Volume 16, No. 6, October 1982

CALTECH NEWS

Lew Allen Jr. takes helm as JPL director

Dr. Lew Allen Jr. began his appointment as vice president of Caltech and director of JPL on October 1. Allen, until his retirement on June 30, was general and chief of staff of the U.S. Air Force and a member of the Joint Chiefs of Staff. He was chosen after a nationwide search conducted by a selection committee composed of Caltech Trustees, faculty, and senior JPL personnel.

President Marvin L. Goldberger said, "We are extremely pleased that a man of Dr. Allen's high accomplishments is leading JPL. He is an extraordinary individual — a talented physicist and an experienced and capable administrator — and his deep involvement with the Air Force space program gives him a sophisticated insight into JPL and its needs."

Goldberger added that Dr. Allen is committed to the civilian space program. "We anticipate that his interest in the program will assure JPL's continued leadership in this area. And his extensive military experience will help JPL in undertaking projects for the Department of Defense." (In 1981, Caltech's Board of Trustees authorized JPL to conduct DOD-funded research up to a maximum of 30 percent of its budget.)

Goldberger, who has known Allen since both were graduate students, said that "as part of continuing efforts to strengthen interactions between Caltech and JPL," Allen was also appointed a vice president of the Institute. He noted that "joint efforts in the past by Caltech faculty and JPL staff have produced excellent science and technology."

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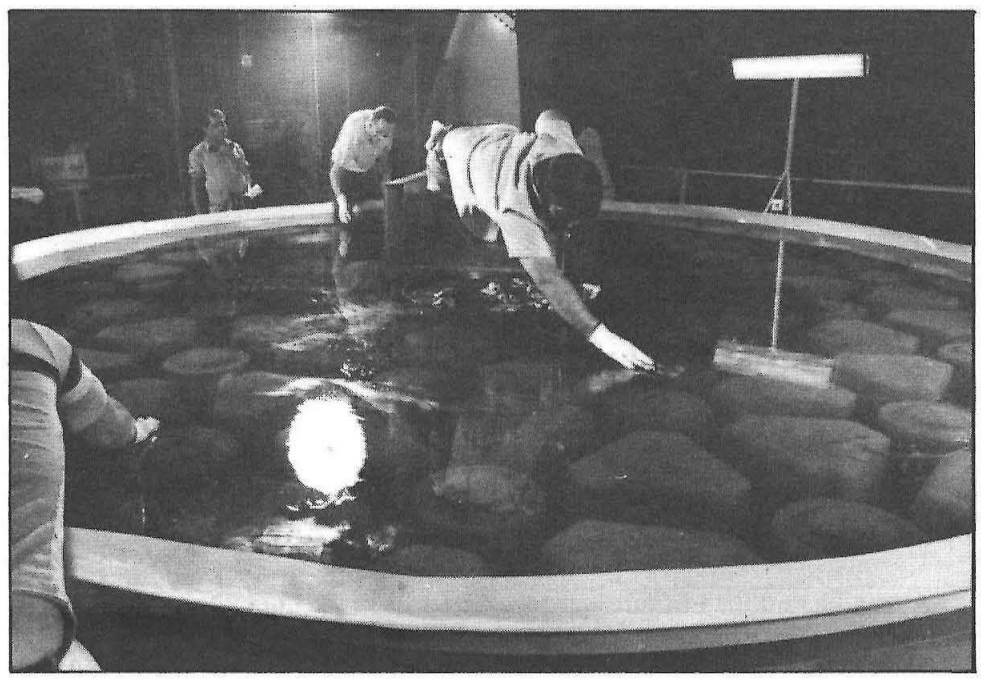
Treating the Hale Telescope "eye"



Palomar Observatory Superintendent Robert Thicksten uses hydrochloric acid and copper sulfate to remove the old aluminum surface from the mirror of the 200-inch Hale Telescope at Palomar Observatory. The mirror underwent a major treatment to improve its vision. It was taken from the telescope, and a new reflective aluminum surface was deposited on it, enabling astronomers to obtain a sharper view of the heavens.

The Caltech Dive Club: on an underwater rescue mission

Once a week this summer, half a dozen or so members of the Caltech Dive Club anchored a small boat off Point Vicente on the Palos Verdes Peninsula. Their objective: not a day of undersea recreation, but one of plain hard work.

The volunteers spent their time under water either bashing hundreds of kelp-destroying sea urchins with small hammers, or fastening young kelp plants to rocks with circular slices of inner tubes.

"What we've done is the underwater equivalent of clearing a garden of snails," said Gordon Stewart, a participant in the project. "It's hard work, but we feel like we're giving something back to the ocean, after having enjoyed it so much in sport diving."

The Dive Club members will see the fruits of their labors a year or so from now, when the present undersea equivalent of a desert, infested with sickly urchins, is replaced by luxuriant underwater forests of kelp. The kelp provides a stable environment for healthy populations of fish, lobsters, and abalone, to the delight of both surface fishermen and divers. Ironically, the urchin population will benefit too, because urchins inhabiting kelp beds are much healthier than the residents of ravaged areas.

Under the supervision of the California Department of Fish and Game, the Dive Club embarked last April on a project to clear a hundred-square-yard tract and establish a thriving kelp bed in an area that has been denuded for some 30 years. The project is part of the Department of Fish and Game's ongoing efforts to reestablish kelp beds in southern California.

Project leader for the state effort is marine biologist Ken Wilson; marine biologist John Grant trained the Caltech divers. The U.S. Coast Guard Auxiliary supplied the divers' boat.

The original kelp beds occupied some 1,800 acres in the Palos Verdes area. They were wiped out by a combination of sewage flow from the White Point sewage outfall, which severely reduced water quality, and several seasons of especially high water temperatures, which even further stressed the cold-water-loving kelp. The result of these stresses was a proliferation of sea urchins littering the seabed. The urchins fed off organic matter in the water and gobbled up any kelp plants that tried to grow.

Wheeler North, professor of environmental science at Caltech, was the first scientist to demonstrate the feasibility of clearing away urchins in such denuded areas and reestablishing a healthy ecosystem based on kelp beds. North managed to create new kelp beds off Point Loma in the early 1970s.

Since then, the Department of Fish and Game has operated several restoration projects in the area off San Onofre and off the Palos Verdes Peninsula. The biologists have found that if separate kelp forests about 100 meters square are established, they can resist the onslaughts of the urchins and grow together.

"So far we're up to 700 acres off Palos Verdes, and we feel, given the present water quality, that we can reclaim another 200 acres," said Grant. "We don't expect the kelp to grow to its original depth because the water is still not pure enough, but water quality is now at about 1956 levels, and we expect additional improvements."

Grant pointed out that, besides the loss of kelp habitats due to sewage flows, construction along the shoreline has increased the inflow of sand and gravel, burying the rocky areas favored by kelp.

Record number of students apply to Caltech

Caltech received applications for admission this year from 1,665 students — the largest number in its history — and from these drew the 213 men and women who make up its freshman class. Before this year, the largest number of applicants had been 1,618 in 1958, at the height of the *Sputnik* era. Admission was offered to 25.6 percent of those who applied this year, and 50 percent accepted. (Along with the freshmen, 20 transfer students entered Caltech this fall.)

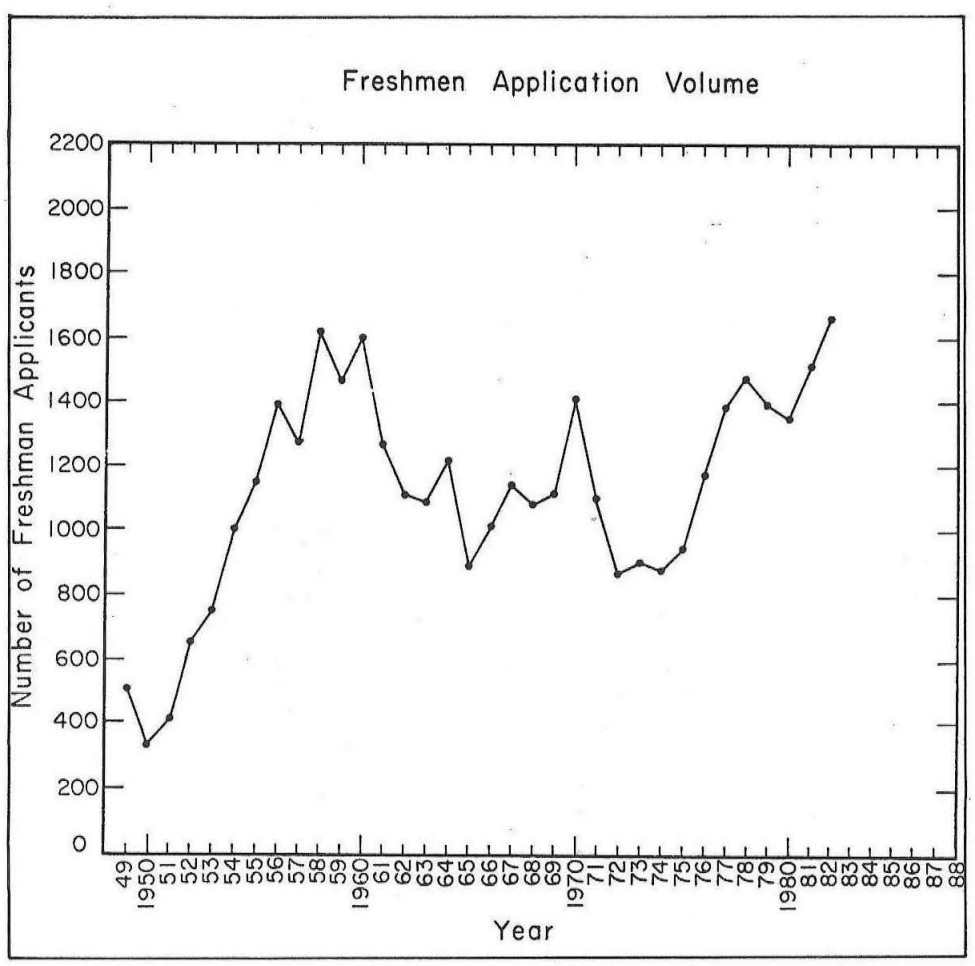
The large applicant pool is consistent with a demand throughout the country for programs in engineering education, according to Stirling L. Huntley, director of admissions and associate dean of graduate studies.

Huntley noted that, among students whose SAT scores were between 750 and 800, applications to Caltech were up 25 percent over last year. Applications were up 6 percent among those in the 700 to 750 range. The overall percentage of increase in applications this year was 10 percent.

This year's class includes 41 women — a record number. Women make up 19.3 percent of the class, up from 16 percent in 1981 and in 1980.

The new freshmen come from 32 states, with New York sending 15 — the most of any state except California. Of the class members, 40 percent are from California and 22 percent are from Los Angeles County.

Students from nine foreign countries are entering Caltech this fall — including students from Lebanon, Iceland, Ghana, Japan and the People's Republic of China. Financial aid available for foreign students was more limited this year than in the past. "We've always asked that incoming foreign students who receive financial aid be in the upper half of the new class," Huntley said. "In the past, we've been able to offer admission to 14 or 15 of those students."



This year, he said the Institute was only able to offer admission to eight.

As in previous years, the average aptitude scores of the new freshmen fell within the top two percent of the nation, and about one third of the students were valedictorians in their high school classes. Huntley noted a continuing focus on computer-related projects as extra-curricular activities. These projects seemed to come at the expense of more diverse science activities outside the classroom and — because of their similarity — make it harder to evaluate students in terms of scientific drive and creativity, Huntley said.

"Within a few years, most students will be exposed to computers in elementary school," he observed. "When this happens, they may become computer nuts by the time they're in junior high school, and go on to show more diversity in high school. This will make it easier for us to pinpoint the kinds of initiative and ingenuity that traditionally have characterized students who do well at the Institute."

Caltech welcomes new Baxter Art Gallery director

Joseph A. Belloli IV, the former curator of modern art at the Detroit Institute of Arts, is the new director of Caltech's Baxter Art Gallery, and also lecturer in art history in the Division of the Humanities and Social Sciences.

Since 1968, Belloli has held positions as curator of the Contemporary Arts Museum in Houston, the La Jolla Museum of Contemporary Art, and the Fort Worth Art Museum. He was named director of the Fort Worth Museum a year before going to Detroit in 1978.

Belloli holds a BA degree in studio art, with distinction, from Stanford, an MA degree in the history of art from UC Berkeley, and an elementary education credential from San Francisco State College. In addition to his museum appointments, he was instructor at the Walker Art Center in Minneapolis and the University of Texas at Arlington.

According to David Grether, chairman of the humanities division, Belloli's appointment as a member of the faculty should strengthen ties between the gallery and the academic community at Caltech.

Michael Smith, who had served as Baxter Art Gallery's director since 1977, resigned the position September 15.

New choral music director: Donald Caldwell

Donald Caldwell has joined Caltech as director of choral music and lecturer in music. Caldwell comes to the Institute from the University of Illinois at Chicago Circle where he was choral music director. Previously he was choral music director at Bowdoin College in Maine and at Acadia University in Nova Scotia.

A native of Pasadena, Caldwell holds a Doctor of Musical Arts degree from the University of Illinois (1975), an AM degree in music from Occidental College (1967) and an AB degree in astronomy from UCLA (1965). He was selected by a search committee headed by Lyman G. Bonner (administrator for student affairs and registrar) and made up of Caltech faculty members and student members of Caltech's choral music program.

Olaf Frodsham, director of the Caltech Men's Glee Club since 1953, retired from that role in the spring.

On the Cover

Kelp-destroying sea urchins infest the plant in the foreground, while healthy kelp grows behind it. Members of the Caltech Dive Club have been busy clearing kelp forests off the Palos Verdes Peninsula of their urchin infestations. (Story on page 1.)

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Remembering William H. Corcoran
1920-1982

William H. Corcoran, 62, the Institute Professor of Chemical Engineering, died August 21 while on an annual vacation in Hawaii.

Corcoran had been associated with Caltech for 46 years — as undergraduate, graduate student, faculty member, executive officer for chemical engineering, and vice president for Institute relations.

He earned many honors during his career, but he said that the one that meant the most to him was a plaque hanging by the door of his office and inscribed: "To our fearless leader: We promise to love, honor, and obey mass, energy, and momentum balances throughout our lives. Class of '77."

The plaque was inscribed with the names of all the students in his Optimal Design of Chemical Systems course — a token of affection undiminished by the copious amounts of work he had dispensed and the rigorous standards he had set. Equally high in his esteem was an award from ASCIT for teaching excellence.

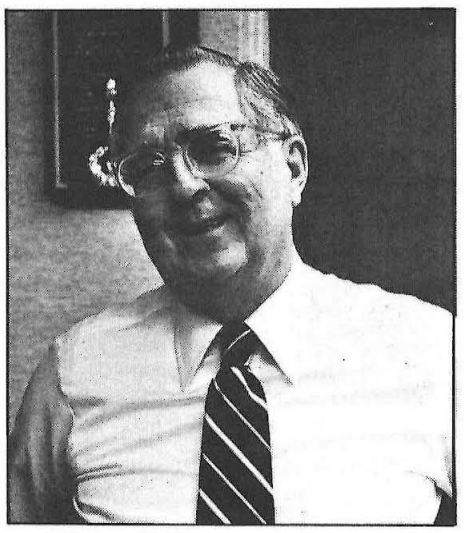
Known during his career to hundreds of members of the Caltech community, Corcoran a few years ago was affectionately described by a few of his colleagues as one who "is a prophet in the field of chemical engineering," "is overwhelmingly supportive of people he believes in and never holds a grudge," "is dedicated to his students and suffers when they suffer," "possesses no tolerance for any kind of slop," "rewards you when you do a job well by giving you more work," "puts all he has into everything he does," "is a wonderful colleague who is always helpful."

Corcoran earned his BS degree at the Institute in 1941 and continued his graduate work here, marrying Martha Rogers, then secretary to chemical engineering professor Bruce Sage. This background, Corcoran would say, gave her a handy knowledge of chemical engineering terminology. The couple were married on Sadie Hawkins Day, exactly a year after their first date. The marriage produced two children, Mrs. Raymond K. Fisher and William Corcoran, Jr., and five grandchildren.

During World War II, Corcoran joined Cutter Laboratories in Berkeley as a development engineer in biomedical-chemical engineering, but returned to Caltech as a research supervisor and development engineer for the National Defense Research Committee for the Office of Scientific Research and Development. He earned his PhD from Caltech in 1948 and became director of technical development for Cutter Laboratories in Berkeley. In 1952, he returned to Caltech as associate professor. "I just couldn't pass up the opportunity," he said once, "to work with students." And he added, "I relish the opportunity to be myself. At a university, there's more freedom to choose one's direction and little except oneself to block opportunities."

His career carried him to the top of his profession. Committed to the evolution of chemical engineering as a profession, he became, at various times, president of AIChE, chairman of the Engineers' Council for Professional Development, and a member of its board of directors, national director of AIChE, chairman of the ECPD Engineering Education and Accreditation Committee, chairman of the Education and Accreditation Committee of AIChE, and a member of the board of directors of the Huntington Institute of Applied Medical Research — to name a few.

His contributions won him many honors, including election as a fellow of the AIChE, the Lamme Award of ASEE for excellence in his profession, the Western Electric Fund Award for excellence in teaching, the Founders



William H. Corcoran died August 21.

Award from AIChE for impact on his profession, and the Educational Achievement Award from the California Society of Professional Engineers, election to the National Academy of Engineering, recognition from the Los Angeles School District as one of its 50 outstanding graduates, and numerous others.

As vice president for Institute relations, he assumed responsibility for Caltech's development and public relations programs at a time when universities throughout the country were faced with skyrocketing costs, and guided the Institute toward the successful conclusion of a $130 million development campaign.

Meanwhile, he kept up a full program of teaching and research, focusing on the pyrolysis of hydrocarbons, the reaction kinetics of the desulfurization of fuel oil and coal, fermentation processes for penicillin and vaccines, and the development of mass parenteral solutions and peritoneal dialysis. Most recently he worked on fluid mechanics of artificial heart valves. He also was active as a consultant to the biomedical industry.

An ardent sports enthusiast — as spectator and participant — he followed college football religiously. His students observed that he could describe the contributions of a quarterback with the authority he used to explain which free radical is essential in a chemical reaction. A baritone, he performed in productions of the Caltech Stock Company — members of the Caltech community who appeared in musical productions on special occasions. He enjoyed his avocado and lemon ranch near Fallbrook.

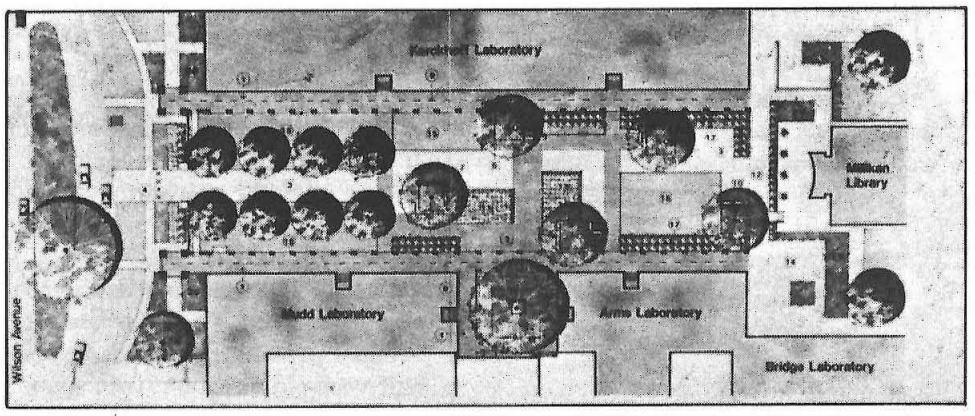
Corcoran's tendency to find life full of exciting things to do never diminished. He recently summed up his feelings about all the diverse elements that characterized his interests, the challenges he met, and the places where he met them, by saying, "Everything that's happened to me has been good. I don't know why I've been so damn lucky!" Contributions may be made to the Office of Memorial Funds, Caltech 1-36.

A transformation for Millikan mall

A gift from an anonymous donor has made it possible to transform the Millikan mall (between Wilson Avenue and the library) into a park-like area with small garden spots and patios.

The transformation began in February with the transplanting on the mall of five 30-to-40-foot coast live oaks. Over the summer, the diseased and aging cypress trees were removed, and the ground was built up to about six inches to meet the level of the walkways of Mudd, Arms, and Kerckhoff laboratories. Matching tile was extended out to the mall at selected points to form patios, separated from the lawn and concrete sections by shrubs and low walls. Eight jacaranda trees form a grove at the west end of the mall. Over the winter, beds of roses will be planted.

The donor also gave funds making it possible to relandscape Winnett plaza and the Athenaeum grounds, to refurbish the tennis courts and the baseball field, and to carry out other campus beautification projects.



Coast live oaks will be featured on the new Millikan mall. Plans for the mall are shown above.

Lew Allen takes helm as JPL director

Continued from page 1

As examples, he cited the involvement of Caltech faculty in both the Voyager and Infrared Astronomical Satellite missions, and the Caltech-JPL collaboration on construction of the wide-field planetary camera for NASA's Space Telescope.

Allen, pledging to continue JPL's leadership in the peaceful study of the universe, has said "JPL has done magnificent things in planetary exploration. I intend to seek the support of space scientists and to do the best I can to continue that record of achievement." In media interviews, Allen has stressed that Caltech must not allow an increased reliance on Department of Defense contracts — leading to highly classified research — to drive a wedge between the lab and the Caltech campus.

In the short run, Allen has said, the space shuttle program has absorbed most of the NASA budget while the U.S. political climate has precluded the availability of more money for NASA. One of his tasks, he has observed, will be to "ensure that JPL's great capabilities in planetary exploration be preserved and then increased when the NASA budget permits."

Lew Allen Jr.

As chief of staff of the Air Force, Allen was the senior officer responsible for the administration of a combined military and civilian force of almost one million people. (At JPL, his work force is about 5,000.) As a member of the Joint Chiefs of Staff, he and the other chiefs functioned as the principal military advisers to the secretary of defense, the National Security Council, and the president.

Allen, 56, graduated in 1946 from the U.S. Military Academy at West Point. In 1950, he entered graduate school at the University of Illinois, receiving his MS degree in physics in 1952 and his PhD in physics in 1954. He was then assigned as a research physicist to the Los Alamos Scientific Laboratory, researching the physics of high-altitude nuclear explosions. In 1957, he became science adviser to the Physics Division of the Air Force Special Weapons Center.

In 1961, he moved to the Office of the Secretary of Defense, Space Technology Office, in the Directorate of Research and Engineering. From 1965 to 1973 he served in the Office of the Secretary of the Air Force, initially in Los Angeles as deputy director for advanced plans in the Directorate of Special Projects. In 1968 he went to the Pentagon as deputy director of space systems and later director of special projects. In 1971 he became director, with additional duty as deputy commander for satellite programs, Space and Missile Systems Organization.

Allen was appointed in 1973 as deputy to the director of Central Intelligence for the Intelligence Community in Washington, D.C., and later that year he became director, National Security Agency, and chief, Central Security Service. In 1977, he was named commander of the Air Force Systems Command. He became chief of staff for the U.S. Air Force in 1978.

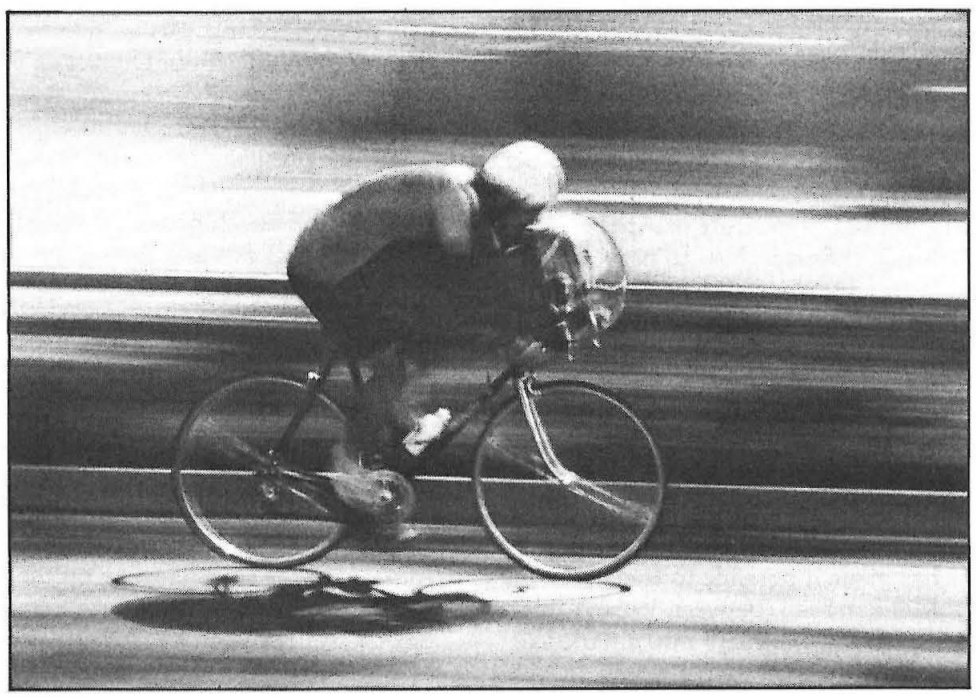
A command pilot with about 5,000 flying hours, he is a member of the National Academy of Engineering.

Alumnus tackles—and accomplishes—"almost impossible" feat

James A. Woodhead (BS '69) didn't take seriously the article that termed it an "almost impossible feat" to bicycle from San Francisco to Los Angeles in less than 24 hours. And on his second try this summer, he became the first solo rider to make the journey in less than a day.

Woodhead shaved almost three hours from the time it took a team of riders to make the trip several years ago. Riding from city hall to city hall, he left San Francisco just before 3 a.m. and completed his journey before midnight. His total time: 21 hours, 20 minutes, and 41 seconds. He recorded 403 miles on his odometer.

Woodhead, research fellow in geochemistry at Caltech, is quick to give credit to two other Caltech alumni whose technological expertise helped him on his way: Glenn Brown (BS '69), who designed the Zipper aerodynamic fairing, a streamlined windshield on Woodhead's bike, and Donald R. Reiterman (BS '58), who



modified the Bell cycling helmet, which Woodhead says may have saved his life in an accident after the record-setting trip.

Woodhead is the first cyclist to make the trip with a fairing, and he also equipped himself with a "girdle" of stretch fabric that was connected to either side of him and around behind him, further improving aerodynamics. Two friends followed behind in a car loaded with food and drink.

The Caltech geochemist had cycled 400 miles in 24 hours three times before, all without a fairing. Now he plans to attack another record — that from Seattle to San Diego.

Locally, he commutes to Caltech every day from Altadena. Usually he brings a passenger — his three-and-a-half-year-old daughter, who spends her days at Caltech's Child Educational Center.

Research target: how brain and computer process information

A new interdisciplinary research effort that could aid both the development of advanced computers and the understanding of the brain is under way at Caltech, funded by the System Development Foundation of Palo Alto, California.

The $1.5 million grant will support efforts under Carver Mead, the Gordon and Betty Moore Professor of Computer Science, to study the "physics of computation" — an inquiry that links computer scientists, physicists, and physiologists in efforts to understand how information is processed in both brain and computer.

Mead's past research has focused on the design of advanced computers based on Very Large Scale Integrated (VLSI) circuitry, microelectronic arrays that combine millions of computer elements on tiny silicon chips.

The grant will also support visits to Caltech by scholars in the field, the development of resource materials, and the research of graduate students in both computer science and biology.

"Gentleman and man of culture, Smartest guy in school:" Karzas heads Alumni Association

By Winifred Veronda

"We idolized him as a gentleman and a man of culture," recalls James W. Workman (BS '57, MS '58).

"He was the smartest guy in school," remembers John R. Fee (BS '51). "What *one* word best describes him? Smart!"

William J. Karzas (BS '49, PhD '55), gentleman and man of culture, the smartest guy in school, is putting his talents to work this year in a new capacity — as president of the Alumni Association.

Workman (who knew Karzas as resident associate in Ricketts House when Workman was an undergraduate there) and Fee (who knew him when he and Karzas were undergraduates in Blacker) both agree that the choice is a fine one for the Alumni Association.

A native of Chicago, Karzas entered Caltech in February 1944 when he was 17 — a year after his brother (Byron C. Karzas, BS '49) had enrolled here. Stepsons of an MIT alumnus who lived for a time in California, they evaluated both schools and chose to come west.

World War II was moving rapidly through its final stages, and on the Caltech campus, the Navy loomed over the Institute's academic programs. Karzas enrolled in a training program for electronic technicians when he was called up for service a year later, a month after his 18th birthday. He finished the training program while in the Navy and, the war over, came back to Caltech as a sophomore in the fall of 1946. By this time he had decided to become a physicist.

Swollen by returning veterans, the sophomore class that year was the largest in Caltech history. Student life in this era of the veteran went on as usual in most respects, Karzas believes, the older students participating actively in student affairs and "finding new and different ways of getting into mischief." But certain types of hazing, deemed juvenile by men who had faced death, disappeared during this period and never returned.

As an undergraduate, Karzas was active in interhouse sports and manager of the varsity teams in football, track, and cross country. He was a member of the ASCIT Board, and

William Karzas

editor (for a term) of the *California Tech*. "During my senior year," he says, "I ran for everything and came in second." In that era, honor keys were awarded to students for outstanding contributions to student life through extracurricular activities, and Karzas was the recipient of two of these.

A member of Blacker House, he was elected vice president and is remembered for generosity in giving other students help with academic needs. One of these beneficiaries, John Fee, remembers Karzas as not only bright, but "extra-well liked, a little quiet, and involved in campus politics."

After graduating in 1949 along with his brother, Karzas went on to do graduate work in physics at the Institute, preparing his thesis under Robert Christy (professor of theoretical physics). Kellogg Radiation Laboratory — and the Kellogg parties — were an important ingredient in his graduate school years. Last fall, he was back on campus for the Kellogg 50-year reunion and for Willy Fowler's 70th birthday party.

For two years while he was a graduate student, Karzas was a resident associate in Ricketts House, thus "probably extending my academic career an extra year."

"It was fun," he says, "and I felt I was doing something to help, as well as getting experience in dealing with people."

James Workman, an undergraduate in Ricketts during those years, recalls visiting Karzas for help with homework assignments, and how Karzas would invite undergraduates to listen to classical music in his sitting room.

"We thought of him as very cultured," says Workman, "and he was highly respected. He supported us and took his job seriously — helping with personal as well as with academic problems.

"He believed an RA should participate actively in the life of a house. But on occasion, when he knew we were planning some mischief that he didn't approve of, he would offer his opinion about what we were up to, and then simply disappear."

In those days, undergraduates were still required to wear coats and ties to dinner, and Workman notes that some students would set out to "gently test the system."

"On occasion," he says, "he would remind us that we should *also* wear to dinner the pieces of attire that are normally associated with coats and ties — shoes and socks, for instance, shirts with collars, and trousers. And he would suggest that our ties should be tied with some sort of recognizable knot."

Workman also remembers leaning out the window of Ricketts House with other undergraduates during commencement (ceremonies at that time were conducted on a platform west of the Athenaeum) to make faces at Karzas as he was awarded his PhD degree.

After graduation, Karzas went to work for the Rand Corporation as a member of the technical staff. He left in the spring of 1971 to form a new company — R&D Associates — along with several other former Rand employees. "We started with 30 staff members," he says, "and now we have about 400."

The firm, a "think tank," specializes in defense-related work for the government. Most recently Karzas has focused on protecting civilian and military systems from the effects of the electromagnetic pulse generated by nuclear weapons.

Work that is potentially depressing, but necessary, Karzas believes, and essential in maintaining a balance that has prevented nuclear war. "And if it must be done," he says, "then I want it to be done well, and responsibly."

Karzas, who is single, lives in Los Angeles. He still loves classical music, and has a large record collection. Over the years, he's built much of his own hi-fi equipment. "It's fun to design your own," he says, "and to see if you can do better than someone else."

During the years since 1954, Karzas's ties with Caltech had loosened. Then, about four years ago, a friend called to ask if he would become a member of the Alumni Association Board. Karzas found the renewed contact with the Institute "very satisfying, " and he has continued to work for the association. "It's good to be back home again, and to feel I'm helping Caltech," he says.

As president of the Alumni Association, he hopes to expand programs — and opportunities for involvement — for alumni outside of southern California. He points out that the next trip to Hawaii with Robert Sharp will give preference to East Coast alumni, and that a trip to Meteor Crater with Eugene Shoemaker has been planned for alumni in Arizona.

On a nationwide basis, he would like to see more alumni involved with student applicants to Caltech — through help with student interviews, and perhaps through hosting dinners for students who have been admitted to the Institute but who have not yet accepted admission.

Over the long run, he would like to help strengthen a coast-to-coast network of alumni who could help one another, through job placement assistance and in other ways.

Karzas values his Caltech education and the role it has played in his achievements. "Caltech teaches by doing," he says. "It imposes a discipline that teaches you to start with an abstract thought and turn it into a concrete result."

And, through application of that premise over the coming year, the Alumni Association can expect a lot of concrete results as its 1982-83 programs unfold under Karzas's direction.

Physics majors in class of 1983 attract highest salary offers

That classic being, the Caltech graduate with a BS degree in physics, edged out BS degree recipients in all other options this year to attract top salary offers. Physics majors were offered average monthly salaries of $2,444, followed by chemical engineers, $2,371; electrical engineers, $2,249; other engineers, $2,189; and applied physicists, $2,113.

A year ago, chemical engineers attracted top offers of $2,118, followed by electrical engineers who were offered $1,983. The previous year, top salaries went to electrical engineers.

The highest offer to a physics major with a BS degree was $3,333 a month; the graduate declined this and several other offers and started his own company. He had been working as a consultant in the computer industry through his four years as a Caltech undergraduate.

Why did physicists draw the highest average salaries this year? Sally J. Asmundson, director of the Office of Placement and Career Planning Services, notes that most Caltech students with BS degrees in physics also have strong backgrounds in electrical engineering and applied math. Many of them take jobs in industry where they draw heavily on their knowledge in these fields, she says.

"All Caltech students have strong technological backgrounds," she says, "and job offers are often based on the interviewer's reactions to an individual — rather than to a specific option."

At the MS degree level, civil engineers attracted the highest average offers ($2,526) followed by electrical engineers ($2,436), chemical engineers ($2,420), and chemists ($2,400).

Geologists ranked at the top of the list among PhD degree recipients with average offers of $3,388, followed by computer scientists ($3,376), applied physicists ($3,312), mechanical engineers ($3,250), and applied mathematicians ($3,209).

(Some graduates have received more than one Caltech degree; the following figures reflect the highest degree earned.)

Of the students receiving BS degrees this year, 78 went on to graduate school or into professional programs, 40 took jobs, and 22 were still looking or taking time off in late July. Among the men and women graduating with MS degrees, 72 went on to graduate school, 44 accepted jobs, and 7 were continuing to look by late summer.

Placement and Career Planning noted a shift in the career direction of this year's PhD degree recipients — one that reflects a nationwide trend that causes concern for the future of academic institutions. Of the new PhD's, 68 took jobs in industry and 47 went into academic positions. Last year, 68 went into academic work and only 32 went to work in industry.

One who did not follow this trend was a PhD degree recipient in mechanical engineering. She accepted an academic post (one of three offered her) at $12,000 under a salary offer in industry.

Down this year was the demand for chemical engineers at all degree levels, a reflection of a consolidation within the petroleum industry. Undergraduates in chemical engineering, who last year observed graduating seniors in their major attract up to eight job offers, this year contented themselves with two or three.

According to Asmundson, the number of firms interviewing at Caltech was about the same as last year. Well represented were many small companies founded by Caltech alumni, or with Caltech alumni in senior positions. The size and location of firms coming to campus varied widely, Asmundson said. "No one company dominated," she commented. Eventually, the graduates accepted jobs with 80 different firms. Hughes (including all of its divisions) employed the largest number of graduates — 16.

Placement and Career Planning boosted efforts this year to help ongoing students find summer jobs. The number of interviews for summer positions by prospective employers increased 300 percent over 1981. IBM led the way in offering summer positions; the company employed at least 23 Caltech students, all of them working in Tuscon, Arizona, or San Jose, California.

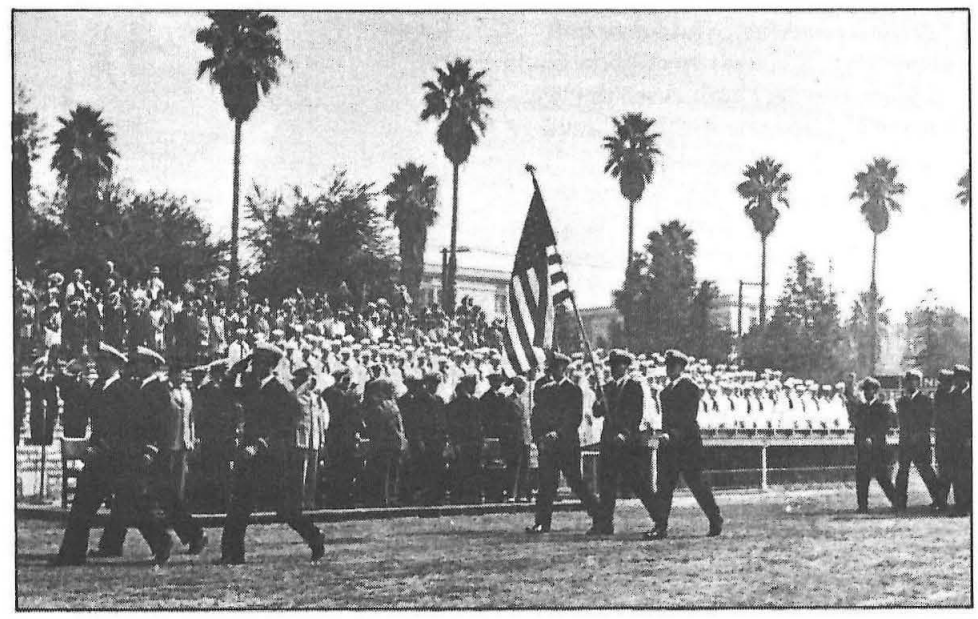
An innovation of the Placement Office this year was Caltech's first annual Career Day. Representatives of 25 companies came to the campus to offer general information primarily for sophomores, juniors, and graduate students.

[The Way It Was]

1920

James A. B. Scherer resigns as president of Caltech after 12 years and the Famous Players-Lasky Corporation announces that the educator has signed a long-term contract to write photoplays. "While Dr. Scherer has written fiction for years and lately has been doing some work for the Lasky concern, it is as a college executive and writer on economic subjects that he is best known," notes the *Times* on September 13. Pending appointment of a new president, the educational affairs of the Institute are to be administered by a faculty committee.

Scherer initially presented his resignation due to ill health in March but instead was offered a six-month leave. "When he assumed the presidency, the Institute's work was almost wholly that of a prep school," reports the *Pasdena Post*. "Today it is a scientific institute of recognized standing."



Robert A. Millikan reviews members of the Naval V-12 College Training Unit. Members of the unit were ordered to Caltech for their engineering training during World War II.

1943

Nineteen-year-old Dorothy Young is chosen "most beautiful girl on the Caltech campus," according to the April 26 *Post*. Ms. Young, who works eight hours a day, six days a week, at an aircraft plant, takes a course in production design on the Caltech campus at night. At the factory she is a group clerk in charge of detail assembly templates, keeping track of sheets of metal with lifesize drawings of planes on them.

"With the opening of war training courses for women, co-eds have appeared on campus for the first time in the school's history, " the *Post* reports (incorrectly). "Miss Young likes discussions in her class on costs of machinery and how to produce economically," The *Post* relates, "Not that she expects to be working after the war. 'I should be about the right age to get married after the war and I'll be glad to settle down and let the men have the jobs,' she declared. 'Most of the girls in defense work feel the same way.' "

1970

An idea that warmed the blood of undergraduates and stirred up heated debate among faculty members has faded as the board of trustees of Immaculate Heart College has decided to proceed with its original plan to move the campus of the Catholic liberal arts girls' school from Hollywood to Claremont, *E&S* reports.

IHC plans to associate with Claremont Colleges were interrupted in 1969 by an enthusiastic invitation from some Caltech undergraduates and faculty members to move next to the Institute campus. The sale to IHC of some Caltech land on the northwest corner of San Pasqual and Wilson would have facilitated exchange of students in certain classes, and would have made the IHC women more available for contacts with Caltech students. But Caltech could not make this kind of commitment without long-term evaluation, and IHC was faced with deadlines.

Tucker Gordon recalls Caltech's post-war era

By Winifred Veronda

The late 1950s — that was an exciting time to be a graduate student in science and engineering. Even before Russia launched *Sputnik* in October 1958, the government wooed young people into science and technology with liberal student aid, and talent-hungry private industry plied graduates with job offers. "We want men to create tomorrow's headlines," ads proclaimed in *Engineering & Science* magazine, and the ads went on to explain matters like "Why Hughes cannot hire the *average* engineer despite our unprecedented number of openings."

The cold war cast a shadow over optimism for the future, but that didn't stop Caltech graduate students from using atom bomb testing near Las Vegas as an occasion for an all-night study break. One of these, a graduate student in chemistry, Thomas Gordon, remembers studying all evening, piling into the car with several friends and driving to Las Vegas to view the tests on the distant horizon, then returning home after breakfast for a long evening in the laboratory.

Gordon (MS '56, PhD '59) recalls these years at Caltech with fondness. A liberal arts major at Princeton, he came to Caltech in 1954 to specialize in chemical engineering but switched after two years to chemistry.

"Caltech was very good to me," he says. "That's why I've tried to help it over the years. I'd like to pay back what I received, tenfold." Gordon was Alumni Fund area chairman for Pittsburgh for several years, and has coordinated meetings of Pittsburgh-area alumni for the Alumni Association. He has been a member of The Associates since 1977.

Today an executive in the family business in Pittsburgh, Gordon reminisced about his Caltech years while sitting in his office on the banks of the Ohio River. "Caltech's emphasis on thinking for oneself is invaluable," he said. "It teaches people to grab hold of any situation and take it from there."

"I remember the times a professor would send one of us to the blackboard to figure out a problem. To stand in front of a friendly but questioning group while we tried to find an approach that would work — that was rough, but a superior teaching technique."

Married to a local girl from Pittsburgh during his latter years at

Tucker Gordon

Caltech, Gordon spent his first two years on campus as a resident associate in Dabney House. The late William H. Corcoran (the Institute Professor of Chemical Engineering) was a young faculty member when he knew Gordon, and this summer recalled him as "one damn good guy, the kind of person we should have as an RA in every house. He was very upbeat and enthusiastic and, as I remember him, he never made mistakes."

Robert G. Rinker (MS '55, PhD '59), now chairman of the department of chemical and nuclear engineering at UC Santa Barbara, remembers Gordon as "level headed, good natured, competitive, ingenious — and an enthusiastic athlete. He was a good wrestler. He would challenge the bigger guys to wrestling, and he always wasted them."

After graduation, Gordon went to work for S. B. Penick Co., a pharmaceutical and fine chemicals division of Corn Products. Here he was involved in research on pharmaceutically active compounds. He later worked in Toronto as liaison representative for a subsidiary of the firm and headed a research effort in synthesizing novel and useful compounds.

Then, four years after graduation, his father died, and Gordon decided to join his brother in the family business. He is enthusiastic about the choice he made. "We've had a lot of fun," he says. "In a small company, you can implement an idea as quickly as you wish, and the success or failure is apparent immediately."

Gordon describes the business that keeps him occupied as an unusual one. The firm (Gordon Terminal Service Co.) is a service industry involved in manufacturing and distribution for major chemical and petroleum companies, producing about 400 million gallons of liquid products a year.

While he was a graduate student, Gordon considered an academic career but he wanted time to explore interests beyond his work and wondered whether being a university professor would allow him enough freedom to do that. Today he explores those interests with gusto. He has collected art (French Impressionists and German Expressionists) and English shotguns for about 25 years. He hunts pheasant and quail, fishes for trout, and is a skeet shooter. His travels have taken him — among other places — to Scotland several times to hunt grouse.

Active in the community, he has been a Sunday school teacher in the Presbyterian church, president of the board of the Pittsburgh Child Guidance Center, and a member of the local school board. Long interested in Scouting, he helps lead a weekend Scout outing every month and a longer trip in the summer — last year, backpacking in Canada, the year before to Kings Canyon, California.

But today, more of his time goes to his family — now including 10 children. A widower with four children, Gordon two years ago married a widow with six children. The new total: five boys and five girls. Says Gordon: "We frequently have 15 to 20 people for dinner on Sunday. It's great!"

"There's always a sports event to go to involving our children," he adds, "and generally more than one. Last week we went to two basketball games, a wrestling match, and a gymnastic event — all in the same evening."

The marriage was strongly encouraged by the children — two sets of whom were friends and classmates. Gordon recalls how the two who are now college sophomores were out on a date and schemed to have their parents meet by pulling a distributor wire in the car they were driving. Thus Gordon had to drive them home, and encountered the future Mrs. Gordon. Mrs. Gordon is keeping notes for a book (humorous, Gordon stresses) on merging two households with 10 young people.

"Tucker was wise, an astute observer of life," recalls one individual who knew him by that name as a graduate student. As he surveys his *own* life, Gordon is happy with the choices he made. "I appreciate all the good things that have happened to me," he says. "I wouldn't dare change a thing."

Concluding a venerable Caltech tradition — lunch at the Athenaeum — are Yuk Yung, Clair Patterson, and Andrew Ingersoll of the Division of Geological and Planetary Sciences.

Apollo Belvedere: He's making a comeback

By Phyllis Brewster

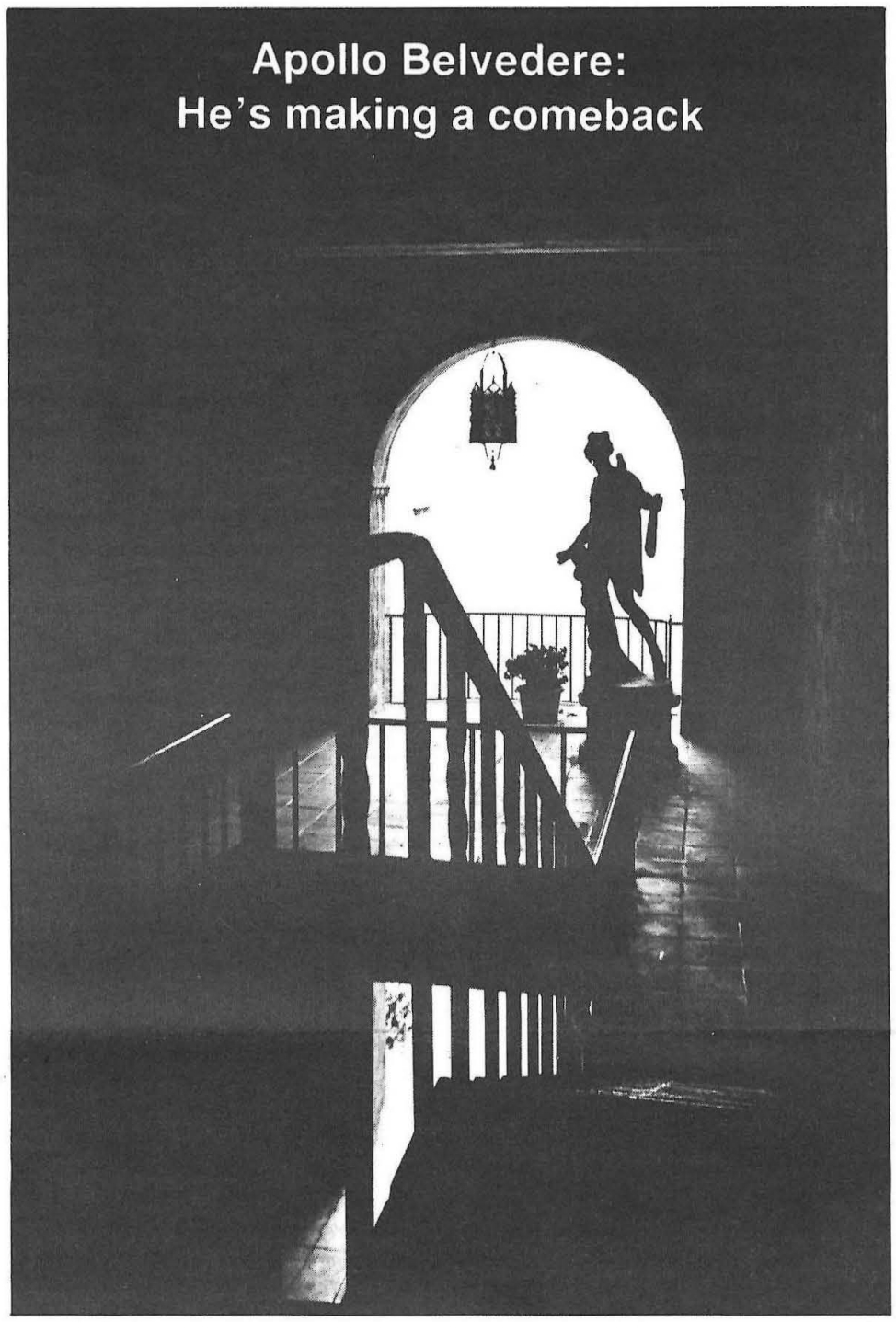
The Apollo program of manned exploration of the moon is only one of the Apollos in which Caltechers have a vested interest.

Today, in the recesses of the former steam plant on campus — now a storage area — is another Apollo, which has had the attention of four generations of the Caltech community. Apollo Belvedere, the seven-foot-four-inch Carrara marble statue of the Greek god of the sun, graced the halls and gardens of campus from 1910 until 1980, when it fell on hard times. Now, after two years of neglect and abuse, Apollo Belvedere has found some champions in the members of the Administrative Committee for Institute Art, who are arranging a new life for the old piece of statuary.

Caltech's Apollo is a modern copy of a Roman copy (now in the Belvedere wing of the Vatican Museum) of an original Greek bronze, believed to have been the work of the fourth century Athenian sculptor Leochares. Caltech's Administrative Committee for Institute Art is an advisory body of art-oriented faculty and staff, which was convened in 1979 by President Goldberger to come to the aid of the Institute's fine art holdings — many of which were in pressing need of attention. Apollo Belvedere was one of these.

When Apollo came to the Throop Polytechnic Institute 70 years ago, it was on "indefinite loan" from Louis Bradbury (of the Bradbury Estates and Bradbury Building family), at the suggestion of Throop campus architect Elmer Grey. Grey had discovered the Bradbury-owned sculpture in an old wooden house just above the Broadway tunnel in downtown Los Angeles — draped in sheets so as not to offend the sensitivities of the women employed there.

At Caltech, Apollo's nudity was not particularly a matter of concern to the campus inhabitants — at least not during its first 30 years, when it stood on its four-foot marble pedestal in the main foyer of Throop Hall. But when Throop was remodeled in the 1940s, and Apollo was moved to an exterior balcony connecting Throop and Kellogg, the statue was not only exposed to the elements, but also to the senses-of-humor of three decades of Caltech students. At some time during those next 30 years Apollo lost the five fingers of his right hand and that part of the anatomy which is often covered by a fig leaf.



For about 30 years, Apollo graced an exterior balcony connecting Throop and Kellogg. During that era (and during the years he stood in Throop's foyer), he was a notable landmark on the Caltech campus.

But this was not the total of Apollo's degradation. When Throop was razed in 1973, Apollo was moved to Dabney Gardens, although not on its original marble pedestal, which disappeared (but has since been found). Seven years later, when the gardens were renovated, Apollo disappeared, and after that became the brunt of a hide-and-seek game.

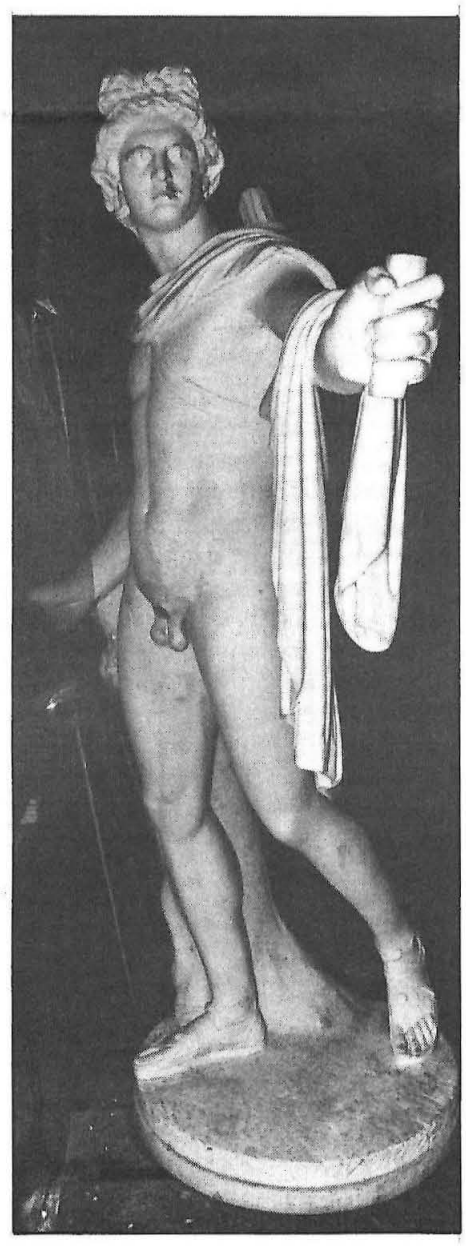
First it was stored in the steam plant, where it acquired some rust stains from the dripping water pipes. Then it was gone, and turned up outside the entrance to Lloyd House, next in the Dabney Gardens storage room, then back in the steam plant. During these misadventures, Apollo suffered further defacement, this time from black and green felt pens and silver paint.

Enter the heroes. A few months ago, two people among a number on campus who were becoming concerned over the fate of Apollo — Nicholas Tschoegl, professor of chemical engineering and chairman of the Institute art committee; and Rudi Molnar, member of the engineering and estimating staff at physical plant — began an Apollo rescue mission. While Molnar got appraisals on the cost of cleaning and restoring the statue, Tschoegl went to the committee for their advice and approval of contributing to the cost of restoration and for their ideas on a new location for the statue.

The estimated cost of a professional cleaning is $1,000. Estimated cost of restoring the fingers (which were found in the safekeeping of Institute Archivist Judy Goodstein) and of the fig leaf (which was not) is between $1,500 and $2,500.

The only unsolved problem then is a new location for Apollo. Committee members feel that it should be inside a building, away from deteriorating weather conditions. If that happens, however, perhaps "Belvedere" would not literally apply to our Apollo, as the dictionary shows the word to mean "an open, roofed gallery, situated so as to command a fine view."

Regardless of where Apollo finds a final resting place, surely his namesake will be looking down from Mt. Olympus, warming with favor the rescuers of the piece of art bearing his name. May the sun shine on . . . .



Today, Apollo languishes in the steam plant. But better days are ahead.

Woodson, Richards draw top Fund honors

Alumni Fund area chairmen William L. Woodson (BS '48, MS '49) and Raymond G. Richards (BS '40) received top honors for overall achievement at the Alumni Fund Leadership Conference on the campus in August. About 60 volunteers attended.

Woodson, a new area chairman, won a Rookie-of-the-Year award for obtaining gifts from 83 percent of the alumni in his area — TRW. With the help of 18 volunteers, Woodson boosted participation from last year's 64 percent. Richards, East San Fernando, earned a Pro-of-the-Year award. Richards, with 15 volunteers, increased participation in his area from 39 to 60 percent.

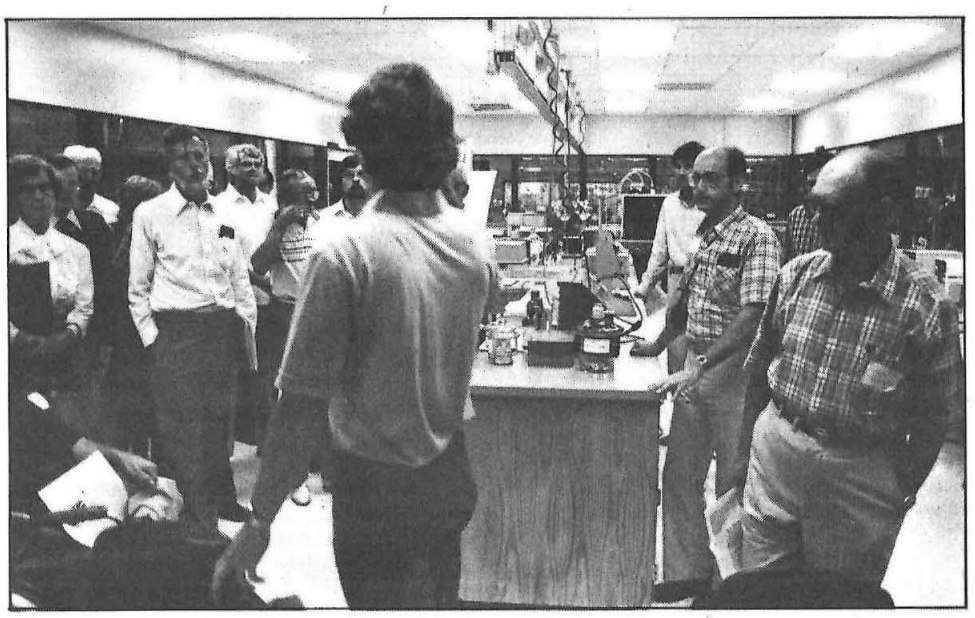
Frank Fleck, BS '42, received special recognition for achieving the fund's top percentage participation (88 percent in the desert communities). Honored as top dollar getters were David S. Wood (BS '41, MS '46, PhD '49) and W. Ben Davis (BS '54). These volunteers raised $52,170 from alumni at Caltech.

David B. McCarroll, BS '66, was recognized for increasing participation in his area, Covina, from 45 to 74 percent, while Kirk M. Dawson (BS '61, MS '62) of JPL was honored for recruiting 25 volunteers to help him contact co-workers at JPL. Special recognition for outstanding achievement also went to David Kofahl (Ex '44) of Arcadia, who raised $43,226 from 67 percent of the alumni in his area; Robert E. Foss (BS '32) of Rancho Santa Fe, $39,144 from 65 percent; David S. Rathje, BS '51, who boosted participation in Marina del Rey from 63 percent to 72 percent; and Robert Jennings (BS '50, PhD '55), who increased participation in Oklahoma from 43 percent to 70 percent.

Craig Elliott was honored as chairman of the class of 1957 25th anniversary gift.

Kenneth Cuthbertson, administrative vice president for the James Irvine Foundation, talked at noon about the foundation's challenge program, and at dinner Caltech archivist Judith Goodstein spoke on "Famous and Not-So-Famous Tales from Caltech's Past."

During the morning and afternoon sessions, the participants were involved in workshops designed to help them present Caltech's needs. Leaders in the Alumni Fund, the Alumni Association, and the Institute administration were featured on the program.



Dean Roddick, graduate student in chemistry, takes alumni attending the Leadership Conference on a tour of the new Mead Undergraduate Chemistry Labs.

ALUMNI ACTIVITIES

Monday, October 25
New Jersey alumni meeting, Landmark Inn, Woodbridge, New Jersey. Cocktails, 6 p.m.; dinner, 7 p.m. Robert Sharp, the Sharp Professor of Geology, emeritus, will speak on "Glaciers, Here and There." Cost: $13 per person.

Tuesday, October 26
Boston chapter meeting. Jean-Paul Revel, the Albert Billings Ruddock Professor of Biology, will speak on "The Cells' Ma Bell." Details will be announced.

Thursday, October 28
Washington, D.C., chapter meeting. Pier 7 restaurant, 650 Water Street, SW, Washington, D.C. Cocktails, 6:30 p.m.; dinner, 7:30 p.m. Victor Gilinsky, commissioner, U.S. Nuclear Regulatory Commission, will be the speaker.

Saturday, November 13
Interhouse Dance. Alumni are welcome. The Athenaeum will open a bar for alumni visitors.

Saturday, January 1
Annual Rose Parade Special. Continental breakfast in the Athenaeum, 7:30-9:30 a.m.; walk to Colorado Boulevard and view the parade from reserved seats, 9:30-11:15 a.m.; buffet lunch in the Athenaeum or bus to the Rose Bowl with box lunch, 12 noon. Prices to be announced.

Why are these men wearing pajamas?

Legends of Caltech will reveal the true and only slightly expurgated stories of this and many other Caltech pranks.

Legends is in production, and students and alumni will be contacted this fall so they can buy this jewel of prose (or get a friend to buy it for them for Christmas).

WILL DODGE, BS '44, MS '47; RUBE MOULTON, BS '57; HARRY SIGWORTH, BS '44; CHIP SMITH, BS '70.

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David B. Wilford
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President Melvin E. Holland
Secretary George Langsner
916/487-9938

Meetings: Second Friday of each month, September through June, Mansion Inn, 16th and H Streets, Sacramento. Informal luncheon, visiting alumni welcome, no reservation needed.

SAN FRANCISCO CHAPTER
President Ben G. Burke
919 Carl Road, Lafayette, CA 94549

Vice President Adrian Smith, Jr.
926 Flint Avenue, Concord, CA 94518

Secretary/Treasurer Stephanie Charles
777 West Middlefield Road #73, Mountain View, CA 94043

Meetings: Engineers' Club, 16th Floor, Hong Kong Bank Bldg., San Francisco. Informal luncheons every first Thursday at 11:45 a.m. Contact Chip Smith, 415/781-4211, ext. 2507 or 2221.

San Francisco Peninsula luncheons: Ming's Restaurant, Palo Alto. Luncheons third Thursday of every month at 12 noon. Call Hugh Dubb, 415/421-2674, for information or reservations.

SEATTLE CHAPTER
Contact Ronald S. Carson
3839 Evanston Avenue N. #5, Seattle, WA 98103

WASHINGTON, D.C., CHAPTER
President John T. Cookson, Jr.
7508 Masters Drive, Potomac, MD 20854

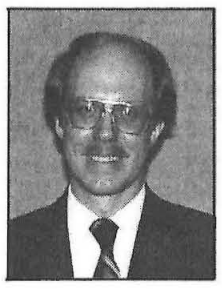
Vice President Michael B. Wilson
3119 Homewood Parkway, Kensington, MD 20795

Secretary/Treasurer Madeline A. Shea
2700 Maryland Avenue, Baltimore, MD 21218

The Alumni Fund launches a new year

New Fund Council members announced

New members named to the Alumni Fund Council are:



Terry G. Allen
BS '67

Claude Alan Beagle
BS '70

E. T. Grinthal
PhD '69

Lawrence G. Widdoes
BS '41

Area chairmen lead Fund solicitation drive

Alumni Fund area chairmen for 1982-83 are listed below, according to their geographic regions: Region 1 — William L. Deniston, BS '41, Alhambra-South Pasadena; James T. Luscombe, BS '51, San Marino; David M. Cole, PhD '80, South Central Pasadena; Robert Brydolf, BS '44, East Pasadena; Robert C. Tookey, BS '45, North East Pasadena; Frank D. Dryden, BS '54, MS '57, Arroyo; W. Ben Davis, BS '54, Caltech; Edward B. Lewis, MS '43, PhD '42, Caltech; David S. Wood, BS '41, MS '46, PhD '49, Caltech; Kirk M. Dawson, BS '61, MS '62, JPL; Harold B. Crockett, MS '40, La Canada-Crescenta Valley; Robert M. Worlock, PhD '58 Altadena; David C. Kofahl, Ex '43, Arcadia-Sierra Madre.

Region 2 — Robert W. Mapel, BS '44, Newport Beach; Frances E. Janssen, BS '75, MS '77, Huntington Beach; Ross A. Buchanan, BS '44, Anaheim; A. E. Thompson, BS '34, Irvine-Newport; Maxwell C. Cheung, MS '65, PhD '69, Santa Ana; Ira J. Simon, BS '81, Long Beach; Phillip G. Cook, MS '50, Downey-Whittier; Edward S. Peer, BS '31, Downey-Whittier; David B. McCarroll, BS '66, Covina; Donald Stewart, Jr., BS '47, Pomona-Claremont; Frank Fleck, BS '42, Desert; Joseph Sheffet, BS '32, MS '33, Riverside-San Bernardino.

Region 3 — Reinaldo V. Gutierrez, BS '54, Palos Verdes; Miles A. Nesman, BS '55, Aerospace Corp.; Carl P. Constanten, BS '72, MS '73, Torrance; William L. Woodson, BS '48, MS '49, Torrance; David S. Rathje, BS '51, Marina Del Rey; Antonio Martinez, BS '78, MS '78, Santa Monica; David S. Rathje, BS '51, Los Angeles-Brentwood; Bernard P. Schweitzer, BS '55, Los Angeles-Beverly Hills; Joseph Solomon, BS '44, Los Angeles-Hollywood; David S. Rathje, BS '51, Los Angeles-Downtown; David G. Cantor, BS '56, UCLA.

Region 4 — Raymond G. Richards, BS '40, East San Fernando; Satish V. Desai, MS '65, PhD '69, South San Fernando Valley; Paul K. Salzman, PhD '71, West San Fernando; George G. Wald, Jr., BS '38, MS '39, North San Fernando; John F. McClain, Jr., BS '42, Ventura-Thousand Oaks; Nigel Pridmore Brown, MS '51, Santa Barbara; William R. Frampton, BS '39, Bakersfield; Daniel Markoff, BS '50, San Luis Obispo.

Region 5 — Carroll R. Baker, BS '36, Monterey-Santa Cruz; Murray K. Hill, MS '69, PhD '73, San Jose; Robert M. Spencer, BS '72, Santa Clara; Barry Lieberman, BS '68, Los Altos; Gregory W. Evans, BS '69, Sunnyvale; Robert Ross Stanley, BS '42, MS '43, Palo Alto; Eugene A. Nelson, BS '56, Stanford; Michael Mytels, MS '68, Menlo Park; Reuben B. Moulton, BS '57, San Mateo; David J. Larwood, BS '74, San Francisco.

Region 6 — Rhomas V. Tarbet, BS '31, MS '32, Marin County; L. Willard Richards, BS '54, Napa-North Coast; Henry Laxen, BS '75, MS '75, North East Bay; Donald Chin, BS '78, Berkeley; Norman Bulman, PhD '52, Contra Costa; David C. Oakley, BS '50, MS '52, PhD '55, Livermore; Clinton L. West, BS '57, Sierra.

Region 7 — Robert E. Foss, BS '32, Rancho Santa Fe; Thomas E. Oberjat, BS '66, North San Diego County; George P. Rigsby, BS '48, MS '50, PhD '53, San Diego; Paul D. Saltman, BS '49, PhD '53, La Jolla; Edward L. Krehbiel, BS '58, South Bay San Diego; John C. Behnke, Jr., BS '53, Hawaii; W. Clifford Taylor, BS '46, Phoenix; Larry A. Lebofsky, BS '69, Tucson; David Kauffman, BS '62, MS '63, Albuquerque; William B. Broste, BS '66, Los Alamos.

Region 8 — Robert M. Pailthorp, BS '59, Portland; Robert R. Bennett, BS '45, MS '47, PhD '49, Corvallis-Eugene; Frederick W. Thiele, BS '41, Seattle; Richard G. Merritt, MS '51, MS '53, Boeing; Frederick M. Mann, PhD '75, Eastern Washington-Oregon; James Lee Farmer, BS '60, Utah; Alfred F. Gort, MS '62, Boulder; W. Carl Gottschall, BS '60, Boulder; Dan C. Paxton, BS '64, MS '65, South Colorado.

Region 9 — Robert R. Jennings, BS '50, PhD '54, Oklahoma-Arkansas; Thomas W. Norsworthy, BS '44, Dallas; Walter L. Moore, BS '37, MS '38, Austin-Fort Worth; Thor P. Hanson, BS '64, Houston; James R. Lloyd, BS '56, MS '57, PhD '62, Houston; Dean Arthur Rains, BS '50, MS '51, PhD '54, Louisiana; Frank Cormia, BS '60, Tennessee-Alabama; D.M.W. Lindquist, Eng '60, Florida North; Arthur S. Bolles, BS '47, Florida South; Arthur Koblasz, MS '73, PhD '77, Georgia; William V. Wright, BS '51, PhD '55, North Carolina.

Region 10 — Raymond R. Cosner, PhD '76, Missouri-Southern Illinois; George R. Dubes, PhD '53, Central Plains States; Peter A. Howell, BS '50, Minnesota; David R. Witwer, MS '75, Northeast Chicago; P. Declan O'Riordan, MS '62, Southwest Chicago; Allen I. Ormsbee, PhD '55, Champaign-Urbana; James H. Koontz, BS '56, Indiana; Lawrence C. Ford, Phd '74, Michigan West; Donald R. Petersen, PhD '55, East Michigan; J. Christopher Dalton, BS '65, Cleveland; John S. Jackson, BS '45, MS '54, Cincinnati; Francis C. McMichael, MS '59, PhD '63, Western Pennsylvania.

Region 11 — Benjamin E. Cummings, BS '55, MS '56, PhD '62, Eng '57, Baltimore; Brian C. Belanger, BS '63, West Washington, D.C.-Maryland; Bruce R. Schupler, BS '75, East Washington, D.C.-Maryland; Richard I. Schoen, BS '49, Washington, D.C.-Northwest Maryland; John S. Showell, BS '46, MS '49, Washington, D.C.-Northeast Maryland; Warren G. Whiting, BS '50, South Virginia; Kenneth S. Kamm, BS '69, Wilmington-Philadelphia; A. Frederick Thompson, MS '65, PhD '68, Eastern Pennsylvania-South New Jersey; Frederick H. Tenny, BS '43, Princeton; Alfred B. Brown, Jr., MS '47, PhD '50, Northern New Jersey; David L. Keller, MS '79, Central New Jersey.

Region 12 — Christopher Diamantoukos, BS '72, Manhattan; Leslie G. Fishbone, BS '68, Long Island; Ronald S. Douglass, BS '66, MS '67, Southeastern New York; Don P. Clausing, MS '62, PhD '66, West New York; Delbert C. McCune, BS '56, Central New York; Robert N. Hall, BS '42, PhD '48, Eastern New York; John M. Rosen, MS '63, Connecticut; J. Kelly Beatty, BS '73, Northeast Massachusetts; John E. Ebel, PhD '81, Southeast Massachusetts; Norton Starr, Ex '58, Massachusetts-Rhode Island; George C. Munro, PhD '33, Upper New England.

Alumni Fund workers at the Leadership Conference hear advice from a fellow alumnus.

Obituaries

1920
WILLIAM C. RENSHAW on July 2 in Napa, California. He was retired from his position as chief engineer and general manager of the Las Vegas Valley Water District in Las Vegas, Nevada, and had been living in Sonoma, California.

1921
RICHARD STENZEL, MS '30, on July 27 of pneumonia. He had retired in 1978 and was living in Stanton, California, where he was active in community and church activities. Before retirement he had been a consulting chemist since 1947, with at least 15 patents issued in his name, and for 20 years prior to that he was a research engineer, chief chemist, and director of research for Petroleum Rectifying Company of California. He had also worked as chief chemist for the Pasadena Water Department and the Metropolitan Water District of Southern California, and had begun his career as principal of Tung Wen Institute in Amoy, China. He is survived by his wife, Marion, three children, nine grandchildren, and six great grandchildren.

1928
WALTER H. RIGHTER on July 11 of a heart attack. A resident of Santa Ana, California, he was chief engineer and president of Righter Manufacturing Company, Righter Engineering Company, and L.A. Pneumatic Company, which manufactured the "Righter Engines." He designed the first remote radio-controlled target plane used by the U.S. military during World War II and had obtained numerous patents for engineering devices. He is survived by his wife, Norma, two daughters, six grandchildren, and two great grandchildren.

1930
W. CAMPBELL NELSON on June 30 of a heart attack. He was retired from Sunkist Growers, Inc., where he had worked in quality control, and for whom he had originated and supervised the pectin plant. Residing in Ontario, California, he was active in many community activities, including the University Club in Claremont, Ontario Host Lions Club (as past president), and other groups. He also served as the official Santa Claus for the Ontario School District. Nelson is survived by his wife, Gladys, two sons, two daughters, and eight grandchildren.

1933
JOHN E. MESKELL on August 22. He was president of Meskell & Sons, Inc., building contractors in Alhambra, California, a firm he had established in 1969. He was previously a partner in Theisen Company Builders in Pasadena, before forming his first company in 1956. Meskell was a lifetime director of the National Association of Home Builders, served as past president of the Building Contractors Association of Southern California, and was honored by that group as builder of the year in both 1956 and 1981. He is survived by his wife, Vernice, two daughters, three sons, and 11 grandchildren. Donations to the John Meskell Memorial Fund may be sent to the Office of Memorial Funds at Caltech.

Personals

1934
WILLIAM BOLLAY, MS, PhD '36, on June 2 in Santa Barbara, California, where he and Mrs. Bollay were visiting their daughter from their Incline Village, Nevada, home. He was retired as a consulting engineer and as visiting professor at Stanford.

1941
FRANK G. DENISON, MS, PhD '44, on May 18. He had recently retired as an instructor in math and engineering at the College of San Mateo in San Mateo, California, and was living in Santa Maria, California. His wife, Ruth, survives him.

1948
JAMES R. DAVIS, MS '49, on July 19 of cancer. He was chairman of the board of Converse Ward Davis Dixon, Inc., an engineering consulting firm in Pasadena.

MALCOLM S. HARNED, MS, on October 21, 1980, of cancer. He was president of the Cessna Aircraft Company in Wichita, Kansas.

HONORARY
HERBERT HAHN on June 17 in Pasadena at the age of 89. He was made an honorary alumnus of Caltech in 1975 in recognition of his contributions to Caltech through his activities in the community and through his long service as a Caltech trustee — from 1955 until 1970 when he became a life trustee. An attorney for 63 years, his other activities included the Chamber of Commerce, Rotary, the Pasadena Recreation Department, and the Huntington Hospital, where he had been trustee and director.

1935
DON WEBSTER writes from Woodland Hills, California, "I play in the Pierce College Symphonic Band with all the other 18 year olds. We will do three concerts in the San Diego area in May. I am also taking a piano class and it is giving me fits — but it's all a lot of fun." Webster retired in 1981 as the owner of Stationers Unlimited.

1939
J. SCOTT GASSAWAY reports from Los Angeles, "I have been elevated to chairman of the board of Anchor Pad International, Inc., and am still vice president of research and development. Hope to retire when I am 90."

KEATS A. PULLEN, who is an electronic engineer with Ballistics Research Labs and lives in Kingsville, Maryland, reports that he has received the Marconi Memorial Award for his contributions to communications. The award is made irregularly by the Veteran Wireless Operators Association.

1940
FREDERICK C. BRUNNER, MS '41, writes from Overland Park, Kansas, that he has strengthened his position as the alumnus most likely to propagate his family name. Following the birth of his 10th and 11th consecutive grandsons this year, he says he now has 15 male offspring (and one very important granddaughter).

WILLIAM D. SMITH has taught pre-engineering classes at Eastern Arizona College in Thatcher for the past seven years. He had completed 14 years with North American during the Apollo program when he returned to college at Boulder, Colorado, in 1966 to obtain his master's degree in education. Before coming to Eastern Arizona College he taught engineering on Guam and in Florida.

1941
ROBERT S. COOPER reports from Ojai, California, that he is spending part of his retirement time tutoring high school students in math and science at the Ojai Valley School, having recovered from a stroke he suffered in 1978.

1942
BENJAMIN F. HOWELL, JR., MS, PhD '49, has retired as dean emeritus of the graduate school and professor emeritus of geophysics after serving 33 years on the Pennsylvania State University faculty. In retirement he plans to continue research and writing related to earthquakes and other natural hazards.

1943
DOYLE F. MATTSON has retired from Lockheed in Sunnyvale, California, after 39 years and reports that he and his wife, Edith, are moving to Ashland, Oregon.

1945
DUDLEY B. SMITH has retired from Celanese Corporation in New York City. He writes that most of his business career was spent licensing technology, and that he is the only living American who holds the Gold Medal of Licensing Executives Society for excellence in his field. He continues to teach licensing as a hobby, traveling frequently around the United States and to foreign countries. He and his wife, Esther, live in their "red cedar retirement home in Brookings, Oregon, overlooking the Pacific Ocean."

1948
ROBERT I. KING reports, "I received my doctorate from the University of San Francisco last May in organization and leadership, school of education. This has been an objective for 33 years, since my master's from Stanford in 1949."

PAUL B. MacREADY, MS, PhD '52, president of Aerovironment in Pasadena, is the 1982 award recipient of the Charles A. Lindbergh Fund, Inc. He was cited because he has "shown the world how energy conservation can be advanced through the use of efficient design and how technological progress can be compatible with the environment." MacReady designed the first successful human-powered and the first solar-powered aircraft.

HAROLD ROSEN, MS, PhD '51, vice president in charge of engineering for the space and communications group at Hughes Aircraft, received the Alexander Graham Bell Award from the Institute of Electrical and Electronic Engineers for his "pioneering contributions to and leadership in geostationary communications satellites."

1949
M. BLOUKE CARUS, president and chief executive officer of Carus Corporation in La Salle, Illinois, is one of ten persons nominated by President Reagan to serve on the National Council on Educational Research, pending confirmation by the U.S. Senate. The Council is the policy-making body of the National Institute of Education. NIE is the research arm of the U.S. Department of Education.

G. R. MORGAN writes, "After 26 years in the aerospace business, I moved to the alternate energy field. Currently am working on Solar One at Barstow, California. I was amused by the letter on clearing the "T" on the side of the mountains in 1945. I was a member of that crew as a freshman and helped lift the car over the barrier. I often wondered if the organizers ever got out of jail."

1953
ROLF D. WEGLEIN, MS '54, research engineer at Hughes Missile Systems Group in Canoga Park, California, shares the following: "The other (better) half of the family, Ruth, is a successful piano teacher, adored by all her students. Our two 'extensions in time,' Stephen and Naomi, are on their own, struggling as we all do, to 'find ourselves,' to do life's battle, and pursue the golden calf."

1954
STANLEY P. HUGHART, PhD, has retired after 28 years as a member of the faculty at CSU Sacramento. His prior service was at the University of Chicago from 1944 to 1954.

1959
J. DAVID TEAL reports from Jackson, Mississippi, "I've enjoyed teaching physics for 16 years at Tougaloo College. My wife Nancy, a renal dietician, and I have two children: John, 13, a soccer player and Lara, 11, a violinist. We look forward to whitewater rafting in the Cascades this summer."

1966
ALDEN D. HOLFORD announces the opening of his law office in Houston, Texas.

1969
WALTER M. DENEKAS and his wife, Susan, announce the birth of a son, David, on February 1. Denekas is controller of Counsellor Company, a subsidiary of Newell Company, Inc., in Rockford, Illinois.

1970
PETER M. WILZBACH has accepted the position of branch manager for the information systems group in the national accounts division of IBM in Houston, Texas.

1973
DOUG DUNCAN announces his marriage to Janine Scancarelli in Mt. Vernon, New York, on August 15. Classmates STAN WHITCOMB and MAX KAY took part in the ceremony. Duncan writes, "Janine and I plan to live in beautiful Burbank, equidistant from UCLA, where she is a graduate student in linguistics, and Pasadena, where I am a research associate of the Mt. Wilson and Las Campanas Observatories." He adds that, in honor of their wedding, an unusually rich display of meteors occurred several days preceding August 15.

JAMES P. JAKWAY, research fellow with the National Institutes of Health in Rockville, Maryland, reports the birth of his first child, daughter, Allison Krista, on May 15, "Caltech class of 2004!"

1974
ANDREW F. COCKBURN writes from Berkeley, California, "On July 1, (1982) I am going to Australia for six months to start a project to irradicate the sheep blowfly, using genetic engineering. I'll be joining a genetic engineering company when I return."

1975
RICHARD L. KAHLER reports, "My wife is graduating from med school. We are moving to Lexington, Kentucky, where she will do an internship in pediatrics. I will be an engineer for GTE Sylvania."

STEVEN VIK tells us, "Beginning September (1982) I will be working in Peking, China, for one year at the Chinese Academy of Sciences, Institute of Zoology, department of cell biology. Please stop by if you are in the neighborhood. Those interested in listening to "Good Taste Is Timeless" by the Holy Modal Rounders in the interim, should contact Ron Alley."

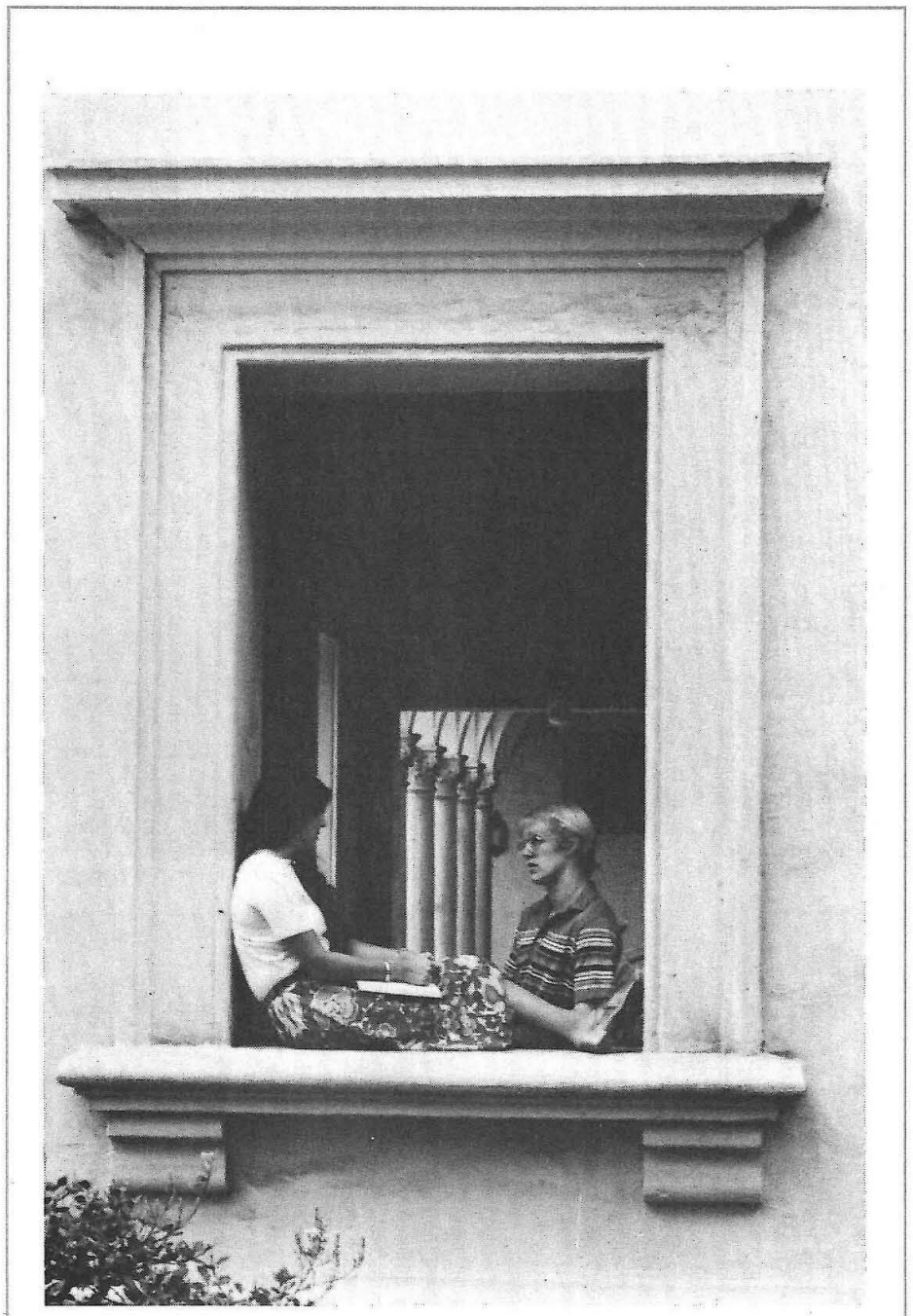
1976
WALTER NILES updates us on his activities: "After receiving a doctorate in neurosciences from the University of Wisconsin, Madison, I find myself to be in the Bronx (New York). I am a Martin Fellow in Biophysics at the Albert Einstein College of Medicine and am studying the fusion of membrane vesicles with lipid bilayers, a model that resembles the process nerve cells used to release chemical neurotransmitters at synapses. I currently oscillate between the Bronx and SUNY, Stony Brook, to collaborate with MOSHE EISENBERG (MS '70, PhD '73) on a study in which fluorescence is used to detect vesicles 'glued' to the lipid bilayer. Life in the Bronx is not (entirely) the urban nightmare that many believe. The place is the acme of Italian cooking, with innumerable delis, sidewalk cafes, and ice cream parlors. I live on City Island and spend many free hours sailing an eight-foot styrofoam Sea Snark on Long Island Sound, which laps at my bedside."

1977
DAVID J. E. CALLAWAY received his PhD in physics from the University of Washington, Seattle, and is now working at Argonne Laboratory, Argonne, Illinois, in the high energy physics division.

ROSEMARY G. KENNETT, MS '77, MS '79, PhD '80, reports, "I am pleased to announce the birth of my son, Oliver Rupert Fox, on February 14, 1982. I am now an assistant professor of physics at California State University, Northridge, where I am lecturing and doing research in high energy physics. My husband, Geoffrey Fox, is a professor of theoretical physics and executive officer for physics at Caltech."

CLAUDIA SPIRO, MS '77, writes, "I finished up my work for my doctorate in mathematics during the summer of 1981 and moved from the University of Illinois at Urbana/Champaign to Buffalo, New York, to accept the position of George William Hill and Emmy Noether Research Instructor in the mathematics department at SUNY at Buffalo in September 1981."

1981
JOSEPH SHEPHERD, PhD, and his wife, Donna, welcomed a son, Douglas Parker, on October 19, 1981. Shepherd has been a member of the technical staff at Sandia National Laboratories in Albuquerque, New Mexico, since September 1980.



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Kelp plants infested with sea urchins are targeted for clearing by Caltech Dive Club members. *See page 1*

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