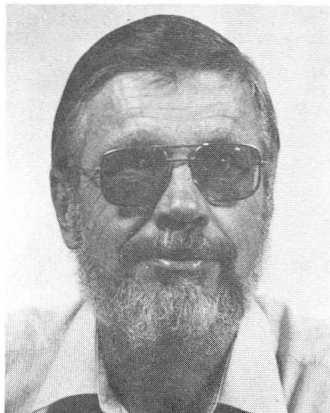




Erickson Opens 51st NCA Season with Pulsar Predictions



DR. ERICKSON

Dr. William C. Erickson, professor of astronomy and researcher at Clark Lake, California, Radio Astronomy Observatory of the University of Maryland, will address National Capital Astronomers on September 5 at 7:30 pm. Note new time. He will present his finding that millisecond pulsars can be predicted from his low-frequency data; he has successfully predicted the last two.

The Clark Lake array, which he described to NCA in January 1976, is particularly useful for the dekameter-wave band, where only non-thermal radiations are observed. Such sources range from plasma emissions from the Sun and planets to synchrotron emissions from distant radio galaxies. The strong, isolated emission of millisecond pulsars in the low-frequency spectrum has enabled Erickson to predict two so far: PSR 1937+214, and PSR 1821-248. Absorption lines of carbon atoms in very high Rydberg states have been identified in the 16- to 110-MHz range.

A recently completed 30.9-MHz Clark Lake survey of the galactic plane reveals many new aspects of galactic structure, hundreds of pulsar candidates, 69 new supernova remnants, and evidence of extended halos around H II regions. At 50- to 125 MHz radio lobes surrounding the galactic center have been found. A whole-sky low-frequency survey has been about one-third completed, but has been stopped by curtailed funding.

William C. Erickson was born in Chicago, received his B.A., M.A., and Ph.D. from the University of Minnesota, the latter in 1956. Before coming to the University of Maryland in 1962, he was a physics lecturer at the University of Minnesota and St. Thomas College. He was project leader for the Benelux Cross Antenna Project at the University of Leiden. During a sabbatical in 1983 he spent three months each at the University of Tasmania, Australia, the Raman Institute in India, the Observatory of Paris, France, and the Dwingeloo Observatory in the Netherlands. Recently he has been working in New Mexico on a proposal by him and R.A. Perley to instrument the VLA for 75-MHz operation. He is a member of several major professional societies and has published widely.

SEPTEMBER CALENDAR — *The public is welcome.*

Tuesday, September 1, 8, 15, 22, 29, 7:30 pm — Telescope-making classes at Chevy Chase Community Center, Connecticut Avenue and McKinley Street, NW. Information: Jerry Schnall, 362-8872.

Friday, September 4, 11, 18, 25, 7:30 pm — Telescope-making classes at American University, McKinley Hall basement. Information: Jerry Schnall, 362-8872.

Friday, September 11, 18, 8:00 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 960-9126.

Saturday, September 5, NOTE NEW TIME: 5:45 pm Dinner with the speaker at the Smithsonian Restaurant, 6th and C Streets, SW., inside the Holiday Inn. Reservations unnecessary. Use the 7th Street and Maryland Avenue exit of the L'Enfant Plaza Metrorail station.

Saturday, September 5, NOTE NEW TIME: 7:30 pm — NCA monthly lecture in the Einstein Planetarium of the National Air and Space Museum, Seventh Street and Independence Avenue, SW. (Enter Independence Avenue side. Dr. Erickson will speak.

Saturday, September 19, 8:00 — Discussion group. To be announced.

Saturday, September 26, 8:30 pm — *Exploring the Sky*, presented jointly by NCA and the National Park Service. Glover Road south of Military Road, NW, near Rock Creek Nature Center. Information: 320-3621.

For other organizations' events of interest see elsewhere in this issue.

NATIONAL CAPITAL ASTRONOMERS BEGINS SECOND HALF CENTURY

Fifty years ago, on Friday, August 27, 1937, Mr. U. Sherman Lyons, an astronomer at the United States Naval Observatory and presently at 93 a life member of NCA, gathered a group at the Observatory to establish the organization that later evolved into National Capital Astronomers, Incorporated. At the second organizational meeting, on September 3, 1937, the group met at the National Museum of National History to elect its first president, Stephen Nagy.

The same year, 50 years ago, Grote Reber, widely hailed as the "Grandfather of Radio Astronomy," built his steerable 31-foot dish, the first radiotelescope, in Wheaton, Illinois, to study the cosmic radio noise discovered by Karl Jansky. For the succeeding decade, Reber, alone in the field, plotted the radio sky at dekameter wavelengths, and proved that the emissions were non-thermal.

Reber and his dish were later moved to Washington where he joined the staff of the National Bureau of Standards to study solar radio noise, and, on January 3, 1948, became a member of National Capital Astronomers. On May 1 the same year, Reber was elected Vice President of NCA; Bob Wright was elected President at the same time.

Early activities of the new organization included monthly talks, visits to observatories and other institutions, and a telescope-making class, still active under the dedicated instructor, Jerry Schnall. Previous instructors were Stephen Nagy, Robert McClellan, Irene Warthen, and Hoy Walls.

On August 15, 1938, the group purchased the Alvan Clark 5-inch refracting telescope for \$225.00, which is still housed at the U.S. Naval Observatory. During the World War II years, when admission to the Observatory was closed, the telescope was stored in the basement of the Washington Cathedral. Following the war, the telescope was reinstalled in building 25 at the Observatory, where it remains available for members' use.

The organization became a charter affiliate of the Astronomical League upon the League's founding on August 19-20, 1939.

Mabel Sterns, a charter member, and now a life member, originated *Star Dust* in 1943, and served as its editor for many subsequent years.

In those times, when night still came to Washington, Member David Rotbart, in June, 1946, using binoculars, discovered a comet from atop his house on River Road in the District of Columbia! Independently discovered by a European observer, it was named Comet Pajdunakov-Rotbart.

The Junior Division was formed in 1946 and populated by a bright and enthusiastic group of youngsters. Some won the Science Talent Search.

On September 7, 1946, the meetings were moved to the U.S. Department of Commerce Auditorium, where the monthly lectures were held through June 1987. They were then returned to the Smithsonian, this time to the Einstein Planetarium of the National Air and Space Museum - the most popular museum in the world.

In 1948 NCA member Charles Little was discovering daytime meteor showers with the meteor radar he built, until, alas, the broadband radio interference his pioneering work caused prompted the Federal Communications Commission to terminate his activities.

In preparation for the planned International Geophysical Year (IGY), NCA organized a number of programs. Bob Wright was appointed chairman of a committee to develop a visual satellite-tracking system, dubbed "Operation Moonwatch," for the Vanguard satellite, to be launched in 1957 as a part of the United States' participation in the 40-nation effort. Unfortunately, the first Vanguard failed; the Soviets launched the first artificial satellite on October 4, 1957, before the next United States Satellite was ready.

NCA member Dr. Armand Spitz, the planetarium developer and manufacturer, was the advisor to the Smithsonian Astrophysical Observatory on visual satellite tracking. The committee developed the "optical fence" system which was used in hundreds of stations worldwide during the IGY. Bob Wright maintained the developmental station north of Silver Spring, Maryland, and Bob Dellar maintained a station south of Springfield, Virginia. The NCA teams used both extensively during the 1957 to 1959 IGY.

Other very productive NCA-IGY programs included Meteor observation under Dr. Peter Milman, National Research Council of Canada; Aurora monitoring under Dr. C.W. Gartlein, Cornell, and solar activity monitoring with the AAVSO.

In January 1958 Bob McCracken, then president, changed the format and method of production of *Star Dust* to make possible the use of photographs.

In the spring of the same year, McCracken established the annual NCA High-School Science Fair Awards for the District of Columbia and the contiguous counties.

The Washington Academy of Sciences accepted NCA as an affiliate in 1969.

The 1980 Nobel Prize in Chemistry was awarded to former NCA Junior member Dr. Walter Gilbert, Harvard, for his sequencing the DNA molecule. When an NCA Junior, he won the 1949 Science Talent search for his "One-step Separation of Zirconium and Hafnium."

Today's NCA serves the science, the public, and the individual in many ways. The monthly lectures are generally given by workers who are defining the horizons in their fields, and are scheduled month-by-month in order to be of timely usefulness to the peers of the speakers, as well as to others. Expeditions are led by Dr. David Dunham, frequently to all parts of the world, to gather observational data for several purposes. Ongoing programs include solar radius tracking, searches for asteroidal satellites, and the grazing lunar occultation program. The latter, through David Dunham's dedicated efforts, yields dynamical data which have been used in preparation of navigation tables, corrections to the celestial coordinate system, discovery of close, spectroscopic multiple stars, and even to revise the figure for the mass of the galaxy!

NCA occasionally cosponsors Washington Academy of Sciences programs, Naval Observatory functions, and Smithsonian affairs at the National Air and Space Museum, offers a telephone information service, operates a computer bulletin board, (Temporarily suspended for alterations), and is continually increasing its services to science.

With more dedicated people to enjoy the gratification derived from service, NCA will have a great future!

We thank Mabel Sterns for her memories in our efforts to compile these few highlights of NCA's first half century.

OCCULTATION EXPEDITIONS PLANNED

Dr. David Dunham is organizing observers for the following occultations. For further information call (301) 495-9062 (Silver Spring, MD).

| UT Date | Time | Place | Vis Mag | Pent Sunlit | Cusp Angle | Min Aper |
|----------|-------|-------------------|---------------------|-------------|------------|----------|
| 09-12-87 | 06:59 | Silver Spring, MD | 5.8 | 76 | 14N | 5 cm |
| 09-12-87 | 08:46 | Greenbelt, MD | 8.7 | 75 | 12N | 20 cm |
| 09-13-87 | 04:31 | Urbana, MD | 6.3 | 67 | 11N | 5 cm |
| 09-13-87 | 04:36 | W. Leechburg, PA | 3.0 | 67 | 11N | 3 cm |
| 09-15-87 | 06:48 | Middletown, MD | 8.0 | 47 | 12N | 8 cm |
| 09-16-87 | 06:24 | Myersville, MD | 8.0 | 37 | 11N | 8 cm |
| 09-16-87 | 08:21 | Oaks, MD | 8.7 | 37 | 10N | 15 cm |
| 09-20-87 | 09:36 | Myersville, MD | 8.4 | 7 | 5N | 15 cm |
| 09-23-87 | 01:48 | Talyun, China | Total solar eclipse | | | |

Asteroidal*:

| UT Date | Time | Place | Star mag | Delta mag | Name | Min aper |
|----------|-------|---------------------|----------|-----------|----------------|----------|
| 09-08-87 | 01:30 | Puerto Rico | 9.1 | 2.3 | (66) Galatea | 8 cm |
| 09-13-87 | 08:19 | Manitoba, Canada | 8.3 | 6.0 | (385) Bilkis | 5 cm |
| 09-14-87 | 23:33 | Colombia, S.A. | 9.4 | 6.0 | (468) Lina | 5 cm |
| 09-27-87 | 06:54 | Peru, South America | 8.5 | 6.0 | (393) Lampetia | 5 cm |

*Appulses. To be observed for possible satellites or path changes.

NCA WELCOMES NEW MEMBERS

Corpeno, Roberto and Helen
1738 Q Street, NW
Washington, DC 20009

Litz, Mark S.
1901 Chapman Avenue
Hyattsville, MD 20783

Violett, Mary Elizabeth
14504 Lightner Road
Haymarket, VA 22069

ACADEMY TO HEAR BLEDSOE

President Reagan's Special Advisor on Domestic Policy Formulation, Dr. Ralph Bledsoe, will open the 1987-88 lecture series of the Washington Academy of Sciences on September 17. He will speak on the role of science in the resolution of the dilemmas and controversies faced in national policy development.

National Capital Astronomers is an active affiliate of the Washington Academy of Sciences.

Lecturers of the 1987-88 series will discuss issues in which science addresses human problems and concerns; they should be of vital interest to all. The Academy lectures may encompass any of the sciences represented by the more than 50 professional societies that are affiliates of the Academy.

The lectures are held on the third Thursday of each month, September through May, except December, at the Mary Graydon Center of American University, Massachusetts and Nebraska Avenues, NW. A reception at 6:45 pm is followed by dinner at 7:30, and the lecture at 8:30. It is not necessary to attend the dinner to hear the lecture, and there is no charge for the lecture only. For more information and for dinner reservations (by Monday immediately preceding), call Robert McCracken at 320-3621 (NCA).

ASTRONOMY AND PERSONAL COMPUTERS

There are only a few books on the market today that tell how to write programs for astronomy calculations with personal computers. Correctly programmed, personal computers are capable of performing the same computations expected of larger computers, many times to the same accuracy and almost as efficiently. I searched Books in Print to determine what was available, and found nine books listed. Contrast that with the statement in Borland's *TURBO BASIC Owner's Handbook* that there are more than 15,000 books in print on learning BASIC, about 1,000 on interpretive BASIC! (I did not verify those numbers myself, but I did notice there were quite a number listed.)

What I found is the following: Pierre and Simon Bretagan, *Planetary Programs and Tables from -4000 to +2800*, 1986, Willman-Bell (a book and software, reviewed in *July Sky and Telescope*); Eric Burgess, *Celestial BASIC*, Peter Duffett Smith, (Two books, *Astronomy with your Personal Computer* and *Practical Astronomy with your Calculator*); Russ and Karen Genet, *Microcomputers in Astronomy*; Fred Klein, *Pocket Calculator Programs for Astronomers*; Sherman A. Simon, *The Astronomy Disk*, 1984; and the books by Jean Meeus, *astronomical Formulae for Calculators*, and *Astronomical Tables of the Sun, Moon, and Planets*.

Page 2 of the August "Reflector" has a notice that the AL is compiling a directory of all astronomy hotlines and astronomy bulletin boards. If you know of one he may miss send a postcard to Andrew Fraknoi, Astronomical Society of the Pacific, 1290 24th Avenue, San Francisco, CA 94122.

Joan B. Dunham

EXCERPTS FROM THE IAU CIRCULARS

1. July 25 — C. Pollas discovered a supernova of 17th magnitude in ESO 601-26 on plates taken with the 90-cm CERGA Schmidt telescope.

2. July 28 — C. Pennypacker and the Automated Supernova Search Team, University of California at Berkeley, discovered a supernova of 15th magnitude in NGC 4651.

3. August 11 — W.A. Bracfield, Dernancourt, Australia, discovered his 13th comet. Comet Bradfield (1987s) was of 10th magnitude and was in Hydra. Preliminary orbital elements indicate that it will reach perihelion on November 4.

Note: Calculations by R.N. Bolster and W.L. Nissen show that Comet Bradfield will remain low in the southwest in the evening through September, then will rise higher, reaching an altitude of 70 degrees by the year's end.

Robert N. Bolster

STOP PRESS ITEM: NEW SHUTTLE BOOSTER TEST SUCCESSFUL

Successful test firing of the new version of the Space Shuttle solid rocket booster has just been announced. This augurs well for a June 1988 launch to resume the Shuttle program, including launch of the Hubble Space Telescope, interrupted by the Challenger tragedy.

FOR SALE

Fifteen-year-old Dynamax 8 with wedge and sturdy pier mount on casters, finder scope, 3 eyepieces, RA motor drive. Delivered to your door anywhere in the Washington metropolitan area for best offer over \$250.00. Call NCA member Ted Woolsey at 320-2339 (Bethesda) to arrange a visit to see the equipment.

STAR DUST may be reproduced with credit to National Capital Astronomers.

★ S T A R D U S T

WASHINGTON, D.C.



Published eleven times yearly by NATIONAL CAPITAL ASTRONOMERS, INC., a non-profit, public-service corporation for promotion of astronomy and related sciences through lectures, expeditions, discussion groups, tours, classes, public programs, and

publications. NCA is an affiliate of the Washington Academy of Sciences. President, Walter I. Nissen. *Star Dust* deadline 15th of preceding month. Information: (301) 320-3621. Material for publication: Robert H. McCracken, Editor, 5120 Newport Avenue, Bethesda, MD 20816.

FIRST CLASS

SCHNALL, JEROME
2801 QUEBEC ST, NW APT 735
WASHINGTON, DC 20008

