



HARRINGTON TO PRESENT NEW PARALLAX METHODS, RESULTS



DR. HARRINGTON

Dr. Robert S. Harrington, Chief of the Equatorial Branch of the U.S. Naval Observatory, will address the February 5 meeting of National Capital Astronomers. He will speak on "The Expanding Neighborhood, or Modern Parallaxes — How and Why."

Modern trigonometric parallaxes can now be determined with an accuracy that is a full order of magnitude better than was possible a quarter of a century ago, using today's improved instrumentation and modern data analysis.

More accurate parallaxes lead to improved distances, transverse velocities, stellar masses, absolute magnitudes, and dark-companion detection. This yields not only high-quality data on the nearby stars, but also significant information about more distant objects such as giant stars, variables, and clusters.

Dr. Harrington will also discuss what actually is found in the immediate solar neighborhood, and will present some very new results of the U.S. Naval Observatory program.

Robert S. Harrington received his B.A. in physics from Swarthmore College, where he studied astrometry under Peter van de Kamp, and his Ph.D. in 1968 from the University of Texas, where he worked on multiple-star dynamics under Bill Jefferys. In 1967 he joined the staff of the U.S. Naval Observatory, where he has worked on various programs in photographic astrometry and dynamical astronomy. As Chief of the Equatorial Branch he is responsible for the Observatory's parallax and astrographic catalog programs.

FEBRUARY CALENDAR — *The public is welcome.*

- Tuesday, February 1, 8, 15, 7:30 pm — Telescope-making classes at Chevy Chase Community Center, Connecticut Avenue and McKinley Street, NW. Information: Jerry Schnall, 362-8872.
- Friday, February 4, 11, 18, 25, 7:30 pm — Telescope-making classes at American University, McKinley Hall basement. Information: Jerry Schnall.
- Friday, February 4, 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, February 5, 6:15 pm — Dinner with the speaker at the Thai Room II, 527 13th Street, NW. Reservations unnecessary.
- Saturday, February 5, 8:15 pm — NCA monthly meeting at the Department of Commerce Auditorium, 14th and E Streets, NW. Dr. Harrington speaks.
- Friday, February 18 — Depart Washington National Airport for San Juan, PR, and Arecibo Radioastronomy Observatory tour. (filled)
- Saturday, February 19, 8:00 pm — Discussion group at the Department of Commerce, 14th and E Streets, NW: Searching for decataloged objects.

JANUARY LECTURE

The January meeting of National Capital Astronomers heard Joseph Tatarewicz, a Smithsonian Predoctoral Fellow, speak on the role of ground-based planetary astronomy and the ways in which it contributes to the space age.

With the twentieth anniversary of interplanetary travel just passed, it is interesting to remember when the only data available from beyond the atmosphere were obtained by radiation collectors, e. g., optical and radio telescopes. Planners at NASA needed every scrap of information available to help determine what was possible for the new organization. NASA was willing to lend support for ground-based observations of the Moon and planets but initially found less interest than expected. Apparently planetary and lunar astronomy was not in the vanguard of scientific thought at that time. Stellar and galactic studies carried more weight and respectability, Tatarewicz said. Albert R. Hibbs said that there was money and interest; "Where are the people who know what they are doing?" Eventually interest was found and the space program led to the resurrection of lunar and planetary astronomy.

From antiquity to Newton, planetary wanderings against the reference grid of the stars were the main thrust in astronomy. The nineteenth century saw astronomy ally with physics; techniques from the laboratory were used to glean data from the radiation at the foci of telescopes. The late nineteenth century saw a shift from positional and gravitational astronomy to the beginning of astrophysics. Astronomy became the science of the stars; however, these new techniques (photography, photometry, spectroscopy) lent themselves to the study of the Moon and planets as well.

Percival Lowell provided a tremendous stimulus to planetary astronomy. While some thought he went too far in asserting his case for an inhabited Mars, he introduced several successful techniques that remain useful until now. He advocated continuous, extended visual observations and sketches, micrometer measurements, and production of globes and maps. He pioneered the use of the polariscope in his search for signatures of water vapor and ice from the red planet. He used the spectroscope in searching for atmospheric constituents such as oxygen and chlorophyll. Photography was pushed to its limits for the time. Color-filter photography was also used to penetrate to different depths in the planet's atmosphere. Radiometry was undertaken with a thermocouple at the telescope's focus to detect infrared radiation from the planet.

As for the canals (canale, or channels, reported by Schiaparelli), some observers claimed to see them while others could not. Lowell attributed the inability to see them to atmospheric turbulence, optics, and the physiology of the eye. He asserted that sensitive eyes were not necessarily acute eyes. The phenomenon of the canals has been attributed to the eye's integration of features at the limit of resolution.

With such an advocate as Lowell, the popular press exploited the idea of a nearby inhabited world. Stories of invasions surfaced in many of the periodicals, culminating in Orson Wells' radio rendition of H. G. Wells' "War of the Worlds."

In concluding, Tatarewicz credited Lowell with much good and careful science and a reawakening of interest in the planets, although he was prone to occasional excesses. Lowell left a legacy, however, of his successful observing techniques, many of which continue in use today. Will Thornton

WASHINGTON ACADEMY OF SCIENCES SCHEDULES MEETINGS

On Wednesday, 23 February (time to be announced), at the University of DC, Dr. Benjamin Alexander, President of UDC, will speak: "Things We Ought to Know about Ecology and Planet Earth." On Thursday, 7 April, at 8:00 pm, at Beeghley Chemistry Building, American University, Dr. Henry Blount, University of Delaware, will speak: "Optical Methods in Electrochemistry."

OCCULTATION EXPEDITIONS PLANNED

Dr. David Dunham is organizing observers for the following grazing lunar and asteroidal occultations. For further information call Dave at 585-0989.

UT	Place	Vis	Pcnt	Cusp	Min	
Date	Time	Mag	Sunlit	Angle	Aper	
02-06-83	11:38	Parkton, MD	8.8	33	14S	20 cm
02-06-83	11:42	Wilmington, DE	7.2	33	13S	8 cm
02-16-83	23:39	Ruther Glen, VA	8.5	14	13S	13 cm
02-18-83	01:11	Bowie, MD & DC*	4.7	23	0N	5 cm
02-18-83	01:15	Burtonsville, MD**	4.7	23	-8N	10 cm
02-20-83	04:06	Potomac, MD	8.9	43	6N	20 cm
02-23-83	01:24	Fredericksburg, VA	8.3	75	6N	20 cm
02-24-83	01:24	Mt. Pleasant Mills, PA	6.0	85	75	8 cm
02-29-83	03:23	Belfast, MD	7.6	95	15S	20 cm

ASTEROIDAL:		Decrement	Name			
02-05-83	0 :49	Mid-Atlantic states	8.9	3.6	(45) Eugenia	13 cm
02-08-83	23:44	S.E. USA?	10.5	0,7	(52) Europa	13 cm

*Split expedition. Short total. **Bright-limb graze.

FEBRUARY DISCUSSION GROUP ON DECATALOGED OBJECTS

The regular third-Saturday discussion group, to be led by James Trexler, will consider searching for and identifying delisted objects.

Occasionally, doubtful objects are deleted from catalogs for a variety of reasons — uncertain existence, failure to show on photographic plates, erroneous coordinates, misidentification of known other objects, etc. The purpose of the search is to determine whether or not the object is real, the nature of the error, if any, to seek confirmation, and to report any indicated corrections.

The project is quite flexible; searches usually can be made at the observer's convenience, and with a variety of equipment. For more on this interesting cosmic exploration come and learn how you can participate: Saturday, 19 February, 8 pm, at the Department of Commerce.

BOLSTER TO CHAIR NCA COMPUTATION GROUP

The well attended February discussion group on astronomical software indicated an extensive interest in an NCA computation group. Robert N. Bolster has been appointed to organize and chair such a group to serve NCA needs.

Among the functions of the group will be to determine needs, survey and evaluate available software, and generate new software as indicated.

Those interested in any phase of this activity are invited to contact Bob Bolster at (703) 960-9126 to discuss it.

SCIENCE FAIR TIME APPROACHING

The judging team is being organized for the National Capital Astronomers award for winners in the annual science fairs in the District of Columbia and the contiguous counties. One Saturday morning invested in this rewarding activity can yield great dividends in tomorrow's leadership. Call Dr. John Lohman, (703) 820-4194, Dr. Gary Thom, (202) 333-2007, or Bob McCracken, (301) 229-8321 for more information.

WHIPPLE TO SPEAK AT AIR AND SPACE MUSEUM

Dr. Fred Whipple, Senior Scientist at the Smithsonian Astrophysical Observatory, Cambridge, and Phillips Professor Emeritus at Harvard, will speak on the history of comets and asteroids, and the effects of past collisions of these objects with the Earth on terrestrial life; Wednesday, 23 February at 7:30 pm.

EXCERPTS FROM THE IAU CIRCULARS

1. December 14 — Eleanor Helin, Jet Propulsion Laboratory, discovered a fast-moving asteroidal object of 14th magnitude in Aries with the 46-cm telescope at Palomar. Designated 1982 XB, the object was found to have a perihelion distance of 1.107 AU.

2. December 14 — M. Lovas, Konkoly Observatory, discovered a supernova of 15th magnitude in NGC 5485.

3. December 16 — J. Bryan and M. Brewster, Austin, Texas, discovered a nova of 17th magnitude in M31 (the Andromeda galaxy).

4 January 8 — The same observers discovered another nova of 15th magnitude in M31. Robert N. Bolster

U.S. NAVAL OBSERVATORY COLLOQUIA SCHEDULED

On Thursday, 10 February, Martin O. Harwit, Cornell University and the National Air and Space Museum, will discuss "Astronomical Discoveries and How They are Made." On Thursday, 24 February, John E. Gaustad, Swarthmore College, will speak: "High-Energy Solar Radiation and the Origin of Life," followed by a short (unrelated) discussion of the Swarthmore astronomy program.

The colloquia are held in Building 52, Room 300, at 3:00 pm. Coffee and tea will be served at 2:50.

NCA members are welcome. Enter the main observatory gate at Massachusetts Avenue and 34th Street, NW, where the guard will require identification and provide directions. For further information, call 653-1513.

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