

A.A.V.S.O.

SOLAR DIVISION BULLETIN.

Neal J. Heines, Editor.

January 1948.

Number 26. Page 51.

560 Broadway.

Paterson 4, New Jersey.

Nineteen Hundred Forty-Seven A.D. is past. It was a year that will make much sunspot history. In our February bulletin we will give the years activity somewhat in detail. \* It was indeed a privilege to have witnessed the solar activity this year and to have shared in some of the work connected with it.

As Chairman of the A.A.V.S.O. thank all who are affiliated splendid work that has been Research Section have con-

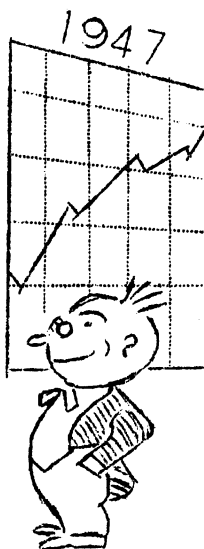
The Observers Section have time that could have been spent

It is gratifying to see the both sections. Also the in-servers listed in the "A" dards, Reductions Report. of observers, now in the "B" names listed in the "A"

We will endeavour this section to gain additional their observations and the

To this end we submit the

The Foundation For The Mr. E. R. Dewey of Riverside, a number of papers ( Reprints ) been very helpful to many of those interested in Solar Phenomena. A list of these follows;



WOW!!

Solar Division, I wish to with the Division for the done this past year. The tributed liberally. given much of their valuable otherwise. increase in membership in crease in the number of ob- Group of the Bureau Of Stan- No doubt there are a number group who will find their group during 1948. yearto help the observing knowlege on the "why" of findings of Research. following information,

Study Of Cycles, directed by Connecticut, have published on Solar Relations which have

Putting Cycles To Work In Science And Industry	-----	E. R. Dewey.
American Mammals	-----	W. J. Hamilton Jr.
Cycles, Rythms, And Predictions	-----	E. Huntington.
Broader Aspects Of Enviornmental Cycles	-----	"
Matamek Conference On Biological Cycles	-----	"
The Sun Makes The Weather 1.	-----	Abbott.
The Sun Makes The Weather 2.	-----	"
A Representation Of The Sunspot Cycle	-----	C. N. Anderson.
Sunspots And Abundance Of Animals	-----	D. A. MacLulich.
Tree Rings And Climate Through The Centuries	-----	W. A. Harwood.

Other Papers:

Today And Destiny	-----	E. F. Dakin.
The Prediction Of Tides	-----	Capt. P. C. Whitney.

\* Bulletins are prepared about nne month prior to issue.

Cycles ( Economic Fluctuations ) -----	Willford I.King.
Emotional Cycles In Man -----	Rex B. Hersey.
Testing Cycles For Statistical Significance -----	C.E.Armstrong.
A Statistical Study Of The Records Of Salmon Fishing On The Restigouche River -----	Phelps and Belding.
Life And Habits Of Field Mice -----	J.H.Douglas Webster.
Periodic Inspiration In Poetry And Music -----	Dr.J.W.Hamilton Jr.
The Long Waves In Economic Life -----	N.K.Kondratieff.
Detection And Isolation Of Rhythms -----	E.R.Dewey.
Cycles - Lynx and Fish, Mice and Man, and Dollars -	E.R.Dewey.
Cycles - As An Aid To Post War Planning -----	E.R.Dewey.

The above list constitutes one of the privileges of membership in the Foundation. Each member received these reprints. They can be purchased, however, by selection. The cost of both membership and the reprints is nominal. For details write to Mr.E.R.Dewey, Riverside, Connecticut.

Another work, published this year was that of Mr.Walter G Bowerman. "Studies In Genius ". This work contains a vast amount of basic material for research, not alone, but is a very interesting work. Sunspots are considered. Mr.Bowerman, if you recall furnished us with a paper, which was read at our Spring Meeting at Hood College. It's Title was, "Life Among Sunspots". Mr.Bowerman has contributed much to sunspot knowledge many of his papers are found in Popular Astronomy. The work contains 343 pages, it's cost is \$4.75. Order through your regular dealer or through, Philosophical Library, 15 East Fortieth Street, New York, N.Y.

We call upon all of you to respond, if you can, to a very worthy cause.

Poland, that gave us Copernicus, is in need of some astronomical equipment. Harvard College Observatory has recently sent an eight inch Refracting telescope to Poland.

Poland is in need of a twenty inch Reflecting telescope. Poland will supply the mounting for this telescope but she needs a little help with the cost of the mirror.

The Kosciuszko Foundation, 15 East 65th., Street, New York N.Y. has agreed to cover one third of the cost, another third has been pledged by Americans of Polish descent in the State Of Rhode Island. This leaves a balance to be raised of \$300.00. It would be a fine gesture of various members of The AAVSO Solar Division to contribute to this cause. Your chairman has already done so. Contributions from \$1.00 to \$5.00 will be welcome. Make your checks payable to the Kosciuszko Foundation and send same to the above address.

#### Observers.

When more than one observation is made during the day, underscore the time given for that observation in column "e" of the monthly report form.

Through December your chairman made observations for the Gleissberg project and verifies his previous statement that the work is not at all difficult and takes but little extra time.

Did you succeed in getting a copy of Dr.Stetson's Book "SUNSPOTS IN ACTION" If not you are missing something very helpful.

December 21st., 1947.

Second Supplement to January Bulletin.

A SIMPLIFIED SOLAR PROJECTION SCREEN.

BY

JAMES HILLEBRAND.

---

I have been using the Stonyhurst Discs for some time now, and have found one fault; when you desire to use them merely to position the groups, north or south of the solar equator, in the central zone or without, or, on the central solar meridian, it entailed a lot of difficulty. While nothing can surpass these discs for amateur use in determining coordinates, they are too cumbersome to use when finding the positions necessary to fill out the "S.D. Monthly Report Forms".

What was needed was something more simple; Something to show the positions at the telescope, without plotting at the instrument and making the reduction thereafter.

My solution therefore was as follows;

Secure a table showing the solar equatorial inclination, or pole angle, on the various dates during the year. Pick out the dates desired, and, using them as the middle, find the various dates when this screen can be used.

Then follows the construction of the screen. Secure a piece of cardboard of proper size and thickness, which becomes your screen holder. Cut carefully a disc from the center of this piece the same size as that of your projected solar image. We will call the first cardboard Number 1, and the disc cut from it Number 2. It can be seen that number 2 can be rotated in Number 1. Next cut a series of ten discs but of a thinner material which can be used for drawing purposes if necessary, these we will call Number 3. The projected image of the sun can be of most any size depending upon the telescope and its definition. On discs Number three, ink, or pencil in, with compass dividers, circles the same size as the chosen projected image. Then draw in another circle, concentric to the outer one to represent the central zone. The central zone will be the circular surface of a semi diameter of the circle drawn on disc Number 3 which represents the projected image of the sun.

Around this same outer ~~outer~~ circle show you North, East, South and West positions with a letter. This should be placed on cardboard Number 1.

Next draw a horizontal line with black pencil on the circle representing the projected image. Begin at 90 degrees and terminate at 180 degrees.

We will now use a red pencil to indicate the positions of the polar axis and the solar equator.

It can be seen that if the polar axis is inclined to the east then the equatorial line will drop below the black penciled horizontal line. Select from your table, for the current date, the number of degrees of inclination, either east or west of the vertical polar axis and pencil in the red line representing the position of the true polar axis. At right angles to this polar line draw in another red line which will represent the solar equatorial axis. The terminations points of the equatorial line should be 90 degrees from the red polar line. You now have the true equatorial axis, for the current date.

Again it can be seen that the true polar axis becomes the central solar meridian or the prime.

For convenience one can draw on cardboard Number 1, at the top of the circle, the degree values in five degree spaces the calibration to 30 degrees, Begin with zero degrees and go 30 degrees each way.

TO USE.

Secure Disc number 3 to disc number 2 with drawing pins or thumb tacks and project solar image on number 3.

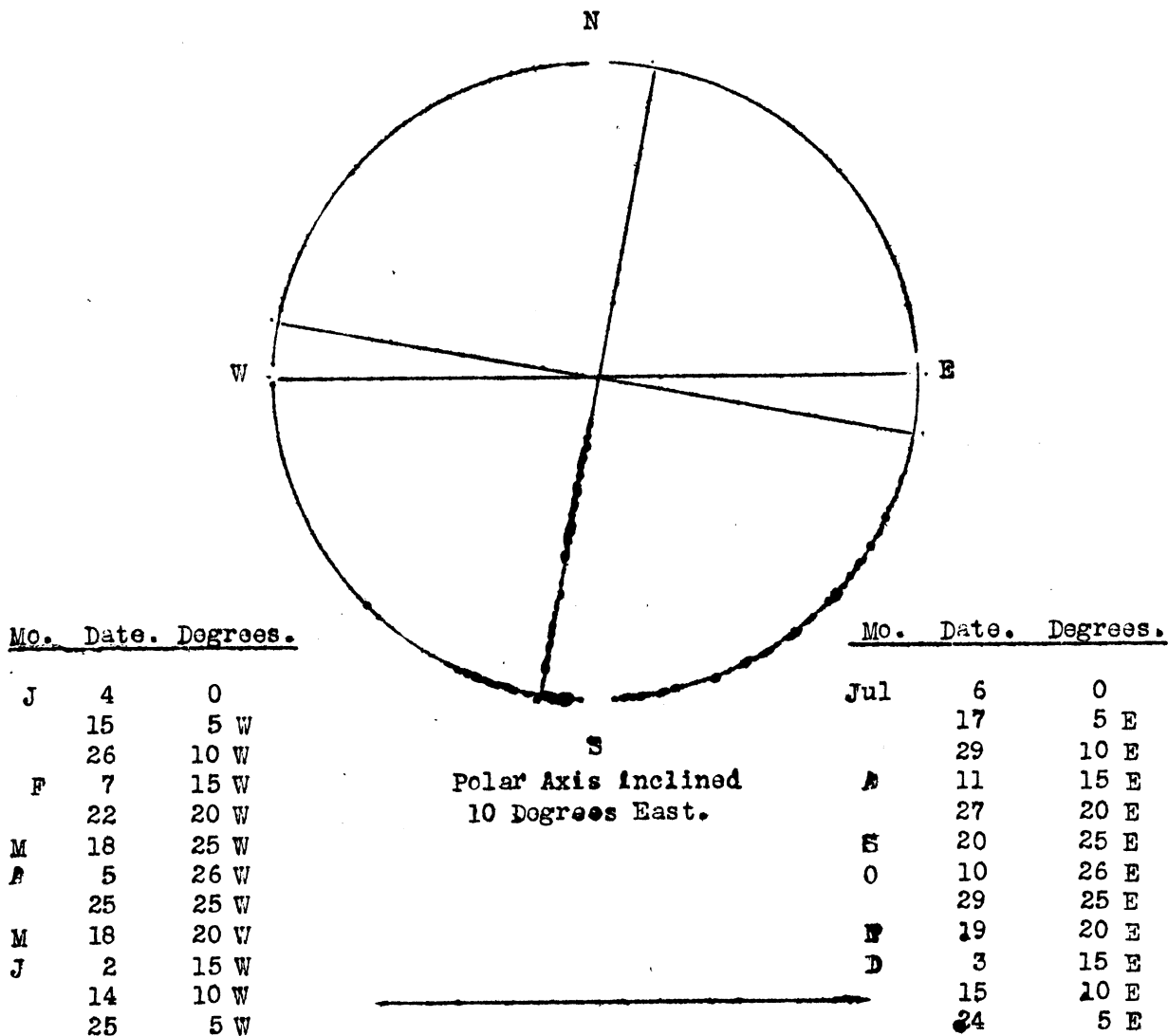
Rotate number 3 until a sunspot group will trail parallel with the true solar equator. Re-project, and one can quickly determine the positions of the groups, whether in the north or south belts, in the central zone, or, on the central solar meridian.

The advantages of these screens are manifold; First: No mathematics are involved in its operation. Second: Screen can be set up quickly. Third: Discs can be easily constructed to any size and can be easily replaced. Fourth: The screens have sufficient accuracy to aid very well in filling out the Solar Division Monthly Report Forms.

A set of ten screens, spaced at a variance of five degrees in the pole angle seems to be adequate. Greater accuracy may be had by making it in three degree divisions or even one.

An illustration of disc number three follows, together with a table showing the inclination of the true polar axis for various dates of the year.

At the present, the Woolworth stores have a circular clear plastic disc graduated in 360 degrees by one degree divisions, showing the four cardinal directions North, East, South and West. They are priced at 10 cents. They will greatly aid in the construction of the Number three discs.



Supplement to January Bulletin.

Dr. Walter O. Roberts. Project.

Dr. Walter Orr Roberts, Harvard Observatory Staff, has made a special request for extended observations by members of the AFVSø Solar Division.

Dr. Roberts is in charge of the Climax Station of Harvard where a Coronagraph is located, the only one in the Western Hemisphere.

Researches have shown an apparent relationship of sunspots with all types of Solar Prominences. It is believed that radical changes in the appearance of sunspots portray a portion of the activity of prominences. It is therefore of great importance to record such changes and transmit this information by fast mail to Dr. Roberts or Dr. Donald H. Menzel, both at Harvard Observatory, Cambridge 38, Massachusetts.

The recording with the reporting can be done in four ways, namely;

- (a) Written description.
- (b) Telephone Message --- if near Harvard or Climax.
- (c) Delineation.
- (d) Photography.

SEND ANY OF THE ABOVE PROMPTLY BY FAST MAIL OR TELEPHONE.

The reports should be uniform. It is therefore requested that the following details be respected;

- 1. Date of observations. - Our Calendar.
- 2. Time of observations - U.T. Same as used for sunspot work.
- 3. Position of Group or spot; whether in north or south belt, Eastern portion, Central Zone or Western portion, and/or the number of degrees north or south of the solar equator, and degrees from central solar meridian, or the number of days from or past the central solar meridian in the manner as the positions given in the Gæissberg project of Foreshortening.

WHAT TO REPORT.

- I. Significant changes in the given sunspot group.
- II. Important structural changes in given sunspot group.
- III. Color observed in sunspots.
- IV. Pores and potential developements.
- V. Veiled Penumbrae and other Faint Markings.
- VI. Filamentary details.
- VII. Rapid changes in faculae activity, with positions.
- VIII. Faculae Tracery in the Central Zone.
- IX. Foreshortening aspect near east and west limbs.
- X. Sharper or Less Sharper portions of the Sun.

DETAILS.

Written Description (a).

Should embody all items from I. to X.

Telephone (b).

Same as above.

Dr. Robert's Project, Con'td.

Delineation (c).

Drawings should be to scale , or scale given.

Drawings should show items I, II, IV, V, VI, VII, and IX when visible or existant.

Show North and East position.

Be sure to include the developement of small spots between two existing major or medium sunspots.

Show Bridges (so called) or breaks in umbral positions of all spots especially the "F" (Brunner Classification) spots.

Use soft pencil for umbral delineation and harder for penumbra.

Venus Pencil 2-B soft and F hard , will do.

Photography (d).

For all types of films, plates, or filters consult Dr. Roberts. Unless an unusually high speed shutter around 1/600 th. sec. is employed, motor-driven mechanism in R.A. will be necessary, or, the newer guiding device the details of which can be obtained from Dr. Donald H. Menzel at Harvard Observatory.

If motion pictures are contemplated use should be made of either 16mm or 35mm cameras taking shots from 3 to 10 minute intervals, for as long as observations are possible.

GENERAL.

When unusual activity is existant observations should be made every three hours if possible.

Of extreme importance are "c" and "d".

Ethner Scheiner in 1612 A.D. was possibly the first to show the foreshortening aspect of sunspots revealing umbral depressions when the positions of the sunspots were near the east and west limbs.

Carrington, later, showed through a long series of observations that seventy-one (71) showed depressions and seventeen (17) did not.

It is of relative importance to employ delineation and photography in this research aspect due to the fact that there has never been a final answer to this question. Dr. Roberts is anxious to complete this research.

Any additional clarification necessary with regards this project should be addressed to Dr. Roberts in order to save valuable time. Let Dr. Roberts know if you will participate. A post card will do.

SEND ALL INFORMATION FAST MAIL.

---

---

---