

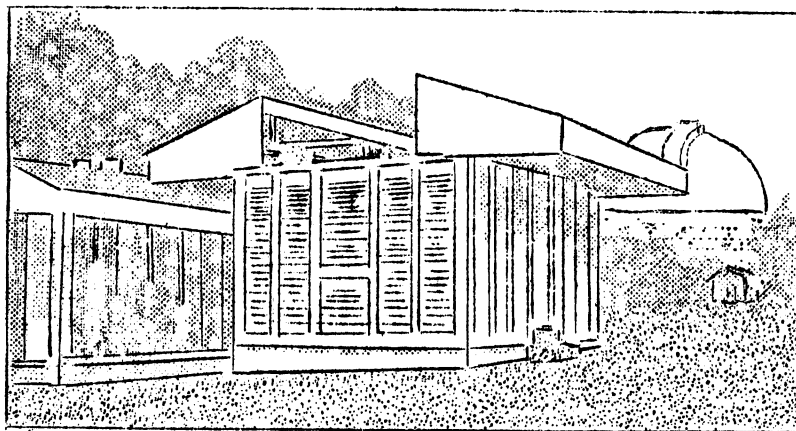
A.A.V.S.O.

SOLAR DIVISION BULLETIN.

Neal J. Heines, Editor.

April 1951.  
Number 62. Page 160.

560 Broadway.  
Paterson 4, New Jersey.



One of the Observatories of the  
NATIONAL CAPITOL ASTRONOMERS.

As announced in our March Bulletin AAVSO Meetings will be held in Washington D.C. this year. We will be the guests of the National Capitol Astronomers and the Georgetown College Observatory.

Registrations are to be made at the Copley Lounge at Georgetown College, beginning Friday, May the 11th, in the afternoon.

There will be a lecture by Dr. John S. Hall, of the United States Naval Observatory in the evening at the Copley Lounge, on the "Effects Of Scintillation Of Stars".

On Saturday we will hold the regular sessions of business followed by the presentation of Papers, both morning and afternoon.

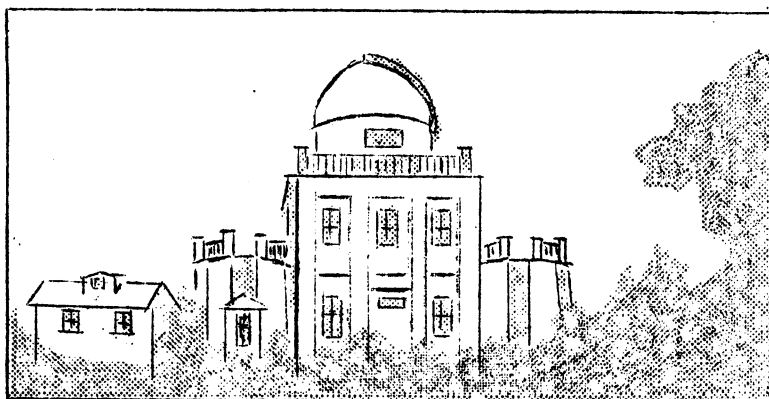
A group photo will be taken at noontime on Saturday followed by a dinner in the Maguire dining room. The afternoon session will be followed by a Buffet Supper on the Observatory lawn.

Complete details are enclosed with this bulletin.

Acknowledgement is made concerning the illustrations of the observatories. These copied from the Directory of Astronomical Observatories, compiled by Miss Mabel Sterns.

Today we received word that Mr. Leon Campbell, who has been ill the past few weeks, was taken to the hospital. His condition is not too good but assurance has been given that he should recover. A very nice gesture would be to send him a note or get-well card to 96 Hammond St., Cambridge 38, Massachusetts.

New Constants are presently being determined for each observer. As soon as this work has been completed the reports containing the American Sunspot Numbers will be distributed. This work will involve a little extra time due to emergent conditions.



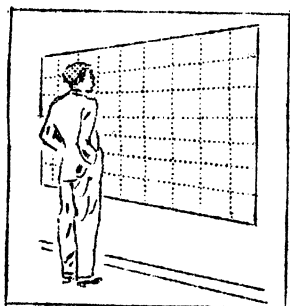
Georgetown College Observatory

Built in 1843.

NOTE FOR OBSERVERS.

On our monthly report form under headings "C" and "D" we indicate under "C" whether seeing is Excellent, Good, Fair, or Poor. Under "D" the percentage of sky covered with clouds. Now it sometimes happens that through haze or thin fog that seeing is excellent even though the sky would be 100% covered through the existing condition. We would appreciate it if you would enter in Column "D" the letters G.S. ( Good Seeing ) after the percentage indication when the percentage is above 5. Thus if F - 7 existed with thin clouds and good seeing the entry under "C" would be F, under "D" 7-GS.

40th. Anniversary Fund.



While our GO-GETTER is out on his itinerary we lack complete information on returns, (see illustration in last month's supplement) we do however have a preliminary statement as to the status of the Fund, most unfortunately, however, after the curve had been entered on the graph (opposite) this gentleman stepped in front of it. Perhaps next month will reveal more.

Harvard College Observatory has recently published a list of astronomical books available for purchase which can be had merely for the asking. Book prices range from 50 cents to \$40.00. If you desire this list address the observatory at Cambridge 38, Mass.

In the Solar Division Bulletin of November 1950 we presented predictions of the coming sunspot minimum. To these predictions we add a summary of Prof. Gliessberg's and Mr. A. Kiarl concerning their prediction.

" A probability law is established for the four cycle averages of the ordinates of sunspot minima. This law yields formulae which permits us, when the maxima of a sunspot cycle has passed, to make predictions about the ordinate of the next minimum with probabilities of 0.90 and 0.95. according to this

latter formula it is to be expected with a probability of 0.95 that the ordinate of the coming minimum will be greater than 9. Moreover it is to be expected with a probability of 0.96 that the minimum will occur not more than 18 months after the time when the smoothed Wolf numbers, on the descending branch of the present sunspot cycle will have fallen below 38".

(Source) Zeitschrift Fur Astrophysik. Bd. 28, S. 17 - 27 (1950)

Recently we have received a prediction from Mr.H.W.Clough concerning the coming minimum.

"In predicting the next 11 year minimum epoch it is to be noted that the short intervals preceeding the extreme high values of  $r$  in 1944, and  $R$  in 1947 should be followed by longer intervals. The last three intervals between epochs were lower than 11 years and the next minimum should follow the last minimum by perhaps 11 years, or, 1955.2.

Last fall your editor heard for the first time the story of Le Gentil while visiting observer F.De Kinder in Montreal. This is indeed a tale worth knowing and can be found in Flammarion's "Astronomie Populaire". His experiences, heart-breaking as they were and his ambitions should be known to all. In the R.A.S. Journal(Canada) January and February Issue under the heading of "Out Of Old Books" by Mrs.Helen Sawyer Hogg, we find more detailed information concerning Le Gentil's voyage.(See item under PUBLICATIONS in this issue)

It is not often that Galeleo's story is brought to light three times in one month but under Publications in this issue you will find evidence of it. In addition we recommend the reading of Zsolt de Harsanyi's "The Star Gazer" and still more details can be found in Popular Astronomy Vol. XXIV of 1916, this should be read by all solar people.

Last month we received a letter from Observer Cragg telling us of Mr.Parkman's (Mt.Wilson) talk on things solar and in it he mentioned the sunspot drought in the latter part of the 17th century and the first part of the 18th. century. Briefly, " In the latter part of the 17th., century and the begining of the 18th the northern hemisphere of the sun failed for many years to produce a single recorded spot - ----- The southern hemisphere had some spots, but only a few, and for nearly 70 years the sun showed a prolonged spot minimum" From ;

"THE SUN AND SUNSPOTS, 1820 - 1920. By, E.Walter Maunder. Monthly Notices of R.A.S. , Supp. 1922.

BE SURE TO READ THE APRIL ISSUE OF SKY AND TELESCOPE concernin the BUILDING OF A MONOCHROMETER. (See publications this issue)

#### STATISTICS.

The total number of observed groups for the month of February was-- 21  
The total number of days with sunspots for the month of Feb. was-- 28  
Zurich's Provisional Relative Sunspot Number for February was--- 57.7  
Mean(monthly)sunspot area(US Naval Obsvty) for November was----- 900

- \* The highest sunspot group number as assigned at solar Division Headquarters on March 16th was group number 46. It represented a major unipolar group (type G ) and was observed on the very edge of the east limb at 1205 U.T. It seemed ,as it does sometimes, that a small piece of the suns limb was missing. Observer Buckstaff of Oshkosh, Wisc. wrote that there seemed to be shoulders around this area. If you noticed this please send drawing of observed details.
- \* Group counting reference for observers.

Statistics. (continued)

Predictions of smoothed Monthly Sunspot numbers for the next six months are as follows;

Mar. 54	Jun. 49
Apr. 53	Jul. 47
May. 51	Aug. 45

Swiss Broadcasting Corp.  
Released by Prof.M.Waldmeier  
Director Federal Observatory  
of Switzerland.

DEFINITIVE SUNSPOT NUMBERS FOR THE YEAR 1950.

Jan. 101.6	Jul. 91.0
Feb. 94.8	Aug. 85.2
Mar. 109.7	Sept. 51.3
Apr. 113.4	Oct. 61.4
May. 106.2	Nov. 54.8
Jun. 83.6	Dec. 54.1

Prof. M.Waldmeier.

We have an energetic group of Naked Eye sunspot observers in Canada who report the following; (Counts Of Naked Eye Spots)

	January	Total	February	Total
R.Venor	29-2 30-2	4	22-1 23-1 25-1	3
P.Scott	29-2	2	24-1 25-1	2
E.Milton	27-1 29-1 30-1	3	23-1 24-1 25-1	3
S.Wright	27-1 29-1 30-1	3	4th-1 25-1	2
De Kinder			23-1 24-1 25-1 28-1	4
Jan.	Total	12	Feb. Toatl	14
Combined total 26 N.E. Spots.				

AURORA REPORT.

Only one report was received by Chaiman D.Kimball which was submitted by Mrs .M.Beardsley of Springfield Vermont.

On Jan. 10th an Aurora was observed, Class G; Elevation 10 degrees throughout North. Jan. 30th., Class G; LLL-W 10 degrees elevation, North.

PUBLICATIONS.

How to build a Monochromator ----- I Richard B.Dunn, Harvard observator  
This is waht we have been waiting for. Cost \$164.90

Le Gentil and the transits of Venus 1761 and 1769 H.S.Hogg  
R.A.S. Journal (Canada) Jan-Feb.-pp. 37-44. and  
to be continued in next issue.

Publications. Continued.

Galeleo The Astronomer. ----- G.Abbeti  
Popular Astronomy. March 1951; Vol LIX No 3, pp 138-143.

The Trials Of Galeleo ----- A.R.Clute  
Journal R.A.S. Canada Jan-Feb 1951 pp. 5-14

Galeleo And The Telescope ----- E.Rosen.  
Scientific Monthly. Mar 1951, pp. 180-182.

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Some Characteristics of 10.7 Centimeter Solar Noise-I-A.E.Covington  
- In which American Relative Sunspot-Numbers are used  
Same Journal as above, pp 15-22.

Survey of the years work at Palomar and Mt Wilson Observatories.  
Publications of A.S.P. Feb. 1951 includes Solar Work.

Eruptive Prominence of August 7th., 1950. ----- Edison Pettit  
Source same publication as above.

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MOTION IN THE SOLAR ATMOSPHERE. Grote Reber.  
Science March 23rd., 1951.  
Highly im formative to those interested in Radio Astronomy.

Note Concerning "The Startification of the Atmosphere" Flohn-Pendorf  
by N.C.Gerson . Defines boundries of existing layers  
in the upper atmosphere as known today.  
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Die mittlere Sonnenfleckencurve. ----- Prof. W.Gleissberg.  
Publications of the University Observatory--Istanbul  
Number 41.

Abstract ; "An average sunspot curve is deduced from all the sunspot  
cycles observed hitherto, and its properties are investi-  
gated. It is shown that the sunspot variations corres-  
ponding to this curve are represented by Stewart and  
Panofsky's formula very approximately. The result leads  
to some conclusions concerning the rates of the variation  
of Wolf's realtive numbers arising from the formation of  
new spot groups and from the disintegration of existing  
groups."

SUPPLEMENT TO BULLETIN NUMBER 61.  
March 1951.

"FILTERS FOR SOLAR OBSERVATIONS"

Dr. James C. Bartlett Jr.

Some recent experiments of mine may be of use to those of our observers interested in foreshortening of spots close to or on the solar limbs, and to those who may study faculae close to the limbs. The experiments have resulted in developing a method of suppressing more of the sky light than is done with ordinary Willson or other filters, which results in a very material sharpening of the limbs.

The method consists of using in series a filter, or filters, which admit a minimum of blue light and transmit mostly in the red; the filters to be used in connection with the primary filter or screen by the observer.

The technique is simple. A ring-diaphragm is made of such diameter to fit over the solar cap on the eyepiece; the secondary filter or filters are then placed in the ring over the solar cap, i.e. superimposed upon it. The resulting improvement of definition at the limbs is marked. This results from suppression of the residual skylight which the primary filter in the solar cap transmits. This residual glare, though slight, nevertheless blends imperceptibly with the limbs, especially on days of disturbed atmosphere, and thus adds a spurious extension to the solar diameter. By suppressing this residual glare, the limbs are much more sharply defined and also gain by contrast with the sky which at the same time is rendered darker.

As you know, the ordinary filters incorporated in solar caps are unfortunately those which transmit an appreciable amount of sky glare; such are the blues and greens of various shades. I do not use a filter in my own work, but rather a carbonized glass screen as you know. This transmits all colors (which filters do not) and enables me to study solar colors; but it consequently transmits blue skylight and glare and thus is no better, in this respect, than the usual solar filters; I mean with respect to the limbs.

For some time I have been employing Wratten filters to check colors in spots as transmitted through the screen, and in so doing I have noticed a marked improvement in definition at the limbs. A preliminary investigation suggests a combination particularly effective in suppressing residual sky glare. MY OWN TECHNIQUE IS AS FOLLOWS: Over the carbonized screen is placed a Wratten filter XI (green). Over this is placed a Wratten A filter\* (deep ruby red). This combination then consists in order from the screen, green filter, red filter, the whole forming one unit.

The image given with this combination is extremely sharp. The limbs are very clearly defined and the external sky looks black. This results in very sharp contrast between limbs and sky, especially suitable for close examination of the limb in cases where a faculae is suspected to project; or in cases where a spot is suspected of making a notch in the limb.

The combination also acts to minimise limb serrations arising from unsteady air.

The use of the green filter is optional. The red filter alone will greatly improve limb definition ; but best results are obtained when both are used in series as outlined above.

The reason appears to be because the green filter supresses some of the yellow component of skylight while some of the transmitted blue is also absorbed. The red filter then acts to supress a large fraction of th transmitted blue light. The combined absorption results in an apparently black sky sensibly of glare and thus brings out the solar limbs in sharp definition.

If the primary screen or filter is not too dense, the general loss of light through a path of three absorptions is not appreciable as respects clear definition of fine solar details.

Observers using a Willson green filter would obtain comparable results by supimposing a Wratten A Filter.

J.C.Bartlett.Baltimore, Md.  
February 18th.,1951.



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48 STATES AND ABROAD

REPORT IN OCTOBER