



ARCHAEOASTRONOMY — A PANEL OF PIONEERS



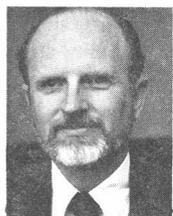
DR. DOGGETT



DR. HAWKINS



DR. WILLIAMSON



DR. CHAMBERLAIN



DR. CARLSON

The February 6 meeting of National Capital Astronomers will feature a discussion by a panel of eminent leaders in archaeoastronomy. Presiding over the panel will be Dr. LeRoy E. Doggett, astronomer of the Nautical Almanac Office, U. S. Naval Observatory. Editor of Naval Observatory publications, he also conducts research in celestial mechanics, archaeoastronomy, and the history of astronomy. The other panel members are:

Dr. Gerald S. Hawkins, author of the classic, *Stonehenge Decoded*, and *Beyond Stonehenge*. Formerly a professor of astronomy, dean, and senior research associate at Cambridge Air Force Laboratories, he is currently in Washington with an agency of the State Department. He lectures and publishes widely.

Dr. Ray A. Williamson is currently a project director in the Office of Technology Assessment of the U. S. Congress. A former professor of philosophy, literature, mathematics, physics, and astronomy, he is the editor of *Archaeoastronomy in the Americas*, and is completing a book on North American native astronomy.

Dr. Von Del Chamberlain of the National Air and Space Museum, Smithsonian Institution, is Project Director of the nationwide Astronomy in Parks program. A former planetarium director, he publishes and lectures in astronomy and archaeoastronomy. His book, *When Stars Came Down to Earth: Cosmology of the Skidi Indians of North America*, is in press.

Dr. John B. Carlson founded the Center for Archaeoastronomy at the University of Maryland, where he teaches archaeoastronomy. He produces the quarterly journal, *Archaeoastronomy*, and a lecture series on archaeoastronomy at the Smithsonian.

Following Dr. Doggett's introduction of the subject and the panel, two short presentations will be made. The panel will then discuss the subject, finally opening to audience participation.

FEBRUARY CALENDAR — *The public is welcome.*

Tuesday, February 2, 9, 16, 23, 7:30 PM — Telescope-making classes at Chevy Chase Community Center, Connecticut Avenue and McKinley Street, NW. Information: Jerry Schnall, 362-8872.

Friday, February 5, 12, 19, 26, 7:30 PM — Telescope-making classes at American University, McKinley Hall basement. Information: Jerry Schnall.

Saturday, February 6, 6:15 PM — Dinner with the speaker at the Thai Room II, 527 13th Street, NW. Reservations unnecessary.

Saturday, February 6, 8:15 PM — NCA monthly meeting at the Department of Commerce Auditorium, 14th and E Streets, NW. Archaeoastronomy panel.

Friday, February 12, 19, 26, 8:00 PM — Use the NCA 14-inch telescope 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 20, 8:00 PM — Discussion group. See page 23.

JANUARY LECTURE

Dr. Steven J. Dick, U. S. Naval Observatory, spoke at the January 9 meeting of National Capital Astronomers, on the history of the search for extraterrestrial life.

The idea of a plurality of worlds, said Dr. Dick, was born with western science in ancient Greece. The central question of philosophers of the fourth century B.C. was whether the cosmos, not the world, was unique or one of many. Atomists held that there were many; Aristotle, that only one was possible: a geocentric world orbited by four planets, moon, and sun, bounded by a sphere of fixed stars.

Aristotle's works were recovered in the 12th century when Christianity in western Europe required their revision. The impossibility of plurality was inconsistent with an omnipotent God!

The church imposed heavy constraints on natural philosophy. In 1277 the Bishop of Paris ordered philosophers to find such plurality possible.

Many troublesome questions arose; If other worlds, life? If life, intelligent? If intelligent, tainted with Adam's sin? if sinful, requiring Christ's redemptive sacrifice for each world?

The works of the first century B. C. atomist philosopher and poet, Lucretius, were lost until the 15th century — the middle of the Italian humanist movement. Although his poetry was admired, his ideas were not taken seriously until the 17th century. This was the century of Galileo, Kepler, Descartes, and Newton — the scientific revolution — when experiment, observation, and mathematics, not speculative philosophy, were emphasized in science.

However, the basis for consideration of the atomistic philosophy was provided by Copernicus' decentralization of the Earth. His heliocentric system led to Galileo's laws of falling bodies, Kepler's laws of planetary motion, and Newton's unification of these laws in his laws of universal gravitation.

The question became serious: If the Earth is one of the planets, is the nature of the others similar?

Closest and best observable, the Moon was considered first. Right or wrong, ideas regarding its habitability were reasonably based on observational evidence; gray areas appeared to be seas, rills seemed to be rivers, and some features suggested artifacts. Interpretations were controversial.

As attention was turned to the planets, less accessible to observation, the impact of philosophy, metaphysics, and theology increased. The widespread and powerful doctrines of plenitude and teleology became surrogates for evidence where empiricism could not reach. Divine power and the perfection of nature demanded an infinity of worlds, and what better purpose for them than habitation by worshippers? Observations that improved the image of the Diety were readily accepted.

The effects of these constraints were varied: Galileo lived in Rome during the Inquisition; Kepler, in protestant Germany.

Dr. Dick sees the extraterrestrial life debate as an integral part of the scientific revolution which began with Copernicus' decentralization of the Earth and the subsequent shift from closed world to infinite universe. The projection of mind into space was a watershed in the history of thought, that transformed the divine celestial regions of the medieval world into a universe filled with the rational intellect.

During the 18th and 19th centuries extraterrestrial life was the subject of many books and constant discussion. The 19th-century kinetic theory of gases denied a substantial lunar atmosphere.

Kant and Laplace postulated the condensation of the solar system from nebular gases, probably not a unique mechanism. Sir James Jeans challenged the idea, postulating instead a close stellar encounter, which he felt was unique.

Twentieth-century technology has begun to provide some definitive answers within the solar system, where the Earth is unique. Now the search is extended

OCCULTATION EXPEDITIONS PLANNED

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

UT		Place	Vis	Pcnt	Cusp	Min
Date	Time		Mag	Sunlit	Angle	Aper
02-04-82	07:23	Richmond, VA	6.2	79	5N	8 cm
02-13-82	06:55	Ashland, VA	7.5	73	13S	13 cm
03-02-82	23:54	NC — a series of three occultations		51	S, S, N	5 cm
03-03-82	00:07	Cavetown, MD	8.7	51	7S	8 cm
03-04-82	00:07	Hyattstown, MD	8.8	62	7S	8 cm
03-04-82	03:21	Dale City, VA	8.2	63	1N	13 cm

NCA WELCOMES NEW MEMBERS

Ted Cage
11305 Huntover Drive
Rockville, MD. 20852

Dr. and Mrs. Kenneth Levin
10712 Meadowhill Road
Silver Spring, MD 20901

Mr. and Mrs. Henry J. Fischer
11015 Highbridge Street
Fairfax Station, VA 22039

Sam Somers
12803 Fitzwater Drive
Nokesville, VA 22123

VOLUNTEERS NEEDED FOR VIRGINIA PARK PROGRAM

Dr. John Lohman requests volunteers with telescopes to assist with two public programs at Huntley Meadows Park on 28 March and 25 April, both on Sunday evenings. Call John at 820-4194.

DISCUSSION GROUP ON INSTRUMENTS, ACCESSORIES SCHEDULED

Bob Wright will lead a discussion of telescope accessories at the Department of Commerce at 8:00 PM on 20 February. The guard will direct you to the conference room. Bring your ideas, questions, or devices to discuss.

STERNS INVENTORYING NCA PROPERTIES, ORGANIZING ARCHIVES

Mabel Sterns is attempting to locate and account for various NCA properties. If you have in your possession any NCA property, even though it is recorded, please make her job easier by reporting it to her. It will be much appreciated.

Mabel is also organizing the NCA archives. If you have any papers or other information on NCA history, please call Mabel at 462-4972.

into the galaxy, where neither theory, observation, nor technology has provided any certainty.

Van de Kamp has observed very small apparent stellar perturbations which may indicate an orbiting planet. Doubters question instrumental effects. Observations by others, including the Naval Observatory, although still uncertain, marginally tend to confirm the perturbations.

Intelligence-bearing radiations have been sought, unsuccessfully so far, by radioastronomy.

The Space Telescope to be launched in 1985 will provide an enormous gain in observational capability. It may resolve the perturbation question as well as others.

Dr. Dick finds it ironic that at this exciting time, when we have the technology to provide many definite answers to these ancient questions, the quest is being curtailed by budgetary constraints. rhm

EXCERPTS FROM THE IAU CIRCULARS

1. October 7 — Two additional observations of the occultation of SAO 187124 by (88) Thisbe have been reported; one of 10.5 seconds duration by Edgar and Elizabeth Everhart at the Chamberlin Observatory field station, and one of 7.9 seconds by P. Maley and R. Petersen at Cheyenne, Wyoming.

2. December 19 — A. L. Scherbanovskij, Special Astrophysical Observatory, Zelenchukskaya, U. S. S. R., discovered a possible comet of 16th magnitude in Leo. However, searches by E. Everhart at Chamberlin Observatory and R. E. McCrosky at Oak Ridge Observatory failed to confirm the discovery.

3. January — S. P. Synnott, Jet Propulsion Laboratory, reported the finding of additional satellites of Saturn on Voyager images. Object or objects 1980 S 34 and 1981 S 6 were coorbital with Tethys, object or objects 1981 S 7 and 8 are coorbital with Dione, and object 1981 S 9 between Dione and Rhea.

U. S. NAVAL OBSERVATORY COLLOQUIA SCHEDULED

On Thursday, February 11, Dr. William Markowitz, Nova University, Fort Lauderdale, Florida, will speak on "Recent Studies of Polar Motion."

On Thursday, February 25, Dr. C. Oesterwinter, Naval Surface Weapons Center, Dahlgren, Virginia, will speak on "Branching from Ballistics to Geodesy and Celestial Mechanics."

The colloquia are held in Building 52, Room 300, at 2:00 PM. Following the colloquia, coffee and tea will be served.

NCA members are welcome. Enter the Observatory grounds through the gate at Massachusetts Avenue and 34th Street, NW, where the guard will require identification and provide you with directions.

SMITHSONIAN SEMINAR ANNOUNCED

A new Smithsonian program, "The New Astronomies," will be presented in Tucson, Arizona, May 9-14, 1982. Participants will attend lectures, visit many famous astrophysical facilities, meet their directors and staff, and learn of their research.

Registration at \$450 includes double occupancy, does not include transportation. Further information may be obtained from Nancy E. Mitchell, Selected Studies Program, Arts and Industries Building 1190A, Smithsonian Institution, Washington, DD 20560, or call 357-2475.

★ S T A R D U S T

WASHINGTON, D. C.



Published eleven times yearly by NATIONAL CAPITAL ASTRONOMERS, a non-profit public-service corporation for promotion of astronomy and related sciences. President, Daniel G. Lewis. Editor, Robert H. McCracken. Lecture reviews, James K. Crowley, John B. Lohman, Mark M. Trueblood. IAU Excerpts, Robert N. Bolster. Deadline 15th of each month. For information or to submit material for publication, Robert H. McCracken, 5120 Newport Avenue, Bethesda, Maryland 20816. (301) 229-8321

FIRST CLASS