

SEE HALLEY WITH NATIONAL CAPITAL ASTRONOMERS! OR WAIT UNTIL 2061!

NCA offers the following tours to the Southern Hemisphere for the best of Halley's Comet. All tours include deluxe and best available hotels, major airlines, all airfares, transfers, portorage of two average suitcases, all hotel, restaurant, and driver tips, and most meals. Many interesting features are included in addition to especially selected dark sites along the itinerary for observation of Halley's Comet and study of the southern sky, for a truly memorable, educational vacation experience. Bring plenty of film! These tours are offered in conjunction with one of the most experienced and thorough astronomical tour operators.

HALLEY TOUR A - 18 days, March 28 - April 14. Rio de Janeiro, Brazil, Iguassu Falls - both sides, Buenos Aires, Argentina, Santiago and La Serena, Chile, Lima, Cuzco, Machu Picchu, Peru. \$3240 from Miami, double occupancy. Single supplement, \$600.

Highlights - Gala welcome reception and dinner in Rio, southern sky studies with astronomers at several especially selected dark sites along the itinerary, expert guides, cable car to top of Sugar Loaf in Rio, comet observation at National Observatory at Valongo by invitation of the Director, private yacht cruise on Rio Harbor, barbecue lunch on island off Rio, excursion to 120-foot statue of Christ on Corcovado Mountain with 360-degree view, time for Copacabana Beach and shopping, exploration of both Brazillian and Argentine sides of Iguassu Falls, 275 cataracts higher and larger than either Niagara or Africa's Victoria Falls, including "Devil's Throat," tour of Buenos Aires including cultural, historical, and aesthetic interests, introductory horseback or horse-drawn carriage tour of a working Argentine ranch including traditional cookout, tour of Santiago, Chile, dinner and colorful folk dances at a lively nightclub in Santiago, comet viewing at La Serena, visit to observatory and local tour, tours of colonial and contemporary Lima, Peru, visit to Museum of Anthropology and Archaeology, exploration of Inca ruins at Cuzco, high in the Andes, excursion to Machu Picchu, "Lost City of the Incas," farewell dinner and a chance to win a Bausch and Lomb model 4000 Telescope System!

Optional extentions - Quito, Ecuador, 2 days. \$275 double. Single supplement \$50. Galapagos Islands cruise (subject to availability and cabin), from \$570 double. Single supplement approx. \$300

HALLEY TOUR B - 10 days, April 4 - April 13. Chile only - Santiago and La Serena. \$1859 double from Miami. Single supplement \$75.

Highlights - Gala reception, dinner, and briefing in Santiago, lecture on comet photography, especially dark site at La Serena, Four pre-dawn comet observation sessions, hot beverages and snacks provided each session, sightseeing tour of Santiago, visit to 400-year-old hacienda-museum, performance of colorful folk dances, gala farewell reception and dinner, a signed copy of Robert T. Little's book, *Astrophotography - A Step-By-Step Approach*, a chance to win a Bausch and Lomb Model 4000 Telescope System.

Optional extension to Peru - Lima, Cuzco, Machu Picchu. Return April 17. \$710 double, single supplement \$100.

HALLEY TOUR C - 22 days, April 2 - April 24. Auckland, Waitomo, Rotorua, Queenstown, Mount Cook, Christchurch, New Zealand. Melbourne, Alice Springs, Ayers Rock, Cairns, Sydney, Australia. \$4023 double from West Coast. Single supplement \$600.

Highlights - New Zealand - Gala reception, dinner, and briefing in Auckland, Comprehensive sightseeing tours in all of the above cities, introduction to southern sky at Auckland Planetarium, visit with local astronomers at Auckland Observatory, visit Glowworm Grotto at Waitomo, geothermal region of geysers, boiling mud and Rainbow Springs at Rotorua, Maori *hangi* feast and concert, circumpolar comet viewing at Queenstown, flightseeing excursion to Milford Sound and launch cruise, dinner at Skyline Restaurant on Bob's Peak, reached by aerial gondola, comet viewing at Coronet Peak, cruise across Lake Wakatipu to visit Walter Peak Sheep Station, optional ski-plane flight up to the Tasman Glacier, visit Canterbury Astronomical Society and the West Nelson Observatory. Australia - visit Captain Cook's Cottage, the University, and Botanical Gardens, flight to Phillip Island, Kingston Park Zoo (time permitting) to see koalas, emus, and platypuses. In the Outback, Alice Springs and Ayers Rock. Lectures.

OCCULTATION EXPEDITIONS PLANNED

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

Date	Time	Place	Vis Mag	Pcnt Sunlit	Cusp Angle	Min Aper
09-10-85	07:54	Hermanville MD	8.3	23	14N	10 cm
09-11-85	08:12	Florence, NC	5.7	14	14N	5 cm
09-11-85	09:30	Oraville, MD	8.4	14	13N	10 cm
09-12-85	09:55	Glendale, MD	7.4	7	13N	5 cm
Asteroidal:			Star Mag	Delta Mag	Name	
09-01-85	04:53	Upper Midwest	8.9	2.0	(230) Athamantis	8cm
09-28-85	08:29	Northwest Canada	9.1	2.6	(105)Artemis	13 cm
Cometary:			Star Mag		Comet	
09-04-85	07:35	Quebec	6.1		Giacobini-Zinner	3 cm
09-06-85	01:47	Quebec	11.8		Giacobini-Zinner	10 cm
09-11-85	09:11	Ontario, NY, CT	10.7		Giacobini-Zinner	10 cm
09-13-85	07:17	Newfoundland	11.6		Giacobini-Zinner	20 cm
09-13-85	07:20	AR,MS,AL,GA,SC	10.2		Giacobini-Zinner	10 cm
09-20-85	06:14	New England	12.1		Comet Giacobini-Zinner	30 cm

NCA WELCOMES NEW MEMBERS

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506 Deerfield Ave.
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numerous comet observation sessions under clear, unpolluted sky, local tour of fascinating geography of the Outback, flight to Cairns, excursion to Port Douglas, cruise to Outer Barrier Reef for snorkeling to see marine life, rail-trip views of Coral Sea and Cairns, tour of Sydney, cruise of Sydney Harbor, Time for shopping for opals, etc., farewell reception, dinner and prize drawing for a Bausch and Lomb model 4000 Telescope System.

Optional extension to Figi and total lunar eclipse - 6 days. Nadi, Blue Lagoon, Lautoka. \$650 double. Single supplement \$475 (High cost because 3-day cruise single rate is almost 100 percent of share basis.)

Highlights - Three-day cruise from Nadi, spectacular southern Yasawa Islands, visit to friendly villages, swimming in clear blue waters, native entertainment at Nabukeru Village, visit to a Figian school, talk and discussion on total lunar eclipse, especially selected site for viewing total lunar eclipse.

RESERVATIONS - A prompt deposit of \$250 will hold your place on any of these super tours. The balance must be received before January 1, 1986. Make checks payable to NCA Travel and indicate on your check which tour you choose. A valid passport and the necessary visas will be required; we will provide you with information on this documentation and other conditions that apply. Consult your physician for his advice on inoculations, and on any problem you might have at high altitudes if you are going to Peru; Cuzco is at approximately 11,000 feet. **HALLEY-HO!!!**

EXCERPTS FROM THE IAU CIRCULARS

1. June 29 - Feldman and Marshall, Hertzberg Institute of Astrophysics, Ottawa, observed renewed radio flaring by UX Arietis, and RS CVn binary, at 10.6 MHz with the 46-m telescope at the Algonquin Radio Observatory.

2. July 23 - Klekociuk, McCulloch, and Hamilton, University of Tasmania, found that the period of Vela Pulsar PSR 0833-45, decreased suddenly about July 12.

3. August - RH McNaught, Siding Spring observatory, noted that a meteor stream associated with Comet Giacobini-Zinner might be observable during the Earth's October 8.55 passage through the plane of the comet's orbit. He predicts it may be visible as glows near the radiant and antiradiant.

4. July - Norris and Wood, Naval Research Laboratory, reported intermittent quasi-periodic oscillations of approximately 5 Hz in X-ray emission from Cyg X-2, in HEAO data from 1978 December. R.N. Bolster

CORRECTION

In the Summer Star Dust, the treasurer's report contains the following typing errors: Under Income - deposits for Green Bank trip should be 457.50. Expenses - refunds ... should be 465.50. Disregard the footnote. The totals are correct as shown.

These were editorial errors, and were not those of the treasurer.

FOR SALE

Sky & Telescope - Full set 1959-79. Good condition. Fifty cents per copy. Warren F. Adams, 905 Jackson Ave., Takoma Park, MD 20912, (301) 270-6709 before 30 September.

Celestron-8 Telescope System - with tripod, wedge, and accessories. Retail value in excess of \$2700. Best offer over \$1200. Glen Robinson (703) 594-2575.

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★ S T A R D U S T



Published eleven times yearly by NATIONAL CAPITAL ASTRONOMERS, INC., a non-profit, public-service corporation for promotion of astronomy and related sciences through lectures, expeditions, discussion groups, tours, classes, public programs, and publications. NCA is an affiliate of the Washington Academy of Sciences. President, Stanley G. Cawelti. *Star Dust* deadline 15th of preceding month. Information: (301) 320-3621. Material for publication: Robert H. McCracken, Editor, 5120 Newport Avenue, Bethesda, MD 20816.

FIRST CLASS

★ S T A R D U S T



Volume XLII

September 1985

Number 1

WOOD TO OFFER THEORY OF QUASI-PERIODIC X-RAY SOURCES



DR. WOOD

Dr. Kent S. Wood, U.S. Naval Research Laboratory, will discuss a new phenomenon, quasi-periodic oscillations (QPO) in X-ray sources, at the September 7 meeting of National Capital Astronomers.

QPO's have been discovered in the three brightest non-bursting X-ray galactic-bulge sources (Sco X-1, GX 5-1, and Cyg X-2). The power spectra of QPO's are characterized by a broad feature occurring between 5 and 50 Hz and excess noise at lower frequencies. The centroid frequency of the oscillations and width of the frequency peak are apparently correlated with the source intensity.

One current hypothesis is that the observed frequency is the beat frequency between the rotation frequency of a slightly magnetized neutron star and the orbital frequency at the Alfvén radius. Movement of the magnetospheric boundary in response to the pressure of accreting matter from a companion star results in changes in beat frequency with luminosity. If this theory is correct, the inferred pulsar rotation periods are a few milliseconds. These sources may then be the sought-after evolutionary link to the millisecond radio pulsars, although the predicted coherent oscillations arising from the underlying pulsars have not yet been detected in the QPO objects. Future observations of the details of QPO's using larger instruments should yield valuable information concerning neutron-star magnetospheric dynamics.

Kent S. Wood received the B.S. in physics from Stanford University in 1963, and his Ph.D in physics from M.I.T. in 1973. Since then he has been at NRL, where he is an astrophysicist. He joined the HEAO A-1 team in 1976, where he was in charge of scientific data reduction and analysis. The effort has led to publication of results on nearly 900 X-ray sources and transients. Since 1982 he has been Principal Investigator for the HEAO-1 Experiment. He currently serves on NASA's Pinhole/Occulter Facility Science Working Group, and is a guest observer on the Einstein Observatory, the VLA, and EXOSAT.

SEPTEMBER CALENDAR -- *The public is welcome.*

Tuesday, September 3, 10, 17, 24, 7:30 pm -- Telescope-making classes at Chevy Chase Community Center, Connecticut Avenue and McKinley Street, MW. Information: Jerry Schnall, 361-8872.

Friday, September 6, 13, 20, 27, 7:30 pm -- Telescope-making classes at American University, McKinley Hall basement. Information: Jerry Schnall, 361-8872.

Friday, September 6, 13, 20, 27, 8:30 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, September 7, 6:00 pm -- Dinner with the speaker at the Ding How Restaurant, 1221 E Street, NW. Reservations unnecessary.

Saturday, September 7, 8:15 pm -- NCA monthly meeting at the U.S. Department of Commerce Auditorium, 14th Street and Constitution Avenue, NW. Dr. Wood speaks.

Saturday, September 14, 8:30 pm -- *Exploring the Sky*, presented jointly by NCA and the National Park Service. Glover Road south of Military Road, NW, near Rock Creek Nature Center. Planetarium if cloudy. Information: Dr. John Lohman, 820-4194. Saturday, September 21, 8:00 pm -- Discussion group at the U.S. Department of Commerce, Conference Room D. Comet Photography, Both Simple and Advanced Techniques. Bob Bolster, 960-9126.