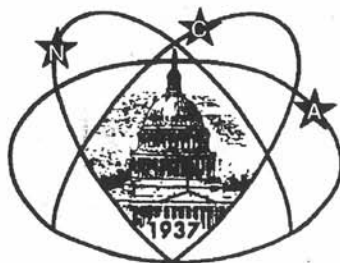


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Janet Saad-Cook to Discuss VLA Sun Drawing Project

The project, located at the National Radio Astronomer's Observatory Very Large Array (VLA) in New Mexico, will contain a Sun drawing, an art form originated by sculptor Janet Saad-Cook. Using techniques employed by early civilizations to mark solar cycles, the Washington D.C. area artist explores interactions between sunlight, the Earth's rotation and strategically spaced, highly reflective materials. These include mirrored steel and bronze and optically coated glass, she also utilizes high-tech materials such as those used to line spacecraft and spacesuits.

Positioned in a pre-selected path of direct sunlight, these materials create a Sun drawing as the sunlight touches the sculptures. The reflections on the walls are of a full range of forms and colors. The VLA Project will contain a Sun drawing for the full cycle of the year, slowly changing according to the Earth's rotation.

Janet Saad-Cook's research for such projects includes the Anasazi cyclical observations of the Sun and the Jai Singh Observatories of India.

Drawing on these ancient ways of using the Sun's cycle to tell time and create calendars, the artist unites art and science.

The American Association for the Advancement of Science (AAAS) has sponsored Janet Saad-Cook as part of their Art of Science and Technology Program. With the support of AAAS, Saad-Cook's work has traveled to museums around the United States. The Smithsonian Institution is among those groups and individuals that have commissioned her Sun drawings for their facilities.

The VLA Drawing Project will be a white concrete hemispherical structure 49 feet in diameter and 25 feet high. Built on the sight of the world's most powerful radio telescope, it will resemble one of the VLA antenna dishes placed upside-down. The observatory, which is funded by the National Science Foundation, will retain ownership of the project along with maintaining it and opening it up to public viewing.

June Calendar..... *The Public is Welcome*

*** Note Different Meeting Place ***

Saturday, June 1, 7:30 pm - NCA Monthly Colloquium will be held in Lipsett Auditorium at the National Institutes of Health. Dinner with the speaker and *Science Fair Winners* will be in the Cafeteria.For directions refer to map and description on inside back page.

Tuesday, June 4, 11, 18, 25, 7:30 pm - Telescope-making classes at Chevy Chase Community Center, Connecticut Avenue and McKinley Street, NW. Information: Jerry Schnall, (202) 362-8872.

Friday, June 7, 14, 21, 28, 7:30 pm - Telescope-making classes at American University, McKinley Hall Basement. Information: Jerry Schnall, (202) 362-8872.

Friday, June 7, 14, 21, 28, 9:00 pm - NCA 14-inch telescope open nights with Bob Bolster, 6007 Ridgeview Drive, south of Alexandria off Franconia Road between Telegraph Road and Rose Hill Drive. Call Bob at (703) 960-9126.

Saturday, June 8, July 13 at 9:00, August 10 at 8:30 pm - *Exploring the Sky* at Rock Creek Park, on Glover Rd. NW, near the Nature Center. For further information call John Lohman at (703)820-4194 (Arlington).

***Special Note:** There will be no July or August Colloquium, there will however be a small supplemental **Star Dust** to keep you abreast of area events.

Occultation Expeditions Planned

Dr. David Dunham is organizing observers for the following occultations. For further information call the NCA-IOTA information line (301) 474-4945 (Greenbelt, MD).

Date	Time	Locality	Visible Magnitude	Percent Sunlight	Cusp Angle	Minimum Aperture
<i>Grazing Lunar:</i>	EDT					
2-June	05:35	Springdale, OH	5.2	80	5N	5 cm
14-June	21:53	Dorsey Crossroads, MD	6.1	9	8N	5 cm
8-July	04:59 MST	Tuxpan, Mexico	5.2	15	12N	5 cm

<i>Asteroidal:</i>	Time	Locality	Star Mag.	Delta Mag.	Name	Aperture
3-June	04:17	Bermuda*	6.9	4	(25) Phocaea	3 cm
20-June	05:19	Bahamas*	8.1	5	(65) Cybele	5 cm
29-June	04:55	Cape Hatteras, NC	10.7	3	(65) Cybele	15 cm

*Appulse to be observed for possible satellites or path shift.

Excerpts from the IAU Circulars

R.N. Bolster

- 1• April 12** - K. Meech, University of Hawaii, observed Comet Halley with a CCD detector on the 2.2-m telescope. The comet had faded considerably, but still showed a coma extending to 180 000 km.
- 2• April 17** - J. Mueller discovered 3 supernovae on two plates taken by herself and C. Brewer with the 1.2-m Oschin Schmidt Telescope at Palomar. Of magnitude 18.5 to 19, the supernovae are in IC 4508, IC 4425, and an anonymous galaxy.
- 3• April 18** - W. Liller, Vina del Mar, Chile, discovered a nova of 12th magnitude in the Large Magellanic Cloud using projection blink comparison. By April 23 it had reached 9th magnitude, making it the brightest nova seen in the LMC. Spectra obtained by the International Ultraviolet Explorer satellite show Fe II absorption features, and also characteristic LMC absorption features confirming that the nova is in the Cloud.



Astronomy and Personal Computers

Joan Bixby Dunham

Is the universe a computer?

The May 1991 issue of *Physics Today* has an entertaining article by an IBM Fellow, Rolf Landauer, titled "Information is Physical" (pg 23-29). This article surveys the current ideas on the limits of the communications channel, a field of study that combines computer science, physics, and philosophy. He argues that there are no unavoidable energy consumption requirements per computer operation, and shows how consideration of this topic raises questions about the nature of the laws of physics.

The minimal energy computations Landauer presents are those in which no information is thrown away, known as reversible computations. This is not just computation in which the initial conditions are saved: this is computation in which everything is saved. This avoids the energy used in erasing data. Minimal energy computation is only for the purpose of minimizing energy use, and says nothing about speed of computation or size of the computer components. Computers designed for minimal energy computation would be very different from the machines with which we are familiar, since the usual logic functions cannot

be used. No such computer has ever been built. There has been a lot of discussion of the subject and considerable controversy over how minimal the energy consumption really is, and whether or not information can be discarded and still have minimal energy use. A consequence of the discussion of minimal energy computation are the following questions: Is the universe a minimal energy computer for the laws of physics or are the laws independent of the universe? If the universe is finite, then are there limits on the precision of the laws of physics? If numbers such as pi cannot be computed exactly with a minimal energy computer without requiring an infinite memory, then are the laws of physics implementable? Most people believe that the laws of physics exist separately from the universe, but Landauer presents the case for believing that the laws and the universe are linked.

This field of study is one of much controversy. There is an extensive literature on the subject. If you are interested, I recommend starting with the Landauer article and his list of references.

N C A Welcomes New Members

Jonathan Bloomfield
13712 Wagon Way
Silver Spring, MD 20906

Jessica Casaletto
817 Eden Court
Alexandria, VA 22308

James A. Cook
13432 Cloverdale Place
Germantown, MD 20874

Jason Gropper
2801 N. 22nd St.
Arlington, VA 22207

Sarah Horowitz
6914 Breezewood Terrace
Rockville, MD 20852

Mark R. Hubbard
6008 Wheaton Drive
Burke, VA 22015

Maureen C. Locke
54 Old Enterprise Road
Largo, MD 20772

Philip G. McQueen
151 Westway Road, #104
Greenbelt, MD 20770

Claudia Villa
7710 Mulberry Bottom Lane
Springfield, VA 22153

Karla Williams
11799 Buckley Court
Woodbridge, VA 22192

Smithsonian Programs

Smithsonian Institution Resident Associate Astronomy Courses

(Talks presented in the planetarium)

Wednesday, June 5, 7:30 pm - "Galaxies and the Missing Matter" by Vera Rubin of The Carnegie Institution of Washington. She will present the latest findings in the area.

Congratulations !

The 1991 Area Science Fair Winners

Jonathan Bloomfield
"Developing a Scale for the 26 inch Refractor Telescope"

Jessica Casaletto
"Rotation of the Sun"

Jason Gropper
"Micro Meteorites: A Study and Representative Display"

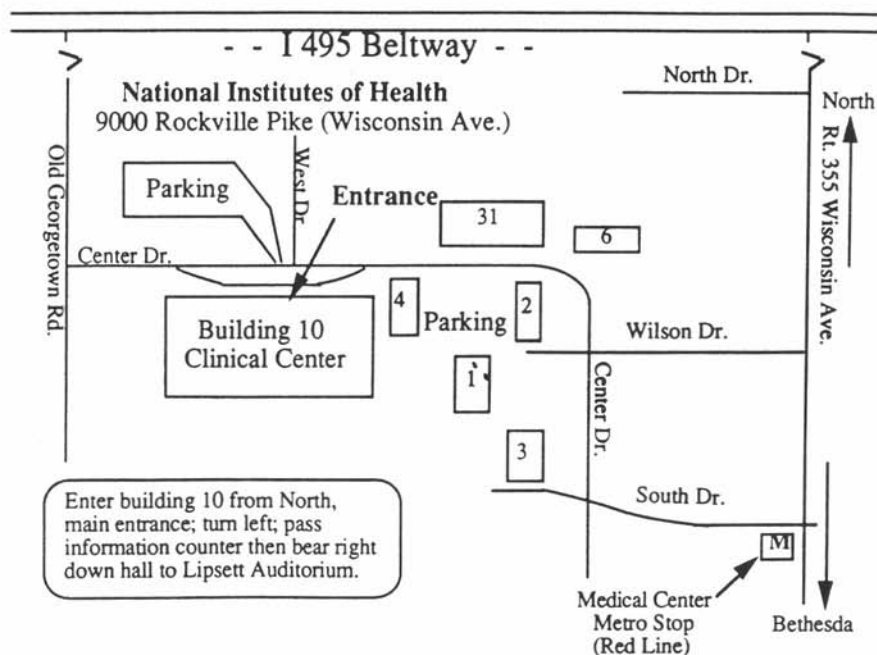
Mark R. Hubbard
"Geminid and Quadrantid Meteors and Micrometeorites"

Sarah Horowitz
"Where in the world am I?"

Claudia Villa
"Differential Rotation of the Sun"
 (also winner last year)

Karla Williams
"Polarization of 21 Centimeter Wavelength Emission of Supernova Remnants"

Getting to the June NCA Monthly Colloquium



*The dinner with the Speaker before the meeting will be in the NIH cafeteria on the second floor in Bldg. 10. To get there make a right turn after entering through the front door (across from West Street) Continue until you see an "Escalator" sign hanging from the ceiling. Turn right and go up the escalator. The cafeteria is on the right.

National Capital Astronomers, Inc.

is a non-profit, public-service corporation for advancement of the astronomical sciences and is the astronomy affiliate of the Washington Academy of Sciences. For information, call NCA: (301) 320-3621.

SERVICES AND ACTIVITIES:

A Forum for dissemination of the status and results of current work by scientists at the horizons of their fields is provided through the monthly NCA colloquia. (See monthly *Stardust* for time and location.) All interested persons are welcome; there is no charge.

Expeditions frequently go to many parts of the world to acquire observational data from occultations and eclipses which contribute significantly to refinement of orbital parameters, the coordinate system, navigation tables and timekeeping. Other results of this work under continuing study include the discovery of apparent satellites of some asteroids, discovery of apparent small variations in the solar radius, and profiles of asteroids.

Discussion Groups provide opportunities for participants to exchange information, ideas, and questions on preselected topics, moderated by a member or guest expert.

Publications received by members include *Sky & Telescope* magazine and the monthly publication of NCA, *StarDust*.

The NCA Public Information Service answers many astronomy-related questions, provides predictions of the paths and times of eclipses and occultations, schedules of expeditions and resulting data, assistance in developing programs, and locating references.

The Telescope Selection, Use, and Care Seminar, held annually in November, offers the public guidance for those contemplating the acquisition of a first telescope, and dispels the many common misconceptions which often leads to disappointment.

Working Groups support areas such as computer science and software, photographic materials and techniques, instrumentation, and others.

Telescope-Making Classes teach the student to grind and polish, by hand, the precise optical surface that becomes the heart of a fine astronomical telescope.

NCA Travel offers occasional tours, local and world-wide, to observatories, laboratories, and other points of interest. NCA sponsored tours for comet Halley to many parts of the southern hemisphere.

Discounts are available to members on many publications and other astronomical items.

Public Programs are offered jointly with the National Park Service, the Smithsonian Institution, the U.S. Naval Observatory, and others.

PLEASE ENROLL ME IN NATIONAL CAPITAL ASTRONOMERS MEMBERSHIP

Regular (\$38 per year) Each regular membership receives *Sky & Telescope* & *Star Dust*.

Junior (Only open to those under age 18) Date of birth: _____

Junior members pay a reduced rate and may elect not to receive *Sky & Telescope*.

Sky & Telescope and *Star Dust*. (\$25 per year)

Star Dust only (\$10 per year)

First name _____ Middle or initial _____ Last name _____ () _____ Telephone _____

Street or Box _____ Apartment _____ City _____ State _____ Zip _____

If family membership, list names of additional participating immediate family members in same household, with birthdates of all those under 18 years old: _____

Note: If you already subscribe to *Sky & Telescope*, please attach a recent mail label, or indicate the expiration date: _____. A prorated adjustment will be made. Make check payable to

National Capital Astronomers, Inc., and send with this form to:
Nancy Byrd, Secretary, 4215 Holborn Ave., Annandale, VA, 22003.

The following information is optional. Please indicate briefly any special interests, skills, vocation, education, experience, or other qualifications which you might contribute to NCA

Thank you, and welcome!

Stardust is published eleven times yearly by National Capital Astronomers, Inc. (NCA), a non-profit, public-service corporation for advancement of astronomy and related sciences through lectures, expeditions, discussion groups, conferences, tours, classes, public programs, and publications. NCA is an affiliate of the Washington Academy of Sciences. President Kenneth R. Short. Deadline for *Stardust* is the 15th of the preceding month. Information: Nancy Byrd, 4215 Holborn Ave. Annandale, VA 22003. Editors, Therese & Brady Byrd (703)237-0369

FIRST CLASS

Dr. Wayne H. Warren, Jr.
8001 Brett Place
Greenbelt, MD 20770

