★ STAR DUST

Volume XXX October 1973 Number 2

MARAN TO SPEAK ON COMET OBSERVATION PLANS

Stephen P. Maran of Goddard Space Flight Center will speak to NCA at the October 6 meeting, on NASA's plans for observation of Comet Kohoutek (1973f). Mr. Maran is manager of the NASA program, called "Operation Kohoutek."

OCTOBER CALENDAR

Monday, October 1, 8, 15, 22, 29, 7:30 PM — Telescope-making classes at the Chevy Chase Community Center, Connecticut Avenue and McKinley Street, NW. Information: Jerry Schnall, 362-8872.

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

Saturday, October 6, 6:15 PM — Dinner with the speaker at Bassin's Restaurant, 14th Street and Pennsylvania Avenue, NW. No reservations needed.

Saturday, October 6, 8:15 PM — NCA monthly meeting at the Department of Commerce Auditorium, 14th and E Streets, NW. Dr. Stephen Maran will speak on observing the coming Comet Kohoutek.

Saturday, October 20, 5:30 PM (rain date Sunday, Oct. 21) — Annual NCA picnic at Manassas Battlefield Park on Route 234, 1.7 miles north of Route 66, on left. Bring food, telescopes, and, if desired, grills.

Saturday, October 27, 7:30 PM — Exploring the Sky, presented jointly by NCA and the National Park Service. South of Military Road on Glover Road, NW, near the Rock Creek Nature Center. Planetarium program if cloudy. Information: Bob McCracken, 229-8321.

SEPTEMBER LECTURE

Dr. Richard Berendzen, in Washington on a sabbatical from Boston University, spoke to NCA on September 8 on perspectives in astronomy, 1973. He views this as the age of astronomy -- the 1500 professional astronomers in the United States divide a budget of several hundred million dollars.

With large-scale use of solar energy, the earth will become a "type 2 civilization," using renewable energy sources.

We know a great deal now about formation of the first life in a primitive atmosphere. Amino acids, for example, have been formed in laboratory models of planetary atmospheres. However, no sign of life beyond the earth has been detected, although chances for its existence are very good.

Our speaker reviewed the controversy aroused by the plaque carried on Pioneer 10 to Jupiter, and pointed out that the newly renovated 1000-foot Arecibo radio telescope is capable of communication with a similar system anywhere in the Milky Way Galaxy.

With the aid of instrumentation developed in the last few years, we are observing throughout the electromagnetic spectrum from gamma-ray to radio. The high energy astronomical observatory to fly in the 1980's should show us an ever more complicated universe.

During the long question period that followed, Berendzen and his audience discussed the 1roblem of Barnard's Star -- does it have planets? Interstellar dust -- what its polarization tells us -- was also considered.

SEPTEMBER DISCUSSION GROUP

Twenty-five people attended the September 15 informal NCA meeting at which participants at Stellafane and the June 30 total eclipse in Africa discussed their results.

Walter Farrar showed slides of Stellafane 1973 by Sidney Opie and of his own first-prize (mechanical) portable observatory containing a battery of telescopes. It was described in the September 1973 issue of *Star Dust*.

Grace Spitz showed particularly fine slides of wildlife in Kenya between Nairobe and her eclipse site at Marsabit and including scenes of Tanzania.

Jeff Hornseth and Darrel Freund, Jr. showed superb pictures and gave fascinating narration about their life aboard the *Canberra*, walking tours of islands and the African coast, and of the total eclipse itself.

Estelle Finkle and others showed varied scenes of Africa.

NOTES FROM MEMBERS

June LoGuirato notes that the revised edition of *A Catalogue of North American Planetariums*, by Norman Sperling, will be published in October. It is available from Mr. Frank Jettner, State University of New York at Albany, N. Y. 12222; price is $1.50.

She gives the following address for writing for the biweekly *Sky Lab Orbit Schedules*: National Aeronautics and Space Administration, Marshall Space Flight Center, Huntsville, Alabama 35812.

Eric Broody reports that the Rock Creek Nature Center Planetarium now has a meteor projector.

Estelle Finkle reports that Von Del Chamberlain from Michigan State University will head the Smithsonian Institution's planetarium now being designed.

Mrs. Winifred Cameron, who has spoken at NCA meetings several times, has proposed that lunar crater Taruntius C be renamed for her late husband, Dr. Robert C. Cameron. This is reported in *Minor Planet Circular 844*, notes June LoGuirato. In the early 1950's, Asteroid 1575 Winifred was named by the late Dr. Cameron for his future wife.

NOTES ON CURRENT RESEARCH

Two Cornell University engineers calculate that a vast, faint hydrogen-methane ring nearly four times the diameter of the sun exists undiscovered around Saturn. The ring is thought to consist of molecules which have escaped from Titan, the only solar system moon definitely known to have an atmosphere, but are trapped in Saturn's gravity field. More than 97 percent of the matter making up the ring is believed to return eventually to Titan's atmosphere. The ring should be detectable by ultraviolet observations from satellites. *EOS* (American Geophysical Union) 1973, page 684.

The August 1973 issue of *EOS* contains a well-written survey article on current problems and understanding of the aurora, and is highlighted by two features: three full-page, full-color photographs of major auroral types, and a detailed three-dimensional view of the earth's magnetic field regions.

GRIFFITH OBSERVATORY WRITING CONTEST

The Griffith Observatory is sponsoring its second annual Essay Contest for papers written for the general public on topics in astronomy and closely related fields. Prizes are: first, $500; second, $250; third, $100; fourth, $50. Deadline is January 1, 1974. For further information, see a recent edition of the *Griffith Observer*.

NEW FILM TEST YIELDS REVISED RECIPROCITY-FAILURE RATINGS

In a recent conversation with Bob McCracken, George Keene of Rochester, N. Y. gave the following rather surprising results of some recent tests he has made on the reciprocity failure of several color emulsions and two black-and-white types. In each case, an exposure of 1000 seconds was used at normal temperature with a system which produced an 8th-magnitude image to a speed point of 0.3 above minimum density on Ektachrome-X. Magnitudes producing the same density in each emulsion were: Kodachrome-X, 9; High-speed Ektachrome, 9; Kodacolor-X, 11; Tri-X, 13; 103a-O, 14. (103a-O is spectroscopic film designed for low reciprocity failure at long exposures). Previously, the lowest reciprocity failure among the color films of this group was displayed by Kodachrome-X. Perhaps slight changes made over the years by the manufacturer have resulted in the new long-exposure speeds.

In usual pictorial photography, for which these films were designed (with the exception of 103a-O), exposures of about 1/100 second are common. In general, with half as much light, an exposure of 1/50 second would yield the same density in the emulsion. Thus, time and light are reciprocally related. When the light conditions call for extremely different exposures, however, such as one ten-thousandth second, or, as in astronomy, perhaps one thousand seconds, it will be found that the film sensitivity seems reduced, so that disproportionately longer exposures will be required. Thus, the reciprocity relation fails. In astronomy and spectroscopy, the extremely low light levels make reciprocity failure a more important speed factor than the usual ASA rating of a film designed for normal pictorial photography.

The special spectroscopic films are often difficult to obtain, expensive, and supplied only in large minimum quantities. Moreover, they are highly perishable, and must be stored and shipped under refrigeration. Thus, it is a great advantage to know the more applicable characteristics of the films easily obtainable at "your friendly local camera store."

ABSTRACTS FROM THE IAU CIRCULARS

1. August 27 — E. Helin discovered another asteroidal object of 13th magnitude with the Palomar 46-cm Schmidt.

2. September 3 — P. Wild, Berne University, discovered a 15th-magnitude supernova in NGC 7495 in Pegasus.

3. September 4 — W. L. W. Sargent, Hale Observatories, discovered a 19th-magnitude supernova in NGC 7337, a high-redshift galaxy, also in Pegasus.

This listing courtesy Bob Bolster.

ADDRESS CHANGES

John K. Alexiou
13720 Middlevale Lane
Silver Spring, Maryland 20906

Arthur J. Brown, Apt. 819
3003 Van Ness Street, NW
Washington, D. C. 20008

Walter Farrar, Jr.
5700 Broadmoor Street
Alexandria, Virginia 22310

Mark S. Goldberg
9-E Parkway Road
Greenbelt, Maryland 20770

Christopher Harvel
1605 NW 4th Avenue, A
Gainesville,

Stanley Polombo
9608 Falls Bridge Lane
Potomac, Maryland 20854

Irene H. Warthen
26104 Mt. Vernon Avenue
Damascus, Maryland 20750

Thomas E. Wells
207 Laytonsville Road
Gaithersburg, Maryland 20760

James George Xidon, #1623
5850 Cameron Run Terrace
Alexandria, Virginia 22303

* STAR DUST * Published eleven times yearly by NATIONAL CAPITAL ASTRONOMERS, INC., a non-profit, public-service organization for the promotion of interest and education in astronomy and the related sciences. President: Dr. John A. Eisele, 3310 Curtis Drive, Apt. 202, Hillcrest Heights, Md. 20023 (423-1586) Vice President, Dr. Henning Leidecker; Treasurer-membership, Lawrence Terrasen Star Dust production, William Winkler and Robert McCracken. Deadline: 15th of each month