STAR DUST

MAY 1, 1970 VOL. XXVII NO. 9

NATIONAL SPACE ASTRONOMERS

ARCH PROMINENCE

Visiting Scientist to Explain Sunspot-Flare Relationship

All sunspot groups consist of a "preceding" spot group and a "following" spot group as the sunspots are carried across the solar disk by its axial rotation. The magnetic fields around sunspots are described as being of three principal types: Unipolar - having a single pole; Bipolar - having both north and south poles, and; Complex, having both unipolar and bipolar regions. Solar flares emitting protons having energies in the order of galactic cosmic rays are called proton flares.

The configuration of sunspot magnetic fields which produce proton flares is statistically deduced by using the observational data on the development of type IV solar radio bursts and the H-alpha-brightness distribution (6563 A line) over the umbras of sunspot groups. It follows that magnetically neutral regions are always produced within sunspot groups since both magnetic polarity areas exist within the same umbrae. The gradient of sunspot magnetic fields seems to be

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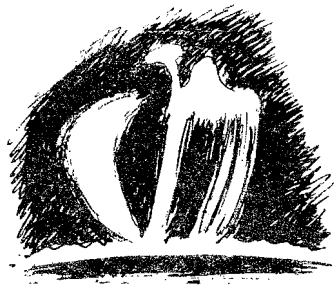
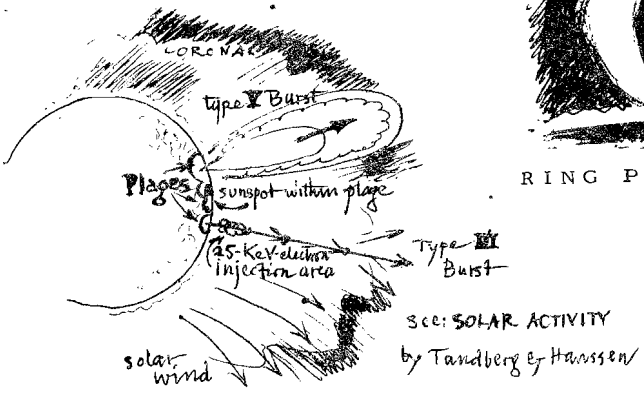
steepest in the eastern portions of the preceeding spots relative to all other portions. Thus solar proton flares are estimated to be triggered within or very near those regions. H-alpha-brightening areas mainly develop above the preceding sunspots and their eastern portions. The formation of the sunspot magnetic configuration mentioned above is deduced to be connected with the "twisting" motion of sunspot groups, which is related to the instability of sunspot magnetic fields. A brief review on the measurement of sunspot magnetic fields will also be given. (By Dr. Sakurai at the May 2 meeting; see calendar ; page 8.)

Dr. Kunimoto Sakurai was born in Saitama, Japan. He studied geophysics at Kyoto University where he earned his Ph.D. in Cosmic Ray Physics in 1961. For some years Sakurai taught and studied plasma and solar physics and electrical engineering at Kyoto University, becoming Associate Professor at the Ionospheric Research Laboratory in 1967.

Since June, 1968, our speaker had been National Academy of Sciences - National Research Council Postdoctoral Senior Research Associate at NASA's Goddard Space Flight Center. He is a member of the IAV Commission 10, Solar Activity.



RING PROMINENCE



See: SOLAR ACTIVITY by Tandberg & Hanssen/

Please Note: Office Candidate Petitions

If individual petitions are turned into the president or secretary at the May 2 meeting, so that there is more than one candidate for any one office, the president will call on the candidates to give a short nominating speech, telling their qualifications and why they'd like to serve, or, in lieu of this, the candidates may designate a campaign manager or some other member to give a nominating speech for them.

Nominations Made

The nominating committee has chosen the following individuals for the offices named: President - William Winkler, Vice-President John Eisele, Secretary - Sheila Duck, Trustee - Alexander L. White. John Legowik was nominated for treasurerby petition submitted to the secretary, Morton Schiff. No nominations for Sergeant-at-arms are given. Any persons desiring to nominate a candidate other than those above should submit a petition to either the president or the chairman of the nominating committee by or before the vote at the coming meeting having the signatures of at least ten members in good standing.

J. Legowik,
Chairman, Nominating Comm.

League Convention Planned

The Astronomical League's 1970 convention will be hosted by the Baltimore Astronomical Society on June 19th and 20th at the Quality Motel West at Route 40 and the Baltimore Beltway, Baltimore, Maryland 21228. Any presentations should be sent in advance to Mr. Harold Slanker, Jr., General Convention Chairman, c/o Maryland Academy of Sciences , 7 West Mulberry Street, Baltimore , Maryland 21201. Exhibits should be cleared through Mr. E.L. Williams, 2817 North Howard Street, Baltimore, Md., 21218. For registration write Mr. Richard Schimmel, Maryland Academy of Sciences, 7 West Mulberry Street, Baltimore, Maryland, 21201. For overnight reservations write directly to the motel or phone 744-500 or TWX 301-744-5775. The registration fees are $1.00 per person, $2.00 per family and $5.00 per person for the banquet. Our representative is Bob Wright. The last time the convention was held in Baltimore, NCA had more members than the hosting society. Let's try for a good turnout again this year.

REVIEWS

Reviews of Recent Articles of Interest - by Norman Sperling
Griffith Observer, January 1970.
Quasars --- The Most Remarkable Objects Ever Discovered"
by Dr. William J. Kaufmann III, California Institute of Technology

This is the first review of the subject since Sky and Telescope of May 1969 and is written in much simpler language. Describing the discovery of the quasars, their peculiar spectra, the doppler, gravitational and cosmological interpretations of their red shifts, their possible relationship to Seyfert galaxies and the many questions that must be settled by further research, Kaufmann covers the field of these puzzling objects with very few formulae, tables, charts and photographs. As most astronomically-aware persons realize, quasars have been responsible for more theories being discarded more quickly than any other phenomenon in recent memory. Kaufmann points out that this process may continue for some time until there is a sufficient body of evidence to support more than speculation. The size, speed, distance and energy requirements of the quasars continue to puzzle astrophysicists.

The Observer's Notebook, a regular column by editor Paul E. Roques, discusses the essentials of comet hunting as one of the scientific projects that amateurs can, and indeed must, do. Since professionals deal with highly specialized equipment and sophisticated topics, amateurs must do much of the necessary survey work. The requirements are a small telescope of low power, an organized observation program and the patience to look at previously-seen beauties of the heavens for a long time, never knowing whether a new comet will come your way or not. Proper telescopes and proper search methods are discussed with hints including "..the twilight region, into which comets sometimes sneak from behind the sun, is rarely observed. This general area should be frequently searched." and "The most certain technique is to set up search areas that can be covered in your available observing time. These search areas should be explored by overlapping strips."

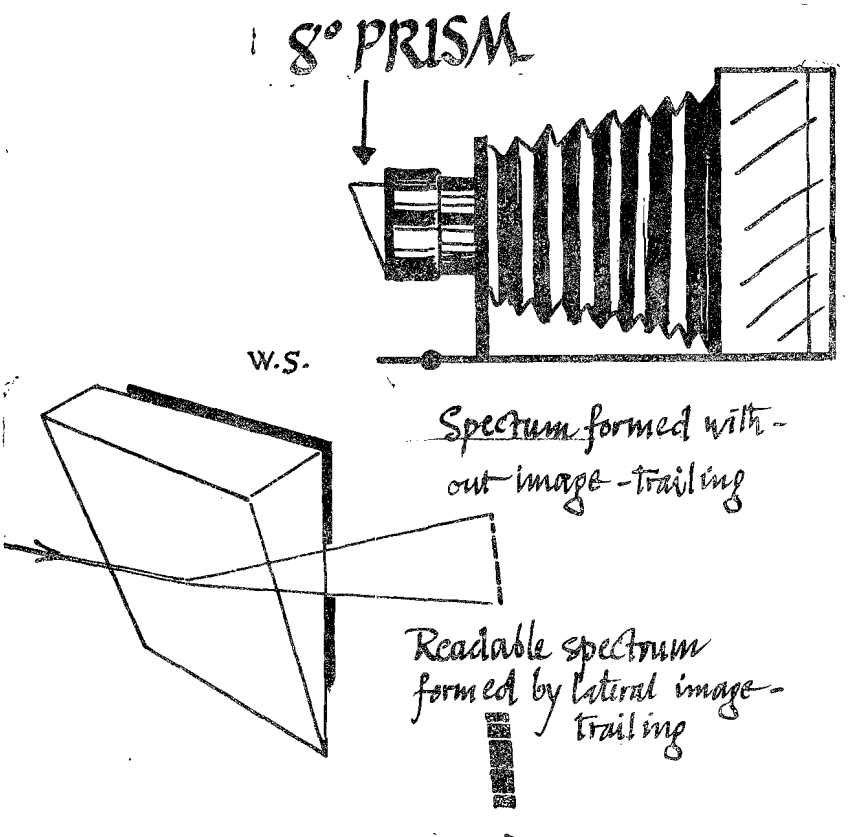
This journal is increasing its coverage into areas now being suggested by its nation-wide readership. Though published primarily for Los Angeles by Griffith Observatory and Planetarium, the articles offer a rich variety of basic information written in the informal style recommended by its editors. While its coverage in any single issue is quite limited, and its should be considered a supplement to, rather than a replacement for, a magazine such as Sky and Telescope, it definitely deserves a greater exposure than it currently has.

Please cut or tear at fold for correct pagination and binding. . . . . .

A Simple Spectrum System

The following description of a set-up for recording spectra was sent in by Wolfgang Schubert. Samples of the spectra were shown at the April meeting.

The 18° prism was purchased at the Kinsman Optical Co. and measured 1 5/8" by 1 7/8". This was mounted on a disc of balsa which was fitted over the objective of the camera or telescope. Since a star forms a point of light, the spectrum was demonstrated better if the image was allowed to trail at right angles to the direction of dispersion. The first experimental subject was Sirius, being the brightest star in the hemisphere and having a simple type Ao hydrogen line spectrum. The camera was not driven. The exposure of 30 seconds gave good readability. The negative was somewhat thin but this could be adequately intensified with a chromium intensifier. Using a similar set-up on a speed graphic camera with a 17" focal length Dallmeyer lens, the resultant spectrum was much brighter than when taken through a refractor. The effective focal lenghth was f/11, and yielded a good exposure of both Sirius and the stars in Orion's belt. For best focus the film plane should be parallel to the points of focus of the varied colors in the spectra.



New Members

New Members - Regular

Peter L. Hartwell
2915 Dumbarton Avenue, N.W.
Washington, D.C. 20007
554-6497

John A. Orange
8602 Carroll Avenue
Silver Spring, Maryland 20903

Cleveland, John and Nancy Hopkins
Route 1 Box 1193
Clarksburg, Maryland, 20734
948-4511

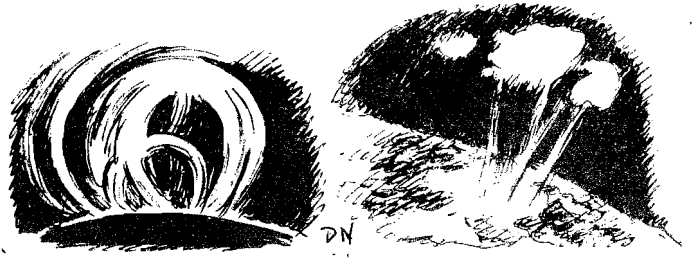
William D. Young
4713 N. 16th Street
Arlington, Virginia 22205
525-3216

Junior Members

Kevin N. Black
7205 Valley Crest Blvd.
Annandale, Virginia 22003
560-5304

Science Fair Note

At the invitation of the Prince George's Area Science Fair Committee, NCA furnished two judges to this year's fair at the University of Maryland. Awards were made in the junior and senior divisions.



Ring prominence

Loop prominence following flare of 9 Aug. '66

International Astronomical Union Symposium 35, Budapest, 4-8 Sept., 1966. (See 'Structure and Development of Solar Active Regions': K.O.Kupenheuer, editor: D.Riedel Publishing Company, Dordrecht, the Netherlands.)

April Speaker

Dr. Westerhout, director of the University of Maryland Astronomy Program, spoke to NCA on the joint Maryland-Greenbank Observatory survey of the neutral hydrogen of the Milky Way. His talk blended the contributions of optical astronomy with those of the large radio telescope using the 21 centimeter wavelenghth of neutral hydrogen. Optical studies have much higher resolution, he noted, but only radio waves can penetrate inter-stellar dust. The radio observations were shown in the form of a 16 mm. computer-produced film, emphasizing the complex stellar structure of our spiral galaxy.

RING PROMINENCE

TREASURER'S REPORT

INCOME		OUTGO	
Dues	$34.50	Star Dust	$14.07
Handbooks	3.00	Sky and Telescope	6.00
Timetables	.70	Books to be Sold	4.80
Booksales	39.75	Directory	1.87
Income - March	$77.95	Post Office Deposit	25.00
Less Outgo-March	-57.74	Stamps, treasurer	6.00
Surplus, March	20.21		
Balance, March 1st	$543.62	Total Outgo, March	$57.74
Balance, March 31st	$563.83		

UFO Program Planned

Anyone who considers UFOs at least as valid a subject for astronomical inquiry in our space age as are the once-ridiculed "stones from the sky," is invited to inquire about a program with films and slides to be given by a man formerly associated with six government and military intelligence agencies, on May 8 at 8 p.m.
Call David Nordin, 832 8880. (No later than May 5, please.)

CALENDAR

Saturday, May 2, 6:15 PM - Dinner with Dr. Kunimoto Sakurai at Bassin's, 14th and Pensylvania Ave., N.W., Reservations - Call Legowik at 946-8996 or Winkler at 762-5135 before noon on Saturday.

Saturday, May 2, 8:15 PM - The May meeting of the NCA at the Department of Commerce Auditorium, 14th and E Street, N.W., Dr. Kunimoto Sakurai talks on " The Magnetic Configuration of Sunspot Groups Which Produce Proton Flares", also the ELECTION OF OFFICERS for next year.

Saturday, May 16, 8:15 PM - Discussion Group: Astronomical Convention, observing events and club plans for the summer of 1970. Held in the Department of Commerce, room 2062.

Saturday, May 9, Sunrise - Transit of Mercury across the face of the sun. Use techniques used at the Solar eclipse, partial phases. Be very careful of your eyes.

Friday, May 8, 9 to 11 PM, observing at the Five-inch at the Naval Observatory, If you have any questions, contact Larry White.

Friday, May 1, 8, 15, 22 and 29. Telescope-making classes by Jerry Schnall at the Palisades Community Center. From 7:30 PM through 10 PM.

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