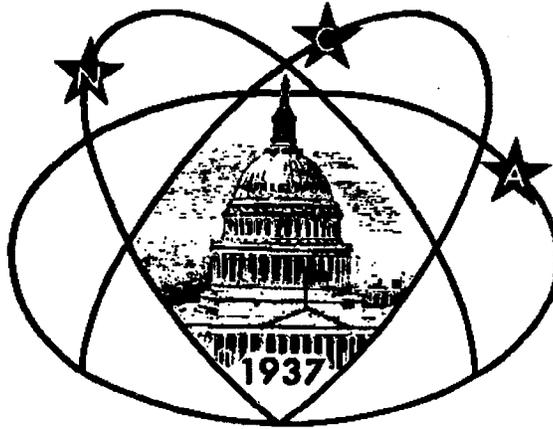


Star



Dust

National Capital Astronomers, Inc.

Washington, DC (301) 320-3621

Volume LII, Number 4

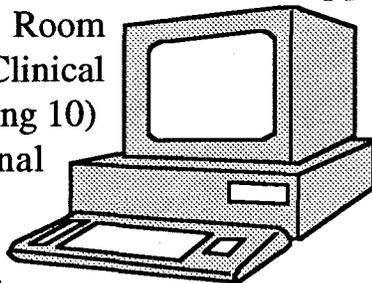
December 1993

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NCA Member Nancy Roman to Describe and Demonstrate Access to Machine-Readable Astronomical Data and Networks

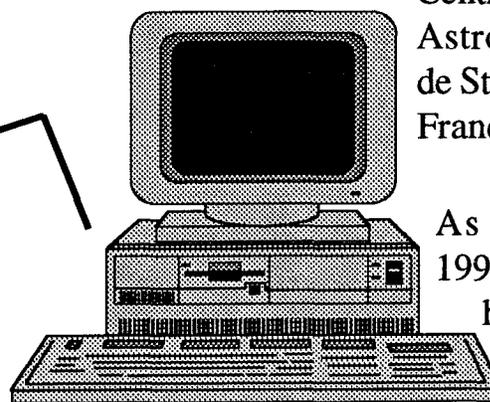
*By Wayne H. Warren Jr.
(including description by Nancy G. Roman)*

The next meeting of the National Capital Astronomers will be held on December 4, 1993 at 7:30 PM in the Lippsett Amphitheater, Room 1C114, of the Clinical Center (Building 10) at the National Institutes of Health. At this special seminar, NCA member Nancy Roman will describe the Astronomical Data Center (ADC) archives and demonstrate the use of computer networks via modem connection to Goddard Space Flight Center's National Space Science Data Center. For this presentation, we intend to use a computer terminal and screen projection system so that the demonstration can be easily viewed by everyone.



The NASA/GSFC Astronomical Data Center (ADC) is part of the National Space Science Data Center, Greenbelt, MD. The ADC archives and disseminates astronomical catalogs, primarily those based on ground-based data, in close cooperation with the

Centre Données Astronomiques de Strasbourg in France.



As of April, 1993, the ADC had 669 catalogs in its archive. We are currently adding about eight catalogs per month. The ADC produced and distributed more than 2000 copies of the first ADC CDROM which contained 114 popular

See ROMAN, Page 2

December Calendar

The Public is Welcome!

Fridays, December 3, 10, 17, 24, and 31, at 7:30 PM - Telescope making classes at American University, McKinley Hall Basement. Information: Jerry Schnall, 202/362-8872.

Fridays, December 3, 17, and 31, 8:30 PM - Open nights with NCA's Celestron-14 telescope with Bob Bolster, 6007 Ridgeview Drive, south of Alexandria off Franconia Road between Telegraph Road and Rose Hill Drive. Call Bob for details 703/960-9126.

Saturday, December 4, 1993, 5:30 PM - Dinner with the speaker at the North China Restaurant (7814 Old Georgetown Road before the monthly meeting. Reservations are for 5:30 PM.

Saturday, December 4, 1993, 7:30PM - Dr. Nancy G. Roman, "The Astronomical Data Center and National Space Science Data Center Machine-Readable Astronomical and Space Science Archives." Meeting will be held in the Lippsett Amphitheater at the National Institutes of Health. For directions, refer to map and description on back page.

Tuesdays, December 7, 12, 21, and 28, 7:30 PM - Telescope making classes at Chevy Chase Community Center, Connecticut Avenue and McKinley Street, NW. Information: Jerry Schnall, 202/362-8872.

Smithsonian Sky Watchers' Report

Non-technical information recording on astronomical events, objects, and phenomena in the Washington, D.C. region's sky. Updated weekly.

202/357-2000

Sky & Telescope's "Skyline"

Moderately technical information recording on latest in space technology, astronomy, and related sciences. Updated weekly, or sooner if necessary.

617/497-4168

ROMAN, From Page 1

catalogs in ASCII and FITS formats. The ADC has also prepared new printed versions of the Bonner Durchmusterung, the Cordoba Durchmusterung, the Cape Photographic Durchmusterung and the WDS/HD/DM/ADS cross index.

The NSSDC archives science data from all of the US experiments, except those dealing with the Earth and neutral atmosphere, and from many other experiments. In addition to the ADC CDROM, the NSSDC distributes CDROMs of data from the Einstein Obser-

vatory, the IRAS Sky Survey Atlas, and Halley and planetary observations.

The NSSDC Master Directory includes information about data sets in various disciplines, including astronomy. This provides brief, general descriptions of astronomical data, contact information, and in some cases allows access to remote data and/or their descriptions.

Dr. Nancy Grace Roman was educated at Swarthmore College and the University of

See ROMAN, Page 4

The Space Telescope Science Institute Digitized Sky Survey

By Cliff Kristal

At their October 2 meeting, NCA members were pleased to host Dr. Richard L. White of the Space Telescope Science Institute (ST ScI), who spoke to us about the ST ScI Digitized Sky Survey.

The current state of affairs has an overload of data and too few astronomers to analyze them. He has made it possible to view the Palomar Sky Survey plates, which were digitized along with the European Southern Observatory's southern images, from anywhere with a Sun SparcStation computer and a CD-ROM player. Dr. White made this possible by creating a compression algorithm that can reduce the 600 GB (gigabytes) of data by factors from 10 to 100. The images would be available in sets of 10 or 100 CD's, depending upon the scale. The forecast is for the next few years.

He then gave a technical description of the problems and his current solution. Computer hackers know of PKZIP, LHA, ARC, and other data compression utilities, but he explained that these don't work because the plates have gaps with only noise and mostly point images. Also, some nebulosities are barely above the noise. After rejecting some polynomial transforms and Fourier techniques, he settled on what he called the "H" transform with Quadtree coding. This wavelet procedure allowed a tight confinement in bright areas such as stars, and loose confinement in the noisy areas. His computer images showed this by having a steep gradient at star boundaries and a flatter response between. The restored noisy areas showed an agglomeration of pixels, making them look like a state map instead of the original salt and pepper design. The images were very good, and we hope that the system can be converted for use on a PC platform.

ROMAN, From Page 2

Chicago, where she worked with Professor W. W. Morgan, a co-originator of the Morgan-Keenan (MK) spectral classification system. Following several years at the Naval Research Laboratory, she joined NASA, where she served as Chief of NASA's astronomy programs. She retired in 1979 and has since worked part-time for ORI, McDonnell Douglas, and Hughes ST Systems Corporation. She is still associated with the latter two companies, her position with the last involving work on machine-readable astronomical data

at the ADC of NASA's National Space Science Data Center.

Most of the data now being used in various commercial systems for locating astronomical objects in small telescopes and for plotting on computer screens were originally obtained from the ADC archives, so this topic is very timely for those of us who observe with amateur-class instruments. Come and join Nancy and other NCA members to learn about astronomical data available in machine-readable form to amateurs and professionals alike.

FOR SALE

NCA'S 5-inch Alvan Clark refractor, oculars, finder, equatorial mount, and pier. Open bids, minimum \$3000.

Please contact:

Robert Bolster

6007 Ridgeview Drive

Alexandria, VA 22310-2055.

Phone 703-960-9126

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 Meeting. (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 the monthly newsletter of NCA, *Star Dust*, and an optional discount subscription to *Sky & Telescope* magazine.

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.

Astronomical Telescope & Binocular - Public Seminar, for Selection, Use, and Care, 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, products, and services, including *Sky & Telescope* magazine.

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

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Telephone

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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 mailing label. You may renew this subscription through NCA for \$22 when it expires.

Make check payable to National Capital Astronomers, Inc., and send with this form to:

Leith Holloway 10500 Rockville Pike Apt. M-10, Rockville, MD 20852.

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

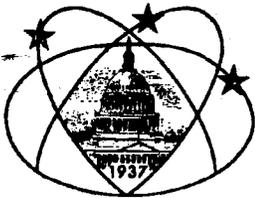
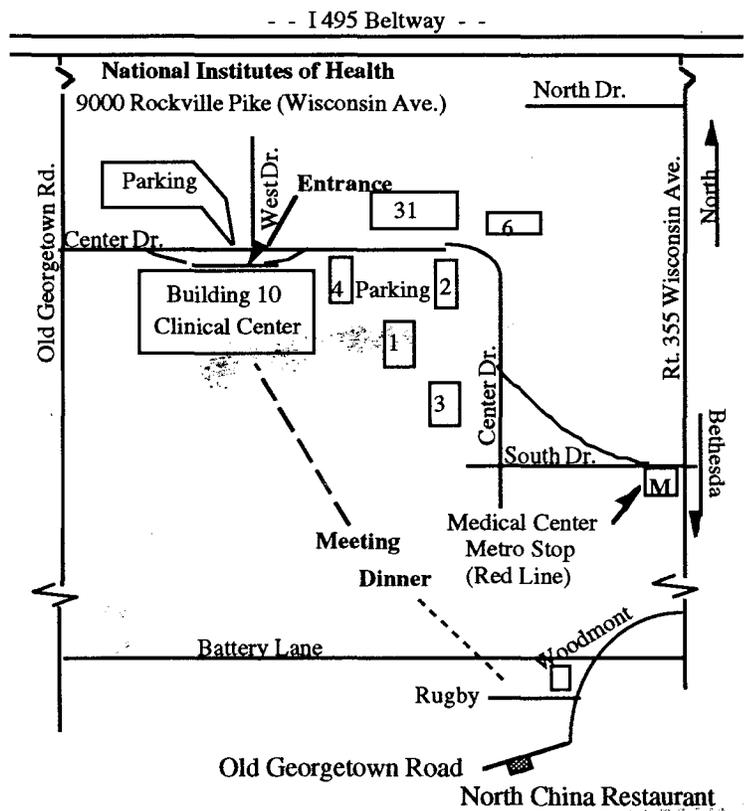
Thank you, and welcome!

Getting to the NCA Monthly Meeting

•Subway Riders - From Medical Center Metro Stop: Walk down the hill, pass the bus stops and turn right at the anchor (onto Center Drive). Continue uphill to building 10, the largest building on campus. Also, the J2 bus line connects the Bethesda (7:16 PM) and NIH (7:23 PM) Metro stops with Building 10 (7:25 PM).

•To North China Restaurant: Take Wisconsin Avenue toward Bethesda and bear right onto Woodmont (or take the next right onto Battery Lane). Follow Woodmont to Old Georgetwon Road and make a right. The restaurant is a few blocks on the left (7814 Old Georgetwon Road). There is parking around the corner on a side street. Seats are not guaranteed after 5:30.

Stardust is published ten times yearly (September - June) 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 John Graham. Deadline for *Stardust* is the 15th of the preceding month. Editor Nicoletta Stepanz, 202/332-7756. NCA Phone Number is 301/320-3621.



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Exp. 3/31/94

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