| **Means** | .. | .. | 8 | 53 | 68.3 | .. | + 8.5 | .. |

### Group 16727

Mar. 21-28. One or two tiny spots, not seen on March 25.

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|---|
| 79.362 G | 4 | 13 | 5 | 15 | 40.4 | 0.0 | +12.5 | -61.1 |
| 80.580 G | 11 | 37 | 8 | 28 | 41.6 | +1.1 | +12.0 | -43.9 |
| 81.310 C | 8 | 26 | 6 | 17 | 42.3 | +1.7 | +12.1 | -33.6 |
| 82.305 C | 0 | 9 | 0 | 5 | 44.3 | +3.6 | +11.1 | -18.4 |
| 83.370 G | 0 | 0 | 0 | 0 | .. | .. | .. | .. |
| 84.323 C | 2 | 21 | 1 | 11 | 43.7 | +2.8 | + 9.5 | + 7.6 |
| 85.683 G | 7 | 29 | 4 | 17 | 43.5 | +2.5 | +10.8 | +25.3 |
| 86.362 G | 2 | 16 | 1 | 10 | 43.8 | +2.8 | +10.5 | +34.6 |
| **Means** | .. | .. | 3 | 13 | 42.8 | .. | +11.2 | .. |

### Group 16728

Mar. 22-28. A short stream, appearing near the central meridian. The follower is the largest and most stable component.

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|---|
| 80.580 G | 4 | 22 | 2 | 10 | 89.9 | 0.0 | - 9.3 | + 4.4 |
| 81.310 C | 28 | 128 | 15 | 66 | 89.0 | -1.0 | -10.0 | +13.1 |
| 82.305 C | 75 | 383 | 42 | 212 | 88.3 | -1.8 | -10.3 | +25.6 |
| 83.370 G | 134 | 626 | 85 | 402 | 88.6 | -1.6 | -10.0 | +39.9 |
| 84.323 C | 81 | 565 | 65 | 453 | 88.3 | -2.0 | -10.0 | +52.2 |
| 85.683 G | 51 | 244 | 74 | 349 | 88.2 | -2.3 | - 9.7 | +70.0 |
| 86.362 G | 18 | 102 | 36 | 206 | 85.8 | -4.7 | -10.5 | +76.6 |
| **Means** | .. | .. | 46 | 243 | 88.3 | ... | -10.0 | .. |

### Group 16729

Mar. 22-Apr. 3. A stream, led by a regular spot, *a*, with a double umbra. By March 30 this spot is the sole survivor.

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|---|
| | | | | | ° | ° | ° | ° |
| 80.580 G | 29 | 210 | 88 | 703 | 5.2 | .. | + 9.4 | -80.3 |
| 81.310 C | 57 | 394 | 87 | 612 | 6.5 | 0.0 | + 9.3 | -69.4 |
| 82.305 C | 81 | 573 | 76 | 543 | 7.0 | +0.4 | + 9.1 | -55.7 |
| 83.370 G | 115 | 665 | 80 | 465 | 7.1 | +0.3 | + 9.1 | -41.6 |
| 84.323 C | 123 | 786 | 72 | 465 | 7.7 | +0.8 | + 8.8 | -28.4 |
| 85.683 G | 120 | 663 | 62 | 347 | 8.1 | +1.0 | + 8.8 | -10.1 |
| 86.362 G | 66 | 584 | 35 | 303 | 8.3 | +1.1 | + 8.8 | - 0.9 |
| 87.302 C | 60 | 404 | 32 | 214 | 8.0 | +0.7 | + 8.6 | +11.2 |
| 88.478 G | 42 | 175 | 25 | 103 | 9.1 | +1.6 | + 8.3 | +27.8 |
| 89.305 C | 26 | 120 | 17 | 79 | 9.0 | +1.4 | + 8.3 | +38.6 |
| 90.512 G | 11 | 49 | 10 | 44 | 9.1 | +1.4 | + 7.9 | +54.6 |
| 91.365 G | 9 | 40 | 12 | 52 | 9.1 | +1.2 | + 7.8 | +65.9 |
| 92.391 G | 0 | 9 | 0 | 27 | 9.1 | +1.0 | + 8.5 | +79.4 |
| **Means** | .. | .. | 42 | 271 | 8.2 | .. | + 8.6 | .. |

### Spot *a*

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|---|
| 80.580 G | 22 | 137 | 51 | 315 | 9.5 | 0.0 | + 8.9 | -76.0 |
| 81.310 C | 36 | 225 | 49 | 304 | 9.3 | -0.3 | + 8.9 | -66.6 |
| 82.305 C | 54 | 325 | 48 | 289 | 9.1 | -0.6 | + 8.7 | -53.6 |
| 83.370 G | 80 | 377 | 54 | 256 | 9.0 | -0.9 | + 9.0 | -39.7 |
| 84.323 C | 73 | 379 | 42 | 220 | 8.9 | -1.1 | + 8.6 | -27.2 |
| 85.683 G | 93 | 457 | 48 | 238 | 8.9 | -1.3 | + 8.3 | - 9.3 |
| 86.362 G | 53 | 422 | 28 | 219 | 9.0 | -1.3 | + 8.3 | - 0.2 |
| 87.302 C | 54 | 322 | 29 | 171 | 8.9 | -1.5 | + 8.3 | +12.1 |
| 88.478 G | 42 | 175 | 25 | 103 | 9.1 | -1.4 | + 8.3 | +27.8 |
| 89.305 C | 26 | 120 | 17 | 79 | 9.0 | -1.7 | + 8.3 | +38.6 |
| 90.512 G | 11 | 49 | 10 | 44 | 9.1 | -1.7 | + 7.9 | +54.6 |
| 91.365 G | 9 | 40 | 12 | 52 | 9.1 | -1.8 | + 7.8 | +65.9 |
| 92.391 G | 0 | 9 | 0 | 27 | 9.1 | -2.0 | + 8.5 | +79.4 |

### Group 16733

Mar. 26-Apr. 3. Two or three small spots.

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|---|
| 84.323 C | 0 | 9 | 0 | 9 | 337.3 | 0.0 | -13.1 | -58.8 |
| 85.683 G | 20 | 111 | 12 | 71 | 339.4 | +2.0 | -13.9 | -38.8 |
| 86.362 G | 27 | 127 | 15 | 72 | 339.8 | +2.4 | -13.6 | -29.4 |
| 87.302 C | 17 | 92 | 9 | 49 | 339.7 | +2.3 | -13.8 | -17.1 |
| 88.478 G | 4 | 33 | 2 | 16 | 338.7 | +1.2 | -12.9 | - 2.6 |
| 89.305 C | 4 | 13 | 2 | 7 | 339.4 | +1.9 | -13.9 | + 9.0 |
| 90.512 G | 9 | 45 | 5 | 25 | 339.7 | +2.1 | -13.1 | +25.2 |
| 91.365 G | 2 | 13 | 1 | 9 | 339.9 | +2.3 | -13.4 | +36.7 |
| 92.391 G | 4 | 13 | 3 | 10 | 339.8 | +2.1 | -13.4 | +50.1 |
| **Means** | .. | .. | 5 | 30 | 339.3 | .. | -13.5 | .. |

LEDGER II. - NON-RECURRENT GROUPS OF SUNSPOTS

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|---|
| **Group 16735** | | | | | | | | |
| Mar. 30-Apr. 8. Two or three small spots, of which only one remains by April 6. | | | | | | | | |
| | | | | | ° | ° | ° | ° |
| 88.478 G | 18 | 104 | 25 | 144 | 272.0 | 0.0 | -16.8 | -69.3 |
| 89.305 C | 25 | 115 | 24 | 110 | 271.7 | -0.3 | -16.9 | -58.7 |
| 90.512 G | 25 | 92 | 18 | 64 | 271.1 | -0.8 | -16.8 | -43.4 |
| 91.365 G | 17 | 67 | 10 | 40 | 271.3 | -0.5 | -16.9 | -31.9 |
| 92.391 G | 2 | 36 | 1 | 19 | 272.8 | +1.0 | -17.0 | -16.9 |
| 93.663 G | 18 | 98 | 10 | 50 | 269.6 | -2.1 | -17.5 | - 3.3 |
| 94.617 G | 18 | 76 | 9 | 40 | 269.3 | -2.4 | -18.9 | + 9.0 |
| 95.316 C | 26 | 73 | 14 | 39 | 267.5 | -4.1 | -19.4 | +16.4 |
| 96.362 G | 13 | 33 | 8 | 19 | 267.4 | -4.2 | -19.4 | +30.1 |
| 97.645 G | 4 | 16 | 3 | 12 | 266.5 | -5.0 | -19.7 | +46.1 |
| **Means** | .. | .. | 12 | 54 | 269.9 | .. | -17.9 | .. |
| **Group 16737** | | | | | | | | |
| Apr. 4-12. A bi-polar group growing from a tiny spot on April 4. The leader, *a*, a composite spot, is at first the larger component but begins to die out fairly rapidly after April 9. The follower, *b*, becomes regular and is the longest-lived. | | | | | | | | |
| 93.663 G | 4 | 18 | 2 | 11 | 248.6 | 0.0 | +14.5 | -24.3 |
| 94.617 G | 60 | 248 | 33 | 135 | 251.3 | +2.7 | +14.2 | - 9.0 |
| 95.316 C | 93 | 465 | 50 | 248 | 251.6 | +2.9 | +14.1 | + 0.5 |
| 96.362 G | 134 | 825 | 73 | 450 | 251.8 | +3.1 | +13.7 | +14.5 |
| 97.645 G | 218 | 1162 | 136 | 721 | 251.2 | +2.4 | +13.7 | +30.8 |
| 98.391 G | 210 | 1138 | 149 | 804 | 250.2 | +1.4 | +13.8 | +39.7 |
| 99.372 G | 135 | 759 | 121 | 682 | 249.6 | +0.8 | +13.7 | +52.0 |
| 100.616 G | 61 | 322 | 88 | 473 | 248.7 | -0.2 | +14.1 | +67.6 |
| 101.446 C | 20 | 108 | 47 | 254 | 245.9 | -3.0 | +14.4 | +75.7 |
| **Means** | .. | .. | 78 | 420 | 249.9 | .. | +14.0 | .. |
| **Spot *a*** | | | | | | | | |
| 94.617 G | 33 | 152 | 18 | 82 | 252.6 | 0.0 | +14.2 | - 7.7 |
| 95.316 C | 58 | 292 | 31 | 155 | 253.5 | +0.9 | +13.8 | + 2.4 |
| 96.362 G | 69 | 526 | 38 | 289 | 253.5 | +0.8 | +13.2 | +16.2 |
| 97.645 G | 120 | 600 | 77 | 384 | 254.1 | +1.4 | +12.7 | +33.7 |
| 98.391 G | 94 | 506 | 70 | 374 | 254.3 | +1.6 | +13.0 | +43.8 |
| 99.372 G | 54 | 318 | 53 | 312 | 254.4 | +1.6 | +12.5 | +56.8 |
| 100.616 G | 9 | 58 | 18 | 119 | 255.1 | +2.3 | +12.9 | +74.0 |
| **Group 16737 - *continued*** | | | | | | | | |
| **Spot *b*** | | | | | | | | |
| | | | | | ° | ° | ° | ° |
| 93.663 G | 4 | 18 | 2 | 11 | 248.6 | 0.0 | +14.5 | -24.3 |
| 94.617 G | 27 | 96 | 15 | 53 | 249.1 | +0.5 | +14.9 | -11.2 |
| 95.316 C | 35 | 173 | 19 | 93 | 249.1 | +0.4 | +14.7 | - 2.0 |
| 96.362 G | 65 | 299 | 35 | 161 | 248.4 | -0.3 | +14.3 | +11.1 |
| 97.645 G | 98 | 562 | 59 | 337 | 248.0 | -0.8 | +14.4 | +27.6 |
| 98.391 G | 116 | 632 | 79 | 430 | 248.0 | -0.8 | +14.5 | +37.5 |
| 99.372 G | 81 | 441 | 68 | 370 | 247.2 | -1.6 | +14.5 | +49.6 |
| 100.616 G | 52 | 264 | 70 | 354 | 246.7 | -3.2 | +14.4 | +65.6 |
| 101.446 C | 20 | 108 | 47 | 254 | 245.9 | -4.0 | +14.4 | +75.7 |
| **Group 16739** | | | | | | | | |
| Apr. 5-12. A single small spot, except on April 8 and 9, when there is a pair. | | | | | | | | |
| 94.617 G | 2 | 9 | 4 | 17 | 184.9 | 0.0 | -10.6 | -75.4 |
| 95.316 C | 4 | 9 | 5 | 11 | 185.4 | +0.4 | -10.0 | -65.7 |
| 96.362 G | 4 | 9 | 3 | 7 | 185.5 | +0.4 | - 9.8 | -51.8 |
| 97.645 G | 15 | 71 | 9 | 45 | 181.5 | -3.7 | -10.0 | -38.9 |
| 98.391 G | 18 | 58 | 10 | 33 | 181.7 | -3.6 | -10.0 | -28.8 |
| 99.372 G | 4 | 18 | 2 | 9 | 185.1 | -0.3 | - 9.2 | -12.5 |
| 100.616 G | 2 | 11 | 1 | 6 | 185.4 | -0.2 | - 9.3 | + 4.3 |
| 101.446 C | 7 | 22 | 4 | 11 | 185.7 | 0.0 | -10.8 | +15.5 |
| **Means** | .. | .. | 5 | 17 | 184.4 | .. | -10.0 | .. |
| **Group 16740** | | | | | | | | |
| Apr. 6-15. A variable group with a brief maximum on April 12. | | | | | | | | |
| 95.316 C | 13 | 41 | 11 | 36 | 195.6 | 0.0 | -10.6 | -55.5 |
| 96.362 G | 42 | 147 | 28 | 96 | 196.2 | +0.5 | -10.6 | -41.1 |
| 97.645 G | 40 | 203 | 22 | 111 | 196.4 | +0.5 | -10.4 | -24.0 |
| 98.391 G | 29 | 107 | 15 | 55 | 196.1 | +0.2 | -10.2 | -14.4 |
| 99.372 G | 11 | 60 | 6 | 30 | 196.4 | +0.4 | -10.2 | - 1.2 |
| 100.616 G | 33 | 226 | 17 | 118 | 195.8 | -0.4 | -10.7 | +14.7 |
| 101.446 C | 56 | 406 | 31 | 225 | 195.3 | -1.0 | -10.0 | +25.1 |
| 102.625 G | 40 | 233 | 27 | 156 | 196.6 | +0.2 | - 9.7 | +42.0 |
| 103.365 G | 27 | 139 | 22 | 113 | 196.8 | +0.3 | - 9.3 | +51.9 |
| 104.391 G | 9 | 36 | 12 | 46 | 198.4 | +1.8 | - 9.1 | +67.1 |
| **Means** | .. | .. | 19 | 99 | 196.4 | .. | -10.1 | .. |

LEDGER II. - NON-RECURRENT GROUPS OF SUNSPOTS

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | Lati-tude | Long. from C.M. |
|---|---|---|---|---|---|---|---|
| **Group 16743** | | | | | | | |
| Apr. 11-22. A stream of changing spots, of which the leading component slowly assumes a regular outline and alone remains by April 20. | | | | | | | |
| | | | | | ° ° | ° | ° |
| 100.616 G | 0 | 9 | 0 | 19 | 104.2 0.0 | - 5.9 | -76.9 |
| 101.446 C | 4 | 37 | 5 | 43 | 105.6 +1.3 | - 5.2 | -64.6 |
| 102.625 G | 32 | 144 | 23 | 106 | 106.6 +2.1 | - 5.3 | -48.0 |
| 103.365 G | 36 | 284 | 23 | 178 | 107.4 +2.7 | - 5.2 | -37.5 |
| 104.391 G | 71 | 556 | 38 | 305 | 107.7 +2.9 | - 5.0 | -23.6 |
| 105.329 G | 130 | 575 | 67 | 295 | 108.3 +3.3 | - 4.5 | -10.6 |
| 106.324 C | 94 | 493 | 46 | 246 | 108.8 +3.6 | - 5.2 | + 3.0 |
| 107.397 G | 59 | 470 | 31 | 248 | 109.8 +4.4 | - 4.9 | +18.2 |
| 108.088 K | 84 | 405 | 47 | 229 | 110.5 +5.0 | - 4.8 | +28.0 |
| 109.333 G | 58 | 279 | 42 | 201 | 111.9 +6.2 | - 4.4 | +45.9 |
| 110.327 G | 32 | 169 | 31 | 166 | 112.3 +6.4 | - 4.2 | +59.4 |
| 111.390 C | 11 | 78 | 20 | 143 | 113.3 +7.3 | - 4.2 | +74.4 |
| **Means** | .. | .. | 31 | 182 | 108.9 .. | - 4.9 | .. |
| **Group 16744** | | | | | | | |
| Apr. 11-23. A small variable stream, slowly dying out. | | | | | | | |
| 100.616 G | 0 | 7 | 0 | 24 | 98.8 .. | - 7.9 | -82.3 |
| 101.446 C | 19 | 117 | 29 | 184 | 98.4 0.0 | - 7.8 | -71.8 |
| 102.625 G | 40 | 227 | 37 | 209 | 96.5 -2.0 | - 8.3 | -58.1 |
| 103.365 G | 40 | 235 | 30 | 175 | 96.8 -1.9 | - 8.3 | -48.1 |
| 104.391 G | 13 | 94 | 8 | 59 | 95.4 -3.4 | - 8.9 | -35.9 |
| 105.329 G | 18 | 63 | 10 | 34 | 93.7 -5.2 | - 9.7 | -25.2 |
| 106.324 C | 4 | 22 | 2 | 11 | 96.8 -2.2 | - 8.8 | - 9.0 |
| 107.397 G | 16 | 135 | 8 | 68 | 90.5 -8.6 | - 9.7 | - 1.1 |
| 108.088 K | 17 | 87 | 9 | 45 | 91.3 -7.9 | - 9.4 | + 8.8 |
| 109.333 G | 4 | 45 | 2 | 25 | 90.8 -8.6 | - 9.5 | +24.8 |
| 110.327 G | 9 | 36 | 6 | 23 | 91.7 -7.8 | - 9.7 | +38.8 |
| 111.390 C | 4 | 17 | 3 | 14 | 91.1 -8.5 | -10.0 | +52.2 |
| 112.327 G | 5 | 14 | 6 | 16 | 90.9 -8.8 | -10.0 | +64.4 |
| **Means** | .. | .. | 12 | 72 | 93.7 .. | - 9.2 | .. |
| **Group 16749** | | | | | | | |
| Apr. 20-26. A few small variable spots, immediately *n* Group 16750. | | | | | | | |
| 109.333 G | 4 | 18 | 4 | 17 | 8.7 0.0 | -11.5 | -57.3 |
| 110.327 G | 16 | 119 | 11 | 82 | 9.3 +0.5 | -11.0 | -43.6 |
| 111.390 C | 22 | 125 | 13 | 72 | 9.3 +0.4 | -10.5 | -29.6 |
| 112.327 G | 23 | 99 | 13 | 52 | 9.6 +0.6 | -10.8 | -16.9 |
| **Group 16749 - *continued*** | | | | | | | |
| | | | | | ° ° | ° | ° |
| 113.371 G | 7 | 27 | 4 | 14 | 8.5 -0.6 | -11.2 | - 4.2 |
| 114.327 G | 18 | 90 | 9 | 46 | 8.5 -0.6 | -12.2 | + 8.4 |
| 115.344 G | 16 | 86 | 9 | 46 | 7.3 -1.9 | -12.9 | +20.7 |
| **Means** | .. | .. | 9 | 47 | 8.7 .. | -11.4 | .. |
| **Group 16752** | | | | | | | |
| Apr. 21-May 2. A stream of normal type, in which only the leader, *a*, and follower, *b*, both regular spots, remain after April 28. | | | | | | | |
| 110.327 G | 11 | 36 | 15 | 48 | 347.6 0.0 | +16.7 | -65.3 |
| 111.390 C | 68 | 386 | 61 | 350 | 347.4 -0.1 | +17.3 | -51.5 |
| 112.327 G | 104 | 587 | 74 | 418 | 347.0 -0.5 | +17.3 | -39.5 |
| 113.371 G | 145 | 779 | 89 | 470 | 346.9 -0.6 | +17.1 | -25.8 |
| 114.327 G | 171 | 863 | 96 | 482 | 345.6 -1.8 | +16.9 | -14.5 |
| 115.344 G | 134 | 843 | 73 | 458 | 345.0 -2.4 | +17.8 | - 1.6 |
| 116.438 G | 140 | 775 | 78 | 430 | 344.7 -2.6 | +17.6 | +12.5 |
| 117.371 G | 117 | 698 | 69 | 417 | 344.8 -2.5 | +17.4 | +25.0 |
| 118.443 C | 72 | 508 | 50 | 358 | 344.0 -3.2 | +17.8 | +38.3 |
| 119.364 G | 84 | 443 | 74 | 380 | 342.5 -4.7 | +18.1 | +49.0 |
| 120.335 G | 63 | 299 | 76 | 368 | 342.6 -4.5 | +18.1 | +61.9 |
| 121.322 G | 30 | 222 | 74 | 502 | 341.2 -5.9 | +18.8 | +73.6 |
| **Means** | .. | .. | 69 | 390 | 344.9 .. | +17.6 | .. |
| **Spot *a*** | | | | | | | |
| 110.327 G | 9 | 25 | 12 | 32 | 348.9 0.0 | +16.8 | -64.0 |
| 111.390 C | 44 | 240 | 37 | 204 | 349.1 +0.3 | +17.1 | -49.8 |
| 112.327 G | 72 | 375 | 49 | 255 | 349.2 +0.4 | +16.9 | -37.3 |
| 113.371 G | 77 | 425 | 45 | 246 | 350.1 +1.3 | +16.5 | -22.6 |
| 114.327 G | 72 | 368 | 39 | 199 | 350.0 +1.3 | +16.3 | -10.1 |
| 115.344 G | 59 | 334 | 32 | 180 | 350.4 +1.7 | +16.4 | + 3.8 |
| 116.438 G | 59 | 285 | 33 | 160 | 350.6 +2.0 | +16.4 | +18.4 |
| 117.371 G | 54 | 251 | 33 | 156 | 350.5 +1.9 | +16.3 | +30.7 |
| 118.443 C | 28 | 228 | 21 | 173 | 350.6 +2.1 | +16.3 | +44.9 |
| 119.364 G | 32 | 134 | 32 | 133 | 350.2 +1.7 | +16.5 | +56.7 |
| 120.335 G | 18 | 95 | 28 | 150 | 350.0 +1.6 | +16.4 | +69.3 |
| 121.322 G | 7 | 36 | 31 | 158 | 349.6 .. | +16.9 | +82.0 |
| **Spot *b*** | | | | | | | |
| 110.327 G | 2 | 11 | 3 | 16 | 345.4 0.0 | +16.6 | -67.5 |
| 111.390 C | 24 | 146 | 24 | 146 | 343.0 -2.3 | +18.3 | -55.9 |
| 112.327 G | 32 | 212 | 25 | 163 | 342.2 -3.1 | +18.2 | -44.3 |
| 113.371 G | 54 | 273 | 35 | 175 | 341.3 -4.0 | +18.7 | -31.4 |

*continued*

LEDGER II. - NON-RECURRENT GROUPS OF SUNSPOTS

| Date U. T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|
| **Group 16752. Spot *b* - *continued*** | | | | | | | |
| | | | | | ° ° | ° | ° |
| 114.327 G | 72 | 330 | 42 | 191 | 340.7 -4.5 | +18.9 | -19.4 |
| 115.344 G | 59 | 346 | 32 | 190 | 340.5 -4.7 | +19.2 | - 6.1 |
| 116.438 G | 72 | 418 | 40 | 230 | 340.5 -4.6 | +19.1 | + 8.3 |
| 117.371 G | 45 | 287 | 26 | 166 | 339.8 -5.3 | +19.2 | +20.0 |
| 118.443 C | 44 | 280 | 29 | 185 | 339.7 -5.3 | +19.0 | +34.0 |
| 119.364 G | 52 | 309 | 42 | 247 | 339.9 -5.1 | +19.0 | +46.4 |
| 120.335 G | 45 | 204 | 48 | 218 | 339.4 -5.5 | +18.9 | +58.7 |
| 121.322 G | 23 | 186 | 43 | 344 | 339.4 -5.5 | +19.8 | +71.8 |
| **Group 16753** | | | | | | | |
| Apr. 23-28. A pair of spots, of which only one remains by April 26. | | | | | | | |
| 112.327 G | 18 | 79 | 11 | 49 | 351.2 0.0 | + 1.7 | -35.3 |
| 113.371 G | 34 | 111 | 18 | 60 | 353.3 +1.9 | + 1.8 | -19.4 |
| 114.327 G | 28 | 95 | 15 | 47 | 354.3 +2.7 | + 1.5 | - 5.8 |
| 115.344 G | 7 | 18 | 4 | 9 | 357.4 +5.6 | + 0.9 | +10.8 |
| 116.438 G | 5 | 29 | 3 | 16 | 358.2 +6.2 | + 1.4 | +26.0 |
| 117.371 G | 2 | 9 | 1 | 6 | 358.7 +6.6 | + 1.8 | +38.9 |
| **Means** | .. | .. | 9 | 31 | 355.5 .. | + 1.5 | .. |
| **Group 16754** | | | | | | | |
| Apr. 23-May 5. A regular spot, followed by a distant companion until May 2. | | | | | | | |
| 112.327 G | 0 | 7 | 0 | 20 | 305.9 .. | - 6.7 | -80.6 |
| 113.371 G | 14 | 61 | 19 | 79 | 305.4 0.0 | - 6.6 | -67.3 |
| 114.327 G | 55 | 253 | 46 | 211 | 307.1 +1.6 | - 6.8 | -53.0 |
| 115.344 G | 64 | 362 | 42 | 234 | 307.4 +1.7 | - 6.3 | -39.2 |
| 116.438 G | 68 | 410 | 37 | 224 | 308.2 +2.3 | - 6.1 | -24.0 |
| 117.371 G | 66 | 389 | 34 | 199 | 309.4 +3.4 | - 6.7 | -10.4 |
| 118.443 C | 65 | 370 | 32 | 185 | 309.8 +3.6 | - 6.8 | + 4.1 |
| 119.364 G | 61 | 309 | 32 | 160 | 310.3 +4.0 | - 6.8 | +16.8 |
| 120.335 G | 52 | 241 | 30 | 140 | 310.6 +4.1 | - 6.9 | +29.9 |
| 121.322 G | 41 | 198 | 28 | 134 | 310.3 +3.7 | - 6.8 | +42.7 |
| 122.327 C | 22 | 154 | 20 | 139 | 310.9 +4.1 | - 7.2 | +56.6 |
| 123.633 G | 18 | 86 | 30 | 143 | 309.9 +2.9 | - 7.2 | +72.8 |
| 124.359 G | 10 | 50 | 38 | 191 | 310.3 .. | - 7.3 | +82.8 |
| **Means** | .. | .. | 32 | 168 | 309.0 .. | - 6.7 | .. |
| **Group 16756** | | | | | | | |
| Apr. 28-May 2. A small spot. | | | | | | | |
| 115.344 G | 7 | 23 | 11 | 35 | 275.1 0.0 | -11.9 | -71.5 |
| 116.438 G | 9 | 41 | 8 | 37 | 275.4 +0.2 | -11.7 | -56.8 |
| **Group 16756 - *continued*** | | | | | | | |
| | | | | | ° ° | ° | ° |
| 117.371 G | 9 | 41 | 6 | 29 | 275.2 -0.1 | -11.9 | -44.6 |
| 118.443 C | 11 | 46 | 6 | 27 | 275.2 -0.1 | -11.8 | -30.5 |
| 119.364 G | 16 | 39 | 8 | 21 | 275.3 -0.1 | -12.0 | -18.2 |
| 120.335 G | 9 | 36 | 5 | 18 | 275.5 0.0 | -12.1 | - 5.2 |
| 121.322 G | 5 | 14 | 3 | 7 | 275.3 -0.3 | -11.9 | + 7.7 |
| **Means** | .. | .. | 7 | 25 | 275.3 .. | -11.9 | .. |
| **Group 16762** | | | | | | | |
| May 7-19. A stable regular spot, with a few tiny companions on May 14. | | | | | | | |
| 126.498 C | 13 | 86 | 38 | 251 | 119.7 0.0 | + 7.6 | -79.5 |
| 127.650 G | 25 | 186 | 29 | 216 | 120.3 +0.4 | + 7.1 | -63.7 |
| 128.322 C | 37 | 233 | 33 | 207 | 120.2 +0.2 | + 7.3 | -54.9 |
| 129.371 G | 36 | 260 | 24 | 177 | 120.2 +0.1 | + 7.2 | -41.0 |
| 130.319 G | 48 | 324 | 28 | 188 | 120.2 -0.1 | + 7.1 | -28.5 |
| 131.304 G | 57 | 274 | 30 | 145 | 120.1 -0.3 | + 6.9 | -15.6 |
| 132.390 G | 73 | 315 | 37 | 161 | 120.2 -0.4 | + 6.9 | - 1.1 |
| 133.440 G | 73 | 319 | 38 | 166 | 120.3 -0.4 | + 6.9 | +12.9 |
| 134.470 G | 41 | 251 | 23 | 143 | 120.8 -0.1 | + 6.9 | +27.0 |
| 135.401 G | 32 | 223 | 21 | 147 | 120.9 -0.1 | + 7.0 | +39.4 |
| 136.595 G | 36 | 164 | 32 | 146 | 121.1 -0.1 | + 6.5 | +55.4 |
| 137.353 G | 16 | 119 | 20 | 146 | 121.3 0.0 | + 6.7 | +65.6 |
| 138.356 G | 9 | 107 | 25 | 293 | 121.5 0.0 | + 6.5 | +79.1 |
| **Means** | .. | .. | 29 | 184 | 120.5 .. | + 7.0 | .. |
| **Group 16765** | | | | | | | |
| May 10-19. A string of small variable spots. | | | | | | | |
| 129.371 G | 2 | 9 | 5 | 24 | 82.1 0.0 | + 1.0 | -79.1 |
| 130.319 G | 23 | 109 | 34 | 158 | 79.6 -2.7 | + 0.7 | -69.1 |
| 131.304 G | 32 | 196 | 30 | 182 | 78.7 -3.8 | + 0.7 | -57.0 |
| 132.390 G | 43 | 190 | 29 | 133 | 77.5 -5.2 | + 0.6 | -43.8 |
| 133.440 G | 28 | 132 | 17 | 77 | 76.7 -6.2 | + 0.3 | -30.7 |
| 134.470 G | 28 | 141 | 14 | 74 | 75.5 -7.6 | + 1.3 | -18.3 |
| 135.401 G | 12 | 82 | 6 | 42 | 76.2 -7.0 | + 2.1 | - 5.3 |
| 136.595 G | 5 | 36 | 3 | 18 | 76.9 -6.6 | + 0.6 | +11.2 |
| 137.353 G | 2 | 9 | 1 | 5 | 77.5 -6.1 | + 0.6 | +21.8 |
| 138.356 G | 0 | 5 | 0 | 3 | 76.7 -7.1 | - 0.2 | +34.3 |
| **Means** | .. | .. | 14 | 72 | 77.7 .. | + 0.8 | .. |

LEDGER II. - NON-RECURRENT GROUPS OF SUNSPOTS

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|---|
| **Group 16766** | | | | | | | | |
| May 10-21. A regular spot with occasional companions. By May 19 it begins to break up and die out. | | | | | | | | |
| | | | | | ° | ° | ° | ° |
| 129.371 G | 14 | 87 | 44 | 274 | 80.8 | .. | + 5.5 | −80.4 |
| 130.319 G | 39 | 210 | 55 | 300 | 79.8 | 0.0 | + 5.5 | −68.9 |
| 131.304 G | 43 | 235 | 38 | 208 | 80.7 | +0.7 | + 5.5 | −55.0 |
| 132.390 G | 64 | 287 | 42 | 190 | 81.0 | +0.9 | + 5.7 | −40.3 |
| 133.440 G | 48 | 253 | 27 | 144 | 80.6 | +0.3 | + 5.5 | −26.8 |
| 134.470 G | 62 | 291 | 33 | 152 | 80.2 | −0.3 | + 6.0 | −13.6 |
| 135.401 G | 50 | 249 | 26 | 127 | 80.3 | −0.3 | + 5.7 | − 1.2 |
| 136.595 G | 46 | 208 | 24 | 108 | 80.2 | −0.6 | + 5.6 | +14.5 |
| 137.353 G | 37 | 191 | 21 | 107 | 79.7 | −1.3 | + 6.1 | +24.0 |
| 138.356 G | 36 | 132 | 23 | 84 | 80.4 | −0.7 | + 5.0 | +38.0 |
| 139.363 G | 14 | 57 | 11 | 46 | 80.3 | −1.0 | + 4.2 | +51.2 |
| 140.307 G | 5 | 23 | 6 | 27 | 81.2 | −0.3 | + 4.6 | +64.6 |
| **Means** | .. | .. | 28 | 136 | 80.4 | .. | + 5.4 | .. |
| **Group 16767** | | | | | | | | |
| May 11-22. A slowly-diminishing regular spot with a few companions. | | | | | | | | |
| 130.319 G | 23 | 180 | 48 | 376 | 73.6 | 0.0 | +10.4 | −75.1 |
| 131.304 G | 28 | 182 | 31 | 197 | 74.5 | +0.8 | +10.3 | −61.2 |
| 132.390 G | 36 | 251 | 27 | 188 | 75.0 | +1.2 | +10.2 | −46.3 |
| 133.440 G | 36 | 223 | 22 | 136 | 74.8 | +0.9 | +10.5 | −32.6 |
| 134.470 G | 52 | 288 | 28 | 156 | 74.5 | +0.5 | +11.2 | −19.3 |
| 135.401 G | 41 | 272 | 22 | 141 | 74.7 | +0.6 | +11.4 | − 6.8 |
| 136.595 G | 41 | 237 | 22 | 124 | 74.8 | +0.6 | +11.8 | + 9.1 |
| 137.353 G | 32 | 173 | 18 | 95 | 75.3 | +1.1 | +12.1 | +19.6 |
| 138.356 G | 23 | 87 | 14 | 53 | 75.3 | +1.0 | +11.9 | +32.9 |
| 139.363 G | 11 | 59 | 8 | 44 | 75.7 | +1.3 | +12.2 | +46.6 |
| 140.307 G | 5 | 27 | 5 | 26 | 74.7 | +0.2 | +12.1 | +58.1 |
| 141.324 G | 0 | 9 | 0 | 15 | 74.4 | −0.2 | +11.7 | +71.3 |
| **Means** | .. | .. | 20 | 129 | 74.8 | .. | +11.3 | .. |
| **Group 16769** | | | | | | | | |
| May 13-22. A small composite spot which begins to diminish slowly after May 16. | | | | | | | | |
| 132.390 G | 7 | 50 | 11 | 78 | 51.1 | 0.0 | +11.4 | −70.2 |
| 133.440 G | 9 | 71 | 8 | 67 | 50.8 | −0.4 | +11.5 | −56.6 |
| 134.470 G | 32 | 169 | 22 | 118 | 51.6 | +0.3 | +11.1 | −42.2 |
| 135.401 G | 57 | 363 | 34 | 218 | 51.0 | −0.4 | +11.0 | −30.5 |
| 136.595 G | 48 | 255 | 25 | 135 | 51.5 | 0.0 | +11.1 | −14.2 |
| 137.353 G | 36 | 198 | 18 | 101 | 51.8 | +0.2 | +10.8 | − 3.9 |
| 138.356 G | 23 | 105 | 12 | 55 | 51.8 | +0.1 | +10.9 | + 9.4 |
| 139.363 G | 18 | 80 | 10 | 45 | 52.0 | +0.2 | +11.0 | +22.9 |
| **Group 16769 - *continued*** | | | | | | | | |
| | | | | | ° | ° | ° | ° |
| 140.307 G | 9 | 55 | 5 | 35 | 52.9 | +1.0 | +10.7 | +36.3 |
| 141.324 G | 2 | 11 | 2 | 9 | 52.1 | +0.2 | +11.0 | +49.0 |
| **Means** | .. | .. | 15 | 86 | 51.7 | .. | +11.0 | .. |
| **Group 16775** | | | | | | | | |
| May 16-28. One or two small spots at the east limb, quickly developing into a bi-polar group. On May 21 the follower, *b*, begins to split into two and slowly declines. | | | | | | | | |
| 135.401 G | 2 | 14 | 5 | 32 | 5.8 | 0.0 | +20.6 | −75.7 |
| 136.595 G | 27 | 192 | 30 | 213 | 4.9 | −0.7 | +20.9 | −60.8 |
| 137.353 G | 103 | 532 | 90 | 457 | 5.4 | −0.1 | +21.1 | −50.3 |
| 138.356 G | 237 | 1222 | 163 | 841 | 5.4 | 0.0 | +21.2 | −37.0 |
| 139.363 G | 269 | 1587 | 161 | 951 | 5.4 | +0.1 | +21.4 | −23.7 |
| 140.307 G | 353 | 1891 | 195 | 1049 | 5.1 | 0.0 | +21.0 | −11.5 |
| 141.324 G | 341 | 2116 | 186 | 1153 | 5.4 | +0.4 | +21.0 | + 2.3 |
| 142.540 C | 338 | 1902 | 193 | 1088 | 5.5 | +0.7 | +21.0 | +18.5 |
| 143.382 G | 275 | 1640 | 172 | 1025 | 5.6 | +0.9 | +20.3 | +29.7 |
| 144.329 G | 213 | 1252 | 157 | 917 | 5.8 | +1.2 | +20.1 | +42.4 |
| 145.331 C | 166 | 870 | 160 | 831 | 5.5 | +1.0 | +20.1 | +55.4 |
| 146.430 G | 80 | 536 | 133 | 874 | 5.1 | +0.8 | +19.9 | +69.5 |
| 147.429 G | 55 | 266 | 245 | 1166 | 5.0 | .. | +20.1 | +82.6 |
| **Means** | .. | .. | 137 | 786 | 5.4 | .. | +20.7 | .. |
| Spot *a* | | | | | | | | |
| 135.401 G | 2 | 14 | 5 | 32 | 5.8 | 0.0 | +20.6 | −75.7 |
| 136.595 G | 18 | 146 | 19 | 156 | 6.7 | +1.1 | +21.2 | −59.0 |
| 137.353 G | 62 | 404 | 52 | 339 | 7.0 | +1.5 | +21.7 | −48.7 |
| 138.356 G | 132 | 679 | 88 | 455 | 7.9 | +2.5 | +22.2 | −34.5 |
| 139.363 G | 169 | 869 | 100 | 513 | 8.3 | +3.0 | +22.0 | −20.8 |
| 140.307 G | 204 | 998 | 112 | 549 | 8.3 | +3.2 | +21.7 | − 8.3 |
| 141.324 G | 188 | 1099 | 103 | 604 | 8.7 | +3.7 | +21.3 | + 5.6 |
| 142.540 C | 200 | 1161 | 116 | 673 | 8.1 | +3.3 | +21.0 | +21.1 |
| 143.382 G | 183 | 1026 | 117 | 657 | 8.2 | +3.5 | +20.6 | +32.3 |
| 144.329 G | 153 | 824 | 116 | 626 | 8.0 | +3.4 | +20.6 | +44.6 |
| 145.331 C | 122 | 573 | 123 | 579 | 7.7 | +3.2 | +20.5 | +57.6 |
| 146.430 G | 57 | 348 | 103 | 626 | 7.9 | +3.6 | +20.4 | +72.3 |
| 147.429 G | 46 | 211 | 220 | 1011 | 5.6 | .. | +20.7 | +83.2 |
| Spot *b* | | | | | | | | |
| 136.595 G | 9 | 46 | 11 | 57 | 2.1 | 0.0 | +19.9 | −63.6 |
| 137.353 G | 41 | 128 | 38 | 118 | 2.1 | +0.1 | +20.0 | −53.6 |
| 138.356 G | 105 | 543 | 75 | 386 | 1.9 | 0.0 | +19.4 | −40.5 |

*continued*

LEDGER II. - NON-RECURRENT GROUPS OF SUNSPOTS

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|
| **Group 16775. Spot *b* - *continued*** | | | | | | | |
| | | | | | ° ° | ° | ° |
| 139.363 G | 100 | 718 | 61 | 438 | 1.7 0.0 | +19.9 | -27.4 |
| 140.307 G | 149 | 893 | 83 | 500 | 1.6 0.0 | +20.1 | -15.0 |
| 141.324 G | 153 | 1017 | 83 | 549 | 1.2 -0.3 | +20.4 | - 1.9 |
| 142.540 C | 138 | 741 | 77 | 415 | 1.3 0.0 | +20.0 | +14.3 |
| 143.382 G | 92 | 614 | 55 | 368 | 1.2 0.0 | +20.1 | +25.3 |
| 144.329 G | 60 | 428 | 41 | 291 | 1.2 +0.1 | +19.8 | +37.8 |
| 145.331 C | 44 | 297 | 37 | 252 | 1.1 +0.2 | +19.0 | +51.0 |
| 146.430 G | 23 | 188 | 30 | 248 | 1.5 +0.7 | +19.4 | +65.9 |
| 147.429 G | 9 | 55 | 25 | 155 | 1.3 +0.7 | +18.5 | +78.9 |
| **Group 16778** | | | | | | | |
| May 18-26. A few small variable spots until May 20, when there is a spurt of activity for a few days. After this, the group slowly dies out. | | | | | | | |
| 135.401 G | 2 | 27 | 7 | 93 | 359.5 .. | -13.9 | -82.0 |
| 136.595 G | 28 | 96 | 36 | 124 | 358.9 0.0 | -14.2 | -66.8 |
| 137.353 G | 14 | 94 | 13 | 88 | 358.3 -0.6 | -14.4 | -57.4 |
| 138.356 G | 14 | 71 | 10 | 50 | 358.9 -0.1 | -14.2 | -43.5 |
| 139.363 G | 87 | 356 | 52 | 210 | 359.5 +0.5 | -14.5 | -29.6 |
| 140.307 G | 122 | 639 | 60 | 342 | 359.8 +0.8 | -14.3 | -16.8 |
| 141.324 G | 94 | 490 | 49 | 252 | 0.0 +0.9 | -14.2 | - 3.1 |
| 142.540 C | 47 | 336 | 24 | 176 | 0.0 +0.9 | -14.3 | +13.0 |
| 143.382 G | 25 | 149 | 14 | 85 | 1.2 +2.1 | -14.2 | +25.3 |
| 144.329 G | 25 | 122 | 15 | 78 | 0.2 +1.0 | -14.3 | +36.8 |
| 145.331 C | 4 | 18 | 3 | 15 | 3.4 +4.2 | -13.9 | +53.3 |
| **Means** | .. | .. | 28 | 142 | 0.0 .. | -14.2 | .. |
| **Group 16788** | | | | | | | |
| June 4-9. A small stream of variable spots. | | | | | | | |
| 154.437 G | 7 | 41 | 6 | 30 | 143.6 0.0 | -11.1 | -46.0 |
| 155.533 G | 32 | 124 | 19 | 74 | 143.9 +0.2 | -10.7 | -31.2 |
| 156.304 G | 30 | 172 | 17 | 94 | 144.3 +0.5 | -10.4 | -20.6 |
| 157.561 G | 44 | 258 | 22 | 131 | 145.0 +1.1 | -10.4 | - 3.3 |
| 158.319 G | 27 | 189 | 14 | 97 | 145.3 +1.3 | -10.3 | + 7.1 |
| 159.335 G | 12 | 83 | 7 | 45 | 145.7 +1.6 | - 9.9 | +20.9 |
| **Means** | .. | .. | 14 | 80 | 144.6 .. | -10.5 | .. |
| **Group 16789** | | | | | | | |
| June 5-13. A pair of spots appearing suddenly immediately *p* Group 16788. These quickly form a bi-polar group, of which the follower, *b*, breaks up after June 10. The leader, *a*, a regular spot, is the sole survivor at the limb. | | | | | | | |
| 155.533 G | 9 | 44 | 5 | 25 | 150.1 0.0 | - 7.1 | -25.0 |
| 156.304 G | 115 | 579 | 61 | 304 | 151.1 +0.9 | - 7.4 | -13.8 |

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|
| **Group 16789 - *continued*** | | | | | | | |
| | | | | | ° ° | ° | ° |
| 157.561 G | 209 | 1440 | 106 | 728 | 152.5 +2.1 | - 7.2 | + 4.2 |
| 158.319 G | 186 | 1279 | 97 | 667 | 153.2 +2.7 | - 7.2 | +15.0 |
| 159.335 G | 184 | 1143 | 106 | 657 | 153.5 +2.8 | - 6.8 | +28.7 |
| 160.443 C | 101 | 752 | 72 | 524 | 153.4 +2.6 | - 6.6 | +43.3 |
| 161.292 G | 78 | 476 | 71 | 429 | 153.8 +2.8 | - 6.6 | +54.9 |
| 162.469 G | 35 | 199 | 60 | 344 | 155.2 +4.0 | - 6.1 | +71.9 |
| 163.380 G | 2 | 12 | 15 | 88 | 157.2 .. | - 6.0 | +86.0 |
| **Means** | .. | .. | 72 | 460 | 152.8 .. | - 6.9 | .. |
| **Spot *a*** | | | | | | | |
| 155.533 G | 7 | 32 | 4 | 18 | 150.8 0.0 | - 6.9 | -24.3 |
| 156.304 G | 55 | 340 | 29 | 177 | 152.7 +1.8 | - 7.3 | -12.2 |
| 157.561 G | 110 | 773 | 56 | 394 | 155.8 +4.7 | - 6.9 | + 7.5 |
| 158.319 G | 108 | 759 | 57 | 402 | 156.4 +5.2 | - 6.8 | +18.2 |
| 159.335 G | 129 | 706 | 76 | 417 | 156.9 +5.5 | - 6.4 | +32.1 |
| 160.443 C | 74 | 433 | 55 | 320 | 156.9 +5.4 | - 6.2 | +46.8 |
| 161.292 G | 60 | 347 | 57 | 330 | 157.0 +5.3 | - 6.3 | +58.1 |
| 162.469 G | 30 | 176 | 54 | 317 | 157.1 +5.2 | - 6.0 | +73.8 |
| 163.380 G | 2 | 12 | 15 | 88 | 157.2 .. | - 6.0 | +86.0 |
| **Spot *b*** | | | | | | | |
| 155.533 G | 2 | 12 | 1 | 7 | 148.3 0.0 | - 7.5 | -26.8 |
| 156.304 G | 60 | 239 | 32 | 127 | 148.1 -0.3 | - 7.1 | -16.8 |
| 157.561 G | 99 | 667 | 50 | 334 | 148.1 -0.5 | - 6.9 | - 0.2 |
| 158.319 G | 78 | 520 | 40 | 265 | 147.8 -0.9 | - 7.4 | + 9.6 |
| 159.335 G | 55 | 437 | 30 | 240 | 147.7 -1.2 | - 7.2 | +22.9 |
| 160.443 C | 27 | 319 | 17 | 204 | 148.3 -0.7 | - 7.4 | +38.2 |
| 161.292 G | 18 | 129 | 14 | 99 | 148.2 -1.0 | - 7.3 | +49.3 |
| 162.469 G | 5 | 23 | 6 | 27 | 147.5 -1.9 | - 6.8 | +64.2 |
| **Group 16790** | | | | | | | |
| June 5-17. A stream in which the leader, a double spot, is the first to break up and die out. The follower, more stable, has a large disturbed area on its northern and preceding boundaries until June 12. | | | | | | | |
| 155.533 G | 42 | 267 | 107 | 612 | 98.5 0.0 | + 8.2 | -76.6 |
| 156.304 G | 60 | 442 | 76 | 611 | 97.0 -1.6 | + 8.0 | -67.9 |
| 157.561 G | 135 | 1139 | 107 | 928 | 96.9 -1.9 | + 8.7 | -51.4 |
| 158.319 G | 174 | 1568 | 116 | 1063 | 96.5 -2.4 | + 8.3 | -41.7 |
| 159.335 G | 285 | 2011 | 163 | 1151 | 96.9 -2.1 | + 8.3 | -27.9 |
| 160.443 C | 234 | 1922 | 122 | 995 | 97.5 -1.7 | + 8.1 | -12.6 |
| 161.292 G | 225 | 1725 | 113 | 872 | 96.8 -2.5 | + 8.7 | - 2.1 |
| 162.469 G | 143 | 1234 | 73 | 640 | 97.2 -2.3 | + 8.2 | +13.9 |

LEDGER II. - NON-RECURRENT GROUPS OF SUNSPOTS

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|---|
| **Group 16790 - *continued*** | | | | | | | | |
| | | | | | ° | ° | ° | ° |
| 163.380 G | 141 | 947 | 80 | 535 | 97.8 | -1.8 | + 8.0 | +26.6 |
| 164.323 G | 104 | 651 | 69 | 430 | 98.8 | -0.9 | + 7.5 | +40.0 |
| 165.327 G | 62 | 384 | 51 | 317 | 98.1 | -1.8 | + 7.2 | +52.6 |
| 166.316 G | 35 | 190 | 41 | 220 | 97.2 | -2.8 | + 7.4 | +64.8 |
| 167.375 G | 14 | 102 | 31 | 225 | 95.4 | -4.8 | + 6.7 | +77.0 |
| **Means** | .. | .. | 88 | 661 | 97.3 | .. | + 7.9 | .. |
| **Group 16791** | | | | | | | | |
| June 5-14. A pair of spots, slowly dying out. | | | | | | | | |
| 155.533 G | 2 | 18 | 7 | 59 | 94.2 | .. | +16.6 | -80.9 |
| 156.304 G | 28 | 216 | 42 | 326 | 95.3 | 0.0 | +16.3 | -69.6 |
| 157.561 G | 19 | 188 | 16 | 166 | 95.3 | 0.0 | +16.4 | -53.0 |
| 158.319 G | 30 | 239 | 21 | 172 | 94.9 | -0.4 | +16.3 | -43.3 |
| 159.335 G | 34 | 274 | 20 | 165 | 95.0 | -0.3 | +16.6 | -29.8 |
| 160.443 C | 26 | 178 | 14 | 96 | 94.8 | -0.5 | +16.6 | -15.3 |
| 161.292 G | 27 | 129 | 14 | 67 | 95.7 | +0.4 | +16.3 | - 3.2 |
| 162.469 G | 21 | 88 | 11 | 46 | 95.1 | -0.2 | +15.4 | +11.8 |
| 163.380 G | 14 | 143 | 8 | 81 | 95.3 | 0.0 | +14.9 | +24.1 |
| 164.323 G | 9 | 81 | 6 | 53 | 96.5 | +1.2 | +13.4 | +37.7 |
| **Means** | .. | .. | 17 | 130 | 95.3 | .. | +15.8 | .. |
| **Group 16799** | | | | | | | | |
| June 15-25. A stream, forming immediately behind Group 16795. At first the rear spot is the principal component but by June 20 the leading part coalesces into a composite structure and becomes the larger member. | | | | | | | | |
| 165.327 G | 21 | 114 | 16 | 88 | 356.9 | 0.0 | -11.4 | -48.6 |
| 166.316 G | 78 | 409 | 50 | 259 | 357.0 | 0.0 | -11.0 | -35.4 |
| 167.375 G | 88 | 455 | 50 | 258 | 353.9 | -3.2 | -11.1 | -24.5 |
| 168.393 G | 85 | 511 | 44 | 265 | 354.2 | -3.0 | -11.2 | -10.7 |
| 169.365 G | 87 | 601 | 44 | 306 | 354.4 | -2.9 | -10.4 | + 2.4 |
| 170.328 G | 178 | 956 | 95 | 511 | 355.2 | -2.2 | -10.5 | +15.9 |
| 171.321 G | 238 | 1428 | 142 | 850 | 356.9 | -0.6 | - 9.8 | +30.8 |
| 172.342 G | 166 | 1504 | 120 | 1095 | 358.0 | +0.3 | - 9.3 | +45.4 |
| 173.333 C | 142 | 1022 | 140 | 1017 | 357.8 | 0.0 | - 9.3 | +58.3 |
| 174.396 C | 62 | 339 | 111 | 688 | 359.4 | +1.5 | - 9.4 | +74.0 |
| 175.326 G | 7 | 42 | (23 | 143 | 354.2 | .. | - 9.7) | +81.1 |
| **Means** | .. | .. | 81 | 534 | 356.4 | .. | -10.3 | .. |
| **Group 16800** | | | | | | | | |
| June 18-28. A stable regular spot, followed by a distant companion until June 22. | | | | | | | | |
| | | | | | ° | ° | ° | ° |
| 166.316 G | 9 | 37 | 40 | 162 | 308.9 | .. | +14.6 | -83.5 |
| 167.375 G | 28 | 196 | 43 | 299 | 307.7 | 0.0 | +14.8 | -70.7 |
| 168.393 G | 53 | 310 | 50 | 289 | 308.0 | +0.3 | +15.0 | -56.9 |
| 169.365 G | 53 | 370 | 38 | 264 | 307.8 | +0.1 | +15.2 | -44.2 |
| 170.328 G | 84 | 393 | 50 | 233 | 308.7 | +1.0 | +15.3 | -30.6 |
| 171.321 G | 72 | 374 | 39 | 203 | 309.2 | +1.4 | +15.5 | -16.9 |
| 172.342 G | 79 | 346 | 41 | 177 | 309.4 | +1.6 | +15.5 | - 3.2 |
| 173.333 C | 67 | 392 | 35 | 204 | 309.7 | +1.9 | +15.1 | +10.2 |
| 174.396 C | 62 | 326 | 35 | 183 | 309.5 | +1.7 | +15.1 | +24.1 |
| 175.326 G | 67 | 346 | 43 | 221 | 309.6 | +1.8 | +15.1 | +36.5 |
| 176.322 G | 40 | 273 | 32 | 216 | 310.0 | +2.2 | +15.1 | +50.1 |
| 177.543 G | 9 | 46 | 12 | 61 | 311.5 | +3.6 | +14.3 | +67.7 |
| 178.362 C | 2 | 9 | 5 | 23 | 311.8 | +3.9 | +14.2 | +78.9 |
| **Means** | .. | .. | 35 | 198 | 309.4 | .. | +15.0 | .. |
| **Group 16805** | | | | | | | | |
| June 27-July 4. One or two tiny variable spots, not seen on July 1. | | | | | | | | |
| 177.543 G | 0 | 5 | 0 | 14 | 164.3 | 0.0 | - 5.6 | -79.5 |
| 178.362 C | 0 | 9 | 0 | 12 | 165.1 | +0.7 | - 5.6 | -67.8 |
| 179.358 G | 2 | 9 | 2 | 8 | 165.2 | +0.6 | - 5.6 | -54.6 |
| 180.320 G | 0 | 9 | 0 | 6 | 162.3 | -2.5 | - 6.0 | -44.7 |
| 181.361 G | 0 | 0 | 0 | 0 | .. | .. | .. | .. |
| 182.307 G | 7 | 27 | 4 | 15 | 161.7 | -3.4 | - 6.4 | -19.0 |
| 183.303 G | 10 | 37 | 6 | 19 | 163.7 | -1.5 | - 6.9 | - 3.8 |
| 184.448 G | 0 | 9 | 0 | 5 | 160.4 | -5.0 | - 5.9 | + 8.0 |
| **Means** | .. | .. | 2 | 10 | 163.2 | .. | - 6.0 | .. |
| **Group 16813** | | | | | | | | |
| July 7-15. A small stream led by a small regular spot which becomes double for a day or two. The group dies out just past the central meridian. | | | | | | | | |
| 187.312 G | 12 | 106 | 25 | 217 | 38.3 | 0.0 | + 9.0 | -76.2 |
| 188.368 G | 41 | 245 | 48 | 284 | 36.3 | -2.1 | + 9.6 | -64.2 |
| 189.357 G | 51 | 286 | 40 | 225 | 37.2 | -1.3 | + 9.3 | -50.2 |
| 190.480 G | 55 | 298 | 34 | 185 | 36.8 | -1.9 | +10.0 | -35.7 |
| 191.576 G | 51 | 236 | 28 | 127 | 37.2 | -1.6 | + 9.7 | -20.8 |
| 192.304 G | 25 | 111 | 13 | 57 | 38.7 | -0.2 | + 9.2 | - 9.7 |
| 193.299 G | 16 | 83 | 8 | 42 | 38.8 | -0.2 | + 9.1 | + 3.6 |
| 194.303 G | 9 | 37 | 5 | 19 | 39.1 | -0.1 | + 9.0 | +17.1 |
| 195.400 G | 2 | 14 | 1 | 8 | 39.1 | -0.2 | + 8.8 | +31.7 |
| **Means** | .. | .. | 22 | 129 | 37.9 | .. | + 9.3 | .. |

LEDGER II. - NON-RECURRENT GROUPS OF SUNSPOTS

### Group 16822

July 18-29. A small, slowly-diminishing regular spot.

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|---|
| | | | | | ° | ° | ° | ° |
| 198.321 G | 18 | 99 | 30 | 164 | 256.8 | 0.0 | - 4.9 | -72.0 |
| 199.566 G | 46 | 231 | 41 | 209 | 256.8 | -0.2 | - 4.7 | -55.5 |
| 200.303 G | 37 | 273 | 27 | 199 | 256.8 | -0.3 | - 4.8 | -45.8 |
| 201.301 G | 51 | 267 | 31 | 160 | 257.1 | -0.2 | - 4.9 | -32.3 |
| 202.378 G | 39 | 282 | 21 | 149 | 257.1 | -0.4 | - 4.8 | -18.0 |
| 203.381 G | 37 | 235 | 19 | 120 | 257.3 | -0.4 | - 4.7 | - 4.5 |
| 204.303 G | 28 | 180 | 14 | 92 | 257.2 | -0.6 | - 4.5 | + 7.6 |
| 205.302 G | 28 | 162 | 15 | 87 | 257.3 | -0.7 | - 4.5 | +20.9 |
| 206.635 G | 25 | 111 | 16 | 72 | 257.2 | -1.0 | - 4.4 | +38.4 |
| 207.392 G | 14 | 71 | 11 | 55 | 257.3 | -1.1 | - 4.4 | +48.5 |
| 208.304 G | 9 | 34 | 9 | 35 | 257.2 | -1.3 | - 4.1 | +60.5 |
| 209.367 C | 0 | 18 | 0 | 35 | 257.0 | -1.7 | - 4.1 | +74.4 |
| **Means** | .. | .. | 20 | 115 | 257.1 | .. | - 4.6 | .. |

### Group 16826

July 22-Aug. 1. A very short stream, dying out before reaching the limb.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 202.378 G | 17 | 88 | 41 | 216 | 198.0 | 0.0 | - 4.8 | -77.1 |
| 203.381 G | 25 | 145 | 29 | 165 | 198.5 | -0.3 | - 5.3 | -63.3 |
| 204.303 G | 30 | 176 | 24 | 140 | 199.9 | +1.0 | - 5.4 | -49.7 |
| 205.302 G | 41 | 180 | 26 | 114 | 200.6 | +1.5 | - 5.8 | -35.8 |
| 206.635 G | 46 | 222 | 25 | 120 | 201.2 | +1.9 | - 5.9 | -17.6 |
| 207.392 G | 37 | 186 | 19 | 94 | 202.9 | +3.5 | - 6.1 | - 5.9 |
| 208.304 G | 37 | 147 | 19 | 75 | 203.8 | +4.2 | - 6.0 | + 7.1 |
| 209.367 C | 27 | 105 | 15 | 58 | 204.2 | +4.5 | - 6.3 | +21.6 |
| 210.306 G | 28 | 64 | 17 | 40 | 204.8 | +4.9 | - 6.8 | +34.6 |
| 211.303 G | 9 | 55 | 7 | 43 | 205.7 | +5.6 | - 6.7 | +48.7 |
| 212.653 G | 5 | 14 | 7 | 19 | 207.2 | +7.0 | - 6.3 | +68.0 |
| **Means** | .. | .. | 21 | 99 | 202.4 | .. | - 5.9 | .. |

### Group 16827

July 23-30. A stream, near the solar equator, led by a small regular spot which alone remains by July 28.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 203.381 G | 32 | 128 | 18 | 71 | 236.4 | 0.0 | + 1.3 | -25.4 |
| 204.303 G | 58 | 288 | 30 | 148 | 237.6 | +1.0 | + 1.2 | -12.0 |
| 205.302 G | 50 | 179 | 25 | 88 | 237.6 | +0.8 | + 0.9 | + 1.2 |
| 206.635 G | 18 | 111 | 10 | 59 | 237.2 | +0.2 | + 1.0 | +18.4 |
| 207.392 G | 14 | 57 | 8 | 33 | 238.5 | +1.3 | + 0.7 | +29.7 |
| 208.304 G | 5 | 28 | 4 | 20 | 242.1 | +4.8 | 0.0 | +45.4 |
| 209.367 C | 0 | 9 | 0 | 9 | 242.1 | +4.6 | + 0.2 | +59.5 |
| 210.306 G | 0 | 5 | 0 | 8 | 242.0 | +4.3 | - 0.2 | +71.8 |
| **Means** | .. | .. | 12 | 54 | 239.2 | .. | + 0.6 | .. |

### Group 16831

July 28-Aug. 4. A pair of small spots which, after July 30, suddenly increase in area and become composite.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | ° | ° | ° | ° |
| 208.304 G | 5 | 23 | 3 | 12 | 178.5 | 0.0 | - 4.1 | -18.2 |
| 209.367 C | 2 | 13 | 1 | 7 | 180.0 | +1.3 | - 4.1 | - 2.6 |
| 210.306 G | 5 | 14 | 3 | 7 | 178.9 | 0.0 | - 4.2 | + 8.7 |
| 211.303 G | 28 | 189 | 15 | 104 | 179.2 | +0.2 | - 3.4 | +22.2 |
| 212.653 G | 58 | 386 | 39 | 262 | 180.9 | +1.7 | - 2.8 | +41.7 |
| 213.302 G | 62 | 340 | 50 | 272 | 181.1 | +1.7 | - 2.8 | +50.5 |
| 214.305 G | 32 | 138 | 38 | 164 | 182.1 | +2.5 | - 2.8 | +64.8 |
| 215.426 C | 4 | 27 | 13 | 85 | 182.9 | .. | - 3.0 | +80.4 |
| **Means** | .. | .. | 21 | 118 | 180.1 | .. | - 3.5 | .. |

### Group 16833

July 30-Aug. 5. A stream of changing spots, of which one only remains on August 5.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 210.306 G | 2 | 14 | 1 | 9 | 138.6 | 0.0 | - 9.4 | -31.6 |
| 211.303 G | 21 | 120 | 12 | 66 | 137.8 | -0.9 | - 9.3 | -19.2 |
| 212.653 G | 35 | 156 | 18 | 81 | 137.9 | -1.0 | - 9.6 | - 1.3 |
| 213.302 G | 44 | 170 | 23 | 89 | 137.9 | -1.0 | - 9.3 | + 7.3 |
| 214.305 G | 18 | 90 | 10 | 50 | 139.1 | 0.0 | - 9.7 | +21.8 |
| 215.426 C | 9 | 37 | 6 | 25 | 140.5 | +1.3 | -10.5 | +38.0 |
| 216.452 G | 5 | 12 | 5 | 11 | 144.5 | +5.2 | -10.8 | +55.5 |
| **Means** | .. | .. | 11 | 47 | 139.5 | .. | - 9.8 | .. |

### Group 16837

Aug. 2-13. A stream of small variable spots which gradually increase in area and coalesce into a composite structure on August 9, after which the group begins to break up and decline.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 213.302 G | 0 | 9 | 0 | 10 | 65.9 | 0.0 | +10.0 | -64.7 |
| 214.305 G | 18 | 80 | 14 | 61 | 68.1 | +2.1 | + 9.1 | -49.2 |
| 215.426 C | 31 | 194 | 18 | 114 | 70.3 | +4.1 | + 7.9 | -32.2 |
| 216.452 G | 48 | 444 | 25 | 234 | 69.7 | +3.4 | + 8.0 | -19.3 |
| 217.322 C | 56 | 506 | 28 | 257 | 69.9 | +3.5 | + 7.9 | - 7.5 |
| 218.354 G | 41 | 259 | 20 | 131 | 71.9 | +5.3 | + 7.7 | + 8.1 |
| 219.345 G | 59 | 560 | 32 | 302 | 71.4 | +4.7 | + 7.7 | +20.7 |
| 220.312 G | 108 | 898 | 65 | 540 | 71.6 | +4.7 | + 7.8 | +33.7 |
| 221.645 G | 41 | 321 | 32 | 254 | 71.9 | +4.9 | + 7.9 | +51.6 |
| 222.435 C | 51 | 264 | 52 | 279 | 72.0 | +4.9 | + 7.9 | +62.2 |
| 223.361 G | 19 | 75 | 30 | 119 | 70.4 | +3.1 | + 9.4 | +72.8 |
| 224.361 G | 0 | 14 | 0 | 61 | 68.9 | .. | +10.4 | +84.5 |
| **Means** | .. | .. | 29 | 209 | 70.3 | .. | + 8.3 | .. |

LEDGER II. - NON-RECURRENT GROUPS OF SUNSPOTS

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|
| **Group 16840** | | | | | | | |
| Aug. 4-16. At first a pair of spots; by August 8 other spots appear, forming a stream of normal type, the follower of which soon breaks up and dies out. | | | | | | | |
| | | | | | ° ° | ° | ° |
| 215.426 C | 9 | 36 | 21 | 85 | 24.1 0.0 | + 8.2 | -78.4 |
| 216.452 G | 25 | 152 | 30 | 185 | 23.1 -1.1 | + 8.0 | -65.9 |
| 217.322 C | 53 | 295 | 46 | 253 | 22.3 -2.0 | + 8.4 | -55.1 |
| 218.354 G | 39 | 270 | 27 | 181 | 22.6 -1.9 | + 8.5 | -41.2 |
| 219.345 G | 71 | 389 | 41 | 224 | 21.5 -3.1 | + 9.0 | -29.2 |
| 220.312 G | 138 | 699 | 73 | 368 | 19.5 -5.2 | + 9.9 | -18.4 |
| 221.645 G | 146 | 948 | 73 | 474 | 20.5 -4.4 | + 9.5 | + 0.2 |
| 222.435 C | 153 | 986 | 78 | 500 | 20.6 -4.4 | + 8.8 | +10.8 |
| 223.361 G | 155 | 971 | 85 | 532 | 20.4 -4.7 | + 9.3 | +22.8 |
| 224.361 G | 108 | 776 | 68 | 484 | 20.9 -4.3 | + 9.4 | +36.5 |
| 225.299 G | 94 | 566 | 73 | 440 | 21.2 -4.1 | + 9.6 | +49.2 |
| 226.540 G | 46 | 279 | 60 | 366 | 23.3 -2.2 | + 9.4 | +67.7 |
| 227.300 G | 23 | 147 | 60 | 376 | 24.9 -0.7 | + 9.6 | +79.4 |
| **Means** | .. | .. | 57 | 344 | 21.9 .. | + 9.0 | .. |
| **Group 16843** | | | | | | | |
| Aug. 7-14. A few changing spots, immediately s Group 16839. | | | | | | | |
| 218.354 G | 10 | 46 | 6 | 29 | 29.3 0.0 | -10.0 | -34.5 |
| 219.345 G | 27 | 163 | 15 | 91 | 30.4 +1.0 | -10.0 | -20.3 |
| 220.312 G | 32 | 135 | 17 | 71 | 30.3 +0.8 | - 9.7 | - 7.6 |
| 221.645 G | 11 | 34 | 6 | 18 | 31.5 +1.8 | - 9.3 | +11.2 |
| 222.435 C | 2 | 11 | 1 | 6 | 32.5 +2.7 | - 8.7 | +22.7 |
| 223.361 G | 9 | 34 | 5 | 21 | 28.4 -1.5 | - 9.4 | +30.8 |
| 224.361 G | 5 | 18 | 4 | 13 | 28.7 -1.3 | -10.3 | +44.3 |
| 225.299 G | 0 | 9 | 0 | 9 | 29.1 -1.0 | -10.9 | +57.1 |
| **Means** | .. | .. | 7 | 32 | 30.0 .. | - 9.8 | .. |
| **Group 16844** | | | | | | | |
| Aug. 7-19. A stream, whose principal component is a regular spot which divides into two by August 12. The whole group is dying out as it approaches the limb. | | | | | | | |
| 218.354 G | 5 | 25 | (19 | 96 | 342.7 .. | -11.4) | -81.1 |
| 219.345 G | 36 | 251 | 58 | 402 | 340.7 0.0 | -11.9 | -70.0 |
| 220.312 G | 84 | 499 | 83 | 490 | 341.0 +0.2 | -11.9 | -56.9 |
| 221.645 G | 96 | 728 | 66 | 500 | 341.3 +0.4 | -12.1 | -39.0 |
| 222.435 C | 124 | 597 | 74 | 360 | 341.4 +0.5 | -12.1 | -28.4 |
| 223.361 G | 105 | 543 | 58 | 298 | 340.9 -0.1 | -11.8 | -16.7 |
| 224.361 G | 79 | 410 | 42 | 218 | 341.8 +0.7 | -12.1 | - 2.6 |
| 225.299 G | 38 | 226 | 21 | 121 | 342.5 +1.3 | -12.0 | +10.5 |
| 226.540 G | 23 | 115 | 14 | 69 | 343.4 +2.1 | -11.8 | +27.8 |
| 227.300 G | 11 | 44 | 8 | 30 | 344.1 +2.8 | -11.9 | +38.6 |
| **Group 16844 - *continued*** | | | | | | | |
| | | | | | ° ° | ° | ° |
| 228.335 C | 4 | 31 | 4 | 27 | 344.2 +2.8 | -11.7 | +52.3 |
| 229.303 G | 2 | 14 | 3 | 18 | 344.5 +3.0 | -12.1 | +65.4 |
| 230.372 G | 0 | 10 | 0 | 24 | 339.9 -1.7 | -11.8 | +75.0 |
| **Means** | .. | .. | 36 | 213 | 342.1 .. | -11.9 | .. |
| **Group 16845** | | | | | | | |
| Aug. 13-25. A stream, in which the leader is a small, slowly-diminishing spot. The follower, a small composite spot, eventually becomes the largest component. | | | | | | | |
| 224.361 G | 0 | 5 | 0 | 13 | 268.0 0.0 | -17.9 | -76.4 |
| 225.299 G | 0 | 16 | 0 | 19 | 270.3 +2.4 | -17.5 | -61.7 |
| 226.540 G | 41 | 167 | 33 | 135 | 269.6 +1.7 | -17.9 | -46.0 |
| 227.300 G | 28 | 160 | 19 | 109 | 270.7 +2.9 | -18.2 | -34.8 |
| 228.335 C | 32 | 195 | 18 | 115 | 271.5 +3.7 | -18.2 | -20.4 |
| 229.303 G | 60 | 303 | 34 | 169 | 271.2 +3.5 | -18.3 | - 7.9 |
| 230.372 G | 50 | 316 | 28 | 176 | 271.2 +3.6 | -17.8 | + 6.3 |
| 231.369 G | 66 | 433 | 38 | 253 | 269.7 +2.1 | -17.9 | +18.0 |
| 232.300 G | 68 | 396 | 43 | 254 | 268.9 +1.4 | -18.5 | +29.5 |
| 233.320 G | 64 | 417 | 51 | 328 | 269.6 +2.1 | -18.4 | +43.6 |
| 234.306 G | 52 | 347 | 53 | 343 | 267.8 +0.4 | -18.6 | +54.9 |
| 235.514 G | 19 | 123 | 38 | 233 | 267.0 -0.3 | -18.3 | +70.0 |
| 236.322 C | 4 | 29 | (13 | 91 | 264.1 .. | -18.9) | +77.8 |
| **Means** | .. | .. | 30 | 179 | 269.6 .. | -18.1 | .. |
| **Group 16848** | | | | | | | |
| Aug. 19-24. A short stream of small variable spots, immediately *f* Group 16845. | | | | | | | |
| 230.372 G | 20 | 99 | 11 | 54 | 259.8 0.0 | -18.2 | - 5.1 |
| 231.369 G | 34 | 167 | 19 | 94 | 261.3 +1.6 | -18.3 | + 9.6 |
| 232.300 G | 27 | 166 | 16 | 101 | 262.2 +2.5 | -19.0 | +22.8 |
| 233.320 G | 5 | 11 | 4 | 8 | 263.8 +4.2 | -19.4 | +37.8 |
| 234.306 G | 7 | 23 | 6 | 19 | 259.1 -0.4 | -18.7 | +46.2 |
| 235.514 G | 0 | 9 | 0 | 11 | 258.4 -1.0 | -18.6 | +61.4 |
| **Means** | .. | .. | 9 | 48 | 260.8 .. | -18.7 | .. |
| **Group 16858** | | | | | | | |
| Sept. 5-14. A few small variable spots, not seen on September 7. | | | | | | | |
| 247.577 G | 0 | 5 | 0 | 4 | 353.1 0.0 | -11.6 | -44.5 |
| 248.302 G | 7 | 43 | 4 | 28 | 352.5 -0.7 | -11.9 | -35.6 |

LEDGER II. - NON-RECURRENT GROUPS OF SUNSPOTS

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|---|
| **Group 16858 - *continued*** | | | | | | | | |
| | | | | | ° | ° | ° | ° |
| 249.385 G | 0 | 0 | 0 | 0 | .. | .. | .. | .. |
| 250.332 C | 9 | 28 | 5 | 15 | 350.1 | -3.3 | -12.4 | -11.1 |
| 251.402 C | 22 | 136 | 11 | 71 | 348.0 | -5.5 | -11.3 | + 0.9 |
| 252.328 C | 16 | 68 | 9 | 37 | 346.8 | -6.8 | -10.4 | +11.9 |
| 253.347 G | 9 | 57 | 5 | 32 | 346.5 | -7.1 | -10.1 | +25.1 |
| 254.600 G | 9 | 54 | 7 | 39 | 348.2 | -5.6 | -10.3 | +43.3 |
| 255.559 G | 2 | 5 | 2 | 5 | 347.4 | -6.5 | -10.5 | +55.2 |
| 256.310 G | 0 | 2 | 0 | 3 | 351.4 | -2.5 | -10.4 | +69.1 |
| **Means** | .. | .. | 4 | 23 | 349.3 | .. | -11.0 | .. |
| **Group 16859** | | | | | | | | |
| Sept. 6-13. A few variable spots, not seen on September 9 and 10. | | | | | | | | |
| 248.302 G | 4 | 23 | 4 | 24 | 328.2 | 0.0 | - 4.1 | -59.9 |
| 249.385 G | 0 | 10 | 0 | 8 | 328.3 | -0.1 | - 3.5 | -45.4 |
| 250.332 C | 4 | 18 | 3 | 11 | 325.3 | -3.5 | - 3.7 | -35.9 |
| 251.402 C | 0 | 0 | 0 | 0 | .. | .. | .. | .. |
| 252.328 C | 0 | 0 | 0 | 0 | .. | .. | .. | .. |
| 253.347 G | 9 | 36 | 5 | 18 | 329.0 | -0.1 | - 4.1 | + 7.6 |
| 254.600 G | 9 | 47 | 5 | 26 | 329.2 | -0.1 | - 4.6 | +24.3 |
| 255.559 G | 0 | 9 | 0 | 6 | 327.5 | -2.0 | - 4.6 | +35.3 |
| **Means** | .. | .. | 2 | 12 | 327.9 | .. | - 4.1 | .. |
| **Group 16860** | | | | | | | | |
| Sept. 8-11. A small spot, dying out before reaching the central meridian. | | | | | | | | |
| 248.302 G | 7 | 27 | 17 | 65 | 309.9 | 0.0 | + 3.0 | -78.2 |
| 249.385 G | 18 | 73 | 21 | 84 | 309.4 | -0.7 | + 3.0 | -64.3 |
| 250.332 C | 15 | 66 | 12 | 53 | 309.1 | -1.2 | + 2.9 | -52.1 |
| 251.402 C | 20 | 79 | 13 | 51 | 308.7 | -1.8 | + 2.8 | -38.4 |
| 252.328 C | 15 | 70 | 8 | 39 | 308.9 | -1.7 | + 2.6 | -26.0 |
| 253.347 G | 11 | 54 | 6 | 28 | 309.0 | -1.8 | + 2.8 | -12.4 |
| **Means** | .. | .. | 13 | 53 | 309.2 | .. | + 2.8 | .. |
| **Group 16861** | | | | | | | | |
| Sept. 8-21. A stream, led by a diminishing double spot, *a*. The follower, a composite spot, increases in area and, after a few days, divides into three separate spots, in a line inclined to the axis of the group. By September 18 these are also breaking up and diminishing. | | | | | | | | |
| 250.332 C | 18 | 92 | (47 | 238 | 281.8 | .. | + 5.6) | -79.4 |
| 251.402 C | 95 | 486 | 156 | 834 | 275.5 | 0.0 | + 6.5 | -71.6 |
| 252.328 C | 129 | 796 | 129 | 829 | 274.8 | -0.8 | + 6.4 | -60.1 |
| 253.347 G | 198 | 1237 | 147 | 933 | 274.6 | -1.2 | + 6.9 | -46.8 |
| 254.600 G | 190 | 1223 | 112 | 726 | 274.0 | -2.0 | + 7.1 | -30.9 |
| 255.599 G | 167 | 1227 | 89 | 653 | 273.6 | -2.5 | + 7.2 | -18.6 |
| 256.310 G | 185 | 1202 | 93 | 610 | 273.5 | -2.7 | + 7.3 | - 8.8 |
| 257.313 C | 133 | 828 | 67 | 417 | 273.5 | -2.9 | + 6.7 | + 4.4 |
| 258.374 G | 123 | 861 | 65 | 451 | 273.2 | -3.4 | + 6.7 | +18.1 |
| 259.359 G | 85 | 800 | 50 | 468 | 272.6 | -4.1 | + 7.2 | +30.5 |
| 260.380 G | 68 | 457 | 48 | 324 | 272.9 | -4.0 | + 6.2 | +44.3 |
| 261.352 G | 36 | 231 | 35 | 211 | 271.8 | -5.2 | + 7.7 | +56.1 |
| 262.328 G | 11 | 36 | 14 | 46 | 269.9 | -7.3 | + 7.4 | +67.0 |
| 263.497 G | 4 | 11 | 12 | 33 | 268.6 | .. | + 7.2 | +81.2 |
| **Means** | .. | .. | 84 | 542 | 273.3 | .. | + 6.9 | .. |
| **Spot *a*** | | | | | | | | |
| 250.332 C | 18 | 92 | 47 | 238 | 281.8 | 0.0 | + 5.6 | -79.4 |
| 251.402 C | 46 | 197 | 54 | 232 | 281.8 | -0.2 | + 5.5 | -65.3 |
| 252.328 C | 50 | 258 | 41 | 212 | 281.9 | -0.2 | + 5.6 | -53.0 |
| 253.347 G | 68 | 322 | 44 | 206 | 282.1 | -0.2 | + 5.9 | -39.3 |
| 254.600 G | 59 | 285 | 32 | 154 | 282.3 | -0.1 | + 5.9 | -22.6 |
| 255.559 G | 45 | 323 | 23 | 165 | 282.3 | -0.3 | + 5.9 | - 9.9 |
| 256.310 G | 45 | 298 | 22 | 149 | 282.2 | -0.5 | + 6.0 | - 0.1 |
| 257.313 C | 39 | 201 | 20 | 103 | 282.4 | -0.5 | + 5.9 | +13.3 |
| 258.374 G | 41 | 210 | 23 | 118 | 282.1 | -0.9 | + 5.9 | +27.0 |
| 259.359 G | 29 | 202 | 19 | 131 | 282.0 | -1.2 | + 6.0 | +39.9 |
| 260.380 G | 16 | 90 | 13 | 76 | 282.4 | -0.9 | + 6.2 | +53.8 |
| 261.352 G | 9 | 40 | 11 | 49 | 282.3 | -1.2 | + 6.3 | +66.6 |
| **Group 16862** | | | | | | | | |
| Sept. 9-17. A pair of spots until September 11, after which only the leader remains. | | | | | | | | |
| 251.402 C | 13 | 68 | 13 | 72 | 284.3 | 0.0 | +17.3 | -62.8 |
| 252.328 C | 24 | 127 | 18 | 98 | 285.2 | +0.9 | +17.2 | -49.7 |
| 253.347 G | 28 | 129 | 17 | 79 | 286.0 | +1.8 | +17.3 | -35.4 |
| 254.600 G | 18 | 84 | 10 | 45 | 286.8 | +2.6 | +17.4 | -18.1 |
| 255.559 G | 9 | 45 | 5 | 23 | 286.7 | +2.6 | +17.4 | - 5.5 |
| 256.310 G | 16 | 54 | 8 | 28 | 286.8 | +2.7 | +17.4 | + 4.5 |
| 257.313 C | 9 | 26 | 5 | 14 | 286.9 | +2.9 | +17.4 | +17.8 |
| 258.374 G | 9 | 25 | 5 | 15 | 286.9 | +2.9 | +17.5 | +31.8 |
| 259.359 G | 0 | 7 | 0 | 5 | 287.3 | +3.3 | +17.5 | +45.2 |
| **Means** | .. | .. | 9 | 42 | 286.3 | .. | +17.4 | .. |

LEDGER II. - NON-RECURRENT GROUPS OF SUNSPOTS

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|---|
| **Group 16863** | | | | | | | | |
| Sept. 11-17. A few spots, with a maximum on September 12. | | | | | | | | |
| | | | | | ° | ° | ° | ° |
| 253.347 G | 5 | 9 | 7 | 12 | 255.3 | 0.0 | -12.0 | -66.1 |
| 254.600 G | 39 | 262 | 32 | 213 | 256.2 | +0.8 | -12.4 | -48.7 |
| 255.559 G | 41 | 210 | 27 | 139 | 255.9 | +0.4 | -12.2 | -36.3 |
| 256.310 G | 27 | 127 | 16 | 76 | 255.4 | -0.1 | -11.9 | -26.9 |
| 257.313 C | 9 | 46 | 5 | 25 | 255.8 | +0.2 | -12.2 | -13.3 |
| 258.374 G | 5 | 36 | 3 | 19 | 256.7 | +1.0 | -12.7 | + 1.6 |
| 259.359 G | 2 | 22 | 1 | 12 | 256.5 | .. | -12.8 | +14.4 |
| **Means** | .. | .. | 13 | 71 | 256.0 | .. | -12.3 | .. |
| **Group 16865** | | | | | | | | |
| Sept. 12-20. A stream of small variable spots, of which the leader alone remains by September 17. | | | | | | | | |
| 254.600 G | 7 | 25 | 5 | 19 | 261.7 | 0.0 | -18.2 | -43.2 |
| 255.559 G | 27 | 111 | 18 | 72 | 261.7 | +0.1 | -18.2 | -30.5 |
| 256.310 G | 32 | 129 | 19 | 76 | 262.0 | +0.4 | -18.4 | -20.3 |
| 257.313 C | 39 | 212 | 22 | 119 | 262.1 | +0.6 | -19.0 | - 7.0 |
| 258.374 G | 28 | 104 | 16 | 59 | 263.1 | +1.7 | -18.9 | + 8.0 |
| 259.359 G | 11 | 58 | 7 | 35 | 264.9 | +3.6 | -19.4 | +22.8 |
| 260.380 G | 14 | 43 | 10 | 30 | 264.6 | +3.4 | -19.4 | +36.0 |
| 261.352 G | 4 | 22 | 3 | 19 | 264.7 | +3.6 | -19.3 | +49.0 |
| 262.328 G | 0 | 2 | 0 | 2 | 264.5 | +3.4 | -19.4 | +61.6 |
| **Means** | .. | .. | 11 | 48 | 263.3 | .. | -18.9 | .. |
| **Group 16867** | | | | | | | | |
| Sept. 12-20. A small spot, followed by a tiny companion until September 17. | | | | | | | | |
| 254.600 G | 7 | 34 | 13 | 65 | 229.7 | 0.0 | + 9.2 | -75.2 |
| 255.559 G | 11 | 49 | 11 | 50 | 230.8 | +1.0 | + 9.3 | -61.4 |
| 256.310 G | 9 | 38 | 7 | 31 | 230.4 | +0.5 | + 9.4 | -51.9 |
| 257.313 C | 15 | 70 | 9 | 44 | 232.1 | +2.1 | + 8.7 | -37.0 |
| 258.374 G | 19 | 66 | 11 | 36 | 230.7 | +0.5 | + 9.4 | -24.4 |
| 259.359 G | 9 | 38 | 5 | 19 | 232.2 | +1.9 | + 8.9 | - 9.9 |
| 260.380 G | 9 | 45 | 4 | 22 | 232.9 | +2.5 | + 8.9 | + 4.3 |
| 261.352 G | 9 | 50 | 5 | 26 | 232.8 | +2.3 | + 9.0 | +17.1 |
| 262.328 G | 0 | 4 | 0 | 2 | 231.2 | +0.5 | + 9.8 | +28.3 |
| **Means** | .. | .. | 7 | 33 | 231.4 | .. | + 9.2 | .. |

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|---|
| **Group 16868** | | | | | | | | |
| Sept. 14-26. A tiny spot on September 14 which by September 16 has become a stream led by a nearly regular spot. Within a few days the rear portion has grown into a fair-sized composite spot which by September 24 has completely absorbed the leader. The whole group appears to be dying out as it passes round the limb. | | | | | | | | |
| | | | | | ° | ° | ° | ° |
| 256.310 G | 0 | 2 | 0 | 4 | 205.9 | 0.0 | +13.0 | -76.4 |
| 257.313 C | 11 | 48 | 12 | 54 | 205.1 | -0.9 | +12.8 | -64.0 |
| 258.374 G | 68 | 393 | 53 | 305 | 205.1 | -0.9 | +13.0 | -50.0 |
| 259.359 G | 81 | 391 | 51 | 246 | 205.1 | -1.0 | +13.2 | -37.0 |
| 260.380 G | 73 | 522 | 41 | 286 | 204.2 | -2.0 | +12.7 | -24.4 |
| 261.352 G | 116 | 1206 | 59 | 615 | 204.2 | -2.0 | +12.5 | -11.5 |
| 262.328 G | 194 | 1411 | 97 | 706 | 204.5 | -1.8 | +12.2 | + 1.6 |
| 263.497 G | 173 | 1229 | 91 | 641 | 204.7 | -1.7 | +12.4 | +17.3 |
| 264.322 G | 153 | 1022 | 86 | 577 | 204.8 | -1.6 | +12.3 | +28.3 |
| 265.645 G | 108 | 686 | 78 | 494 | 205.7 | -0.8 | +12.1 | +46.6 |
| 266.373 G | 50 | 464 | 44 | 404 | 205.0 | -1.5 | +12.6 | +55.5 |
| 267.454 G | 42 | 256 | 57 | 347 | 204.5 | -2.1 | +13.4 | +69.3 |
| 268.347 G | 9 | 40 | 26 | 117 | 204.9 | .. | +13.2 | +81.5 |
| **Means** | .. | .. | 56 | 390 | 204.9 | .. | +12.7 | .. |
| **Group 16869** | | | | | | | | |
| Sept. 18-28. A rapidly-developing bi-polar group. The leader, *a*, a regular spot, is the most stable component; the follower, *b*, dies out before reaching the limb. | | | | | | | | |
| 260.380 G | 27 | 148 | 25 | 135 | 171.1 | 0.0 | +15.1 | -57.5 |
| 261.352 G | 76 | 488 | 53 | 342 | 171.2 | +0.1 | +14.9 | -44.5 |
| 262.328 G | 188 | 941 | 111 | 555 | 171.4 | +0.3 | +15.1 | -31.5 |
| 263.497 G | 180 | 1004 | 95 | 531 | 171.6 | +0.5 | +15.5 | -15.8 |
| 264.322 G | 185 | 895 | 93 | 452 | 171.4 | +0.3 | +15.8 | - 5.1 |
| 265.645 G | 100 | 598 | 52 | 311 | 173.9 | +2.8 | +15.5 | +14.8 |
| 266.373 G | 86 | 581 | 47 | 323 | 174.4 | +3.3 | +15.5 | +24.9 |
| 267.454 G | 90 | 542 | 58 | 347 | 173.2 | +2.1 | +15.7 | +38.0 |
| 268.347 G | 90 | 566 | 73 | 463 | 175.6 | +4.4 | +15.2 | +52.2 |
| 269.457 G | 53 | 250 | 69 | 323 | 176.3 | +5.1 | +15.1 | +67.5 |
| 270.316 G | 18 | 94 | 47 | 243 | 177.6 | .. | +14.4 | +80.2 |
| **Means** | .. | .. | 68 | 378 | 173.0 | .. | +15.4 | .. |
| **Spot *a*** | | | | | | | | |
| 260.380 G | 11 | 72 | 10 | 63 | 172.8 | 0.0 | +15.2 | -55.8 |
| 261.352 G | 36 | 234 | 24 | 157 | 174.0 | +1.2 | +14.6 | -41.7 |
| 262.328 G | 94 | 464 | 54 | 264 | 174.4 | +1.6 | +14.3 | -28.5 |
| 263.497 G | 94 | 554 | 49 | 288 | 174.7 | +1.9 | +14.7 | -12.7 |
| 264.322 G | 122 | 531 | 61 | 266 | 174.8 | +2.0 | +14.8 | - 1.7 |

*continued*

LEDGER II. - NON-RECURRENT GROUPS OF SUNSPOTS

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|---|
| | | Group 16869. Spot *a* - *continued* | | | ° | ° | ° | ° |
| 265.645 G | 86 | 526 | 45 | 274 | 175.2 | +2.4 | +15.0 | +16.1 |
| 266.373 G | 72 | 531 | 40 | 297 | 175.7 | +2.9 | +15.0 | +26.2 |
| 267.454 G | 72 | 454 | 47 | 295 | 175.4 | +2.6 | +15.1 | +40.2 |
| 268.347 G | 76 | 508 | 63 | 422 | 176.7 | +3.8 | +14.8 | +53.3 |
| 269.457 G | 49 | 228 | 65 | 303 | 177.7 | +4.8 | +14.8 | +68.9 |
| 270.316 G | 18 | 94 | 47 | 243 | 177.6 | .. | +14.4 | +80.2 |
| | | Spot *b* | | | | | | |
| 260.380 G | 16 | 76 | 15 | 72 | 169.4 | 0.0 | +15.0 | -59.2 |
| 261.352 G | 40 | 254 | 29 | 185 | 168.7 | -0.7 | +15.2 | -47.0 |
| 262.328 G | 94 | 477 | 57 | 291 | 168.1 | -1.3 | +16.0 | -34.8 |
| 263.497 G | 86 | 450 | 46 | 243 | 167.4 | -2.0 | +16.7 | -20.0 |
| 264.322 G | 63 | 364 | 32 | 186 | 167.1 | -2.3 | +17.4 | - 9.4 |
| 265.645 G | 14 | 72 | 7 | 37 | 167.4 | -2.0 | +18.2 | + 8.3 |
| 266.373 G | 14 | 50 | 7 | 26 | 167.4 | -2.0 | +18.4 | +17.9 |
| 267.454 G | 18 | 88 | 11 | 52 | 166.8 | -2.6 | +18.3 | +31.6 |
| 268.347 G | 14 | 58 | 10 | 41 | 167.1 | -2.4 | +18.4 | +43.7 |
| 269.457 G | 4 | 22 | 4 | 20 | 167.0 | -2.5 | +18.1 | +58.2 |
| | | Group 16870 | | | | | | |
| Sept. 18-29. A variable stream of which the follower is at first the principal component. Between September 22 and 25 the whole group is a conglomeration of small spots but on September 28 it takes more the form of a stream. | | | | | | | | |
| 260.380 G | 9 | 43 | 20 | 93 | 151.0 | 0.0 | + 9.2 | -77.6 |
| 261.352 G | 36 | 191 | 42 | 224 | 150.4 | - 0.7 | + 9.1 | -65.3 |
| 262.328 G | 48 | 216 | 38 | 174 | 151.5 | + 0.2 | + 9.3 | -51.4 |
| 263.497 G | 33 | 198 | 20 | 121 | 151.9 | + 0.5 | + 9.4 | -35.5 |
| 264.322 G | 44 | 257 | 24 | 141 | 153.6 | + 2.1 | + 8.9 | -22.9 |
| 265.645 G | 35 | 171 | 17 | 85 | 157.8 | + 6.1 | + 8.0 | - 1.3 |
| 266.373 G | 41 | 234 | 21 | 119 | 159.9 | + 8.7 | + 8.2 | +10.4 |
| 267.454 G | 49 | 198 | 27 | 109 | 159.1 | + 7.2 | + 8.6 | +23.9 |
| 268.347 G | 49 | 446 | 30 | 279 | 160.3 | + 8.3 | + 8.3 | +36.9 |
| 269.457 G | 26 | 155 | 22 | 128 | 162.6 | +10.4 | + 8.2 | +53.8 |
| 270.316 G | 23 | 115 | 26 | 130 | 161.8 | + 9.5 | + 8.5 | +64.4 |
| 271.383 G | 7 | 40 | 16 | 92 | 161.6 | + 9.2 | + 8.6 | +78.3 |
| Means | .. | .. | 25 | 141 | 156.8 | .. | + 8.7 | .. |
| | | Group 16871 | | | | | | |
| Sept. 20-26. One or two tiny spots, not seen on September 21. | | | | | | | | |
| 262.328 G | 0 | 2 | 0 | 2 | 143.2 | 0.0 | +10.0 | -59.7 |
| 263.497 G | 0 | 0 | 0 | 0 | .. | .. | .. | .. |
| 264.322 G | 0 | 7 | 0 | 4 | 141.8 | -1.6 | +10.3 | -34.7 |
| 265.645 G | 0 | 7 | 0 | 4 | 143.5 | -0.1 | +10.0 | -15.6 |
| | | Group 16871 - *continued* | | | | | | |
| 266.373 G | 2 | 14 | 1 | 7 | 147.7 | +4.0 | + 8.4 | - 1.8 |
| 267.454 G | 0 | 4 | 0 | 2 | 147.9 | +4.1 | + 9.4 | +12.7 |
| 268.347 G | 4 | 20 | 2 | 11 | 147.4 | +3.5 | +10.5 | +24.0 |
| Means | .. | .. | 0 | 4 | 145.2 | .. | + 9.8 | .. |
| | | Group 16873 | | | | | | |
| Sept. 21-28. Small changing spots. | | | | | | | | |
| 263.497 G | 20 | 81 | 10 | 42 | 171.2 | 0.0 | + 6.9 | -16.2 |
| 264.322 G | 34 | 180 | 17 | 90 | 171.6 | +0.3 | + 7.5 | - 4.9 |
| 265.645 G | 15 | 63 | 8 | 33 | 172.7 | +1.2 | + 7.5 | +13.6 |
| 266.373 G | 18 | 54 | 10 | 30 | 173.8 | +2.2 | + 8.5 | +24.3 |
| 267.454 G | 7 | 25 | 5 | 16 | 175.4 | +3.6 | + 7.2 | +40.2 |
| 268.347 G | 2 | 11 | 1 | 8 | 171.3 | -0.6 | + 8.6 | +47.9 |
| 269.457 G | 7 | 31 | 8 | 36 | 173.9 | +1.9 | + 8.6 | +65.1 |
| 270.316 G | 4 | 22 | 8 | 42 | 173.2 | +1.0 | + 8.8 | +75.8 |
| Means | .. | .. | 8 | 37 | 172.9 | .. | + 8.0 | .. |
| | | Group 16875 | | | | | | |
| Sept. 25-Oct. 4. One or two tiny spots, not seen on September 26. | | | | | | | | |
| 267.454 G | 0 | 7 | 0 | 7 | 73.7 | 0.0 | +20.4 | -61.5 |
| 268.347 G | 0 | 0 | 0 | 0 | .. | .. | .. | .. |
| 269.457 G | 6 | 25 | 4 | 15 | 74.1 | +0.7 | +21.1 | -34.7 |
| 270.316 G | 18 | 77 | 10 | 43 | 75.7 | +2.4 | +21.1 | -21.7 |
| 271.383 G | 9 | 40 | 5 | 21 | 78.3 | +5.1 | +21.5 | - 5.0 |
| 272.366 G | 9 | 27 | 5 | 14 | 79.1 | +6.1 | +21.3 | + 8.7 |
| 273.344 G | 18 | 49 | 10 | 27 | 79.4 | +6.5 | +21.3 | +21.9 |
| 274.625 G | 18 | 40 | 12 | 26 | 79.9 | +7.2 | +20.3 | +39.3 |
| 275.309 C | 6 | 19 | 5 | 14 | 80.3 | +7.7 | +20.3 | +48.8 |
| 276.310 G | 2 | 9 | 2 | 9 | 80.1 | +7.6 | +20.1 | +61.8 |
| Means | .. | .. | 5 | 18 | 77.8 | .. | +20.8 | .. |
| | | Group 16877 | | | | | | |
| Sept. 30-Oct. 8. A compact group of small spots, with rapid rise and decline. | | | | | | | | |
| 272.366 G | 9 | 49 | 5 | 25 | 61.9 | 0.0 | + 8.7 | - 8.5 |
| 273.344 G | 45 | 240 | 23 | 120 | 62.4 | +0.4 | + 9.3 | + 4.9 |
| 274.625 G | 88 | 584 | 48 | 314 | 62.3 | +0.1 | + 9.4 | +21.7 |
| 275.309 C | 78 | 509 | 46 | 294 | 62.7 | +0.4 | + 9.2 | +31.2 |
| 276.310 G | 58 | 388 | 40 | 271 | 62.4 | 0.0 | + 9.3 | +44.1 |

LEDGER II. - NON-RECURRENT GROUPS OF SUNSPOTS

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|---|
| Group 16877 - *continued* | | | | | | | | |
| | | | | | ° | ° | ° | ° |
| 277.337 G | 15 | 148 | 15 | 138 | 62.8 | +0.3 | + 9.0 | +58.0 |
| 278.345 G | 9 | 40 | 15 | 69 | 65.3 | +2.7 | + 8.9 | +73.8 |
| **Means** | .. | .. | 27 | 176 | 62.8 | .. | + 9.1 | .. |
| Group 16881 | | | | | | | | |
| Oct. 8-15. A stream of variable spots, dying out just past the central meridian. | | | | | | | | |
| 280.307 G | 2 | 9 | 4 | 18 | 249.1 | 0.0 | + 9.3 | -76.5 |
| 281.448 G | 33 | 178 | 36 | 198 | 247.0 | -2.2 | + 9.4 | -63.6 |
| 282.314 G | 40 | 242 | 32 | 201 | 246.0 | -3.3 | + 9.0 | -53.1 |
| 283.380 G | 31 | 266 | 20 | 172 | 245.9 | -3.6 | + 9.1 | -39.2 |
| 284.377 G | 29 | 153 | 16 | 85 | 245.9 | -3.7 | + 9.5 | -26.0 |
| 285.301 C | 17 | 107 | 9 | 55 | 246.2 | -3.5 | + 9.6 | -13.5 |
| 286.575 G | 6 | 51 | 3 | 25 | 246.4 | -3.5 | + 9.6 | + 3.5 |
| 287.378 G | 6 | 53 | 3 | 27 | 247.7 | -2.3 | + 8.8 | +15.4 |
| **Means** | .. | .. | 15 | 98 | 246.8 | .. | + 9.3 | .. |
| Group 16885 | | | | | | | | |
| Oct. 10-22. A regular spot, with one or two companions between October 16 and 18. | | | | | | | | |
| 282.314 G | 18 | 81 | 65 | 292 | 216.0 | .. | +10.9 | -83.1 |
| 283.380 G | 31 | 174 | 42 | 235 | 216.1 | 0.0 | +11.1 | -69.0 |
| 284.377 G | 53 | 260 | 47 | 229 | 216.0 | -0.2 | +11.2 | -55.9 |
| 285.301 C | 73 | 389 | 50 | 268 | 215.9 | -0.4 | +11.1 | -43.8 |
| 286.575 G | 89 | 395 | 50 | 221 | 216.1 | -0.3 | +11.0 | -26.8 |
| 287.378 G | 80 | 422 | 42 | 219 | 216.3 | -0.2 | +10.9 | -16.0 |
| 288.331 G | 93 | 455 | 46 | 228 | 215.8 | -0.8 | +10.9 | - 4.0 |
| 289.515 C | 77 | 407 | 39 | 208 | 216.2 | -0.5 | +11.2 | +12.1 |
| 290.318 C | 60 | 355 | 32 | 192 | 216.3 | -0.4 | +11.3 | +22.8 |
| 291.394 G | 67 | 311 | 42 | 196 | 216.6 | -0.2 | +11.3 | +37.2 |
| 292.303 C | 49 | 270 | 38 | 208 | 216.9 | 0.0 | +11.2 | +49.5 |
| 293.407 G | 27 | 164 | 30 | 184 | 216.9 | -0.1 | +11.4 | +64.1 |
| 294.345 G | 22 | 93 | 45 | 191 | 217.0 | -0.1 | +11.3 | +76.6 |
| **Means** | .. | .. | 42 | 215 | 216.3 | .. | +11.2 | .. |
| Group 16891 | | | | | | | | |
| Oct. 26-31. A few small spots | | | | | | | | |
| 298.303 C | 6 | 21 | 3 | 11 | 95.7 | 0.0 | + 8.7 | + 7.5 |
| 299.457 G | 4 | 13 | 2 | 7 | 97.7 | +1.9 | + 8.1 | +24.7 |

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|---|
| Group 16891 - *continued* | | | | | | | | |
| | | | | | ° | ° | ° | ° |
| 300.481 G | 20 | 117 | 12 | 73 | 96.4 | +0.4 | + 8.3 | +36.9 |
| 301.430 G | 22 | 123 | 17 | 95 | 96.6 | +0.5 | + 8.3 | +49.6 |
| 302.613 G | 18 | 123 | 22 | 153 | 98.1 | +1.8 | + 8.9 | +66.7 |
| 303.581 G | 6 | 53 | 17 | 149 | 99.0 | .. | + 8.0 | +80.4 |
| **Means** | .. | .. | 11 | 68 | 96.9 | .. | + 8.5 | .. |
| Group 16892 | | | | | | | | |
| Oct. 26-Nov. 6. A single spot on October 26. On the next day there is a double spot, the two components of which separate and join with other spots to form a normal stream. | | | | | | | | |
| 298.303 C | 23 | 153 | 46 | 304 | 13.8 | 0.0 | - 9.0 | -74.4 |
| 299.457 G | 57 | 374 | 59 | 385 | 13.4 | -0.5 | - 8.6 | -59.6 |
| 300.481 G | 93 | 642 | 68 | 479 | 13.1 | -1.0 | - 8.3 | -46.4 |
| 301.430 G | 123 | 798 | 76 | 497 | 13.3 | -0.9 | - 8.3 | -33.7 |
| 302.613 G | 156 | 891 | 84 | 479 | 13.8 | -0.6 | - 8.2 | -17.6 |
| 303.581 G | 125 | 693 | 64 | 358 | 14.1 | -0.4 | - 8.5 | - 4.5 |
| 304.413 G | 128 | 810 | 67 | 422 | 14.6 | 0.0 | - 8.7 | + 6.9 |
| 305.595 G | 92 | 557 | 51 | 312 | 15.2 | +0.5 | - 9.4 | +23.1 |
| 306.373 G | 64 | 528 | 40 | 325 | 14.8 | 0.0 | - 9.3 | +33.0 |
| 307.295 C | 46 | 254 | 34 | 186 | 14.8 | -0.2 | - 9.6 | +45.1 |
| 308.292 C | 15 | 113 | 14 | 112 | 14.7 | -0.4 | - 9.5 | +58.2 |
| 309.399 G | 4 | 22 | 7 | 39 | 14.7 | -0.5 | - 9.3 | +72.8 |
| **Means** | .. | .. | 51 | 325 | 14.2 | .. | - 8.9 | .. |
| Group 16893 | | | | | | | | |
| Oct. 26-Nov. 7. A regular spot with occasional companions. | | | | | | | | |
| 298.303 C | 9 | 55 | 25 | 151 | 7.9 | .. | +12.3 | -80.3 |
| 299.457 G | 18 | 114 | 22 | 138 | 7.0 | 0.0 | +12.4 | -66.0 |
| 300.481 G | 26 | 132 | 21 | 108 | 6.7 | -0.4 | +12.4 | -52.8 |
| 301.430 G | 31 | 189 | 20 | 125 | 6.6 | -0.5 | +12.4 | -40.4 |
| 302.613 G | 37 | 220 | 21 | 123 | 6.2 | -1.0 | +12.4 | -25.2 |
| 303.581 G | 40 | 187 | 21 | 97 | 6.5 | -0.8 | +12.7 | -12.1 |
| 304.413 G | 44 | 189 | 22 | 96 | 6.7 | -0.6 | +12.8 | - 1.0 |
| 305.595 G | 35 | 154 | 18 | 80 | 6.6 | -0.8 | +13.1 | +14.5 |
| 306.373 G | 31 | 165 | 17 | 92 | 6.5 | -0.9 | +13.2 | +24.7 |
| 307.295 C | 8 | 64 | 5 | 40 | 6.6 | -1.0 | +12.8 | +36.9 |
| 308.292 C | 8 | 21 | 6 | 16 | 6.6 | -1.0 | +12.9 | +50.1 |
| 309.399 G | 4 | 13 | 5 | 15 | 6.7 | -0.9 | +12.9 | +64.8 |
| 310.497 G | 4 | 9 | 10 | 22 | 6.2 | -1.5 | +12.8 | +78.8 |
| **Means** | .. | .. | 16 | 79 | 6.6 | .. | +12.7 | .. |

LEDGER II. - NON-RECURRENT GROUPS OF SUNSPOTS

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|
| **Group 16894** | | | | | | | |
| Oct. 27-Nov. 7. A stream of variable spots immediately *f* Group 16892. | | | | | | | |
| | | | | | ° ° | ° | ° |
| 299.457 G | 25 | 214 | 40 | 348 | 2.2 0.0 | -10.3 | -70.8 |
| 300.481 G | 37 | 249 | 35 | 239 | 2.5 +0.2 | - 9.8 | -57.0 |
| 301.430 G | 57 | 235 | 42 | 171 | 2.7 +0.3 | -10.1 | -44.3 |
| 302.613 G | 44 | 251 | 26 | 149 | 2.1 -0.4 | -10.3 | -29.3 |
| 303.581 G | 37 | 325 | 20 | 176 | 2.2 -0.5 | -10.0 | -16.4 |
| 304.413 G | 51 | 281 | 26 | 146 | 2.9 +0.2 | -10.2 | - 4.8 |
| 305.595 G | 22 | 101 | 11 | 53 | 2.7 -0.2 | - 9.7 | +10.6 |
| 306.373 G | 11 | 46 | 6 | 25 | 2.6 -0.4 | - 8.9 | +20.8 |
| 307.295 C | 6 | 38 | 4 | 23 | 2.1 -1.0 | - 8.8 | +32.4 |
| 308.292 C | 12 | 68 | 9 | 51 | 2.7 -0.5 | -10.2 | +46.2 |
| 309.399 G | 26 | 154 | 28 | 165 | 2.6 -0.7 | -11.1 | +60.7 |
| 310.497 G | 11 | 48 | 25 | 110 | 3.8 +0.4 | -11.4 | +76.4 |
| **Means** | .. | .. | 23 | 138 | 2.6 .. | -10.1 | .. |
| **Group 16901** | | | | | | | |
| Nov. 7-15. A group of small variable spots, with maximum area on November 10. | | | | | | | |
| 310.497 G | 4 | 31 | 4 | 31 | 227.3 0.0 | + 9.0 | -60.1 |
| 311.292 C | 0 | 6 | 0 | 4 | 230.0 +2.6 | + 9.1 | -47.0 |
| 312.174 K | 4 | 20 | 2 | 13 | 227.8 +0.3 | + 9.9 | -37.5 |
| 313.411 G | 39 | 163 | 21 | 87 | 229.5 +1.8 | + 9.1 | -19.5 |
| 314.440 G | 13 | 105 | 6 | 52 | 231.7 +3.9 | + 9.3 | - 3.8 |
| 315.576 G | 8 | 90 | 4 | 46 | 228.3 +0.4 | + 9.5 | + 7.8 |
| 316.293 C | 8 | 55 | 4 | 29 | 229.8 +1.8 | + 9.1 | +18.8 |
| 317.419 G | 4 | 35 | 2 | 21 | 229.8 +1.6 | + 9.6 | +33.6 |
| 318.581 G | 0 | 4 | 0 | 3 | 232.7 +4.4 | + 8.4 | +51.8 |
| **Means** | .. | .. | 5 | 32 | 229.7 .. | + 9.2 | .. |
| **Group 16905** | | | | | | | |
| Nov. 15-22. A pair of spots until November 19. A single spot on November 20 and 22, nothing being seen on November 21. | | | | | | | |
| 318.581 G | 4 | 22 | 2 | 13 | 148.4 0.0 | + 6.6 | -32.5 |
| 319.296 C | 4 | 25 | 2 | 13 | 149.1 +0.6 | + 6.5 | -22.3 |
| 320.298 C | 8 | 59 | 4 | 30 | 149.9 +1.2 | + 8.1 | - 8.3 |
| 321.302 C | 19 | 86 | 9 | 44 | 149.3 +0.5 | + 6.5 | + 4.3 |
| 322.463 G | 11 | 70 | 6 | 38 | 150.4 +1.4 | + 6.2 | +20.7 |
| 323.381 G | 7 | 35 | 4 | 21 | 152.0 +2.9 | + 6.2 | +34.4 |
| 324.358 G | 0 | 0 | 0 | 0 | .. .. | .. | .. |
| 325.373 G | 2 | 13 | 2 | 14 | 153.0 +3.5 | + 6.1 | +61.7 |
| **Means** | .. | .. | 4 | 22 | 150.3 .. | + 6.6 | .. |
| **Group 16907** | | | | | | | |
| Nov. 16-26. A diminishing regular spot, followed by a distant companion until November 23. | | | | | | | |
| | | | | | ° ° | ° | ° |
| 319.296 C | 8 | 46 | (23 | 130 | 91.3 .. | +17.2) | -80.1 |
| 320.298 C | 23 | 147 | 34 | 202 | 90.6 0.0 | +17.5 | -67.6 |
| 321.302 C | 42 | 222 | 39 | 206 | 88.8 -1.8 | +17.3 | -56.2 |
| 322.463 G | 30 | 179 | 20 | 122 | 89.7 -0.8 | +16.9 | -40.0 |
| 323.381 G | 39 | 195 | 23 | 116 | 89.1 -1.4 | +17.0 | -28.5 |
| 324.358 G | 39 | 233 | 21 | 124 | 90.3 -0.2 | +16.8 | -14.4 |
| 325.373 G | 35 | 212 | 18 | 111 | 87.9 -2.5 | +16.7 | - 3.4 |
| 326.291 C | 31 | 147 | 16 | 78 | 89.6 -0.8 | +16.4 | +10.4 |
| 327.144 K | 24 | 130 | 13 | 73 | 91.6 +1.2 | +16.6 | +23.6 |
| 328.415 G | 9 | 39 | 6 | 27 | 91.9 +1.5 | +16.8 | +40.7 |
| 329.347 G | 0 | 9 | 0 | 8 | 91.2 +0.9 | +17.2 | +52.2 |
| **Means** | .. | .. | 19 | 107 | 90.1 .. | +16.9 | .. |
| **Group 16908** | | | | | | | |
| Nov. 17-29. A stable regular spot. | | | | | | | |
| 320.298 C | 8 | 42 | 33 | 171 | 74.6 .. | +20.8 | -83.6 |
| 321.302 C | 25 | 164 | 35 | 231 | 76.2 0.0 | +21.0 | -68.8 |
| 322.463 G | 31 | 196 | 28 | 174 | 75.6 -0.4 | +20.9 | -54.1 |
| 323.381 G | 44 | 250 | 31 | 178 | 75.6 -0.3 | +21.1 | -42.0 |
| 324.358 G | 46 | 282 | 28 | 169 | 75.3 -0.4 | +20.9 | -29.4 |
| 325.373 G | 64 | 367 | 35 | 202 | 75.0 -0.6 | +21.3 | -16.3 |
| 326.291 C | 59 | 307 | 31 | 163 | 74.7 -0.7 | +21.2 | - 4.5 |
| 327.144 K | 57 | 304 | 30 | 161 | 74.5 -0.8 | +21.5 | + 6.5 |
| 328.415 G | 37 | 264 | 21 | 153 | 74.1 -1.0 | +21.3 | +22.9 |
| 329.347 G | 54 | 260 | 35 | 169 | 74.3 -0.7 | +21.8 | +35.3 |
| 330.286 C | 42 | 172 | 33 | 134 | 73.5 -1.3 | +21.6 | +46.9 |
| 331.539 C | 19 | 88 | 22 | 104 | 73.5 -1.1 | +21.8 | +63.4 |
| 332.347 C | 10 | 63 | 19 | 120 | 73.5 -1.0 | +21.6 | +74.1 |
| **Means** | .. | .. | 29 | 163 | 74.6 .. | +21.3 | .. |
| **Group 16909** | | | | | | | |
| Nov. 18-27. A pair of spots on November 18. The leader soon becomes regular and alone remains by November 24. | | | | | | | |
| 321.302 C | 23 | 151 | 16 | 108 | 99.4 0.0 | + 9.4 | -45.6 |
| 322.463 G | 31 | 157 | 17 | 89 | 101.5 +2.0 | + 8.8 | -28.2 |
| 323.381 G | 50 | 258 | 26 | 135 | 102.9 +3.2 | + 8.2 | -14.7 |
| 324.358 G | 42 | 290 | 21 | 145 | 103.0 +3.2 | + 8.4 | - 1.7 |
| 325.373 G | 35 | 255 | 18 | 130 | 103.3 +3.4 | + 8.5 | +12.0 |
| 326.291 C | 50 | 260 | 27 | 142 | 102.5 +2.5 | + 8.9 | +23.3 |
| 327.144 K | 32 | 199 | 20 | 121 | 102.6 +2.5 | + 9.1 | +34.6 |

LEDGER II. - NON-RECURRENT GROUPS OF SUNSPOTS

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|---|
| **Group 16909 - *continued*** | | | | | | | | |
| | | | | | ° | ° | ° | ° |
| 328.415 G | 28 | 157 | 22 | 124 | 101.9 | +1.7 | + 9.3 | +50.7 |
| 329.347 G | 27 | 90 | 30 | 100 | 102.0 | +1.6 | + 9.7 | +63.0 |
| 330.286 C | 8 | 59 | 15 | 114 | 101.6 | +1.1 | + 9.4 | +75.0 |
| **Means** | .. | .. | 21 | 121 | 102.1 | .. | + 9.0 | .. |
| **Group 16912** | | | | | | | | |
| Nov. 23-Dec. 5. A nearly regular spot, preceded by a few small companions until December 1. There is a sudden increase in area on December 4. | | | | | | | | |
| 326.291 C | 15 | 92 | 36 | 221 | 1.1 | 0.0 | +10.5 | -78.1 |
| 327.144 K | 22 | 130 | 28 | 164 | 1.6 | +0.4 | +10.7 | -66.4 |
| 328.415 G | 35 | 165 | 27 | 127 | 2.2 | +0.9 | +10.4 | -49.0 |
| 329.347 G | 39 | 235 | 24 | 148 | 2.4 | +1.0 | +10.1 | -36.6 |
| 330.286 C | 40 | 264 | 22 | 147 | 2.7 | +1.2 | +10.4 | -23.9 |
| 331.539 C | 38 | 168 | 19 | 86 | 1.6 | -0.1 | +10.7 | - 8.5 |
| 332.347 C | 13 | 76 | 7 | 39 | 1.6 | -0.2 | +10.7 | + 2.2 |
| 333.428 G | 39 | 154 | 21 | 82 | 3.5 | +1.6 | +10.3 | +18.3 |
| 334.518 G | 13 | 65 | 8 | 39 | 3.3 | +1.3 | + 9.8 | +32.5 |
| 335.418 G | 11 | 50 | 7 | 35 | 2.4 | +0.3 | +10.5 | +43.5 |
| 336.398 G | 9 | 57 | 8 | 52 | 2.5 | +0.3 | + 9.8 | +56.5 |
| 337.282 C | 21 | 165 | 31 | 241 | 4.2 | +1.9 | + 8.7 | +69.8 |
| 338.283 C | 8 | 65 | 29 | 235 | 3.7 | .. | + 8.6 | +82.5 |
| **Means** | .. | .. | 20 | 115 | 2.4 | .. | +10.2 | .. |
| **Group 16914** | | | | | | | | |
| Nov. 25-Dec. 2. A stream of small spots, dying out just past the central meridian. | | | | | | | | |
| 328.415 G | 13 | 83 | 24 | 167 | 336.8 | 0.0 | +10.2 | -74.4 |
| 329.347 G | 40 | 179 | 42 | 189 | 337.9 | +1.0 | +10.3 | -61.1 |
| 330.286 C | 25 | 178 | 18 | 135 | 338.9 | +1.9 | +10.7 | -47.7 |
| 331.539 C | 31 | 99 | 18 | 58 | 340.7 | +3.6 | +10.6 | -29.4 |
| 332.347 C | 23 | 105 | 12 | 56 | 340.5 | +3.3 | +10.5 | -18.9 |
| 333.428 G | 4 | 35 | 2 | 18 | 340.1 | +2.8 | +10.4 | - 5.1 |
| 334.518 G | 6 | 48 | 3 | 25 | 335.8 | -1.6 | +10.7 | + 5.0 |
| 335.418 G | 2 | 11 | 1 | 6 | 334.2 | -3.3 | +11.2 | +15.3 |
| **Means** | .. | .. | 15 | 82 | 338.1 | .. | +10.6 | .. |
| **Group 16919** | | | | | | | | |
| Dec. 5-16. One or two small spots, not seen from December 10 to 14. | | | | | | | | |
| 338.283 C | 0 | 9 | 0 | 34 | 198.7 | .. | - 3.8 | -82.5 |
| 339.584 G | 8 | 45 | 11 | 63 | 196.0 | 0.0 | - 4.0 | -68.0 |

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|---|
| **Group 16919 - *continued*** | | | | | | | | |
| | | | | | ° | ° | ° | ° |
| 340.453 G | 7 | 30 | 6 | 26 | 197.5 | +1.3 | - 3.3 | -55.1 |
| 341.283 C | 8 | 46 | 6 | 32 | 197.5 | +1.2 | - 3.6 | -44.2 |
| 342.422 G | 4 | 15 | 2 | 9 | 198.5 | +2.0 | - 3.6 | -28.2 |
| 343.280 C | 0 | 0 | 0 | 0 | .. | .. | .. | .. |
| 344.392 G | 0 | 0 | 0 | 0 | .. | .. | .. | .. |
| 345.466 G | 0 | 0 | 0 | 0 | .. | .. | .. | .. |
| 346.399 G | 0 | 0 | 0 | 0 | .. | .. | .. | .. |
| 347.473 G | 0 | 0 | 0 | 0 | .. | .. | .. | .. |
| 348.283 C | 4 | 17 | 3 | 13 | 197.8 | +0.2 | - 3.5 | +48.4 |
| 349.276 C | 2 | 10 | 2 | 11 | 199.3 | +1.6 | - 3.7 | +63.0 |
| **Means** | .. | .. | 3 | 14 | 197.8 | .. | - 3.6 | .. |
| **Group 16928** | | | | | | | | |
| Dec. 16-25. A stream of small variable spots, forming immediately ℘ Group 16927. The whole moves forward in longitude. | | | | | | | | |
| 349.276 C | 13 | 63 | 11 | 55 | 81.9 | 0.0 | + 8.7 | -54.4 |
| 350.468 G | 19 | 101 | 12 | 65 | 82.7 | +0.7 | + 8.6 | -37.9 |
| 351.291 C | 17 | 113 | 9 | 64 | 83.9 | +1.7 | + 8.5 | -25.9 |
| 352.306 C | 21 | 174 | 11 | 90 | 83.6 | +1.3 | + 8.5 | -12.8 |
| 353.441 C | 8 | 50 | 4 | 25 | 84.0 | +1.5 | + 6.9 | + 2.5 |
| 354.404 G | 8 | 39 | 4 | 21 | 87.4 | +4.8 | + 7.7 | +18.6 |
| 355.283 C | 0 | 0 | 0 | 0 | .. | .. | .. | .. |
| 356.303 C | 0 | 0 | 0 | 0 | .. | .. | .. | .. |
| 357.280 C | 16 | 73 | 15 | 66 | 86.4 | +3.4 | + 8.7 | +55.5 |
| 358.321 C | 8 | 42 | 12 | 65 | 87.4 | +4.3 | + 8.6 | +70.2 |
| **Means** | .. | .. | 8 | 45 | 84.7 | .. | + 8.3 | .. |
| **Group 16929** | | | | | | | | |
| Dec. 17-23. A stream of small changing spots, of which only one remains by December 22. | | | | | | | | |
| 350.468 G | 17 | 80 | 12 | 55 | 78.6 | 0.0 | -11.7 | -42.0 |
| 351.291 C | 40 | 199 | 23 | 118 | 78.8 | +0.1 | -11.7 | -31.0 |
| 352.306 C | 67 | 274 | 36 | 146 | 79.4 | +0.6 | -11.4 | -17.0 |
| 353.441 C | 37 | 148 | 19 | 75 | 81.8 | +2.9 | -11.7 | + 0.3 |
| 354.404 G | 17 | 65 | 9 | 34 | 82.5 | +3.6 | -11.1 | +13.7 |
| 355.283 C | 8 | 42 | 5 | 24 | 84.5 | +5.5 | -11.2 | +27.3 |
| 356.303 C | 2 | 21 | 1 | 14 | 84.7 | +5.6 | -11.0 | +40.9 |
| **Means** | .. | .. | 15 | 67 | 81.5 | .. | -11.4 | .. |

LEDGER II. - NON-RECURRENT GROUPS OF SUNSPOTS

| Date U.T. Place | Projected Area Umbræ | Projected Area Whole Spots | Corrected Area Umbræ | Corrected Area Whole Spots | Longitude and Proper Motion | | Latitude | Long. from C.M. |
|---|---|---|---|---|---|---|---|---|
| **Group 16932** | | | | | | | | |
| Dec. 27–1952 Jan. 5. A stream, suddenly appearing in the eastern hemisphere. The leader, *a*, becomes a regular spot and alone remains by January 4. The follower, *b*, a composite spot, declines after December 29. The whole group shows an equatorward drift. | | | | | | | | |
| | | | | | ° | ° | ° | ° |
| 360.484 G | 50 | 315 | 39 | 242 | 299.8 | 0.0 | + 2.8 | -48.9 |
| 361.422 G | 163 | 1161 | 103 | 731 | 299.8 | -0.2 | + 2.4 | -36.5 |
| 362.289 C | 154 | 1050 | 85 | 580 | 299.7 | -0.4 | + 2.4 | -25.2 |
| 363.301 C | 110 | 986 | 56 | 507 | 300.3 | 0.0 | + 1.7 | -11.3 |
| 364.282 C | 131 | 880 | 65 | 440 | 300.9 | +0.4 | + 1.3 | + 2.2 |
| 0.409 G | 91 | 681 | 48 | 359 | 301.5 | +0.8 | + 0.9 | +17.7 |
| 1.320 C | 87 | 426 | 51 | 249 | 301.8 | +0.9 | + 0.5 | +30.0 |
| 2.462 G | 78 | 354 | 56 | 255 | 302.7 | +1.6 | + 0.3 | +45.9 |
| 3.432 G | 37 | 186 | 37 | 184 | 303.4 | +2.1 | + 0.3 | +59.4 |
| 4.416 G | 17 | 98 | 30 | 171 | 304.3 | +2.8 | + 0.2 | +73.2 |
| **Means** | .. | .. | 57 | 372 | 301.4 | .. | + 1.3 | .. |
| **Spot *a*** | | | | | | | | |
| 360.484 G | 37 | 207 | 28 | 155 | 301.1 | 0.0 | + 2.8 | -47.6 |
| 361.422 G | 100 | 707 | 61 | 431 | 301.6 | +0.3 | + 2.4 | -34.7 |
| 362.289 C | 96 | 628 | 52 | 339 | 302.8 | +1.4 | + 2.2 | -22.1 |
| 363.301 C | 73 | 547 | 37 | 279 | 303.5 | +1.9 | + 2.1 | - 8.1 |
| 364.282 C | 102 | 580 | 51 | 290 | 303.5 | +1.7 | + 0.8 | + 4.8 |
| 0.409 G | 78 | 486 | 41 | 258 | 303.7 | +1.7 | + 0.4 | +19.9 |
| 1.320 C | 79 | 368 | 47 | 217 | 303.5 | +1.3 | + 0.1 | +31.7 |
| 2.462 G | 69 | 302 | 50 | 220 | 303.8 | +1.4 | - 0.1 | +47.0 |
| 3.432 G | 37 | 186 | 37 | 184 | 303.4 | +0.8 | + 0.3 | +59.4 |
| 4.416 G | 17 | 98 | 30 | 171 | 304.3 | +1.5 | + 0.2 | +73.2 |
| **Spot *b*** | | | | | | | | |
| 360.484 G | 13 | 108 | 11 | 87 | 297.0 | 0.0 | + 2.8 | -51.7 |
| 361.422 G | 63 | 454 | 42 | 300 | 296.1 | -1.1 | + 2.1 | -40.2 |
| 362.289 C | 58 | 422 | 33 | 241 | 296.2 | -1.1 | + 2.2 | -28.7 |
| 363.301 C | 37 | 439 | 19 | 228 | 296.7 | -0.8 | + 1.8 | -14.9 |
| 364.282 C | 29 | 300 | 14 | 150 | 296.2 | -1.5 | + 1.6 | - 2.5 |
| 0.409 G | 13 | 195 | 7 | 101 | 297.6 | -0.3 | + 1.8 | +13.8 |
| 1.320 C | 8 | 58 | 4 | 32 | 297.4 | -0.7 | + 1.3 | +25.6 |
| 2.462 G | 9 | 52 | 6 | 35 | 299.6 | +1.3 | + 1.3 | +42.8 |
| **Group 16933** | | | | | | | | |
| Dec. 29–1952 Jan. 3. A group of small variable spots. | | | | | | | | |
| 362.289 C | 0 | 12 | 0 | 8 | 284.1 | 0.0 | +13.5 | -40.8 |
| 363.301 C | 20 | 139 | 12 | 82 | 284.8 | +0.7 | +13.5 | -26.8 |
| 364.282 C | 52 | 216 | 27 | 115 | 286.1 | +1.9 | +13.8 | -12.6 |
| 0.409 G | 35 | 154 | 18 | 81 | 285.5 | +1.3 | +13.9 | + 1.7 |
| 1.320 C | 31 | 87 | 16 | 47 | 284.1 | -0.2 | +13.4 | +12.3 |
| 2.462 G | 13 | 45 | 7 | 26 | 282.6 | -1.7 | +13.8 | +25.8 |
| **Means** | .. | .. | 13 | 60 | 284.5 | .. | +13.6 | .. |

*continued*

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ROYAL GREENWICH OBSERVATORY

# *Total Areas*

# *of Sunspots and Faculæ*

for each day, and

*Mean Areas and Mean Heliographic Latitude*

*of Sunspots and Faculæ*

for each rotation of the sun and for the year

1951

GREENWICH PHOTO-HELIOGRAPHIC RESULTS, 1951

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

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.

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 | | |
|---|---|---|---|---|---|---|---|---|
| | | | Umbræ | Whole Spots | Faculæ | Umbræ | Whole Spots | Faculæ |
| 1951 | d | | | | | | | |
| January | 1.463 | G | 12 | 60 | 1908 | 14 | 72 | 2396 |
| | 2.337 | C | 8 | 41 | 574 | 6 | 50 | 816 |
| | 3.478 | G | 47 | 315 | 789 | 31 | 205 | 1046 |
| | 4.288 | C | 52 | 357 | 501 | 31 | 209 | 613 |
| | 5.284 | C | 50 | 446 | 679 | 26 | 251 | 895 |
| | 6.426 | C | 123 | 996 | 690 | 63 | 507 | 784 |
| | 7.455 | G | 276 | 1326 | 1028 | 148 | 722 | 1203 |
| | 8.293 | C | 184 | 1009 | 951 | 108 | 587 | 1121 |
| | 9.409 | G | 148 | 981 | 715 | 99 | 659 | 865 |
| | 10.283 | C | 147 | 635 | 972 | 117 | 521 | 906 |
| | 11.126 | K | 94 | 488 | 703 | 93 | 496 | 819 |
| | 12.520 | G | 29 | 224 | 1015 | 34 | 226 | 1421 |
| | 13.385 | G | 15 | 98 | 785 | 13 | 81 | 824 |
| | 14.435 | G | 15 | 68 | 1318 | 16 | 72 | 1792 |
| | 15.493 | G | 4 | 32 | 551 | 2 | 37 | 946 |
| | 16.456 | G | 52 | 206 | 499 | 29 | 116 | 682 |
| | 17.620 | G | 55 | 357 | 445 | 30 | 207 | 466 |
| | 18.284 | C | 77 | 468 | 585 | 57 | 331 | 934 |
| | 19.286 | C | 70 | 435 | 438 | 41 | 256 | 511 |
| | 20.309 | C | 99 | 561 | 339 | 64 | 351 | 284 |
| | 21.078 | K | 59 | 322 | 483 | 40 | 226 | 463 |
| | 22.290 | C | 39 | 187 | 993 | 42 | 217 | 1184 |
| | 23.389 | G | 153 | 717 | 1472 | 256 | 1210 | 2347 |
| | 24.457 | G | 242 | 1412 | 1270 | 254 | 1529 | 1317 |
| | 25.284 | C | 329 | 2032 | 470 | 257 | 1601 | 432 |
| | 26.126 | K | 470 | 2575 | 885 | 317 | 1733 | 956 |
| | 27.380 | G | 552 | 3853 | 1177 | 319 | 2214 | 1705 |
| | 28.412 | G | 596 | 3611 | 1270 | 328 | 1946 | 1578 |
| | 29.586 | G | 779 | 4541 | 944 | 421 | 2415 | 982 |
| | 30.505 | G | 698 | 3604 | 249 | 392 | 2033 | 312 |
| | 31.285 | C | 413 | 3358 | 387 | 260 | 2059 | 540 |
| February | 1.496 | G | 345 | 2001 | 1855 | 279 | 1591 | 2019 |
| | 2.293 | C | 236 | 1533 | 1087 | 234 | 1554 | 1272 |
| | 3.291 | C | 257 | 1096 | 1155 | 281 | 1505 | 1842 |
| | 4.292 | C | 95 | 471 | 536 | 73 | 382 | 862 |
| | 5.417 | G | 58 | 343 | 945 | 38 | 248 | 1132 |
| | 6.425 | G | 29 | 222 | 1163 | 23 | 184 | 1475 |
| | 7.464 | G | 41 | 203 | 1339 | 49 | 248 | 1508 |
| | 8.292 | C | 41 | 198 | 951 | 44 | 210 | 1264 |
| | 9.482 | G | 49 | 269 | 1251 | 49 | 294 | 1604 |
| | 10.293 | C | 130 | 575 | 750 | 114 | 507 | 961 |
| | 11.587 | G | 182 | 808 | 519 | 112 | 527 | 742 |
| | 12.400 | G | 145 | 736 | 412 | 124 | 631 | 565 |

| U.T. | | Place | Projected Area | | | Area Corrected for Foreshortening | | |
|---|---|---|---|---|---|---|---|---|
| | | | Umbræ | Whole Spots | Faculæ | Umbræ | Whole Spots | Faculæ |
| 1951 | d | | | | | | | |
| February | 13.293 | C | 102 | 564 | 319 | 71 | 423 | 360 |
| | 14.292 | C | 113 | 600 | 758 | 75 | 411 | 794 |
| | 15.291 | C | 97 | 531 | 765 | 62 | 333 | 857 |
| | 16.386 | C | 62 | 402 | 670 | 35 | 233 | 830 |
| | 17.293 | C | 60 | 322 | 370 | 34 | 177 | 605 |
| | 18.425 | G | 51 | 286 | 1426 | 30 | 177 | 1972 |
| | 19.367 | G | 89 | 574 | 1628 | 128 | 868 | 2427 |
| | 20.296 | C | 103 | 840 | 1382 | 109 | 890 | 1531 |
| | 21.382 | G | 114 | 979 | 1351 | 92 | 785 | 1342 |
| | 22.459 | G | 140 | 1087 | 820 | 96 | 711 | 943 |
| | 23.415 | G | 173 | 1384 | 789 | 96 | 784 | 1087 |
| | 24.296 | C | 162 | 1647 | 473 | 86 | 873 | 692 |
| | 25.341 | C | 177 | 1727 | 575 | 93 | 914 | 775 |
| | 26.380 | G | 238 | 1469 | 912 | 136 | 831 | 1166 |
| | 27.483 | G | 189 | 983 | 1101 | 123 | 638 | 1074 |
| | 28.407 | G | 136 | 796 | 1139 | 107 | 619 | 1150 |
| March | 1.392 | G | 125 | 630 | 1991 | 116 | 607 | 2114 |
| | 2.304 | C | 92 | 409 | 1115 | 132 | 528 | 1581 |
| | 3.368 | G | 34 | 222 | 690 | 29 | 192 | 1097 |
| | 4.430 | G | 32 | 243 | 425 | 19 | 136 | 537 |
| | 5.408 | G | 37 | 297 | 722 | 23 | 195 | 1070 |
| | 6.373 | G | 47 | 271 | 1176 | 59 | 376 | 1330 |
| | 7.377 | G | 62 | 302 | 1528 | 53 | 293 | 1601 |
| | 8.428 | G | 43 | 343 | 1803 | 36 | 284 | 2084 |
| | 9.305 | C | 77 | 343 | 1171 | 51 | 232 | 1459 |
| | 10.488 | C | 64 | 342 | 145 | 37 | 200 | 165 |
| | 11.431 | C | 100 | 501 | 192 | 58 | 284 | 251 |
| | 12.369 | G | 159 | 829 | 584 | 85 | 460 | 853 |
| | 13.302 | C | 142 | 761 | 656 | 74 | 413 | 943 |
| | 14.406 | G | 139 | 679 | 583 | 77 | 373 | 675 |
| | 15.364 | G | 80 | 413 | 254 | 50 | 257 | 386 |
| | 16.300 | C | 43 | 337 | 351 | 33 | 271 | 418 |
| | 17.308 | C | 64 | 540 | 943 | 123 | 1046 | 1255 |
| | 18.412 | G | 165 | 871 | 1810 | 216 | 1156 | 2421 |
| | 19.383 | G | 249 | 1227 | 1337 | 207 | 1032 | 1646 |
| | 20.362 | G | 348 | 1687 | 1070 | 233 | 1128 | 1138 |
| | 21.362 | G | 428 | 1905 | 690 | 258 | 1141 | 818 |
| | 22.580 | G | 505 | 2233 | 1049 | 346 | 1808 | 1415 |
| | 23.310 | C | 517 | 2679 | 951 | 332 | 1819 | 1261 |
| | 24.305 | C | 733 | 3607 | 822 | 432 | 2198 | 1359 |
| | 25.370 | G | 780 | 3609 | 1245 | 485 | 2265 | 1512 |
| | 26.323 | C | 591 | 3111 | 1320 | 410 | 2163 | 1324 |
| | 27.683 | G | 458 | 2223 | 1062 | 424 | 2008 | 1137 |

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

| U. T. | | Place | Projected Area | | | Area Corrected for Foreshortening | | |
|---|---|---|---|---|---|---|---|---|
| | | | Umbræ | Whole Spots | Faculæ | Umbræ | Whole Spots | Faculæ |
| 1951 | d | | | | | | | |
| March | 28.362 | G | 290 | 1597 | 1548 | 350 | 1708 | 2084 |
| | 29.302 | C | 126 | 755 | 1027 | 177 | 1041 | 1413 |
| | 30.478 | G | 68 | 339 | 805 | 71 | 392 | 1182 |
| | 31.305 | C | 55 | 248 | 859 | 43 | 196 | 966 |
| April | 1.512 | G | 45 | 186 | 620 | 33 | 133 | 718 |
| | 2.365 | G | 28 | 124 | 1032 | 23 | 104 | 1112 |
| | 3.391 | G | 15 | 100 | 1325 | 17 | 116 | 1675 |
| | 4.663 | G | 40 | 181 | 1200 | 27 | 116 | 1614 |
| | 5.617 | G | 102 | 420 | 829 | 60 | 249 | 1158 |
| | 6.316 | C | 153 | 660 | 512 | 90 | 379 | 646 |
| | 7.362 | G | 206 | 1067 | 618 | 119 | 608 | 751 |
| | 8.645 | G | 299 | 1523 | 616 | 187 | 944 | 693 |
| | 9.391 | G | 287 | 1397 | 824 | 193 | 955 | 939 |
| | 10.372 | G | 181 | 1054 | 844 | 146 | 846 | 960 |
| | 11.616 | G | 122 | 709 | 620 | 123 | 730 | 964 |
| | 12.446 | C | 132 | 907 | 1191 | 180 | 1272 | 1799 |
| | 13.625 | G | 322 | 1901 | 1764 | 379 | 2349 | 2240 |
| | 14.365 | G | 415 | 2589 | 2219 | 376 | 2409 | 2432 |
| | 15.391 | G | 529 | 3670 | 1774 | 375 | 2629 | 1829 |
| | 16.329 | G | 773 | 4419 | 1243 | 462 | 2679 | 1510 |
| | 17.324 | C | 852 | 4666 | 680 | 464 | 2560 | 700 |
| | 18.397 | G | 815 | 5478 | 592 | 427 | 2868 | 671 |
| | 19.088 | K | 1014 | 5403 | 408 | 537 | 2864 | 633 |
| | 20.333 | G | 635 | 4630 | 831 | 377 | 2687 | 972 |
| | 21.327 | G | 460 | 3471 | 1374 | 318 | 2324 | 1606 |
| | 22.390 | C | 411 | 3062 | 1652 | 337 | 2519 | 1504 |
| | 23.327 | G | 457 | 2944 | 1405 | 387 | 2579 | 1605 |
| | 24.371 | G | 452 | 2571 | 2146 | 439 | 2536 | 2991 |
| | 25.327 | G | 441 | 2360 | 1258 | 281 | 1481 | 1515 |
| | 26.344 | G | 441 | 2624 | 975 | 256 | 1494 | 1390 |
| | 27.438 | G | 511 | 2968 | 599 | 310 | 1789 | 727 |
| | 28.371 | G | 502 | 2592 | 1270 | 489 | 2377 | 1472 |
| | 29.443 | C | 393 | 2347 | 1244 | 274 | 1703 | 1355 |
| | 30.364 | G | 343 | 1771 | 1981 | 315 | 1670 | 2239 |
| May | 1.335 | G | 222 | 1110 | 1155 | 198 | 1007 | 1669 |
| | 2.322 | G | 133 | 747 | 825 | 156 | 927 | 1192 |
| | 3.327 | C | 62 | 391 | 580 | 69 | 405 | 628 |
| | 4.633 | G | 73 | 349 | 594 | 69 | 330 | 734 |
| | 5.359 | G | 62 | 338 | 424 | 83 | 439 | 580 |
| | 6.338 | C | 33 | 203 | 458 | 40 | 250 | 470 |
| | 7.498 | C | 34 | 220 | 832 | 75 | 515 | 1023 |
| | 8.650 | G | 27 | 197 | 844 | 30 | 224 | 1175 |
| | 9.322 | C | 55 | 347 | 1086 | 98 | 619 | 1510 |
| | 10.371 | G | 321 | 1633 | 1347 | 546 | 2762 | 1832 |
| | 11.319 | G | 546 | 3351 | 1818 | 587 | 3660 | 2089 |
| | 12.304 | G | 755 | 4730 | 1482 | 587 | 3723 | 1388 |
| | 13.390 | G | 1129 | 6852 | 1117 | 714 | 4376 | 1361 |
| | 14.440 | G | 1457 | 7898 | 760 | 817 | 4435 | 854 |
| | 15.470 | G | 1549 | 8613 | 537 | 859 | 4798 | 620 |
| | 16.401 | G | 1544 | 9216 | 1305 | 864 | 5132 | 2106 |
| | 17.595 | G | 1487 | 9136 | 1560 | 885 | 5352 | 1758 |
| | 18.353 | G | 1507 | 9709 | 1450 | 944 | 6066 | 1547 |
| | 19.356 | G | 1433 | 9174 | 1599 | 1032 | 6702 | 1839 |
| | 20.363 | G | 1093 | 7168 | 1951 | 869 | 5916 | 2075 |
| May | 21.307 | G | 1020 | 6010 | 2180 | 1010 | 6294 | 2755 |
| | 22.324 | G | 827 | 5121 | 1782 | 752 | 4930 | 2961 |
| | 23.540 | C | 835 | 4868 | 803 | 514 | 2956 | 1009 |
| | 24.382 | G | 837 | 4868 | 1259 | 521 | 2998 | 1435 |
| | 25.329 | G | 779 | 4391 | 1602 | 544 | 3151 | 1735 |
| | 26.331 | C | 658 | 3947 | 1145 | 507 | 3102 | 1158 |
| | 27.430 | G | 484 | 3113 | 1920 | 449 | 2927 | 2155 |
| | 28.429 | G | 429 | 2406 | 1253 | 543 | 2987 | 1861 |
| | 29.634 | G | 291 | 1671 | 646 | 166 | 1015 | 910 |
| | 30.315 | G | 291 | 1580 | 870 | 170 | 922 | 1251 |
| | 31.307 | G | 303 | 1484 | 385 | 191 | 950 | 405 |
| June | 1.309 | G | 246 | 1211 | 1086 | 177 | 892 | 1095 |
| | 2.305 | G | 187 | 941 | 875 | 172 | 856 | 934 |
| | 3.360 | G | 146 | 651 | 1589 | 156 | 692 | 2428 |
| | 4.437 | G | 76 | 404 | 1454 | 69 | 364 | 1777 |
| | 5.533 | G | 147 | 853 | 1455 | 314 | 1828 | 2165 |
| | 6.304 | G | 389 | 2159 | 1692 | 531 | 3037 | 2371 |
| | 7.561 | G | 623 | 3995 | 1701 | 478 | 3017 | 1884 |
| | 8.319 | G | 702 | 4853 | 1806 | 527 | 3561 | 2043 |
| | 9.335 | G | 929 | 5807 | 1185 | 596 | 3762 | 1233 |
| | 10.443 | C | 776 | 5501 | 551 | 454 | 3225 | 518 |
| | 11.292 | G | 898 | 5306 | 725 | 509 | 3008 | 757 |
| | 12.469 | G | 742 | 4990 | 813 | 551 | 4359 | 1242 |
| | 13.380 | G | 878 | 5295 | 1402 | 693 | 4234 | 2100 |
| | 14.323 | G | 1042 | 5798 | 2187 | 752 | 4125 | 2265 |
| | 15.327 | G | 1009 | 5667 | 2163 | 686 | 3864 | 2569 |
| | 16.316 | G | 924 | 5531 | 2714 | 651 | 3762 | 3008 |
| | 17.375 | G | 828 | 5953 | 2314 | 579 | 4047 | 2583 |
| | 18.393 | G | 952 | 6057 | 1867 | 638 | 3900 | 2662 |
| | 19.365 | G | 875 | 5732 | 1146 | 536 | 3415 | 1611 |
| | 20.328 | G | 875 | 5421 | 959 | 517 | 3193 | 1247 |
| | 21.321 | G | 806 | 5245 | 1367 | 531 | 3482 | 1499 |
| | 22.342 | G | 630 | 4717 | 1111 | 484 | 3701 | 1153 |
| | 23.333 | C | 441 | 3522 | 1408 | 423 | 3567 | 1613 |
| | 24.396 | C | 269 | 1601 | 741 | 307 | 2279 | 1245 |
| | 25.326 | G | 187 | 965 | 476 | 130 | 686 | 928 |
| | 26.322 | G | 140 | 874 | 717 | 98 | 604 | 1032 |
| | 27.543 | G | 76 | 444 | 820 | 51 | 309 | 1029 |
| | 28.362 | C | 73 | 335 | 823 | 48 | 223 | 1026 |
| | 29.358 | G | 63 | 291 | 1196 | 42 | 180 | 1366 |
| | 30.320 | G | 34 | 212 | 1013 | 22 | 140 | 1456 |
| July | 1.361 | G | 28 | 157 | 1294 | 23 | 130 | 1508 |
| | 2.307 | G | 21 | 117 | 2040 | 21 | 122 | 2347 |
| | 3.303 | G | 30 | 143 | 2645 | 52 | 263 | 3365 |
| | 4.448 | G | 60 | 348 | 1976 | 76 | 432 | 2151 |
| | 5.308 | G | 65 | 420 | 1608 | 60 | 383 | 1732 |
| | 6.307 | G | 104 | 551 | 1449 | 93 | 499 | 1591 |
| | 7.312 | G | 135 | 740 | 1281 | 125 | 704 | 1435 |
| | 8.368 | G | 194 | 1156 | 1071 | 279 | 1539 | 1347 |
| | 9.357 | G | 283 | 1726 | 1508 | 327 | 2130 | 2012 |
| | 10.480 | G | 343 | 2248 | 1827 | 276 | 1902 | 2166 |
| | 11.576 | G | 391 | 2489 | 2776 | 258 | 1663 | 2853 |
| | 12.304 | G | 496 | 2873 | 3128 | 297 | 1732 | 3080 |
| | 13.299 | G | 451 | 2651 | 1508 | 246 | 1452 | 1723 |

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

| U.T. | | Place | Projected Area | | | Area Corrected for Foreshortening | | |
|---|---|---|---|---|---|---|---|---|
| | | | Umbræ | Whole Spots | Faculæ | Umbræ | Whole Spots | Faculæ |
| 1951 | d | | | | | | | |
| July | 14.303 | G | 416 | 2620 | 1871 | 222 | 1379 | 2191 |
| | 15.400 | G | 404 | 2430 | 1371 | 216 | 1296 | 1505 |
| | 16.302 | G | 305 | 1968 | 1719 | 178 | 1143 | 2160 |
| | 17.304 | G | 267 | 1458 | 1662 | 180 | 984 | 2062 |
| | 18.321 | G | 175 | 1046 | 1741 | 170 | 993 | 2077 |
| | 19.566 | G | 127 | 617 | 2808 | 177 | 853 | 2948 |
| | 20.303 | G | 74 | 448 | 2546 | 118 | 737 | 2932 |
| | 21.301 | G | 53 | 278 | 1296 | 32 | 169 | 1951 |
| | 22.378 | G | 72 | 423 | 991 | 73 | 402 | 1514 |
| | 23.381 | G | 117 | 635 | 972 | 82 | 439 | 1248 |
| | 24.303 | G | 142 | 720 | 1101 | 82 | 422 | 1144 |
| | 25.302 | G | 130 | 588 | 1053 | 72 | 328 | 1113 |
| | 26.635 | G | 100 | 519 | 1233 | 57 | 292 | 1600 |
| | 27.392 | G | 79 | 381 | 432 | 46 | 220 | 508 |
| | 28.304 | G | 104 | 460 | 1439 | 72 | 315 | 1640 |
| | 29.367 | C | 82 | 431 | 1380 | 74 | 403 | 1735 |
| | 30.306 | G | 84 | 331 | 1978 | 103 | 485 | 2568 |
| | 31.303 | G | 70 | 436 | 1815 | 64 | 367 | 1989 |
| August | 1.653 | G | 100 | 580 | 1597 | 65 | 382 | 1839 |
| | 2.302 | G | 108 | 560 | 1171 | 74 | 400 | 1422 |
| | 3.305 | G | 77 | 345 | 1599 | 67 | 295 | 2060 |
| | 4.426 | C | 82 | 481 | 543 | 109 | 639 | 822 |
| | 5.452 | G | 158 | 1081 | 1331 | 137 | 890 | 1788 |
| | 6.322 | C | 226 | 1541 | 1347 | 161 | 1059 | 1671 |
| | 7.354 | G | 280 | 1508 | 2423 | 183 | 978 | 2823 |
| | 8.345 | G | 374 | 2400 | 1904 | 244 | 1578 | 2065 |
| | 9.312 | G | 566 | 3202 | 1345 | 343 | 1967 | 1367 |
| | 10.645 | G | 459 | 2888 | 1964 | 263 | 1694 | 2384 |
| | 11.435 | C | 474 | 2698 | 1026 | 285 | 1610 | 1094 |
| | 12.361 | G | 426 | 2219 | 1390 | 266 | 1350 | 1654 |
| | 13.361 | G | 284 | 1688 | 797 | 189 | 1159 | 1163 |
| | 14.299 | G | 194 | 1193 | 1717 | 159 | 984 | 2018 |
| | 15.540 | G | 142 | 754 | 1763 | 179 | 1011 | 2013 |
| | 16.300 | G | 87 | 495 | 1981 | 119 | 698 | 2356 |
| | 17.335 | C | 58 | 396 | 1066 | 41 | 290 | 1223 |
| | 18.303 | G | 112 | 516 | 930 | 72 | 327 | 1095 |
| | 19.372 | G | 102 | 635 | 481 | 58 | 382 | 653 |
| | 20.369 | G | 119 | 728 | 655 | 68 | 439 | 849 |
| | 21.300 | G | 114 | 642 | 629 | 74 | 411 | 873 |
| | 22.320 | G | 81 | 508 | 1058 | 66 | 398 | 1110 |
| | 23.306 | G | 74 | 438 | 1387 | 70 | 412 | 1414 |
| | 24.514 | G | 25 | 178 | 1463 | 41 | 276 | 1705 |
| | 25.322 | C | 4 | 38 | 960 | 13 | 101 | 1322 |
| | 26.468 | G | 2 | 25 | 882 | 1 | 19 | 1234 |
| | 27.450 | G | 0 | 0 | 1206 | 0 | 0 | 1405 |
| | 28.325 | C | 0 | 0 | 1421 | 0 | 0 | 1496 |
| | 29.301 | G | 19 | 89 | 1464 | 23 | 101 | 1743 |
| | 30.646 | G | 14 | 87 | 1241 | 35 | 252 | 1587 |
| | 31.457 | G | 41 | 278 | 1043 | 66 | 481 | 1308 |
| September | 1.303 | G | 85 | 463 | 1335 | 90 | 481 | 1640 |
| | 2.295 | G | 112 | 684 | 832 | 85 | 520 | 986 |
| | 3.308 | G | 128 | 810 | 624 | 78 | 495 | 646 |
| | 4.313 | C | 181 | 948 | 920 | 126 | 678 | 1108 |
| | 5.577 | G | 190 | 1240 | 2004 | 122 | 833 | 2061 |
| | 6.302 | G | 257 | 1273 | 2027 | 176 | 860 | 2184 |
| | 7.385 | G | 230 | 1233 | 1819 | 143 | 751 | 2116 |
| | 8.332 | C | 223 | 1174 | 1114 | 167 | 859 | 1505 |
| | 9.402 | C | 350 | 1724 | 1576 | 309 | 1577 | 1953 |
| | 10.328 | C | 350 | 2045 | 1792 | 268 | 1631 | 2254 |
| | 11.347 | G | 437 | 2355 | 1420 | 329 | 1738 | 1577 |
| | 12.600 | G | 385 | 2280 | 1614 | 256 | 1506 | 2046 |
| | 13.559 | G | 340 | 2137 | 1140 | 220 | 1344 | 1257 |
| | 14.310 | G | 344 | 1916 | 1322 | 221 | 1196 | 1433 |
| | 15.313 | C | 242 | 1428 | 805 | 173 | 1026 | 1008 |
| | 16.374 | G | 252 | 1492 | 1064 | 153 | 889 | 1269 |
| | 17.359 | G | 188 | 1316 | 680 | 114 | 785 | 927 |
| | 18.380 | G | 200 | 1258 | 1501 | 148 | 890 | 1507 |
| | 19.352 | G | 277 | 2188 | 1737 | 197 | 1437 | 1877 |
| | 20.328 | G | 441 | 2612 | 1779 | 260 | 1487 | 2001 |
| | 21.497 | G | 446 | 2607 | 1267 | 256 | 1432 | 1647 |
| | 22.322 | G | 434 | 2431 | 1227 | 238 | 1333 | 1439 |
| | 23.645 | G | 264 | 1561 | 1125 | 167 | 1000 | 1486 |
| | 24.373 | G | 201 | 1365 | 1648 | 126 | 917 | 2048 |
| | 25.454 | G | 192 | 1050 | 1100 | 150 | 840 | 1262 |
| | 26.347 | G | 156 | 1092 | 1021 | 137 | 900 | 1302 |
| | 27.457 | G | 96 | 470 | 1594 | 108 | 512 | 1856 |
| | 28.316 | G | 65 | 319 | 2054 | 92 | 464 | 2336 |
| | 29.383 | G | 16 | 80 | 838 | 21 | 113 | 983 |
| | 30.366 | G | 27 | 138 | 526 | 50 | 304 | 739 |
| October | 1.344 | G | 92 | 462 | 994 | 76 | 403 | 1068 |
| | 2.625 | G | 173 | 915 | 1135 | 118 | 590 | 1205 |
| | 3.309 | C | 160 | 874 | 812 | 105 | 554 | 884 |
| | 4.310 | G | 154 | 778 | 1131 | 98 | 509 | 1175 |
| | 5.337 | G | 89 | 520 | 1723 | 56 | 344 | 2171 |
| | 6.345 | G | 90 | 430 | 1762 | 56 | 268 | 2096 |
| | 7.394 | G | 67 | 403 | 1717 | 35 | 213 | 1847 |
| | 8.307 | G | 105 | 531 | 1954 | 99 | 606 | 2234 |
| | 9.448 | G | 175 | 1013 | 1439 | 172 | 992 | 1808 |
| | 10.314 | G | 220 | 1239 | 1946 | 230 | 1246 | 2246 |
| | 11.380 | G | 258 | 1557 | 1020 | 203 | 1223 | 1169 |
| | 12.377 | G | 365 | 1947 | 755 | 253 | 1360 | 876 |
| | 13.301 | C | 281 | 1885 | 699 | 166 | 1087 | 970 |
| | 14.575 | G | 284 | 1685 | 1198 | 152 | 891 | 1354 |
| | 15.378 | G | 290 | 1940 | 1886 | 153 | 1027 | 1915 |
| | 16.331 | G | 341 | 1923 | 1185 | 191 | 1086 | 1237 |
| | 17.515 | C | 254 | 1775 | 268 | 167 | 1194 | 386 |
| | 18.318 | C | 207 | 1404 | 1255 | 168 | 1161 | 1306 |
| | 19.394 | G | 239 | 1350 | 1499 | 244 | 1473 | 1771 |
| | 20.303 | C | 166 | 1120 | 917 | 178 | 1314 | 1285 |
| | 21.407 | G | 89 | 498 | 1096 | 72 | 406 | 1386 |
| | 22.345 | G | 46 | 262 | 1877 | 66 | 337 | 2134 |
| | 23.385 | G | 15 | 86 | 1375 | 20 | 93 | 1379 |
| | 24.379 | G | 4 | 27 | 1293 | 3 | 19 | 1523 |
| | 25.385 | G | 16 | 55 | 1259 | 14 | 42 | 1506 |
| | 26.303 | C | 48 | 278 | 474 | 81 | 501 | 752 |
| | 27.457 | G | 116 | 781 | 1596 | 131 | 917 | 1814 |
| | 28.481 | G | 182 | 1184 | 1301 | 143 | 949 | 1421 |
| | 29.430 | G | 250 | 1426 | 1139 | 168 | 952 | 1236 |
| | 30.613 | G | 264 | 1516 | 730 | 159 | 926 | 785 |
| | 31.581 | G | 215 | 1284 | 1019 | 126 | 795 | 1306 |

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

| U. T. | | Place | Projected Area | | | Area Corrected for Foreshortening | | |
|---|---|---|---|---|---|---|---|---|
| | | | Umbræ | Whole Spots | Faculæ | Umbræ | Whole Spots | Faculæ |
| 1951 | d | | | | | | | |
| November | 1.413 | G | 238 | 1359 | 1261 | 125 | 716 | 1535 |
| | 2.595 | G | 155 | 853 | 990 | 86 | 479 | 1162 |
| | 3.373 | G | 106 | 748 | 965 | 63 | 457 | 1198 |
| | 4.295 | C | 123 | 746 | 1238 | 185 | 1139 | 1526 |
| | 5.292 | C | 138 | 940 | 1466 | 152 | 1076 | 1776 |
| | 6.399 | G | 201 | 1232 | 1734 | 178 | 1068 | 2021 |
| | 7.497 | G | 236 | 1365 | 1117 | 178 | 979 | 1309 |
| | 8.292 | C | 187 | 1273 | 480 | 106 | 726 | 511 |
| | 9.174 | K | 262 | 1624 | 672 | 139 | 866 | 696 |
| | 10.411 | G | 278 | 1578 | 471 | 146 | 817 | 488 |
| | 11.440 | G | 185 | 1346 | 1204 | 98 | 719 | 1359 |
| | 12.576 | G | 164 | 1050 | 1151 | 101 | 652 | 1350 |
| | 13.293 | C | 120 | 698 | 384 | 82 | 472 | 478 |
| | 14.419 | G | 127 | 665 | 996 | 110 | 573 | 983 |
| | 15.581 | G | 87 | 444 | 1438 | 101 | 511 | 1780 |
| | 16.296 | C | 47 | 261 | 1001 | 92 | 528 | 1353 |
| | 17.298 | C | 45 | 288 | 973 | 78 | 447 | 1263 |
| | 18.302 | C | 109 | 623 | 1088 | 99 | 589 | 1322 |
| | 19.463 | G | 112 | 633 | 1815 | 78 | 446 | 1973 |
| | 20.381 | G | 144 | 771 | 1331 | 88 | 479 | 1347 |
| | 21.358 | G | 127 | 805 | 458 | 70 | 438 | 646 |
| | 22.373 | G | 136 | 847 | 888 | 73 | 457 | 1062 |
| | 23.291 | C | 161 | 863 | 795 | 113 | 636 | 1053 |
| | 24.144 | K | 141 | 809 | 710 | 95 | 549 | 710 |
| | 25.415 | G | 139 | 819 | 1395 | 110 | 669 | 1529 |
| | 26.347 | G | 168 | 820 | 965 | 139 | 660 | 947 |
| | 27.286 | C | 151 | 888 | 1165 | 113 | 684 | 1178 |
| | 28.539 | C | 153 | 894 | 1046 | 128 | 820 | 1275 |
| | 29.347 | C | 128 | 826 | 1058 | 168 | 1146 | 1368 |
| | 30.428 | G | 51 | 228 | 722 | 29 | 183 | 948 |

| U. T. | | Place | Projected Area | | | Area Corrected for Foreshortening | | |
|---|---|---|---|---|---|---|---|---|
| | | | Umbræ | Whole Spots | Faculæ | Umbræ | Whole Spots | Faculæ |
| 1951 | d | | | | | | | |
| December | 1.518 | G | 23 | 143 | 825 | 16 | 110 | 991 |
| | 2.418 | G | 19 | 83 | 873 | 16 | 71 | 1028 |
| | 3.398 | G | 15 | 83 | 1167 | 12 | 74 | 1213 |
| | 4.282 | C | 23 | 174 | 1311 | 32 | 247 | 1495 |
| | 5.283 | C | 8 | 74 | 649 | 29 | 269 | 1031 |
| | 6.584 | G | 34 | 141 | 915 | 26 | 116 | 1336 |
| | 7.453 | G | 87 | 329 | 579 | 54 | 206 | 643 |
| | 8.283 | C | 71 | 410 | 486 | 49 | 285 | 503 |
| | 9.422 | G | 29 | 178 | 822 | 28 | 175 | 905 |
| | 10.280 | C | 39 | 200 | 725 | 31 | 177 | 900 |
| | 11.392 | G | 53 | 238 | 880 | 28 | 126 | 925 |
| | 12.466 | G | 20 | 94 | 935 | 12 | 58 | 1152 |
| | 13.399 | G | 43 | 196 | 1163 | 36 | 164 | 1594 |
| | 14.473 | G | 36 | 232 | 982 | 79 | 584 | 1500 |
| | 15.283 | C | 23 | 230 | 1085 | 38 | 395 | 1601 |
| | 16.276 | C | 75 | 654 | 1138 | 79 | 702 | 1300 |
| | 17.468 | G | 183 | 1286 | 1235 | 134 | 937 | 1192 |
| | 18.291 | C | 291 | 1720 | 372 | 179 | 1063 | 506 |
| | 19.306 | C | 356 | 2172 | 626 | 195 | 1189 | 801 |
| | 20.441 | C | 323 | 2509 | 645 | 166 | 1291 | 724 |
| | 21.404 | G | 336 | 2730 | 924 | 174 | 1405 | 1152 |
| | 22.283 | C | 341 | 2667 | 448 | 184 | 1430 | 522 |
| | 23.303 | C | 297 | 2273 | 586 | 175 | 1349 | 528 |
| | 24.280 | C | 228 | 1899 | 867 | 166 | 1344 | 924 |
| | 25.321 | C | 158 | 1272 | 1318 | 149 | 1205 | 1600 |
| | 26.277 | C | 87 | 612 | 1361 | 125 | 898 | 1962 |
| | 27.484 | G | 50 | 333 | 773 | 39 | 300 | 1151 |
| | 28.422 | G | 167 | 1185 | 456 | 105 | 746 | 473 |
| | 29.289 | C | 154 | 1062 | 593 | 85 | 588 | 673 |
| | 30.301 | C | 130 | 1125 | 1503 | 68 | 589 | 1799 |
| | 31.282 | C | 187 | 1117 | 1355 | 97 | 584 | 1695 |

MEAN AREAS OF SUNSPOTS AND FACULÆ FOR EACH ROTATION OF THE SUN,
FROM 1950 DECEMBER 10 TO 1951 DECEMBER 26

The mean areas have been formed by taking the means of the areas for each day of observation throughout each rotation of the Sun, the projected areas being the areas as measured on the photographs and expressed in millionths of the Sun's apparent disk, and the areas corrected for foreshortening being expressed in millionths of the Sun's visible hemisphere.

The rotations adopted in the following table (which is in continuation of those for the years 1873–1950 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 |
| 1301 | 1950 December 9.74 | 27 | 80 | 538 | 749 | 51 | 341 | 911 |
| 1302 | 1951 January 6.07 | 28 | 225 | 1344 | 842 | 154 | 911 | 1024 |
| 1303 | February 2.41 | 27 | 117 | 731 | 944 | 89 | 556 | 1173 |
| 1304 | March 1.75 | 27 | 233 | 1170 | 935 | 172 | 888 | 1179 |
| 1305 | March 29.06 | 28 | 337 | 2030 | 1081 | 237 | 1449 | 1314 |
| 1306 | April 25.33 | 27 | 650 | 3882 | 1176 | 479 | 2885 | 1457 |
| 1307 | May 22.56 | 27 | 607 | 3678 | 1387 | 450 | 2724 | 1687 |
| 1308 | June 18.76 | 27 | 292 | 1853 | 1449 | 213 | 1385 | 1712 |
| 1309 | July 15.96 | 27 | 181 | 1038 | 1497 | 130 | 742 | 1797 |
| 1310 | August 12.18 | 28 | 118 | 669 | 1222 | 90 | 520 | 1445 |
| 1311 | September 8.43 | 27 | 236 | 1386 | 1282 | 165 | 953 | 1508 |
| 1312 | October 5.70 | 27 | 179 | 1073 | 1256 | 132 | 807 | 1455 |
| 1313 | November 1.99 | 27 | 148 | 885 | 1035 | 111 | 664 | 1196 |
| 1314 | November 29.30 | 28 | 121 | 845 | 882 | 86 | 614 | 1084 |

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 |
| 1951 | 365 | 259 | 1552 | 1145 | 188 | 1136 | 1379 |

MEAN HELIOGRAPHIC LATITUDE OF SUNSPOTS FOR EACH ROTATION OF THE SUN,
FROM 1950 DECEMBER 10 TO 1951 DECEMBER 26

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

The heliographic latitude of each spot for each day has been multiplied by its area (corrected for foreshortening), and the sum of the products, for spots north of the equator, has been divided by the sum of the corresponding areas to form the mean heliographic latitude of spotted area north of the equator; similarly for spots south of the equator. In forming the mean heliographic latitude of entire spotted area, the algebraic sum of the products for spots north and south of the equator has been divided by the sum of the areas; and for the mean distance from the equator of all spots the numerical sum of the products, without regard to the sign of 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 | | |
| 1301 | 1950 December 9.74 | 27 | 268 | 14.°94 | 73 | 12.°10 | +9.°13 | 14.°33 |
| 1302 | 1951 January 6.07 | 28 | 671 | 9.17 | 240 | 10.56 | +3.98 | 9.54 |
| 1303 | February 2.41 | 27 | 482 | 10.31 | 74 | 11.33 | +7.43 | 10.44 |
| 1304 | March 1.75 | 27 | 753 | 10.65 | 134 | 9.07 | +7.66 | 10.41 |
| 1305 | March 29.06 | 28 | 1183 | 12.41 | 266 | 9.79 | +8.34 | 11.93 |
| 1306 | April 25.33 | 27 | 2350 | 13.14 | 535 | 12.90 | +8.31 | 13.10 |
| 1307 | May 22.56 | 27 | 1660 | 13.37 | 1064 | 13.37 | +2.92 | 13.37 |
| 1308 | June 18.76 | 27 | 302 | 11.68 | 1084 | 10.97 | -6.04 | 11.13 |
| 1309 | July 15.96 | 27 | 239 | 7.82 | 503 | 8.32 | -3.11 | 8.16 |
| 1310 | August 12.18 | 28 | 236 | 9.52 | 284 | 10.96 | -1.65 | 10.31 |
| 1311 | September 8.43 | 27 | 729 | 10.64 | 223 | 6.25 | +6.68 | 9.62 |
| 1312 | October 5.70 | 27 | 234 | 10.52 | 574 | 9.03 | -3.37 | 9.46 |
| 1313 | November 1.99 | 27 | 282 | 13.62 | 382 | 9.75 | +0.17 | 11.39 |
| 1314 | November 29.30 | 28 | 549 | 8.59 | 65 | 9.79 | +6.64 | 8.72 |

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 | | |
| 1951 | 365 | 730 | 11.°62 | 406 | 10.°78 | +3.°62 | 11.°32 |

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ROYAL GREENWICH OBSERVATORY

# *Observations of Solar Filaments and Solar Flares*

Made with the Spectrohelioscopes

in the year 1951

GREENWICH PHOTO-HELIOGRAPHIC RESULTS, 1951

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# OBSERVATIONS OF SOLAR FILAMENTS MADE WITH THE SPECTROHELIOSCOPE IN THE YEAR 1951

The following observations relate to dark filaments visible on the Sun's disk in the light of $H\alpha$ in the immediate vicinity of sunspots*.

Measures of line-of-sight velocity are taken with the "line-shifter", whose scale from 0-10 divisions = 0.37 A. = 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 line-of-sight velocities*, measured displacements are interpreted as being due to Doppler effects.

The probable error of a single measure of line-of-sight 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 filament, 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.

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

(1) The measured line-of-sight 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 filament, 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 filament, showing progressive velocities along its length, appeared to touch a sunspot, the line-of-sight velocity observed at that extremity of the filament is printed in italics.

(2) (a) The apparent length of the filament in minutes of arc, read by means of a scale inserted in the field, or from a drawing. 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″.

* An analysis of the line-of-sight velocities of dark $H\alpha$ markings near sunspots, observed at the Royal Observatory, Greenwich, 1930-38, is given in *Monthly Notices*, **94**, 472, 1934. A further paper of the characteristic motions of such filaments associated with solar flares appears in *Monthly Notices*, **102**, 2, 1942.

(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 filament relative to the group of associated sunspots or to a single component of the group. In cases where a sunspot has been so 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 filament (deduced from the mean longitude of the sunspots).

Notes have been added of unusual features seen at the time of observation. Filaments which were apparently descending into sunspots with progressive velocities and which showed a definite curvature of shape are also noted.

OBSERVATIONS OF SOLAR FILAMENTS MADE WITH THE SPECTROHELIOSCOPE IN THE YEAR

| | Dark $H\alpha$ Filaments | | | | | | Associated Group of Sunspots | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ref. No. | Date and Time U.T. | | Measured line-of-sight Velocity km./sec. | Length | Least Distance from Sunspot | Position relative to Sunspot or Group | Number of Group | Longitude from Central Meridian | Central Meridian Passage | Lati-tude | Area |
| | d | h | | ′ | ′ | | | ° | d | ° | |
| 1 | Jan. 29 | 10.1 | -20 to +32 | 1.5 | 1.5 | *f* | 16692 | +17 | Jan. 28.15 | + 9 | 340 |
| 2 | 30 | 9.5 | +43 | 4.0 | 0.7 | *np* | 93 | +14 | 29.30 | + 7 | 1068 |
| 3 | Feb. 1 | 11.6 | +34 | 0.5 | 0.5 | *c* | 93 | +42 | | | |
| 4 | 21 | 12.1 | -25 to + 9 | 2.9 | 0.2 | *c* | 711 | -45 | Feb. 24.91 | +10 | 694 |
| 5 | 23 | 11.4 | - 3 | 3.0 | 0.3 | *c* | 11 | -19 | | | |
| 6 | Feb. 28 | 12.2 | + 1 | 1.2 | 0.2 | *c* | 16711 | +47 | | | |
| 7 | 28 | 12.2 | -31 | 0.3 | 0.5 | *c* | 11 | +47 | | | |
| 8 | Mar. 12 | 11.7 | + 2 | 3.0 | 0.7 | *n* | 18 | + 3 | Mar. 12.24 | +13 | 184 |
| 9 | 20 | 9.2 | - 1 | 0.5 | 1.3 | *p* | 22 | -34 | 23.00 | +12 | 914 |
| 10 | 21 | 9.5 | -24 to +27 | 3.5 | 0.7 | *np* | 22 | -21 | | | |
| 11 | Mar. 21 | 9.6 | -23 to +27 | 1.5 | 0.6 | *f* | 16722 | -21 | Mar. 23.00 | +12 | 914 |
| 12 | Apr. 5 | 9.8 | 0 | 1.6 | 1.5 | *p* | 35 | + 7 | Apr. 4.89 | -18 | 54 |
| 13 | 5 | 10.4 | -40 to +46 | 1.0 | .. | *c* | 37 | -13 | 6.41 | +14 | 420 |
| 14 | 11 | 14.7 | -16 to +35 | 1.8 | .. | .. | 42 | +47 | 8.1 | - 9 | 47 |
| 15 | 14 | 9.7 | -32 | 2.4 | 2.0 | *n* | 43 | -35 | 17.09 | - 5 | 182 |
| 16 | Apr. 17 | 8.4 | -56 to +22 | 1.1 | 0.5 | *c* | 16745 | -18 | Apr. 18.71 | +12 | 2064 |
| 17 | 17 | 8.4 | -27 to +26 | 1.1 | 0.2 | *c* | 45 | -18 | | | |
| 18 | 18 | 10.4 | -23 to +33 | 1.3 | 3.5 | *p* | 45 | - 4 | | | |
| 19 | 20 | 9.2 | + 5 | 2.3 | 4.0 | *f* | 45 | +22 | | | |
| 20 | 20 | 13.4 | -89 to +51 | 1.2 | 2.0 | *c* | 49 | -54 | 24.67 | -11 | 47 |
| 21 | Apr. 20 | 13.5 | +58 | 1.8 | 2.2 | *f* | 16749 | -54 | Apr. 24.67 | -11 | 47 |
| 22 | 23 | 8.2 | -60 to +41 | 0.8 | .. | *c* | 50 | -18 | 24.69 | -15 | 578 |
| 23 | 23 | 8.2 | -25 | 0.9 | 2.5 | *s* | 50 | -18 | | | |
| 24 | 23 | 8.2 | -24 | 1.0 | 1.1 | *n* | 50 | -18 | | | |
| 25 | 23 | 8.4 | +40 | 1.2 | 3.5 | *f* | 45 | +61 | 18.71 | +12 | 2064 |
| 26 | Apr. 23 | 8.6 | -17 to +37 | 1.5 | 3.0 | *f* | 16745 | +61 | Apr. 18.71 | +12 | 2064 |
| 27 | 23 | 11.0 | -56 to +57 | 1.0 | .. | *n* | 45 | +63 | | | |
| 28 | 24 | 8.7 | -21 to +43 | 1.0 | 0.8 | *c* | 52 | -28 | 26.48 | +18 | 390 |
| 29 | 24 | 8.8 | -21 to +36 | 1.6 | 0.3 | *c* | 50 | - 4 | 24.69 | -15 | 578 |
| 30 | 24 | 9.0 | -51 to +42 | 1.8 | 0.1 | *c* | 54 | -64 | 29.19 | - 7 | 168 |
| 31 | Apr. 24 | 13.7 | -25 to +47 | 1.3 | 0.5 | *c* | 16745 | +77 | Apr. 18.71 | +12 | 2064 |
| 32 | 24 | 15.2 | -72 to + 3 | 1.6 | 0.5 | *c* | 50 | - 1 | 24.69 | -15 | 578 |
| 33 | 26 | 8.5 | - 7 | 2.5 | 0.9 | *c* | 52 | - 2 | 26.48 | +18 | 390 |
| 34 | 26 | 11.1 | -25 to +23 | 0.3 | 0.4 | *c* | 50 | +24 | 24.69 | -15 | 578 |
| 35 | 26 | 11.4 | -63 to + 7 | 1.5 | 0.7 | *c* | 50 | +24 | | | |
| 36 | May 2 | 10.6 | -25 to +55 | 1.8 | 0.3 | *c* | 16758 | +15 | May 1.31 | -18 | 131 |
| 37 | 2 | 10.6 | -32 to +77 | 0.5 | 0.2 | *c* | 58 | +15 | | | |
| 38 | 10 | 11.0 | +62 to +10 | 1.0 | 0.8 | *s b* | 63 | -74 | 16.03 | +13 | 3743 |
| 39 | 10 | 11.2 | -13 to +106 | 1.1 | 0.5 | *s b* | 63 | -74 | | | |
| 40 | 11 | 8.0 | -73 to +39 | 1.0 | .. | *c* | 66 | -68 | 16.48 | + 5 | 136 |
| 41 | May 12 | 8.0 | - 6 | 1.5 | 0.6 | *c* | 16763 | -49 | May 16.03 | +13 | 3743 |
| 42 | 12 | 8.3 | 0 | 3.2 | 1.6 | *p* | 63 | -49 | | | |
| 43 | 16 | 14.3 | 0 | 4.0 | 0.4 | *c* | 63 | + 8 | | | |
| 44 | 17 | 18.0 | -44 to +147 | 1.7 | 0.6 | *f* | 63 | +23 | | | |
| 45 | 17 | 18.2 | -27 to +41 | 2.0 | 0.7 | *f* | 63 | +23 | | | |

OBSERVATIONS OF SOLAR FILAMENTS MADE WITH THE SPECTROHELIOSCOPE IN THE YEAR

| Dark Hα Filaments | | | | | | | Associated Group of Sunspots | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ref. No. | Date and Time U.T. | | Measured line-of-sight Velocity km./sec. | Length | Least Distance from Sunspot | Position relative to Sunspot or Group | Number of Group | Longitude from Central Meridian | Central Meridian Passage | Latitude | Area |
| | d | h | | ′ | ′ | | | ° | d | ° | |
| 46 | May 18 | 8.0 | -48 to +37 | 3.6 | .. | c | 16763 | +30 | May 16.03 | +13 | 3743 |
| 47 | 18 | 8.2 | -13 to +59 | 2.1 | .. | c | 63 | +31 | | | |
| 48 | 18 | 8.8 | -35 to +28 | 2.2 | .. | c | 63 | +31 | | | |
| 49 | 18 | 11.3 | -43 to +65 | 1.7 | .. | c | 63 | +32 | | | |
| 50 | 18 | 11.5 | - 7 to +111 | 1.0 | 0.7 | c | 63 | +32 | | | |
| 51 | May 18 | 12.7 | -60 | 3.2 | .. | c | 16763 | +33 | May 16.03 | +13 | 3743 |
| 52 | 21 | 8.0 | +25 | 1.0 | 1.1 | c | 75 | -11 | 22.15 | +21 | 786 |
| 53 | 21 | 8.1 | -24 to +55 | 2.8 | 0.3 | c | 76 | -16 | 22.56 | -14 | 142 |
| 54 | 21 | 8.5 | -10 to +53 | 1.0 | .. | c | 76 | -16 | | | |
| 55 | 22 | 14.8 | -55 to +50 | 1.3 | .. | p | 81 | - 4 | 22.95 | +17 | 675 |
| 56 | May 25 | 8.3 | -35 to +30 | 2.0 | 0.3 | c | 16775 | +42 | May 22.15 | +21 | 786 |
| 57 | June 1 | 8.3 | - 1 | 1.5 | 1.5 | f | 82 | +59 | 27.91 | -20 | 543 |
| 58 | 1 | 14.2 | -25 to +67 | 2.0 | .. | c | 82 | +62 | | | |
| 59 | 6 | 10.5 | -53 | 1.8 | 2.2 | c | 90 | -66 | June 11.41 | + 8 | 661 |
| 60 | 8 | 16.0 | -24 to +115 | 1.4 | 0.2 | p | 90 | -36 | | | |
| 61 | June 11 | 7.7 | -154 | 0.4 | 2.5 | f | 16793 | -30 | June 13.58 | + 8 | 471 |
| 62 | 11 | 7.7 | -41 | 1.2 | 0.6 | n | 93 | -30 | | | |
| 63 | 12 | 13.4 | -69 to +11 | 1.5 | .. | c | 95 | -77 | 18.37 | -12 | 2100 |
| 64 | 13 | 9.2 | +33 | 3.0 | 0.2 | c | 95 | -66 | | | |
| 65 | 14 | 8.7 | -30 to +16 | 1.0 | 0.8 | p | 95 | -53 | | | |
| 66 | June 14 | 8.9 | -39 | 1.7 | 1.4 | n | 16795 | -53 | June 18.37 | -12 | 2100 |
| 67 | 14 | 10.3 | -61 to +60 | 1.0 | 1.0 | c | 95 | -52 | | | |
| 68 | 14 | 13.1 | -25 to +64 | 6.0 | 2.5 | n | 92 | +33 | 12.04 | +14 | 893 |
| 69 | 15 | 11.2 | -29 | 1.4 | 0.6 | f | 95 | -38 | 18.37 | -12 | 2100 |
| 70 | 15 | 13.2 | -58 to +87 | 1.5 | 0.3 | c | 95 | -37 | | | |
| 71 | June 15 | 13.2 | -50 to +101 | 3.5 | 0.2 | c | 16795 | -37 | June 18.37 | -12 | 2100 |
| 72 | 18 | 10.0 | +11 | 7.0 | 0.6 | c | 95 | + 1 | | | |
| 73 | 18 | 10.5 | +27 | 0.3 | 0.2 | c | 95 | + 1 | | | |
| 74 | 18 | 13.8 | -34 to +58 | 1.0 | 0.4 | c | 95 | + 3 | | | |
| 75 | 20 | 9.0 | - 8 to +46 | 3.0 | .. | n | 95 | +27 | | | |
| 76 | June 20 | 9.1 | 0 | 1.5 | 0.6 | s | 16795 | +27 | June 18.37 | -12 | 2100 |
| 77 | 20 | 9.1 | -64 to +43 | 2.3 | 0.5 | f | 802 | -55 | 24.55 | -21 | 157 |
| 78 | 20 | 9.2 | -18 | 2.4 | 1.3 | s | 795 | +27 | 18.37 | -12 | 2100 |
| 79 | 21 | 9.0 | -33 | 1.0 | 0.5 | p | 95 | +40 | | | |
| 80 | 21 | 13.3 | + 1 | 1.3 | 1.0 | s | 95 | +42 | | | |
| 81 | June 22 | 10.9 | -38 to +74 | 1.7 | 0.6 | f | 16800 | - 2 | June 22.58 | +15 | 198 |
| 82 | July 16 | 8.2 | - 1 | 4.0 | 2.0 | f | 18 | +17 | July 15.05 | -10 | 539 |
| 83 | Aug. 16 | 8.0 | + 7 | 2.5 | 2.0 | f | 40 | +77 | Aug. 10.52 | + 9 | 344 |
| 84 | 16 | 8.0 | +11 | 1.0 | 2.0 | sf | 40 | +77 | | | |
| 85 | Sept. 3 | 10.3 | + 1 to +51 | 1.2 | 1.6 | s | 54 | -31 | Sept. 5.79 | +10 | 234 |
| 86 | Sept. 7 | 11.3 | -19 to +60 | 1.2 | 0.5 | c | 16854 | +22 | Sept. 5.79 | +10 | 234 |
| 87 | 19 | 7.4 | -34 to +49 | 1.4 | 1.0 | f | 69 | -43 | 22.59 | +15 | 378 |
| 88 | 20 | 8.8 | -47 to +41 | 1.0 | 1.0 | c | 68 | + 3 | 20.17 | +13 | 390 |
| 89 | 20 | 8.8 | -79 | 0.4 | 0.8 | f | 68 | + 3 | | | |
| 90 | Oct. 9 | 8.6 | -44 | 0.6 | 0.2 | c | 82 | -64 | Oct. 14.25 | - 9 | 596 |

OBSERVATIONS OF SOLAR FILAMENTS MADE WITH THE SPECTROHELIOSCOPE IN THE YEAR

| Dark *Hα* Filaments | | | | | | Associated Group of Sunspots | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ref. No. | Date and Time U.T. | Measured line-of-sight Velocity km./sec. | Length | Least Distance from Sunspot | Position relative to Sunspot or Group | Number of Group | Longitude from Central Meridian | Central Meridian Passage | Latitude | Area |
| | d h | | ′ | ′ | | | ° | d | ° | |
| 91 | Oct. 9 8.6 | -38 | 1.0 | 0.5 | *f* | 16882 | -64 | Oct. 14.25 | - 9 | 596 |
| 92 | 16 10.4 | 0 | 1.4 | 1.2 | *nf* | 82 | +29 | | | |
| 93 | Nov. 1 11.4 | - 7 | 4.5 | 0.6 | *nf* | 92 | + 7 | 31.92 | - 9 | 325 |
| 94 | Dec. 17 11.4 | + 1 | 2.6 | 0.5 | *s* | 927 | -47 | Dec. 21.02 | + 9 | 985 |
| 95 | 17 11.4 | - 2 | 3.0 | 3.5 | *s* | 27 | -47 | | | |

NOTES

Ref. No.

1. Associated with a flare 1.

2. A large, rapidly-changing marking. Further velocities were as follows:-

$9^h34^m$ +32 km./sec.
9 35 +46 " "
9 36 -39 to +81 km./sec.
9 42 +39 km./sec.
9 46 + 5 to +38 km./sec.
9 53 +28 km./sec.

20., 21. Associated with a flare 1.

26. Associated with a flare 2.

31. Associated with a flare 1.

32. Associated with a flare 1.

34. Associated with a flare 1.

35. Associated with a flare 1.

44., 45. Associated with a flare 2.

49., 50., 51. Associated with a flare 3.

54. Associated with a flare 1; a further measure at $14^h.9$ gave -43 to +53 km./sec.

56. Further measures were as follows:-

$8^h.4$ +17 km./sec.
8.6 -37 " "

Ref. No.

59. Associated with a flare 1. Another measure at $16^h0$ gave +7 to +101 km./sec.

60. Associated with a flare 1.

61. Associated with a flare 1.

62. Associated with the same flare 1 as marking No. 61; other measures were:-

$7^h.8$ + 4 km./sec.
7.9 +78 " "
8.0 +68 " "

64. Associated with a flare 1.

65. Associated with a flare 1.

68. A dark eruption, which gave the following velocities:-

$13^h10^m$ -14 to +46 km./sec.
15 -51 to +47 " "
43 -45 km./sec.
45 -36 " "
14 02 -41 to +28 km./sec.
15 00 +23 km./sec.

73. Associated with a flare 1.

79. Associated with a flare 1.

80. Associated with a flare 1.

81. Associated with a flare 1.

85. Associated with a flare 1.

86. Associated with a flare 2.

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# OBSERVATIONS OF SOLAR FLARES MADE WITH THE SPECTROHELIOSCOPE IN THE YEAR 1951

Observations in $H\alpha$-light of solar flares, otherwise bright chromospheric eruptions, were begun at Greenwich when the spectrohelioscope was installed in 1929. The observed times of flares and their positions have since 1935 been regularly communicated to Meudon for incorporation in the *Quarterly Bulletin on Solar Activity* published from Zurich under the auspices of the International Astronomical Union. Investigations made at Greenwich into the relationships between solar flares and (1) radio fade-outs (2) geomagnetic disturbances are published in *Monthly Notices* **97**, 594, 1937; **103**, 244, 1943 and **104**, 4, 1944.

The included table gives details of flares observed at the Royal Greenwich Observatory in the year 1951. This table continues the list of flares given in the 1950 volume and preceding volumes since 1944. The following is an explanation of the material contained in the various columns:

Column 1. Reference-number of the flare.

Columns 2, 3 and 4. Date and approximate times (U.T.) of observation. Times in heavier type denote that the beginning or the end of the flare was actually observed.

Columns 5, 6 and 7. Radial distance (in terms of the Sun's apparent radius), latitude and longitude from the central meridian of the flare when observed.

Column 8. The observer's estimate, when it occurs within the times of observation, of the time of maximum of the flare. In certain cases this time of maximum has been derived from a series of intensity or line-width measurements.

Column 9. Approximate area of the flare, corrected for foreshortening and expressed in millionths of the Sun's hemisphere. A graticule inserted in the field of view has been used for the measurement of area.

Column 10. The magnitude, estimated by the observer, on an arbitrary ascending scale 1-2-3, as used in the *Quarterly Bulletin*.

Columns 11 and 12. The highest measured value of the light-intensity (not necessarily obtained at the time of maximum given in Col.8) emitted by the flare and the time (U.T.) of the observation. The intensity is expressed as a percentage of the local continuum and is corrected for scattered light in the instrument. With a visual wedge photometer a measure is usually taken of the ratio of brightness of the flare to the brightness of the undisturbed disk, at the central wavelength of $H\alpha$. The following apparent central intensities (obtained experimentally and uncorrected for instrumental scattering) are assumed at the various parts of the disk in order to obtain the apparent intensity of the flare in terms of the local continuum:

| Radial Distance | Apparent Central Intensity of *Hα* |
|---|---|
| 0.00 to 0.28 | 23 |
| 0.29 to 0.50 | 24 |
| 0.51 to 0.66 | 25 |
| 0.67 to 0.77 | 26 |
| 0.78 to 0.86 | 27 |
| 0.87 to 0.95 | 28 |
| 0.96 to 1.00 | 29 |

The value for the centre of the Sun's disk indicates the presence of scattered light of about 9 per cent; the intensities given in Column 12 incorporate the appropriate correction according to the procedure given in *Monthly Notices*, **96**, 5, 1935. No correction is made for finite slit-width since such correction, for the centre of the *Hα*-line, is not expected to exceed one or two per cent.

In some cases (indicated by italicized figures in Column 12) the measurement of the intensity is made directly with the local continuum. A secondary "line-shifter" (see *Monthly Notices*, **99**, 463, 1939) is used to bring the continuum 15 A.U. from the centre of the *Hα*-line into the lower half of the field to enable the comparison to be made. A correction to allow for the absorption (15 per cent) of the thick line-shifter is made and the correction for scattered light can then be applied, as in the other cases.

Columns 13 and 14. The reference number, in the *General Catalogue*, of the spot group associated with the flare and the position of the flare relative to the group or, in some cases, a principal component *a* or *b*, as designated in the *Ledgers*.

Column 15. The reference number from the preceding table of line-of-sight velocity measures of any dark filament observed in close association with the flare.

OBSERVATIONS OF SOLAR FLARES MADE WITH THE SPECTROHELIOSCOPE IN THE YEAR

| Ref. No. | U.T. of Observation | | | Position | | | U.T. of Max. | Approx. Area of Flare | Mag. | Central Intensity of $H\alpha$ (cont. = 100) | | Associated Spot Group | | Reference Number of Associated Dark Filament |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date | From | To | Radial Dist. | Latitude | Long. from C.M. | | | | U.T. | Int. | Group No. | Relative Position of Flare | |
| | 1951 | h m | h m | | ° | ° | h m | | | h m | | | | 1951 |
| 1 | Jan. 29 | 09 53 | 10 05 | .37 | 10 N | 14 W | 09 56 | 75 | 1 | 09 58 | 40 | 16692 | *c b* | 1 |
| 2 | 29 | 14 05 | 14 13 | .30 | 8 N | 8 W | ≤14 05 | 75 | 1 | 14 06 | 45 | 16693 | *np a* | |
| 3 | Feb. 26 | 09 12 | 09 25 | .45 | 10 N | 20 W | ≤09 12 | 50 | 1 | 09 17 | 38 | 16711 | *c* | |
| 4 | Mar. 1 | 11 20 | 11 35 | .90 | 10 N | 63 W | ≤11 20 | 100 | 1 | 11 20 | 60 | 16711 | *c* | |
| 5 | Apr. 17 | 10 35 | 10 43 | .46 | 10 N | 17 E | 10 38 | 100 | 1 | 10 38 | 44 | 16745 | *c* | |
| 6 | Apr. 18 | 13 10 | 13 24 | .05 | 12 S | 2 E | 13 13 | 175 | 1 | 13 13 | 33 | 16744 | *c* | |
| 7 | 20 | 13 20 | 13 35 | .85 | 12 S | 57 E | 13 25 | 100 | 1 | 13 25 | 43 | 16749 | *c* | 20, 21 |
| 8 | 23 | 08 28 | 08 50 | .89 | 10 N | 59 W | 08 32 | 300 | 2 | 08 32 | 65 | 16745 | *f* | 26 |
| 9 | 23 | 15 02 | 15 17 | .90 | 16 N | 61 W | 15 05 | 150 | 1 | 15 05 | 70 | 16745 | *f* | |
| 10 | 24 | 10 14 | 10 17 | .98 | 15 N | 85 W | 10 15 | 200 | 1 | 10 15 | 43 | 16745 | *c* | |
| 11 | Apr. 24 | 13 46 | 13 55 | .99 | 15 N | 88 W | ≤13 47 | | 1 | 13 47 | 54 | 16745 | *n a* | 31 |
| 12 | 24 | 15 03 | 15 12 | .13 | 12 S | 0 | ≤15 03 | 50 | 1 | 15 03 | 68 | 16750 | *n a* | 32 |
| 13 | 25 | 08 40 | 09 30 | .99 | 12 N | 88 W | 09 00 | 300 | 2 | 09 00 | 92 | 16745 | *c* | |
| 14 | 26 | 10 08 | 10 14 | .48 | 15 S | 27 W | 10 09 | 75 | 1 | 10 09 | 88 | 16750 | *p* | |
| 15 | 26 | 10 59 | 11 05 | .48 | 15 S | 27 W | 11 01 | 100 | 1 | 11 01 | 45 | 16750 | *p* | 34 |
| 16 | Apr. 26 | 11 20 | 11 28 | .48 | 15 S | 27 W | 11 21 | 50 | 1 | 11 21 | 45 | 16750 | *p* | 35 |
| 17 | May 10 | 10 12 | 10 24 | .95 | 12 N | 73 E | <10 17 | 275 | 2 | | | 16763 | *c* | |
| 18 | 11 | 10 15 | 10 26 | .86 | 17 N | 59 E | 10 18 | 100 | 1 | | | 16763 | *n* | |
| 19 | 16 | 10 25 | 10 32 | .31 | 15 N | 3 W | ≤10 25 | 50 | 1 | 10 25 | 74 | 16763 | *c* | |
| 20 | 17 | 10 16 | 10 19 | .35 | 11 N | 16 E | ≤10 16 | 25 | 1 | 10 16 | 40 | 16769 | *c* | |
| 21 | May 17 | 14 47 | 15 25 | .48 | 17 N | 19 W | 14 51 | 100 | 1 | 14 53 | 38 | 16763 | *c* | |
| 22 | 17 | 15 33 | 15 48 | .43 | 15 N | 19 W | 15 35 | 75 | 1 | 15 35 | 53 | 16763 | *c* | |
| 23 | 17 | 17 54 | 18 15 | .30 | 11 N | 10 W | 17 58 | 375 | 2 | 18 05 | 53 | 16763 | *sf* | 44, 45 |
| 24 | 18 | 10 43 | 13 16 | .55 | 13 N | 29 W | 11 12 | 1400 | 3 | 11 12 | *180* | 16763 | *c* | 49, 50, 51 |
| 25 | 21 | 08 25 | 08 45 | .40 | 15 S | 17 E | 08 30 | 100 | 1 | 08 29 | 53 | 16776 | *c* | 54 |
| 26 | May 21 | 13 08 | 13 37 | .95 | 11 N | 75 W | 13 13 | 400 | 1 | 13 13 | 54 | 16763 | *s a* | |
| 27 | 21 | 16 12 | 16 23 | .95 | 11 N | 76 W | 16 15 | 75 | 1 | 16 15 | 54 | 16763 | *s a* | |
| 28 | June 6 | 10 23 | 10 40 | .87 | 4 N | 60 E | 10 28 | 125 | 1 | 10 28 | 71 | 16790 | *p a* | 59 |
| 29 | 8 | 15 52 | 16 05 | .60 | 8 N | 36 E | ≤15 52 | 125 | 1 | 15 53 | 54 | 16790 | *c a* | 60 |
| 30 | 11 | 07 41 | 07 59 | .63 | 8 N | 40 E | 17 50 | 50 | 1 | | | 16793 | *c b* | 61, 62 |
| 31 | June 11 | 08 33 | 09 11 | .80 | 10 S | 50 W | ≤08 33 | 50 | 2 | 08 34 | *99* | 16789 | *c b* | |
| 32 | 13 | 09 10 | 09 25 | .93 | 13 S | 65 E | ≤09 10 | 225 | 1 | | | 16795 | *c* | 64 |
| 33 | 14 | 08 32 | 08 55 | .84 | 14 S | 54 E | 08 39 | 200 | 1 | 08 39 | 59 | 16795 | *c* | 65 |
| 34 | 14 | 11 15 | 11 21 | .84 | 14 S | 54 E | ≤11 15 | 75 | 1 | 11 18 | 71 | 16795 | *c* | |
| 35 | 15 | 08 23 | 09 13 | .70 | 12 N | 41 W | ≤08 23 | 1000 | 2 | 08 27 | 62 | 16792 | *s* | |
| 36 | June 18 | 10 35 | 11 16 | .25 | 12 S | 2 W | 10 43 | | 1 | | | 16795 | *c* | 73 |
| 37 | 18 | 10 45 | 11 14 | .33 | 17 N | 10 E | 10 51 | | 1 | | | 16797 | *c* | |
| 38 | 19 | 12 57 | 13 51 | .32 | 12 S | 13 W | 13 05 | 125 | 2 | 13 05 | 69 | 16795 | *c* | |
| 39 | 21 | 08 50 | 09 15 | .65 | 12 S | 40 W | ≤08 50 | 300 | 1 | 09 00 | 58 | 16795 | *c* | 79 |
| 40 | 21 | 13 02 | 13 30 | .55 | 10 S | 32 W | 13 14 | 150 | 1 | 13 14 | 67 | 16799 | *c* | 80 |

OBSERVATIONS OF SOLAR FLARES MADE WITH THE SPECTROHELIOSCOPE IN THE YEAR

| Ref. No. | U. T. of Observation | | | Position | | | U. T. of Max. | Approx. Area of Flare | Mag. | Central Intensity of $H\alpha$ (cont. = 100) | | Associated Spot Group | | Reference Number of Associated Dark Filament |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date | From | To | Radial Dist. | Latitude | Long. from C.M. | | | | U. T. | Int. | Group No. | Relative Position of Flare | |
| | 1951 | h m | h m | | o | o | h m | | | h m | | | | 1951 |
| 41 | June 22 | 10 40 | 10 54 | .25 | 16 N | 8 E | <10 40 | 125 | 1 | 10 44 | 42 | 16800 | *c* | 81 |
| 42 | Sept. 3 | 10 12 | 10 20 | .60 | 11 N | 39 E | <10 12 | 160 | 1 | 10 14 | 43 | 16854 | *c b* | 85 |
| 43 | 3 | 13 13 | 14 20 | .60 | 11 N | 38 E | <13 13 | 700 | 3 | 13 16 | 88 | 16854 | *c b* | |
| 44 | 7 | 11 11 | 11 24 | .35 | 9 N | 22 W | | | 2 | | | 16854 | *c* | 86 |
| 45 | 14 | 14 14 | 14 27 | .55 | 13 S | 27 E | <14 14 | 100 | 1 | 14 15 | 53 | 16863 | *c* | |
| 46 | Oct. 9 | 08 22 | 08 45 | .93 | 9 S | 67 E | <08 22 | 400 | 2 | 08 28 | 54 | 16882 | *c* | 90, 91 |
| 47 | 9 | 08 44 | 09 00 | .93 | 12 S | 67 E | 08 48 | 175 | 1 | 08 54 | 46 | 16882 | *s* | |
| 48 | Dec. 17 | 14 43 | 14 57 | .75 | 8 N | 46 E | ≤14 43 | 225 | 1 | 14 44 | 73 | 16927 | *c* | |

NOTES

Ref. No.

10. There was an eruptive prominence associated with this flare.

11. Eruptive jet at $13^h49^m$.

22. Two small streaks.

24. See *The Observatory*, **71**, 170, 1951.

28. Intensity measures:

| | | | |
|---|---|---|---|
| $10^h24^m$ | 45 | $10^h36^m$ | 52 |
| 10 25 | 59 | 10 38 | 37 |
| 10 28 | 73 | 10 40 | 36 |
| 10 32 | 56 | | |

Ref. No.

38. Three bright points joined by bright filaments. Intensity measures:-

| | | | |
|---|---|---|---|
| $12^h59^m$ | 42 | $13^h25^m$ | 52 |
| 13 02 | 44 | 13 27 | 73 |
| 13 05 | 70 | 13 30 | 68 |
| 13 08 | 52 | 13 34 | 53 |
| 13 12 | 56 | 13 37 | 41 |
| 13 13 | 52 | 13 39 | 44 |
| 13 15 | 57 | 13 45 | 42 |
| 13 22 | 51 | 13 46 | 42 |
| 13 23 | 54 | 13 48 | 34 |

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C.B.H.29956-Wt.3618-K5-5/57

S.O. Code No. 31-36-0-56