THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS

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Solar Division BULLETIN

HARRY L. BONDY, Editor

43-58 SMART ST., FLUSHING 55, N. Y.

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AUGUST - SEPTEMBER 1955

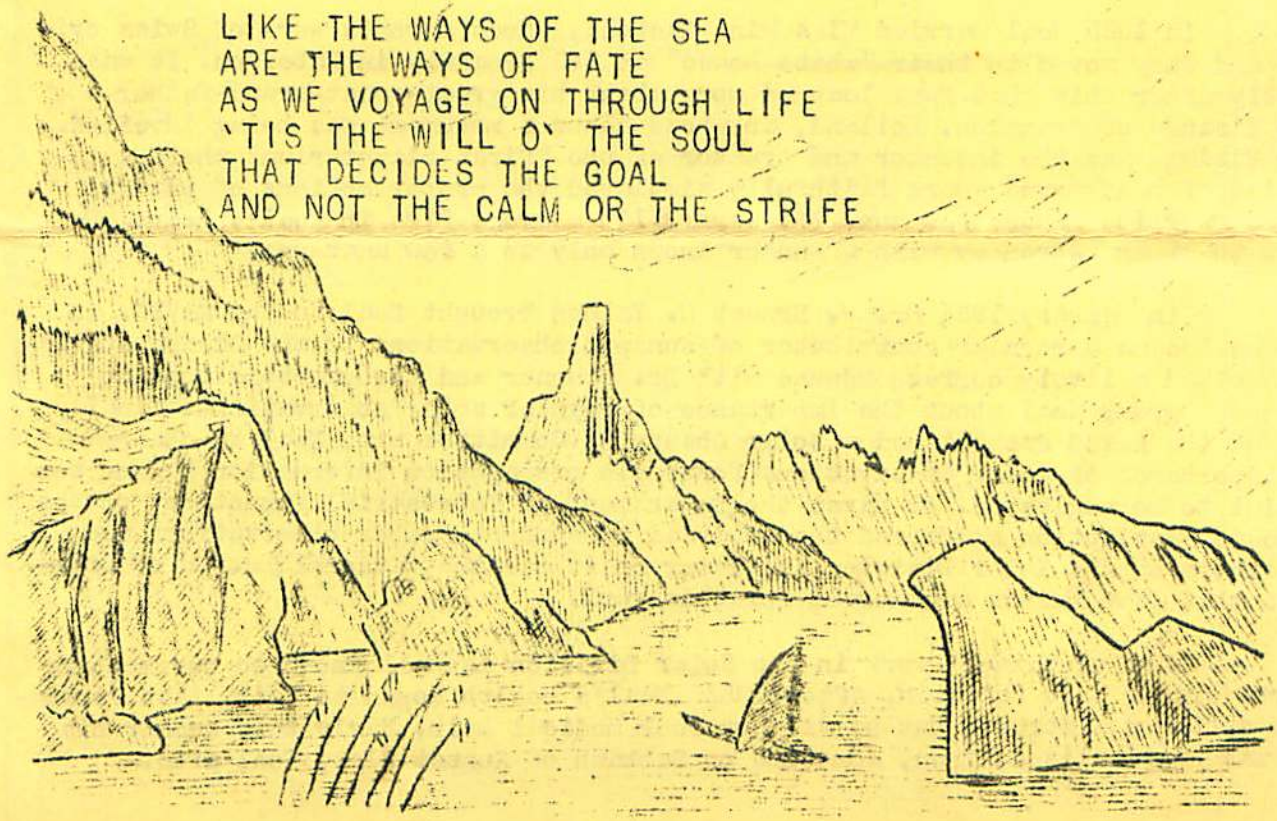
Nos.: 108 - 109

N E A L J. H E I N E S

JUNE 21, 1892 AUGUST 21, 1955

ONE SHIP SAILS EAST, ANOTHER WEST
WITH THE SELFSAME WINDS THAT BLOW
'TIS THE SET O' THE SAILS
AND NOT THE GALES
THAT DECIDES THE WAY TO GO

LIKE THE WAYS OF THE SEA
ARE THE WAYS OF FATE
AS WE VOYAGE ON THROUGH LIFE
'TIS THE WILL O' THE SOUL
THAT DECIDES THE GOAL
AND NOT THE CALM OR THE STRIFE



N E A L J. H E I N E S JUNE 21, 1892 AUGUST 21, 1955

Sometime between Saturday afternoon and Sunday morning August 21, 1955 Neal J. HEINES, our former Chairman and President of the AAVSO (1949-51) passed away in solitude. One week before that date, I met Neal for the last time. He was frail, restless, tired and the only thing he had on his mind was his beloved ailing wife.

The world had crumbled to dust during the last two years of his life. After three score and one year the "gales" - like those in Neal's favourite poem, his credo, written by Ella Wilcox Wheeler-- of life could not wreck his "ship". But having been retired from business for several years, he considered his life's ambitions frustrated after he lost his contract with the Department of Commerce (NBS). He was like a man without "sails"; where could he turn his "ship"?

Neal J. Heines was the prototype of a self-made man. His path was not an easy one for he walked alone. I have known Neal as well as most of our members were able to, yet I knew him far too little. But his work is his legacy. He wrote music and conducted chorale groups and church choirs. He loved poetry and wrote some poems. He could give a fishing rod the most immaculate finish or draw with infinite patience detailed graphs. He would sketch for his notebooks, his endless notebooks, details of colonial furniture or he would build a seismograph, weather vanes and record all available meteorological data. He knew how to grow beautiful lilies just for Easter or store Dutch bulbs for the winter. And of course in all his interests in science, arts and crafts, astronomy and particularly the sun, were his love.

Neal was born in Rotterdam, Holland, on June 21st 1892. When he was one year old his parents came to the United States. His father was a minister and his whole family kept moving through various cities in the Middle West until in 1910 they settled in Paterson, New Jersey. Neal attended public and high schools in Kalamazoo, Grand Rapids and Holland, Michigan. During the First World War he served with the US Armed Forces in Europe and was part of an entertainment troupe of the army. He became a salesman and that remained his profession throughout his life.

In 1925 Neal married Miss Mina Haefeli, whose parents were of Swiss origin, and they moved to their "white house" at 560 Broadway in Paterson. It was shortly after this that Neal learned more about his great-great-grand-father, Eise Eisinga of Franeker, Holland, in whose honor a monument was being inveiled. Eise Eisinga was the inventor and creator of the "first planetarium" where a mechanism of handcurved gears faithfully simulated the proper motions of planets in their orbits around the sun. This spark lit a great fire in Neal's heart. He began to study astronomy with a hunger known only to a few amateurs.

In January 1934 Mr. J. Ernest G. Yalden brought Neal to the AAVSO. In 1935 he became a regular contributor of sunspot observations to the Zürich statistic. He had a lively correspondence with Dr. Brunner and through this contact learned a great deal about the importance of regular solar observations. Finally, in 1944 the AAVSO established a Solar Observing Committee with Neal as chairman. The importance of solar observations for radio propagation information became too crucial to be neglected. At first the Department of Terrestrial Magnetism of the Carnegie Institution sponsored the analysis of sunspot-number observations made by members of the Solar Division and later on it was the National Buerau of Standards that gave Heines a contract for this work.

Most of Heines' work in the Solar Division is well known to our members and readers of this Bulletin. After 1953 Neal's health began to fail. Last February he suffered a stroke, but he did not seek medical help. Early this summer his wife was hospitalized. Then, sometime on Sabbath of August 21st, Neal died.

(Neal J. Heinos)

Neal was a member of many organizations. Beside our AAVSO, Neal belonged to the N. Y. Academy of Science; The Astronomical Society of the Pacific; The American Meteorological Society; The Royal Astronomical Society of Canada; The British Astronomical Association, and was a Fellow of the Royal Astronomical Society since 1952.

He is survived by his wife, two daughters, three grand-children and one sister and two brothers.

We, the members of the Solar Division and the AAVSO as a whole, have suffered a great loss. We shall remember Neal J. Heinos as long as the sun will shine upon us.

(The poem on the front cover was written by Ella Wilcox Wheeler; the drawing from an anonymus artist from a book of poems by Macha)

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N E W S A N D N O T E S

The September issue of SCIENTIFIC AMERICAN carries 11 articles on THE PLANET EARTH plus a detailed book review on the second volume of The Solar System series, edited by Gerard P. Kuiper and called The Earth as a Planet. This issue is solely devoted to geophysics and in view of the forthcoming International Geophysical Year program, most timely. I can't think of a better way to spend 50¢ and get so much out of one publication. On top of this Mr. ATM, Mr. Albert G. Ingalls writes in his column "The Amateur Scientist" about a monochromator to view prominences.

On a recent visit to Mr. David WARSHAW, Brooklyn, N. Y. I was able to examine his quartz polarizing monochromator and learn about his experiments with a "tunable filter" by means of tilting each quartz element. We hope to report on these pages any progress he will make. The elimination of any temperature control would further simplify this equipment.

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From Messrs. Ralph N. Buckstaff and Walter Scott Houston we learned that they are nearing completion of their "prominence-telescopes". (see Solar Division BULLETIN March-April 1955)

We were sorry to learn that Dr. Huberta von Bronsart had some eye-ailment. We wish Dr. von Bronsart an early and complete recovery, so that she may again pursue actively her most beloved work.

Our last issue of the Solar Division BULLETIN carried an erroneous statement on page 5 ("How R_A is computed"). The Wi values given were actually Wi/5. This one-fifth value is used only for simplicity.

Quite a number of our readers ordered and received copies of CLASSIFICATION OF SUN SPOTS (including "Paths of sunspots at different seasons") as well as our sets of STONYHURST SUN DISCS used for the accurate determination of sunspots and faculae. These items are still available. The "Classification" costs 20¢ to AAVSO members (25 ¢ to non-members); the Stonyhurst set costs 40¢ (50¢ to non-members) Mail coins or stamps to this Chairman-Solar Division 43-58 Smart St. Flushing 55, N.Y.

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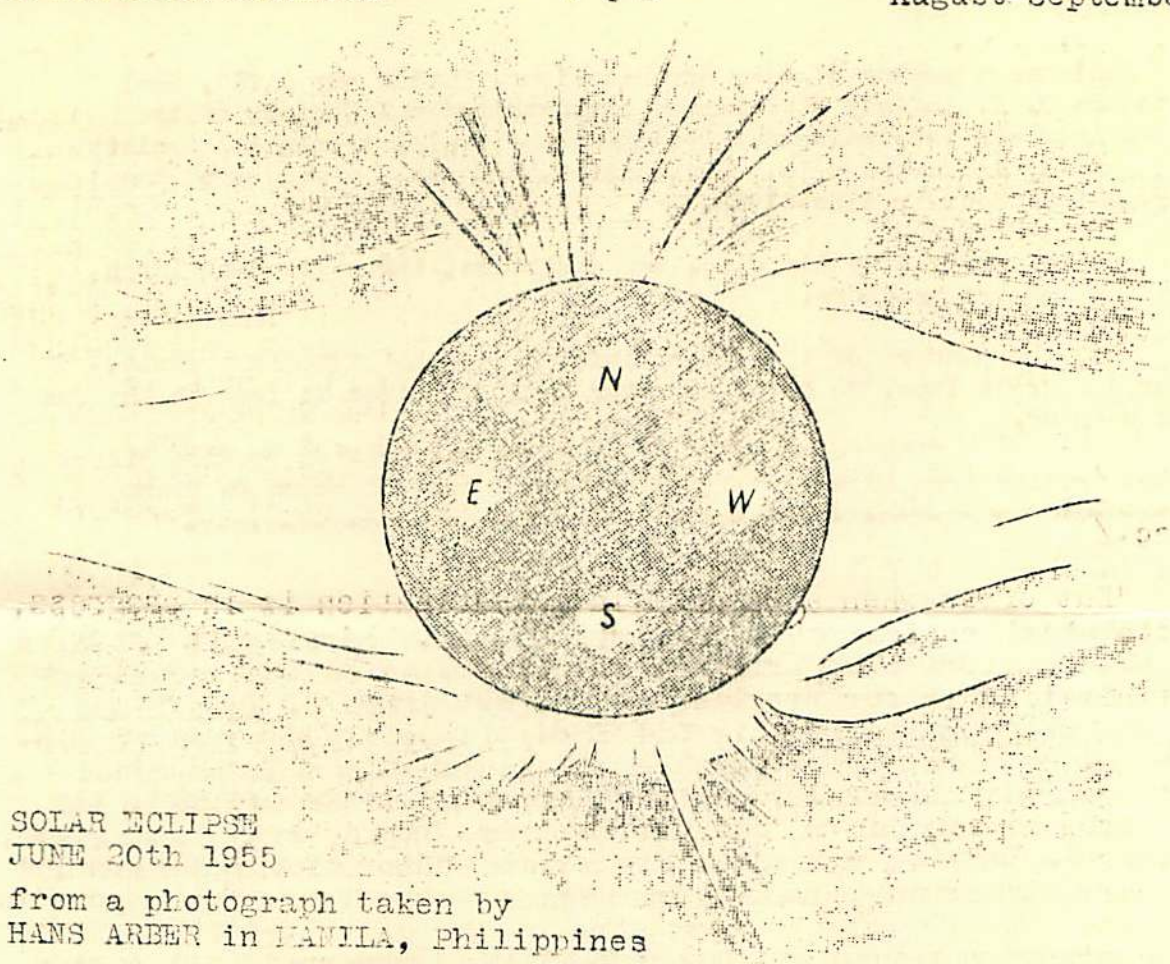

SOLAR ECLIPSE
JUNE 20th 1955
from a photograph taken by
HANS ARBER in MANILA, Philippines

We were very fortunate to receive several photographs and a transparency of the eclipsed sun from Mr. HANS ARBER. Mr. Arber took a number of very successful photographs at the focal plane of his 4-inch refractor. His series of 8 pictures had exposures from $\frac{1}{2}$ sec. to 3 sec. and all were taken on Royal Pan sheet film. The original films will be sent to Dr. Waldmeier for photometric evaluation.

Mr. Arber wrote: "I was too busy handling my telescope so that I did not have much time to make visual observations. Of course, I was able to witness the beautiful sight of the corona through my 3-inch guide telescope. When totality set in, I was overcome by darkness and I had difficulties in operating the camera. I had to look first for a flashlight before I could proceed to make a series of pictures. In the confusion the shutter jammed and that delayed the picture taking further until the defect was remedied...". (see the September issue of Sky and Telescope or the May-June issue of Strolling Astronomer for additional information).

While this eclipse still shows clearly the "minimum-type corona", there are clear differences from the "ideal" minimum corona as seen last year on June 30th. (see Solar Division BULLETIN October 1954) The almost perfectly symetrical corona of 1954 is no longer present. This is best seen in the contrast of the polar plumes, those of the southern hemisphere being apparently obscured by a broad, bright coronal dome with a few narrow rays. Whether the large, complex ($\beta\delta$) E-type sunspot group in the SW quadrant was related to this polar "brightening" is not known. This region showed little green coronal-line emission.

hlb

From a letter by Prof. Dr. W. GLEISSBERG:

"When I proposed the FORESHORTENING PROGRAM to the chairman and the members of the Solar Division, I planned to continue it only a few years. In fact, the original aim of this program was attained in 1951 when Dr. Hotinli published his paper "On the foreshortening law of sunspots" (Publ. Istanbul Univ. Obs., No. 42), in which he made use of the observations of your members." /Ed. note: essentially according Dr. Gleissberg's statement in his book "Die Häufigkeit der Sonnenflecken" (The frequency of sunspots) p. 20, the foreshortening law of Dr. Hotinli is expressed by $\cos\alpha(1-\mu\tan\alpha)$, whereby μ is 0.072. This differs form the usual procedure for computing sunspot areas "corrected for foreshortening" by a formula: $A/\cos\alpha$, wherby A is the actually measured projected area and α is the angle formed by the spot, the center of the solar globe and the center of the apparent solar disc./

"But often when a scientific investigation is in progress, new aspects which could not be foreseen appear. This was the case also in the Foreshortening Program. The observations made by the members participating in our program showed that they had observed more spots on the western half of the Sun's disc than on its eastern half. As this unexpected result was in contradiction with the well-known statement by Mrs. Maunder (see p. 67 of above mentioned book), the question arose whether this asymetry changes from time to time (for instance, from cycle to cycle). In order to answer this question it was necessary, of course, to continue the observations; for a possible change in the behavior of the asymmetry in the distribution of spots over the Sun's disc cannot be detected from an observational series of a few years.

"Thus in 1951 the Foreshortening Program changed into an ASYMMETRY PROGRAM. No change, however, was needed in the forms used for the reports of the observations. It would be more correct, of course, to change the word "foreshortening" in the headline of the forms into "asymmetry"; but this is not important.

"Dr. Hotinli, who had had to do military service during 18 months, returned to our observatory at the end of October 1954, and then resumed his work on the ASYMMETRY PROGRAM. I hope that he will be able to publish the first results of this new study in summer 1956."

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OUT OF OTHER PUBLICATIONS:

THE EYE-PIECE, monthly bulletin of the Observing Group-AAA carries in its September issue a very fine article written by the late Allyn J. Thompson ("Making your own Telescope") on means of "Adapting the Newtonian Telescope for Solar Observation". The application of a Herschel wedge, a penta-prism, chrome coated or welder's glass filters and other practical suggestions are presented lucidly. Good advise by Thompson: "Regardless of the filtering method adopted, you should first have a look at the exit pupil from a distance of about a foot. If it appears to be much brighter than the full moon looks to the naked eue, it should be approached with caution."

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F O R T H E S U N S P O T O B S E R V E R

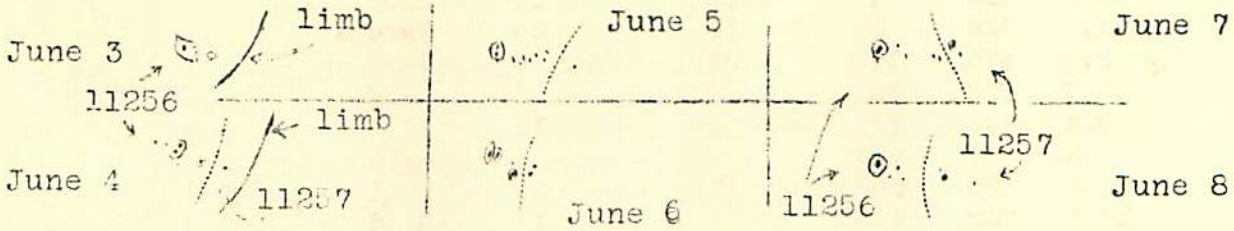
About two very close sunspot groups.

From time to time we shall publish notes on complex and otherwize puzzling sunspot groups. Thanks to Mr. Thomas A. Cragg, solar research assistant at Mt. Wilson Observatory, we are able to learn more about some sunspots than can be determined visually (or photographically). The magnetic characteristics are the ultimate criterion of a sunspot group.

Thus we learned from Mr. Cragg that the "southern group in early May was a normal bipolar group. This group (Mt. Wilson No.11244) was average in size (max. area 363 x 10^{-6} ⊙), yet it extended some 15° in longitude.

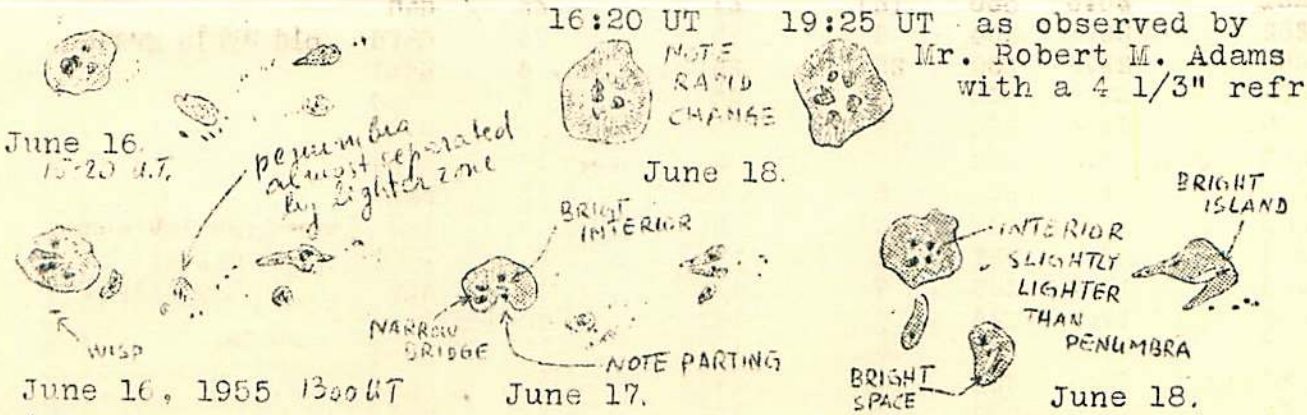
"The early June group was a real puzzler", wrote Mr. Cragg, allow me to recount its history:

June 3 - a small single spot was seen in bright faculae in the NE
June 4 - a bipolar group (class D) was seen in the proper position (see sketch) and a small leader spot (new group) developed to the east. (These deductions arise from polarity measures at the 150' tower).
June 5 - the bipolar group was largely unchanged with the leader spot following the bipolar group. (some observers saw the following group already as a bipolar B-type)
June 6 - the preceding bipdar group increased in area and the following group now became bipolar /though I did not see the followers of the second group/



Evolution of two groups - Mt. Wilson Nos.: 11256 and 11257

The LARGE JUNE GROUP (11259)



(The lower three drawings were made by H.L.Bondy with a 3½ refl.)

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WE ARE INTERESTED IN YOUR SUNSPOT DRAWINGS
Mail them to: Chairman-Solar Division 43-58 Smart St., Flushing 55, NY

MOUNT WILSON MAGNETIC OBSERVATIONS OF SUNSPOTS:

Group	CMP	Lat.	H	1st seen	last seen	class	notes:
11215	Jan.8.5	N21	33	Jan. 4	Jan. 14	dβpl	
11216	5.6	S25	4	5	8	dβd	
11217	7.1	S35	7	5	9	dβd	irregular polarities
11218	13.3	N36	35	7	19	1γ1	(large H-type)
11219	26.2	S24	7	19	26	1αpd	return of 11214
11220	24.9	N30	16	23	29	dβpd	
11221	Feb. 1.4	S23	34	25	Feb. 7	1αpl	
11222	Jan.27.5	N33	(1)	27	Jan. 27	dαfd	
11223	Jan.25.7	S22	(1)	28	Jan. 30	dαd	
11224	Feb. 4.9	N22	12	Jan.29	Feb. 6	1αpd	return of 11215
11225	Jan.30.8	N20	5	Feb. 2	5	dβfl	
11226	Feb.12.1	N39	17	5	15	1βpd	irregular polarities
11227	7.1	N26	14	6	12	dβpl	(after Feb.10
11228	7.5	N36	(3)	11	13	dαl	
11229	13.7	N37	11	12	Feb. 13	dβpd	
11230	Feb.27.2	N20	16	20	Mar. 3	1βpd	
11231	Mar. 1.1	S22	23	Feb.22	7	1αpl	return of 11221
11232	5.0	N37	(2)	Mar. 8	Mar. 8	dxd	
11233	26.9	N35	(2)	29	Apr. 1	dxl	
11234	Apr. 4.3	S25	4	29	3	dβfd	irregular polarities
11235	3.0	N26	4	Apr. 3	4	dβd	
11236	3.4	N25	11	3	9	dβpl	
11237	1.7	N33	(2)	4	5	dxd	
11238	5.8	N21	15	6	10	dβpd	
11239	5.8	S20	3	8	9	dαpd	
11240	16.0	S23	4	15	17	dβd	
11241	21.9	S26	2	15	24	1βpd α	
11242	May 2.9	N35	14	27	May 6	1βpd	
11243	3.7	N18	12	27	4	1αpd	
11244	9.4	S34	11	May 3	12	1βpd	
11245	1.5	S34	(2)	4	4	dαfd	
11246	21.4	N24	29	15	26	1βpl	
11247	17.2	N32	(2)	16	17	dxpd	
11248	20.9	N22	(3)	16	16	dxd	
11249	17.9	N21	(5)	17	20	dxpd	
11250	24.9	N24	19	18	30	1βpd	
11251	26.8	S26	(2)	21	22	dxd	
11252	28.1	S04	2	25	26	dβfd	old cycle group
11253	29.3	N30	25	25	Jun. 4	dβpl	
11254	30.6	N25	5	28	3	dβpd	
11255	28.4	S24	(3)	29	May 29	dαd	
11256	Jun. 8.3	N32	13	Jun. 3	Jun 12	dβpd	
11257	8.9	N33	8	4	15	dβpl	
11258	16.2	N47	(2)	9	9	1αd	veryhigh latitude
11259	17.1	S23	21	9	23	1βγ1	very active,
11260	12.7	S25	7	11	12	dβd	many flares
11261	17.5	N24	5	11	20	1αpd	
11262	22.1	N20	5	16	22	dαpd	
11263	12.0	S26	3	17	18	dαpl	
11264	12.6	S30	(3)	17	17	dxd	
11265	15.4	N20	2	19	20	dαpd	
11266	Jul. 5.0	S34	26	28	Jul. 10	1αpl	
11267	6.7	N32	25	30	12	1βpd	
11268	6.6	N17	2	30	6	1βpd	

AMERICAN Relative Sunspot Numbers for July and August 1955 - RA'

Day	RA' July	RA' August	Day	RA' July	RA' August	Day	RA' July	RA' August
1	35	23	11	18	76	21	14	19
2	42	10	12	21	70	22	11	20
3	42	5	13	27	53	23	0	11
4	46	3	14	28	45	24	0	4
5	45	25	15	20	32	25	1	16
6	51	43	16	10	32	26	2	26
7	55	48	17	7	12	27	10	54
8	42	58	18	1	15	28	12	55
9	32	78	19	25	14	29	17	59
10	35	78	20	27	16	30	22	61
						31	21	75

Mean for July: 23.2

Mean for August: 36.6

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ZURICH Provisional Sunspot Numbers for July and August 1955 RZ

Dependent on observations at Zürich Observatory and its stations in Locarno and Arosa.

Day	RZ July-August	RZ August	Day	RZ July	RZ August	Day	RZ July	RZ August
1	35	25	11	35	85	21	11	22
2	38	20	12	25	77	22	9	23
3	38	16	13	25	77	23	0	23
4	43	0	14	37	60	24	0	14
5	48	26	15	29	44	25	8	11
6	60	46	16	22	28	26	0	26
7	47	61	17	20	16	27	11	40
8	47	77	18	7	10	28	12	54
9	39	83	19	26	13	29	16	55
10	41	87	20	32	17	30	20	49
						31	26	62

Mean RZ for July: 26.0

Mean RZ for August: 40.2

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* Mr. RICHARD M. BAUM, Editor of the international monthly VEGA
** and well known British astronomer, is currently engaged in ga-
** theringmaterial for a small book to be called "Mysteries of
** the Planets". Mr. Baum would greatly appreciate reports on
** "observations of dark bodies moving across the sun in a time
** and manner that marks them not sunspots...only observations
** that cannot be ascribed a bird-origin are required." If you
** have any records of such observations kindly address them to:
** Mr. Richard M. Baum B10, Daleside Demage Lane
* UPTON-BY-CHESTER England.
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