

A.A.V.S.O.
SOLAR DIVISION BULLETIN.
Neal J. Heines, Editor

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Number 88

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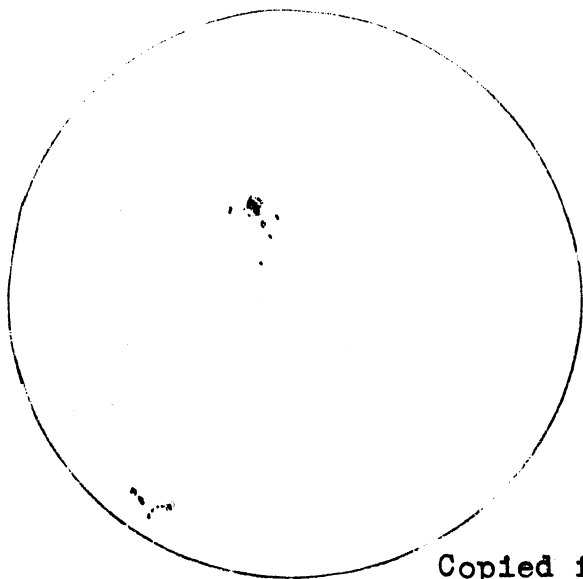
P.O.Box 2353
Paterson N.J.

The Forty-second meeting of the A.A.V.S.O., from all reports, was an interesting one. A complete report will be supplied by the A.A.V.S.O. Recorder, Mrs. M. Mayall, and published, later, in The Journal R.A.S. Canada, as well as in variable comments.

Mr. Edward H. Pilsworth of Battle Creek, Michigan, and Mr. R. N. Buckstaff of Oshkosh, Wisconsin, and Mr. Leland Haines of Elkhart, Indiana, were the only solar division members present. The latter supplied a paper on the rotation of sunspots.

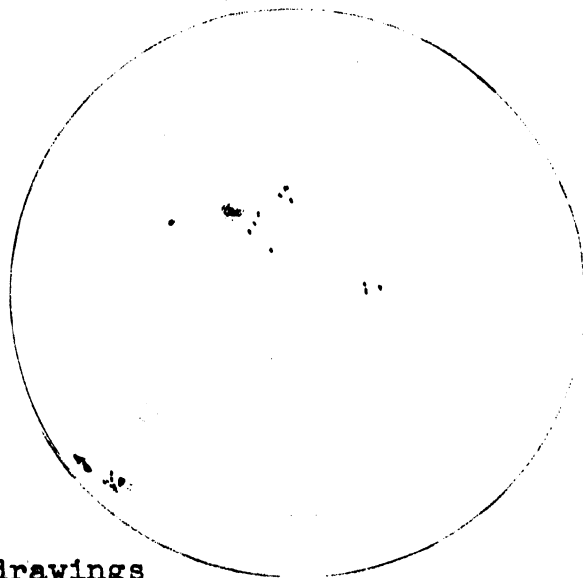
You will find in the current issue of the Solar Division Bulletin two very interesting contributions on Solar Limb Distortions. Comments from professional astronomers will be appreciated on the paper of Prof. M. Waldmeier, kindly send same to this office for review and forwarding to the author.

May 17, 1943



1730 U.T.

May 18, 1943



1730 U.T.

Copied from Heines drawings

Extremely High South Latitude Sunspot Group of new cycle. W 55° - S 42°

Lat. Source Dr. Seth B. Nicholson.

STATISTICS

The total number of sunspot groups for the month of May was ----- 2
 Zurich's Provisional Sunspot Number " " " " " " ----- 12.3
 The Mean Monthly Sunspot Area (U.S. Naval Observatory) ----- Not released

*The highest sunspot group number as assigned at Solar Division Headquarters was Number 27. It represented a small group in the North Belt, observed on Tuesday, June 16th, and consisted of two spots. The latitude was approximately the same as that of the larger eastern group which was about 39 degrees east of the Central Solar Meridian. This group was a possible return of Group Number 25 which was first observed on the 14th of June, visible on the 15th, not visible on the 16th, during the 1145, and 1700 U.T. Observations, but visible at the observation of 2110 U.T. Because of it's complete disappearance between 1145 and 1700 on the 16th of June, it was assigned as group No. 27.
 *Group counting reference for observers.

 Predictions of smoothed Zurich monthly sunspot numbers for the next six months are as follows;

| | |
|-------------|----------------|
| June 17th | September 14th |
| July 16th | October 13th |
| August 15th | November 12th |

Released by Prof. M. Waldmeier, Director, Federal Observatory at Zurich, Switzerland, and transmitted by the Swiss Broadcasting Corporation on June 4th via short-wave Radio.

PUBLICATIONS

1. "ON THE COMPARATIVE INCREASES OF THE F-1 AND F-2 IONIZATIONS FROM SUNSPOT MINIMUM TO SUNSPOT MAXIMUM ----- Miss M. Gosh
Journal of Geophysical Research, Vol. 58, No. 1, March 1953, pp.41-51.

NOTES

"The ionizations of the different ionospheric regions are known to vary not only with the hour of the day and the season of the year, but also with the phase of the sunspot activity. ---- "parallelism has been found to exist between the 12-month running averages of the critical frequencies of the different ionospheric regions and 12-month running averages of the sunspot numbers. ----- the former varies in an approximately linear fashion with the latter ----- the existence of such relations seems surprising in view of the arbitrary manner in which sunspot number is defined. It is, however, natural to expect that there should be some functional relation between the averages of the relative sunspot numbers and those of the critical frequencies, because it has been found that the intensity of the solar ultra violet radiation near the wave-length 3200 A, close to the edge of the ozone absorption limit, varies with the eleven year sunspot cycle. Hence, one may suppose that the intensities of the solar ultra violet radiations as cause ionizations of the different ionospheric layers, also vary with the sunspot number.

A rather remarkable feature of the variation of the ionization with the sunspot cycle is that the proportionate increase of ionization, from the epoch of sunspot minimum to that of sunspot maximum, is not the same for the different ionospheric regions.

The average proportionate increase of ionization of the F-1 region is about 1.6 times, that of the F-2 region is about 3.0 times. -----.

2. LONG-RANGE EFFECTS OF THE SUN'S VARIATION ON THE TEMPERATURE OF
WASHINGTON, D.C. - - - - - C. G. Abbot
Smithsonian Misc. Coll., Vol. 122, No. 1, Pub. 4131.

Monthly Means $RA' - 11.0$
 $Rz - 12.3$

American Sunspot Number
 Reductions

A.A.V.S.O.
 Solar Division

NJH 6/15/53

May

1953

WAR 6/18/53

| | | DAILY | | | | | | | | | | | | | | | | | | | | Ri | | | | | | | | | | | Mean | No. |
|--------------|--------|-------|----|----|----|----|----|----|----|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|------|------|-----|
| Observer | Ki | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | | |
| Adams | 0.70 | 38 | 40 | 31 | | | 11 | 11 | 0 | 0 | 0 | | 0 | | | 0 | 12 | | | 14 | 12 | 13 | | | | | 13 | 11 | 11 | 24 | | 14.2 | 17 | |
| Bartlett | 1.51 | | | 39 | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 0 | 14 | 14 | 14 | 13 | 13 | 14 | | | 11 | 11 | 11 | | 5.4 | 11 | |
| Beetle | X 1.06 | | | | | 11 | 11 | 11 | | | | | | | 0 | 0 | | 12 | 0 | 12 | | 12 | 13 | | | | 13 | 12 | 23 | 23 | 25 | 12 | 12.8 | 13 |
| Bissette | 1.45 | | | | | | | | | | | | | | 0 | 0 | 0 | | | | | | | | | | | | | | | | 0.0 | 3 |
| Bollmeyer | X 0.81 | | | | | | | | | | 0 | 12 | | | | | | | | | | | | 15 | 15 | 14 | | | | 12 | | | 11.3 | 6 |
| Bondy | 1.22 | | | | | | | | 0 | 0 | 0 | 0 | 0 | | | | 0 | 13 | 0 | | | | | 13 | 12 | 12 | | | | | | | 5.0 | 10 |
| Brennan | X 0.93 | | | 54 | | | | | | | 0 | | 0 | 0 | | | | | | | 12 | | 13 | 13 | 15 | | 14 | 11 | 22 | 23 | 24 | 24 | 17.3 | 13 |
| vanBranselt | * | 44 | 36 | 34 | 29 | 13 | | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 14 | | | | | | | | 15 | | | 16 | 10.7 | 14 |
| Buckstaff | X 1.11 | | | | 11 | 11 | 11 | 11 | 0 | 0 | | | | | 0 | 0 | | | 0 | 12 | 12 | | 12 | | | | 11 | 11 | 23 | 24 | 27 | 11 | 10.5 | 17 |
| Chassapis | 0.74 | 48 | 36 | | 25 | | 11 | 11 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22 | 11 | | | | | 11 | 11 | | 27 | 36 | 27 | | 13.6 | 16 | |
| Cragg | X 0.92 | 50 | 64 | 50 | 29 | 11 | 11 | 11 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 11 | 12 | 12 | 12 | 12 | | 14 | 12 | 12 | 12 | 11 | 23 | 27 | 24 | 0 | 15.9 | 27 |
| DeKinder | X 0.80 | | | 40 | 22 | 11 | 11 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | 13 | 12 | | 13 | 12 | 12 | | | 11 | | 13 | 12 | 10.1 | 19 | |
| DeJen | 1.39 | | | | | | | | 0 | | | | 0 | 0 | 0 | | 0 | 0 | | | 12 | | | 13 | 12 | | | 11 | 11 | 0 | | 5.4 | 11 | |
| Elias | 0.60 | 50 | 45 | | 25 | | 11 | 11 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 12 | 11 | 12 | 12 | 12 | | 12 | 15 | | 12 | 15 | 26 | 39 | 23 | 15.2 | 17 | |
| Estremadoyro | * | 45 | 47 | 37 | | 13 | | | | 0 | 0 | | | | | 0 | 0 | 0 | | 15 | | | 15 | 18 | 17 | 15 | 13 | | | 13 | | 15 | 15.5 | 17 |
| Estremadoyro | X 0.80 | 56 | | | 14 | 14 | | | | | 0 | 0 | | | | | | 15 | | 27 | 17 | | | | | 19 | 16 | | | | 30 | 17.8 | 10 | |
| Evans | * | 34 | | 27 | | 11 | 11 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | | 13 | 12 | 12 | 13 | 13 | | 13 | 11 | | 11 | 11 | 0 | 8.9 | 20 | |
| Fernald | X 1.02 | | | 25 | 11 | 11 | 11 | 11 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 11 | 11 | 11 | 11 | 0 | 8.9 | 22 |
| Focas | X 0.60 | 48 | 51 | | 27 | | 11 | 11 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 11 | | | 12 | 12 | 14 | | 12 | 13 | | 24 | | | 9.3 | 17 | |
| Galbraith | * | 31 | 26 | 23 | | 11 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 11 | 0 | 12 | | 12 | 13 | | 12 | 12 | | 12 | 12 | | | 9.3 | 20 | |
| Haines | * | | | 34 | 15 | | | | | | 0 | | | | | 0 | | | 0 | 17 | | | | | | | | | 12 | | 0 | 7.2 | 8 | |
| Heines | X 0.97 | 56 | | 47 | 11 | | 11 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 12 | 12 | 13 | 12 | 13 | 12 | | 14 | 24 | 25 | | 7.5 | 23 | |
| Koyama | X 0.70 | | 73 | 52 | 32 | | | | 0 | | | | | | | 0 | 0 | | | 12 | 13 | 14 | | | 13 | | 14 | 25 | | 23 | | 16.4 | 9 | |
| Laebnick | X 1.02 | | | 11 | | | | | 0 | 0 | | | 0 | | | | | 0 | | 12 | 12 | | | 13 | 12 | | | 11 | 11 | | 0 | 7.4 | 11 | |
| Luft | X 0.98 | | | | | | | | 0 | 0 | 0 | 0 | 0 | | | | 0 | | 0 | | | | 15 | 14 | 15 | | | 12 | 11 | | | 6.1 | 11 | |
| Macris | X 0.77 | 48 | 49 | | 27 | | 11 | 11 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 12 | 12 | | | 12 | | | 12 | 15 | | 26 | 32 | 26 | 14.3 | 20 | |
| Maher | X 0.90 | 42 | | 33 | 11 | 11 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | 12 | 12 | 13 | | 12 | 12 | 11 | | 11 | 23 | 24 | 0 | 10.8 | 21 | |
| Moore | X 0.76 | 48 | | | | 11 | | | | | | | | | | | | | | 12 | 12 | | | | | | 13 | 25 | 26 | | | 21.0 | 7 | |
| Olson | 0.68 | | | 27 | 16 | | | | | 0 | | | | | | | 11 | | | | | | | 13 | 24 | | | | 34 | | 12 | 17.1 | 8 | |
| Pierson | X 0.83 | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | 13 | | 13 | 14 | | | | 13 | 24 | | 12 | | 24 | | 10.3 | 11 | |
| Pierson Jr | 0.89 | | | 13 | | | 12 | | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | 13 | 0 | 14 | 14 | 13 | | 14 | | | 13 | 13 | 12 | | | 7.9 | 15 | |
| Pilsworth | X 0.86 | 36 | 40 | 31 | 22 | | 11 | | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | | | 11 | 12 | | | | | | | | | 11 | 27 | 0 | 13.4 | 15 | |
| Rosebrugh | X 0.68 | | | 30 | 23 | | 11 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 14 | 12 | 12 | 12 | 13 | 14 | 23 | | 24 | 23 | | 13 | 10.6 | 20 | |
| Smith | * | | | 11 | | 11 | 11 | 0 | 0 | | | | 0 | | | 0 | | | | 11 | 12 | 12 | | | | | 16 | | | | 29 | | 9.4 | 12 |
| Stryker | X 1.06 | | | 11 | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 12 | | | 12 | 12 | | 16 | 11 | 11 | 0 | | 4.3 | 16 | |
| Sullivan | 0.60 | 50 | 54 | | 18 | 17 | | 12 | 0 | 0 | 0 | | 0 | | 0 | 0 | | | | 16 | 17 | | 18 | | | | | 15 | 27 | 33 | | 16.3 | 17 | |
| Thomas | X 0.84 | 47 | 37 | 29 | 18 | 11 | 11 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 23 | 11 | 12 | 13 | | | | | 13 | 26 | 24 | 28 | | 0 | 13.1 | 23 | |
| Thrussell | X 1.47 | | 33 | 25 | 11 | | 11 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 12 | 12 | | | 13 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 0 | 8.8 | 20 |
| Trathen | X 1.28 | 29 | 29 | 25 | 11 | 11 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 11 | 11 | 11 | 11 | 26 | 7.3 | 23 |
| Venter | X 1.28 | 28 | 28 | | 22 | 11 | 11 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 11 | 11 | 11 | 11 | 23 | 9.1 | 29 |
| Warren | X 1.10 | 37 | | 30 | 13 | 12 | | | | | | 0 | | | | 0 | | | | | | | 13 | 13 | 13 | | | 11 | 22 | | | 14.9 | 11 | |
| Williams | X 0.92 | | | 12 | | | | | 0 | 0 | 0 | | | | | | 0 | | | | | | | 13 | | | | 11 | | | | 0 | 4.5 | 8 |
| Wilson | * | | | 11 | | 11 | | | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | | | 0 | 12 | 12 | 12 | 13 | 12 | 12 | | 11 | 11 | | 0 | 5.9 | 18 | |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------|----|----|----|----|----|----|---|---|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|------|
| RA' | 39 | 39 | 32 | 15 | 11 | 10 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 5 | 3 | 13 | 12 | 11 | 12 | 13 | 13 | 14 | 12 | 13 | 16 | 19 | 22 | 6 | 11.0 |
| Rz | 46 | 40 | 35 | 26 | 9 | 8 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 8 | 14 | 10 | 10 | 11 | 11 | 11 | 13 | 18 | 11 | 10 | 18 | 23 | 18 | 17 | 12.3 |

* Insufficient Data Available
 X Standard Observer

✓ Observations rejected because of poor visibility and sky conditions

OBSERVATIONS OF LIMB DISTORTIONS POINT TO
MOST ACTIVE SOLAR AREAS
(Preliminary results of a study by Harry Bondy)

It is certainly most appropriate to speak of our variable star here at Ann Arbor, where the AAVSO once again meets. It is perhaps the third convention, which hears about solar limb distortions. The first report of the actual observations was given by Mr. R. N. Buckstaff in the fall of 1951; the second report was given by Mr. H. Luft rejecting the reality of limb distortions. I now wish to present additional material concerning these observations made by Dr. J. Bartlett, Jr.; Mr. D. W. Rosebrugh, and Mr. R. N. Buckstaff. Cognizant of the time limit I may present here only briefly my preliminary results. It is hoped, however, that a detailed report will appear in the Solar Division Bulletin of the AAVSO.

Solar limb distortions on five different dates -- March 16th, April 24th, May 9th, June 24th, July 7th, during 1951 were seen by experienced amateur observers. The fact that on one occasion two, on another even four of the observers, (though many hundreds of miles apart from each other) reported the same phenomenon in the same position on the limb, at the same U.T. and with different telescopes seems in itself to refute any attempts to explain these phenomenon as of atmospheric origin. The observers saw an apparant depression and always one or two "humps" -- elevations -- in the vicinity of either of the two largest sunspot groups of 1951. (The N group was the third largest ever recorded and possibly had the longest life.) Though this great N group of spring 1951 was not unusually pronounced in geomagnetic activity, it had innumerable small and medium flares and according to Pic du Midi and Climax, data showed

at least on five instances the rare yellow coronal line, an indication of maximum solar surface activity. All five limb distortions occurred at a time when large sunspot groups crossed the solar limb -- three East, and two West -- (twice perhaps even paired, namely being seen first West and then returning East with the sun's rotation.) All five limb distortions were exactly in the same positions where maximal coronal activity was measured by five different coronagraphic stations in Europe, USA, and Japan. Three limb distortion areas showed high flare activity as observed by spectrohelioscopes on the same dates. Actually some 25 minutes after Mr. Rosebrugh last observed the limb distortion on June 24, without its disappearance, Sacramento Peak, the coronagraph station in New Mexico, recorded a major flare in this very area lasting over an hour, while in Sydney, Australia, a major solar radio noise burst was recorded on 1200Mc and 600Mc; A Sudden Ionospheric Disturbance - S.I.D.- was recorded at Washington, D.C., and in California concurrently. In a letter to Mr. Rosebrugh by Dr. W. Roberts of Climax, the area of distortion was described as "one filled with very active surges" and "a clearcut case of the rarely observed yellow coronal line". Dr. Bartlett, Jr. and Mr. Buckstaff also observed this distortion. Another case observed by Dr. Bartlett, Jr. on April 24th occurred within the same time. When a major solar noise burst was recorded at Ottawa, by the National Research Council on 2800Mc and also within the same time when a S.I.D. was recorded at Washington, D.C. It is well known that all major solar noise bursts on 2800Mc occur together with flares and that all S.I.D.'s are caused by flares. Unfortunately, according to L. d'Azambuja, Meudon, in the Quarterly Bulletin on Solar Activity (IAU) no observatory watched the sun at this time through a spectrohelioscope. However, two flares, which often recur, were observed in the same area in England and Austria a few hours before. I have

not completed my study of all pertinent data of these solar limb distortion observations, but it seems to me highly significant, that all distortions occurred together with so many other major and distinct solar phenomena.

Perhaps the work of these outstanding amateur astronomers will yet bear fruits of better knowledge and a little appreciation.

FOOTNOTE

The full significance of these observations is far from being understood. The overall height dimensions of these limb distortions were such that they were not recorded photographically.

Observations in monochromatic light showed high flare occurrence, active prominences, and high coronal line intensity, but with the exception of a few flare observations in integrated light.

(Carrington) -- These phenomena are not visible otherwise, except during total eclipses. Though the coincident of these limb distortions with very active solar areas is striking, caution in the interpretation of these observations is imperative. Future and more careful observations are of utmost importance.

Specific data, comments and suggestions will be presented in a future issue of this bulletin.

SOLAR LIMB DISTORTION

by

M. Waldmeier, Zurich

(free translation from the German text-H.B.)

ABSTRACT

A distortion of the sun's western limb has been observed on March 6, 1953 at 7h 04 U.T. It was 18,000km long and 5,000km high and probably lasted only for a few minutes. This distortion occurred in the sunspot-zone at the heliographic latitude $+16^{\circ}$, but no signs of any significant solar activity could be found in this region.

It used to be claimed, particularly by P. Secchi, that sunspots and faculae make themselves visible through a solar limb distortion; the former through depressions, the latter through elevations of the limb. The existence of such distortions is still claimed today, particularly in the circles of amateur astronomers, in spite of the most careful observations over many years by professional astronomers including this author, who failed to find either visually or photographically any limb distortions. One is therefore inclined today to reject the existence of distortions of the solar surface of measurable dimensions and this could hardly be considered unjust to the many amateur observers, since the solar limb distortions of P. Secchi are of the order of $1''$, which cannot be seen by most amateur astronomers, while on the other hand one must admit, that P. Secchi was able to observe the sun under far better visibility conditions (bei ruhigeren Bildern), than most of the later solar observers may. If one recalls the controversy about granulation during the 1936-1939 years, which is also a phenomenon of the order of $1''$, it is rather difficult (wird man kaum umhinkönnen) to consider solar limb distortions which require maximum steadiness of the image, as an open question.

A solar limb distortion, however of all together different kind than the above described ones, namely much larger, but of very brief visibility-duration, was observed by the author on March 6, 1953 at the Astro-

physical Observatory at Arosa. Since this is a phenomenon, which is entirely new in the 20 year experience of observations of the author, a description may be of interest.

On this morning the sky was without any clouds, and clear, so that it was possible to conduct corona observations from sunrise at 6h 26 (all times in U.T.). At 7h 00 I brought the coelostat (coelostatenanlage) in operation, which projects through an objective of 15cm aperture and 225cm focal length and an enlarging system a solar image of 25cm in diameter onto a vertical wall, where a white sheet of paper with a printed circle of 25cm diameter is mounted. After I had roughly positioned the solar image and then approached it, while trying to center it on the printed circle by means of fine motion, my attention was drawn to a "nose" on the western limb, which would be remarkable even under less favourable conditions, while under the prevalent good image, quality (grade 2 on a scale of 1-5) it (the "nose") was distinctly striking. While the slow motion was in operation, I followed this remarkable phenomenon which appeared like a wart on the solar limb and kept its form and position. Cognizant of the importance of this observation I gave up my effort to center the sun exactly to the circle and interrupt the fine adjustment. I now reach for the waiting pencil and draw on the sheet, the way the sun was positioned, the distortion, which at this instant gives me the impression, that it became noticeably smaller, than the "nose" was at the beginning, I also draw in the adjoining undisturbed portion of the solar limb with utmost care. Since nothing further happened, I complete to draw in the whole solar limb, which takes at least 10 seconds and notice, having returned along the limb to the distortion, that it was beginning to disappear already. After some 10 more seconds, it was only possible to see a very minute distortion, whereon the phenomenon rapidly ended. After this the orientation of the

solar image was determined, giving the position, where the distortion occurred, a heliographic latitude of $+16^{\circ}$, while the western limb at this time had the heliographic longitude of 102° .

According to the drawing made at 7h 04 the distortion starts at 15.2° , where the solar limb on the drawing rises abruptly by 0.9mm (which therefor on the sun itself means 5,000km) and keeps this height up to 16.4° latitude, whereupon it slowly falls towards the undisturbed limb at 16.8° . The "nose" at the beginning could have been even higher than the recorded "wart" was at 7h 04. After this phenomenon disappeared, I attempted to reconstruct the proceeding of this observation and found for the minimum time the time of the manipulations of 20 seconds; for the maximum time about one minute. The actual observation thus lasted some 40 seconds. Since this phenomenon had reached its maximum at the beginning or had already passed it, its life (Lebensdauer) could have been a few minutes. Though the position was in the sunspot zone, there was no other solar activity in this area, on the contrary, it was completely quiet; actually the whole general solar activity was extremely weak.

An attempt to explain this distortion as a terrestrial phenomenon is highly improbable. According to an observation at 7h 15 the amplitudes of oscillation on the solar limb caused by scintillation (Luftschlieren) were of the order of 1"-2" and crossed a distance of the solar diameter in about 8.4 seconds. It would have been completely hopeless to draw in these rapidly moving oscillations (Schlieren) visible over the entire solar limb. The movement of this oscillation (Luftschlieren) agreed well with the air currents conditioned by atmospheric pressure distribution. Furthermore, the circumstance that the distortion retained its form and position unchanged for at least 10 seconds, namely during the drawing time and when after the whole limb was drawn, it was under control observation (Kontrolbeobachtung); this too speaks against any

terrestrial origin. The "wart" did not distinguish itself either through its brightness or color from the undisturbed adjoining portions of the solar limb. This area of distortion was checked with the coronagraph from 7h 50 till 9h 00, without showing any noticeable features; an observation in H_{α} at 9h 20 failed also to show any prominence activity.

Since this observation was made under the best conditions and no terrestrial explanation could be found, we are faced with a completely new and equally puzzling, probably extremely rare phenomenon. Since it is not connected with any solar activity, one may less seek its cause in some solar process, but rather as caused from without, perhaps a mass-fall (Masseneinsturtz) /accretion/ or a close passage of a cosmic body.

Dear Margaret: Will keep you posted.
NG21

[SENT W/ JULY 1953 S.D. BULLETIN]
A.A.U.S.O.
JUL 29 1953

From the desk of Paul J. Humes

TO ALL OBSERVERS AND RESEARCH AFFILIATES.

SPECIAL BULLETIN.

I am sorry to advise that the future of our sunspot program is very, very uncertain. As you know, I have been able to devote my full time to coordinating the SOLAR DIVISION'S work and to reducing the observations because the Solar Division has had a year-to-year contract with the National Bureau of Standards for the preparation of sunspot number tables.

This year the Bureau is faced with a drastic cut in appropriations and they have now written me quite definitely that there is no way by which they can continue to contract for these data. While they say they still would want, and, need our reports, the sunspot number work is outranked in importance by many other projects. I hear they are cutting back about 5-10 % in their staff.

We are exploring other possibilities, but things do not look at all hopeful.

I would appreciate suggestions from our observers and our research affiliates. To continue the program about as it is now, would cost about \$5000-6000 a year, and that is not going to be easy to raise on a continuing basis.

In the mean time I would urge that the observers send their reports to me at 560 Broadway, Paterson 4, New Jersey. each month. Forms will be supplied in advance for a full year. Then in case it again becomes possible to resume the reductions, the active coordination and other parts of the work, the material will be available. Unfortunately I will not be able to continue the extensive correspondence as in the past until other arrangements are made, nor will I be able to supply excerpts of our data to research workers. The files of eleven years of observations will be at the above address and available for inspection and research.

Following, is a paragraph in the letter from the Bureau of Standards, which confirmed the termination of the contract.

"We wish to encourage you to seek support elsewhere for this work, and will be happy to provide endorsement of our need for these data, if it is desired. We believe that it should be continued, and hope that the results can continue to be made available generally".

52007 July 1953
310 100-1

To the Observers. I firmly beleive that there is a way that the AAVSO Solar Division can continue its work on a temporary basis, and that way would be for us individually or otherwise to contribute financially to a Continuance Fund. Such a fund, however, would not be realistic unless an ultimate solution were in sight. This solution might even be the fund itself if the responce is large enough. To test this and while we explore the other possibilities please send me word of the amount of the anticipated pledge from yourself and any others you know of who are interested. Your Director starts it off by announcing he would expect to give \$100.00 to the Continuance Fund.

To the American Research Affiliates. For a long time you have received gratuitously the American Sunspot Numbers and other valuable solar data. The AAVSO Solar Division is a non-profit organization. Your contribution therefore is tax-deductible. We will deeply appreciate word of the amount you would expect to give to the Continuance Fund.

The contributions will be specifically solicited if it appears we can come close to the present annual need or if it appears a fund is needed to ensure continuance through an interim period while another stable solution is being arranged. Results of the fund Drive will be made available.

We ask no funds from our foreign observers or foreign research affiliates because of foreign monetary restrictions.

In closing, I beleive I speak for all observers and research affiliates in thanking the Director of the Central Radio Propagation Laboratory of the National Bureau Of Standards for having made this program possible for the past eleven years. Their cooperation has from the inception of the AAVSO Solar Division been most outstanding. We in addition ought to express our sincere appreciation to Mr. Alan H. Shapley, in charge of radio forecasting, and Mr. R. C. Peavey, Administrative Officer, for all energies expended in our behalf, and for the hearty cooperation and sound advice at all times.