

The Month at Caltech



C. J. Pings

New Posts for Pings

C. J. Pings, professor of chemical engineering and chemical physics and executive officer for chemical engineering, is the new vice provost and dean of graduate studies at Caltech. As vice provost—a newly created position—Pings shares some of Provost Robert Christy's responsibilities for supervision of faculty appointments and promotions, and for coordination of curriculum development.

As dean of graduate studies, Pings succeeds H. F. Bohnenblust—dean for the past 15 years. Bohnenblust will continue as professor of mathematics, a position he has held since 1946.

For the time being Pings is continuing as executive officer for chemical engineering. He is also going on with his research into the behavior of liquids and with supervision of a large research group.

Caltech Rates

In a survey of the graduate schools of 130 American universities, the American Council of Education ranks Caltech first in the nation in the quality of faculty and the effectiveness of the graduate educational program in the following fields: astronomy, geology, physics, and developmental biology (which combines genetics and embryology).

In other faculty ratings, the Institute was second in chemistry and molecular biology; third in mechanical engineering; fourth in civil engineering and microbiology; fifth in electrical engineering and physiology; sixth in biochemistry; ninth in chemical engineering; and fifteenth in mathematics. Caltech received a rating of adequate for its graduate botany program, and good in psychology, where it has no explicit program or permanent staff. The psychology rating presumably is for work in behavioral biology.

In the effectiveness of doctoral programs, Caltech received additional first-place ratings in molecular biology and chemistry. It ranked third in civil engineering, biochemistry, and microbiology; fifth in physiology and civil and electrical engineering; seventh in chemical engineering; eleventh in mathematics; and seventeenth in botany.

The survey was conducted by more than 6,000 scholars to determine the excellence of graduate programs and faculties.

Lunar Landmarks

Craters on the far side of the moon, nameless through the centuries because of lack of knowledge about that face, are finally being christened and put on lunar maps. More than 500 far-side craters (out of thousands of newly discovered features) now bear the names of internationally famous scientists—and other very interesting people as well.

Among the scientists, 17 men noted for their work at Caltech and the Hale Observatories have been honored. They include Robert A. Millikan; J. Robert Oppenheimer; Theodore von Karman, aerodynamicist; Harold D. Babcock, early solar astronomer at Mt. Wilson; and Paul Merrill, a pioneer in spectroscopic astronomy. Other Caltech and Hale Observatories astronomers who now have their names on the moon maps are John Anderson, Armin Deutsch, Arthur S. King, Kenneth Mees, Seth B. Nicholson, Francis G. Pease, H. P. Robertson, Carl Seyfert, Charles E. St. John, F. H. Seares, and Adrian van Maanen. Frank Borman, Apollo 8 astronaut and Caltech alumnus, is one of the 12 living men (six American and six Russian) who represent a breakthrough in the long-held policy of naming lunar features only after scientists who have died.

Systematic nomenclature for the front side of the moon was begun in 1932 by the International Astronomical Union. Among its early selections of names for features on the lunar face were George Ellery Hale, Edwin Hubble, and Walter Baade—all Caltech astronomers. In 1961 the IAU approved 18 far-side designations proposed by Soviet astronomers from Lunik-3 photographs, but it was only when Russian Zond and American Orbiter and Apollo pictures made fairly detailed maps of the far side possible that it became necessary to set up an internationally recognized nomenclature. A working group of the IAU, headed by Donald H. Menzel of the United States, was appointed in 1967 to draw up the list that was approved—with minor amendments—at the IAU meeting in Brighton, England, in August of last year.

In addition to including the names of the living, the IAU has made other innovations in the guidelines for new lunar terminology. Now the features



The Bacher File

Caltech produced two versions of a dossier on Robert Bacher on the night of November 20. The first, an album of photographs, was presented to the Bachers by Clarence Allen, chairman of the faculty, as a gift from Bacher's colleagues to honor him upon his retirement as Caltech's provost.

After a farewell dinner at the Athenaeum, the second dossier, in words and music, was presented in Beckman Auditorium. "The Bacher File," a musical revue written by Kent Clark and Elliot Davis, featured members of the Caltech faculty, staff, and distaff, and recalled some of the highlights of Bacher's Caltech career.

Bacher came to the Institute in 1949 as chairman of the division of physics, mathematics and astronomy and director of the Norman Bridge physics laboratory. A specialist in high energy physics and atomic energy, he began his academic career as an instructor in physics at Cornell University in 1935. By 1946 he was director of Cornell's Laboratory of Nuclear Studies. During World War II, Bacher worked first at the MIT Radiation Laboratory, and from 1943 to 1946 at the Los Alamos Laboratory in New Mexico on the atomic bomb project. He has served on the Atomic Energy Commission, President Eisenhower's Science Advisory Committee, and as a delegate in 1958 to the Geneva conference on the cessation of nuclear weapons testing. At Caltech Bacher created an experimental program in high energy physics, and supervised construction of the 1.5-billion-electron-volt synchrotron, with which by 1957 he and a group of other Caltech physicists succeeded in the photo-production of heavy mesons and hyperons from hydrogen.

His appointment as provost in the fall of 1962 made it increasingly difficult for Bacher to keep up with the projects he had initiated. Now he has retired as provost, but he remains on the faculty as professor of physics and has resumed teaching. He hopes, he says, "to find out a few of the many, many things that have been happening in high energy physics."

may be named for people associated with rocketry and spaceflight as well as for famous scientists. The list is also as thoroughly international as possible.

These criteria—somewhat freely interpreted perhaps—provide a varied list indeed. For instance, from mythology come the figures of Daedalus and Icarus; there is also the legendary Wan-Hoo, who around the year 1500 is supposed to have made the first attempt at manned rocket flight. He attached a seat and 47 gunpowder rockets to a box kite—and died in the attempt to take off.

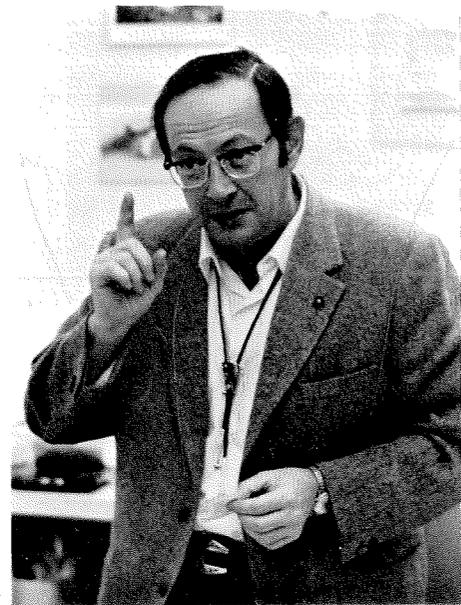
Another rocket scientist on the list is the Russian Nikolai Kibal-chich (1853-81), better remembered as a bomb maker executed for his part in the assassination of Czar Alexander II. The name of Alfred Nobel, the inventor of dynamite, also appears on the moon maps.

Other inventors among the 500 are the telescope makers Cassegrain, Clark, Gregory, and Ingalls; and representing the poets are Dante, Chaucer, and Omar Khayyam.

Honors and Awards

Gerald J. Wasserburg, professor of geology and geophysics, is the 1970 winner of the Arthur L. Day Medal awarded by the Geological Society of America. The Day Medal honors "outstanding contributions to geologic knowledge through the application of physics and chemistry to the earth sciences."

Described by the society as holding a "place among the most brilliant and



Gerald J. Wasserburg

productive men in earth sciences today," Wasserburg was cited for his major research in determining the time scale of the solar system. He was also honored for the establishment of dating methods using long-lived natural radio isotopes, the study of geologic processes using natural isotopes as tracers in nature, and the application of thermodynamic methods in the study of geologic systems.

Wasserburg is also a recent recipient of an Exceptional Scientific Achievement Award from the National Aeronautics and Space Administration, given for his work in examining material returned from the lunar surface. NASA officials describe his success in age-dating lunar samples as one of the most outstanding scientific achievements of the Apollo program.

Robert G. Bergman, assistant professor of chemistry, has been awarded a \$25,000 grant from the Camille and Henry Dreyfus Foundation of New York. Bergman is one of 14 young scientists who were the first to receive assistance under a new foundation program. Their selection was based not only on their potential as scientist-educators but also on their proven talent in promoting "new concepts in teaching, research, and other creative ideas related to higher education."

John N. Bahcall, associate professor of theoretical physics and staff associate of the Hale Observatories, has been awarded the Helen B. Warner Prize of the American Astronomical Society. He is the first theoretical physicist to receive the award, which is given to a scientist for significant work done before he is 35 years of age.

Bahcall, now 35, was honored for contributions to cosmology in two areas: for theoretical work on an experiment to detect solar neutrinos, and for using quasars to help determine the distribution of matter in space.

Something in the Wind

Anatol Roshko, professor of aeronautical engineering and applied science, is chairman of the new Universities Council on Wind Engineering Research. Formation of this organization, which will promote research and disseminate knowledge that could save the U.S. some of the \$750 million a year in damage caused by high winds, was a major outcome of a two-day conference held at Caltech last month.

Attended by 130 meteorologists, engineers, and government officials, the

conference on Wind Loads on Structures provided the opportunity for an extensive exchange of information among wind experts. The new council plans to organize similar technical conferences on progress in high winds research every two years. It will also provide advice to universities and government agencies upon request.

George Housner, professor of civil engineering and applied mechanics, who was a member of the organizing committee for the conference, pointed out that the move to organize this continuing council places wind research on the same footing as that for earthquakes. Housner was instrumental in the establishment of the Universities Council on Earthquake Engineering Research in 1966.

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