

# CALTECH NEWS

## Konishi named the Bing Professor of Behavioral Biology

Masakazu (Mark) Konishi, professor of biology at Caltech since 1975, has been named the Bing Professor of Behavioral Biology by the Institute Board of Trustees.

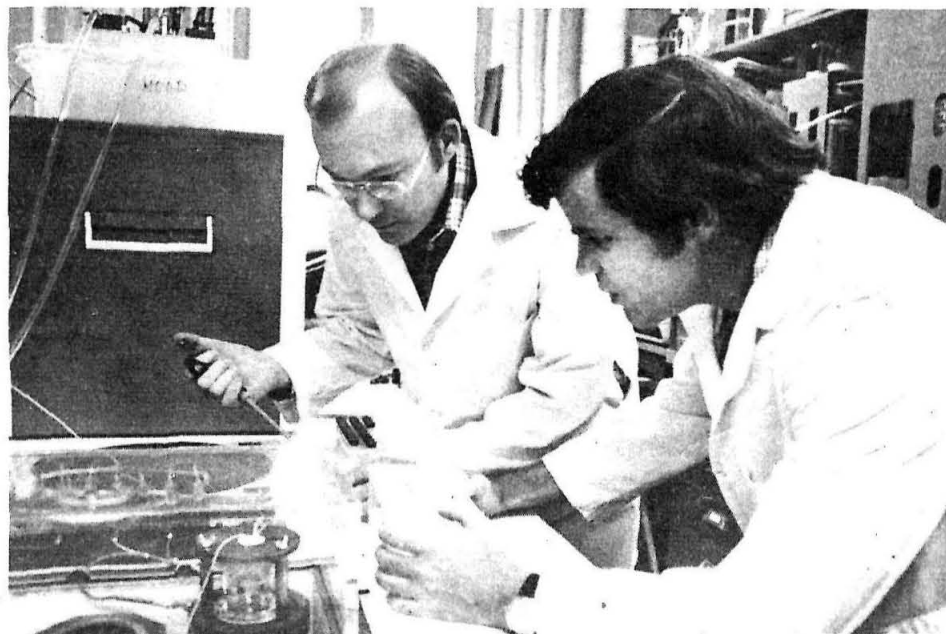
The Bing Professorship was endowed in 1970 by Mrs. Anna Bing Arnold, and her son, Peter Bing, MD, through the Bing Fund. The chair was occupied by Professor James Olds until his death in 1976.

Distinguished for his research on the development of hearing and song in birds, Konishi last year shared the Newcomb Cleveland Prize of the American Association for the Advancement of Science. He was honored for reports in *Science* magazine on his and his colleagues' studies of the brain-hearing mechanisms that owls use to pinpoint their prey. For his research he was elected last year to membership in the American Academy of Arts and Sciences.

Konishi's group's most recent research concerns sex differences in brain and behavior in the zebra finch. This work is supported by the National Institute of Child Health and Human Development, and reflects scientific interest in how biological sex differences affect individual performance in society. His group's findings showed for the first time that sex hormones decide the sexual differentiation of specific brain areas that directly control behavior (in this case, the development of song).

In the zebra finch, Konishi found an excellent animal for research on how sexual differences in the brain affect behavior. His work, and that of others in the field, is helping to provide deeper insights into the development of behavior, including

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Michael Hunkapiller and Leroy Hood use a protein sequenator as they work to puzzle out the structure of interferon.

## Cracking the code of a wonder chemical

by Dennis Meredith

If ever there was a substance with a reputation resembling one of those old-fashioned patent medicines that could cure anything from stomach aches to fevers, interferon is it. One can envision a snazzy, mustachioed "Perfessor" hawking a bottle of the stuff out of the back of a gaudy, painted wagon.

He would certainly wax eloquent about how interferon has shown promise in controlling a broad range of virus infections, from hepatitis to the common cold; about how early tests show its effectiveness against some cancers; and even about how it may help prevent organ transplant rejection and protect organ recipients against infection.

Despite its preliminary promise, though, little testing of interferon on patients has been done thus far, because only small amounts of the substance are available. Interferon is a natural body chemical that apparently triggers the body's immune system, and it is made by the body in only tiny amounts. What's more, human and animal interferons are different, so that

animal interferons, also expensive to isolate, are ineffective in humans.

Until recently, the only major supplier of the substance was the Central Public Health Laboratory of Helsinki, which extracts interferon from white blood cells. Over 65,000 pints of blood are needed to produce 100 milligrams of interferon annually. Thus this amazing chemical is perhaps the most expensive substance in the world — one trillionth of a gram costing between \$70 and \$100. The entire annual output of the Helsinki facility is enough to treat only about 600 cancer patients.

Until now, the problem of producing large quantities of interferon, much less of understanding how it works, has been caught in a vicious circle. Large quantities of the protein could not be produced until its structure was at least partially known, but the structure could not be determined until a large amount was available for analysis.

Now the vicious circle has been broken, thanks to two Caltech biologists — Leroy E. Hood, the Ethel Wilson Bowles and Robert

Bowles Professor of Biology, and Senior Research Fellow Michael W. Hunkapiller. Using a highly sensitive analytical machine called a "protein sequenator," they managed to puzzle out a significant portion of the structure of four different types of interferon. Their results were announced in scientific articles in the February 1 issue of *Science*.<sup>\*</sup> Their sequenator, built with funds from the Ben Weingart Foundation of Los Angeles, is a highly improved version of similar commercially available machines but is from 100 to 1,000 times more sensitive.

A protein such as interferon consists of a chain of amino acids, comparable to a string of pearls, that are a few hundred to a few thousand units in length. There are 20 commonly occurring amino acids, and the sequence of various of these amino acid units along the chain determines the protein's properties.

The sequenator developed by Hood and Hunkapiller uses an analytical process in which these amino acid "pearls" are chemically snipped off, one by one, and identified. A protein sample is deposited in the device as a thin film onto the sides of a small spinning glass cup. In the cup, analytical reactions can be carried out rapidly and the "pearls" washed away with a minimum of solvent.

Working with colleagues from Du Pont, the National Institutes of Health, and Yale University, the Caltech scientists have been able to use the sequenator to determine the sequence of about one-sixth of the 150-unit length of two human and two mouse interferons. They are currently working to determine the remainder of the interferon sequences. Once the structure of the complete molecule is known, it can be produced in large quantities by chemical synthesis or using recombinant DNA techniques.

The partial structures now available may also be sufficient to enable the use of recombinant DNA methods to produce large amounts of an entire interferon molecule. Scientists would use the partial protein sequences to synthesize gene

*Please turn the page*

probes, which in turn could be used to isolate from human chromosomes the genes responsible for interferon production by human cells. The isolated genes could then be inserted into an easily grown microorganism, which would be induced to manufacture the interferon.

Determining the structure of interferon is also critical to learning how the chemical protects cells against viral attack or inhibits tumor growth. Interferon molecules from different animals have different structures, as do interferon molecules from different cell types in the same animal. By comparing the structures of several interferons, scientists may be able to understand the peculiar structural features responsible for the functioning of the substance, making it possible to synthesize simpler, smaller molecules that mimic interferon's action.

As significant as are the findings to date, work for the protein sequenator is only beginning. According to the Caltech scientists, the device will serve as the heart of a new biomedical facility at the Institute (the Braun Laboratories of Cell Biology and Chemistry), where many medically important proteins that are available only in tiny quantities can be characterized.

For example, the sequenator has already been used to determine the structure of a new brain chemical, 200 times more potent than morphine, called dymorphin. The chemical, discovered by Stanford University scientists, is a member of a family of brain proteins called enkephalins, which scientists believe play basic roles in relieving pain and regulating behavior.

*\*1980 could prove a banner year for interferon research. Shortly before the Caltech announcement, scientists associated with Biogen, S.A., an international research concern, announced that they had successfully used gene-splicing techniques to induce laboratory bacteria to produce human interferon. According to those scientists, it should be possible in the near future to begin clinical trials using the bacteria-produced interferon, and to eventually produce unlimited amounts of the substance.*



J. Stanley Johnson looks over a chart detailing the growth of the Caltech Investment Fund since he endowed it last May. Investment Fund board members with Johnson are Wally Walter and Mark Fischer.

## Taking stock of a student investment team

When stock in Geosource appreciated 75 percent in value over an eight-month period, no one was happier than the twelve students on the Caltech Investment Fund Board of Directors. As managers of this financial portfolio, they were delighted to realize that in buying Geosource they had picked a winner.

Responsibility for the investment fund gives them hands-on experience in the market economy and its operation, and this was the objective of J. Stanley Johnson, BS '33, MS '34, when he endowed it. A retired businessman, Johnson in May 1979 donated to Caltech 2,500 shares of stock worth approximately \$57,000 to be student managed. He later added an additional 130 shares to his gift.

The student body elected twelve directors to the board by popular vote — nine undergraduates and three graduate students. Johnson had established guidelines for them to follow. They could not buy commodities or commodities futures, and they could not buy on the margin. They could buy anything listed on the New York, American, or over-the-counter exchanges, or any U.S. government securities or other governmental securities and

corporate bonds. And every year they might give up to 4 percent of their quarterly average holdings for student projects proposed by ASCIT, the Caltech Y, and other organizations.

The board lost no time in drawing up bylaws and forming an organizational structure. In Caltech fashion, rather than turning the bylaws over to a typist, they fed them into a computer that prints out copies when the proper terminal button is punched. Then they got down to the serious business of buying and selling.

From the beginning, the students set a conservative course, according to Caltech's assistant treasurer, Henry Tanner, who is one of their advisers. They invested 55 percent of their funds in Treasury bills and money market mutual funds and 45 percent in a diversified portfolio of six stocks, including such blue chip numbers as IBM and ITT, both of which have, unexpectedly, been behaving sluggishly. They also own stock in Eli Lilly, Advanced Micro Devices, Geosource, H&R Block, and Northrop.

In addition to Tanner, their advisers are David W. Morrisroe, Caltech's vice president for business and finance and treasurer; Horace Gilbert, Caltech professor of business economics, emeritus; and Don Cameron, a local broker who is Caltech's soccer coach. The advisers may counsel but they cannot veto board action.

The members are prohibited from dabbling in gold, of course, because they can't buy commodities, but if they could, they wouldn't have fared any better than professional investment firms, most of which were caught off guard by the panicky surge into precious metals that pushed up prices. "Gold completely fooled most of us," Treasurer Mark Fischer, a senior majoring in engineering, candidly admits.

The students take their responsibilities seriously, meeting once every two weeks in the Caltech Board of Trustees' room in Millikan Library ("We feel the room provides an appropriate setting for our deliberations," Fischer says.) They often assign members to research the performance of companies in which they are thinking of investing, and they study the *Wall Street Journal*, *Value Line*, *Standard & Poors Guide to Stocks*, *Fortune*, and other business publications. At the moment, they're looking into new investments in energy, minerals, defense, agriculture, and electronics.

They report regularly to the student body via articles in *The California Tech* entitled "The Olive Walk Journal." And, as the end of their first year approaches, they are looking over some proposals from campus organizations that they may want to fund.

By February 1, the fund's net worth was \$69,136, a net increase in value of 11.4 percent, which projects to an annual rate of 17.1 percent and keeps it ahead of inflation. This ratio of growth was roughly average when compared with the growth percentage of funds managed by professional investors, according to Tanner. It compares with a 19.2 percent appreciation, including dividends, for the *Standard & Poors 500 Stock Index*.

Some members of the board manage investments of their own and others follow family investments or read financial sections of newspapers because of personal interest, says Tanner, but other members entered the world of investment and finance as novices. All have been rapid learners. "Anyone working with Caltech students is continually impressed with how quickly they grasp new material," says Tanner. "Even those with no background in investments have come along with amazing speed."



## Caltech discovers two Bellows are better than one

by Phyllis Brewster

In January of this year Dr. Alexandra Bellow of Northwestern University—a world leader in her field (of martingale theory and theory of liftings)—began the winter quarter at Caltech as Sherman Fairchild Distinguished Scholar in mathematics.

The appointment of a distinguished mathematician is no phenomenon at an Institute whose faculty rosters have included such notables as Eric Temple Bell, Paul Bateman, Olga Taussky Todd, and H. F. Bohnenblust. What is uncommon about Dr. Bellow's campus visit is that her husband—in a totally different field—was also invited to spend the winter at the Institute. And that is how it happens that novelist Saul Bellow, winner of the 1976 Nobel Prize for Literature, is at Caltech this quarter as Visiting Dreyfuss Professor of the Humanities.

The Bellows' unusual marriage of talents has been fortuitous for the Institute; but, in turn, the Institute has proved to be a happy situation for Alexandra and Saul Bellow.

This is partly because of the severity of the Chicago winter of 1978–79. Saul Bellow is on the faculty of the University of Chicago (as Raymond W. and Martha Hilpert Gruner Distinguished Service Professor), and the Bellows live—on the shore of Lake Michigan—midway between *his* campus and *her* campus. In spite of their convenient location, the difficulties of maneuvering in last winter's rigorous weather made the Bellows particularly susceptible to the idea of living half a block from *their* campus, where they would not have to dig the snow away from the front door.

The Caltech invitation also provided a happy solution to what has sometimes been a problem in the Bellows' prolonged visits away from home. Saul can be happy, his wife says, almost anywhere where he has his writer's tools, a typewriter, a few books (together the Bellows shipped six cartons of books out from

Chicago), and interesting local people to talk to. She, on the other hand, needs mathematicians. (There were *no* mathematicians in the village in southern Spain where the



Saul Bellow

Bellows spent their summers a few years ago.) At Caltech, they have it all, including the mild weather.

Although their geographic worlds are closer together here, what about their separate worlds of mathematics and writing? (Bellow got his undergraduate degree from Northwestern with honors in anthropology and sociology.) They are occasionally asked, Mrs. Bellow says, "How do a mathematician and a writer get along?" At least on one occasion her husband answered "Fine, provided they are in love."

"Mathematicians are often shy and introspective," mathematician Bellow says, admitting the stereotype. "They commit so much time and energy to their work that they often haven't any of either left for other pursuits."

Novelists can surely be either/or. Saul Bellow is *both* outgoing and introspective—a mixer and a solitary worker. Alexandra gives her literary husband credit for saving her from a life of strict mathematical fanaticism.

When she met Saul at a party ten years ago (the Bellows have been

married six years), Alexandra had never heard of Herzog, or Augie March, or Saul Bellow. Not only did she meet them all, but she was also introduced to poetry, London, Ferris



Alexandra Bellow

wheels, Humphrey Bogart movies, Andalusia, and bourbon whiskey.

Alexandra Bellow looks more like a movie actress than a mathematician (that is, if you believe in stereotypes), but her own history is pure science. Born in Bucharest, Roumania, in 1935, the only child of two physicians, it was almost inevitable that she would find a career in science. Her maternal grandfather had been a math teacher, and no one was surprised when she both loved math and excelled in it.

Bellow earned her master's degree from the University of Bucharest in 1957, and that same year came to the United States to continue her studies at Yale. Two years later she was awarded a PhD from that university. Before becoming professor of theoretical mathematics at Northwestern in 1967, she taught at the universities of Pennsylvania and Illinois, Urbana.

Neither of the Bellows is teaching a class at Caltech. Alexandra Bellow is pursuing her current research in ergodic theory, working primarily alone, but interacting with postdocs, and other faculty members, especially with department chairman W. A. J. Luxemburg, a longtime colleague and friend. This has been particularly beneficial to her, Dr. Bellow says, in the area of analysis, combinatorics, and number theory—areas in which the Caltech mathematics department excels.

Saul Bellow is conducting a weekly seminar that draws a large attendance of students, faculty, and staff. He also gave a Watson lecture

in February ("Author, Subject, Public") and was guest lecturer at a dinner meeting in January, sponsored by the Friends of the Caltech Libraries. And in addition to joining divisional dialogues and in the general life of the campus, he is writing.

Bellow, the writer, has already won the Pulitzer Prize, three National Book Awards, the Nobel Prize, and a long list of lesser known honors such as the Friends of Literature Award, the Certificate of Distinguished Service to Literature, the B'nai B'rith Jewish Heritage Award, the Croix de Chevalier des Arts et Lettres, the Prix Littéraire International, the Formentor Prize, and a few honorary doctorates, including one from his alma mater, one from Yale, Harvard, and New York University. Thus it must be assumed that he is now writing from that inner creative need to express one's moral passion that writers talk about having. Actually, this is the same motivation that empowered him before he had won any of the honors.

But it will be interesting to see whether or not his brief visit to California this winter—specifically his experiences at Caltech, will be reflected in his next book. And if there will be a mathematician in it.

## Two on faculty awarded Dreyfus grants

Two young faculty members in Caltech's Division of Chemistry and Chemical Engineering have received awards from the Camille and Henry Dreyfus Foundation in New York. Ahmed H. Zewail, associate professor of chemical physics, has been named recipient of a Dreyfus Teacher-Scholar grant of \$35,000; Dennis A. Dougherty, assistant professor of chemistry, has been awarded a \$20,000 Dreyfus Grant for Newly Appointed Young Faculty in Chemistry.

Dreyfus Teacher-Scholar grants are awarded to "exceptionally promising young faculty members who combine an interest and a demonstrated ability in teaching and performing research." The grants for Newly Appointed Young Faculty in Chemistry is a new program created by the foundation to enable outstanding young scientists to start research promptly on joining an academic institution.

## Corcoran honored

William H. Corcoran, the Institute Professor of Chemical Engineering at Caltech, has received the Engineer of the Year Award from the Institute for the Advancement of Engineering. An IAE Fellow, Corcoran was chosen for his professional accomplishments and contributions.

## Goldberger joins in Sakharov banishment protest

Caltech President Marvin L. Goldberger and the presidents of four other major U.S. universities joined in sending to three Soviet leaders a cable protesting the banishment of Academician Andrei Sakharov. The cable was directed to Secretary General Leonid Brezhnev, the Soviet ambassador to the U.S. Anatoly Dobrynin, and head of the Soviet Academy of Sciences Anatoly P. Alexandrov.

Signing the cable along with Goldberger were Derek C. Bok of Harvard, Richard W. Lyman of Stanford, David S. Saxon of the University of California, Statewide System, and Jerome B. Wiesner of MIT. The cable text:

"We were deeply shocked to learn that Nobel laureate Andrei Sakharov has been stripped of his state honors and sent from Moscow to exile in a city closed to westerners, where his clear voice of reason and hope for world peace will be silenced. Academician Sakharov is a distinguished scientist who has dedicated his life for the past ten years to the cause of human freedom and justice in his own country and the world. His banishment at this particular time will further exacerbate strong feelings of resentment against the Soviet Union. We urge you to reconsider your harsh treatment against one of the world's great human beings."

## Konishi named Bing Professor

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how human infants develop their speech capacity.

Born in Kyoto in 1933, Konishi earned his BS and MS degrees in zoology from Hokkaido University, and received his PhD degree in the same subject from UC Berkeley in 1963. He was a postdoctoral fellow at the University of Tuebingen in Germany for six months and was at one of the Max Planck Institutes in Munich for a year. Before coming to Caltech in 1975, he taught at Princeton.



Mark Konishi

## A hearty cause for celebration



To spare students the discomfort of reading poetry to their valentines, the Drama Club this year offered a seasonal special: a solo singing valentine for \$5 or a duo for \$10. Jeanine Glaviano opted for a duo for her friend, outgoing ASCIT President Ray Beausoleil, and dramatists Jean Mueller and Bruce Baskin surprised him at lunch in Chandler Dining Hall.

## EVENTS AT CALTECH

**Wednesday, April 2, 8 PM,** Beckman Auditorium. William R. Gould, Trustee and member of the Energy Advisory Board at Caltech, will lecture on "Coal and Nuclear; Problems or Solutions." Admission: free.

**Wednesday, April 9, 8 PM,** Beckman Auditorium. William L. Johnson, Assistant Professor of Materials Science at Caltech, will give an Earnest C. Watson lecture entitled "New Materials, Atomic-Scale Architecture of Metallic Solids." Admission: free.

**Friday, April 11, 8 PM,** Beckman Auditorium. Gene Wiancko will give an Armchair Adventures presentation on "The Danube." Admission: \$3.50.

**Tuesday, April 15, 8 PM,** Beckman Auditorium. Joseph Weiner will give an L.S.B. Leakey Foundation lecture entitled "The Piltdown Man Hoax." Admission: \$5.50; students \$5.00.

**Wednesday, April 16, 8 PM,** Beckman Auditorium. Arthur Rosenfeld, Professor of Physics at UC Berkeley, will lecture on "Drilling for Oil and Gas in Our Buildings—6 Million Barrels a Day at \$10 a Barrel." Admission: free.

**Tuesday, April 22, 8 PM,** Beckman Auditorium. Dr. Asa Hilliard will give the Evangeline Burgess Memorial Lecture, co-sponsored by Pacific Oaks College and Children's School. His topic will be "Getting Outside Ourselves to be Present for Children." Admission: free.

**Wednesday, April 23, 8 PM,** Beckman Auditorium. William M. Whitney, Section Manager for Information Systems Research at JPL, will give an Earnest C. Watson lecture entitled "Intelligent Machines: Their Forms and Uses." Admission: free.

**Sunday, April 27, 8 PM,** Dabney Lounge. Pianist Kathy Ando, violinist Kathleen Lenski, and cellist Frederick Seykora will perform works by Ravel, Beethoven, and Schubert in this Dabney Lounge Chamber Music Concert. Admission: free.

**Monday, April 28, 8 PM,** Dabney Lounge. Poet Diane Wakoski, author of "Smudging," "Waiting for the King of Spain," and most recently, "Cap of Darkness," will read from her works. Admission: free.

**Tuesday, April 29, 8 PM,** Beckman Auditorium. The Quartetto Italiano will perform quartets by Boccherini, Bartok, and Schubert in this Coleman Chamber Music Association Concert. Admission: \$8-7-6-4.

**Wednesday, April 30, 8 PM,** Beckman Auditorium. Theodore Taylor, Visiting Lecturer of Mechanical and Aerospace Engineering at Princeton, will lecture on "Solar Energy and Advanced Technologies." Admission: free.



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## Pow! Zap! Crash! Techers tackle outer space!

by Winifred Veronda

When Mike finished his Electrical Engineering 91 project (a stereo system with superconducting speaker coils, phase-conjugated amplifiers, and computer-enhanced reproduction), he didn't dream that activating it would unleash a space warp drive that would hurtle him and his friend Geoff at hyper-light speed to an alien world outside the solar system . . .

. . . or that there, on the planet of Cybemia, the heroes would encounter a tribe with a male-female ratio surprisingly similar to that in the Caltech student body—but in reverse—and that Mike and Geoff would rapidly become involved in helping the male-depleted population fight their mortal enemies, the Gorguns.

Will the heroes be successful in this battle? Will their logic skills from Physics I enable them to overcome the brute force of the enemy? Will background acquired in the student houses be sufficient to fend off the man-crazed Cybernians? Dip into the *California Tech* to find out.

Mike and Geoff, two seniors at a small scientific and technological institute in Pasadena, are the creation of Bruce Miller, a senior majoring in applied physics. Miller, who has never studied art, began to draw cartoon figures when he was eight years old, reproducing characters from the "Legion of Super Heroes" comic books and creating his own plots.

Last year *California Tech* editor John Avery, who was a fellow Dabney House resident, saw some of Miller's cartoons and suggested that he produce a strip for the student newspaper. The result, a weekly six-panel series, "Star Tech," has attracted a sizable student following on campus and is making inroads among faculty and staff members—especially those with a taste for science fiction.

Miller's heroes, Mike and Geoff, behave just about the way their



creator believes Techers would act if they were to land on an alien planet. Mike, an electronics devotee, can think only of his EE project, how to repair it after its warp-drive journey, and how the damage may affect his GPA. Geoff, more brash and intemperate, sallies forth to adapt and overcome, confident that a Tech education will enable him to master any challenge. In Miller's estimation, "Both know what females are, but not what to do about them."

Miller says he got the idea for "Star Tech" while watching a regular feature on the Muppet Show called "Pigs in Space." Why not "Techers in Space?" he reasoned, and he was off and drawing. In the alien world that he's creating there's plenty of room for satire—as when the cartoonist has the Cybernian females emulate the eager responses of Caltech male undergraduates toward new female students during house rotation week.

This bit of satire on Caltech's seven-to-one male-female student ratio drew little response from student readers, Miller says, but when one of his characters decided to make a laser out of a gemstone ruby, the cartoonist was deluged with complaints about his scientific unsoundness. Miller, whose studies focus on lasers and optics, knows you can't really make a laser out of a

gemstone ruby, but he feels it's OK to take a few creative liberties with scientific reality.

Miller says he plans to bring the conflict on Cybemia between the Tech heroes and the Gorguns to a



Cartoonist Bruce Miller describes challenges of satirizing undergraduate student life.

rapid conclusion so that he can get on with other plot developments that offer more satire potential. For example, he may soon take on some prominent Caltech institutions (human and otherwise), including a

few faculty members who remain mortals in their own eyes but who Miller feels have been deified by the students.

A native of Kansas City, Miller now lives in Manhattan Beach. He is a member of the Caltech Glee Club and the Caltech Christian Fellowship and he attends science fiction conventions "whenever I can." After he graduates, he plans to work for a couple of years and then go on to graduate school. Meanwhile, he will look into the possibility of continuing his strip on a commercial basis. After all, science fiction is enjoying a peak in popularity, and Miller is aware of other cartoons that began in campus newspapers and went on to national fame—among them, "Doonsbury" at Yale, and "Beetle Bailey" at the University of Missouri, for example.

Will Mike and Geoff ever get home? Not likely, says Miller, so Mike needn't worry about repairing his stereo in order to fulfill his EE 91 requirement. After all, if the two got back to campus they'd only be Techers at Tech, and that wouldn't be nearly as interesting as Techers in Outer Space.

## OF SPECIAL INTEREST TO ALUMNI

### Paul MacCready to speak at Seminar Day

Paul MacCready, whose aeronautical creations have won two Kremer Prizes for man-powered flight, will be the Alumni Seminar Day general session speaker on May 17.

MacCready, MS '48, PhD '52, the head of Aerovironment, an environment and energy consulting firm in Pasadena, first won aeronautical fame in 1977 when the Gossamer Condor was pedaled 1.4 miles to win the Royal Aeronautical Society's 50,000-pound Kremer Prize. The plastic and aluminum craft made a seven-and-a-half-minute sweep over a figure-eight course, completing the set of maneuvers accepted as criteria for success in the competition.

MacCready and his crew then mounted a successful attempt to win a new 100,000-pound Kremer purse for flying the English Channel in a man-powered plane. His Gossamer Albatross, pedaled by Bryan Allen, successfully traversed a 22-mile stretch of channel in the spring of 1979.

MacCready, who has been flying since earning his pilot's license at the age of 16, was the nation's soaring champion in 1948, 1949, and 1953, and was the first American to win an international soaring championship—in France in 1956. On Seminar Day he will describe the efforts that led to success in the two competitions.

### Class reunion time is nearing

Alumni who graduated 50 years ago—and at 5-year intervals since then—are invited to the campus this spring for class reunions. Specially honored will be members of the class of 1930, who will be inducted into the Half Century Club on Friday, June 6, at a luncheon in the Huntington-Sheraton Hotel. Their wives or guests, and alumni from earlier classes, also are invited. After lunch, classmates will gather for a

social afternoon in the Athenaeum lounge, followed by a campus tour and dinner at the Altadena Town and Country Club.

Other reunions include: **Class of 1935**—Friday, June 6, campus tour from the Athenaeum at 4 p.m., followed by a no-host cocktail reception at 5:30 p.m. and dinner at 7 p.m. in the Athenaeum. **Class of 1940**—Friday, June 6, campus tour at 4 p.m., followed by no-host cocktail reception at 5:30 p.m. and dinner at 7 p.m. in the Athenaeum. **Class of 1945**—Saturday, June 7, campus tour at 4 p.m., followed by cocktails at 5:30 p.m. and dinner at 7 p.m. in the Athenaeum.

**Class of 1950**—Saturday, June 7, details to be announced. **Class of 1955**—Friday, May 16, details to be announced. **Class of 1960**—Saturday, June 14, details to be announced. **Class of 1965**—Saturday, June 14, campus tour at 4 p.m., followed by a no-host cocktail reception at 5:30 p.m. and dinner at 7 p.m. in the Athenaeum. **Class of 1970**—Saturday, June 14, campus tour at 4 p.m., followed by a no-host cocktail reception at 5:30 p.m. and dinner at 7 p.m. in the Athenaeum. **Class of 1975**—Saturday, June 14, a picnic and barbecue in Tournament Park with details to be announced.

## ALUMNI ACTIVITIES

### Wednesday, April 23

Denver chapter meeting. No host cocktails, 6 p.m.; dinner, 7 p.m. Writer's Manor, 1730 South Colorado Blvd., Denver. Edwin S. Munger, professor of geography, will speak on "What's Really Happening in Africa."

### Thursday, April 24

New Mexico chapter meeting, time and place to be announced. Edwin S. Munger, professor of geography, will speak on "What's Really Happening in Africa."

### Saturday, May 3

Tour of the Union Oil geothermal energy fields in Geyserville, California, and of the Souverain Winery in this all-day program. Buses will leave for the tour from Palo Alto at 7:30 a.m. and from Berkeley and the San Francisco Airport area at 8 a.m. Further details will be announced later.

### New mystery: Did Alfonso Bedouya know Al Fansome?

*The history and adventures of Fleming House's mythical student, Alluvial Fansome, as reported in Caltech News, have elicited this letter:*

Dear Caltech News Editor,

I've enjoyed reading about the Al Fansome matter but would like to find out the origin of a related (perhaps coincidentally) legend. When I was Ricketts House librarian in 1962, we were getting house subscriptions for another immortal freshman, Alfonso Bedouya. I'm not sure when this started, but late television film watchers may recognize Bedouya as one of the actors in "Treasure of the Sierra Madre," the Humphrey Bogart classic. Did Alfonso inspire Al Fansome or vice versa? Are there any Ricketts House librarians reading *Caltech News*?

Sincerely,

Randy Cassada, BS '65  
Staff scientist,  
Max Planck Institute  
Gottingen, West Germany

*Ed. Note: We hope there are some Ricketts House librarians reading the publication, and that they will throw some light on the origins of Alfonso Bedouya.*

### Cottage cheese and tuna, anyone?

Lost and found item: The Alumni Fund has received an envelope containing not a pledge, but a shopping list for celery, parsley, tuna, cottage cheese, etc., and seven discount coupons for raisin bran, margarine, and Borden's low calorie American cheese, etc.

The feeling in the Alumni Fund office is that somewhere out there is an alumnus with an envelope of money, probably in the form of a check to the Institute, which the alumnus may attempt to exchange at a market for the makings of a diet lunch.

When the graduate realizes that the shopping list and coupons have gone to Caltech (because why else would he or she still have the check—unless the coupons were deliberately mailed in by the alumnus's spouse who had been

asked to mail in the check but who was tired of raisin bran), then an exchange can be arranged via the Alumni Fund Office. Or the donor can simply mail in the check if he or she wants to keep a fondness for cottage cheese private.

In the meantime, Director of Annual Giving Joe Farmer likes American cheese and would probably use the coupon, but his staff insists that he save it for its rightful owner.

### New board members nominated

The Board of Directors of the Alumni Association met as a nominating committee on January 22, 1980, in accordance with Section 5.01 of the bylaws. Seven vacancies on the board, in addition to the positions of the president, vice president, secretary, and treasurer, are to be filled. The current members of the board, with the years in which their terms expire, are as follows:

Cydnor M. Biddison, BS '40–1980  
Stanley A. Christman, BS '65–1981  
Francis H. Clauser, BS '34, MS '35, PhD '37–1982  
Munson W. Dowd, BS '38, MS '46–1981  
Vern Edwards, BS '50–1982  
John R. Fee, BS '51–1980  
David E. Groce, BS '58, PhD '63–1980  
Frances E. Janssen, BS '75, MS '77–1982  
Arne Kalm, BS '56, MS '57–1982  
William J. Karzas, BS '49, PhD '55–1982  
James King, Jr., MS '55, PhD '58–1980  
Louise Kirkbride, BS '75, MS '76–1980  
Carel Otte, MS '50, PhD '54–1981  
Philip L. Reynolds, BS '58, MS '59–1981  
J. Steven Sheffield, BS '72, PhD '78–1981  
James W. Workman, BS '57, MS '58–1981

The following individuals have been nominated for terms beginning at the close of the annual meeting in June 1980:

President: James W. Workman, BS '57, MS '58—1 year



Vice President: Philip L. Reynolds, BS '58, MS '59—1 year  
 Secretary: William J. Karzas, BS '49, PhD '55—1 year  
 Treasurer: Arne Kalm, BS '56, MS '57—1 year  
 Directors: Hubert E. Dubb, BS '56—1 year  
 David E. Groce, BS '58, PhD '63—3 years  
 Carl W. Hamilton, BS '62—3 years  
 Carole L. Hamilton, PhD '63—3 years  
 Herbert A. Lassen, BS '43, MS '47, PhD '51—3 years  
 Donald L. Smith, BS '71, MS '72—3 years  
 Donald P. Wilkinson, BS '48—3 years

Section 5.01 of the bylaws provides that membership may make additional nominations for directors or officers by a petition signed by at least 50 regular members in good standing, providing the petition is received by the secretary no later than April 15. In accordance with section 5.02 of the bylaws, if no additional nominations are received by April 15, the secretary casts the unanimous vote of all regular members of the Association for the election of the candidates nominated by the board. Otherwise a letter ballot is required.

Below are the biographical summaries of those nominated for directors.



Hubert E. Dubb

Hubert E. Dubb, BS '56, is a partner in the San Francisco Bay area law firm of Phillips, Moore, Weissenberger, Lempio & Majestic. He received his MS and PhD degrees in chemistry from Yale University in 1957 and 1959 and his JD degree from the University of the San Fernando Valley in 1967.

Dubb is admitted to practice before the bar of the State of California and is a member of the American Chemical Society and the San Francisco Patent Law Association. He is a member and former president of the Peninsula

Patent Law Association and is a councilman to the National Council of Patent Law Associations. He has been active in alumni affairs for several years and is president of the San Francisco Chapter of the Alumni Association.

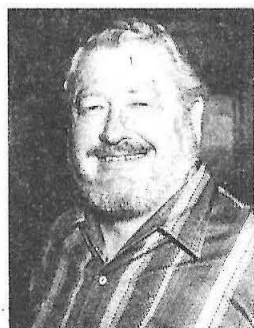


David E. Groce

David E. Groce, BS '58, PhD '63, joined Science Applications, Inc., in La Jolla, California, in 1969 after postdoctoral studies at the Australian National University and five years of experimental atomic and nuclear physics at General Atomic. He has held several corporate and technical positions with the company and currently is the manager of its Applied Medical Sciences Division.

Groce is a member of the Society of Nuclear Medicine, the American Nuclear Society, the American Association of Physicists in Medicine, the American Public Health Association, and the American Association for the Advancement of Science. He is a consultant to the National Council on Radiation Protection and Measurements.

Groce is currently serving a one-year term on the board of the Alumni Association as chapter representative.



Herbert A. Lassen

Herbert A. Lassen, BS '43, MS '47, PhD '51, has been associated with the preliminary design of spacecraft during much of his career and is credited with the conceptual design

of Pioneers 6 to 9 and of the Pioneer Jupiter and Saturn spacecraft. He led the early phases of the High Energy Astronomy Observatory family of three successful spacecraft, and most recently he supported the winning TRW proposal for the International Solar Polar Mission.

He has been a member of the Alumni Fund Council and is currently a member of the Seminar Day Committee.

Lassen received the 1974 American Institute of Aeronautics and Astronautics Spacecraft Design Award for his conceptual design of the Pioneer 10 and 11 spacecraft and an associated NASA public service award. During World War II, he served in the submarine service on the USS *Muskallunge* (SS262).



Carole Hamilton

Carole Hamilton, PhD '63, is Technical Group Supervisor for the Telecommunications System at JPL. She has been a staff member at JPL since 1974 and previously was a staff member with the Caltech Environmental Quality Laboratory.

Hamilton is Seminar Day general chairman and a member of the Board of Directors of the Caltech Y, the American Institute of Chemical Engineers, and Sigma Xi. She earned her BS degree at Colorado State University.



Carl W. Hamilton

Carl W. Hamilton, BS '62, is associate professor of finance and management science at the

University of Southern California. Before joining the USC faculty, he held industrial positions with IBM and currently he consults with a variety of firms in corporate finance, strategic planning, and decision support systems. He received an MA degree in economics from UCLA and a PhD degree in economics and management at MIT.

Hamilton is a member of the American Finance Association, the Institute of Management Science, the Corporate Planners Association, and the Los Angeles World Affairs Council. He is a recipient of the USC Associates Excellence in Teaching Award and has served on several Caltech Alumni Seminar Day committees.



Donald L. Smith

Donald L. Smith, BS '71, MS '72, is manager of the waste water treatment division of James M. Montgomery Consulting Engineers, Inc., Pasadena. Smith previously was supervising operations engineer with the County Sanitation Districts of Los Angeles County. He also lectures at the University of Southern California Graduate School of Engineering.

Smith has been a member of Seminar Day Committee and is a member of the American Society of Civil Engineers and the Water Pollution Control Federation.



Donald P. Wilkinson

Donald P. Wilkinson, BS '48, has been with Hughes Aircraft Co. for more than 20 years in systems engineering and product

Please turn the page

effectiveness. He currently is operations manager of the product effectiveness staff of the Missile Systems Group. Before coming to Hughes, Wilkinson was associated with Boeing, Marquardt Aircraft Company, and Propulsion Research Corporation. He received an MS degree in engineering from UCLA in 1961.

Wilkinson has been a member of the Alumni Seminar Committee for four years and active in the Alumni Fund. He is a member of the American Society of Mechanical Engineers and the Institute of Environmental Sciences. Recently he has been promoting seminars on environmental testing of electronics and the prevention of operational malfunctions of digital electronics caused by imbedded computer programs—loosely called “software reliability.”

## Annual meeting notice

NOTICE IS HEREBY GIVEN that pursuant to the bylaws of the Alumni Association, California Institute of Technology, the annual meeting of the members thereof will be held Thursday, June 19, 1980, at 6:00 p.m. in the Athenaeum, 551 South Hill Avenue, Pasadena, for the purpose of receiving results of the election of officers and directors and for the purpose of transacting any and all business that may come before such meeting of the members.

CAREL J. OTTE, MS '50, PhD '54,  
PRESIDENT

STANLEY A. CHRISTMAN, BS '65,  
SECRETARY

## Are you moving?

If you are moving, please notify the Caltech Alumni Association of your new address (please print):

NAME \_\_\_\_\_  
YEAR \_\_\_\_\_  
NEW ADDRESS \_\_\_\_\_

## PERSONALS

1937

MARTIN H. WEBSTER, currently a director of The Caltech Associates, has been elected to two new posts: membership on the board of advisers of the UCLA hospital, and president of the Los Angeles County Bar Foundation. The Foundation is dedicated to raising funds for projects to further the administration of justice. Webster is also about to complete a six-year term as member of the House of Delegates of the American Bar Association.

1938

MAURICE J. SCHLATTER, PhD '41, writes, “Retired from position as senior research associate after 32 years at Chevron Research Co., Richmond, California. Expect to have more time for travel, scuba diving, and underwater photography.”

1939

MARK G. FOSTER, PhD, professor emeritus at the University of Virginia, retired after 19 years of teaching electrical engineering, which followed 21 years in industry.

1940

WALTER R. LARSON, retired from the presidency of LZ Enterprises in Garden Grove, California, writes, “We decided to sell out in California and buy a 35-acre farm here in New Hampshire. We picked this area because our daughter and son-in-law are nearby. Also, we are expecting a grandchild in March. For myself, I have retired, if you can call activating an old farm retirement. The other day I was thinking: this is a good way to stay young or—put another way—not get much older, as I was climbing an apple tree carrying a chain saw. I’ve got 120 apple trees to prune before the work starts in the spring.”

1942

CARTER HUNT has been named vice president of Hiram Walker & Sons, Inc., in Peoria, Illinois. The general production manager for Hiram Walker, Hunt is also a director of the Peoria Area Chamber of Commerce and is involved in other area and professional organizations.

JACK C. HOAGLAND, associated with the Space Systems group of Rockwell International, has been elected to the grade of Fellow of the Institute of Electrical and Electronics Engineers. The highest honor in the electronic engineering profession was given for his contributions to electronic systems and space communications. Hoagland lives in the Tustin-Santa Ana area of California with his family.

1943

ROBERT L. BENNETT reports from Calistoga, California, “After 33+ years with Ma Bell in such diverse places as Los Angeles, Holmdel, New Jersey; Chicago, San Francisco, and most recently, San Diego, I’ve taken advantage of early retirement to run my wine grape vineyard in beautiful Napa Valley.”

1945

CHARLES W. BOZARTH announces the formation of Bozarth Financial, consultants and brokers in business mergers, acquisitions, and divestitures, in Palos Verdes Estates, California. Bozarth has been elected to the executive committee of the statewide advisory board to the Senate Select Committee of Small Business Enterprises. He also serves as chairman of the advisory board’s tax subcommittee.

1953

GEORGE W. SUTTON, MS, PhD '55, vice president of Avco Corp. in Everett, Massachusetts, was chairman of the High Energy Laser Critical Technology Group for the Department of Defense in 1979. He originated the idea of a time capsule to be put into orbit and retrieved in 2080.

1954

EDWARD J. GAUSS, president of Fat Moose Flight School in Fairbanks, Alaska, reports that he was a professional actor in a \$300,000 production of a new version of the Dickens *Christmas Carol*. Gauss says that the Alaska Repertory Theatre paid him more per word than the University of Alaska ever paid him for his lectures in computer science and that his only problem is to get a part with more words.

1955

ALLEN E. FUHS, MS, PhD '58, Distinguished Professor at the Naval Postgraduate School in Monterey, California, has been named a Fellow of the American Society of Mechanical Engineers. The grade of Fellow is conferred upon a member who has had at least ten years active engineering practice and who has made significant contributions to the field of engineering. Early in his career, Fuhs developed the instruments for the first measurement of electrical conductivity of the plasma sheath of reentry vehicles. At the Naval Postgraduate School he has studied the aerodynamics of high energy lasers, external burning to alleviate base drag, and the influence of distorted flow on compressor stability. His daughter, Sue Fuhs, is a senior at Caltech.

1956

JOHN F. KENNEDY, MS, director of the Iowa Institute of Hydraulic Research and professor in the division of energy engineering at The University of Iowa, has begun a two-year term as president of the International Association of Hydraulic Research. He also serves on the National Research Council’s Committee on Natural Disasters.

1957

DAVID YOUNT became chairman of the department of physics and astronomy at the University of Hawaii in July 1979.

1958

RICHARD L. VAN KIRK, Alumni Association president in 1977-78, has been elected to the board of trustees of Woodbury University in Los Angeles. Van Kirk is western regional manager of management services for Arthur Young & Co., Los Angeles.

1965

JOEL KWOK, sends us this update: “After leaving Pasadena, I worked for eight years as a senior research scientist at the then Union Oil Research Centre, Brea, California. Since 1973, I have been the merchandising and systems manager of the Wing On Co. of Hong Kong, the largest department store in the area with a history of over 75 years. The November 8th issue of News reminded me fondly of ‘Fergie’ who tended my soccer needs at Tech. By the way, I still play the game.”

JOHN C. SIMPSON, JR., has been promoted to general manager of international supply and distribution operations department at Mobil’s New York headquarters.

1966

MICHAEL ASCHBACHER, Caltech professor of mathematics, has won one of two Frank Nelson Cole Prizes in Algebra. The \$1500 award, presented at the annual meeting of the American Mathematical Society, recognized Aschbacher’s paper, “A Characterization of Chevalley Groups over Fields of Odd Order,” published in the *Annals of Mathematics* in 1977.

JOSEPH P. TYMCZYSZYN joined the staff of the Committee on Science and Technology of the U.S. House of Representatives in May 1979. He lives in Arlington, Virginia, with his wife and two sons.

1970

RAYMOND K. FISHER, PhD, a physicist with the General Atomic Co. in La Jolla, California, reports, “My wife, Sally, and I had our second child and first son, Brian David, on January 12, 1979.”

1971

EDSON R. McCORD writes from Crystal Lake, Illinois, “My wife and I are moving to Lyon, France, where I will be Product Development Manager of Hydraulic Excavators for International Harvester Company.”

STANLEY M. PARSONS, PhD, shares the following: “Laura Nicole Parsons was born to Leslie and myself on September 27, 1979.” The Parsons live in Santa Barbara, California, where he is an assistant professor of chemistry at UC Santa Barbara.

1972

PAUL A. LEVIN was married on December 29 to Carol Joy Lubinski in Kenosha, Wisconsin. He writes, “We will be settling in the home we purchased in Manhattan Beach, California. I work as an associate in New Ventures for TRW Electronics. We are looking for new businesses, so I would like to hear from any Techer with ideas.”

1973

AHMED M. ABDEL-GHAFFAR, MS, PhD '76, joined Princeton University in September as an assistant professor of structural engineering.

MARVIN R. MANDELBAUM writes, “This past year I completed my MBA degree at Harvard, began a new job as a consultant for Data Architects, Inc., of Waltham, Massachusetts, and bought a house in Newton, just outside of Boston.”

RICHARD L. SHORT reports, “Patti and I were blessed with the arrival of Nathan Andrew on September 17th, our first child. I will complete my chief residency in pediatrics at Children’s Hospital, Orange County, on June 30, 1980.”

LT. RODNEY K. WOMER, MS, graduated from the U.S. Navy test pilot school in December.

HENRY YUEN, PhD, head of the theoretical hydrodynamics section of the fluid mechanics department of TRW/DSSG at Redondo Beach, California, and his wife, Molly, welcomed their first child, Philip, last year.



1975

ERIC HANSEN, assistant professor of engineering at the Thayer School of Engineering at Dartmouth, writes, "I've just finished my PhD in electrical engineering from Stanford. On June 9 I married Debra Blanchard, a 1976 graduate of Stanford. We're delighted with our marriage and also with New England."

1978

ERIC KALER reports, "I got married December 30 to the former Miss Karen Fults of Nashville, Tennessee. We are now in Minneapolis—looking forward to summer." Kaler is a graduate student in chemical engineering at the University of Minnesota.

THOMAS McDONNELL has been elected to the New York Academy of Sciences. McDonnell, who is involved in graduate research and teaching at Harvard University, comments, "There have been so many terrific developments since I've been here at Harvard that I'm afraid I often feel a bit reluctant to relate many of them. I just thought that this recent (and quite unexpected) bit of news was one for which I can particularly thank Caltech and my experiences there."

## OBITUARIES

1924

ELMER J. WEITEKAMP in April 1979. He was retired from McDonnell Douglas Corporation and living in North Hollywood, California. He is survived by his wife, a son, and two daughters.

1925

WALTER L. BRYANT on December 23. His wife writes from La Jolla, California, "My husband dearly loved Caltech. He was proud of Caltech and Caltech may be proud of him."

1929

WALTER B. GRIMES on December 22 after a long illness. He is survived by his wife, who lives in Chico, California.

1932

EDWARD C. KEACHIE on December 7. Emeritus professor of industrial engineering and operations research at UC Berkeley, he was an authority on workmen's productivity prediction based on the learning curve. He is survived by his wife, Grace, two sons, two daughters, and two grandchildren. An Edward C. Keachie Memorial Library has been established by the department of industrial engineering and operations research. Contributions should be sent to the department chairman, UC Berkeley, Berkeley, California 94720.

1934

MILTON U. CLAUSER, MS '35, PhD '37, on January 29, following a long illness. Clauser, the twin brother of Caltech professor FRANCIS CLAUSER, BS '34, MS '35, PhD '37, and father of MILTON J. CLAUSER, PhD '66, was the retired provost of the Naval

Postgraduate School in Monterey, California. He was head of the Lincoln Laboratory and taught aeronautics and astronautics at MIT before taking the post of academic dean at the Navy school, where he served from 1970 to 1974. In addition to his brother and son, Clauser is survived by his wife, Virginia, a daughter, Marilyn A. Wales, and four grandchildren. The family plans to establish a fund at Caltech in his honor. Contributions can be sent to Joe Farmer, director of memorial gifts, Caltech, 1-36, Pasadena, California 91125.

1935

SANDER D. SHEFF on August 16. He was retired and living in Los Angeles.

1940

LEE CHRISTIE, Ex, on February 3, of a heart attack. Environmental project scientist for the Sanitation Districts of Los Angeles County, he previously was engaged in teaching and research at UCLA, MIT, Tufts, and Johns Hopkins.

1948

ROLAND URE, JR., MS, on January 24 in the crash of a light plane in Salt Lake County, Utah. He was professor of electrical engineering, materials science, and engineering at the University of Utah. There he was instrumental in organizing and establishing the Hedco Microelectronic Laboratory in the College of Engineering. Before joining the University of Utah faculty, Ure spent 19 years with Westinghouse Research Laboratories. From 1962 to 1975, he was editor of *Thermoelectric Devices, Energy Conversion*.

1952

ROBERT BLAIR on November 2. He was a valuation engineer for the Internal Revenue Service in San Francisco and was a member of the American Institute of Mining Engineers. He is survived by his wife, Joan, two daughters, and five sons.

## Alfred Stern, emeritus professor, dies

Alfred Stern, professor of philosophy, emeritus, died on January 31. Born in Vienna, Austria, in 1899, he received his PhD from the University of Vienna and later taught philosophy at the University of Paris and the Institute of High Studies in Belgium.

At the beginning of World War II, Stern volunteered for service in the French Army and escaped to Mexico City in 1942 when the Nazis overran France. In Mexico City he became a writer for the National French Committee, headed by General de Gaulle, and published hundreds of articles and a book in support of the cause of Free France.

He came to Caltech as a lecturer in 1947 and was appointed professor emeritus in 1968. He spoke English, French, German, and Spanish fluently. His books were published in many languages, and he was a contributor to the leading philosophical journals of many countries. Among the best-known of his books are *The Philosophy of Values*, *The Philosophy of Laughter and Tears*, *Sartre—His Philosophy and Psychoanalysis*, and *Philosophy of History and the Problem of Values*.

For his achievements and contributions to French culture and welfare, Professor Stern was made a Knight of the Legion of Honor of France and an Officer of the Academy of France. He was also decorated by King Baudouin of Belgium for his services to that

country, was an Honorary Academician of the Italian Accademia Tiberina, and received the Austrian Honor Cross for Science and Art, First Class.

## Dr. and Mrs. Jon Mathews missing at sea

A search for Jon Mathews, Caltech professor of theoretical physics, and Mrs. Mathews—missing at sea since December 24—was canceled in late January.

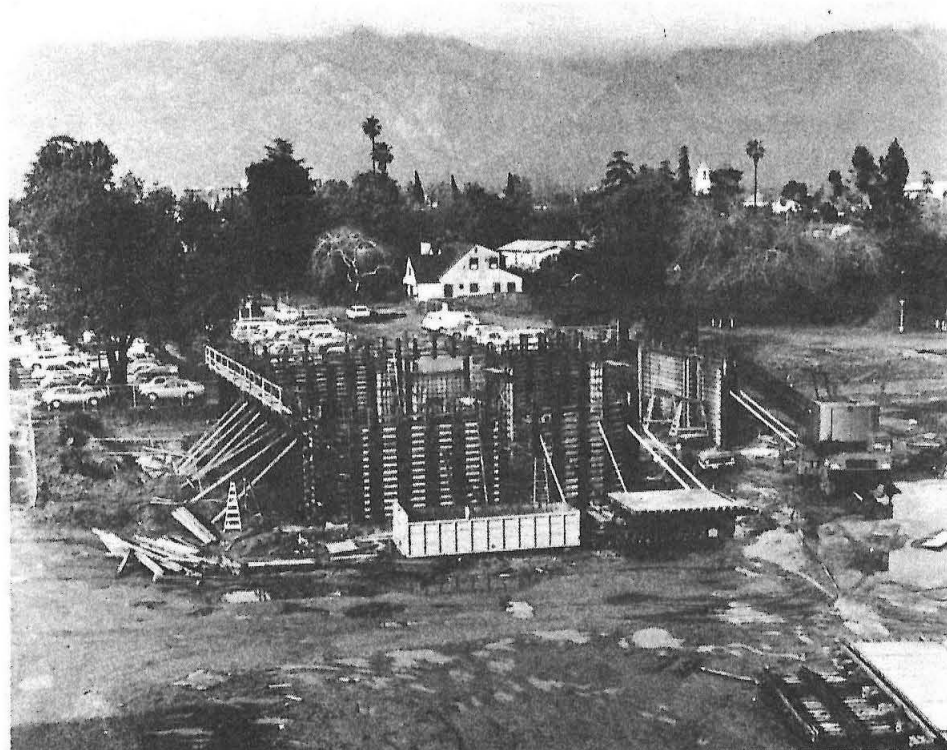
In their boat, the *Drambuie II*, the Mathewses were sailing around the world and were last contacted as they were crossing the Indian Ocean on their way from Australia to South Africa. At that time a cyclone center was 120 miles ahead of them. The storm changed course several hours later to pass within 60 miles of the *Drambuie's* estimated position. An air and sea search revealed no trace of the Mathewses or their craft.

Mathews, concerned with the theoretical aspects of elementary particles, joined the Caltech faculty in 1957 and was named professor in 1966. He was executive officer for physics for several years and served as chairman for several academic committees.

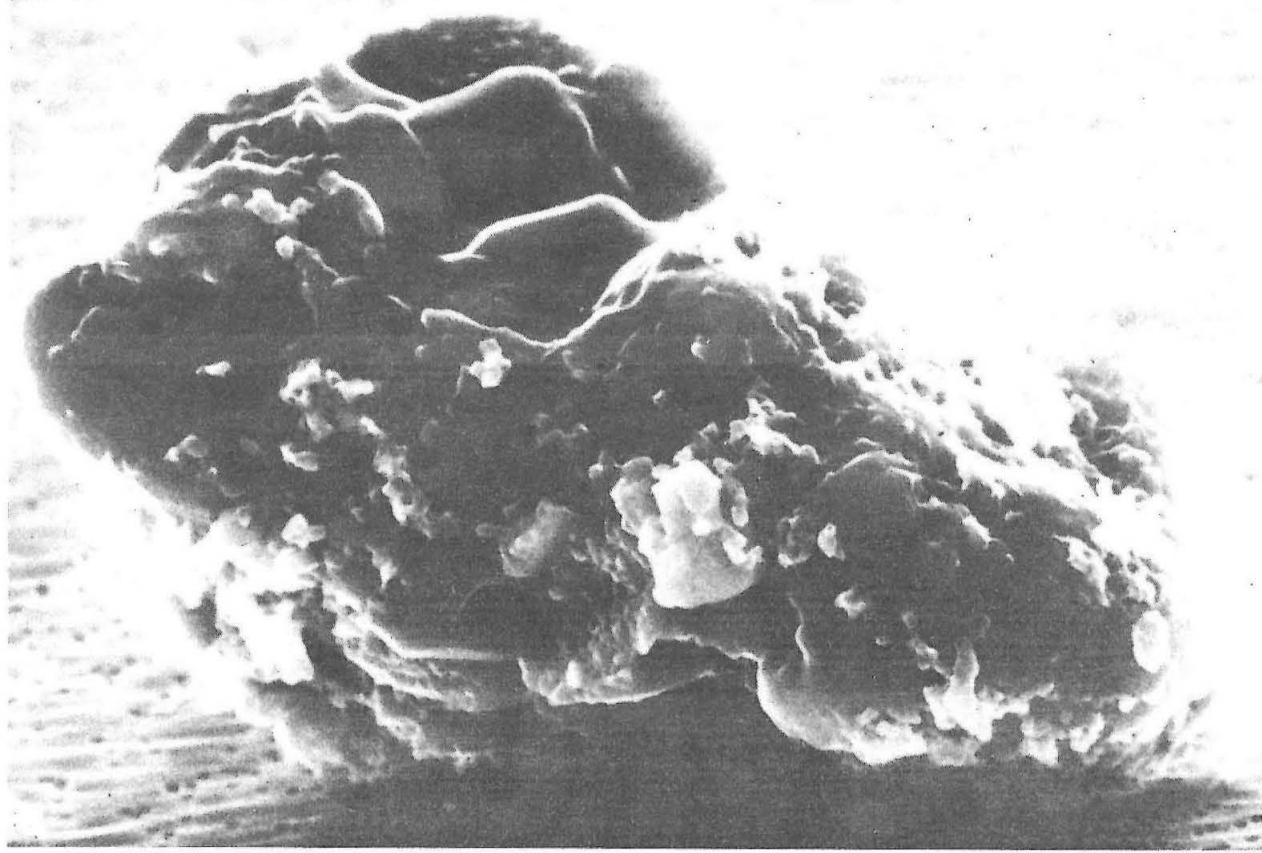
Born in Los Angeles, Mathews graduated summa cum laude from Pomona College where he was elected to Phi Beta Kappa. He studied for a year as a Fulbright Scholar at Cambridge, England. He was a member of a six-man Caltech team that spent a year at the new Indian Institute of Technology at Kanpur under a U.S. State Department program to help develop two institutes for advanced study in India. He was named a member of the American Physical Society and the American Association of Physics Teachers, and is co-author of "Mathematical Methods of Physics."

Ed. Note: In a recent issue, *Caltech News* referred to Jürg Waser, retired Caltech professor of chemistry, as the late Jürg Waser. We are happy to report that he is very much alive, and we regret the error.

## The Watson Laboratories takes shape



The Watson Laboratories of Applied Physics rises north of Steele Laboratory. Both the Watson Laboratories and the Braun Laboratories of Cell Biology and Chemistry are scheduled for completion in early 1982.



Magnified about 15,000 times by a scanning electron microscope, this tiny particle of dust, believed shed from a passing comet, may contain information dating to the formation of the solar system. It was collected by a NASA aircraft and is being analyzed in the laboratory of Caltech Geophysicist Gerald J. Wasserburg.

# CALTECH NEWS

California Institute of Technology  
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# CALTECH NEWS



Research in Caltech labs is helping to pave the way for clinical tests of today's wonder chemical, interferon.