

SOLAR DIVISION BULLETIN.

Neal J. Heines, Editor.

June 1952.
Number 75.

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P.O.Box, 2353.
Paterson, New Jersey.

REPORT OF THE SOLAR DIVISION TO
THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS.

Meeting at the Clarkson college of Technology.

Potsdam, New York, May 23 - 24.

1952.

Membership----- 162; Observers, 83; Research, 79.
 Membership Distribution- 29 States; 11 Foreign Countries.
 Report Blanks Issued---- 495 Incl. of duplicates and G1. Project.
 Reports Distributed --- 320 Solar Div. 125 G11. Proj.; Total 445.
 *Number of Observations 6209; Gleiss, 2402; Total to 4/1/52, 8611.
 1 Communications Sent --- 1153 to 4/1/52.
 2 Communications Rec'd.- 976 to 4/1/52.
 Number Of Solar Division Bulletins Issued; 8 Editions; 1296 Copies.
 Number of Reductions Reports Distributed for this 7 Mo. Period; 1296 Copies.

The American Relative Sunspot Numbers for this present period are as follows :

<u>1951.</u>		<u>1952.</u>
*May 91.7	** Sept. 85.2	Jan. 38.6
Jun, 85.4	Oct. 50.8	Feb. 21.8
Jul. 58.3	Nov. 56.8	Mar. 23.3
Aug. 55.6	Dec. 45.1	Apr. 27.3

Range - 91.7 to 21.8.

*Determined at the Central Radio Propagation Laboratory, National Bureau Of Standards, Washington D.C.

** Determined at the AAVSO Solae Division Headquarters, Paterson N. J.

*Tot. to date 99,932; 1-15,175; 2-12,264 Heines Tot, to date 14,479.

CONDITION OF THE PRESENT SUNSPOT CYCLE

Since our last report, rendered to the American Association of Variable Star Observers, on October 13th, 1951, the solar activity has continued to decline rather slowly. Spotless days for this period are believed to be as follows:

1951 Spotless Days

A few spotless days were reported for 1951 but these are doubtful because larger instruments reported spots for these days.

1952 Spotless Days

February 3rd; 25th; 26th; 27th; 28th; 29th.

March 1st; 2nd; 3rd; 4th; 20th; 21st; 22nd; 23rd; 24th.

The mean monthly sunspot areas since our last Spring Meeting as reported by the U.S. Naval Observatory are as follows:

1951

May	2,887	Sept.	1,133	*Jan.
June	2,425	Oct.	870	*Feb.
July	866	Nov.	812	*Mar.
Aug.	812	Dec.	644	*Apr.

* Not released at this date.

Heines' observations for the period from September 1st to May 1st reveal the following;

Sunspot Groups Whole Disk	-----	576
" Central Zone	-----	4139
Sunspots Whole Disk	-----	272
" Central Zone	-----	2420
Sunspot Groups North Belt	-----	323
" South Belt	-----	248
Sunspots North Belt	-----	2243
" South Belt	-----	1884
Spotless Days Whole Disk	-----	15

SOLAR DIVISION ACTIVITY

The Solar Division is still actively engaged in the following projects; The Sunspot Counts for the Central Radio Propagation Laboratory, National Bureau Of Standards; Granular Surface and Color in Sunspots, Dr. James C. Bartlett Jr.; Unusual Configuration and Colors in Sunspots, Dr. Walter Orr Roberts, High Altitude Observatory, Climax, Colorado; Foreshortening and Assymetry Projects, Prof. W. Gleissberg, University Observatory, Bayazyt - Istanbul, Turkey; Migratory Birds; Sunspot Delineation; Sunspot Area Measurements; Solar Division Headquarters. Solar Radiation, Heines.

A substantial increase in membership is again evident.

The number of monthly sunspot reports for the month of April was 52, the highest number received since the inception of the AAVSO Solar Division.

We are also pleased to report that from among the present observers we have recruited additional observers for the Granulations Project and the Foreshortening and Assymetry Projects. Both Dr. J.C. Bartlett and Prof. Gleissberg have expressed their gratitude for this participation.

Since the adoption of the "Revised Procedures For Reducing Sunspot Number Observations" September 1951 (Publications of the Astronomical Society of the Pacific, Vol. 61, p. 13, 1949, Alan H. Shapley) the American Sunspot Numbers have greater stability and are reliable. The computation work is done at the Solar Division Headquarters at Paterson, New Jersey. Mrs. Duncan Macfarlan has been engaged in assisting your Chairman with this work and is doing a splendid job.

Due to recent general interest in Solar Relations there has been a substantial increase in membership in the Research Section. Last month we added fifteen names to our Material Distribution List.

We wish to acknowledge the work of the Montreal Centre R.A.S. group who furnish this office with Naked Eye Sunspot observations each month. Their faithfullness is deeply appreciated.

Besides Gordon Newkirk, a former observer for the Solar Division, who is now occupied in professional astronomy at the McMath-Hulbert Observatory, we add two names in the same catagory; Mr. Thomas Cragg who is now at Mount Wilson Observatory occupied in Solar work there, and Miss Elizabeth Roemer who is doing professional work, by appointment, at Lick Observatory.

We have watched with interest the progress of these individuals and our heartiest congratulations go to them.

The Central Radio Propagation Laboratory at the National Bureau of Standards have again asked me to convey to the observers of the AAVSO Solar Division their sincere appreciation and thanks for their contributions to the Solar Program.

We also wish to acknowledge the continued interest of the Astronomical League who are ever on the alert in our behalf.

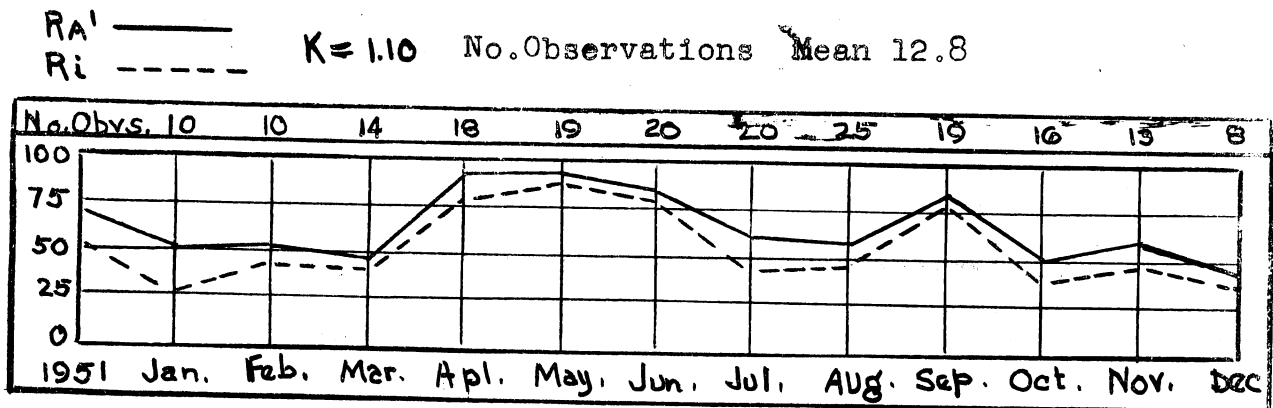
In closing, the executive committee, the Council of the AAVSO, join me in thanking you for another period of fine observing and continued interest.

Thanks are due also to our AAVSO Recorder, Mrs. Margaret Mayall and her office for the splendid cooperation and guidance.

Errata: In our Bulletin No. 73 for April 1952, page 200, listing the Zurich Definitive Sunspot Numbers the December value 69.3 was transcribed in error. Kindly change this to 45.3. We are indebted to our observer, Mr. Harry Bondy for pointing out this error.

Our observer, Mr. George R. Warren has sent us an interesting Graph. The curves show Monthly Means R_A against $R_i \times K$ for 1951. These curves are of value to both the individual observer and to this office as well. He further suggests that these be published once each year for the preceding year. We will do this when we receive a sufficient quantity of graphs to warrant publication. The values are taken from your own records and Reduction Summary sheets. The graphs should be the size of the one inserted below.

CURVES SHOWING MONTHLY MEANS R_A Against $R_i \times K$ for G. Warren.



We are pleased to report that Mrs. M. Beardsley is progressing nicely and hopes to be able to resume observations in June.

STATISTICS

The total number of observed Groups for the month of April was --- 9
Zurich's Provisional Sunspot Number for the month of April was -28.8
The mean monthly Sunspot Area (U.S. Naval Observatory) was not re'ed.
*The highest sunspot group number as assigned at Solar Division Headquarters was 46 It represented a small group in the north belt, near the ast limb.

*Group counting reference for observers.

Predictions of smoothed monthly Sunspot Numbers for the next six months:

May	40	Aug.	35
June	38	Sept.	33
July	36	Oct.	30

Released by Prof. M. Waldmeier, Director, Federal Observatory at Zurich, Switzerland, and transmitted by the Swiss Broadcasting Corporation.

Three Naked-Eye Sunspot reports were received from the Montreal Centre R.A.S. group. Only one Naked-Eye spot was observed and that by Paul S. Scott. Those participating were Mrs. S. Wright, Mrs. D. Zorgo and Paul S. Scott.

PUBLICATIONS

1. "Electricity in Space" ----- Prof. H. Alfven
Scientific American Vol. 186, No. 5, pp. 26-29, May 1952
"This may be a mighty force of nature which causes such
phenomena as Sunspots and Cosmic Rays".
Be sure to study this.
2. "Hyperfine Structure In the Solar Spectrum" ----- Arthur Abt.
Astrophysical Journal. Vol. 115, No. 2, pp 199-205 Mar. 1952
A technical spectroscopic study
3. "Some Recent Observations of Helium Lines in the Infrared
Solar Spectrum" ----- Dr. Green C. Mohler
Same issue as 2, p. 323- 325
Good reading, descriptive subject matter.
4. "A Solar Flare and Associated Dark Flocculi Of May 19, 1951
Same issue as 2, pp. 320- 322.
Another contribution by Miss Helen Dodson, McMath-Hulbert
Observatory, each of which adds to our knowledge of the sun.
5. "High-Dispersion Solar Spectrums Between 15u and 24 u"--A. Adel
Same issue as 2, p. 326.
Found: "A new Atmospheric window."
6. "A Clue to the Sun's Heat----- Astronomers W.O. Roberts, Evans,
Hulbert.
Science Newsletter Vol. 61, Apr. 19, 1952, p. 243
Advance notice concerning findings at the February
eclipse observed at Egyptian-Sudan.
More of this later.
7. "Solar Flares and Solar 1.5 Meter Radiation"
Sky and Telescope May 1952 p. 169
We urge our observers to begin studying Solar Radiation
instruments and procedures. It may be that someday the
Solar Division may be involved in this type of work.
8. "Auroras Mark Reflections"
Science Newsletter Vol. 61, May 1952, p. 279
Concerning "Radio Roof"
9. "Auroral Research" ----- N.J. Oliver
Science Vol 115, No. 2991, APR. 25, 1952
A short comprehensive article worth your time.
"Offers an exciting challenge"

We are pleased to quote the following letter:

The forthcoming meeting of the American Association of Variable
Star Observers gives me an opportunity to convey to the sunspot
observers of the Solar Division a reminder of the importance of
the work which they are carrying out. While the relative sunspot
number is no a model index of solar variations and has much less
physical significance than, for instance, the light curve of var-

iable star, it does play a role in ionospheric physics and radio communications which is highly significant. The quite arbitrary sunspot number, based on visual observations with small telescopes, is the common denominator of intercamparisons of many types of measurements of the ionosphere made over a span of years. It is the most important factor in the prediction of the characteristics of the ionosphere in future years.

Many important branches of ionospheric physics are depending on the consistent continuation of the long series of relative sunspot numbers started at Zurich almost a century ago. In these unsettled times it is important that there be provision for continuation of the Zurich series under any eventuality, to ensure that progress in the scientific study of the earth's upper atmosphere will continue unimpeded. It is in this way that the amateur observers of the AAVSO Solar Division are contributing, aided by the painstaking work of the Division Chairman, in interpreting and reducing the observations.

We should all be reminded that the relative sunspot number is indeed relative. There is no correct number for any day or for any month. The success of the long Zurich series of observations and the success of the observations in this country depends on the longterm faithfulness of observers and studied efforts to maintain consistency both as regards telescopic aids, and judgment in interpreting the visual observations. This is not a job which can better be done with large telescopes, elaborate photographic equipment or by observers on a five day week. It is a job peculiarly suited to people with a deep, unswerving interest in observing the sun and its spottedness -- the people who are banded together in the Solar Division of the AAVSO.

We at the Central Radio Propagation Laboratory are glad to cooperate with you and to have your cooperation in this work.. You help us and the many others who need to know the course of solar activity in order to better understand the variations in the characteristics of the ionosphere.

Very truly yours,

A.H. Shapley
Upper Atmosphere Research Section
Central Radio Propagation Lab.

In closing, we reserve the privilege of commending Mr. William Reid for the fine work he is doing with the Reductions Summary each month. This summary is very legible and complete. Mr. Reid devotes much time and patience in producing this copy work. We of the Executive Committee are deeply appreciative of this fine endeavor, and his unselfish devotion to the Solar Division of the A.A.V.S.O.