



HANEL OFFERS VOYAGER-2 SATURN SCIENCE UPDATE



DR. HANEL

Dr. Rudolph A. Hanel, Goddard Space Flight Center, will bring to National Capital Astronomers an account of the latest results of Voyager 2 Saturn data at the 6 March meeting.

He will survey the major results of the television camera and infrared experiments, and discuss the latest thinking about Titan and other satellites, and the ring system.

Dr. Hanel is a senior scientist at Goddard working on remote sensing for planetary probes and satellites. He has been Principal Investigator for infrared system experiments on Voyager, Mariner, and several satellite programs, including those of the Tiros and Nimbus series.

Dr. Hanel received his Ph.D. in 1953 from the Technical University in Vienna, Austria.

On past occasions Dr. Hanel has spoken to NCA on Voyager-Jupiter and Mars Mariner 9.

MARCH CALENDAR — *The public is welcome.*

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

Friday, March 5, 12, 19, 26, 7:30 PM — Telescope-making classes at American University, McKinley Hall basement. Information: Jerry Schnall, 362-8872.

Friday, March 5, 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, March 6, 6:15 PM — Dinner with the speaker at the Thai Room II, 527 13th Street, NW. Reservations unnecessary.

Saturday, March 6, 8:15 PM — NCA monthly meeting at the Department of Commerce Auditorium, 14th and E Streets, NW. Dr. Hanel will speak.

Saturday, March 20, 8:00 PM — Discussion group on Halley's Comet with Ruth Freitag at the Department of Commerce, 14th and E Streets, NW.

OTHER MEETINGS OF INTEREST

The second Neighborhood Astronomers Meeting will be held on Thursday, 25 March in the main auditorium of the Johns Hopkins Applied Physics Laboratory in Laurel, Maryland. Papers will include radio, optical, I-R observations of galaxies, Saturn's ring spokes, new astronomical constants and ephemerides, radio astrometry, and U-V spectroscopy of quasars. Following registration at 9:00 AM and the day's presentations will be a reception at 5:30 PM. For information call Dr. M.R. Kundu, University of Maryland, 454-3001.

The U.S. Naval Observatory colloquium on Thursday, March 4, at 2:00 PM in room 300, Building 52, will hear Dr. Robert E. Hardie on Pluto Revisited. Coffee and tea will follow the meeting. Enter at 34th Street and Massachusetts Avenue, NW. The guard will require identification and provide directions. For information call 254-4540.

FEBRUARY LECTURE

The February 6 meeting of National Capital Astronomers heard a panel of five prominent archaeoastronomers discuss their work. Presiding was Dr. LeRoy E. Doggett of the U. S. Naval Observatory. The other panel members were Dr. John Carlson, founder of the Center for Archaeoastronomy at the University of Maryland, Von Del Chamberlain, author and lecturer in archaeo-astronomy at the National Air and Space Museum, Dr. Ray Williamson, Office of Technology Assessment, U. S. Congress, explorer and author, and Dr. Gerald S. Hawkins, decoder of Stonehenge.

Dr. Doggett introduced the panel members and set forth the program format: presentation of two examples followed by a discussion, first by the panel, then including the audience.

Starting the program with two 15-minute presentations, Drs. Hawkins and Williamson briefly described Stonehenge in England and Casa Rinconada in Chaco Canyon in New Mexico. These were the works of two cultures on two continents separated by 2,000 years and 5,000 miles.

Hawkins' slides, particularly his aerial views, strongly suggest the nature of Stonehenge — rather more evident to astronomers than to archaeologists! His surveys show leveling of the stone tops to within 0.1 foot on unlevel ground. He suggests that they may have used gigantic water troughs to accomplish such accuracy.

Archaeologists have estimated that Stonehenge was first built about 2700 BC. Hawkins described the subsequent additions and refinements that were added until about 1800 BC, and explained their astronomical significance in determining the summer and winter solsticé sunrise and sunset and the equinox, as well as the significant lunar positions over the 18.614-year metonic cycle.

Without his illustrations it is not feasible to describe in detail all of the many alignments with which Hawkins fascinated his audience. He has covered them amply in his book, *Stonehenge Decoded*.

Dr. Williamson described Casa Rinconada, an early American Indian structure in northwestern New Mexico. It is the largest of the grand kivas in Chaco Canyon. Primarily a religious structure, it apparently was located to facilitate its incidental astronomical functions.

The kiva is accurately circular, 60 feet in diameter and 12 feet deep. Strict symmetry about the four cardinal directions was observed in its construction. North and south doors, a firepit, stairway, and a rectangle of four posts are centered on the north-south bisector. evenly spaced around the wall are 28 niches, 14 on each side, and six larger niches lower on the wall. Through a single window, not centered, in the northeast side, the summer solstice sunrise falls on one of the larger niches on the other side. The kiva is positioned so that the equinoctial sunrise casts a shadow across the kiva from a terrain feature.

Following these presentations, Doggett introduced the discussion with an ethnographic problem: We have no recourse to the decedents of the builders of Stonehenge regarding their astronomical practices. Both of the examples (and many others) show astronomical orientations. What can be deduced about these cultures from the common features of their works? Much is known, however, of the early American Indian culture, which Chamberlain has studied extensively. Carlson has also studied the Mayan culture.

Chamberlain described and illustrated with slides numerous petrographic astronomical records left by early American Indians. Carlson discussed the interrelation of the ceremonial and practical aspects of Mayan astronomy.

The panel noted common features of ancient ceremonial structures; cardinal alignments and symmetry were often observed. An occasional violation — an asymmetrical marker or window — is a clue to an astronomical alignment of either ceremonial or practical significance.

Audience questions euded further elaborations on the cultures and astronomical practices of these people of long ago.

OCCULTATION EXPEDITIONS PLANNED

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

Date	UT Time	Place	Vis Mag	Pent Sunlit	Cusp Angle	Min Aper
03-02-82	23:54	Wilmington, NC	6.8	51	8S	5 cm
03-03-82	01:35	Warsaw, NC	5.1	51	4S	5 cm
03-03-82	02:38	Rocky Mount, NC	6.2	51	1N	5 cm
03-04-82	00:07	Hyattstown, MD	8.8	62	7S	20 cm
03-04-82	03:21	Dale City, VA	8.2	63	1N	13 cm
03-18-82	08:39	Rawlings, VA	7.1	43	14S	5 cm
03-18-82	11:08	Ladysmith, VA	8.0	43	8S	10 cm
03-21-82	10:26	Red Bud, IL	4.9	17	11S	5 cm
03-31-82	02:02	Hopkinton, RI	3.0	37	1N	3 cm

TREASURER'S REPORT FOR SIX MONTHS ENDING 31 DECEMBER 1981

Income		Expenses	
Dues	\$3,789.50	Sky & Tel	\$1,640.00
Tel Mkg Classes	66.00	Str Dst Prntg, Pstg	501.86
Obsrs Hdbks	128.25	Obsrs Hdbks	144.35
		Admin & Spkrs Dinners	234.21
	<u>\$3,983.75</u>		<u>\$2,520.42</u>
Bal 15 Jul 81:	\$2,521.57	Increase:	\$1,463.33
		Bal 31 Dec 81:	\$3,984.90

Thanks to Leith Holloway for \$25 contribution not included this period.

Ruth S. Freitag, Treasurer

VOLUNTEERS REQUESTED FOR VIRGINIA PARK PROGRAMS

Volunteers with telescopes are needed for two public programs on 28 March and 25 April at 7:30 PM, both Sunday evenings, at Huntley Meadows Park.

The park is 3.5 miles south of the Beltway at Telegraph Road and Kings Highway.

If you would like to participate in this enjoyable public service, call Dr. John Lohman at 820-4194.

NEW MEMBERS WELCOMED

Capt. Dick Collins
7025 Coventry Road
Alexandria, VA 22306

Margie Darroch
4508 Salem Lane, NW
Washington, DC 20007

Dr. Roque Garcia-Frias
418 Echols Street
Vienna, VA 22180

Norton Goodwin
Box 298
Damascus, MD 20872

Finnegan March
1906 16th Street, NW
Washington, DC 20009

Blanch L. Windham, 1003
4400 East-West Highway
Bethesda, MD 20814

Add Collins, Goodwin, and Marsh to your new directory.

TELESCOPE-MAKING CLASS ACTIVITY REPORTED

Jerry Schnall reports that in the telescope-making classes at American University and Chevy Chase Community Center about 10 mirrors are in various stages of work. These include 4.25-, 6-, 8-, 10-, and 12.5-inch sizes.

For Many years Jerry has held these classes, preceded since 1937 by the founder of NCA, Steven Nagy, Bob McClellan, Irene Warthen, Hoy Walls, Bill Isherwood, Grady Whitney, and Margaret and Ted Noble.

EXCERPTS FROM THE IAU CIRCULARS

1. January -- S. P. Synnott, Jet Propulsion Laboratory, discovered more satellites of Saturn on Voyager 2 images. Objects 1981 S 10 and 11 were probably the same satellite, having a diameter of 15 km. Object 1981 S 12, 10 km in diameter, has an orbital radius nearly equal to that of Mimas.

2. January 11 -- Piironen and Jantunen, University of Oulu, observed a possible 0.6-s occultation of SAO 042418 by (344) Desiderata with a photoelectric photometer on the 40-cm telescope at the Aarne Karjalainen Observatory.

3. January 27 -- M. Honda, Kurashiki, Japan, discovered a nova (Nova Aquilae 1982) of 7th magnitude.

4. February 5 -- Marc Hartley, U.K. Schmidt Telescope Unit, Siding Spring, Australia, discovered two comets (1982b and c) of 14th and 17th magnitude in Virgo with the 1.2-m Schmidt telescope. Orbital computations by Sekanina and Marsden indicate that they are short-period comets, formed by the breakup of a single body 5 years ago.

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.

Resistration 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.

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★ S T A R D U S T



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FIRST CLASS