☆ STAR DUST

Volume XXX April 1974 Number 8

# INNER-CITY ASTRONOMY WITH A 26-INCH CLARK REFRACTOR

DR. HARRINGTON

Dr. Robert S. Harrington will discuss the U. S. Naval Observatory's photographic double star program at the April 6 meeting of NCA. The program has been in operation at the Observatory for approximately 15 years, primarily on the 26-inch refractor, as a complement to the visual double star program. Its objective is to obtain very precise relative positions of the components of wide binaries and multiple systems for use in orbit determinations (and thus mass determinations), to establish physical associations, and to look for perturbations due to unseen companions. The procedures are essentially those introduced by Hertzsprung, with improvements and modifications made possible by modern technology, increased computing capability, and more extensive data for analysis. Observing from a site located within a large city presents its own unique set of problems, and Dr. Harrington will show how the program is still carried out effectively from the present location of the Observatory in downtown Washington.

Robert S. Harrington was born in Newport News, Virginia, and in Virginia began his astronomical career as an active amateur. In 1964 he received his B. A. in physics from Swarthmore College, where he also received his introduction to observational astrometry, both by studying under Peter van de Kamp and by serving as a student night-assistant on the 24-inch refractor of Sproul Observatory for three years. He achieved a Ph. D. at the University of Texas in 1968 with his dissertation, "The Dynamical Evolution of Triple Star Systems."

Since 1967, he has been with the Astrometry and Astrophysics Division of the U. S. Naval Observatory. His primary responsibility now is the management of both the U. S. N. O. parallax program and the minor planet and comet observing program, but he continues with the double star work in data reduction and orbit computation. His chief research efforts remain in theoretical multiple star dynamics. When he is not looking through the skies over Washington, he may be in them, since he holds a private pilot's license.

## APRIL CALENDAR

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

Saturday, April 6, 6:15 PM — Dinner with the speaker at Bassin's Restaurant, 14th Street and Pennsylvania Avenue, NW. Reservations not required.

Saturday, April 6, 8:15 PM — NCA monthly meeting at the Department of Commerce Auditorium, 14th and E Streets, NW. Dr. Robert Harrington will speak on double star photography with the 26-inch Clark refractor.

*CALENDAR continued on page 30*

CALENDAR — *continued*

Saturday, April 20, 8:00 PM — Discussion group, room 2062, Department of Commerce, 14th and E Streets, NW. Sidney Opie will show slides of the 1973 solar eclipse in the Caribbean and the travels of the ship.

OTHER MEETINGS OF INTEREST

Wednesday, April 10, 8:00 PM — American Geophysical Union Public Lectures at the Sheraton Park Hotel, Park Ballroom:
1. Dr. Phillip H. Abelson, "Meeting Energy Needs"
2. Dr. John H. Wolfe, "The Pioneer Exploration of Jupiter"

MARCH LECTURE

Dr. Robert Hobbs of the Laboratory for Solar Physics, Goddard Space Flight Center, outlined the major problems in radio study of the Sun at our March 2 meeting.

After a quick review of major solar features at optical wavelengths, Hobbs dealt with the question of coronal heating. The chromospheric spicule structure holds clues to the mechanism. We can study narrow altitude layers of the solar atmosphere using selected radio wavelengths, from photosphere to interplanetary corona.

Radio emissions from solar flares give vital information on the not-yet-understood flare mechanism, but inherent low resolution has been a problem. Radio emission polarization studies give an improved vertical picture of solar events. Better resolution of these events at radio wavelengths can be attained by observation during partial solar eclipses, use of multi-element interferometers (for example, the 2.7-Km-baseline, 3-element NRAO instrument using 85-foot diameter dishes), and by using larger antennas relative to wavelength. Thus, on Kitt Peak, NRAO operates a 36-foot reflector at millimeter wavelengths. They will soon space 27 80-foot paraboloids over a Y shape that is 30 miles long.

A continuing problem in solar radio research is the limited telescope time made available on radiotelescopes not specifically designed for solar work.

1974 ELECTION OF OFFICERS

At the trustees' meeting on March 2, the board appointed the following nominating committee: Mrs. G. R. Wright, Sidney Opie, Bill Winkler, John Eisele, and Benson Simon. At a March 14 meeting at the Wrights', the following people were nominated by the committee:

| | |
|---|---|
| President | Dr. Henning Leidecker |
| Vice President | Wolfgang Schubert |
| Secretary | Estelle Finkle |
| Treasurer | Lawrence Torrance |
| Trustee | Dr. John Eisele |
| Sergeant at arms | Paul Burnett |

Other nominations may be made by petition signed by 10 members and submitted to the trustees any time before the election.

NEW MEMBERS WELCOMED TO NCA

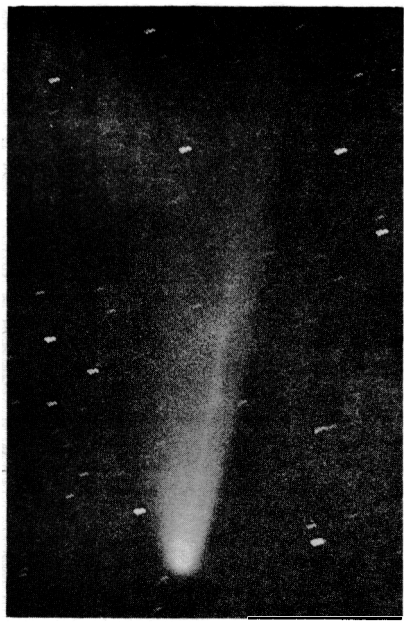
David Jenkins #502
2500 Wisconsin Avenue, NW
Washington, D. C. 20007

Peter J. Mettam
9025 Marseille Drive
Potomac, Maryland 20854

Ernest Nussbaum
6009 Johnson Avenue
Bethesda, Maryland 20034

Richard G. Rincoe
17201 King James Way
Gaithersburg, Md. 20760

## COMET BRADFIELD (1974b) NOW UNDER NORTHERN SCRUTINY



Hopewell Observatory

Discovered in Australia on February 12, Comet 1974b has been under observation here since mid-March. From his home in Alexandria, Bob Bolster used an 8-cm refractor and 16-cm Maksutov to estimate the following magnitudes: on March 15, 0h15m UT, m5.5; 21, 0h30m UT, m5.8; 22, 0h30m UT, m5.5. No tail was visible; 7x50 binoculars did not show the comet in the rather hazy, twilit sky.

On March 23, Bolster, McCracken, and Winkler photographed with a variety of instruments in white, blue, and yellow light at Hopewell Observatory. There, the comet was beautifully visible in 7x50 binoculars, showing a tail estimated at 2.5 degrees. Estimating the magnitude at 4.6, Bolster and McCracken attempted to compensate for the atmospheric absorption at the near-horizon altitude by selecting comparison stars above and below the comet.

Bolster's 9.5-inch Wright-Schmidt photograph in white light (left) was exposed at f/4 for 10 minutes on Tri-X, and Diafine-processed to ASA 2400.

## NCA TO HOST MERAL CONVENTION

The 1974 convention of the Middle East Region of the Astronomical League will be hosted by NCA at Ramada Inn, intersection of state route 234 and U. S. 66, Manassas, Virginia, on Saturday, May 18, 1974.

Morning and afternoon paper sessions, a flea market for telescope parts, an astrophotography contest, and contributed exhibits are planned. At the 7:00 PM banquet (main course baked double breast of capon), there will be an invited guest speaker.

If weather permits, a star party will be held on Friday, May 17, at the Battlefield Park picnic grove, 1.7 miles north of U. S. 66 on 234.

Please send proposals for papers and exhibit space to Bill Winkler, 1001 Rockville Pike, Apt. 1033, Rockville, Maryland 20852.

Please send checks made payable to Middle East Region Convention to Larry Torrance, Treasurer, 1224 Adams Road, Waldorf, Maryland 20601. Registration is $2.00, or $3.00 per family; banquet tickets including tax and tip are $5.95 per person, and must be purchased before May 15.

## NOTE ON CURRENT RESEARCH

*Intergalactic space empty?* — Some noted theories of the origin of the Universe require a value for its mass that cannot be reconciled with observation, but could be accounted for if there were an intergalactic medium.

The lower proposed densities of this medium mean that it would radiate in the far ultraviolet, a detection job for satellite and rocket astronomy. The first attempts to detect a possible far ultraviolet background were made by the Soviets using Venus probes 3, 5, and 6. These attempts were inconclusive, as were Japanese rocket studies. Later measurements by the second Orbiting Astronomical Observatory showed that if intergalactic matter exists, it must be less dense than the largest theoretical values.

Davidson, Bowyer, and Lampton, in *Nature*, February 22, 1974

## EXCERPTS FROM THE IAU CIRCULARS

1. February 23 — M. Lovas, Konkoly Observatory, discovered a 14th-magnitude supernova in NGC 3348.

2. February 25 — P. van der Kruit and H. C. Arp, Hale Observatories, discovered a 16th-magnitude supernova in NGC 3310 by means of a television device attached to the 508-cm reflector.

3. March 4 — Comet Bradfield was photographed with a 31-cm f/6 reflector by D. Herald, Canberra. A 3-minute exposure showed a tail 17 minutes long. The estimated magnitude was 6.5.

This listing courtesy Bob Bolster.

## FROM THE NASA HOT LINE AT PRESS TIME

April 1 — The Mariner 10 observation on March 30 that tentatively suggested a possible satellite of Mercury was identified today as ultraviolet radiation from the fifth-magnitude star, 31 Crt, a class B2 spectroscopic binary. After the magnificent achievements of the NASA scientists with Mariner 10, it seems ungrateful of the probe to pick today to do this to them!

The NASA scientific team has recommended to the IAU that the prominent crater, first observed as a bright spot on the planet Mercury, be named for Dr. Gerard Kuiper, who died in December.

* STAR DUST

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