



HERBST: SUPERNOVAE MAY INDUCE STAR FORMATION



DR. HERBST

At the April 1 meeting of National Capital Astronomers, Dr. William Herbst, Carnegie Fellow at the Department of Terrestrial Magnetism, Carnegie Institution of Washington, will present astrophysical evidence that the formation of the Solar System may have been triggered by a nearby supernova.

The recent discovery by Wasserburg, et al., California Institute of Technology, of the presence of radioactive ^{26}Al during formation of the Solar System suggests that a supernova initiated the collapse of the pre-solar cloud.

The thesis is controversial. Dr. Herbst will explore the evidence and also discuss the role that supernova-induced star formation may play in the galaxy at the present time and in other galaxies.

Dr. Herbst received the A.B. degree with High Honors in astrophysics from Princeton University in 1970, and his Ph.D. in astronomy from the University of Toronto in 1974. He was a lecturer and Post-doctoral Fellow at York University in Toronto before coming to Carnegie in 1976. He was the recipient of the Walter Helm Fellowship, 1970-1974, and a French Government grant in 1976, and has authored numerous papers on observational astronomy and astrophysics.

APRIL CALENDAR — *The public is welcome.*

Saturday, April 1, 6:15 PM — Dinner with the speaker at Bassin's Restaurant, 14th Street and Pennsylvania Avenue, NW. Reservations unnecessary.

Saturday, April 1, 8:15 PM — NCA monthly meeting at the Department of Commerce Auditorium, 14th and E Streets, NW. Dr. Herbst will speak.

Monday, April 3, 10, 17, 24, 7:30 PM — Telescope-making classes at Chevy Chase Community Center, Connecticut Avenue and McKinley Street, NW. Information: Jerry Schnall, 362-8872.

Friday, April 7, 14, 21, 28, 7:30 PM — Telescope-making classes at American University, McKinley Hall basement. Information: Jerry Schnall, 362-8872.

MARCH LECTURE

The new generation of large optical telescopes being planned was described by Lawrence K. Randall of the National Science Foundation at the March 4 meeting of National Capital Astronomers.

As the theoretical limit of photon detectivity is approached electronically, the need for greater collection ability and resolution remains. Randall described several large telescopes planned to be built before the year 2000. First will be a series of 3- to 5-meter telescopes in Europe, Japan, and China. Arabia is considering a 5-meter telescope.

Following first light in the University of Arizona-Smithsonian Astrophysical Observatory 4.5-meter telescope (MMT) this spring will be 10- and 25-m MMT's being designed by groups at Lick and Kitt Peak National Observatories, respectively. Such telescopes could reach stars 2-4 magnitudes fainter than present instruments, and will attack problems such as spectroscopic studies of extragalactic stars, magnetic-field measurements of main-sequence stars, outer-planet atmospheric composition, speckle interferometry to 4×10^{-3} arc sec, and detection of planets of nearby stars.

The Lick 10-m MMT is to be designed for both optical and infrared work, and to cost less than \$50 million. It will be sited in the United States.

The KPNO 25-m MMT, planned for the early 1990's, must have most of the American Astronomical Community involved to succeed.

Single mirrors of Corning ULE or Cer-Vit can now be made as large as 10 m in diameter. They would have a central thickness of only 7-10 cm and be no more massive than a conventional 4-m mirror of the same material. Computer-directed grinding and polishing machines make precision mirror-making much faster now, and it may soon be possible to produce large mirrors by replication. However, a 10-m mirror must have a focal ratio of 1.5 or less and have a field of perhaps 0.5 degree, which creates problems of film scale and camera design. There are good arguments for making all larger-than-5-m telescopes multi-mirror. For example, the mirrors could occasionally be used independently.

Computer-iteration approaches make possible more accurate mount design for very large telescopes and keep material costs minimal. They also permit control of mechanical hysteresis in mount positioning.

Air turbulence associated with the building and dome adversely affect telescopic seeing. Hiltner of the University of Michigan believes that the minimum seeing disk of the 90-cm Cerro Tololo telescope doubled in size when the instrument was moved into its dome after extensive outdoor use. It is difficult to maintain dome interiors in thermal equilibrium against large weather changes. After many attempts to predict dome environment a day in advance, the best Hale Observatories can do is hold the dome to the conditions of the previous night. A cold-front passage can destroy the dome's thermal equilibrium for two weeks.

Randall noted that more large survey instruments such as Schmidt telescopes are needed in the Northern Hemisphere. wrw

FISCAL 1979 DUES INCREASED

Continually rising costs, chiefly of publications, have necessitated an NCA dues increase effective upon next year's renewal for present members, immediately for new members. The new dues schedule has been set by the trustees as follows: Individuals, \$16.50; Families, \$18.50; Junior with *Sky and Telescope*, \$13.50; Junior without *Sky and Telescope*, \$6.50.

GRAZING OCCULTATION EXPEDITIONS PLANNED

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

April	UT	Place	Vis Mag	Pcnt Sunlit	Cusp Angle	Min Aper
1	1017	Cockeysville, MD	9.3	41	1S	8"
11	1702	Pittsburgh, PA	1.1	17	10S	2"
15	0309	Ladysmith, VA	9.1	45	6N	8"
16	0211	Arlington, VA	9.3	55	7N	8"
May 9	0315	Billings, MT	1.1	4	6S	Naked eye

EXCERPTS FROM THE IAU CIRCULARS

1. December — J. Patterson, University of Texas, reported that V1500 Cygni's period of variation increased 1 percent from its 1976 value to 0.1396 day. The rapid flickering continued to be observable also.

2. February 17 — H. E. Schuster, European Southern Observatory, discovered a fast-moving asteroidal object of 14th magnitude in Hydra with the 100-cm Schmidt telescope.

3. March 1 — M. Honda, Kurashiki, Japan, discovered a nova in Serpens at 17h 49m, $-14^{\circ} 43'$. Recent brightness estimates were magnitude 8.6 on March 8 to 9.5 on March 14.

4. March 4 — Stockman and Angel, Steward Observatory, observed the magnetic variable VV Puppis to be 2 magnitudes brighter than usual at 15.1 to 15.8. Strong circular polarization was present, changing sign with the photometric variations.

5. March 8 — The MIT SAS-3 team reported the observation of persistent X-ray emission from MXB1659-29, previously observed to be an X-ray burster. During the recent observation, only one burst was detected during a 39-hour period. The NRL HEAO-1 team also reported detecting the persistent emission during several scans. rnb

NASA CONSIDERING SKYLAB RE-USE

NASA's Marshall Space Flight Center, Huntsville, Alabama, has awarded contracts to Martin Marietta Corporation and McDonnell Douglass Astronautics for parallel, independent study of the possibilities and benefits of Skylab re-use.

An attractive possibility is the use of Skylab in conjunction with Space Shuttle to provide its extensive laboratory instrumentation, workshop, and the large living quarters and other crew accommodations aboard Skylab; Skylab has been compared with a three-bedroom house.

Left to itself, Skylab is expected to re-enter the atmosphere in a year or two. The NASA plan is to orbit a propulsion unit, remotely maneuver it to dock with Skylab, and use this stage either to propel Skylab into a higher orbit or to drive it into a remote ocean area, depending upon the outcome of the studies.

Launched May 14, 1973 from Florida, Skylab was visited by three astronaut crews during 1973-1974. The final crew departed February 8, 1974.

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