★ STAR DUST

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LYMAN-ALPHA SUN IS FEBRUARY TOPIC

DR. PRINZ

Dr. Dianne K. Prinz, physicist with the Upper Air Physics Branch of the U. S. Naval Research Laboratory, will discuss her rocket-borne observations of the Sun in the Lyman-alpha line of hydrogen during the July 10, 1972 total eclipse. She will describe the spectro-heliograph used, and show some of the 80 high-resolution photographs obtained shortly after fourth contact. Comparisons will be drawn between solar prominence structure in the Lyman- and Balmer-alpha lines of hydrogen. The supergranulation network will also be analyzed.

Dr. Prinz is a graduate of the University of Pittsburgh and received her Ph. D. in physics from Johns Hopkins University in 1967. There, she studied the infrared spectroscopy of water vapor with John Strong. Our speaker has written many papers concerned with upper atmosphere and solar spectroscopy. She has been with the Space Science Division of NRL since 1971.

FEBRUARY CALENDAR

Friday, February 1, 8, 15, 22, 7:30 PM — Telescope-making classes at American University, McKinley Hall basement. Information: Jerry Schnall, 362-8872.

Saturday, February 2, 6:15 PM — Dinner with the speaker at Bassin's Restaurant, 14th Street and Pennsylvania Avenue, NW. No reservations required.

Saturday, February 2, 8:15 PM — NCA monthly meeting at the Department of Commerce Auditorium, 14th and E Streets, NW. Dr. Prinz will discuss the Lyman-alpha structure of the Sun.

Monday, February 4, 11, 18, 25, 7:30 PM — Telescope-making classes at the Chevy Chase Community Center, Connecticut Avenue at McKinley Street, NW. Information: Jerry Schnall, 362-8872.

JANUARY LECTURE

Dr. Henning Leidecker, NCA vice president and professor of physics at American University, spoke on the Moon and planets in relation to the history of astronomy at the Society's January 5 meeting.

Civilization as made possible by agriculture existed as early as 11,000 BC, Dr. Leidecker noted, with clay tablets from Sumer showing the positions of Jupiter and the Moon dating from 1100-1400 BC. Perhaps the earliest astronomical need was for a reliable lunar calendar, and by 500 BC the Moon's position could be forecast with an accuracy not exceeded until 1800 AD. Before Christ, the Earth was generally regarded as a flat, finite disc surmounted by a dome of sky, and everywhere else surrounded by water. Astronomy may be 1000 years older than astrology. A critical gap exists in known cuneiform tablets between 1100 and 500 BC, due in part to negligence by museums.

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JANUARY LECTURE — *continued*

In comparing the development of western civilization with that of 22 other civilizations, our speaker said that the watershed was the founding of Alexandria in Egypt, which brought together the Greek and Babylonian cultures; the Greeks were interested in cosmology, while the Babylonians were concerned with calendars. By 40 BC, this difference led to the literary and technical branches of astronomy. The western scientific approach was uniquely influenced by the One-God, One-Truth concept that permeated all fields. Dr. Leidecker reviewed briefly the hold Ptolemaic teachings had on astronomy for centuries, and the changes slowly wrought by Copernicus and Tycho Brahe. Modern science has changed our concept of evil — from that of a concious, malevolent force to an understanding that with entropy (randomness) always increasing, it is easier for things to go "wrong" than "right" without careful attention. Science also changed our concept of gravity — from Newton's force to Einstein's action of a mass inducing curvature of the surrounding space.

Dr. Leidecker concluded that science gives us programs for action, measured not so much in truth or falsity as in usefulness.

NCA COMET VIEWING DURING JANUARY

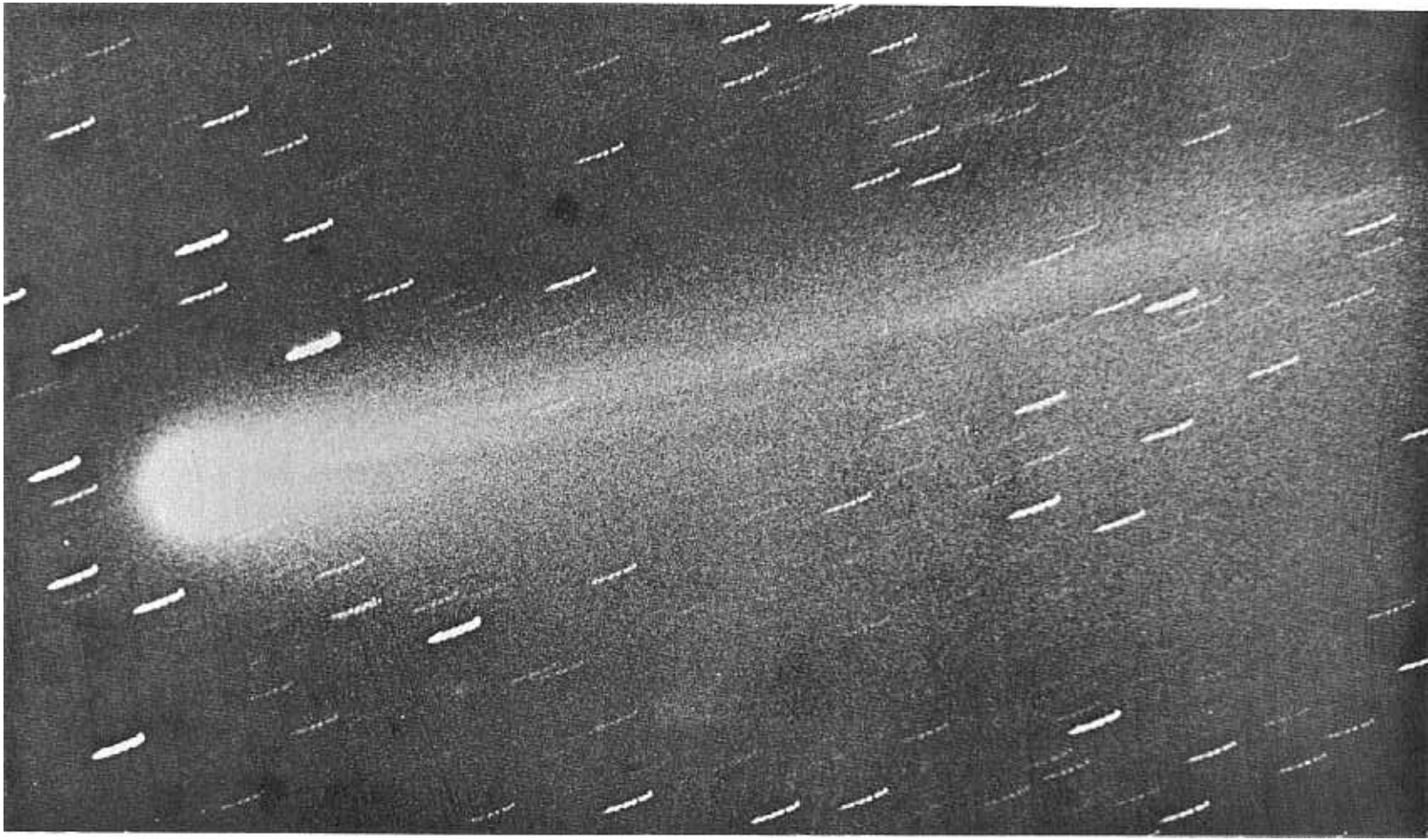
Between 150 and 200 people gathered at Rock Creek Park Nature Center on the evening of January 4 for a public observing session with telescopes operated by Bob McCracken and Jerry Schnall. Although the sky was clear, Comet Kohoutek was not glimpsed. After refreshments provided by Park Rangers Bob Ford, Bill Rudolph, and Jerry Woodcox, a planetarium show on comets was presented in the Nature Center by Jerry Woodcox, followed by a talk in the assembly room by Bob McCracken, who illustrated in simple terms some of the major investigative techniques used in astronomy. Several of the participants later gathered for dinner at Raleigh's in Bethesda.

The Hopewell Corporation held open house for comet viewing by NCA and others at its observatory site in the Bull Run Mountains, on Saturday evening, January 12. It was cold — about 15° — and spectacularly clear. Kohoutek was easily visible to the unaided eye, and a forest of telescopes examined it for hours. The largest of these were Colonel Walter Farrar's 12-inch Newtonian and Bob Bolster's and Jerry Hudson's 10-inch Wright-Schmidt. So clear was the sky that zodiacal light actually decreased comet visibility! Among the many deep-sky objects viewed after comet set were, the Crab Nebula (M1), and galaxies M33, M81, and M82. About 40 people enjoyed refreshments inside the electrically-heated operations building, still under construction, between observing sessions. Much photography was undertaken with guided telescopes and telephoto lenses.

At the Alexandria campus of the Northern Virginia Community College on Sunday, January 13, about 80 people viewed Kohoutek, as well as Venus, Jupiter, and Saturn, through telescopes operated by John Lohman, who arranged this event, and Victor Slabinski. This campus parking area is, on Sunday evenings, quite dark for a city location.

NOTE ON CURRENT RESEARCH

In the early 1950's, photoelectric photometry of Pluto yielded a rotation period of 6.39 days and a magnitude variation of 0.11. Since then, similar observations have yielded a gradually decreasing mean brightness and an increased magnitude variation now given as 0.22. From this, Anderson and Fix of Goethe Link Observatory, Indiana University, hypothesize that Pluto's axis of rotation is tilted more than 50° to the ecliptic, with the polar region being brighter than the equator. They concluded this using a technique relating the brightness of a rotating body to a Fourier series containing orbital angle, rotation period, and empirical constants. This relationship was developed in 1906. *Icarus*, December 1973, p 279.



EXCERPTS FROM THE IAU CIRCULARS

1. December 19 — Dr. L. Rosino, Asiago Astrophysical Observatory, discovered a 14th-magnitude supernova in NGC 3627 in Leo.

2. December 20 — Comet Gibson (1973o), discovered November 24, has been confirmed. It is of 16th magnitude, becoming fainter.

Comet Kohoutek:

1. December 29 — The Skylab astronauts observed a spectacular sunward spike which remained visible for several days. This indicated that the comet began emitting large quantities of dust at least two months before perihelion.

2. Mid-December to early January — Radio emission from molecular HCN (hydrogen cyanide) in the 3-mm wavelength range was detected with the NRAO 11-m radiotelescope at Kitt Peak.

3. January — Herzberg and Lew, National Research Council of Canada, have identified lines in the spectra of 1973f and 1963i as those of ortho H_2O^+.

4. January 8 — Opal and Carruthers, Naval Research Laboratory, obtained photographs at the Lyman-alpha wavelength with a rocket-borne electronographic camera. The bright portion of the hydrogen cloud was spherical, and it was detectable 4° from the center in the antisolar direction.

PICTURE OF THE MONTH

This photograph (page 23) of Comet Kohoutek (1973f) was made on January 13 at Hopewell Observatory by Bob Bolster, using the 10-inch Wright-Schmidt. The 25-minute, f/4 exposure was made in blue-violet light, predominantly that of the emission lines of cyanogen and carbon monoxide singly ionized. Tri-X was used with CC50B filtration, developed to ASA 2400 in Diafine. Scale reproduced here is 20 seconds per millimeter. Film and observer chilled to 11° F.

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