

Solar Division

## BULLETIN



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SEPTEMBER 1, 1859.

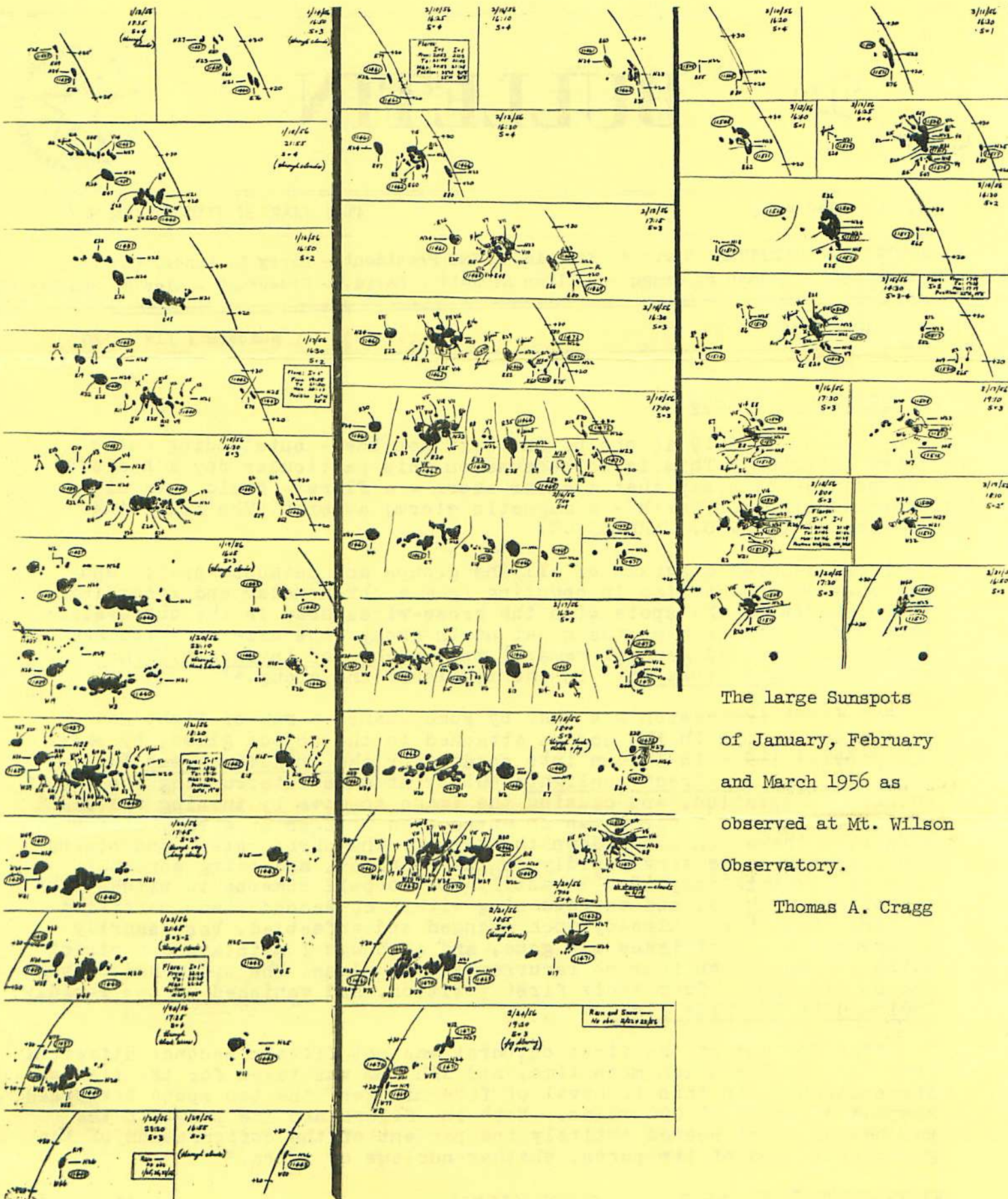
September 1, 1859 is one of the - if not the - outstanding dates in solar astronomy. This is so because on this particular day man discovered in no uncertain way that a solar storm - a flare - could have clear cut repercussions on Earth - a magnetic storm; aurorae. The following is an account by R. C. CARRINGTON:

"I had secured diagrams of all the groups and detached spots, and was engaged at the time in counting from a chronometer and recording the contacts of the spots with the cross-wires used in the observation. when within the area of the great north group (the size of which had previously excited general remark) two patches of intensely bright and white light broke out' in the middle of the group.\*)

"My first impression was that by some chance a ray of light had penetrated a hole in the screen attached to the object glass, by which the general image is thrown into shade, for the brilliancy was fully equal to that of direct sunlight; but by at once interrupting the current observation, and causing the image to move by turning the right ascension handle, I saw I was an unprepared witness of a very different affair. I thereupon noted down the time by the chronometer, and seeing the outbreak to be very rapidly on the increase, and being somewhat flurried by this surprise, I hastily ran to call someone to witness the exhibition with me, and on returning within 60 seconds, was mortified to find that it was already much changed and enfeebled. Very shortly afterwards the last trace was gone, and although I maintained a strict watch for nearly an hour no recurrence took place. The spots had travelled considerably, from their first position, and vanished as two rapidly fading dots of white light.

"The instant of the first outburst was not fifteen seconds different from 11h 18m Greenwich mean time, and 11h 23m was taken for the time of disappearance. In this interval of five minutes, the two spots traversed a space of about 35,000 miles...Both the figure and the position the patches of light seemed entirely independent of the configuration of the great spot, and of its parts, whether nucleus or umbra."

\*) from THE SUN by R.A. PROCTOR (1872)



The large Sunspots of January, February and March 1956 as observed at Mt. Wilson Observatory.

Thomas A. Cragg

(September 1, 1859)

Fortunately at the same time Mr. HODGSON was also observing the sun in "direct light", while Carrington observed the projected image. The following is MR. HODGSON's account as published in Proctor's book:

"While observing a group of spots on September 1, I was suddenly surprised at the appearance of a very brilliant star of light, much brighter than the sun's surface, most dazzling to the protected eye, illuminating the upper edges of the adjacent spots and streaks, not unlike in effect the edging of the clouds at sunset; the rays extended in all directions; and the centre might be compared to the dazzling brilliancy of the bright star Alpha Lyrae when seen in a large telescope with low power. It lasted for some five minutes, and disappeared instantaneously, about 11h 25m A.M."

Mr. Proctor remarks: It seems that whereas two spots were seen by Mr. Carrington, who observed the solar image projected on a screen, these were blended, owing to their brilliancy, into the semblance of a single spot, when observed in the telescope itself by Mr. Hodgson. On the other hand there can be little doubt that Mr. Hodgson saw more detail and that the appearance of "silver lining" was not an illusion due to the bright light nor an illumination effect but the actual shape of certain portions of the flare proper, its filamentary structure.

Only a handful of "white flares" has been observed. This does not mean that they are outside the reach of amateur observers. An interesting paper written by Mme. Marguerite d'Azambuja in L'ASTRONOMIE, April 1947, about white flares will be reprinted in our next Bulletin.

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#### The coming sunspot maximum:

Prof. Charles H. Smiley, Brown University, writes: "I have given on of my Advanced Astronomy classes the problem of predicting when the next maximum will come (to the nearest tenth of a year) and the number of spots for the year within which the maximum falls. Our predictions are as follows:

Lloyd Wackerling	1957.1	130
Peter Barstow	1957.1	145
Charles H. Smiley	1957,5	166
Raymond N. Watts	1957,5	192
Louis Ray	1957.7	105
Eugene Hohol	1958,5	86

Each man tackled the problem independently and I was very interested to notice that the machinery that gives a late date for the maximum would have the maximum itself low.

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#### EDITOR'S NOTE:

Due to a number of factors the Solar Division BULLETIN has been considerably delayed. Currently the Solar Division is being reorganized and it is hoped that starting with the next issue we will again be able to stick to a specified schedule.

H.L.Bondy

## AMERICAN RELATIVE SUNSPOT NUMBERS for JUNE 1956

1..... 94	9..... 91	17.....114	25..... 90
2.....102	10..... 90	18.....118	26..... 55
3..... 97	11..... 81	19.....145	27..... 63
4..... 92	12..... 93	20.....162	28..... 95
5.....114	13..... 92	21.....146	29.....128
6.....107	14.....110	22.....116	30.....153
7..... 98	15.....104	23.....127	
8..... 79	16.....120	24.....103	Monthly mean for <u>JUNE</u> $R_A = 106.0$

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## ZURICH PROVISIONAL SUNSPOT NUMBERS for JUNE 1956

dependent on observations at Zurich Observatory and its stations in Locarno and Arosa.

1..... 98	9..... 85	17.....120	25.....106
2.....107	10..... 89	18.....130	26..... 70
3.....117	11..... 87	19.....171	27..... 71
4.....106	12..... 94	20.....166	28.....122
5.....117	13..... 98	21.....162	29.....135
6.....118	14.....108	22.....150	30.....162
7.....111	15.....114	23.....139	
8..... 90	16.....132	24.....125	Monthly mean for <u>JUNE</u> $R_Z = 116.7$

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## COMMENTS ON DR. WILLET'S LONG RANGE WEATHER FORECASTS

In the March 24, 1956 issue of the Saturday Evening Post Dr. Hurd C. Willet of M.I.T., an outstanding authority on long-range weather forecasting, announced a long-range prediction for the next half century calling for a return to "old fashioned" cold and snowy winters and moister and cooler summers in this country. These predictions are essentially the same as those which he presented in an article in the February 1951 issue of the Journal of Meteorology and which I quoted in a paper at the fall meeting of the AAVSO in 1951.

Dr. Willet states that these predictions are based upon sunspot-weather relationships which he has discovered. Obviously a good forecast of sunspots is required before a weather prediction based on sunspots can be made. I question Dr. Willet's statement in the Post article that "we are entering a period of decreasing sunspot activity." Waldmeier predicts that the coming sunspot maximum will occur early in 1957 and be the greatest on record. On the other hand in his article (1951) Dr. Willet predicted that the coming sunspot maximum would occur in 1962 or later and be one of the lowest on record. (Ed. note: Willet's "maximum" was exceeded already in 1955). The unsatisfactory way in which this latter prediction has been turning out casts doubt on Dr. Willet's ability to predict sunspots even a few years in advance much less a whole half century ahead, and in turn casts doubt on his long-range weather forecasts based on his sunspot predictions.

I have heard that Dr. Willet is a great winter sportman. It would be interesting to see what kind of long-range weather forecast a man who prefers warm weather and summer spots would glean from these same sunspot data.

(Ed. note: Mr. Holloway is also a professional meteorologist)

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