★ STAR DUST

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CORBIN TO DISCUSS TRANSIT CIRCLE PROGRESS

DR. CORBIN

Dr. Thomas E. Corbin of the U. S. Naval Observatory Transit Circle Division will speak at the November 1 meeting of National Capital Astronomers. He will describe the Observatory's work in transit-circle astrometry.

The transit circle, for many years a fundamental astrometric instrument, is still one of primary importance to modern astronomy.

Dr. Corbin will discuss current work in the establishment of the FK5, a new fundamental catalog. The FK5 will serve as the basis for three other large projects currently underway: the establishment of an international reference system, an improvement of the AGK3 photographic system and a discussion of the Astrographic Catalog on a modern reference system. The work on these projects and their relationship to one another will also be described. Current applications of stellar positions and motions to such problems as the unresolved perturbations of Uranus and Neptune and the distance modulus of the Hyades require the completion of the above projects. Finally, some recent developments in astrometric instrumentation, including astrometric satellites, will be mentioned.

Dr. Corbin received his BA in astronomy from Harvard in 1962, an MA in astronomy from Georgetown in 1969, and the PhD from the University of Virginia in 1977. He has worked for the Naval Observatory since 1964, including two years in Argentina for the Southern Reference Star Program. His main responsibility is to produce the system of the International Reference Stars.

He is a contributor to the FK5, and is currently working on a fundamental catalog that will appear in the 1990's. He has organized an international effort to make the whole of the Astrographic Catalog available in machine-readable form, and will use his system of reference stars to reduce the AC zones to the current fundamental system as they become available. He is also working on nightly reductions of the observations made at Greenwich of the Sun, moon, planets, and minor planets for the period 1830-1940.

NOVEMBER CALENDAR – *The public is welcome.*

Tuesday, November 3, 10, 17, 24, 7:30 PM – Telescope-making classes at the Chevy Chase Community Center, Connecticut Avenue and McKinley Street, NW. Information: Jerry Schnall, 362-8872.

Friday, November 6, 13, 20, 7:30 PM – Telescope-making classes at American University, McKinley Hall basement. Information: Jerry Schnall, 362-8872.

Saturday, November 7, 6:15 PM – Dinner with the speaker at the Thai Room II, 527 13th Street, NW. Reservations unnecessary.

Saturday, November 7, 8:15 PM – NCA monthly meeting at the Department of Commerce Auditorium, 14th and E Streets, NW. Dr. Corbin will speak.

Friday, November 20, 27, 8:00 PM – Use the 14-inch NCA 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.

OCTOBER LECTURE

Dr. Robert Suding, Chief Scientist for GTE-SNP, Tyson's Corner, spoke at the October meeting of National Capital Astronomers.

A microprocessor control specialist, Dr. Suding discussed a number of applications of microprocessors to the automation and control of observatory functions.

To demonstrate these applications, Dr. Suding built a small observatory housing an 18-inch reflector at his home in Reston, Virginia. From his basement he can control the various motions, find and identify guide stars, set the telescope to desired objects, and view the field by television.

He described three possible modes of control available to the operator, the selection being mainly one of convenience: Keyboard input, graphics table, and automatic voice recognition. Commands, coordinates, and other necessary information may be typed and the responses monitored by video. A finder chart may be placed on the graphics table and calibrated by touching the stylus to two known points on the chart. Commands are input by touching the stylus to the appropriate boxes marked on a portion of the table set aside for the purpose, for example, "roll off roof." Alternatively, a stored library of objects with their coordinates may be selected by touching the stylus successively to the alphanumeric characters identifying the object, or, if the object is not in the stored list, to the coordinates of the position desired.

Suding does not use shaft encoders to establish the absolute axis positions. Instead, he drives the polar axis synchronously in the usual way, and applies corrections with a stepping motor through a differential. He also drives the declination axis with a stepper. This approach requires a known starting or reference position to which the corrections can be added. For this purpose, he uses a zoom finder, the wide field encompassing a sufficient area to identify or locate objects of interest. Centering a known position and narrowing the zoom field, he then enters the coordinates of the telescope and adds the desired corrections. From then on, the coordinates and corrections are stored, thus keeping track of the position until the system is again closed down.

The operation is monitored by video and the computer reads out the time remaining until the telescope will be positioned in the desired coordinates.

When his speech-recognition system is completed, Suding plans to have the computer accept commands spoken in certain key words, execute the commands, and report the positions by synthesized speech.

The talk was an interesting summary of Suding's approaches to observatory automation.

Suding's very considerable ability, talent, and broad experience are mainly in the design of microprocessor control systems. He professes no deep interest in astronomy other than enjoyment, which he freely shares with guests at his observatory. rhm

EXTREMELY HOT PLASMA DISCOVERED BY VOYAGER 2

Data from the Low-Energy Charged-Particle Experiment shows a toroidal plasma at over a half-billion Kelvin orbiting Saturn at altitudes ranging from 275 to 725 megameters. The temperature is 300 times that of the solar corona and twice that of the Jupiter plasma discovered by the same instrument in 1979. Density of the plasma is about 10^3 m^{-3}.

The discovery was announced at a Johns Hopkins Applied Physics Laboratory colloquium by Dr. S. M. Krimigis, Chief Scientist of the APL Space Department, and Principal Investigator of the Charged-Particle Experiment.

Krimigis addressed National Capital Astronomers in September 1979 on the Jovian magnetosphere.

OCCULTATION EXPEDITIONS PLANNED

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

UT Date	Time	Place	Vis Mag	Pcnt Sunlit	Cusp Angle	Min Aper
LUNAR:						
11-07-81	05:28	Fredericksbg,VA	5.9	71	2S	5 cm
11-14-81	03:18	VA Beach	6.1	92	18N	8 cm
11-16-81	05:56	Hyattstown, MD	7.5	75	11N	15 cm
11-21-81	10:26	Burtonsville, MD	8.2	22	1N	8 cm
11-29-81	22:51	Beltsville, MD	8.7	9	3S	15 cm
PLANETARY AND ASTEROIDAL:						
11-09-81	11:05	E. U.S.A.	9.1	Mercury, duration 99 seconds		
11-17-81	15:38	Berbera, Somalia	8.2	Venus, duration 11 minutes		
11-22-81	05:28	E. U.S.A.	9.7	(386) Siegena, dm=2.2		10 cm
11-28-81	22:35	Appulse. Miss: 0.6sec N	9.4	(624) Hektor, dm=6.0		25 cm

NCA WELCOMES NEW MEMBERS

Robert R. Bergseth
7314 Dartford Drive, Apt 1
McLean, VA 22101

Mr. & Mrs. Conrad J. Clark
5513 N. 9th Road
Arlington, VA 22205

Paula D. Fischer
504 Castleford Street
Rockville, MD 20851

A. K. Forney
1703 Russell Road
Alexandria, VA 22301

George L. Smyth
3017 Sylvan Drive
Falls Church, VA 22042

Capt. & Mrs. Charles Linn
7820 Attleboro Drive
Springfield, VA 22153

Charles G. Reddan, Apt 118
11667 North Shore Drive
Reston, VA 22090

Mr. & Mrs. Charles Rider
5633 Glenwood Drive
Alexandria, VA 22310

David J. Rudolph & Family
4521 Bennion Road
Silver Spring, MD 20906

Mr. & Mrs. Virgil Thurlow
Route 1, Box 31-E
Marshall, VA 22115

U. S. NAVAL OBSERVATORY COLLOQUIA SCHEDULED

On Thursday, November 5, Charles Withington, Agency for International Development, will speak on "Use of Landsat Imagery in Lesser Developed Countries."

On Thursday, November 19, Conrad Dahn, Flagstaff, Arizona station of the U. S. Naval Observatory, will speak on "New Directions in the Parallax Program."

The colloquia are held in Building 52, Room 300, at 3:30 PM. Coffee and tea will be served at 2:40 PM in the Building 52 foyer.

NCA members are welcome. Enter the Observatory grounds through the gate at Massachusetts Avenue and 34th Street, NW, where the guard will require some form of identification and will provide you with directions. Parking is available behind Building 52.

EXCERPTS FROM THE IAU CIRCULARS

1. 1979 August 30 — Howard, Koomen, and Michels, Naval Research Laboratory, discovered a probable sungrazing comet on exposures obtained by the coronagraph on spacecraft P78-1. The orbit is indeterminate, and it is possible that the comet struck the Sun.

2. September 6 — P. Stattmayer, Herrsching, Germany, discovered a comet of 13th magnitude in Triangulum. He obtained two photographs of the object with a 30-cm F/6 reflector. There was no confirmation by other observers, who were hampered by the waxing Moon.

3. September 30 — M. Wischnjewsky, University of Chile, discovered a nova in the Large Magellanic Cloud on an exposure made by L. E. Gonzalez with the Maksutov telescope at Cerro El Roble. Spectral data from the European Southern Observatory indicate that the nova, at 12th magnitude when discovered, might have been of 8th magnitude in mid-September.

FOR SALE

Telescope — 12.5-inch reflector on massive observatory mount with 3-inch diameter shaft. Customized by Oscar Magnusson, Colorado. Designed for both photographic and visual use. Clock drive and manual declination control. Eyepieces include wide-field Erfle and zoom. Best offer. Sidney Kastner, 123 Northway, Greenbelt, MD 20770. H: 474-7129.

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FIRST CLASS