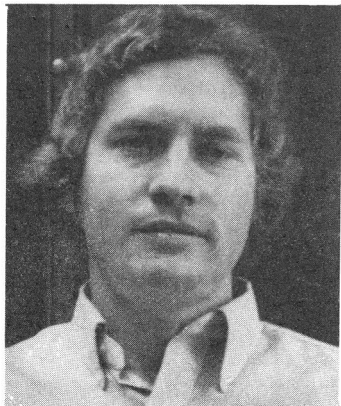




## HECKMAN: RECENT WORK ON LOW-REDSHIFT QUASARS



DR. HECKMAN

Dr. Timothy M. Heckman, Astronomy Program, University of Maryland and Department of Physics, Johns Hopkins University, will report recent work by himself and others on the nature of quasars at the December 1 meeting of National Capital Astronomers.

Of the entire menagerie of exotic objects discovered by astronomers, probably the most interesting and mysterious are the quasi-stellar objects (quasars). Dr. Heckman's talk will address three fundamental questions: 1) Are quasars the highly luminous active nuclei of distant galaxies? 2) How is the quasar phenomenon triggered? 3) why do some (but not most) quasars produce very powerful regions of radio-emitting plasma?

Using an improved arsenal of modern astronomical technology at both visual and radio wavelengths, Heckman *et al* have uncovered evidence suggesting that the answers to the three questions are: 1) Yes; 2) By interaction

with neighboring galaxies; 3) Only a quasar whose host galaxy is of the giant elliptical type can produce powerful radio emission.

Timothy M. Heckman received a B.A. in astronomy from Harvard in 1973 and his Ph.D in astronomy from the University of Washington in 1978. He was a post-doctoral research fellow at Leiden University and the Steward Observatory where he was the Bart Bok Fellow. In 1981 he joined the faculty of the Astronomy Program of the University of Maryland as an assistant professor. During the 1984-85 academic year he is a visiting professor at the Johns Hopkins University in the Department of Physics and Astronomy. During 1984 he was awarded an Alfred B. Sloan Foundation Fellowship. He has been married to Joan Orsini since 1978.

DECEMBER CALENDAR -- *The public is welcome.*

Saturday, December 1, 6:00 pm -- Dinner with the speaker at the Ding-How Restaurant, 1221 E Street, NW. Reservations unnecessary.

Saturday, December 1, 8:15 pm -- NCA monthly meeting at the U.S. Department of Commerce Auditorium, 14th and E Streets, NW. Dr. Heckman speaks.

Tuesday, December 4, 11, 18, 7:30 pm -- Telescope-making classes at Chevy Chase Community Center, Connecticut Avenue and McKinley Street, NW. Information: Jerry Schnall, 362-8872.

Friday, December 7, 14, 21, 28, 7:30 pm -- Telescope-making classes at American University, McKinley Hall basement. Information: Jerry Schnall.

Friday, December 14, 21, 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, 15 December, 8:00 pm -- Discussion group at the Department of Commerce, Conference Room D. Topic to be announced.

HAVE YOU CONSIDERED A GIFT MEMBERSHIP IN NCA?

## NOVEMBER LECTURE

At the November meeting of National Capital Astronomers, Drs. David and Joan Dunham of NCA discussed the ongoing solar photosphere-radius measurement program and presented reductions of the 30 May 1984 NCA solar eclipse expedition data.

The Sun's diameter is measured during a total eclipse by finding the geographic limits of the band of totality. More recently, timings of Baily's beads during annular eclipses have been used. These measurements have the advantage that the phenomena occur outside the atmosphere, thus are unaffected by atmospheric refraction and turbulence errors; high accuracy can result.

It was proposed in 1979 that the Sun is shrinking at a rather large rate. The recent measurements disprove this shrinkage, but smaller fluctuations in the Sun's diameter are seen.

Techniques used include timed still-camera photographs; these are unsatisfactory except as an adjunct to other methods. Exposure times can be a problem with timed motion pictures. Visual observations at the band limits with recorded, timed voice comments have some correlative value, but there are too many events for observers to keep up with. Frame-timed video records of projected images or of direct exposures work, but focusing difficulties, blooming, and filter imperfections sometimes are problems.

Results from solar-eclipse observations were summarized, and are tabulated below. Solar radii and lunar ecliptic longitudes and latitudes are listed as corrections in seconds of arc.

DATE	ECLIPSE TYPE	No. OBS.	CORRECTION TO:		
			SOLAR RADIUS	LUNAR ECLIPTIC LONGITUDE	LATITUDE
1715 MAY 3	TOTAL	3	+".48 ±".2		
1925 JAN. 24	TOTAL	8	+".51 ±".08		
1976 OCT. 23	TOTAL	43	+".04 ±".07	+".65 ±".10	-.45 ±".09
1979 FEB. 26	TOTAL	47	-.11 ±".05	+".52 ±".09	+".25 ±".05
1980 FEB. 16	TOTAL	232	-.03 ±".03	+".32 ±".03	+".07 ±".04
1981 FEB. 4	ANNULAR	153	-.02 ±".03	+".02 ±".05	-.02 ±".04
1983 JUNE 11	TOTAL	201	+".09 ±".02	+".65 ±".03	-.19 ±".02
1984 MAY 30	BROKEN ANN.	51	+".23 ±".04	+1".01 ±".05	-.47 ±".06

The predicted profile of the Moon during the 1984 May 30 solar eclipse was shown. At the 1715 and 1925 eclipses the edges of the totality band were measured; the north and south boundary observations for the 1715, 1925, 1976, 1979, 1980, 1981, 1983, and 1984 are critical. The Moon is found to be ahead of its predicted position relative to the Sun.

Slides, motion pictures, and video recordings from some recent eclipse expeditions completed the presentation. Questions, answers, and discussion followed.

John B. Lohman

## NASA GODDARD SPACE FLIGHT CENTER COLLOQUIUM SCHEDULED

On Friday, November 30, Frederick K. Lamb, Department of Physics, University of Illinois, will speak on probing neutron stars. On Friday, December 7, Robert H. Eather, Department of Physics, Boston College, will discuss aurora.

The colloquia are held at 3:30 pm in the Building 3 Auditorium. Coffee and tea are served in the lobby from 3:00.

Visitors must stop at the main gate (not the Visitors' Center) for an automobile pass. Parking is permitted in unreserved spaces.

## 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	Pent	Cusp	Min	
Date	Time	Mag	Sunlit	Angle	Aper	
12-17-84	10:22	Manassas, VA	9.3	29	13S	20 cm
12-18-84	11:01	Tippett, MD	8.0	19	15S	15 cm
Asteroidal:		Star Mag	Delta Mag	Name		
12-16-84	04:26	New England	11.7	0.1* (6)	Hebe	20 cm
12-17-84	01:01	Canada	8.9	4.0 (161)	Athor	5 cm
12-22-84	03:56	Mid-Atl States	11.5	0.3* (747)	Winchester	20 cm
12-23-84	02:31	Mid-Atl States	12.9	0.1* (747)	Winchester	35 cm
12-26-84	00:08	Georgia?	9.3	1.3 (747)	Winchester	10 cm

\* Photometric event

## NCA WELCOMES NEW MEMBERS

Robert O. Ballance  
3804 Dalebrook Road  
Dumphries, VA 22026

Patrick H Dwyer  
PO Box 1028  
Germantown, MD 20874

Linda C. Holm  
606 Rose Avenue  
Blacksburg, VA 24060

Fred S. Long  
5309 Bangor Drive  
Kensington, MD 20895

Catherine S O'Leary Family  
3744 Oliver Street, NW  
Washington, DC 20015

Charles W. Phillips  
2 Burkett Court  
Silver Spring, MD 20910

## 1985L OBSERVER'S HANDBOOK NOW AVAILABLE

The 1985 *Observer's Handbook* of the Royal Astronomical Society of Canada can now be picked up from the NCA Treasurer, Ruth Freitag, at our discount price of \$5.75, or, if mailed, \$6.50.

This popular little book is loaded with a wide variety of astronomical information, charts, tables, month-by-month descriptions of the sky, finding lists, ephemerides of the Sun, Moon, planets, and asteroids, sections on meteors and comets, lists of brightest stars, nearest stars, multiple stars, variable stars, galaxies, nebulae, sky maps, pronunciations, and much tutorial information.

Do you still want to be without one for only \$5.75? See Ruth at the December meeting for your copy, or send \$6.50 to Ruth S. Freitag, 1300 Army-Navy Drive, #806, Arlington, VA 22202, to have one mailed to you.

## CLARK REFRACTOR IS YOURS -- USE IT!

Have you checked out on the NCA's Alvan Clark refractor at the Naval Observatory? To arrange for your checkout to get your key pass, with great privileges, call NCA: 320-3621. It's your telescope--use it.

## AIR-SPACE MUSEUM INTRODUCES YOUTHS TO TELESCOPE MAKING

Geoffrey Chester, President, National Capital Astronomers and Production Coordinator of the Einstein Planetarium, NASM, will conduct a two-hour workshop for youths of 9 to 13 years on telescope construction and the history of the craft, on Saturday, December 8, at 10:00 a.m. He will dissect his own 8-inch reflector to illustrate.

The fee for Young Smithsonian Associates is \$6.00; for nonmembers. \$8.00. The program will be held in the Einstein Planetarium.

## NASM SKY LECTURE TO FEATURE CHRISTMAS STAR, H-ALPHA SUN VIEWING

In keeping with planetarium tradition, Geoffrey Chester will present "Was there a Christmas Star?" in the Einstein Planetarium of the National Air and Space Museum, at 10:00 a.m. on Saturday, December 15.

Following the program, weather permitting, he and Stan Cawelti will offer telescopic hydrogen-alpha viewing of the Sun on the deck east of the building.

Future Monthly Sky Lectures will be held at 10:00 a.m. instead of 9:00 a.m. as in the past.

## EXCERPTS FROM THE IAU CIRCULARS

1. September 16 -- C. Herold observed a 1.8-second occultation of SAO 146599 by (47) Aglaga from near Mt. Enterprise, TX. A brief secondary occultation was seen 0.7 second later. P. Maley, 8 km away, saw no occultation.

2. October 23 -- C. and E. Shoemaker discovered another comet (1984r) of 16th magnitude in Taurus with the 46-cm Palomar Schmidt. The comet was moving almost along the ecliptic, making the orbit nearly indeterminate. S. Nakano in early November reported determining an orbit with an inclination of 179.2 degrees and an October 14 perihelion at a distance of 5.5 au.

3. October 25 -- C. and E. Shoemaker discovered a third comet (1984s) of 12th magnitude in Aries, again with the 46-cm Schmidt. S. Nakano reported determining a perihelion date and distance of January 4 and 1.21 au.

4. November 14, 15 -- D.H. Levy, Tucson, AZ, and M. Rudenko, Amherst, MA, discovered a comet (1984t) of 9th magnitude in Aquila. Levy used a 40-cm F/5 reflector; Rudenko, a 15-cm refractor at 30x. Comet Levy-Rudenko is reported to be diffuse

Robert N. Bolster

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★ S T A R D U S T

WASHINGTON, D. C.



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