SOLAR DIVISION

Bulletin

MAR 6 1954

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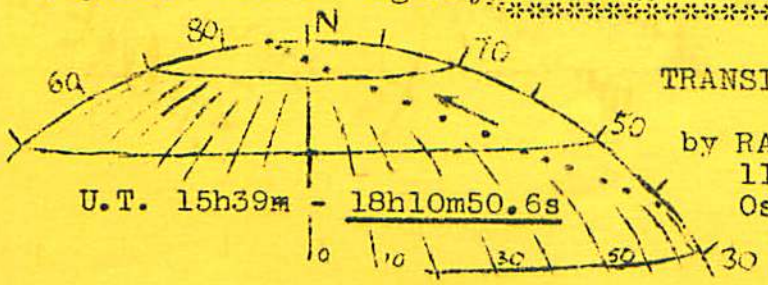
Dear Reader:

In this issue of our BULLETIN we are able to publish two reports by Mr. Ralph N. Buckstaff and by Mr. Leland Haines. Both describe the Mercury Transit of November 14, 1953. We are very glad to present these reports and hope that others will follow suit.

Due to the delay in our reorganization, observations of Mercury's Transit were not coordinated by the Solar Division. This, I am afraid, may also happen to the forthcoming Solar eclipse. However it is certain, that many of our members will observe this eclipse as individuals or in cooperation with local astronomical societies. In any event we would like to know about your eclipse plans and preparations. Your actual reports will be eagerly awaited. H.L.B.



TRANSIT OF MERCURY-Nov.14. 1953

by RALPH N. BUCKSTAFF,
1122 South Main St.,
Oshkosh, Wisconsin

The Timing of Mercury's Transit

This is a report on my timin g of the recent Mercury transit on November 14,1953. Since most of you probably read about this transit in Sky and Telescope (October 53), I need not go into details of the transit except of my timings.

I used an 8 inch reflector with a Brower Solar Filter, using 124 power. This is the same equipment used for my sunspot observing. With this and excellent sky conditions, I was able to secure good results.

Like many others, I turned to Station WWV for a correct time source.(WWV, located near Washington, D.C. broadcasts the the time continously on 2.5, 5, 10, 15 and 20 MC as determined by the National Bureau of Standards). I used a Longine watch set to WWV time just 15 minutes before the start of transit. With this method my watch-time was estimated to be accurate within ± ¼ second.

In timing the transit, I had two assistants, Don White and Francis Miller recording the time, while I observed the transit. When Mercury's disk came to contact points II and III, I signaled them and they recorded the time to the nearest second.

With this method the following times were recor ded:

Contact	II	III	IV
U.T.	15h 40m 28s	18h o7m 20s	11h 10m 10s

The above times, when converted into geocentric time were 2; 66 and 50 seconds earlier than the predicted times of the American Ephemeris's.*)

I was very glad to have a chance to do this timing. and enjoyed doing it very much.

Leland Haines
2625 Pleasant Plain
Elkhart, Indiana

*)Note: When comparing Mr. Leland Haines' contact times to the weighed average times as computed by Dr. Joseph Ashbrook (see Sky and Telescope, Feb.54 p.114-116) the differences are: zero;-37 seconds; - 37 seconds for II, III and IV respectively. I wish to congratulate Mr. Haines on his very fine observations and for his contribution to our BULLETIN.

Editor.

Have you thought about writing for our Bulletin?

Note for the S.D. BULLETIN:

The National Science Foundation has generously voted to give financial support to the AAVSO for the current year. This has enabled us to set up our own headquarters at 4 Brattle St., Cambridge, where we can devote all of our time and energy to the work of the AAVSO, and to our big Endowment Fund Drive. If we are to receive enough interest from our Endowment Fund next year, to meet our minimum budget, we must reach our initial goal of $250,000 before January, 1955. This means plenty of hard work.

AAVSO Recorder

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A NEW HIGH LATITUDE SUNSPOT was observed at Mt. Wilson by Mr. Joe Hickox on February 8, 1954. This bipolar group was at N31 - W. 27 and was not seen the day before. The polarity of this small group was messured at the 150' tower and it was found to be reversed (by comparison with the present cycle). We are indebted for this report to our member, Mr. Thomas Cragg, Research Assistant, Mt. Wilson and Palomar Obs., Solar Dept.

The latitude of this new cycle spot is "normal" as against the latitude of the unusual spot of August 13, 1953. This may mean that the new cycle is about to reveal itself more clearly in the next months. At the same time, spots of the old cycle - near the equator - may occur for quite some time yet.

The minimum epoch of a sunspot cycle is neither determined by the appearance of the first new polarity spot, nor does it wait until the last spot of old polarity disappears. As so many phenomena in nature which man tries to interpret and therefore fits into a numerical index, the "start" and "end" of an actual sunspot cycle is highly indeterminate. No more, n or less than the very birth and death of a spot can be verified. For this reason, astronomers decide the epoch s t a t i s t i s t i c a l l y from smoothed-out numbers thus washing out both end and start.

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ERRATA: Our first issue of the new Solar Division BULLETIN carried a few mistakes. The outstanding one, being an unfortunate mis-spelling of our Chairman's name. Here the gremlins really changed NEAL J. HEINES into Neil. Pg. 4, Line 23, read "Die Haufigkeit..." not Haugigkeit; Pg. 6, Line 2 of text : instead of volumes read values. I am sorry for these mistakes and hope not to have inconvenienced you too much.

Editor.

The Astronomical League published the Proceedings of its Labor Day Convention in Washington. Many interesting papers were read at this Convention. Some of those dealing with Solar Astronomy were as follows: Donald S. Kimbal - "Aurorae"; James C. Bartlett, Jr. - "Solar Granulation - an astronomical headache", Allan H. Shapley "Solar Activity Patrol by Optical and Radio Techniques"; Harry L. Bondy, "The Solar Cycle". Edward M. Brooks and Paul W. Stevens, presented certain aspects of the 1954 solar eclipse.

Excursions were made to the U.S. Naval Observatory (where, unfortunately we were unable to view their solar instruments); to the Georgetown College Observatory, where we were fortunate to see their spectroscopic grating equipment, used for recording the sun's spectrum in great detail - superceding Rowland's classical work; and, finally, to the U.S. Naval Research Laboratory. We were able to view their radio telescopes including the 50-ft. solid paraboloid, which can follow smoothly any celestial object. This instrument records radiation of the shortest centimetre waves to the longest metre waves coming from the sun, moon or interstellar space of our galaxy.

One of the most stimulating papers was read by Father Francis J. Heyden, S.J. of the Georgetown College Observatory, called, "Some Research Projects fo r the Amateur Astronomer". Several rather radically new activities for amateurs were proposed, such as, the use of old observatory photographs for variable star work, or star counts; also analysis and research. The following is a lively paragraph from Father HeydeM's paper;

> "After seventeen years he (Heinrich Schwabes) made an announcement, that the sunspots, which he had been observing every day, when possible, had a periodicity of about ten years. There was no stir in the scientific world. Some astronomers remarked that there was no sign of such periodicity; another remarked that the data were more curious than really useful; and a few others nodded approval..... After 25 years of observing, the scientific world finally recognized the inevitable evidence. The druggist had become a famous astronomer. He never found a planet inside of the orbit of Mercury (which he sought). He found only a cyclic variation in the number of sunspots which he observed, and he would have never found that, if he had lost interest after five or ten years. He kept on for 43 years. I presume that he would have recommended for an inscription over the door of any observatory, no matter how small, "Don't abandon hope of discovery, if you enter here". (A.L. Convention proceedings 1953, P. 38-41.)

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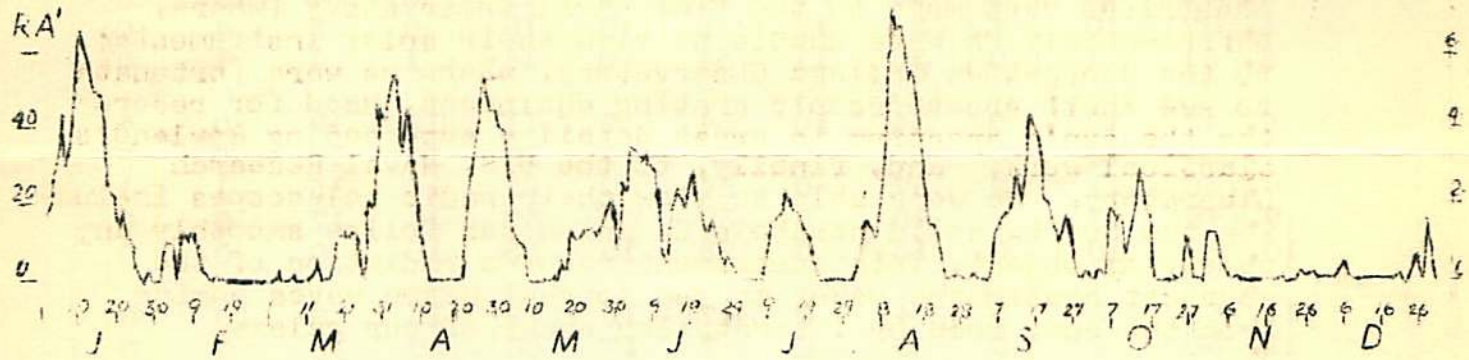
ARE YOU ONE OF OUR MEMBERS WHO FORGOT to answer our January questionnaire??? We would like to know your correct name and address, your occuption - the instruments you use in solar observations - if you are a member of the AAVSO, or other societies - and what your other astronomical interests are. We feel sure you will forward this information in order to help us complete our files.

MANY THANKS TO THOSE WHO HAVE ALREADY COMPLIED!

Due to the interruption in the publication of our BULLETIN from September to December 1953, it was thought advisable to have all American Relative Sunspot Numbers - RA' - for 1953 published in one form, on page 6. This will also permit a better understanding of the graph below of daily RA' during 1953.

Carrington's rotations:
1329 1330 1331 1332 1333 1334 1335 1336 1337 1339 1340 1341



DAILY AMERICAN RELATIVE SUNSPOT NUMBERS -RA'- IN 1953

The accompanying divisions showing periods of solar rotation (Carrington), illustrate how certain solar regions were repeatedly active, while others were equally inactive. Highest spot activity occurred during August (Max. RA' = 72), when also the first sunspot of the new cycle appeared very briefly. Lowest activity occurred during February and again in November and December. There were 128 spotless days (RA' = 0) and 21 days with RA' = 1, during 1953. This compares with 24 spotless days and 4 days of RA' = 1 in 1952, showing a rapid descent to Minimum.

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AMERICAN RELATIVE SUNSPOT NUMBERS FOR DECEMBER 1953 are included in Table on Page 6.

ZURICH Provisional Relative Sunspot numbers for December, 1953;

December 1 to 23	RZ= 0	December 28 ...	RZ=10
24	8	29	9
25	9	30	0
26	9	31	0
27	9	Monthly mean:	RZ=1.7

DAILY AMERICAN RELATIVE SUNSPOT NUMBERS - RA'

for 1953

Day:	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
1.	17	1	0	43	39	14	0	0	2	0	13	0
2.	17	9	0	50	39	26	4	5	0	0	12	0
3.	21	10	1	55	32	24	0	13	0	4	13	0
4.	27	10	4	51	15	35	0	16	0	3	4	0
5.	31	1	0	36	11	34	0	14	1	1	1	0
6.	45	12	0	34	10	34	0	11	12	19	0	4
7.	31	13	0	46	9	32	0	12	14	18	0	6
8.	36	11	2	37	0	34	0	25	16	15	1	1
9.	48	13	0	26	0	30	8	32	17	17	0	0
10.	57	10	0	15	0	28	15	55	18	6	0	0
11.	65	8	0	4	0	17	15	72	19	8	0	0
12.	60	2	0	0	0	7	17	66	28	13	0	0
13.	56	1	2	0	0	3	17	67	20	18	0	0
14.	50	0	7	0	0	18	24	60	27	29	0	0
15.	49	1	3	0	1	21	21	52	44	24	0	0
16.	49	0	0	0	0	25	17	55	44	18	0	0
17.	35	0	0	0	5	21	17	43	40	4	0	0
18.	26	0	3	0	3	18	16	36	38	0	0	0
19.	23	0	11	0	13	26	13	31	20	0	0	0
20.	22	0	11	0	12	29	11	18	20	0	1	0
21.	14	0	12	1	11	18	4	14	15	0	0	1
22.	19	0	11	12	12	17	0	14	14	0	0	0
23.	11	0	12	22	13	13	0	3	11	1	0	0
24.	9	0	12	32	13	12	0	0	13	0	0	3
25.	3	0	3	40	14	17	0	0	18	0	3	7
26.	1	0	0	54	12	13	0	0	16	13	1	3
27.	0	0	18	54	13	5	0	1	2	4	2	1
28.	0	0	21	44	16	4	0	1	0	0	1	15
29.	3		20	45	19	7	0	0	0	0	0	9
30.	0		48	44	22	6	0	0	3	0	0	0
31.	0		44		6		0	0		7		0
Mean:	26.6	3.6	7.9	24.8	11.0	19.6	6.4	23.1	15.7	7.2	1.7	1.6

MEAN DAILY AMERICAN RELATIVE SUNSPOT NUMBER IN 1953 :

RA' = 12.5