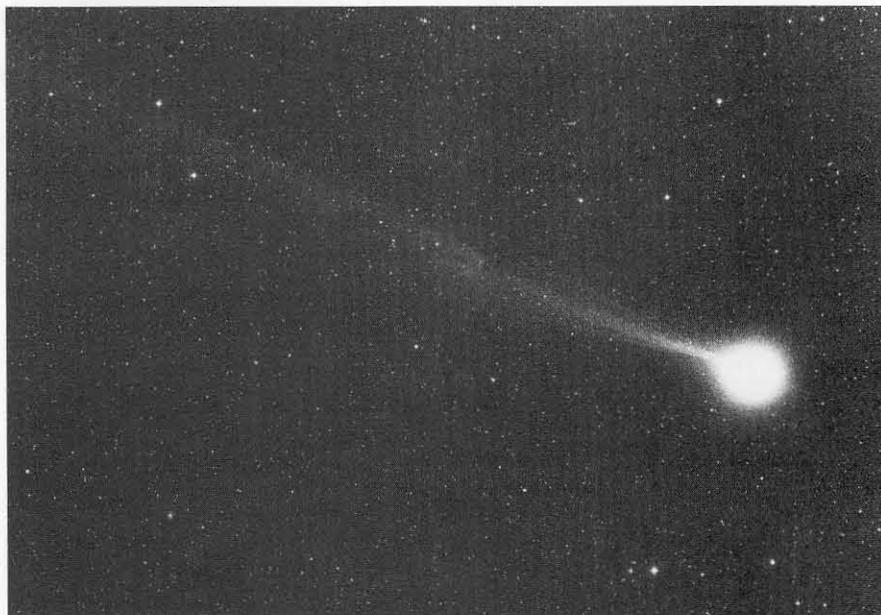


Random Walk



JPL astronomer Eleanor Helin obtained this most detailed image yet of Halley's Comet with the 48-inch Schmidt Telescope at Palomar Observatory. The photo, taken at 7:54 p.m. Pacific Standard Time on December 13th, shows for the first time the full range of features characteristic of a well-developed ion tail. These include tail rays, condensations, a kink, a general helical structure (which shows only as a waviness on the print), and perhaps a disconnection event. A swarm of spacecraft is heading towards the comet, including the European Space Agency's Giotto probe (see page 27).

Dervan, Koonin Honored

PETER B. DERVAN, professor of chemistry, has received the Arthur C. Cope Scholar Award. The award recognizes and encourages excellence in organic chemistry and consists of a certificate and a \$15,000 unrestricted research grant.

Dervan pioneered techniques necessary for the accurate analysis of the binding locations of antitumor, antiviral, and antibiotic drugs on DNA. Using the tools of organic chemistry in combination with molecular biology techniques, Dervan is developing a set of rules for the readout of right-handed double helical DNA. This work has major applications in diagnosing disease and in developing novel chemotherapeutic strategies for the treatment of cancer.

STEVEN E. KOONIN, professor of theoretical physics, is the recipient of a Senior U.S. Scientist Award from the Alexander von Humboldt Foundation of Bonn, West Germany. The award will enable Koonin to spend approximately 12 months conducting sponsored research at the University of Frankfurt's Institute of Theoretical Physics.

Koonin uses computer modeling techniques to investigate the structure of the atomic nucleus and the atomic physics of neutron stars. His study of low-energy collisions among the nuclei of heavy atoms has shown these interactions to display both classical and quantum mechanical properties. The models he developed are now standard in the field.

Bonds Issued

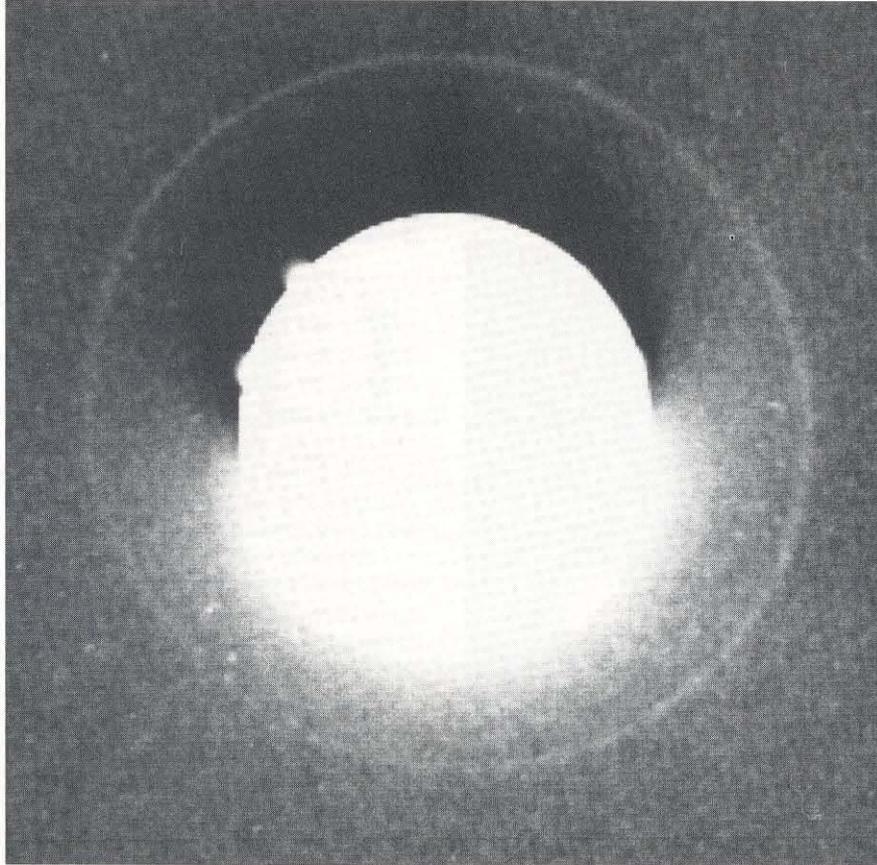
THE BOARD OF TRUSTEES has authorized the sale of \$20 million in bonds to finance several important construction projects on campus. The bonds, which are tax-exempt under federal and state law, went on sale in December. The Caltech bonds were rated AAA by Moody's and were purchased by banks and other institutional investors.

Proceeds from the bond issue will be used to construct additional graduate student residences, a parking structure, and a cogeneration plant. The new graduate student apartments will be located on Catalina, just north of the apartments that were completed in 1984. The parking structure, located on the west side of Wilson, will provide about 500 spaces for students, faculty, and staff. If everything goes as planned, the apartments and the parking structure will be completed by September 1986.

Construction of Caltech's second cogeneration plant, to be located in central plant, is expected to begin in February. The initial plant, which uses steam produced by boilers to operate a turbine generator, produces about 20 percent of the campus's power. The new plant, a gas/oil-fired combustion turbine, is expected to provide another 60 percent of campus energy needs.

Happy Birthday, Linus!

ON FEBRUARY 28, 1986 Caltech will salute two-time Nobel Prize winner Linus Pauling, professor of chemistry emeritus, with a daylong seminar in honor of his 85th birthday. The seminar will include talks on Pauling's contributions to chemistry as well as his contributions to the Caltech community. The day will be capped with a banquet in Pauling's honor. For further information, contact Professor Ahmed Zewail at Caltech 127-72, Pasadena, CA 91125.



This Voyager 2 photograph of Uranus shows the planet's outermost, or epsilon, ring. The picture is a computerized summation of six images returned November 28, 1985 and is the first to show the epsilon ring unblurred by the earth's atmosphere. This ring, 51,200 kilometers from the planet's center, is the most prominent of Uranus's nine known rings. In this picture the central image of Uranus itself is greatly overexposed. Image processing introduced various other artifacts, including the dark region just above the planet, the diffuse brightening below it, and the small, bright projections from the edge of the planet in the upper left. Voyager 2 will make its closest encounter with Uranus on January 24, 1986.

"Mechanical Universe" Wins Awards

CALTECH'S INNOVATIVE TELECOURSE, "The Mechanical Universe," has won two prestigious awards. At the International Film and Television Festival of New York the series was awarded the Gold Medal in the Scientific Themes Category. And at the Chicago Film Festival, it won the Golden Plaque for educational series.

Funded by the Annenberg/CPB Project, "The Mechanical Universe" consists of 26 programs based on lectures given by David Goodstein, professor of physics and applied physics. A second group of 26 programs is currently under production.



Goodstein demonstrates Newton's Laws.

Developmental Biology Grant

THE LUCILLE P. MARKEY Charitable Trust has awarded the Division of Biology a five-year, \$12.5 million grant for the study of developmental biology. Developmental biology, the study of how organisms, cells, and tissues attain their adult form and function, is now becoming an area of intense exploration due to opportunities afforded by powerful new techniques in molecular biology, cell biology, immunology, and microchemical instrumentation. The grant will ensure independent support for Caltech's broadly focused research effort.

"Space Photography" a Hit

THE BAXTER ART GALLERY'S final exhibit, "25 Years of Space Photography," opened at the IBM Gallery of Science and Art in New York City on November 5 in the first leg of an international tour. The 2,800 people who attended opening day at the IBM gallery made it the largest opening in the gallery's history. By the end of November, less than halfway through its run, 53,500 people had viewed the exhibit.

The New York showing has attracted a great deal of media attention. In addition to a review in *Newsweek*, two articles in *The New York Times*, and a report by the Associated Press, feature articles on the exhibit are soon to appear in *Scientific American* and *Harper's*.

"25 Years of Space Photography" will be at the Fresno Metropolitan Museum in May and June 1986, at the Exploratorium in San Francisco in January and February 1987, at the International Museum of Photography at George Eastman House in Rochester, N.Y. in May through August 1987, and finally, in late 1987, at the Cosmocenter in the Netherlands. In addition, the Coca Cola Company plans to exhibit a selection of the photographs at its centennial celebration in Atlanta in May 1986.