



CLARKE: METEORITES AND PLANETARY SYSTEMS



DR. CLARKE

Dr. Roy S. Clarke, Jr., Curator, Division of Meteorites, Smithsonian Institution, will address National Capital Astronomers at the 3 December meeting. He will survey the present state of knowledge derived from recent finds that tend to relate certain specimens with some of the planets.

Dr. Clarke received the B.A. in chemistry from Cornell University in 1949, the M.S. in chemistry from George Washington University in 1957, and his Ph.D. in geochemistry from George Washington University in 1976.

Before coming to the Smithsonian Institution in 1957, he worked as a chemist at the Department of Agriculture and the Geological Survey. He is a Fellow of the Meteoritical Society, the Mineralogical Society of America, and the American Association for the Advancement of

Science, and a member of the American Chemical Society, the Geochemical Society, the Geological Society of Washington, and Sigma Xi. He has authored and coauthored more than three dozen papers in domestic, foreign, and international journals.

DECEMBER CALENDAR — *The public is welcome.*

Friday, December 2, 9, 16, 23, 7:30 pm — Telescope-making classes at American University, McKinley Hall basement. Information: Jerry Schnall, 362-8872.

Friday, December 2, 16, 30, 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, December 3, 6:15 pm — Dinner with the speaker at the Thai Room II, 527 13th Street, NW. Reservations unnecessary

Saturday, December 3, 8:15 pm — NCA monthly meeting at the Department of Commerce Auditorium, 14th and E Streets, NW. Dr. Clarke will speak.

Tuesday, December 6, 13, 20, 7:30 pm — Telescope-making classes at Chevy Chase Community Center, Connecticut Avenue and McKinley Street, NW. Information: Jerry Schnall, 362-8872.

NOVEMBER LECTURE

The November meeting of National Capital Astronomers heard Dr. John C. Brandt, Chief of NASA Goddard Laboratory for Astronomy and Solar Physics, speak on the United States part in the international plans for observation of Comet Halley.

Brandt first reviewed some of the graphic representations of the comet's earlier passages from 684 AD. One of these, found in Padua, Italy, inspired the European Space Agency (ESA) to name its Comet Halley spacecraft for the artist, Giotto. A good rendition, not overly stylized, it depicts the Nativity scene with Comet Halley of 1301 above.

In the 16th century it was not commonly known in the West that comets' tails stream away from the Sun, although this was known by the Chinese, who long had made meticulous astronomical observations. Brandt showed a series of drawings of Comet Halley made in 1531, each of which showed the tail in proper position.

It is customary to name comets for their discoverers. Halley did not discover the comet; he was accorded the distinction in recognition of his 1682 observations and orbital calculations whereby he discovered that it was the same comet that had been seen at previous 76-year intervals.

Brandt showed Bessel's drawings of 1835, representing observations from which Bessel developed the theory of comet tails, published in 1836. His rigorous mathematical treatment is useful even now.

It was interesting to note, in a Lowell Observatory photograph of the 1910 appearance of the comet, that there were at that time four — only four — lights in Flagstaff!

On its present approach to a 1986 perihelion, Comet Halley was recovered on 16 October 1982 by E. Danielson, D. Jewett, *et al*, using a charge-coupled device at Palomar Observatory. At that time it was about 11 astronomical units (au) distant — more than a billion miles. Brandt pointed out that this may be the last time the comet will be recovered: Currently planned instrumentation should be capable of following it all the way around its orbit!

Brandt showed a computer-simulation film depicting the geometry of the international mission. With the Sun-Earth line held fixed, each spacecraft was shown issuing from the Earth along its trajectory to rendezvous with the comet. Others already in space that will be involved, some to be retargeted, also were shown. Among the latter, the International Sun-Earth Explorer 3 (ISEE 3) was seen to pass through the tail of Comet Giacobini-Zinner, as planned, on its way to Comet Halley. These trajectories were all seen as projected into the ecliptic plane. As Comet Halley moved into the scene, a coordinate change held the comet still while all the involved craft converged into their observing positions.

Brandt's work is with ISEE 3, which will have several alignments with the comet to examine solar-wind conditions to which the comet will be subjected.

The ISEE 3 was previously positioned in the Sun-Earth L1 libration point. Brandt is retargeting it to Comet Giacobini-Zinner on its way to Comet Halley.

At Comet Giacobini-Zinner it will examine the interaction of the solar wind with the comet (bow shock, current sheet, contact surface, etc.) After flying through the tail it will continue to a rendezvous with Comet Halley six months before any other craft. It will make the first *in-situ* measurements ever made of any comet. Some of the parameters to be measured are known only in theoretical models, not in reality.

A further plan, not yet approved, would use the Solar Maximum Mission (SMM) craft, launched years ago for the solar activity peak and now needing repair. The Space Shuttle would approach the SMM, an astronaut using a small maneuvering unit would fly, untethered, to the slowly rotating satellite, plug in a control device with which to stop the rotation, and tow the satellite back to the Shuttle. There, the corona polarimeter will be repaired in orbit, the bad fuses replaced, and the craft will be redeployed to serve not only the Comet Halley mission, but also to resume its fine solar work. The SMM will examine the comet during and near perihelion, where none of the other instruments can

OCCULTATION EXPEDITION PLANNED

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

UT Date	Time	Place	Vis Mag	Pcnt Sunlit	Cusp Angle	Min Aper
12-25-83	08:08	Scaggsville, MD	8.9	85	66	20 cm

OBSERVER'S HANDBOOKS AVAILABLE AT DECEMBER MEETING

The *Observer's Handbooks*, published by the Royal Astronomical Society of Canada, will be available from Ruth Freitag, Treasurer, at the December meeting for \$5.00, or by mail for \$5.75 from Ruth S. Freitag, 1300 Army-Navy Drive, Arlington, VA 22202.

NOMINATING COMMITTEE RECONVENED FOR SPECIAL ELECTION

Heavy business travel schedules have caused the resignation of two NCA officers: Trustee Wolfgang Schubert and Sergeant at arms Frank Baffa. The Nominating Committee, Nancy Hueper, Chair, Jerry Schnall, and Pat Trueblood, has been reconvened. Pursuant to the bylaws, a special election will be held at a time to be announced. Other nominations may be made by petition of 10 regular members in good standing, presented to the secretary prior to the meeting.

NCA WELCOMES NEW MEMBERS

Caroline A. Ball
4322 Sheridan Street
Hyattsville, MD 20782

Jennifer Bartlett
2757 Nelson Street
Arlington, VA 22207

Wayne R. Beers
1122 Pinehill Road
McLean, VA 22101

Allan Chen, #306
3701 Connecticut Avenue, NW
Washington, DC 20008

Bruce E. Copping
3543 Forestoak Avenue
Woodbridge, VA 22193

George R. Cornecelli Family
1600 Preston Road
Alexandria, VA 22302

Bruce B. Drury
9309 W. Parkhill Drive
Bethesda, MD 20814

Dr. Henning W. Leidecker
1313 Calder Road
McLean, VA 22101

Joy F. Melrose
17 Pine Street
Andrews AFB, MD 20335

because the Sun would destroy them; the SMM was designed to look at and near the Sun.

On 6 March 1986 Astro 1 is scheduled to be launched from the Shuttle, to which it will remain attached. Its instruments, originally designed for ultra-violet astronomy, are a spectrograph, ultraviolet imaging telescope, photometer, and polarimeter. Two visual wide-angle cameras were added for the comet mission.

Fortuitously positioned, Pioneer 7 will also be added to the observing team.

Other craft involved in the international effort include M5 and Planet A (Japanese), Venera 1 and 2 (USSR), and Giatto (ESA).

The International Halley Watch will be responsible for coordination of all missions, space and ground-based, including a world-wide network of volunteer observers to be organized, principally on islands in the South Atlantic, South Pacific, and Indian oceans. Island observers are needed to provide continuous coverage. Equipment, supplies, instructions and transportation will probably be provided to competent volunteers. *Star Dust* will plan to assist interested individuals as details become available.

R.H. McCracken

EXCERPTS FROM THE IAU CIRCULARS

1. October 7 — Z. Abraham and J. W. Vilas Boas, Instituto de Pesquisas Espaciais, Sao Paulo, found that the 8 km/s water-maser source in Orion had flared up, reaching the same level as the previous flare in 1980 April.

2. October 11 — S. Green, University of Leicester, reported the discovery by the Infrared Astronomy Satellite of a fast-moving object of 16th magnitude in Draco. Observations by Kowal showed that the object, designated 1983 TB, was asteroidal in appearance.

3. October 19 — Following further astrometric observations of 1983 TB by Skiff, Lowell Observatory, and Gibson, Palomar Observatory; C. H. Bardwell, Center for Astrophysics, determined that the object has a period of 1.49 years and a perihelion distance of 0.1376 au, possibly the smallest perihelion distance of any known minor planet. On October 28, with more positional data, Marsden calculated a perihelion distance of 0.13504 au.

4. October 25 — F. L. Whipple, Center for Astrophysics, noted that the orbital elements of 1983 TB were nearly coincident with those of 19 Geminid meteors that had been photographed with the super-Schmidt meteor cameras.

R. N. Bolster

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★ S T A R D U S T

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