

## NEWS IN BRIEF

### Observatories Renamed

The Mount Wilson and Palomar Observatories are now the Hale Observatories, according to a new plan of joint operation of the Carnegie Institution of Washington and Caltech. The change of name honors George Ellery Hale, founder of both observatories and one of the founders of Caltech, who did more than any other scientist of his day to awaken interest in and find support for science.

The new plan requires that the director and associate director of the observatories be from different institutions and increases the size of the observatory committee—an advisory group to the director—by two members: Now the committee will be composed of the director as chairman, the associate director as vice chairman, and six other members appointed for three-year terms by the Carnegie Institution and Caltech. The relationship of the Hale Observatories to any new astronomical facilities created by either institution will be decided individually.

Harold Babcock continues as director of the observatories. J. B. Oke, staff member of the observatories and Caltech professor of astronomy, has been appointed associate director. Oke is known for his studies of the structure and composition of the universe and for his development of electronic instrumentation. He recently devised a photoelectric spectrometer to be used with the 200-inch Hale telescope at Palomar, the world's largest, which allows astronomers to look at quasars, "peculiar" stars, dying stars, and globular clusters.

### Coeds Respond

Since Caltech announced that it will become coeducational at the undergraduate level next September, the response from young women wishing to enroll as freshmen has exceeded all expectations. According to Peter Miller, director of admissions, applications are arriving at the rate of one a day.

"We expect to have 100 applications by the February 1 deadline," Miller said. "From these we would hope to select 20 to 25 fully qualified first-year women." Additional women may be admitted as sophomore and junior transfer students, but they have until April 1 to apply.

### Indian Tour

Derek Fender, Caltech professor of biology and applied science, left for India on December 20 as a Ford Foundation educational consultant to Indian Universities. He is conducting a series of seminars—primarily at the University of Delhi—explaining the advantages of interdisciplinary collaboration in research and teaching, the lack of which is said to be a major problem in Indian research. Fender's interdisciplinary work in biology and electrical engineering has produced important contributions toward an understanding of the human visual system. Following his tour of Indian universities, Fender will spend a month at the University of Sydney and at the National University of Canberra in Aus-

tralia where the visual systems of all animals below man are being studied.

### New Trustee

Benjamin F. Biaggini, president, chief executive officer, and director of the Southern Pacific Company, was elected to Caltech's board of trustees in December. Biaggini, with Southern Pacific for more than 33 years, has been president since 1964. He lives in San Francisco, where he is active in civic and business affairs, and he is a member of Caltech's President's Council. The addition of Mr. Biaggini to Caltech's board of trustees brings the membership to 43.

### Engineering Appointment

Jack E. McKee, professor of environmental health engineering and a member of the Caltech faculty since 1949, has been elected the 1969-70 chairman of the Environmental Engineering Intersociety Board. A national organization, EEIB was established in 1955 to improve the standards and practice of professional environmental engineering services.

### Marine Consultant

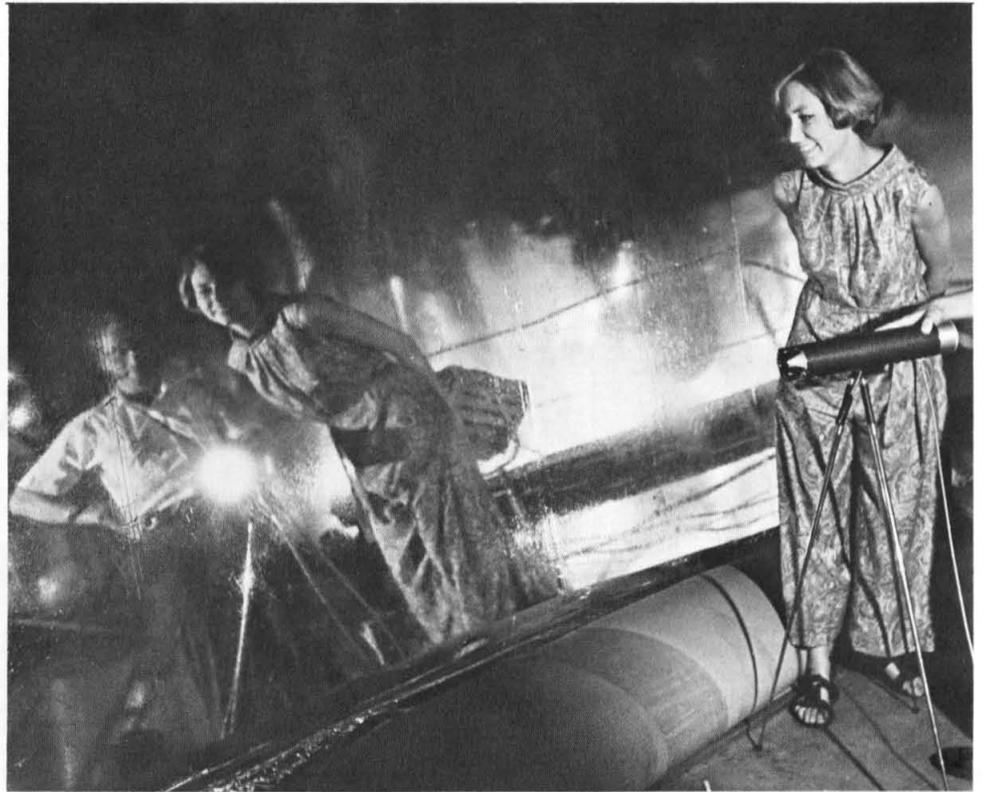
Wheeler J. North, professor of environmental health engineering at Caltech, was appointed in December by Governor Reagan to the State of California's Advisory Commission on Marine and Coastal Resources. An authority on marine biology and the author of several books on that subject, he serves as a consultant to the city of San Francisco and to the National Science Foundation.

### Executive Officer

Wilhelmus A. J. Luxemburg, Caltech professor of mathematics, is the new executive officer for mathematics. A faculty member for 11 years, he succeeds Marshall Hall Jr., who has been the executive officer for nearly four years and wishes to devote more time to research in algebra and combinatorial problems. Luxemburg received his undergraduate education at the University of Leiden and his PhD at the Delft Institute of Technology. His main field of mathematics is functional analysis, although he has spent a large part of the last six years developing methods for applying certain techniques of model theory to conventional mathematics.

### Max Millikan

Max F. Millikan, director of the MIT Center for International Studies since its founding in 1952, and president of the World Peace Foundation since 1956, died December 14 in Boston, Massachusetts. He was 56. Millikan, a member of the MIT faculty for 20 years and an authority on the economy of underdeveloped countries, was the youngest son of Robert A. Millikan, chairman of Caltech's executive board from 1921 to 1946. His brother, Clark, who died in 1966, was a pioneer in aeronautics and aerospace research and was a Caltech faculty member for 38 years. A third brother, Glenn, died in a mountain climbing accident in 1947. Max Millikan, who attended Caltech in the early 1930's, got his BS in physics from Yale in 1935 and his PhD in economics there in 1941.



Elsa Garmire, research fellow in electrical engineering, uses a laser beam to illuminate a mylar dome constructed for Pepsi-Cola's Expo '70 pavilion.

## Caltech Engineer Brightens Expo '70

When the Pepsi-Cola pavilion opens this March at Expo '70 in Osaka, Japan, visitors will enter an environment in which real and image worlds mingle. The structure will be an aluminized mylar air hemisphere whose inner surface reflects light and sound in complicated, changing patterns. Responsible for many of the features of this exhibit is Elsa Garmire, Caltech research fellow in electrical engineering.

Dr. Garmire, whose special interest is lasers, designed the lighting and sound systems for the pavilion, was in charge

of the design and construction of the hemispherical mirror, and is also working out the safety features of a laser that will illuminate the entire lower level of the pavilion.

The Caltech scientist was one of the early members of Experiments in Art and Technology (EAT), an international group which explores technical art forms through the collaboration of artists, scientists, and technology. She is married to Caltech professor of physics, Gordon Garmire, and is the mother of two children.

### Honors and Awards

William H. Corcoran, vice president for institute relations and professor of chemical engineering at Caltech, has won the \$500 Western Electric Fund Award of the American Society for Engineering Education for excellence in the instruction of engineering students.

At Caltech, Corcoran has developed one course based on the design of artificial kidneys, and another that includes the social and economic aspects of chemical engineering. His two books are widely used in chemical engineering, and he has developed laboratory techniques that are useful in teaching the subject.

Robert L. Sinsheimer, chairman of Caltech's biology division, received the 1969 gold medal for virology from the Royal Netherlands Academy of Sciences and Letters in Amsterdam on December 20. The award, established by the M. W. Bijerinck Foundation, is given every three years for "major contributions in the field of virology in the broadest sense." Sinsheimer is the second recipient of the medal.

Astronaut Frank Borman was the guest of honor of The Associates of the California Institute of Technology at their annual banquet on January 7 at the Century Plaza Hotel in Los Angeles. The Apollo 8 commander narrated a film of his voyage to the moon for the 500 people in attendance and described a program of the future U.S. space missions. Borman, an Air Force colonel who will retire as field director of NASA's manned-orbiting space program this summer, earned his MS degree in aeronautical engineering at Caltech in 1957.

### On Exhibit:

Sculpture, Graphics  
by  
Ferenc Csenter  
Paul Darrow

January 27 - February 13  
Dabney Lounge



1960 - Donald Glaser, Nobel in physics



1961 - New Years Day Rose Bowl hoax



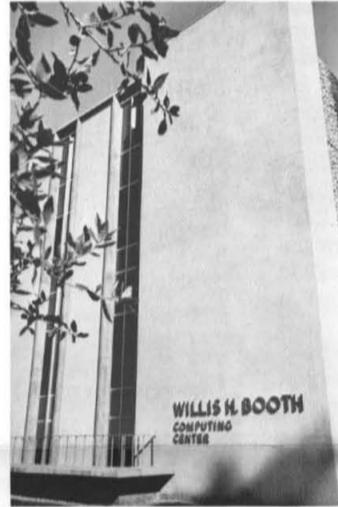
1962 - Linus Pauling wins Nobel Peace Prize



1962 - Senator Barry M. Goldwater



1963 - Von Karman receives National Medal of Science



1963 - Computing Center completed



1961 - R. L. Mössbauer, Nobel in physics



1962 - Bishop Pike is YMCA visitor

Pictorial High

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1964 - Charles Townes co-wins Nobel in physics



1964 - Dedication of Beckman Auditorium



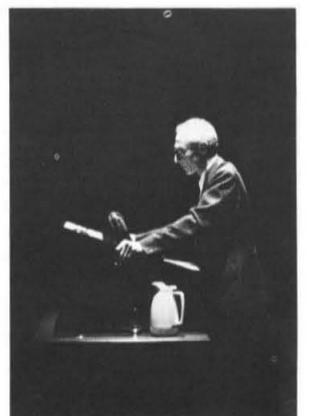
1964 - Annual Alumni Seminar Day



1964 - Robert F. Kennedy



1964 - Ranger VII moon photos



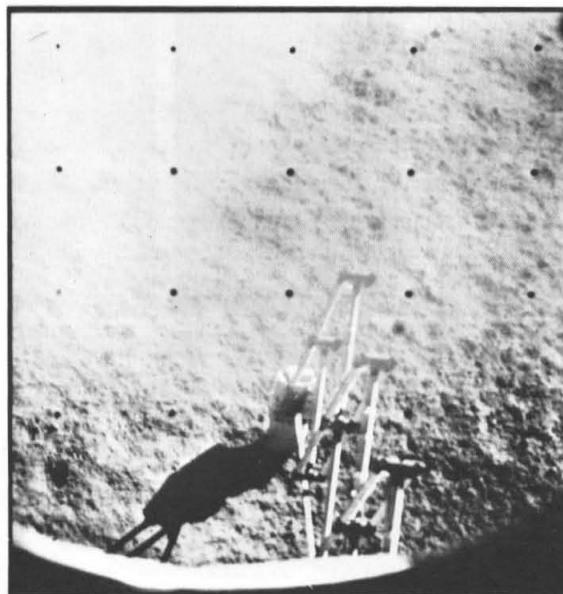
1964 - J. Robert Oppenheimer



1965 - Princess Margaret visits



1967 - Millikan Library



1967 - Surveyor III scoops up first moon samples



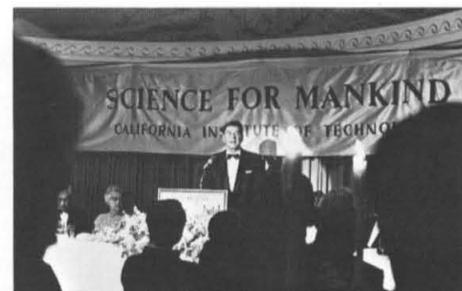
1965 - Richard Feynman, Nobel in physics



1966 - 20th year for President DuBridge



1966 - Pat Brown campaigns



1967 - Governor Ronald Reagan

ts of a Decade

ech  
1970



1968 - Caltech beats MIT in Electric Car Race



1968 - Maharishi Mahesh Yoga



1968 - Candidate Eugene McCarthy



1969 - Nobel prizewinners Delbrück, Gell-Mann



1969 - Caltech gets a share of moon rocks



1969 - Harold Brown is inaugurated as president of Caltech



1969 - Student research project

# PERSONALS

**1922**  
HAROLD S. OGDEN, formerly with General Electric Company and now retired, received the Erie Yacht Club Thompson Memorial Trophy Award for "more than a decade of service to the sport of Auxiliary Yacht Sailing on the North and South Shores of Lake Erie."

**1932**  
JAMES D. COBINE, MS, PhD '34, a physicist in the plasma physics branch of General Electric's research and development center, is now a life member of the Institute of Electrical and Electronics Engineers. He won the IEEE's 1969 Lamme Medal last January.

**1935**  
JESSE E. HOBSON, PhD, director of the Stanford Research Institute from 1948 to 1956, is president of the consulting services firm Heald, Hobson and Associates.

**1940**  
JEROME KOHL, formerly with Ortec, Inc., of Oak Ridge, Tennessee, has been appointed nuclear engineering extension specialist at North Carolina State University.

JAMES E. LU VALLE, PhD, has been transferred to Palo Alto, California, where he will be the director of research and advanced engineering for the Smith-Corona Marchant division of the SCM Corporation. Lu Valle was the technical director of SCM's microstatics division.

**1943**  
LLOYD C. PRAY, MS '43, PhD '52, former faculty member in geological sciences at Caltech, and professor of geology at the University of Wisconsin, is the president of the Society of Economic Paleontologists and Mineralogists.

**1955**  
HOMER H. HOWELL JR., MS, lieutenant colonel, U.S. Air Force, and commander of the 37th aerospace rescue and recovery squadron at Da Nang, was decorated with the Distinguished Flying Cross for rescuing an airman who had been shot down.

**1963**  
WAYNE C. HUBER, assistant professor of environmental engineering at the University of Florida, was given the 1969 Lorenz G. Straub Award on November 20 for his MIT PhD thesis on "Thermal Stratification in Reservoirs."

**1964**  
DAVID A. HAMMER received his doctorate in applied physics from Cornell University in September and is now a research physicist at the U.S. Naval Research Laboratory in Washington, D.C. He is married to the former Tove Helland of Tonsberg, Norway.

THOR HANSON, who was married last spring to Kristina Noorman, received his PhD from Iowa State in November and is working for the Shell Oil Company in Houston.

## ALUMNI DIRECTORY SUPPLEMENT

A supplement to the 1969 Alumni Directory will be ready for distribution sometime after the fifteenth of January, 1970. This supplement will list the names and addresses of those who received degrees in June 1969. Copies of this supplement will be sent automatically to Association members who received degrees in 1969. Other Association members may secure a copy of this supplement by filling in the form below and sending it to the Alumni Office.

Please send the 1970 Supplement of the 1969 Directory to:

Name .....

Address .....

City ..... State ..... Zip .....



Kohl, '40



Huber, '63

FRANK S. RHAME, a medical intern at the Harlem Hospital Center, will begin a two-year assignment with the Epidemic Intelligence Service of the National Communicable Disease Center in Atlanta, Georgia, in July 1970.

**1966**  
DAVID H. CLOSE, formerly a first lieutenant in the U.S. Army, is now a member of the technical staff for Hughes Aircraft Company in Culver City, California.

## OBITUARIES

**1915**  
RAYMOND D. ANDREWS, Ex, November 27, 1969. Sierra Madre's oldest native resident, Andrews was a co-owner of the Howze Company, which he established in 1944 after 21 years with the Edison Company. He is survived by his wife, Loraine, a son, two daughters, and nine grandchildren.

RAYMOND F. CALL, November 7, 1969, of a heart attack. Call was a member of the Los Angeles County board of education until his retirement in 1959.

WILLIAM M. HOLMES, December 9, 1969, following a brief illness. He was a member of the State Board of Professional Engineers, and had been an electrical engineer with the Los Angeles Department of Water and Power before retiring in 1955. Holmes is survived by his wife, Lorena, two daughters, and six grandchildren.

**1928**  
MAXWELL F. BURKE, August 1969.

**1932**  
J. SHERMAN, PhD, May 17, 1969, in Paris, France. He had been a mathematician with Texaco until his retirement in 1967.

# Chapter Notes

The first Alumni Association meeting for the Orange County (Calif.) area was held December 3 in Santa Ana. Fifty alumni attended the evening program, which included cocktails, dinner, and a talk by Cornelius Pings, executive officer for chemical engineering at Caltech. Pings discussed the report of the Institute's faculty committee on aims and goals, of which he is chairman. Craig Elliot, president of the Alumni Association, presided.

Pings also spoke to alumni of the Detroit area at their second meeting, held December 11 in Birmingham, Mich. This meeting, presided over by Jay Taylor, drew 30 alumni.

## Alumni Calendar

Feb. 6, 6:00 p.m. Hong Kong Bank Bldg. SAN FRANCISCO CHAPTER DINNER. Eugene Shoemaker will speak on "Man on the Moon—the First Scientific Results."

Feb. 16, 6:30 p.m. Athenaeum ALUMNI DINNER. Followed by Beckman Lecture at 8:30 p.m.

March 6, 13 Athenaeum ANNUAL WINE TASTINGS I, II

April 25 BARN DANCE

May 9 ALUMNI SEMINAR DAY

June 10 Athenaeum ANNUAL ASSOCIATION DINNER

NOTE: Please make reservations for the San Francisco meeting with Harrison Sigworth (434-7700, Ext. 2918) or Spicer Conant (346-2436) by Tuesday, Feb. 3.

## CALTECH NEWS

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# Coming Caltech Events

Sunday, Jan. 25, 8:15 p.m. Dabney VALLEY STRING QUARTET. Music by Brahms, Senia, and Mozart. Free.

Monday, Jan. 26, 8:30 p.m. Beckman MATERIAL STRENGTH—A LIMIT TO HUMAN INVENTIVENESS? Lecture by W. G. Knauss, associate professor of aeronautics. Caltech Lecture Series. Free.

Saturday, Jan. 31, 8:30 p.m. Beckman MISHA DICHTER. Virtuoso pianist. \$5.50-\$4.50-\$3.50.

Monday, Feb. 2, 8:30 p.m. Beckman ORDER, TEMPERATURE AND DIMENSIONALITY. Lecture by David L. Goodstein, assistant professor of physics. Caltech Lecture Series. Free.

Sunday, Feb. 8, 3:30 p.m. Beckman BARTOK QUARTET. Coleman Chamber Concert. \$5-4-3.

Monday, Feb. 9, 8:30 p.m. Beckman PLEASURE CENTERS IN THE BRAIN. Lecture by James Olds, professor of behavioral biology. Caltech Lecture Series. Free.

Wednesday, Feb. 11, 8:30 p.m. Beckman VIENNA CHOIR BOYS. \$6.50-\$5.50-\$4.50-\$3.50.

Sunday, Feb. 15, 8:30 p.m. Dabney THE SHANLEY VIRTUOSI. Music by Vivaldi, Haydn, Beethoven, Hindemith,

Shanley, and Berio. Free.

Monday, Feb. 16, 8:30 p.m. Beckman FUSION REACTORS — ENERGY SOURCE OF THE FUTURE? Lecture by Roy W. Gould, professor of electrical engineering and physics. Caltech Lecture Series. Free.

Friday, Feb. 20, 8:30 p.m. Beckman BIOLOGICAL EXPLORATIONS IN EXTREME DESERTS: A PRELUDE TO MARS. Lecture by Roy E. Cameron, JPL. Caltech Lecture Series. Free.

Tuesday, Feb. 24, 8:00 p.m. Beckman TUESDAY NIGHT AT THE SILENT MOVIES. "The General," with Buster Keaton. Series of four—\$7, single—\$2.

Friday, Feb. 27, 8:30 p.m. Beckman KINETIC ART SERIES. \$2.50.

Saturday, Feb. 28, 8:30 p.m. Beckman ROSALYN TURECK. Pianist. \$5.50-\$4.50-\$3.50-\$2.50.

Sunday, Mar. 1, 8:15 p.m. Dabney YOUNG ARTISTS QUINTET. Program of music by Neufeld and Brahms. Free.

Monday, Mar. 2, 8:30 p.m. Beckman LUNAR ROCKS: THE SCIENTIFIC PAYOFF FROM APOLLO. Lecture by Donald S. Burnett, associate professor of nuclear geochemistry. Caltech Lecture Series. Free.

## ALUMNI ASSOCIATION OFFICERS AND DIRECTORS

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1329 Terrace Drive, Millbrae, Calif. 94030  
**Secretary-Treasurer** Harrison W. Sigworth '44  
10 Casa Vieja, Orinda, Calif. 94563

Meetings: Engineers' Club, 16th floor, Hong Kong Bank Bldg., San Francisco. Informal luncheons every Thursday at 11:45 A.M. Contact Mr. Sigworth, 434-7700, Ext. 2918, on Thursday morning for reservations.

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**Secretary-Treasurer** Harris K. Mauzy '30  
2551 Carson Way, Sacramento, Calif. 95821

Meetings: University Club, 1319 "K" St. Luncheon first Friday of each month at noon. Visiting alumni cordially invited—no reservation.

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6581 Avenida Wilfredo, La Jolla, Calif. 92037

## Placement Assistance To Caltech Alumni

The Caltech Placement Service may be of assistance to you in one of the following ways:  
(1) Help you when you become unemployed or need to change employment.  
(2) Inform you of possible opportunities from time to time.

This service is provided to alumni by the Institute. A fee or charge is not involved. If you wish to avail yourself of this service, fill in and mail the following form:

To: Caltech Placement Service  
California Institute of Technology  
Pasadena, California 91109

Please send me: (Check one)

- An application for placement assistance
- A form indicating a desire to keep watch of opportunities although I am not contemplating a change.

Name .....

Degree(s) ..... Year(s) .....

Address .....

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