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# Caltech News

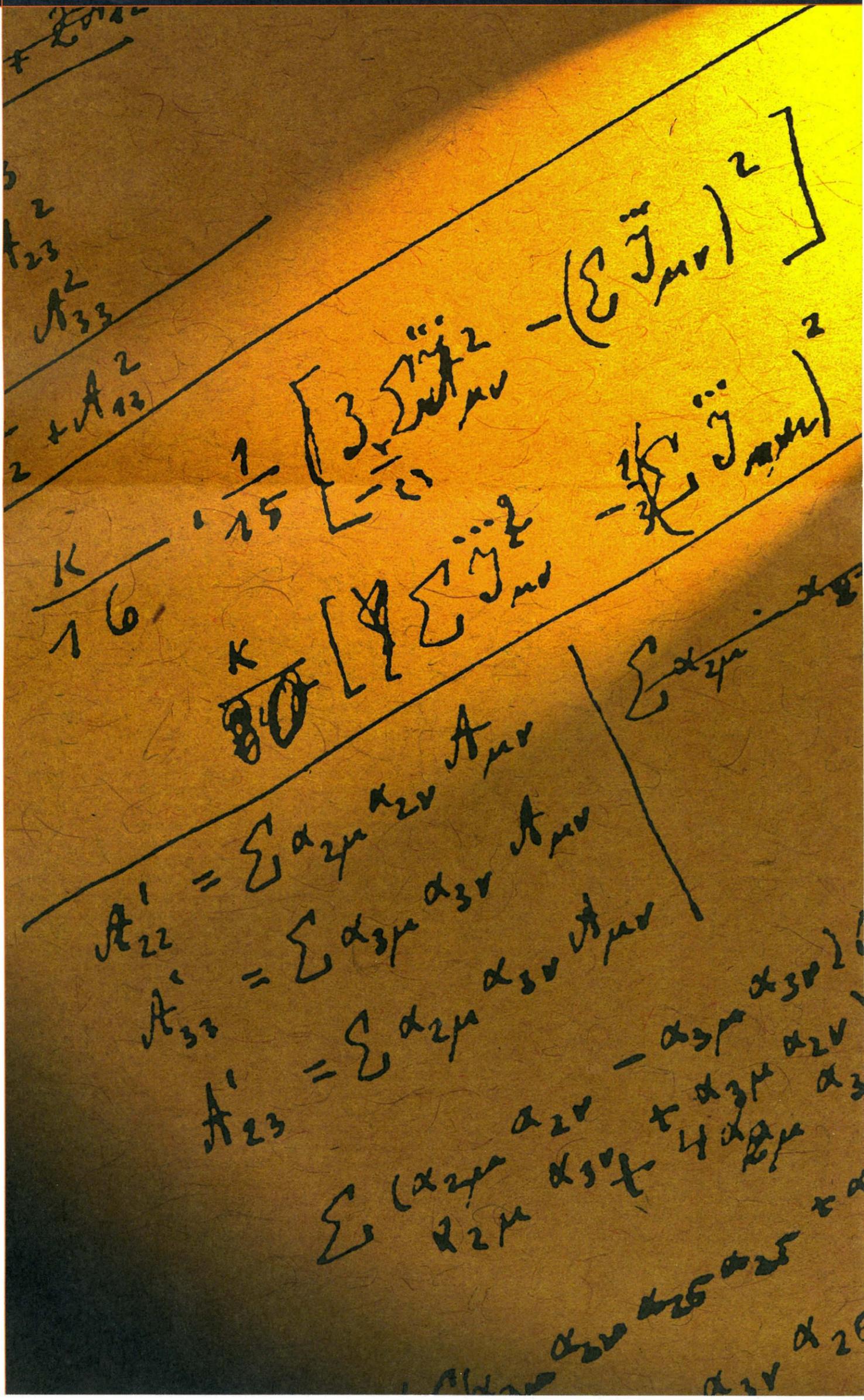
## In This Issue

Whole-Earth Prof

Cyber Citizen

China's Rocket Scientist

Einstein's Editors



# Caltech News



## ON THE COVER

This reproduction of Einstein's 1918 paper "On Gravitational Waves" includes, in the middle of the page, what is probably the first written appearance of the famous quadrupole formula, which is the rate at which gravitational waves carry energy away from the mass that emits them. Einstein made these notes after discovering and correcting in an earlier paper a major calculational error that had prevented him from deriving the formula. In fact, this version contains another small error: the 80 in the denominator should be 40. This mistake was not corrected until Eddington's 1922 paper on gravitational waves.

## U p F r o n t

### EDITING EINSTEIN

In a turn-of-the-century house at the edge of campus, a life story unfolds, page by page. Seven scholars are engrossed in volume 9 of a 29-volume publishing project. They're steeped in the aftermath of World War I.

In document after document, Germany grapples with postwar shortages of food, medicine, and paper, and the need to pay war reparations. From these grim conditions, a German scientist emerges and becomes an international celebrity, an icon for the ages, a man of the century.

"It's a huge transformation," says Diana Kormos-Buchwald, associate professor of history. She is the new director and general editor of the Einstein Papers Project, a project to publish *The Collected Papers of Albert Einstein*. Previously headquartered at Princeton University Press and Boston University, the project moved to Caltech in August 2000. The scholars

have sent volume 7, *The Berlin Years: Writings, 1918–1921*, to press and expect it out this spring. Now they're turning their attention to volume 9, *Correspondence, 1919–1920*.

For the latter volume, they are reading through 1,600 letters written to and by Einstein. From these, they must select roughly 600 to print and figure out how to account for those left unpublished. But before those tough decisions are made, they are enjoying the perspective gained from reading each letter.

"It's amazing to see Einstein grow into a public person," says Kormos-Buchwald. "Of course, scholars have studied these events, but I doubt anyone has read every letter, chronologically. One can see Einstein as he develops from a theoretical scientist having a more or less traditional academic career into a world figure." The milieu in which this transformation occurred is itself of great interest to Kormos-Buchwald, who specializes in Central European history in the interwar period.

"This was a more hopeful, rational

world following the horrible carnage of World War I," she says. "Like others, Einstein was horrified by the loss of a generation of men. He didn't write inflammatory pieces during the war, but afterwards he spoke out forcefully against war, chauvinism, and nationalism. He was attacked, and sometimes he retracted and regretted what he said."

She's impressed by the fact that, "in Einstein's letters and in his scientific work, he openly, publicly acknowledged his mistakes." He contributed scientific and popular articles to journals and newspapers almost weekly, says Kormos-Buchwald, whose team researches these sources and others in the course of its work. As Einstein became more popular, she says, "the media took great advantage of him. But he learned to take advantage of the media." Not only did he have to campaign on behalf of his theory of general relativity, she says, but it seems, from his letters, that "he felt a responsibility to do something with the reputation and fame that accompanied him.

"I believe, for some reason that is

not yet clear to me and that is worth exploring further, that Einstein was good-hearted in a simple way." She cautions that "when people say he was heartless to the people closest to him, these judgments have to be made much more carefully. The correspondence shows Einstein in various postures, from empathetic to realistic." She believes volumes 7 and 9 will point Einstein scholarship in some exciting new directions.

As Kormos-Buchwald develops an impression of Einstein, she must also keep him at arm's length. "It's something to guard against—overidentifying with one's subjects. It's one of the pitfalls of the trade." The editors "try to let the documents speak for themselves."

It helps that they represent the third generation of Einstein editors, she says, the first being contemporaries of Einstein and the second having some tangential connection to him. "For us, he is more of an academic subject."

She says her team's main objective is

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## 3 Whole-Earth Professor

Biogeologist and Feynman Prize winner Joe Kirschvink rocks on.

## 6 Democracy and the Desktop Computer

Stephen Hsu is in the business of protecting cyber privacy while fighting state censorship.

## 10 Revisiting Tsien

A Caltech professor talks about his long friendship with the Caltech-trained scientist who became "the father of Chinese rocketry."

### Also in this issue:

Alan Alda to speak at commencement; Caltech's Committee on Women Faculty reports in; the Institute opens an East Coast office; whirling and wheeling, on the back-page poster.

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*Executive Editor* — Heidi Aspaturian  
*Associate Editor* — Hillary Bhaskaran  
*Writer* — Rhonda Hillbery  
*Contributors* — Daryn Kobata, Javier Marquez, Michael Rogers  
*Copy Editors* — Emily Adelsohn, Michael Farquhar, Elena Rudnev  
*Circulation Manager* — Susan Lee  
*Photographer* — Robert Paz  
*Graphics Production* — Doug Cummings

Ted Jenkins '65, MS '66  
*President of the Alumni Association*  
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*Vice President for Public Relations*  
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*Director of Periodicals*

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## Whole-Earth Professor

It's a bright winter day in Pasadena and up on the second floor of Caltech's Arms Laboratory of the Geological Sciences, Joe Kirschvink '75, MS '75, is embracing a half-billion years of evolutionary history tightly enough to compress them into a 10-minute paleontology quiz. "All right, gang, what is it?" he asks a dozen students, holding up a fist-sized fossil. "Weird, floating plantlike things—anybody remember?" Everybody does—this is a Caltech crowd after all. Even the fossil has a faintly sapient air. "Okay, okay this one?" waving a new specimen. It turns out to be a casualty of the Permian extinction—the greatest mass dying in the history of life on Earth. Next comes a creature that unaccountably survived that catastrophe to become, as Kirschvink puts it, our "ancestral mammal." It proves harder to identify, so Kirschvink helps out with a bit of show and tell.

"Imagine your vertebrate column coming down like this," he urges his listeners, slinging his right arm across his left shoulder and wrestling it halfway down his back. "You can see . . ." The Caltech professor of geobiology seems to be hugging himself with delight.

Well, why not? Joe Kirschvink is on a roll. Nearly everyone who heard his American Geophysical Union (AGU) lecture suggesting that we are all descended from meteorite-hitching Martian bacteria wants to talk to him about it. He's about to start a sabbatical at the University of Tokyo, joining his family who have lived in Japan for four years while he's commuted regularly across the Pacific. He's working with a group of "incredibly bright" graduate and undergraduate students on a host of topics whose names sound like the titles of lost novels by H. G. Wells: "True Polar Wander," "Cambrian Explosion," "Snowball Earth," "Martian Panspermia." To top it off, he's just received Caltech's most highly publicized salary increase, otherwise known as the Feynman Prize for Excellence in Teaching.

The eighth Feynman winner, Kirschvink was awarded \$3,500 and will have a like amount immediately added to his base salary, in recognition of "his innovative teaching style and outstanding mentorship that have inspired a generation of Caltech students." The Feynman Prize was endowed in 1992 by Caltech Associates Robert and Ione Paradise and has also benefited from the contributions of William and Sally Hurt.

"Professor Kirschvink's classes attract a wide



*Nature didn't create separate disciplines or six divisions. Science in the 21st century doesn't need to either.*

following of undergraduate and graduate students from all parts of campus," said Caltech provost Steve Koonin '72, who surprised Kirschvink with the announcement and check at an Institute faculty meeting in January. "These students are inspired by his unabashed enthusiasm for the Earth sciences, embraced by his sincerity and dedication to education, and challenged by the depth and breadth of his knowledge. The courses are a mix of fundamentals with state-of-the-art research and offer ample opportunity for fieldwork with outings in the U.S. and abroad. In addition, he has provided countless undergraduates with their first opportunities to do research and has patiently guided and developed them into first-rate scientists."

Kirschvink is Caltech's first undergraduate alum to win the Feynman Prize (Professor of Electrical Engineering and Computer Science Yaser Abu Mustafa, PhD '83, received it in 1996), and he also has the distinction of being the first winner actually to have been taught by Feynman. As a sophomore, he attended the informal "Physics X" classes that the maestro held for undergraduates one evening a week in his Caltech office. Channeling physics through Feynman was of course exhilarating—"Oh, my God, he had the ability to make you think you understood it!"—but when the time came to

choose his own major, Kirschvink opted for geology, influenced by the multidisciplinary directions the field was taking at Caltech and inspired by the diverse research agendas and classroom styles of professors like the late paleoecologist Heinz Lowenstam and geologist Robert Sharp '34, MS '35, his current colleague, mineralogist George Rossman, PhD '71, and the late planetary scientist Eugene Shoemaker '47, MS '48. He earned his PhD at Princeton, then returned to campus in 1981 as the Institute's first professor of geobiology.

Like his mentors, Kirschvink has cast a wide net in his research, which focuses on the interrelationship between biological evolution and geologic events on Earth and in the early solar system. He has carried out studies in paleomagnetism and biomagnetism, mass extinctions, evolutionary theory, continental tectonics, and microscopic genetics, to name a few areas of interest. He is particularly well known for his research into the magnetic sensing abilities of animals ranging from honeybees to birds to whales, for the discovery that humans possess minute amounts of magnetic material in their brain tissues, and, more recently, for his "Snowball Earth" theory, which holds that Earth's surface has frozen over several times in its his-

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## ALAN ALDA WILL SPEAK AT COMMENCEMENT

Fresh from his triumphant appearance as Richard Feynman in Los Angeles and New York, actor Alan Alda has accepted a new role—that of commencement speaker at Caltech's 108th graduation ceremony on June 14.

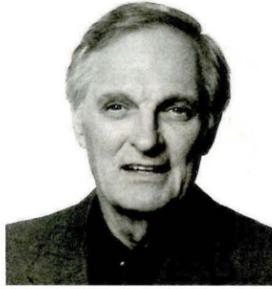
Alda is known for his extensive body of work in theater, film, and television, most notably on the long-running and hugely popular comedy series *M\*A\*S\*H*. In the show, he played Hawkeye Pierce, a talented and recalcitrant Korean War army surgeon with a chronic case of gallows humor.

Closer to home, Alda has been playing the late Richard Feynman in the stage production *QED*. The play premiered last year in Los Angeles at the Mark Taper Forum (see *Caltech News* #1, 2001) and is now enjoying an extended run on Broadway. Alda's portrayal of the eccentric and ebullient physicist has been acclaimed by theater critics and fans of the Nobel Prize win-

ner alike, and has played to sold-out houses in both cities.

Written by Peter Parnell, *QED* owes its genesis in large part to Alda, who was inspired by reading Feynman's memoirs and biographies of the late physicist. As part of his preparation for the role, Alda visited Caltech to get a feel for the campus and to meet with Feynman's friends and colleagues.

Some of Alda's other film credits include roles in *California Suite*, *Crimes and Misdemeanors* (for which he won the



Like the man he's been playing on Broadway once was, actor Alan Alda will be the speaker at a Caltech commencement.

New York Film Critics' Award), *Everyone Says I Love You*, *Flirting with Disaster*, and *Manhattan Murder Mystery*. He has also written and directed episodes of *M\*A\*S\*H*, and the movies *The Four Seasons*, *Betsy's Wedding*, and *Sweet Liberty*. Nominated for 30 Emmy Awards, the actor has won five.

For the last eight years Alda, a "life-long science buff," has also been host of the award-winning PBS television series *Scientific American Frontiers*. Employing a hands-on approach that makes science engaging and accessible to the layperson, he has toured labs for behind-the-scenes looks into the latest research and discoveries, and has accompanied scientists into the field as they do their work.

The show (whose interactive Web site can be accessed at <http://www.pbs.org/saf/index.html>) includes an educational component, in the form of teaching guides and Web links for use in the classroom. Among other topics, this season's programs explore the role of science and technology in sports and athletic competition; life under the sea; and the uses and abuses of alternative medicine.

## RECOGNITION

Tom Apostol, professor of mathematics, emeritus, has been honored for his distinguished career by the Friends of Hellenic Studies and the Basil P. Caloyeras Center for Modern Greek Studies. Of Greek descent, Apostol is the author of a two-volume calculus text—often known as "Tommy 1" and "Tommy 2"—that has been used by generations of students around the world, and is the creator, director, and producer of *Project MATHEMATICS!*, a series of award-winning, computer-animated videotapes for teaching mathematics.

Caltech president David Baltimore has been named a 6th Annual Eddy Award winner for both his and Caltech's "contributions in bringing the fields of education, research and professional employment together" in the L.A. County area. He received the honor on November 14 from the Los Angeles County Economic Development Corporation.

Kaushik Bhattacharya, professor of

*Continued on page 5 . . .*

## FEMALE FACULTY "LESS SATISFIED" THAN MALE PEERS AT CALTECH, INSTITUTE COMMITTEE FINDS

The Committee on the Status of Women Faculty at Caltech, commissioned in 1999 to investigate possible gender inequities among faculty recently issued its long-awaited findings in a 31-page report.

Chaired by Professor of Astronomy Anneila Sargent, PhD '77, the committee of eight female and five male faculty interviewed all 29 female professors who were at Caltech during 1999–2000. The CSWFC also spoke with a group of male professors, each of whom was considered a peer of a female professor, taking into account that issues that arose might be common to both women and men or specific to a particular field or division.

The survey's "most striking" finding, as summarized by the committee, was that "female faculty are markedly more dissatisfied than their male peers with many aspects of Caltech."

Notably, although male faculty had many of the same complaints as females, they still felt satisfied with their overall situation. The committee surmised that with the very low proportion of women on the faculty (11 percent) and without female representation in higher administration, "these findings suggest that it is quite reasonable for female faculty to attribute at least some adverse professional experiences to unequal treatment of men and women."

The CSWFC did not, however, reach any firm conclusions regarding gender disparities in salary or in office and laboratory space allocation. Both women and men voiced dissatisfaction with their space allocation, but because of the varying practices among Caltech's six academic divisions and the low number of women, no general pattern could be established.

A number of statistical salary analyses showed that female faculty members receive less pay on average than male. Again, however, partly due to the small number of women, "it can be argued that the results are statistically not significant," the report states.

The committee concluded that "to achieve its full potential, Caltech needs to hire more women faculty, be more proactive in mentoring its junior faculty, and make itself friendlier to the working family."

It listed seven recommendations to achieve those goals, including increasing the proportion of female faculty to 25 percent in the next 10 years; monitoring salaries to ensure equity, and remedying any past or current disparities; implementing mentoring programs for junior faculty; "aggressively pursuing" improvements in the working environment to benefit all faculty and help retain women, such as increasing the fraction of upper-level female administrators and proactively awarding maternity and paternity leave; and implementing a fundraising campaign centered on recruiting female faculty and students in science and engineering.



Astronomer Anneila Sargent chaired the Caltech committee that investigated the status of female faculty on campus.

Marianne Bronner-Fraser, Ruddock Professor of Biology and Caltech's first female faculty chair, said, "The committee did a wonderful job. This report is unique in that (1) it looks at both women's and men's issues within the Caltech community, and (2) it comes up with concrete and feasible recommendations that can be used as a model to improve the quality of the Caltech environment."

Sargent said, "Overall, response to the survey has been very positive. The report was presented to the Faculty Board, and it appeared the reaction was favorable. The president, provost, and division chairs were supportive of the recommendations, especially the hiring goal." She noted some distinctions between this study and the widely publicized 1999 MIT study that found patterns of gender discrimination and that inspired the Institute survey. "The difference is that MIT went in believing that inequities existed. The Caltech report is more exploratory."

The committee's findings also received coverage in the December 7 issue of the journal *Science*.

Negative reaction to the report has been minimal, Sargent said. A few are concerned, for example, that if women are hired with specially raised funds, they might be stigmatized or seen as tokens. She acknowledged the validity of such concerns, noting the importance of careful implementation of proposed changes.

One letter to the *Pasadena Star-News* criticized "dissatisfied Caltech women" for seeking "quotas," saying it would lower teaching standards. To such attitudes, Sargent said, "I think someone just didn't understand the academic environment. We're not trying to set a quota. But the fact is that we're excluding a large percentage of the population who could be doing good work."

Bronner-Fraser summed up, "Our goal is to attract and recruit the very best applicants to Caltech. Currently, we may be losing some excellent individuals to our peer institutions. In fact, the fear is that some women may not apply to Caltech due solely to the fact that our gender balance is low."

"By increasing the numbers of women and minority professors at Caltech, we will create a positive atmosphere not only for the faculty but also for mentoring the next generation. This in turn will increase the numbers of excellent potential candidates for the future."

The full report can be downloaded from Caltech's Diversity Web site at <http://diversity.caltech.edu/>.

## BARBARA WOLD NAMED SECOND DIRECTOR OF BECKMAN INSTITUTE

Caltech biology professor Barbara Wold, PhD '78, has been appointed director of the Beckman Institute, succeeding founding director Harry Gray,

who will return to full-time professorial duties after 15 years at the institute's helm.

Wold, who specializes in embryonic development and regeneration in vertebrates, will lead the Beckman Institute in



Barbara Wold is the new director of the Beckman Institute.

its continuing goal of building a research interface between chemistry and biology, Baltimore said.

"Professor Wold was chosen to be the second leader of this unique Caltech institution after careful consideration of the pool of candidates," Baltimore said.

"We would also like to take this opportunity to thank Harry Gray, who over the past 15 years has provided his talents and energy in formulating and implementing the vision of the Beckman Institute and its exciting program of science and technology."

The Beckman Institute was opened in 1989 in a 160,000-square-foot building on the west end of campus. Made possible with an initial \$50 million commitment and challenge from the Arnold and Mabel Beckman Foundation in 1986, the institute provides space for interdisciplinary work in endeavors such as advanced imaging; the synthesis and sequencing of genes and proteins; laser spectroscopy and X-ray diffraction; synthesis and characterization of novel organic and inorganic materials; and advanced mass spectroscopic methods for characterization of large biomolecules.

Wold has been a professor of biology at Caltech since 1981. She earned her bachelor's degree in 1973 from Arizona State, her doctorate from Caltech in molecular developmental biology, and did postdoctoral research at Columbia College of Physicians and Surgeons.

Wold has been active in national and international science policy issues related to the Human Genome Project, advising the National Institutes of Health and the Department of Energy programs in genomics.

She is the author of some 60 papers in professional journals.

## TECH TODAY DEBUTS

Which faculty member is testifying before Congress this week? Which Caltech research report is now available online? Where can you find updates on commencement and real-time information on the latest earthquake? It's all available at *Tech Today*, a Web site created and maintained by *At Caltech* and the campus biweekly, *Caltech 336*. Each weekday, *Tech Today* brings readers current Institute news and events in a single, convenient, user-friendly page. The site includes links to campus and JPL divisions, resources, and calendars; international and local news sites such as the BBC, CNN, *New York Times*, and *Los Angeles Times*; science magazines and journals; search engines; and the daily menus for the Institute's dining halls. Check out *Tech Today*—today! Go to <http://atcaltech.caltech.edu/tech-today/>.

## JERRY NUNNALLY STEPS DOWN AS VP FOR DEVELOPMENT

Vice President for Development and Alumni Relations Jerry Nunnally stepped down from his position on February 15. A committee has begun an immediate search for his successor.

In a letter to the Caltech community, written "with an intense sense of personal regret," President David Baltimore said, "Having set in place the structure for the Institute's forthcoming capital campaign, Jerry has decided that he would prefer not to take on operational responsibility for this enterprise. With the campaign kick-off planned for this fall, we both agreed that it would be best to make a change now, rather than in the midst of the public phase of this major fund-raising activity."

Baltimore said that Nunnally will maintain a consulting relationship with the Institute, and that the two will continue to work together "closely" on some major fund-raising projects.

Until Nunnally's successor is found, Vice President for Public Relations Robert O'Rourke is serving as acting vice president for development and alumni relations.

O'Rourke is also serving on the search committee, chaired by Bill Jenkins, Caltech's executive vice president for administration, that has been appointed to choose Nunnally's successor. The other committee members are Peter Dervan, Bren Professor of Chemistry; Sandra Ell, treasurer and chief investment officer; Jean Grinols, administrator for the Division of Geological and Planetary Sciences; John Ledyard, chair of humanities and social sciences; and Caltech trustee Wally Weisman.

The quest for candidates was assigned to Gary Posner, a recruiter with Witt/Kiefer, a firm that specializes in searches for senior personnel and executives at institutions of higher education.

Development and Alumni Relations includes the Alumni Association; Gift and Estate Planning; the Alumni Fund; Corporate Relations and Industrial Associates; Foundation Relations; Development Services, which comprises Donor Relations, Gift Processing, and Research; Principal and Major Gifts; and the Associates.

## CHRIS BRENNEN STEPS DOWN AS VP FOR STUDENT AFFAIRS

After four years as vice president for student affairs, Christopher Brennen stepped down in January to return to teaching and research in mechanical engineering.

Throughout his 33 years at Caltech, Brennen has been involved in improving the quality of student life, not only as dean of students and master of student houses, but by serving on many committees during his time as associate professor and full professor. In 1992, grateful students honored him with a commemorative bench situated between Ricketts and Fleming houses.

Student Affairs includes a wide range of offices and programs, from athletics, admissions and financial aid to the registrar's office and residence life. The office of the vice president for student affairs oversees the undergraduate and graduate deans, the counseling and health centers, minority student affairs, and other offices that provide services for undergraduate and graduate students.

Brennen's immediate predecessor was Professor Gary Lorden '62, who held that position for eight years. President Baltimore has asked Lorden to assume an interim role while the Institute searches for Brennen's successor.

Lorden, who put plans for a spring sabbatical on hold to take the job, said he was looking forward to working again with Assistant Vice President for Student Affairs Sharyn Slavin Miller, who has responsibility for a large part of the organization. He also praised Brennen's dedication and many contributions during his tenure.

"I greatly admire what my friend Chris Brennen brought to the job and what he has accomplished in four years, not to mention the personal sacrifices he has made to serve Caltech and our students."

A search committee chaired by vice provost David Goodstein, has been named to select Brennen's successor. Committee members are Carolyn Ash-Merkel, Kevin Austin, Roger Blandford, Kim Border, Melany Hunt, Paul Jennings, Henry Lester, Sharon Patterson, Kerry Sieh, Martha-Helene Stapleton, and Matthew Sumner. The committee will be staffed by Miriam Feldblum.

Recognition . . . from page 4

applied mechanics and mechanical engineering, and Hideo Mabuchi, PhD '98, associate professor of physics, were both selected to participate in the National Academy of Engineering's 7th annual Frontiers of Engineering Symposium, held September 13–15 at the National Academies' Arnold and Mabel Beckman Center in Irvine, California. "The program brings together outstanding engineers (ages 30–45) from industry, academia, and government to discuss pioneering technical work and leading-edge research in various engineering fields and industry sectors." This symposium featured topics in the areas of aeronautics and aerospace, civil systems, wireless communications, and technology and the human body.

The 2001 ASCIT (Associated Students of Caltech) Teaching Awards have gone to Oscar Bruno, professor of applied and computational mathematics, Dirk Hundertmark, Taussky-Todd Instructor in Mathematics, Edward McCaffery, visiting professor of law, Thomas Neenan, lecturer in music, and Charles Peck, PhD '64, professor of physics. At the same time, George Cheron, lecturer in Russian, and Glen George '81, lecturer in computer science and electrical engineering, have been honored with ASCIT Lifetime Achievement Awards.

Emmanuel Candes, assistant professor of applied and computational mathematics, has been selected to receive an Alfred P. Sloan Research Fellowship, which carries with it a grant to be used in a flexible and largely unrestricted manner. Sloan recipients are selected on an extraordinarily competitive basis from a group of nominees representing the very best of young scientists.

David Chan, assistant professor of biology and Bren Scholar, has been named a Rita Allen Foundation Scholar. The award carries a \$50,000 stipend for up to three years. A graduate of Harvard Medical School and MIT, Chan joined Caltech in January 2000. He specializes in research on mitochondria, components of the cell that are important in energy metabolism and also in programmed cell death.

Judith Cohen, PhD '71, professor of astronomy, has received the Fullam Award from the Dudley Observatory, in Albany, New York. The award provides up to \$10,000 for "encouragement and support for an innovative research project in astronomy or astrophysics."

The University of California Press has published *Metropolis in the Making: Los Angeles in the 1920s*, a collection of original essays edited by William Deverell, associate professor of history at Caltech, and Tom Sitton, curator of history at the Natural History Museum of Los Angeles County. The volume explores the maturing of Los Angeles during that critical decade, using a variety of historical viewpoints.

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# Democracy and the Desktop Computer

BY RHONDA HILLBERY

Stephen Hsu '86 and SafeWeb, the security and encryption software company he cofounded in 2000, are not exactly household names. But to thousands, if not millions, of Web users in China, Saudi Arabia, and other nations that regularly censor free speech, they have become virtual heroes for creating and disseminating software that frees Web users from state surveillance and control.

"I live behind a state-run firewall that effectively censors most offshore Web sites," wrote one Chinese user in an e-mail testimonial to the company. "Using SafeWeb, I can still access international newspapers and keep abreast of what's happening in the world."

In China, forbidden content runs the gamut—from the politically incorrect and antigovernment to state-banned religions and the outlawed Falun Gong movement. Restrictions are just as tight in Saudi Arabia, where the state prohibits any criticism of the royal family, and interpretations of pornography are so broad that one Saudi medical student lamented to SafeWeb that he was unable to retrieve basic anatomy information. The site has also gained a following in Iran.

SafeWeb's role in the tug-of-war between state censorship and the anything-goes freedom of cyberspace has drawn widespread coverage in major newspapers, including the *New York Times*, *Los Angeles Times*, *Washington Post*, and the *Wall Street Journal*.

At the same time, the short history of SafeWeb contains a cautionary lesson about the challenges of combining high-minded idealism with hardheaded capitalism. This past November, the Emeryville-based company abruptly announced that it was shutting down its free encryption service, a decision that was immediately protested by users around the world.

Then, a few weeks later, came a par-

tial about-face: SafeWeb released a statement saying it would reconsider. A final decision would depend on finding a "viable business model," which might mean imposing a monthly charge to use the service.

"As a small company, SafeWeb could not afford to bear the bandwidth cost burden, especially when it needed to concentrate on corporate-security applications of its core technology," Hsu says of the unpopular decision.

SafeWeb is now charting a course toward the business market, with the aim of developing secure networks for corporate clients.

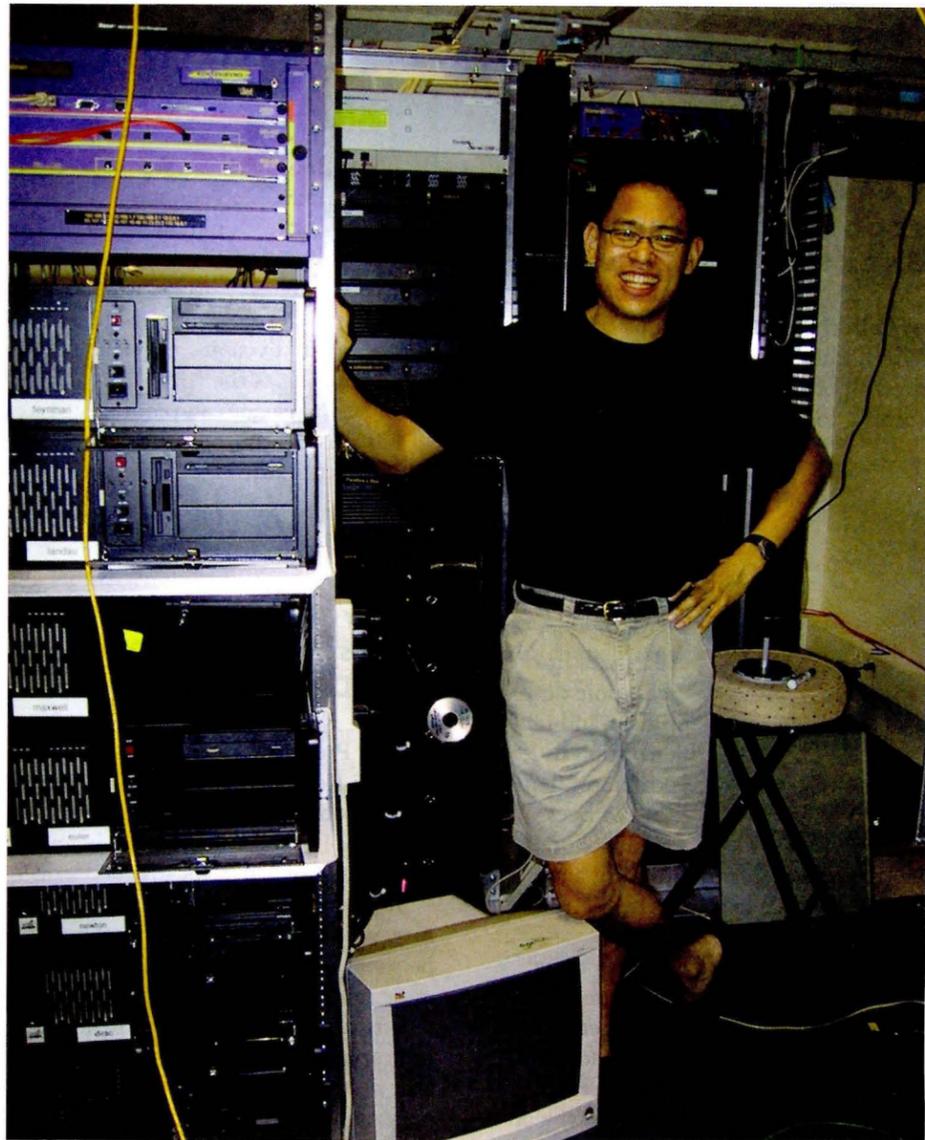
On February 4, the firm launched its Secure Extranet Appliance (SEA), a hardware device loaded with SafeWeb software that allows a company to create a secure, Web-based extranet, or virtual private network, in a few hours.

Among a number of ventures, SafeWeb also has signed an agreement with the Voice of America, which wants to use the technology to prevent the Chinese from jamming VOA broadcasts and blocking access to the agency's Web sites.

However it all shakes out, SafeWeb has been a fascinating ride for Hsu, who for a time moonlighted as company CEO while on leave from a full-time teaching and research schedule as associate professor of physics at the University of Oregon.

## BECOMING A PHYSICIST

Growing up in Ames, Iowa, Hsu started taking physics and math courses at nearby Iowa State University while he was still in high school. The legend of Richard Feynman helped draw him to Caltech; he graduated three years later at age 19 with his physics degree. He regularly attended "Physics X," an informal course in which Feynman would discuss whatever topics students



SafeWeb cofounder Stephen Hsu '86 poses with a bank of computers that serve as the test bed for the company's latest product, the Secure Extranet Appliance.

brought up. "Feynman was very much ahead of his time in thinking about computers based on quantum physics," Hsu says.

"Quantum information now has turned into a very exciting area in which Caltech is a world leader, but at that time it was considered very odd. I think Feynman was really a visionary, one of the first guys to realize the importance of this field. The interesting thing is, my area now is theoretical particle physics, which was Feynman's original field."

After earning his PhD at Berkeley in 1991, Hsu became a research fellow at Harvard and went on to Yale as an assistant professor of physics. He arrived at a time when the department was becoming increasingly concerned about the security of its computers, and Hsu and several colleagues decided to look into the problem. Once they had identified the favorite tools of computer hackers, they started experimenting with them. "What we learned was how insecure networks are. If Internet communications are not scrambled or hidden in any way, anyone who intercepts them can read them. Sending an e-mail is like sending a postcard—there's no envelope wrapping it."

But Hsu also saw how to devise protection against hacking. "The thing that really excited me was realizing how valuable a tool encryption could be in safeguarding networks. Already the field was so advanced that even someone with just a little computer power could scramble up a message in such a way that even a supercomputer couldn't decode it."

This awareness eventually led to the idea of SafeWeb. In 1997 Hsu moved to the University of Oregon, becoming

associate professor of theoretical physics. He and two former Yale PhD students founded SafeWeb in Oakland, in April 2000.

A few months later, SafeWeb released its first privacy-protection product, offering it as a free service to anyone who logged onto the company Web site. For Hsu, a Chinese American, the possibility of using SafeWeb as a tool for spreading democracy in tightly controlled societies stood out as a powerful ideal.

"I was always very optimistic about the effect the Internet could have on opening up Chinese society and other closed societies," Hsu says. "We wanted to build a sort of network architecture and software that would make all this possible."

Secure in the knowledge that the application encrypted all transmitted data including URLs and domain names, users could anonymously roam the Web, enter Internet chat rooms, and freely send and receive e-mail. Word of the service spread rapidly and found an enthusiastic following among increasingly privacy-conscious Internet users.

But within months of SafeWeb's largely word-of-mouth spread in China, Saudi Arabia, and a number of other nations, the governments caught on and began blocking access to the encryption service.

Hsu found a way around that problem too. Last March, SafeWeb unveiled Triangle Boy (the software takes its

name from a character in a *Seinfeld* episode), which he describes as akin to the music-sharing service Napster. Volunteers download the program onto their private computers, and users who have been blocked from entering SafeWeb directly can then use the decentralized Triangle Boy network as a conduit for reaccessing SafeWeb's encryption program.

### THE QUEST FOR CAPITAL

In the wake of the dotcom collapse, SafeWeb has continued to attract investors, but Hsu has seen only too well how the overall funding climate has changed for fledgling companies still struggling to develop the soundest possible business model.

"Now that the bubble has burst, everybody's very realistic, and I can see it quite clearly when I deal with other business people. There was a period when almost any idea, no matter how crazy or hokey, could get some level of support or get taken seriously. Now it's back to nuts and bolts."

The company recently signed a deal with the CIA, whose own venture capital firm, In-Q-Tel, plows money into promising technologies. In-Q-Tel provided \$1 million in start-up funds to SafeWeb in exchange for the right to use SafeWeb's encryption technology. If the company is ever sold, In-Q-Tel could share in the profits.

Hsu readily admits that his company's connection with an agency whose name symbolizes anything but privacy protection has troubled some SafeWeb users. "There was a very real concern about how to assure people that we are not a stooge for the CIA. That's why we structured the investment the way we did. They do not have a voice in our corporate governance, and that's the way we wanted it."

The CIA created In-Q-Tel to enable the slow-moving Cold War institution to tap new technology. Hsu explains it this way: "In the old days, leading tech providers were defense companies. Defense companies are now 'old economy,' whereas the 'new economy' companies are the Intels and the

start-ups. The government really had to change its model for how it was going to develop its technology."

SafeWeb also licensed the technology to PrivaSec, a Los Angeles-based Internet privacy service company that offers the consumer encryption service for a monthly fee.

SafeWeb's latest product, the Secure Extranet Appliance, allows corporate and government clients to design and build secure external networks. In the long run, Hsu believes, "the best sources of revenue for us will actually be these types of applications, which make it possible for companies to set up virtual private networks," otherwise known as VPNs.

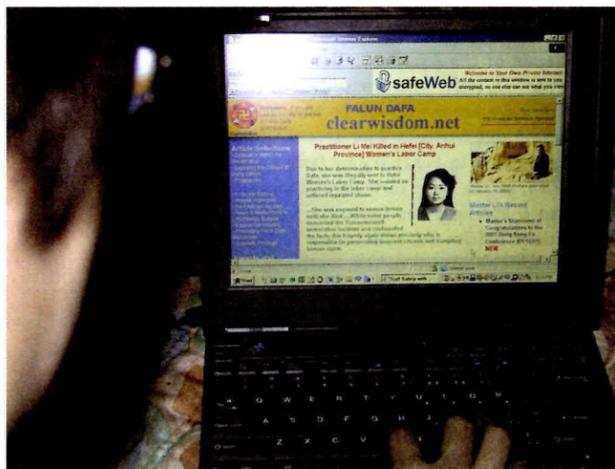
### PUTTING VOICE BACK IN VOA

In a new twist on an old symbol of exporting American democracy, SafeWeb is also in the pilot stage of putting up Triangle Boy servers for the Voice of America. The agreement initially calls for 12 VOA machines to run Triangle Boy software that will allow Chinese users to circumvent government censorship of an online VOA newsletter and Web site. The project was funded through a congressional allocation of \$800,000 earmarked for various Internet and multimedia projects.

Said Letitia King, a VOA spokeswoman in Washington, D.C., "Our objective is to provide reliable and meaningful information in ways that are convenient to our audience. One is the Internet, but we are using a variety of methods."

The pilot contract of \$30,000 could grow into something larger. "If this project goes forward and expands, we could build a network of hundreds or even thousands of Triangle Boy servers," Hsu says. "Then it will be nearly impossible for the Chinese government

**A Falun Gong follower and computer technician uses SafeWeb's encryption service to access the forbidden sect's Web site in China.**



to censor the Web." The company Web site still encourages volunteers to help fight Internet censorship in China by becoming Triangle Boy volunteers, but informs them that for now, at least, their assistance is limited to the Voice of America project.

One of them is an East Coast computer engineer who first came to the United States from China about five years ago as a student. It was eye opening, said the volunteer, who requested anonymity, to realize that much of the historical information he had received in China was bogus.

"After I arrived here I learned that much of the information, and especially historical information, available in China is incorrect, for example on the Tiananmen Square massacre, and also more recently on the Falun Gong issue." In addition to a news blackout, the Chinese operate under rules that now force Internet service providers to inspect content for sensitive information, he adds.

About six months ago he discovered SafeWeb and decided to become a volunteer.

His agenda, he says, is purely in protecting the free flow of information. "In China, as long as people are getting the right information they will make the right judgments or decisions. I believe that." He has heard through Chinese "friends of friends" that the service works well.

And while alarmed at first when he learned that SafeWeb had restricted its free encryption service to VOA, he believes the service works exactly the way it did before for users. "I just hope more volunteers will join."

Current events have introduced a new wrinkle in Internet privacy. In a post-September 11 world, many

people's concerns about privacy have been replaced by worries about national security. Hsu notes that SafeWeb maintains its logs for one week and has regularly handed over requested information to law enforcement agencies regarding alleged threats or credit-card fraud.

But how does SafeWeb know that terrorists aren't using its network? "There's not much evidence that terrorists are really using this," he says. "They actually avoid any medium of communication where they might be tracked."

### THE PULL OF PHYSICS

This January, after a year-long leave to immerse himself in SafeWeb, Hsu returned full-time to the University of Oregon. Another SafeWeb cofounder, Jon Chun, became company CEO in January.

At Oregon, Hsu teaches particle physics, quantum mechanics, and a course popularly referred to as "physics for poets," an undergrad offering for nonscience majors. "I like to tell students, 'You know, in your other courses, they are telling you how Shakespeare is your cultural legacy, but how can you graduate from college and not know how the Greeks, using just geometry and some simple observations, discovered that the earth is round? That's all part of our cultural legacy too.'"

Hsu's own research centers on quantum field theory and cosmology, with a recent focus on semiclassical methods in quantum field theory; exotic phases in quantum chromodynamics (QCD), otherwise known as the strong force, which binds quarks and gluons inside protons and neutrons and thus holds the atomic nucleus together; electroweak theory; and supersymmetric gauge theories.

Hsu remains chair of SafeWeb's board of directors and plans to continue speaking and publishing on his interests in Internet privacy and security, issues he has testified on before Congress.

He has no doubt that concerns for privacy, personally and in the world of business, will continue fueling interest in software encryption technology. "In the wake of September 11, new surveillance laws give law enforcement expanded powers for such activities as wiretapping and monitoring e-mail. In the long run, I think people will be more concerned about their privacy."

*The thing that really excited me was realizing how valuable a tool encryption could be in safeguarding networks. Even someone with just a little computer power could scramble up a message in such a way that even a supercomputer couldn't decode it.*



**New York, New York.** At left, Elaine Fleming stands ready to welcome visitors to Caltech's new East Coast Regional Office, located at 1180 Avenue of the Americas. Below: Victor Wouk, PhD '42, (left) and Trustee Chair Ben Rosen '54 were among about 20 New York-area alumni and trustees who attended a breakfast hosted in February by Dale Collins '73, MS '74, at the New York City offices of Shearman & Sterling, and featuring remarks by President Baltimore, who spoke to the group about the future of the Institute.

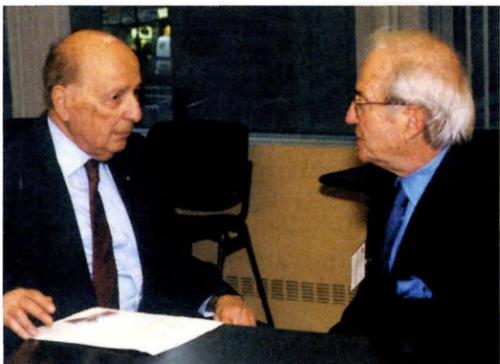
merce and communication, where many of our alumni and friends live and work."

The director of Caltech's new office is Elaine Fleming. A native New Yorker, Fleming spent seven years in Caltech's Office of Principal and Major Gifts, in charge of the East Coast region, and recently served as senior development officer at Columbia University Law School, before rejoining Caltech. The New York office is also staffed by Assistant to the Director Wayne Nealis, who previously worked for Brown University's development department.

"Having worked with Caltech alumni and friends on the East Coast for many years, I know there is tremendous enthusiasm and support here for the Institute," said Fleming, who also has been a development officer for Occidental College and served as director of Kidspace Children's Museum in Pasadena.

"We look forward to being able to 'bring the campus' to this region on a regular basis with quality programs that are distinctly Caltech. I know this will be welcomed by our alumni, and I believe it also will draw in new friends. Ultimately, all of this should help us broaden our base of financial support and identify new resources to support the important work that goes on at the Institute. I have always found that once people learn about Caltech, they want to be part of its unique environment. It is exciting to think of introducing more people to the Caltech experience."

Caltech has a strong presence along the eastern seaboard. Of the approximately 3,700 Caltech alumni who live there, about 20 percent live in the tristate area of New York, New Jersey, and Connecticut. In addition, many Institute trustees, including Board of Trustees Chair Ben Rosen '54, and Caltech Associates and other



friends of the Institute live in the East.

"It is vitally important for Caltech to enhance its presence and name in the East in general and in New York City in particular," said Rosen, who has worked in Manhattan for the past 45 years. "New York is the media and financial center of the world and, arguably, the business center also.

"Large populations of our constituencies are represented in New York, including alumni, prospective students (both undergraduate and graduate), prospective faculty, foundations, current and prospective donors, trustees, and major corporate headquarters. While Caltech is extremely well known on the West Coast among both technical and lay audiences, recognition of our institution and its outstanding achievements and capabilities is at a much lower level in the East. I hope that the establishment of the New York office will help change that."

The Caltech East Coast Regional Office is located at 1180 Avenue of the Americas, 14th floor, at 46th Street. The phone number is 212/ 899-5460.

#### MAJOR GIFTS DIRECTOR JOINS CALTECH

June Thames Poust has been named the new director of principal and major gifts in the Institute's Office of Development, the organization in charge of the Institute's fund-raising activities. Poust, who begins at Caltech in March, succeeds Tanya Mink, who accepted a position as vice president for advancement at Harvey Mudd.



**June Thames Poust**

The director of major gifts at Illinois Institute of Technology since 1998, Poust directed and managed a \$250 million university-wide campaign for facilities and scholarship endowment. She had previously headed her own consulting firm for nonprofit fund-raising and marketing, served as director of development for the Schools of Music and Speech at Northwestern University, and been a development officer at both the Newberry Library and the Field Museum of Natural History.

"It is a privilege to become a member of the Caltech community," Poust said. Noting the beauty of the campus, the quality of the student body, and the outstanding reputation of the Institute's faculty, she added that she is "looking forward to advancing the mission of Caltech at this important time in its history."

### Gifts by will

The Institute received approximately \$1,240,000 from the combined estates of Howard H. and Marjorie L. Alden. The Aldens directed that their bequest establish the Howard and Marjorie Alden Endowment Fund, which will provide scholarships and fellowships for students in various divisions.

Mary C. Brown, deceased wife of the late F. Barton Brown, MS '46, named the Institute as one of several charitable remainder beneficiaries of her estate. Caltech received a bequest of \$1.8 million in honor of her husband, which will support the F. Barton Brown Engineering Scholarship Fund.

Patricia Conklin, a friend of the Institute, provided for Caltech to receive \$988,477 from her estate to establish the Patricia B. Conklin Scholarship Fund I. The fund is designated to support undergraduate or graduate students who demonstrate outstanding academic achievement, as well as financial need.

Carl F. J. Overhage '31, PhD '37, bequeathed \$592,452 to the Institute's General Endowment Fund. Caltech also received \$138,433 from the estate of his wife, Katya Overhage.

Paul E. Peterson, PhD '56, provided for Caltech to receive an unrestricted bequest in excess of \$185,000 from his estate.

Elmer Albert Smith benefited Caltech through a bequest of approximately \$94,000, directed to research in the Division of Biology.

Edwin F. Wiegand, a longtime friend of the Institute, provided that a portion of the remainder of his estate be directed to the existing Edwin F. Wiegand Undergraduate Endowed Scholarship Fund.

Caltech received \$1,130,067 from the estate of William O. Wylie. The funds have been used to create the William and Mary Wylie Endowed Scholarship Fund.

*These are just a few of the many individuals who have contributed to Caltech over the years. For more information regarding bequests, please contact the Office of Gift and Estate Planning, Mail Code 105-40, Pasadena, CA 91125; 626/395-2927; planned\_gifts@dar.caltech.edu; www.gep.caltech.edu.*

#### THE INSTITUTE GOES BICOASTAL

In a move to strengthen ties with the thousands of Caltech alumni and friends who live and work on the East Coast, Caltech recently opened an East Coast Regional Office in midtown Manhattan. Located within a few blocks of Rockefeller Center and Times Square, the office will enable the Institute to better interact with and reach out to the many members of the Caltech community who live on the East Coast, and will give Caltech a permanent, proactive presence in the Big Apple.

"Throughout its history, Caltech has attracted students and scholars from around the world. It has changed the world through the insights and developments it has produced and through the remarkable alumni who have become leaders in their fields," said Caltech president David Baltimore, who grew up in Queens and then Great Neck on Long Island. "So it makes a lot of sense for Caltech to have a presence on the East Coast, especially in New York, a world center of com-

## Associates Calendar

**April 2, Santa Barbara Luncheon at the Birnam Wood Golf Club**—"Da Vinci Was Right: New Insights into the Old Problem of Heart Development," with Scott Fraser, Rosen Professor of Biology.

**April 6, Northern California Dinner, Fairmont Hotel, San Jose**—"Can You Teach a Computer To Wake Up and Smell the Coffee?" with Nate Lewis '77, MS '77, professor of chemistry.

**April 15, President's Circle Dinner and Program**—"Economic Experiments from Africa to Small Town America: What Do They Teach Us about Economic Development?" with Jean Ensminger, professor of anthropology.

**April 22-26, All-Associates Trip to Bryce and Zion National Parks**, with Brian Wernicke, Chandler Family Professor of Geology.

**April 30, Associates Dinner and Program**—"Anthrax Control with Advanced Technology," with Michael Hoffmann, Irvine Professor of Environmental Science and executive officer for environmental science and engineering.

**May 6, President's Circle Dinner and Program**—"Capitalizing on Caltech's Technology," with Larry Gilbert, director, Caltech's Office of Technology Transfer, and Rich Wolf, PhD '97, associate director.

**June 1, President's Circle Day Trip**—"A Day in the Arroyo," with William Deverell, associate professor of history.

**June 19, Associates Board of Directors Meeting**, Millikan Library Board room.

**June 22, President's Circle Garden Party**, at the home of President David Baltimore and Alice Huang.

**July 9-15, President's Circle Family Trip**—"Grand Canyon White-Water Adventure," led by Joe Kirschvink '75, MS '75, professor of geobiology.

Recognition . . . from page 5

**James Gates**, visiting professor of physics, was one of five speakers who participated in the first Isaac Asimov Memorial Panel Debate. Held last February 13 at the American Museum of Natural History, the debate was on the "Theory of Everything." Gates has also received an honorary degree, a doctor of humane letters, from Georgetown University.

**Steve Gubser**, professor of theoretical physics, has received the Gribov Medal, the highest award given by the European Physical Society to young scientists for theoretical work in the field of high-energy particle physics.

**Jason Hickey** '85, assistant professor of computer science, has received an Okawa award from the Okawa Foundation for Information and Telecommunications. Carrying a grant of \$10,000, the award honors young researchers in areas such as communication networks, computer systems, and artificial intelligence, among others.

**Philip Hoffman**, professor of history and social science, has been selected along with coauthors Gilles Postel-Vinay and Jean-Laurent Rosenthal to receive the Economic History Association's Gyorgy Ranki Prize, which recognizes "the outstanding book on the economic history of Europe, published in 1999 and 2000." The award is for their book *Priceless Markets: The Political Economy of Credit in Paris, 1660-1870*. Postel-Vinay has been a visiting professor of history at Caltech, and Rosenthal received his PhD in social science from the Institute in 1988.

**Yizhao Hou**, professor of and executive officer for applied and computational mathematics, has received the Wilkinson Prize from the Society for Industrial and Applied Mathematics.

**Matthew Jackson**, professor of economics, is the first winner of the Social Choice and Welfare Prize, to be awarded by the Society for Social Choice and Welfare at its sixth annual international meeting, to be held at Caltech in July 2002. The prize is given "to honor young scholars of excellent accomplishment in the area of social choice theory and welfare economics."

**Dan Kevles**, the Koepfli Professor of the Humanities, Emeritus, has been awarded the George Sarton Medal by the History of Science Society at its annual meeting in Denver, on November 10. The medal is the society's highest award and honors George Sarton, the founder of *Isis*, the leading journal of the history of science. "The award recognizes distinction in scholarship, impact through writing and leadership in the profession. It has been awarded annually since 1955 to an outstanding historian of science selected from the international scholarly community."

**Wolfgang Knauss** '58, PhD '63, the von Kármán Professor of Aeronautics and Applied Mechanics, has been honored with the Warner T. Koiter Medal, awarded by the ASME International (The American Society of Mechanical Engineers). The award "recognizes the effective blending of theory and application of applied mechanics, and leadership in the international solid mechanics community."

**Andrew Lange**, Goldberger Professor of Physics, has been elected a fellow of the American Physical Society "for developing a new generation of bolometers that operate in the submillimeter and employing them to determine the geometry of the universe."

Oxford University Press has published *Asian Population History*, edited by Ts'ui-jung Liu, Caltech professor of history **James Lee**, David Reher, Osamu Saito, and Wang Feng. The book summarizes the field of Asian population history in the 1990s, with specific emphasis on China, India, Indonesia, Japan, and Sri Lanka. Its papers are organized by topics such as family, fertility, marriage, morbidity, and mortality, and offer comparisons between Asian societies as well as with Europe and North America.

**James Morgan**, Goldberger Professor of Environmental Science and Engineering, Emeritus, presented the Walter J. Weber Jr. Distinguished Lecture in Environmental Engineering at the University of Michigan, Ann Arbor, on March 30, 2001. He also gave a lecture on environmental science in the National Science Foundation Engineering Research Highlight Series, on September 13, 2001.

**Ned Munger**, professor of geography, emeritus, has received the Gandhi-King-Ikeda Award from the Martin Luther King, Jr. International Chapel and the Gandhi Institute for Reconciliation, Morehouse College. Honoring individuals who actively promote peace and unity, the award reads: "In the tradition of Mohandas K. 'Mahatma' Gandhi, Dr. Martin Luther King, Jr. and Dr. Daisaku Ikeda, you have served your community and the world through your dedication to peace and unity, your commitment to non-violence, and your persistent efforts to establish justice for all humankind."

**Anneila Sargent**, PhD '77, professor of astronomy and director of the Owens Valley Radio Observatory and the Interferometry Science Center, has been selected to give the Selove Lecture at the University of Pennsylvania during the spring 2002 semester. A colloquium comprising two talks—one suitable for the entire department at a level grad students can appreciate, the second for specialists in the speaker's field—the Selove Lecture was established by Fay Ajzenberg-Selove to honor her husband, Walter. It is usually

given by a "hands-on" experimenter. In a separate honor, Sargent has been invited to deliver the Graham Lecture at University College, Toronto.

**John Schwarz**, the Brown Professor of Theoretical Physics, has been selected to receive the 2002 Dannie Heineman Prize for Mathematical Physics. The citation will read, "For your pioneering work in the development of superstring theory," and the prize will be awarded at the American Physical Society's April 2002 meeting, to be held in Albuquerque, New Mexico. Schwarz shares the honor with Michael Green of Cambridge University.

**Kip Thorne** '62, the Feynman Professor of Theoretical Physics, received an honorary doctor of science in November from the University of Glasgow on the occasion of that school's 11th (550-year) jubilee. He also has been honored with several lectureships: the Arthur Holly Compton Memorial Lecture, Washington University in St. Louis, in February 2001; the Inaugural Herzberg Memorial Lecture, Canadian Association of Physicists, in June 2001; and the George Darwin Lecture, Royal Astronomical Society, in December 2000.

**Alexander Varshavsky**, the Smits Professor of Cell Biology, has received the 2001 Louisa Gross Horwitz Prize for "breakthrough work on the ubiquitin system, the mechanism by which the cell maintains a proper and healthy balance of proteins." He shares the award with Avram Hershko, Distinguished Professor at the Technion—Israel Institute of Technology. Columbia University bestowed the awards December 11 at a ceremony and black-tie reception at the Low Library Rotunda on Columbia's Morningside campus.

**Erik Winfree**, PhD '98, assistant professor of computer science and computation and neural systems, is a recipient of the Presidential Early Career Award for Scientists and Engineers. The program recognizes outstanding young professionals at the outset of their independent research careers.

**Peter Wyllie**, professor of geology, emeritus, has been awarded the Leopold von Buch Medal "in recognition of his scientific research on the petrology of crystalline rocks, and also for his service in publicizing the importance of geosciences for society." Wyllie received the medal, which is accompanied by honorary membership in the German Geological Society, at a ceremony on October 4, during the society's annual meeting in Kiel, Germany.

# Tsien Revisited

First he was accused, then detained, then deported. Any of this sound familiar? But there was a twist to this tale. A Caltech professor talks about his long friendship with the Caltech-trained scientist who became the “father of Chinese rocketry.”

This past December, Frank Marble, PhD '48, and his wife, Ora Lee, went to China to visit and help honor their longtime friend Tsien Hsue-Shen, PhD '39. Many Caltechers, along with Americans who lived through the Red Scare days of the '50s, have at least a glancing familiarity with Tsien's story: a brilliant student and later colleague of aerospace pioneer Theodore von Kármán, commended by the U.S. Air Force for his contributions to its technological development after World War II, the Chinese-born scientist was accused of harboring Communist sympathies and stripped of his security clearance in 1950. Tsien and those who knew him best said that the allegations were nonsense, and no evidence ever came to light to substantiate them. Despite that, and over a barrage of protests from colleagues in academia, government, and industry, the INS placed him under a delayed deportation order, and for the next five years he and family lived under U.S. government surveillance and partial house arrest. In September 1955 they were permitted to leave for China.

Received with open arms in his homeland, Tsien resumed his research, founded the Institute of Mechanics, and, as one of the world's leading authorities in aeronautics, went on to become the “father” of China's missile program, a trusted member of the government and Party's inner circle, and the nation's “most honored scientist.”

Early in the INS saga, Tsien and his wife had planned to visit China so that their parents could meet their American-born grandchildren for the first time. But the INS impounded his luggage and charged him with concealing classified documents—the most “secret” of which, suspected of containing security codes, turned out upon inspection to be a table of logarithms. In the meantime the FBI had decided that Tsien posed a security risk and imprisoned him in San Pedro; he was freed two weeks later after Caltech president Lee DuBridge, among others, flew to Washington to intercede on his behalf. These incidents undoubtedly helped Tsien to conclude, as he confided to friends, that he had become “an unwelcome guest” in the country in which he had spent his whole scientific life. In any case, he was determined to avoid such problems

again, and when he sailed to China, he deliberately left all of his research notes and papers behind.

Among the handful of people who saw the Tsien family off in 1955 were Frank and Ora Lee Marble. Marble and Tsien had struck up a warm friendship as aeronautics colleagues, and the Tsien family had stayed at the Marbles' Pasadena home during their final weeks in the United States. After Tsien's departure, he and Marble corresponded intermittently; then, with the onset of the Cultural Revolution in China, Marble stopped hearing from him. In 1979 Caltech named Tsien a recipient of the Distinguished Alumni Award in recognition of his pioneering work in rocket science, but Tsien, although he sent a gracious acknowledgment, did not come to campus to collect it.

Time passes. In 1981, Frank and Ora Lee received an invitation from the Chinese Academy of Sciences to come to Beijing and teach combustion technology and English, respectively, at the Academy's newly established Graduate School of Science and Technology, a small research institute partly modeled on Caltech. Shortly afterward, the Marble and Tsien families were reunited for the first time in 25 years. Marble recalls his feelings before they met. “We had had very different experiences and lived in such different circumstances. Would our old, easygoing friendship and discussions resume? Or was that something that just wasn't going to happen?” After half an hour, he says, he had his answer. “There was no obstacle.”

The two families kept in touch after that and saw each other again in China in 1991. In the years since Tsien had returned to China, Marble had taken on the project of collecting and organizing the extensive research notes—two large file cabinets worth, it turned out—that Tsien had left at Caltech. Tsien repeatedly said he did not want them back, telling Marble at their 1981 reunion, “Frank, American students need them much more than Chinese students.” A decade or so ago, however, he had a change of heart, and, with the help of Tsien's colleague Cheng Che-Min, PhD '52, Marble returned the collection to China. Some papers went to the Institute of



Mechanics, founded decades earlier by Tsien, and others now form the core holdings of the Tsien Library, which the Chinese government had established at Xi'an Jiatong University, about 600 miles southwest of Beijing. The Chinese Academy of Sciences subsequently brought out selections from the collection as an elegant, coffee table-type book entitled *Manuscripts of H. S. Tsien 1938–1955*, whose publication coincided with the December 2001 symposium celebrating Tsien's 90th birthday.

When Marble went to visit Tsien for that event, he went both as a friend and as the official emissary of Caltech and President Baltimore, bringing with him the Distinguished Alumni Award that the Institute had presented to Tsien in absentia 23 years ago. Tsien is now permanently confined to bed, so Marble made the formal presentation at his bedside in a ceremony that received widespread coverage in China, and at last provided a fitting coda to Tsien's long, complicated, and never completely sundered association with Caltech.

Marble, who is Caltech's Hayman Professor of Mechanical Engineering and Professor of Jet Propulsion, Emeritus, spoke with Caltech News editor Heidi Aspaturian about his recent trip and earlier visits with Tsien in China.

Tsien does not speak much English any more, but his family tells me that he still understands it quite well. He was thoroughly aware that I was presenting Caltech's highest honor to him at the official request of David Baltimore, and I think he was deeply impressed with and appreciative of that.

We weren't able to talk much during my most recent visit, but when I saw him in 1991 and again in 1996, we had some very interesting conversations. I think in general we both felt less constrained than we had during our reunion in 1981. One comment he made to me in 1991 particularly stands out: “You know, Frank, we've done a lot for China. People have enough food. They're working and progress is being made. But Frank, they're not happy.” He felt very bad about that—almost, I think, a little bit responsible for it, although it was not an area he was involved in at all. His area of activity was military and civilian rocketry, and this was strictly a personal observation. That was about as far as he ever went in saying that things were not ideal.

He obviously has good memories of Caltech. He speaks of the Institute most fondly, and I think that he feels that his time on campus was one of the most enjoyable of his life. In a letter that his wife, Tsiang Ying, wrote us after our recent visit, she said that Tsien still loves to reminisce about Theodore von Kármán and the wonderful times he had at Caltech and to



**A life in interesting times:** From top, left, Tsien with Marble (right) at Los Angeles Harbor in September 1955, preparing to board ship for China; dining with Mao; with Marble in Beijing in 1991; and in December 2001, receiving Caltech's Distinguished Alumni Award. From left, Tsien, Ora Lee Marble, Frank Marble, and Tsien's wife, Tsiang Ying.

tell the old von Kármán jokes. So I think he stills feels very emotionally tied to the Institute. But it's important to remember that during the entire five-year episode with the INS, Caltech was very good to him. The Institute continued to honor his professorship and to respect his reputation. My understanding is that Lee DuBridge, who vigorously supported Tsien, had difficulties with the Board of Trustees, some of whose members were embarrassed by Tsien's situation.

Once Tsien returned to China, I don't think he ever made another trip West. He did travel once to the Soviet Union. Evidently he did not endear himself to his hosts, and he never went back. Otherwise, so far as I know, he did not leave China. I would guess that this was largely by choice—he never was a great one for traveling. I think that he felt he had so many things to do at home that he had no real desire to go elsewhere.

Tsien never spoke to me about how his life and scientific career in America had ended. He was not a person for looking back or for ruminating about how things might have been. He was very much a realist, and my feeling is

believe that once he returned to China, what he found there was pretty much what he had expected. But he did have very able people working with him. Many of them had studied in the United States, and they were devoted to him. I met a few of those who had worked with him in the early days, and they had the highest praise for the way he had laid out and directed the program for rocketry development. I think that Tsien also had the great personal advantage of being technically and scientifically on top of things, and he also had the ear of the government. By virtue of his expertise and reputation he could convince officials of what needed to be done and accomplish things that other people couldn't.

He did not talk about his experiences during that era. We were both very careful to avoid discussion about anything that touched on sensitive issues. We would talk about every other subject—family, music, literature, and some scientific work that was mutually interesting. He was very enthusiastic and intrigued about some of the work I was doing on combustion processes in vortex flows and told me, "Frank, you have been more honest to von Kármán than I have." What he meant was that I was still involved in the fundamental research areas that von Kármán had worked in, but that he

that he just tuned those last five years in America out. I do know that he felt, at least when all this started, that he would be able to do better work in the United States than he would initially in China, where research conditions at the time were very primitive. I be-

lieve that once he returned to China, what he found there was pretty much what he had expected. But he did have very able people working with him. Many of them had studied in the United States, and they were devoted to him. I met a few of those who had worked with him in the early days, and they had the highest praise for the way he had laid out and directed the program for rocketry development. I think that Tsien also had the great personal advantage of being technically and scientifically on top of things, and he also had the ear of the government. By virtue of his expertise and reputation he could convince officials of what needed to be done and accomplish things that other people couldn't.

was now in a very different mode of operation. Tsien, of course, became a high-ranking, trusted Party official, but it was evident that he had had trouble during the Cultural Revolution. I heard from his colleagues, but never directly from him, that like many leading scientists and intellectuals, he wrote one or two letters of "confession." Ying, his wife, had a very interesting experience. She was head of the Western Vocal Music Department at the Beijing Conservatory, and commuted between work and home on a motorbike. Apparently the Red Guard was after her in some way and so for several months—maybe as long as a year—she just lived at the conservatory until she thought it was safe to go out again. Her students brought her food and other necessities.

I also spoke to one of Tsien's close colleagues, Ch'ien Wei-Zhang. He had earned his doctorate in Canada, was a postdoc at Caltech, and had worked with Tsien at JPL. He also went back to China and pursued a very productive career there. During the Cultural Revolution, the Red Guard accused him of all sorts of things, and he wound up spending some time in the countryside, stoking an open-hearth furnace for a time at a steel-manufacturing facility. He had a very difficult time of it. So both Tsien's family and his research circle were affected, although Tsien himself does not talk about that period beyond referring to it as "the 10 lost years."

Many people have said that during his last years in Pasadena Tsien was bitter. I never sensed that. He was no doubt hurt, but I never saw him brooding about it. It was something that had happened, and, as he saw it, he had to react in a way that was appropriate. When he felt he was no longer welcome, he resigned from all the techni-

cal societies and sometimes his letters were a bit curt. That was about the extent of it. Apart from the first six months between the cancellation of his security clearance and the INS hearing, he and his family more or less went on with their lives as usual. Their circle of acquaintances and friends did narrow, which must have been hard. A lot of his former colleagues had become a bit afraid of associating with him socially.

His children were both born here, and they have spent time in the United States as adults. His son did graduate work at Caltech. His daughter studied medicine on the East Coast and has had quite a successful practice there, but she recently decided she would return to China this summer. Each of them now has a little boy. One of the tenderest pictures I have of Tsien shows him sitting in the backseat of his chauffeur-driven car with one arm around each little four-year-old grandson.

I do think that after his problems with the INS, Tsien lost faith in the American government, but I believe that he has always had very warm feelings for the American people. That came through again and again in the public statements he made, both here during the INS hearings, and after he returned to China. But once he went back to China, I don't think he wanted ever to deal with the United States in an official capacity again. When Caltech's former president Harold Brown visited China as secretary of defense in 1980, Tsien avoided seeing him. When I saw him the next year, I said, "Tsien, you made a big error. Harold Brown is a great admirer of yours and a brilliant guy." And he said, "I know. It was a mistake on my part." But that is how he felt about it.

Looking back, I think the most remarkable aspect of the five years he was detained is the resilience with which he returned to his teaching and research, making this period one of his most productive and innovative. He was instrumentally involved in the development of the Daniel and Florence Guggenheim Jet Propulsion Center, Caltech's academic focus of instruction and research in jet propulsion.

There's always been a kind of single-mindedness about his work. He decides what is to be done and he organizes it and does it. He does not stop to think halfway through, is this really what I should be working on? And I believe he adopted the same attitude once he returned to China. He did not take time to indulge in speculation or fantasies about "what might have been." He never indicated to me that he had. He was confronted with a new set of problems, and he devoted himself to working full time to solve them.

FROM THE ASSOCIATION PRESIDENT: LIFELONG LEARNING FOR ALUMNI

We've all heard that overused simile that attending Caltech is "like drinking from a fire hose." Appropriate or not, many of us weren't thirsty again for some time after our school days. Ultimately, however, the same curiosities and quest for fundamental truths that originally led us to the Institute bring us back, asking for more.

Loosely worded, the Caltech Alumni Association's charter is to connect alumni with one another and with Caltech, frequently in an educational context. We strive to meet at least some of our members' intellectual needs in uniquely Caltech ways—and to have fun at the same time.

This year, our best-known event, Seminar Day, takes place on May 18. The keynote speaker is our own Trustee Chair, Emeritus, Gordon Moore, who will reflect on his experiences in the semiconductor industry. Bracketing Moore's general-session talk will be the annual complement of latest-and-greatest lectures by Caltech faculty, covering current topics in their research. I've always found that the selection of interesting talks exceeds the time available, so be prepared for some tough choices. Class reunions are also scheduled during this weekend, and Caltech's highest honor, the Distinguished Alumni Awards, will be presented. Look for your brochure and an opportunity to register shortly.

A newer event is our Alumni College, now in its fifth year. This year's subject is "Chemistry in Context: The Impact of Chemical Science on the Quality of Modern Life." Planned topics will include recent advances in pharmaceuticals and catalyst design; the applications of genomics research to biomedicine; and the latest investigations into air quality control and renewable energy sources. A session on the applications of chemistry research to antiterrorism efforts is also in the works. The Alumni College is scheduled for Friday and Saturday, June 21 and 22.

For those who subscribe to the old adage that nothing broadens the mind like travel, the Association offers two or three in-depth travel/study programs a year, as well as a variety of day trips in various parts of the country. This June, Caltech biologists Scott Fraser and Marianne Bronner-Fraser will lead a trip to the Galapagos, with an optional extension to Machu Picchu. In October, emeritus geology professor and indefatigable travel-study guide Lee Silver, PhD '55, will lead an alumni trip to Hawaii, with an optional extension to visit the Keck Observatory. In California, upcoming day trips include an excursion to the Wright Flyer Replica



Associate Jean Hahn and Ted Jenkins absorb the lessons of Moose Pass at Trail Lake, Alaska, on a travel/study trip in 1997.

construction site in El Segundo, where a replica of the flyer is being built to coincide with the hundredth anniversary of the brothers' original 1903 flight at Kitty Hawk. The trip will be led by Caltech professor Fred Culick, who has played a leading role in the project.

Also on the docket are a tour of Fermilab in Chicago; a visit to the Seattle Museum of Flight and its cur-

rent exhibit, "2001: Building for Space Travel"; and a New York-area outing to see Alan Alda perform as Richard Feynman in *QED*. (This June, by the way, graduates and their families will have a chance to see Alda on the Caltech campus, as the Institute's 2002 commencement speaker.) The day-trip formats vary—some are designed for families with kids, while others are adult affairs. For the latest details on any of these events you can go to the Association's events URL at <http://www.its.caltech.edu/~alumni/events.htm>. You can also check out *Caltech News* or contact the Alumni Association office directly.

If all this is beginning to sound like the 50 units per term you took while you were a student, relax. None of these is a required course, but they all offer a Caltech-calibre opportunity to catch up on the latest research, and to explore topics suited to your taste. Choose something that looks interesting and fun, bring your spouse or significant other, and recruit your alumni friends to join you. Many of these events welcome nonalumni friends as well, space permitting. You'll learn something new, renew old acquaintances, make new ones, and have a fine time.

ASSOCIATION MAKES BOARD NOMINATIONS

In January, the Alumni Association board of directors accepted the proposals of the nominating committee for new board officers and board members. Their terms of office will begin at the close of the annual meeting in June 2002.

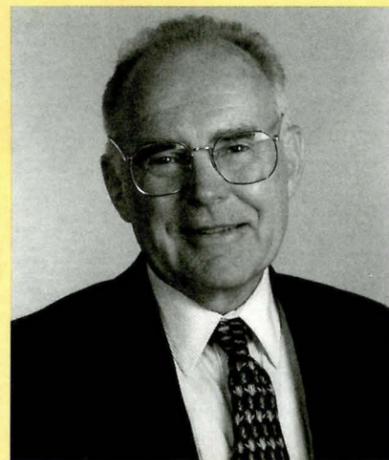
The election will take place at the annual meeting of the Association, to be held on Friday, June 14, at 8:30 p.m. at the Caltech Athenaeum, 551 S. Hill Avenue, Pasadena, California.

Nominations for officers are as follows: president, Debra Dison Hall '74; vice president, Tom Tisch '61; treasurer, Stephanie Charles '73; and secretary, Ponzy Lu '64. Association president for 2001–02, Ted Jenkins '65, MS '66, will become official past president for 2002–03 when the new terms begin this summer.

The following alumni were nominated to serve on the board: Kelly Beatty '73; Bob Kieckhefer '74; Robert Johnson, PhD '95; Bob Perpall '52, MS '56; and Lyn Schneider '81.

Section 5.01 of the Association bylaws provides that members of the Alumni Association may make additional nominations for directors or officers by petition, signed by at least 50 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 a 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.

Alumni  
Activities



Board of Trustees Chair Emeritus Gordon Moore, PhD '54, will present the General Session talk at the Alumni Association's 65th annual Seminar Day on May 18.

April 22, Performance of *QED* with optional dinner, New York

April 25, Manassas National Battlefield Park Fieldtrip, led by E-an Zen and Dallas Peck '51.

May 9, Performance of *Copenhagen*, with optional dinner, Boston.

May 13, Physics, Mathematics and Astronomy Division Reunion Reception.

May 14–15, Physics, Mathematics and Astronomy Division Reunion Symposium.

May 16, Reunions for the classes of '37, '42, '47, '52.

May 17, Half Century Club Luncheon.

May 17, Reunions for the classes of '57, '62, '67, '72, '77, '82, '87, '92, '97, '01.

May 18, Alumni Association's 65th Annual Seminar Day.

May 31–June 15, Galapagos Travel/Study Program.

June 14, Honorary Alumni Dinner.

June 15, Committee and Board Meetings.

June 20, Chemistry and Chemical Engineering Barbeque on campus.

June 21–22, Alumni College in Chemistry on the Caltech campus. "Chemistry in Context: The Impact of Chemical Science on the Quality of Modern Life."

## ALUMNI ASSOCIATION FINANCIAL STATEMENT

ALUMNI ASSOCIATION  
CALIFORNIA INSTITUTE OF TECHNOLOGY  
Pasadena, California

STATEMENT OF FINANCIAL POSITION  
September 30, 2001

### ASSETS

Cash and Cash Equivalents:	
Cash on Hand and in Bank	\$ 70,274
Charles Schwab Money Market Fund	47,786
T. Rowe Price Prime Reserve Fund	50,862
Caltech Employees Federal Credit Union	46,100
Bascom Account	1,781,799
C.I.T. Consolidated Portfolio - Special Investment Fund	168,623
<b>Total Cash and Cash Equivalents</b>	<b>\$ 2,165,444</b>
Investments:	
C.I.T. Consolidated Portfolio - Life Memberships	3,449,668
eProNet	5,000
Accounts Receivable	1,205
Investment Income Receivable	0
Inventories	0
Deferred Program Expenses	4,685
Postage Deposit	1,887
Bascom Real Estate (Net of Accumulated Depreciation of \$1,212)	298,788
Computer and Other Equipment	17,594
Accumulated Depreciation	(17,594)
<b>TOTAL ASSETS</b>	<b>\$ 5,926,677</b>

### LIABILITIES

Accounts Payable	\$ 16,411
Deferred Income:	
Investment Income from C.I.T. Consolidated Portfolio - Life Memberships	205,318,183
<b>TOTAL LIABILITIES</b>	<b>\$ 225,979</b>

### NET ASSETS

Life Membership Reserve	\$ 3,449,668
Reserve for Directory	7,500
Unrealized Holding Loss-Investments	(238,280)
Investment in Equipment	0
Surplus	2,481,810
<b>TOTAL NET ASSETS</b>	<b>\$ 5,700,698</b>
<b>TOTAL LIABILITIES AND NET ASSETS</b>	<b>\$ 5,926,677</b>

## STATEMENT OF ACTIVITIES Fiscal Year Ended September 30, 2001

### REVENUES

Dues of Annual Members	\$ 71,550
Investment Income:	
C.I.T. Consolidated Portfolio:	
Life Memberships	153,183
Special Investment Fund	7,650
Charles Schwab Money Market Fund	2,234
T. Rowe Price Prime Reserve Fund	2,371
Caltech Employees Federal Credit Union	1,936
Checking Account	453
Interest Bascom Contribution	8,957
Net Income of Travel Study Programs	17,577
Directory (transfer from Revenues)	41,678
Bascom Contribution	1,989,629
Bascom Contribution-Real Estate	300,000
Sale of Legends and Other	4,385
<b>TOTAL REVENUES</b>	<b>\$ 2,601,603</b>

### EXPENSES

Administration	\$ 87,908
Publications	32,736
Net Expense of Continuing Education	184
Net Expense of Regional Programs (previously called local & chapter programs)	13,876
Net Expense of Seminar Day	1,330
Net Expense of Class Reunions	32,983
Student/Faculty/Alumni Relations	36,658
Half Century Reunion	0
Undergraduate Admissions Support	36,285
Membership	10,787
Directory	7,500
Communications	5,205
Contribution to Alumni Fund	10,000
Net Realized Losses (Bascom & Special Investment Fund)	11,204
Depreciation-Real Estate	1,212
Income Tax Expense	4,250
<b>TOTAL EXPENSES</b>	<b>\$ 292,118</b>

**REVENUE (OVER) EXPENSES** ..... \$ 2,309,485

Surplus, September 30, 2000	\$ 172,325
Surplus, September 30, 2001	\$ 2,481,810

### INDEPENDENT AUDITOR'S REPORT

Board of Directors  
Alumni Association  
California Institute of Technology

I have audited the accompanying statement of financial position of the Alumni Association California Institute of Technology as of September 30, 2001 and the related statement of activities, changes in life membership reserve, reserve for directory, investment in equipment, surplus and cash flows for the year then ended. These financial statements are the responsibility of the Association's Board of Directors. My responsibility is to express an opinion on these statements based on my audit.

I conducted my audit in accordance with generally accepted auditing standards. Those standards require that I plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by the management, as well as evaluating the overall financial statement presentation. I believe that my audit provides a reasonable basis for my opinion.

In my opinion, the financial statements referred to above present fairly in all material respects, the financial position of the Alumni Association California Institute of Technology as of September 30, 2001 and the results of its operations and its cash flow for the year then ended in conformity with generally accepted accounting principles.

Fred T. Arjani  
Certified Public Accountant

December 19, 2001

Kirschvink . . . from page 3

tory, with major consequences for the evolution of the biosphere. Originally considered highly controversial, if not downright odd, the theory has gained increasing acceptance and opened several new avenues of research.

Kirschvink extended the model with his doctoral student David Evans, PhD '98 (now a professor at Yale), one of numerous graduate and undergraduate students who have played an integral role in his research over the years.

"The bottom line is, Joe treats his students like colleagues," says graduate student in planetary science Ben Weiss, who cowrote the letter nominating Kirschvink for the Feynman Prize with geobiology senior Tim Raub. "He involves them fully in his research, he gives them the confidence and the tools to recognize and attack original research problems on their own, and when they make discoveries, he stands aside to make sure they get the credit."

As telling as this praise, says Weiss, was the enthusiastic response of the several former students—grad and undergrad—whom he and Raub enlisted to write letters supporting the nominee. "Everyone wanted to do it," he says. "People were traveling, they were in the middle of research, and they all made time to do this for Joe."

With such students and such subjects, says Kirschvink, who wouldn't be a great teacher? "Science should be fun, it should be enjoyable," he says, and the emergence of innovative multidisciplinary approaches to tackling "some of the really big questions that are out there" is a lure for students and profes-

sors alike. "Nature isn't compartmentalized," he says, echoing sentiments he expressed in a recent Japanese-language article, whose title he "loosely" translates as "Science is not a lunch box."

"Nature didn't create separate disciplines, or six divisions, or what have you. And science in the 21st century doesn't need to either."

Which brings us to "Mars, Panspermia, and the Origin of Life: Where Did It All Begin?" the talk that Kirschvink presented to a packed house when he delivered the Carl Sagan Memorial Lecture at the fall meeting of the American Geophysical Union last December. The talk is based on a paper of the same title that he and Weiss recently published in the online journal *Palaentologia Electronica*. Using geochemical, thermal, and biological data drawn from such varied sources as Mar-

tian space missions, genome-sequence studies of microbial DNA, and the Martian meteorite ALH84001, which was recovered in Antarctica in 1984, the two conclude that conditions on the early earth may have been far less hospitable to the emergence of life than conditions on early Mars, and propose that primitive bacteria migrated via meteorites to Earth from the Red Planet.

The idea of panspermia as a solution to the vexing question of how life arose on Earth is not a new one—Nobel Laureate Francis Crick, among others, has advocated it, although Crick speaks in terms of sentient higher beings from who-knows-where deliberately seeding our planet. But only now, says Kirschvink, are investigative tech-

niques into life's origins advancing to the point where it's possible to put forward plausible and testable scenarios—and right now the data point to Mars.

"So you see," he says with a gleam in his eye, "that would explain our constant fascination with Mars. It's our point of origin, our home planet."

Joe Kirschvink, teacher, Feynman Prize winner, Martian. It has a ring.

HEIDI ASPATURIAN

Kirschvink's Carl Sagan Memorial Lecture may be viewed online at <http://jupiter.agu.org/webcast/kirsh.html>, and will be presented again on the Caltech campus on June 3rd; see [http://www.gps.caltech.edu/seminars/gps\\_seminars.html](http://www.gps.caltech.edu/seminars/gps_seminars.html).



All right, folks, what is it? Hint: Think circa 1975.

# Class Notes

1942  
Mac McClain  
jandemcc@aol.com

As a class agent with deadlines to meet, I can tell you that some things never change. It seems that 60 years ago I had a Caltech assignment due tomorrow that I had also not even started!

Hopefully by now you have all gotten the "hold the dates" memo from the Alumni Association Office. If you haven't, can't read it, or are otherwise uninformed, here are the dates: Thursday, May 16, Friday, May 17, and Seminar Day, Saturday, May 18. This past September Roy Van Orden, Boyd Marshall, and I met with the Association's Patsy Gougeon and formulated an outstanding program for our 60th reunion. Now all that is necessary is for all of you to show up. After all a party is no fun if nobody comes.

There hasn't been an awful lot of input from most of you, although I *did* get a couple of notes. Fred Felberg reported that his wife is incapacitated and in a care facility, but that he is still traveling, playing golf, and in reasonably good health. Also had a note from Elliott Green, who was the chief engineer on Lockheed's Tristar aircraft and has retired as a vice president. And from right here in Ventura County, Dick Andrews was recently married to Elva May, who was student body president when they were both in high school there (we won't mention the year!). In July Esther and I had a delightful evening at the Hollywood Bowl with Jesse Graner, listening to Charlotte Church.

At the end of November, the semiannual meeting of The Ancient Order of Caltech Football Players (or The Order of Ancient Caltech Football Players, if you prefer) was held and was very well attended. Our worthy opponents were represented by Bill and Ruth

Reeder from Pomona, and Morgan and Bettie Odell from Oxy. Tech representatives included our 1937 Captain Claude Brown and his son (Claude was the Frosh coach for most of the attendees when he was back for his Masters degree); and representatives from many 1940s classes: Stan Holditch and June Holditch; Harry Moore and Joanne Moore; Jesse Graner and Suna Graner; Bob Bragg and Alicia Bragg; Bud Carrol and Louise Carrol; Jim Workman; Harry Lingle; John Mason; Neville Long; Chuck MacDougal; and Esther and myself. In addition we had Lia Peterson, Lucie Spencer, and Dianne Molina from the Alumni Fund, and Andy Shaindlin from the Alumni Association. The Athenaeum put on a great meal as always, and a good time was had by all. Our thanks to Stan, who always makes all the arrangements.

Last but certainly not least some comments on the *U.S. News & World Report's* ranking of American colleges. You may recall that in 1999, we were number one. Well this year we dropped to number four behind Princeton, Yale, and Harvard (particularly galling to me since my grandson went to Yale). Among the rating categories are "alumni-giving rank" and "alumni-giving rate." Two years ago when we ranked first, our rank was 6 and our rate was 46 percent. This year, our rank was 13 and our rate was 39 percent; by comparison, Princeton ranked first with a rate of 66 percent. Now given the age of those who usually read this set of class notes, I'm probably preaching to the choir, but it appears that the alumni as a whole let the school down this year. However there is always next year—and let's get that participation percentage up, people. Thirty nine percent is pretty UNSAT.

Well that's it for now, folks. And don't forget our 60th reunion on May 16. As they say down South, "Y'all come!"

1944  
Paul Winter  
winterph@alumni.caltech.edu

Tom Hudson writes that he spent most of last year selling his home in Northridge and is now living in La Mesa, California. This did not keep him from enjoying life along the way. He spent a week playing golf at Lawrence Welk's Desert Oasis, a week in Los Tules near Puerto Vallarta, a week in Los Vegas, a week in Kona, Hawaii, and a week in Phoenix; he also took his annual trip to the Northwest, attended his weekly Optimists' Club meetings, went to his Alhambra High School reunion, and enjoyed a big 80th birthday party, and visits from family and friends. This past year, in addition to moving, he is still traveling and has been to Bangkok, and Chang Mai, Thailand.

Bill Hamilton is still living at Capistrano Beach, California. He says that he attended the Columbia midshipmen's class reunion in Baltimore but did not see any of his Caltech classmates. He is planning to attend the annual V-12 meeting in Cody, Wyoming, this year.

Cornelius Steelink is now professor emeritus of chemistry at the University of Arizona, where he has just coauthored a book entitled *The First Hundred Years: A History of the University of Arizona Chemistry Department 1891–1990*. This is the story of a small land-grant department that developed into a university research faculty (with two recent additions from Caltech).

1966  
David McCarroll  
dmccarro@alumni.caltech.edu

Alden Holford (adh@holfordlaw.com) writes, "Upon graduation from Caltech, I went to Harvard Law School, and, after an Army hitch, I graduated in 1973. I have been a trial lawyer in civil and family cases ever since. I am also a qualified mediator in civil and family cases, and a qualified *ad Litem* (court appointed lawyer for an indefensible party) in civil, family, and probate cases."

1973  
Stephanie Charles  
sjcharles@juno.com

There's not much news this time, partly because of world events, I'm sure, and partly because my e-mail address list is becoming dated. If you did not get an e-mail from me in early December, I'd be interested in hearing from you at the above e-mail address. I'll include your news in the next Class Notes column, and update your e-mail address in the database on campus and in my own personal address list (used only for soliciting news for this column).

Tony Chan reports that he became dean of physical sciences at UCLA in July. You can read more at [www.college.ucla.edu/physsci.htm](http://www.college.ucla.edu/physsci.htm).

Deborah Chung came to the Los Angeles area in January to give a lecture on "Cement-matrix Composites as Multifunctional Materials." In the same trip, Deborah also gave a solo evangelistic concert (in Cantonese) at the Chinese Christian Church of Thousand Oaks. When I heard from her in December, she was hoping to see some former classmates during her visit to the area.

Doug Duncan writes to say that he is gearing up to lead a public travel/study trip to Africa to see the total solar eclipse that will pass over one of the continent's largest game parks on December 4, 2002. "At past eclipses I've been

surrounded by llamas (in Bolivia), and whales and dolphins (in the Galapagos). We plan to visit where there are many elephants and large cats. This should be a remarkable sight to see." Doug has photos of previous expeditions at <http://astro.uchicago.edu/duncan>, and he invites alumni (class of '73 or other years!) to e-mail him at [duncan@dei.uchicago.edu](mailto:duncan@dei.uchicago.edu) for more details.

1983  
Lisa (Flitz) Martin  
lmartin@cfia.harvard.edu

Thanks to everyone for their notes! Here are updates from a few of our classmates.

Art Fortini writes, "I've been back in Pasadena for ten years now. I'm manager of R&D for Ultratnet and spend most of my time making rocket engines. (Yes, I'm a rocket scientist!) I'm also very involved with the Sierra Madre Search and Rescue Team—something I find far more rewarding."

Ginny Chan (Konikowski) writes, "Some people may remember that my husband, Sam Chan (BS '82), and I were drawn together by our love of dancing. Finally, now that our kids are old enough to take care of themselves, we have resumed our dance studies in earnest. We train four to five times a week, and plan to start competing sometime in 2002."

Cheryl Robertson is "still in Perth, still skydiving, still extends an open invite to any Techers who want to drop by. Only change is a new job with Ionik Consulting, a division of JP Kenny. Hope everyone is doing well."

Michel Doffagne says he has "nothing special to say: job and family (four children) are going well." But he wishes all U.S. citizens and Caltech students the best, and urges us to keep hope in our hearts and minds.

Noemi de la Puente sends this update: "Over the summer I went to North Carolina and performed in *Midsummer Night's Dream*, playing the role of Hermia, with the Carolinian Shakespeare Festival. Then, I was in Manhattan the morning of September 11, but luckily I was in Greenwich Village, so I witnessed a fair amount of the terrorist attacks, but was far out of harm's way. As a result of the attacks, the play-reading and the zarzuela (Spanish comic operetta) I was involved with were cancelled, but I felt fortunate because my husband and I were safe. Now I am involved with the *Sociedad Educativa de los Artes* (SEA), which is the only professional Latino children's theater in NYC, and possibly this country. It is a great joy to perform in Spanish and English for kids, and teach them to value their heritage by example. Any curious individual can check out SEA at [www.sea-ny.org](http://www.sea-ny.org). I am also in the throes of finishing a play on Latinos in advertising. My husband has a calmer lifestyle. He is still marching along at Web401k.com (yes, the name is the address) as a pension plan administrator. He must be doing something right, because now he is part owner of the firm."

Barret Lippey says, "I'm now back from my five-year stay in Japan and recently bought a house in Belmont, Massachusetts. I'm working at Bose Corporation. I have two children, ages six and ten. My family Web site is [www.lippey.org](http://www.lippey.org)."

Greg Sayles "continues to conduct engineering research at the U.S. Environmental Protection Agency's laboratory in Cincinnati. He manages research on using microorganisms to clean up hazardous-waste sites and on risk-management of endocrine-disrupting chemicals. Greg was recently promoted to senior research engineer. He and his wife, Beth, have a three-

## CLASS NOTES CUTOUT COUPON

If you're a Caltech undergrad with a class agent, please take a moment to update us on what you've been doing, and we'll be sure to send that info on to your class agent.

Return this coupon and any additional materials to Caltech Alumni Association, 1-97, Pasadena, CA 91125. If you would prefer to e-mail your news directly to your agent, you can find your agent's name and e-mail address on the Web at [http://www.its.caltech.edu/~alumni/class\\_notes.htm](http://www.its.caltech.edu/~alumni/class_notes.htm). And if your class doesn't yet have an agent, please fill out and mail the Personals Coupon in the *Personals* section.

Name \_\_\_\_\_

Option and Degree Year \_\_\_\_\_ New address? \_\_\_\_\_

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and-a-half-year-old daughter who recently started preschool in a Montessori program.”

**Ichiro Sugioka** sent this update ages ago—sorry for the delay, Ich! “You can see what I have been doing for the last decade at your local Volvo dealership. In particular, I spent a lot of time at the Caltech wind tunnel working on the S60 model that arrived late in 2000. I hope you like it. By the way, does anybody know much about keeping sea hares? My son wants one for a pet.” (At least he did a year ago.)

**Larry Gross** “climbed Mount Kilimanjaro (19,340 feet) for my fortieth birthday this last summer. You can see full-blown details in my sister’s web site accounting all the stories and photos of the expedition: [www.keinman.tv](http://www.keinman.tv).” Larry also sent along an awesome photo of himself with their African guide, at elevation 18,500 feet, just before summiting. Sorry I can’t share it with all of you here!

Finally, my big news is that I had a daughter, Sophia, in April. We’re both doing great, and celebrated my fortieth birthday in a much more sedate manner than Larry, with a vacation in St. Lucia. I’m adding the job of editor in chief of an academic journal, *International Organization*, to my responsibilities in January, so life should keep me pretty busy. Keep those updates coming!

1984

Laura Ravine  
[ravine@alumni.caltech.edu](mailto:ravine@alumni.caltech.edu)

After a long career at Anheuser-Busch, **Mark Abeln** retired from the business of making beer and accepted a position at Pharmacia Corporation in Chesterfield, Missouri, in the Discovery R&D group.

**Stephen Jones** writes, “After I spent six years on the physics research staff at MIT, my wife—a physician—encouraged me to enter the field of medical research. So I have just finished medical school and am now an intern at Massachusetts General Hospital, to specialize in neuroradiology. Life is very full and wonderful, shared with our three children—Julia, five, Alexia three, and Sumner, one. Oh, and Pretzel-the-Dog, three!”

**Mark Lindsay** is extremely happy to have started a new job as a physicist at the National Institute of Standards and Technology (NIST) in Maryland. He’s doing research in atomic spectroscopy and working with a great group of

colleagues. He writes, “My nine-year-old daughter, Melody Rose, is suffering from adolescence already, and my son, Christopher, is approaching the terrible twos. To keep sane, my wife, Holly, and I dance and attend church activities. Luckily we all like crab cakes.”

**Norman Princen** appears to be working on some sort of secret project at Boeing, on the commercial side. According to his “Service Monkey,” who chose to remain anonymous, the project involves a very fast plane that looks like a blended wing.

1986

Scott Karlin  
[karlin@alumni.caltech.edu](mailto:karlin@alumni.caltech.edu)

Although it may appear that I have fallen off the face of the earth, I want to assure you all that my family and I are doing fine. Last summer, my wife, Rosie, and I were in a production of *The Sound of Music*, where I was Captain von Trapp and she was Sister Margaretta. Currently, I’m in the final months of my PhD program in Princeton’s computer science department. Rosie and Molly (age 8) have been very supportive. This April, Rosie and I will celebrate our tenth wedding anniversary.

**Brian Tsai** reports that as of January 2000, he became COO/CFO of a small mobile learning technology software development company in Tokyo. From 1993 to 1999, he was an Asian interest rate-derivatives trader and trading desk head for Bankers Trust and WestLB, based in Tokyo and Hong Kong. From 1986 to 1993, he was in electronic product marketing for Mitsubishi. He says that he is “single, but committed.”

Last year, **Tom Luke** sent a quick note to let everyone know that he is “still in New York, trading derivatives for JP Morgan and surviving the merger with Chase. On a more exciting note, my wife, Amy, and I had twins, Christopher and Jacqueline, who [as of January 2002] are now two years old. They are doing extremely well, and this is by far the most fun I’ve had in a while.”

Finally, **Jim Kennedy** ([jjim.kennedy@tbe.com](mailto:jjim.kennedy@tbe.com)) writes, “Tracey, my wife of five years, and I are happy to announce the birth of our first child. Joshua David Kennedy arrived on 30 November 2001.”

1990

Ed Lee  
[ClassNotes1990@hotmail.com](mailto:ClassNotes1990@hotmail.com)

In October I went with Mr. Ohshima and his other students to tour Japan for two weeks. You can see the pictures at [http://community.webshots.com/user/\\_edlee\\_](http://community.webshots.com/user/_edlee_). Otherwise I just finished my fall semester at Santa Barbara Community College, having completed classes in cinematography, editing with Premiere, and acting for the camera. I appeared in a few student films; one of them, “Trapped,” directed by Anthony Maras, even won some awards in Australia this past summer. To see some of my video projects, visit <http://www.silcom.com/~edlee/test.htm>.

**Sean Leonard Johnston** writes, “After one year at UCSF Fresno for my first year of residency, I am now in my first year of radiology residency at UCLA. My wife, Elizabeth, and I are preparing to celebrate the first birthday of our identical twin sons, James Leonard and Thomas William, who were born April 19, 2000. I continue to play piano when I can, and am an avid fine art collector. You can reach Sean by e-mail at [SLJ@ucla.edu](mailto:SLJ@ucla.edu).

1991

Scott Kister  
[scott@skister.com](mailto:scott@skister.com)

**Joseph Bach** recently accepted a nomination to be the executive champion for the Applied Materials’ University Partnership Committee (UPC), representing Caltech. The UPC is a philanthropic organization sponsored by Applied Materials, supporting education at various universities. Joseph has already visited the campus and supported the approval of several scholarships and, of course, the SURF program. Applied Materials manufactures equipment for semiconductor chip manufacturing, and Joseph is a director of intellectual property there.

**Haris Catrakis** is assistant professor at UC Irvine, where he is working on turbulent flows and aero-optical flow phenomena. His research is funded by an NSF Career Award and by the Air Force. **Helen Cheng** finished her PhD in cancer biology at Stanford in 1998 and is now working for a medical-device start-up company in Sunnyvale. Her daughter Allison Nicole was born last year!

**Ajay Chheda** ([chheda@hotmail.com](mailto:chheda@hotmail.com)) from Page House has been married for five years to a wonderful woman, Jennifer Tarnok. No children yet. Ajay moved to the New York City area after graduation and did doctoral studies in DNA repair at NYU. He recently received an MBA from Fordham as a W. Edwards Deming Scholar. Ajay invites you to drop him a line or if you are in the NYC area to get together. He wonders whether there is a NYC-area alumni chapter. If there isn’t, are those in the area interested in starting one for personal and professional reasons?

**Michael Ehlers** and **Laura (Hernandez) Ehlers** have been living for three years in Durham, North Carolina, where Mike is an assistant professor of neurobiology at the Duke University Medical School, and Laura splits her time between telecommuting from home and working in Washington, D.C., at the National Research Council, where she has been for five years. Until 1998, they lived in Baltimore, where they were married, and where Mike got his MD/PhD in neuroscience and Laura her PhD in environmental engineering, both from Johns Hopkins University.

**Mark Humphreys** ([\[com\]\(mailto:markrhumphreys@cs.com\)\) and his wife, Caroline \(Occidental ’91\), are living in Edmond, Oklahoma—a suburb of Oklahoma City—and have very much settled into life there. They welcomed Kyle James into their lives on March 4, 2001. A year later, he is a real handful, with dark hair and blue eyes, and he keeps them on their toes. Caroline left her marketing position at McDonald’s Corporation to be home with Kyle full-time and is really enjoying that decision. In October Mark accepted an offer from Prudential Securities and resigned from Morgan Stanley, where his performance at work had been recognized with a promotion to associate vice-president, investments. He continues to help individuals and small companies manage their investments, with a focus on individual retirement planning. Between work and family commitments, he is also trying to go to school in the evenings to prepare for the CFP \(Certified Financial Planner\) exam. Drop Mark a line and say hello.](mailto:markrhumphreys@cs.</a></p></div><div data-bbox=)

Your class agent, **Scott Kister** ([scott@skister.com](mailto:scott@skister.com)), has joined Danger, a Palo Alto startup, working on the hiptop, a wireless Internet communications device set to launch in the first half of 2002. He and his wife, Stella, live in Woodside, CA.

**Alexandre Borges Sugiyama** and **Zoe Forester** were wed on August 25, 2001, and are living in Phoenix, Arizona.

1997

Emily Chen  
[emilyc@alumni.caltech.edu](mailto:emilyc@alumni.caltech.edu)

**Dave Bacon** writes, “I just finished my PhD in physics at Berkeley. Four years of good clean fun (well maybe not so clean, but definitely fun!) I’ve now returned (ack!) to Caltech to take a postdoc with John Preskill at the Institute for Quantum Information. Not enough pain the first time around, so I thought I’d go back for more! Any alumni in the area should feel free to drop me a line for some good old reminiscing: [dabacon@cs.berkeley.edu](mailto:dabacon@cs.berkeley.edu).”

**Ann Chen** passed the bar exam in New York and has just purchased an apartment on top of the Julliard building.

**Shirley Chen** is now in Berlin and expects to be there for two years. She has taken five weeks of German thus far and believes that her German is still “sehr schleckt [pretty awful].”

Otherwise, she has done some sightseeing, furnished the apartment, and adopted a sweet cat from the animal shelter. She finds the foreign experience exciting, but misses home.

**Shihching Chu** (aka **Jenny Chu**) moved in October from Battery Park City (two blocks south of the World Trade Center) to the upper east side of Manhattan. The move went really smoothly, and she is settling into her new apartment.

**Amanda Eckermann** is doing well in Urbana, Illinois, and will be finishing up her PhD program soon!

**Frank Ling** reports, “Living at Berkeley has been lively, bizarre, and surreal, but somehow I’ve managed to stay out of trouble. One day, it will all go into a movie. In the meantime, **Charles Lee** (BS ’96) and I can be heard on the radio every Wednesday at noon on 90.7 FM KALX if you are in the Bay Area or [kalx.berkeley.edu/kalx.ram](http://kalx.berkeley.edu/kalx.ram) over the internet. Our show, ‘Berkeley Groks,’ features weekly science news and in-depth analysis on how technology is affecting our lives. Guests are always welcome to be on the air. Feel free to write to us at [groks@hotmail.com](mailto:groks@hotmail.com) or check out our website at [www.ocf.berkeley.edu/~clgroks](http://www.ocf.berkeley.edu/~clgroks).”

## ENTREPRENEURIAL FELLOWSHIP PROGRAM INVITES APPLICANTS

The 2002 Caltech/Art Center Entrepreneurial Fellowship Program is currently accepting applicants for the second iteration of the EFP, a joint venture between the Institute and Pasadena’s Art Center College of Design. The fellowship, which includes a \$10,000 stipend per Fellow, will run from September 17, 2002, through March 14, 2003.

The program is designed for students who are looking to start up a business, perhaps based on technologies, products, or services that they have developed during their studies at Caltech or Art Center.

The program requires applicants to form teams of two to four people and to submit an outline of a business proposal to the EFP selection committee. Applicants are encouraged to form teams made of up people from both Caltech and the Art Center and/or from different academic divisions on campus. Fellowships will be awarded to those teams that are judged to have submitted a viable, well-thought-out proposal. Apparent enthusiasm and mettle will also be taken into account.

For more information, go to [www.efp.caltech.edu](http://www.efp.caltech.edu), or call Geoff Wardle at 626/395-2326, or Ken Pickar at 626/395-4185.

# Personals

1936  
**Everette E. Griffith Jr.**, of Valencia, California, is working full time for the Rotary Club, editing the bulletin of the Rotary Club of North Hollywood and chairing Rotary District 5260's World Community Service, helping to ship to Third World countries books discarded by schools and libraries.

1939  
**Tyler R. Matthew**, of Seattle, joined the President's Circle of the Caltech Associates on its 18-day tour of Australia, which he describes as a "mystical, magical country." Part of the trip comprised a four-day cruise of the Great Barrier Reef. Further travel plans included a Mediterranean cruise and a trip from Paris to Venice on the Orient Express, in May-June 2001.

**James C. Ritchey**, of Mission Viejo, California, writes that he has been retired for 20 years and enjoys seeing **Dick Bradshaw '39**, **Bob Haussler '39**, and **Ray Richards '40** and their wives at reunion luncheons. "Retirement has been good as our health holds up." He has had plenty of travel, golf, tennis, and bridge, and he continues to serve on nonprofit boards.

**Paul L. Smith**, of Huntington Beach, California, at 82 is "still weighing life membership in the Alumni Association as a cost-effective alternative—have been doing so every year since graduation!" He adds that he is "keeping busy with retiree oversight duties."

**Ed Sullivan**, of Visalia, California, reports that he and his wife, Jo, celebrated their 60th wedding anniversary on June 30, 2001. "We both are still reasonably active and still are engaged in traveling."

1940  
**Robert W. Grigg**, of Rancho Santa Fe, California, writes, "Our home of 36 years burned down October, 2000. We rebuilt everything except the garage, which was saved, and moved back 9 months later. The new house is great, but we are looking forward to leisure time!"

**Yoshinao Nakada**, of Los Angeles, received a mention in a guest column by **Arthur M. Compton '40** that appeared in the Greenville, Michigan, *Daily News*. In the late 1930s, Nakada was Caltech's best ball carrier and played football against teams ranging from the U.S. Marines to Pasadena Junior College—now Pasadena City College—which at that time had a ball carrier named Jackie Robinson. "It is tempting to speculate," Compton muses, "what might have been if Yosh . . . and Jackie . . . while shaking hands in 1939 at the end of the game in the Rose Bowl, by some miracle could have resolved the tensions and misunderstandings that almost tore the world apart a short time later."

**Bert Scarborough**, MS '41, of Walnut Creek, California, reports having had a "great vacation with children and grandchildren to see beaches and redwoods at Klamath, California."

1941  
**Chieh Chien Chang**, MS, PhD '50, of Houston, moved to a retirement community two years ago and is interested in joining the local alumni association.

1943  
**Edward I. Brown**, of San Diego, retired about 20 years ago. He still plays a lot of tennis and some golf, and has moved from Orange County to Rancho Bernardo, where there are only two other Teachers: **Bob Bashor '43** and **Charlie Carstarphen '39**, MS '40.

1946  
**William "Bill" Bongardt**, of Clovis, California, is "still involved with a little civil engineering work—roads, grading plans, drainage studies, etc." He continues to enjoy skiing ("at Badger Pass—it's free for ancient ones"), fishing in the nearby Sierra Nevada, and his family.

**Donald B. Hicks**, of Placentia, California, is happily retired after 40 years in the steel business with Kaiser and Oregon Steel. One of the V-12 students recalled during the Korean War, he spent two years as an engineering officer aboard a destroyer escort. He is now enjoying golf, bridge, and travel.

1947  
**William R. Bellows** writes that he routinely reads the political and investment news, and that he is currently reading ancient history as well, specifically *The Coming of the Greeks*, by Robert Drews. "I exercise vigorously and regularly and at present I'm learning to use my new computer."

**Donnel H. Gould**, MS, of Kerrville, Texas, has been retired for 30 years, and is currently active mostly on the golf course. "I do have a small ranch outside Kerrville with a few exotics on it."

**Seymour Lampert**, MS, Eng '48, PhD '54, of Irvine, California, is a professor emeritus at USC.

**Edward Miller**, of Santa Paula, California, reports that he is "getting older . . ."

**Walter T. Ogier**, PhD '53, of Atascadero, California, has retired from Pomona College, where he was a professor of physics and chair of the department of physics and astronomy. He writes that he has been living comfortably in Atascadero for 12 years and is keeping active.

**Donald Stewart Jr.**, of Upland, California, promoted himself by volunteering to be program manager for Meals on Wheels Inland Valley, Inc., for the Ontario, Upland, and Chino area, in the second quarter of 1999. The program has a maximum of 117 clients, with about 95 volunteers serving them. "The previous program manager, **Al Voak**, BS '31, passed away in an automobile accident."

**Jerry Ward**, of El Tajon, California, is coauthor—with Professor Bill Garrison of UC Berkeley—of *Tomorrow's Transportation: Changing Cities, Economies, and Lives*, which was published by Artech House in 2000.

1952  
**John Baugher**, MS '56, writes that he is "retired, widowed, learning C++."

**Steingrimur Hermannsson**, MS, is retired, but busy with forestry, golf, skiing, swimming, and grandchildren. He is also serving on several councils and boards, and as chair of the Millennium Institute, Virginia, and of the Environmental Protection Society, Iceland.

1955  
**James King Jr.**, MS, PhD '58, writes, "Since retiring from JPL in 1995, I have been teaching at Morehouse College, my alma mater. I am currently the interim chairperson for the department of chemistry."

**Ed Seidman's** report on his and his family's recent activities, published last issue, was misattributed to **John Andelin '55**. Seidman wrote: "I graduated in 1955 with my 6-week-old twin sons, Daniel and David, present in their strollers. This past February we celebrated the first birthday of Daniel's twin girls, Abigail and Rebekah. A simple case of 'Grandpa's Revenge'. This past January little Isaiah came on the scene as grandchild number 11. My wife, Judie, is down to 30 hours a week as she winds down to retirement next January. I am too old to retire so I am continuing at Abbott Labs reviewing software for compliance with new FDA regulations."

1956  
**John A. George**, MS, of St. Louis, retired in June 2000 after teaching for 41 years in the aerospace engineering department at Parks College of Saint Louis University.

1959  
**Joseph M. Colucci**, MS, president of Automotive Fuels Consulting, Inc., received the Society of Automotive Engineers (SAE) Edward N. Cole Award for Automotive Engineering Innovation on December 4 at the SAE Detroit Section Special Event. According to the citation, his "leadership while head of the GM Research Lab's Fuels and Lubricants Department, and Executive Director of the GM R&D Center, produced fuels and lubricants that improved worldwide vehicle performance, durability and fuel economy, and resulted in large vehicle emission reductions." He and his wife, Sue, live in Clarkston, Michigan.

**William L. Ko**, MS, PhD '63, has been a steam-locomotive engineer, a mechanical-design engineer, and an instructor in mathematics and physics in Taiwan. After receiving his doctorate, he did research on solid-rocket motors at Caltech, he and his professor developing "the infamous Blatz-Ko constitutive law for hyperelastic materials" such as solid-rocket motor grains. Currently, he is at NASA Dryden Flight Research Center, Edwards, California, conducting research on various thermostructural problems associated with future hypersonic flight vehicles. A member of the American Institute of Aeronautics and Astronautics, the American Society of Mechanical Engineers, the Society of Rheology, the Society of Sigma Xi, the International Solar Energy Society, and the Society of Engineering Science, Ko has published more

*Tech Talk* will return in the next issue. Please send your letters on topics presented here, to [hillary@caltech.edu](mailto:hillary@caltech.edu). *Caltech News* reserves the right to select and edit letters.

**KEEP US INFORMED THROUGH THE CALTECH PERSONALS!**

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than 100 internationally recognized scientific papers and has received a variety of scientific achievement awards, including NASA's Exceptional Service Medal. An accomplished watercolorist, his paintings have been published in *American Artist* and *Southwest Art*, and his *LBJ Ranch in Spring Time* is part of the permanent collection of the Lyndon Baines Johnson Library, in Austin, Texas. He is director of the Ko Watercolor Research Center, in Lancaster, California.

**Charlie L. Yates, MS**, became professor emeritus of aerospace and ocean engineering at Virginia Tech in August 2000.

1961

**George Simon, MS, PhD '63**, reports that last October he was inducted into the International Space Hall of Fame, the first Caltech graduate to be so honored.

1962

**Jean Claude Rivet, MS**, in March 2001 completed his six-year term as mayor of Pont-Aven, France, and therefore now has more time to dedicate to personal activities such as flying. He continues to keep in contact with California because one of his sons is working in Silicon Valley.

**Viviane Rupert, MS, Eng '63, PhD '73**, writes, "When I came from France in 1961 to work under Dr. Liepmann, little did I realize where this would lead me. I had firmly decided to spend one year studying MHD then go home." Between Liepmann, who convinced her to pursue her studies further, and **Paul Rupert, MS '62**, who, she says, swept her off her feet 39 years ago, she ended up a U.S. resident, which the Ruperts technically still are. "Technically? Well yes. Since we both retired from the Lawrence Livermore National Laboratory three years ago, we have been 'live-aboards' and have been sailing up and down the East Coast, across to Bermuda, and up and down the Caribbean. Next winter we plan on crossing the Panama Canal." After all, she points out, principles of aerodynamics apply to sailing, don't they? "What a relaxing way to apply one's knowledge after retirement! Thank you Hans."

1963

**John M. Rosen, MS**, of Monroe, Connecticut, has taken early retirement from Sikorsky Aircraft and now has his own consulting business, which focuses on quality systems for the manufacturing of high-tech products.

**Janis Vasilevskis, PhD**, reports, "I retired in November of 1999. In March of 2000 I started my own company: Tahoe Consulting & Licensing. I concentrate in the biotechnology area with emphasis on oncology."

1965

**Virginia Trimble, MS, PhD '68**, professor of physics at UC Irvine, has recently been named the 2001 Klopsteg Memorial Lecturer of the American Association of Physics Teachers and been elected a Foreign Associate of the Royal Astronomical Society.

1967

**Peter N. Cross** writes, "Ileana and I are completing our fourth year in South Africa, where we work on a project to improve management

systems in the Department of Health of the poorest province, the Eastern Cape. Alejandra, our god child from Honduras, has joined us and is doing well in school. Friends in the area should give us a call."

1969

**Jerry Mar, PhD**, of Sunnyvale, California, retired from Intel, where he led modeling and simulation efforts, in August 2000.

**Yilmaz E. Sahinkaya, PhD**, of Foster City, California, after spending six years consulting for the automotive industry, recently returned to Lockheed Martin to work on guidance and control problems related to space vehicles. He is "enjoying every minute of it."

1971

**David McConnell, PhD**, professor of genetics at Trinity College, Dublin, Ireland, has been elected as chairman of the Irish Times Trust. A member of the European Molecular Biology Organization and the Irish Council for Science, Technology and Innovation, he is a former president of the Zoological Society of Ireland and a former chairman of the Adelaide Hospital and of Fota Wildlife Park.

1975

**Grant Robertson, PhD**, of Kingwood, Texas, joined Anadarko Petroleum Corporation in March 2001 as an engineering advisor. He is also an adjunct faculty member for the Petroleum Engineering Program at the University of Houston.

1976

**David Eskinazi, MS**, lives with his wife, Michelle, and their two children, Michael (10) and Andrew (5), in Chevy Chase, Maryland, near Washington, D.C. He is regional manager, client relations, for EPRI, where he has held various positions since 1982.

1977

**Craig M. Cheetham**, of Pasadena, California, is celebrating 25 years at JPL.

1978

**Eric W. Kaler**, of Newark, Delaware, has been named a fellow of the American Association for the Advancement of Science, which cited him for "distinguished study and applications of the properties of complex fluids, including advances in the understanding of surfactant mixtures and in synthesis of new materials." Kaler is dean of the University of Delaware College of Engineering and Elizabeth Inez Kelley Professor of Chemical Engineering.

1980

**Ted Watson, PhD '80**, has been named head of Colorado State University's Department of Chemical and Bioresource Engineering. He was director of the Nuclear Magnetic Resonance Division of the Engineering Imaging Laboratory at Texas A&M University, where he began teaching in 1979 and became a full professor in 1992.

1981

**Pamela Logan, MS '82**, has just come out with her second book, *Tibetan Rescue*, which describes a four-year project she led to save 270-year-old Buddhist murals at a remote monastery in eastern Tibet. "Through the organization I founded, Khan Aid Foundation," she writes, "I am continuing to work on art conservation and other programs that benefit Tibetans.

## PHD ALUMNI SOUGHT

What do you wish you had known before you came to Caltech as a graduate student? What information would have made your decision to attend Caltech better-informed? Wouldn't it have been helpful to talk to someone who had already been through the experience?

The Institute's graduate office is recruiting graduate alumni who would be willing to be contacted by prospective students. They may have questions about the academic experience, about the campus, about Pasadena, about social life, about research facilities, about research cultures in particular divisions, etc. Or they may just want to talk about what it's like to be a graduate student at Caltech.

This is a new, informal service being offered by Caltech, in cooperation with the Alumni Association. If you would like to take part as a volunteer, please send your name, degree, research area, and contact information (phone and/or e-mail) to Karen Carlson in the Association Office at [kcarlson@dar.caltech.edu](mailto:kcarlson@dar.caltech.edu). Or drop her a line by writing to the Caltech Alumni Association, 1-97, Pasadena, CA 91125.

It's increasingly unlikely that I'll ever go back to science as a career, although I do often visit the Caltech campus to train with the Shotokan Karate Club."

1983

**Bernhard Mueller, MS**, of Weiden in der Oberpfalz, Germany, is a general manager in the packaging industry, with worldwide responsibility. His work also takes him to Columbia, South Carolina.

1985

**Nabeel A. Riza, MS, PhD '90**, professor of optics and electrical engineering and head of the Photonic Information Systems Laboratory at the University of Central Florida's School of Optics/CREOL (Center for Research and Education in Optics and Lasers), has been selected to receive the 2001 International Commission for Optics (ICO) Prize, which comprises a citation, a cash award, an invitation to present a paper at a future ICO Congress, and the Ernst Abbe Medal. The prize is "given each year to an individual who has made a noteworthy contribution to optics, published or submitted for publication before he or she has reached the age of 40." Riza writes that his prize represents several firsts: he is the first Caltech alum to have won, and the first recipient from the Middle East or Asia; also, he and his PhD advisor, Demetri Psaltis, are the first student-advisor team to have won ICO Prizes (Psaltis won in 1989), and Caltech is the first institution with two ICO Prize winners in its faculty and alumni community. Riza is a fellow of the Optical Society of America and the SPIE (International Society for Optical Engineering) and a senior member of the IEEE, and he is the founder, president, and CEO of Nuonics, Inc., which manufactures prototypes of his inventions.

1986

**Adam Kolawa, PhD**, CEO and chairman of ParaSoft Corporation, has received the 2001 Los Angeles Ernst & Young Entrepreneur of the Year award in the software category. The award "recognizes business leaders who have demonstrated outstanding success in such areas as innovation, financial performance, and personal commitment to their businesses and communities." Located in Monrovia, California, ParaSoft is a "leading provider of error-prevention and error-detection software tools."

**Soo-Jong Rey, MS, PhD '88**, a physics professor at Seoul National University, has been awarded

the 2001 ICTP Prize, which is given in honor of Hans A. Bethe by the Abdus Salam International Center for Theoretical Physics, in Trieste, Italy.

1987

**Dan Greenberg, MS**, and Jennifer Rosenberg announce that they were married in October in Salem, Massachusetts. The couple resides in Boston, where both are business consultants.

1988

**Douglas H. Pearson, MS, PhD '92**, reports that he has recently changed "from materials research to patent prosecution. I am a registered patent agent and work at Burns, Doane, Swecker & Mathis in Alexandria, Virginia."

1989

**Stéphane Coutu, MS, PhD '93**, assistant professor of physics at Penn State, has been named a recipient of the 2002 Presidential Early Career Award for Scientists and Engineers, which is "the highest honor bestowed by the United States government on young scientists and engineers at the outset of their independent research careers." An experimental physicist whose primary research interests are elementary particles and fields, Coutu has been involved in several NASA-supported missions, including the High-Energy Antimatter Telescope (HEAT) program, a series of high-altitude balloon-borne experiments.

1992

**Ari Kaplan**, of Chicago, has started Expand Beyond ([www.XB.com](http://www.XB.com)) with **Tal Schwartz '92**. "Plenty of other alumni are involved as well," he writes. "We sell software for wireless IT management: databases, servers, networks, and so on. First commercial wireless SSH software too. Aside from that, enjoying Chicago."

**David A. Sauer, MS**, of Portland, Oregon, reports that, after receiving his master's in geology from Caltech, he earned an MD, spending the last six years in pathology. He has recently embarked on an assistant professorship in the pathology department of Oregon Health & Science University.

1996

**Steven Tsitas, MS, PhD '98**, writes that he has "launched [www.askdownunder.com](http://www.askdownunder.com), where you can ask another person to search the internet for you. It lets companies outsource the task of searching the internet."

1935

**Ward W. Beman**, of Payson, Arizona, on March 6, 2001; he was 87. An electrical engineer by profession, he was chief engineer for Lockheed Aircraft for many years. He is survived by his wife, Arlene; a son, Robert; two daughters, Beverly Claypool-Beman and Betsy Beman Barta; a stepdaughter, Patricia Parkin; a brother, Lyman; and five grandchildren and 12 great-grandchildren.

1939

**Edmund J. Pinney**, PhD '42, of Orinda, California, on December 19, 2000. During World War II he performed research at MIT and later at Consolidated Vultee Aircraft Corporation doing work on aircraft design. After the war he spent a year at Oregon State College, then in 1946 moved to UC Berkeley, retiring from the faculty there after 42 years. He is survived by his wife, Eleanor, and by two children and two grandchildren.

1940

**E. Wilbur "Bud" Silvertooth**, of Orcas Island, Washington, on September 24, 2000; he was 82. After graduating from Caltech he went to work for Paramount Studios, and he was cited by the Academy of Motion Picture Arts and Sciences in 1941 "for the design and computation of a relay condenser system applicable to transparency process projection, delivering considerably more usable light." With the outbreak of World War II he was drafted, but the government put him to work operating a plant in Pasadena, California, that made optical equipment and instruments for the military. After the war he worked in both design and marketing for General Precision, in Burbank, and that job periodically took him to Europe, where during the Cold War he did volunteer work for the CIA. He also operated his own company, Custom Instruments, for designing and manufacturing custom motion-picture equipment and instruments. In the early 1960s he worked for Northrop, and later for Aerospace Corporation, where he was in charge of a department that developed and designed advanced technology for the U.S. Air Force. He also continued his own experimental projects, and published in numerous professional journals. He and his wife retired to Orcas Island, Washington, because "he loved the water and sailing and the beauty of the Pacific Northwest," and he continued to work as a government consultant. A longtime member of the Optical Society of America, he also had served as a member of the Gordon Research Conference. He is survived by his wife, Muriel; a son, Steven; a sister; and four grandchildren.

1941

**Leo J. Brandenburger**, MS, of El Segundo, California, on February 28, 2001; he was 82. After receiving his master's degree from Caltech, he went to work for North American Aviation as a structural engineer, then did graduate work for a year at Columbia University. From 1947 until 1966 he pursued his love of art, teaching industrial design at the Chouinard Art Institute (since incorporated into the California Institute of the Arts), freelancing, and serving as associate professor of design at the Philadelphia College of Art; during this period he designed and built a variety of products ranging from writing pens and tableware to fountains. In 1966 he returned to engineering design, working at International Harvester and

General Motors, among others, and finally joining Hughes Aircraft in 1987, where he remained as a stress analyst and design consultant until his retirement in 1992 at age 74. After retiring he traveled widely, trekking in Nepal, skiing in the Alps, hiking the Grand Canyon and climbing Mount Whitney, each once a year, and winning many awards for senior downhill skiing at Jackson Hole. He is survived by a sister, Joanne Surasky.

**Emerson H. LaBombard**, of Los Angeles, on January 7, 2001; he was 81. He spent his 45-year professional career at Douglas Aircraft, later McDonnell Douglas, where he ultimately became head of the structures section. Project engineer for both the DC-8 and the DC-9 and program manager for the DC-10, he was particularly proud of his work on the medivac adaptation of the DC-9, a military flying hospital that has saved many lives. After retiring, he became director of the World Space Foundation's Solar Sail Project, which is affiliated with JPL. He is survived by Joan, his wife of 57 years, and a daughter, Catherine Schutz.

**Charles S. Myers**, MS, of Atlanta, on September 14, 2000; he was 82. He retired as a district engineer and special sales representative for Westinghouse Electric Corporation in 1984, after nearly 44 years with the company. His customers included the Alabama Power Company, the Southern Company, and the Georgia Power Company, which honored him with its Power Delivery and Procurement Lifetime Excellence Award. A member of the IEEE, he was chair of the Georgia IEEE as well as president and treasurer of the Westinghouse Veterans Organization. He was active in church and civic affairs. He is survived by Guerry, his wife of 28 years; his children, Rennie Fain Miller, Donald Fain, and Guerry Fain Drey; four grandchildren; and a sister, Sara Rhoades.

1942

**Howard E. Martens**, of Pasadena, California, on August 8, 2000; he was 80. He served as a section manager at JPL, and performed research for the lab's applied mechanics division. A registered mechanical engineer in California, he did extensive work with graphite, and was a test engineer for the National Defense Research Committee. He also served for five years on the NASA Research Advisory Committee for Materials, and on the board of the American Carbon Society for eight years, including two years as chairman of the executive committee. A lifelong member of the Lutheran Church, he was a life member of Friends of the Gamble House and of the Caltech Alumni Association. He is survived by Virginia, his wife of 56 years; a daughter, Daphne; a son, Harlan; three grandchildren; and a brother, Delmar.

1944

**Ivor M. Grant**, Ex, of Huntington Beach, California, on December 21, 2000; he was 79. Born in England, he came to the United States at the age of six months. World War II interrupted his education, and he served as an officer in the Royal Air Force and Fleet Air Arm. Returning to the United States after the war, he worked as an insurance broker, eventually cofounding the Archer and Grant Insurance Agency, in Downey, California. A world traveler, he also competed in the first L.A. Marathon. He is survived by his wife, Grace.

**Lewis B. Johnson**, MS, of Charlottesville, Virginia, on December 17, 2000; he was 79. A Navy veteran of World War II, he served most of his military duty as a meteorologist on an aircraft carrier in the Pacific theater. In 1951 he earned his PhD from the University of Virginia. He spent his career in Albemarle County, Virginia, retiring as a research professor in 1984 from the University of Virginia's department of materials science. After his retirement he could often be seen on his tractor and in the fields of "Mooreland," the family home. He is survived by Alice, his wife of nearly 57 years; two sons, Lewis and Walter; a daughter, Amie van Roijen; a sister, Mrs. James G. White III; and seven grandchildren.

**Allen E. Wolfe**, of Flintridge, California, on May 5, 2001. After graduating from Caltech, he entered military service, and he became involved with rocketry in the late 1940s, starting as an instrumentation engineer at the Aberdeen Proving Ground's air-ground missile range. He also participated in the first Bumper launch from Cape Canaveral. He joined JPL in 1952, where he worked on the unmanned space program from its inception until his retirement in 1989, when he was chief engineer for flight projects. A recipient of NASA's Medals for Outstanding Leadership and Exceptional Service, he had also received that agency's Public Service Award. He is survived by his wife, Georgiana; two daughters, Kathy and Terri; a brother, Kenneth; and two grandsons.

1946

**Jerry A. Zogorites**, of San Francisco, on January 24, 2001; he was 76. After receiving his BS under the Navy's V-12 program, he was discharged as a lieutenant (jg) in the Naval Reserve. He worked for the Square D Company for 41 years as an electrical engineer in San Diego, Los Angeles, and San Francisco. After retiring, he traveled extensively and was active as a volunteer for many civic and cultural programs. He is survived by Flora, his wife of more than 50 years, and two daughters, Diane and Peggy.

1947

**Jack A. Gibbs**, MS, of San Francisco, on October 26, 2000; he was 88. A former command pilot with over 4,000 hours in flying time, mostly in fighters, he had completed his flight training prior to World War II and was serving as base engineering officer—he had a degree in mechanical engineering from Oregon State College—at Wheeler Field in Hawaii on December 7, 1941, on the morning of which he happened to be the base's incoming officer of the day. His major wartime assignments were on the Air Staff and at Wright Field in Dayton, Ohio, in research and development, fighter requirements, and aircraft material. After receiving his master's in aeronautics from Caltech, he worked with the Air Research and Development Command at Wright Field as chief of the wind tunnel branch and then chief of the aircraft lab. In 1953 he moved on to strategic intelligence assignments in Washington, D.C., where he ultimately served as senior military advisor to the CIA's U-2 program. He also played a leading role in the early concept definition for a successor aircraft, the end results of which were the A-12 OXCART and SR-71 programs; for this work he received one of his two Legions of Merit. Returning to the Air Force from the CIA, he served in a variety of assignments, including with the Alaskan Air Command, eventually as deputy commander; at the Pentagon, as deputy

director operational requirements; and with the Continental Air Command at Hamilton Air Force Base, California. He retired in 1966 with the rank of brigadier general, and spent his retirement years hunting and fishing in Northern California, Mexico, and Alaska. Predeceased by Doris, his wife of 54 years, he is survived by his sons, Jack and Jim, and by a grandson.

**Arthur E. Platt**, of Sequim, Washington, on December 22, 1999; he was 79. He returned to college after serving as a line officer on the battleship *South Dakota* during World War II. After graduating from Caltech, he worked as a highway engineer for Caltrans for 34 years, retiring in 1981. He is survived by Marian, his wife of 54 years; a daughter, Sue Cohn; a son, Dave; and two grandchildren.

**Orville S. Powell**, Eng, of Palm Springs, California, on May 1, 1999; he was 83. He served with the Office of Strategic Services, taught stress, strength, and dynamics at the Northrop Aeronautical Institute, and ultimately joined Hughes Aircraft, where he remained until his retirement. His hobbies were gardening, reading, and building. He is survived by his wife, Fern; two sons, Douglas and Craig; and five grandchildren.

1949

**James H. Dwinell**, MS, of Kirkland, Washington, on April 20, 2001; he was 87. An associate professor of aeronautical engineering at the University of Washington from 1941 to 1950, he also supervised the UW aeronautical laboratory, and a compilation of his lectures, published in 1949 as *Principles of Aeronautics*, was used as a college textbook in the 1950s and is in a permanent collection at the Smithsonian Institution. He was known for helping students, and his generosity may have had its roots in his Caltech experience, when some of his professors helped him out when a serious illness nearly forced him to leave the Institute. In 1950, he went from UW to Boeing, where he worked in management positions for the next 30 years, including as chief of the flight-technology laboratories and as head of military airplane technology, and participated in the development of the B-52G and the Minuteman ICBM. In 1993 he was recognized by the UW engineering faculty as the distinguished alumnus for that year. A man of diverse interests, he traveled to Greece to pursue his interest in Greek mythology, water-skied, and took part in a camera club at Boeing. Predeceased by Irene, his wife of 43 years, he is survived by a daughter, Sharon Dwinell-Smith; a son, Robert; and four grandchildren and two great-grandchildren.

**Robert R. Pilling**, of Escondido, California, on August 31, 2000; he was 75. After graduating from Caltech he took education courses at USC and received his master's degree. He spent two years at Hughes Aircraft but dedicated most of his career to teaching, first at the high-school and then at the community-college level. He spent 34 years at East Los Angeles College, 28 of them as an administrator, which included serving as dean of registration. He earned a second master's degree, in mathematics. During the 1984 Olympics, the field hockey was played at the college, and as a volunteer he was in charge of sending the scores to newspapers around the world. Active in the community, he was elected to the Downey, California, school board for 12 years and served as a Cub Scout master. He also participated in children's organizations such as Indian Guides and Gra-Y.

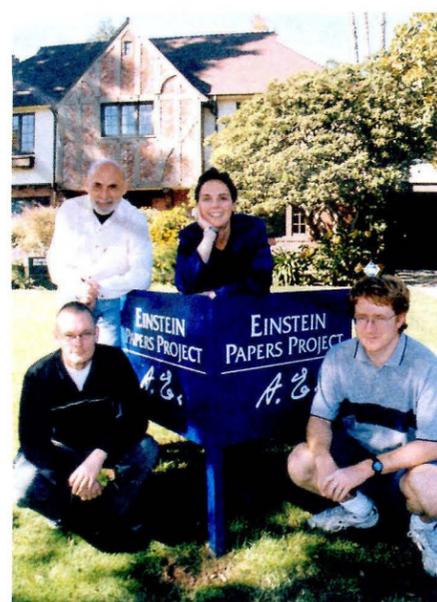
After retiring in 1989, he became a Rotarian and was awarded the President's Trophy in 1997 for outstanding service. He is survived by Corinne, his wife of 52 years; a daughter, Lori; two sons, Rick and Mike; and three grandchildren.

1994

Hiroiyuki Mori, MS, of Los Angeles, on July 13, 2000. After receiving his master's degree from Caltech, he worked as a medical researcher at the UC San Francisco medical center, then fought leukemia for four years. He is survived by his father, Yukio; his mother, Kumiko; and a sister, Keiko Murakami.

*Einstein . . . from page 2*

to organize and annotate the primary source material and leave the judgment calls to others. With each volume that has been published in the collection, at least one popular book has followed, says Kormos-Buchwald, along with numerous dissertations. "History is a living enterprise," she says, "like scientific research. When there's new empirical data, the scientist or historian



**Einstein's in-house editors include (clockwise, from top) Diana Kormos-Buchwald, Daniel Kennefick, Christoph Lehner, and József Illy.**

must start working with it."

The newest, youngest editor on the team is both historian and scientist. Daniel Kennefick, PhD '97, was a physics grad student when he took Kormos-Buchwald's class on the history of the scientific revolution. Taking a revolutionary step himself, he went to tell his advisor about his new interest. Kip Thorne, the Feynman Professor of Theoretical Physics, not only approved of Kennefick's plan to be Caltech's first doctoral student in physics and the history of science, but he also suggested a dissertation topic, the history of the debate on the existence of gravitational waves. Kennefick subsequently won the Institute's Clauser Prize, awarded each year for the dissertation showing the

most originality and ingenuity.

While writing his thesis, Kennefick conducted some of his primary research in Boston, where copies of the Einstein collection are housed. (The originals are at the Hebrew University of Jerusalem, which cosponsors the Einstein Papers Project with Princeton University Press. Copies of this collection and additional material are housed in Princeton, Boston, and Pasadena—in Caltech's Einstein house and in the Caltech Archives.) Now that Kennefick is literally sitting on top of the collection, he puts his dual expertise to work editing Einstein's scientific manuscripts, notes, lectures, and published papers, serving as a specialist on general relativity and gravitational wave theory. He also holds part-time positions in humanities and social sciences and in physics.

Kennefick says he feels like a detective as he pieces together the details of Einstein's life and work. What did Einstein do on November 9, 1918, the day he canceled a class because of the popular uprising that was occurring in Berlin? Was that the day he went to parliament to argue for the release of fellow professors who had been jailed for their conservative views? Did he really meet the president of the new republic, as rumored?

Kennefick wants to make his annotations complete by filling in the gaps left by Einstein and by cross-referencing Einstein's notes with those of his contemporaries.

"There's a constant stream of interesting puzzles," says Kennefick. "They're finite. They might not be solvable, but I don't have to wrestle with them for months like a physics problem."

Still, he can't help wishing, from time to time, that he could just e-mail Einstein and ask him a few questions.

HILLARY BHASKARAN

*Read more about the Einstein Papers Project online at [www.einstein.caltech.edu](http://www.einstein.caltech.edu).*

### A spirited affair

**The 19th century met the 21st in February at Caltech's Viennese Waltz Night, an annual crowd-pleaser that can induce all sorts of folks to put on their dancing shoes. (See the back-page poster.) The event, held at Dabney Lounge, drew about 80 dancers, who whirled and twirled (and wheeled?) the night away to the sounds of the Caltech Occidental Orchestra. The revelers wore evening dress ranging from corsets and petticoats to more contemporary garb. Did the low lights and glowing brights lend the evening a particularly magical air? You be the judge.**

### NORMAN DAVIDSON 1916-2002

Norman Davidson, whose groundbreaking work in molecular biology earned him the National Medal of Science and led to a better understanding of the genetic blueprint of life, died on February 14 after a brief illness. He was 85.

The Norman Chandler Professor of Chemical Biology, Emeritus, and a Caltech faculty member for nearly six decades, Davidson became emeritus in 1986, but served as executive officer for biology from 1989 to 1997 and remained active in research until his death.

"It was with the deepest personal regret that I heard of the death of Norman Davidson," said Caltech president David Baltimore. "Norman was a friend long before the prospect of my being president of Caltech arose, and he symbolized for me the essence of the Institute.

"His movement into biology from a background in chemistry allowed him to play a special role in the development of molecular biology. He saw imaginative ways in which structural understanding could illuminate functional questions. He trained some of the finest and most imaginative people in the field.

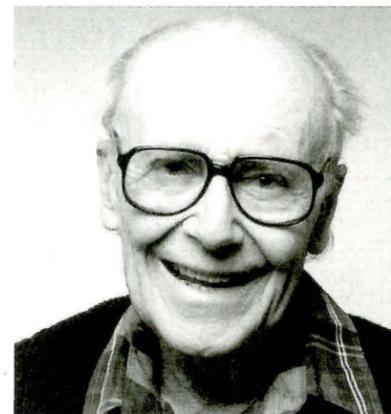
"Caltech is diminished by the loss of this great man who, undaunted by infirmity, almost to the end drove himself around the campus in his cart, asking questions, making suggestions, and still fully contributing to the institution to which he had given so much of his life," Baltimore said.

Born and raised in Chicago, Davidson earned a bachelor's degree at the University of Chicago in 1937, and attended Oxford as a Rhodes Scholar before returning to Chicago, where he received his PhD in chemistry in 1941. During World War II, he worked at USC for the National Defense Research Committee Project and at both Columbia University and the University of Chicago for the Division of War Research. From 1943 to 1945, he worked in the University of Chicago's metallurgical laboratory on the plutonium separation project for the Manhattan Project.

Davidson joined the Caltech faculty as an instructor in 1946. He became professor of chemistry in 1957, executive officer for chemistry in 1967, and Norman Chandler Professor of Chemi-

cal Biology in 1982. He served briefly as interim chair of the biology division in 1989.

Davidson was renowned in the scientific community for developing innovative techniques for bridging the gap between the physical and biological sciences. He pioneered new methods in physical chemistry and electron microscopy, the latter proving especially useful for genetic mapping and exploring the information properties of DNA and RNA.



In 1996, the year he received the National Medal of Science from President Clinton, Davidson was working on new methods for investigating electrical signaling in the nervous system and its relationship to learning and memory formation. He was also a founding member of the advisory council to the Human Genome Project.

Davidson's longtime colleague Henry Lester, who is Bren Professor of Biology at Caltech, noted the importance of Davidson's work in neuroscience since the late 1970s. "Norman made contributions in several important fields," said Lester, who wrote his first paper with Davidson in 1983 and shared laboratory space with him until Davidson's death.

"His laboratory helped define the molecular biology of membrane excitability, including ion channels, transporters, and receptors."

Davidson's many honors include the California Scientist of the Year award (1980), the Robert A. Welch Award in Chemistry (1989), the Dickson Prize for Science (1985), and the Peter Debye Award (1971). He was a member of the National Academy of Sciences for 42 years, a fellow of the American Academy of Arts and Sciences since 1984, and holder of an honorary doctorate from the University of Chicago.

The Caltech professor is survived by his wife, Annemarie Davidson; and the couple's children, Terry Davidson, Lauren Agee, Jeff Davidson, and Brian Davidson; and eight grandchildren.

