The Graduate

A Magazine for Graduate Students

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Poet Kimberly Johnson
Ph.D. 2003

Letter *from the* Dean

Peg Skorpinski photo

Dear Graduate Students, Faculty, and Friends of the Graduate Community,

In this, my third year as Dean of the Graduate Division, I continue to be impressed by the breadth and depth of graduate education at Berkeley and the incredible quality of our students. Nearly all of our 105 graduate programs rank in the very top tier of their disciplines. We award the most doctorates in the nation — 930 last year — as well as a wide range of professional degrees, from law to business to health sciences.

No other university in the world can match Berkeley. Even in anxious times like these, my hope for the future is renewed each time I meet one of our nearly 9,300 impressive young (and sometimes not-so-young) graduate students — some of whom will become world leaders.

Graduate education at Berkeley and its level of excellence have been built on the shoulders of many professors, students, alumni, and friends of the university. Changing to meet changing times, which once happened in stages, years apart, is now a constant in our lives. Particular challenges today are how to improve and increase support for top students, who may receive better offers from universities with larger endowments, and how to house the students who have accepted our offer to come to Berkeley.

The very first graduate student who came to my office two years ago told me that he was living in his car. The then-president of the Graduate Assembly said he was sleeping on a friend's couch. The great economic boom of the latter 1990s had created an unprecedented housing shortage in Berkeley. New housing, we know, cannot be built in a day, yet we have already opened a new apartment residence for graduate students and are well on the way to building as many as 1,000 new spaces for single students. Meanwhile, the rental market has eased somewhat — the silver lining of the economic bust.

The lean budgetary climate makes graduate student support issues both more urgent and more challenging. Our students work very hard. Though most are employed part-time as graduate student instructors and graduate student researchers, they need ample time to focus on their own studies and research. The Chancellor has made graduate fellowships a chief fundraising priority. He realizes that we must ask alumni and friends to help us expand the resources so necessary to recruit and retain the best students. The new campaign to augment fellowships has enjoyed early, noteworthy success. Continuing successes will lay a solid foundation of support for generations to come.

Berkeley is undoubtedly one of the most exciting intellectual centers in the world, but students can sometimes get lost in its sheer size. We offer services to help students in many vital ways: with financial assistance, training and mentoring for graduate student instructors, workshops on dissertation-writing and grant-writing, language proficiency programs for international students, academic and social support systems for students from diverse backgrounds, and resources for student parents. This summer we are piloting the Summer Institute for Academic and Professional Development, to help students get organized for the next steps after the Ph.D.

We are thriving despite the challenging times. Graduate applications have shot up more than 30 percent in the past two years. Students understand that there is no place like Berkeley. I realized that as well when I first saw the campus 30 years ago. I feel very privileged to be a part of this great institution, and it's a pleasure that, as Dean, I get to share it with so many.

Mary Ann Mason
Dean of the Graduate Division

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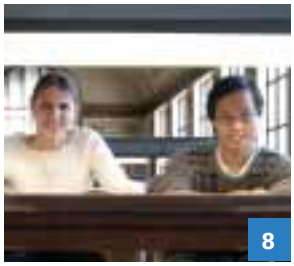
Contents



Trading Spaces: land with a view

By Lisa Harrington

A rustic fence tumbles down a San Diego hillside, separating old from new. On one side, open space. On the other, the first signs of a subdivision. Trees toppled, earth moved, and cul-de-sacs carved out of the land. The scene is a familiar one up and down the state of California — spreading from coast to coast. Soon, the hill will be covered with tidy tract homes, hundreds of them.

"The tract home is rapidly becoming the dominant American residential form, with deep cultural, social, and economic implications," says Wendy Cheng, a second-year graduate student in geography at Berkeley. "These communities seem to rise up overnight on the overgrown fields we played on as children."

Carmel Valley (North San Diego County), California 2002. A white fence cordons off trails meant for residents only; a large sport-utility vehicle, a common sight in this affluent area, is parked in front of a new, Mediterranean-style home. (Wendy Cheng photos)

Last summer, Cheng set off on a cross-country trip to find and photograph tract-home communities, as part of her academic investigation into what they represent to those who live there and those who don't. She wanted to compare newer subdivisions (built in the last ten years) with long established ones (including Levittown, arguably the world's most famous tract home community, which turned a Long Island potato field into 17,000 affordable homes for WWII servicemen and their families in 1947). Her study will produce an exhibit of 16x20-inch or larger color photographs, an accompanying booklet and Web site, and the foundation for her master's thesis.

"Tract-home communities are largely ignored by architects, spurned by educated urbanites, and overlooked and taken for granted in general," theorizes Cheng, whose 2002 odyssey began in the San Diego suburbs where she was raised. By car and plane, she went on to Phoenix, Scottsdale, and Tempe, Arizona; Denver, Colorado; Cleveland, Ohio; New Jersey and New York; Boston, Massachusetts; and Atlanta, Georgia.

During her travels, she found communities with something for almost every budget — modest townhouses for young couples, four-bedroom homes for growing families, and, higher up, executive enclaves with replicas of Tuscan villas, French chateaux, and, in the South, pillared plantation-style mansions.

"The new suburbs, by their omnipresence and sheer number, offer us a lens into the tastes of middle-and upper-class income lives in America — and by their near complete absence in them, the lives of lower-income Americans," she discovered.

Her journey was supported by a Dorothea Lange Fellowship, which Cheng won during her first year of graduate school. Established in 1981 by Paul Taylor, a professor of economics, the fellowship is a memorial to his wife, who was his research partner and one of the 20th century's most accomplished documentary photographers. Lange's portraits of migrant farm workers captured the human effects of the Great Depression and brought about much-needed government assistance programs.

Peg Skorpinski photo

Wendy Cheng

"Taiwan and Japan are two very interesting places to look at side by side because they share so many cultural things...yet the way in which they use space is totally different."

Taipei, Taiwan, 1998 and 1999. An alley behind a temple on Minsheng East Road; an encounter with a three-legged dog. (Wendy Cheng photos)

Tokyo, Japan,1999 and 2001. Shinjuku Central Park; strawberries at a produce market. (Wendy Cheng photos)

The $4,000 prize is awarded each year by the Office of Public Affairs for outstanding work in documentary photography and a creative plan for future work. Cheng was honored for her comparison, 1998 to 2001, of urban space in Taipei, Taiwan and Tokyo, Japan.

"Taiwan and Japan are two very interesting places to look at side by side because they share so many cultural things," notes Cheng. "Yet the way in which they use space is totally different. In Tokyo, everything is planned and there is an aesthetic sense to every open space. By contrast, the landscape in Taipei is more haphazard and random, and not really set up to accommodate the movement of its citizens."

To illustrate her point, in Tokyo she photographed a serene park located in the busy financial district, as well as eye-catching displays of brightly-colored cell phones, perfect strawberries, and beautifully arranged seafood. "Market displays are amazing in Japan," says Cheng. "They make shopping a real pleasure."

In Taipei, her camera found a three-legged dog wandering city streets, people showing their fatigue on a crowded subway train, and neighborhoods where older buildings, and history, are being razed for progress. "Taiwan has changed from a developing country to an industrialized wealthy country within the span of 30 years, if that," explains Cheng. "I was curious to see what happens when a city develops so quickly."

Photography's power and its interactive quality appeal to Cheng. She grew up wanting to become a writer but says she "became frustrated with the writing process and the pressure of having to define things exactly." Then, as an English major at Harvard, she took a course in landscape photography and was exposed to the "New Topographics" movement of the 1970s and photographers Robert Adams and Lewis Baltz, who "looked at everyday landscapes in a way that gave them equal value to what people usual think of as art subjects," says Cheng. "They challenged people to consider all of their surroundings — pretty gardens as well as the parking lot next door — as part of the landscape. When I took this class, all of a sudden it seemed like everything I was interested in and the things that gave me real pleasure came together."

In her latest project, she is focused on America and the rapid trade of farmlands and wilderness for "McMansions" and cookie-cutter landscapes. However, having lived in suburbs, though not in a tract home, Cheng acknowledges that many people welcome subdivisions and the amenities — swim clubs, parks, and convenience malls — that are often included. She doesn't have to travel very far from campus, in any direction, to witness that firsthand.

Forty miles from Berkeley, in Brentwood, a community primarily known for its annual corn festival and farms where you can pick your own fruit, several dozen families camped out recently for a chance to buy into a new subdivision of "affordable homes," priced under $300,000. Weathering two nights of rain, they cooked out and slept in a parking lot, making friends with people who might one day be their neighbors, even planning block parties for the years ahead. ■

Photographs by Wendy Cheng and further information about the Dorothea Lange Fellowship can be found on the UC Berkeley Web (http://www.berkeley.edu/lange/).

Are frogs the new canaries?

By Dick Cortén

You wouldn't think that popeyed, webfooted, slimy-skinned amphibians would have much in common with cute little feathered songbirds — until you remember coal mines, where sensitive canaries served as an early-warning signal for humans by dying first.

Tyrone Hayes didn't start out to employ frogs in a similar fashion. He just liked frogs, and as a kid growing up near Columbia, S.C., he spent as much time as possible in the great Congaree Swamp and other places where they hopped and abounded. And abound they did, much more so than these days.

Back then, amphibians intrigued Hayes so much that he was willing to hit the books for them, excelling in local schools, nailing the SAT, and being accepted as an undergrad at Harvard (the only college he applied to), where he found a career and the woman he would marry, Katharine Kim. Two days after graduating they tied the knot. Their next stop was Berkeley, for graduate degrees (his a Ph.D. in animal endocrinology, hers a combined master's in public health and business).

Kirstie Tweed photo

Tyrone B. Hayes, Associate Professor of Integrative Biology

Frogs, it turns out, are amazingly handy lab animals. Like mice, much of frog physiology is remarkably similar to what humans have. For this reason, both creatures can be stand-ins for humans in basic research on human development and diseases like cancer. Hormones, in particular, act alike in creatures large and small. ("Testosterone is testosterone is testosterone," says Hayes. "The hormone that caused my larynx to develop is the same one that causes development of vocal sacs in frogs.") If something is affecting the development of a frog, it's often possible to watch what happens through the transparent egg case.

Frogs are also relatively easy to raise and handle compared to mice. Most species take up less room than their hairy counterparts, so many more can be housed in the same amount of space. They don't bite, they're less messy, and less susceptiple to airborne diseases carried by humans.

And they're prolific, leaving rabbits in the dust of their dry land habitat. Hayes and his students are able to raise, in the basement of Life Sciences Annex, 40 different species and more than 40,000 individual tadpoles and frogs — a mind-bogglingly rich array to the many scientists whose research is based around rodents.

Frogs live most of their lives in the chemical soup we call water, and their permeable skin allows quicker and deeper access to internal systems than the outer covering of most animals. This feature makes frogs early indicators of toxic pollutants in the environment. DDT and PCBs have long been recognized as dangerous. More recently, the effects of synthetic hormones and substances that mimic hormones have raised large caution flags, and Tyrone Hayes and his student-colleagues have been out in public, helping wave them. Their research leaves them little choice.

A worldwide decline in amphibian populations has puzzled and concerned scientists for more than a decade, partly out of compassion for the creatures themselves and partly because whatever's causing it might also pose some kind of a threat for humankind.

There are theories aplenty, from acid rain onward, but little clear-cut evidence has been available. Hayes and his group, in studies that made international headlines last year, may have found, if not a smoking gun, at least traces of cordite and the presence of one weapon in the locked room.

A widely used weedkiller called atrazine, they showed, has an unintended attribute: it turns male frogs into genetic sideshow freaks, which very definitely limits their reproductive capabilities.

When the Hayes lab crew exposed African clawed frogs in their tadpole stage to minute amounts of atrazine — as low as one-tenth of a part per billion — sexual abnormalities appeared in 20 percent of the frogs in their adult, four-legged, should-be-ready-to-mate phase. Some were hermaphrodites, with ovaries

and testes in one individual. Others had as many as six sex organs each.

Hayes, in all the thousands of frogs he had examined over the years, had never seen abnormalities like these. And this was at a dose 30 times *below* the level the Environmental Protection Agency allows in drinking water.

Every year, Americans spray 150 million pounds of atrazine — a selective systemic herbicide providing "knock-down and residual action" — on lawns, gardens, and crops. It's been used in 80 countries over four decades. Is it showing up in water beyond agricultural sites? The frogs' internal organs say yes.

Tyrone Hayes isn't interested in being an activist, charged with the thrill of manning the barricades. He loves amphibians, his work, and people, in an order that varies, but is deep. However, his data is disturbing, and he couldn't keep quiet about it and live with himself.

His credibility couldn't be much higher. At 35, he is already an internationally recognized researcher in developmental endocrinology and a role model for striking a productive balance between research and teaching.

In 2001, the College of Letters and Science recognized him with its award for distinguished research mentoring of undergraduates. Typically, Hayes advises ten undergraduates and three or four graduate students in his lab. It's a very collegial, informal atmosphere with a sky-high work ethic, long hours, and a fast pace. The productivity that results is not measured only in cages cleaned and experiments completed, but in learning, from the inside, how to become scientists. By their second year, Hayes says, most of his students "participate fully in all aspects of the research. They obtain funding and present their data at professional meetings alongside other scientists — postdoctoral fellows and Ph.D. students — and co-author publications." When students thank him for his mentoring, Hayes tells them, "Whatever you think I've done for you, do for at least one other person during your career."

In April of last year he was one of five faculty honored with the Academic Senate's coveted Distinguished Teaching Award. What Hayes said at that occasion was, "I've been lucky enough to have many distinguished teachers in my career, and I now have enough experience to imitate them well enough to get this recognition."

He surprised his audience by telling them he thought all his teachers "had seemed pretty mean at the time." And his parents made him do his homework, "over and over again" to get it right. "It wasn't about perfection, but about doing the best that you could. Pardon the language, but my dad used to say, 'If you're going to do something half-assed, don't do it at all.'"

Peg Skorpinski photo

Professor Hayes with graduate student Travis Brown examining a Colorado River toad (*Bufo alvarius*).

When he tried to get partial credit for a problem he "almost got right," his high school science teacher, Miss Killoy, would quote her own father, saying "Almost-killed birds don't make soup." Hayes says, "I remember walking away thinking, 'What does that mean?' What it was about was the precision that's required in science."

At Harvard, another "mean guy" was Professor Bruce Waldman, who dashed Hayes's fun-in-the-sun plans for spring break by asking, about an experiment in progress, "So, are you going to take all the frogs with you, or tell them not to mate until you get back?" Hayes calls this "probably the best spring break I never had, because it's what led me into this career."

His "mean man" at Berkeley was Paul Licht, a professor of integrative biology who also served as dean of the Biological Sciences Division for eight years. "Paul was not just my adviser and a great mentor, but was, and continues to be, my friend. I spend a lot of time in my relationships with my students, trying to make sure I make friends in that way. I maintain long-term relationships with all of them. The only sad thing is that it's temporary, in that the whole point is to move on. So my main goal is not only to get them through successfully and out, but to make sure they have somewhere to go when they leave."

Hayes didn't stake out being a teacher or researcher as a goal, but "I remember, even as an undergraduate, not wondering what I would do, but more wondering how I would get it all done.

"Once you get into a question, it leads to more. I started out in Africa, because I was interested in African bullfrogs, and then I got interested in the differences in growth between males and females. Then I worked with DDT and mouth abnormalities in the species there. And then came back here and worked on pigmentation and coloration, from which we developed a patent. From that we got involved with atrazine. Now we're involved with some rat studies and will probably go on to more mammalian and human health work. The graduate students I work with tend to be very different people, and they bring in new and different ideas. So the problem still is not trying to figure out what to do, just how to get it all done." ■

Tyrone Hayes is one of the surprising number of faculty members who quietly volunteer their time outside of their classrooms and labs to help students succeed. On behalf of graduate students alone, prospective and current, he has been instrumental in providing financial assistance through fellowships and the Graduate Opportunity Program, and has assisted in recruiting and retaining talented minority students in science, math, and engineering through the Berkeley Edge Program.

Investing in Science Futures: the ARCS Foundation

ARCS Scholars include Anne Peattie, Simon Goldsmith, Susan Sprainis, and Darren Hsiung. Not pictured: Jeanne Casstevens, Sacha De'Angeli, Kenneth Easwaran, and Kimberly Foster. (Peg Skorpinski photo)

By Lisa Harrington

When the Russians sent Sputnik I, the world's first artificial satellite, into space on October 4, 1957, they unknowingly launched a women's movement in America which would bring good fortune to higher education — Berkeley in particular — for years to come.

As Sputnik orbited the Earth, propelling the new Space Age and the U.S.-U.S.S.R. space race, it galvanized four women in Los Angeles to do what they could to help the United States reestablish technological leadership.

The following year, fueled by patriotism and idealism, they founded ARCS — Achievement Rewards for College Scientists, a foundation that provides graduate fellowships in the sciences, mathematics, engineering, and medicine.

The women who founded ARCS believed that investing in 'science futures' was the most productive response to what was perceived then as an educational crisis," says Linda Dyer Millard, president of the Northern California chapter of ARCS.

The Northern California chapter, based at the San Francisco Presidio, has given almost $1.5 million to support 286 students at Berkeley.

"Reward is the key word — we are rewarding excellence" says Leslie Miller Schemel, ARCS vice president, whose mother helped found the Northern California chapter in 1972.

Bailey Meyer, who serves with Schemel as vice president, says the chapter's volunteers — 200 women from the Bay Area — have raised almost $10 million in scholarships and fellowships for local universities because "they want to give back to the community."

Kim Polese is a good example. An ARCS Scholar in biophysics at Berkeley in 1983 and now very supportive of ARCS, Polese went on to become a product manager for Sun Microsystems and a major player in the development and marketing of its Java programming language. Named one of Time magazine's Top 25 Most Influential People in America, she is now chairman and chief strategy officer of Marimba, a leading provider of Internet infrastructure management solutions, which she co-founded in 1996. Polese also serves as a leader in outreach programs that encourage women to pursue careers in technology.

To date, over $41.5 million has been distributed by ARCS to colleges and universities throughout the country. With 12 chapters, the foundation remains all women, volunteers who start from scratch each year to raise the funds, of which 100 percent goes into scholarships and fellowships.

In February, ARCS brought donors and university representatives together to celebrate the year's accomplishments and to honor the scholars of 2002–2003 at the annual Scholarship Awards Luncheon. The event, which was held in the Grand Ballroom of the Westin-St. Francis Hotel in San Francisco, began with a procession of scholars, led by the presidents and chancellors of their respective schools — the University of California (Berkeley, Davis, San Francisco, and Santa Cruz), Stanford, University of San Francisco, and San Francisco State.

"I am very proud of our 25-year partnership with ARCS," said UC Berkeley Chancellor Robert M. Berdahl, as he addressed the foundation's members and guests. "The ARCS Foundation is very American in the best sense, demonstrating the volunteer nature of American society. ARCS has been a remarkable contributor to science in our country."

ARCS Scholars

Indeed, the investment in science futures at Berkeley, alone, will broaden our knowledge of how cells communicate (with applications for gene therapy), create new adhesives for

Peg Skorpinski photo

ARCS president Linda Dyer Millard (far left) and vice president Anne-Marie Fowler (far right) chat with scholars Kenneth Easwaran and Darren Hsiung in the Morrison Reading Room of the University Library at the Graduate Fellowship Reception in April.

complicated surgical procedures, make automobiles more fuel-efficient, develop unmanned aerial and land vehicles, and spur the computer industry forward.

Kimberly Foster, a doctoral student in biophysics, is studying protein-protein interfaces which are frequently formed as a means of inter-and intra-cellular communications. She's interested in the energetic components necessary for forming a stable and unique protein-protein interface and is designing computational models to describe them.

Chemical engineering student Sacha De'Angeli is working on developing new materials and techniques to manufacture inexpensive catalysts for fuel cells used in automobiles. Last year he worked in the advanced materials lab at Sandia National Laboratories.

Computer programmers will benefit from Simon Goldsmith's research. He studied computer science at Carnegie Mellon and interned at Apple Computer before coming to Berkeley to work with Alex Aiken and the Open Source Quality Project. Here, he hopes to learn more about programming language design, to create tools to make programming easier and less error-prone.

Darren Hsiung's research will bring improvements in high-tech industries. The experience he gained with optical fibers, solid state laser systems, and vacuum technologies at MIT brought him to Berkeley to learn about semiconductor microfabrication techniques and to do work in vapor cell nonlinear and quantum optics.

Technical problem solving and applied research appeal to Jeanne Casstevens, which is why she came to Berkeley to work in the Nanoscience Research Laboratory. As an undergraduate at the University of Texas, she interned for the Ford Motor Company in the rack and pinion power steering systems design group and also with the Explosives Projects and Diagnostics Group at Sandia National Laboratories.

Kenneth Easwaran's interests may seem eclectic, yet he's finding many connections between them. Easwaran earned degrees in music, philosophy, and mathematics at Stanford. He chose Berkeley's doctoral program in logic and the methodology of science over graduate programs elsewhere, because here he will be able to continue interdisciplinary explorations.

"Fortunately, my fellowship has freed me from the teaching burden that many students have in their first and second years," says Easwaran. "It's allowed me to take several classes directly connected to my program and to audit classes that are slightly further afield, but which contribute to my primary areas of study."

The graduate work of Anne Peattie, of integrative biology, and Susan Sprainis, of mechanical engineering, will help scientists create robots that can be used for search and rescue and other situations where human life would be put at risk. It would be risky, however, to put their research subjects side by side.

You see, Peattie is studying animal locomotion and its evolutionary history. Over the last three years she's been involved in a collaborative investigation to determine how geckos are able to walk across ceilings as easily as they walk across floors. (See story above.)

In another lab on campus, Sprainis is analyzing the courtship pattern of fruit flies, a pattern that she says is always exactly the same. She's fascinated from a controls engineering perspective (whereas geckos would see lunch). A former graduate student instructor for an introductory course in mechanical engineering, she enjoys teaching and hopes to become a professor after earning her Ph.D.

As she congratulated the ARCS Scholars for their achievements so far, Millard told them, "You represent our hopes for a future filled with the kind of discoveries and innovations that will lead to a greater understanding of our world and be of benefit to mankind. We are proud of our association with you, and we want to follow your careers." ■

Gecko tape

Like Fred Astaire in *Royal Wedding*, a gecko can defy gravity and scoot up a wall, across the ceiling, and down again just as easily as it can walk on level surfaces. How does it do it? With suction cups? Sticky secretions? Tricky camera angles? According to **Anne Peattie,** geckos have "dry" feet that happen to be covered with millions of tiny hairs, called setae, arranged geometrically to produce dry adhesion. Geckos, by the way, can stick to any surface, with the exception of Teflon ("the anti-Gecko," says Peattie).

Peg Skorpinski photo

Peattie began studying gecko adhesion as an undergraduate researcher in the Autumn Lab at Lewis & Clark College. Today, she works in the PolyPEDAL (Performance, Energetics, and Dynamics of Animal Locomotion) Lab on the Berkeley campus, studying the evolution and function of the adhesive feet of geckos and spiders, under the supervision of Professor Robert Full. In the lab, researchers use tiny treadmills, platforms, and high-speed video cameras to explore, measure, and explain the motion of a variety of crawling critters. Their research findings have provided engineers with information to design robots adept at navigating rough terrain. In fact, the lab's colleagues at iRobot are currently working on gecko robots that will climb walls (stay tuned, says Peattie).

Peattie hopes that her research on geckos will help develop dry adhesives that can be used for surgical procedures involving internal organs, as well as adhesives for delicate semiconductor assembly. "Self-cleaning dry adhesives are extremely strong per area and have low detachment forces," says Peattie. "Unlike many sticky tapes that are difficult to remove once in place, gecko tape is strong when attached but easily removed because of its orientation dependency."

Her research achievements have earned Peattie several coveted awards, including the Achievement Rewards for College Scientists Fellowship (2001–2003) and a National Science Foundation Graduate Research Fellowship (2003–2006). —LH

Spotlight on Engineering

When you want power at Berkeley, it's extremely logical to think of engineers. In its less urban days, literally the only electric power for the campus was generated in the engineering lab, carried by wires strung from poles to a series of arc lamps. These days, the College of Engineering's 246 engineering faculty members, assisted by 1,300 graduate student instructors and researchers, are responsible for educating more than 4,000 students.

Today, the College of Engineering is composed of seven departments (several undreamed of in the previous century) — bioengineering, civil and environmental engineering, electrical engineering and computer sciences, industrial engineering and operations research, materials sciences and engineering, mechanical engineering, and nuclear engineering, and five organized research units. Berkeley engineering students and alumni come from, and work in, every country on the globe.

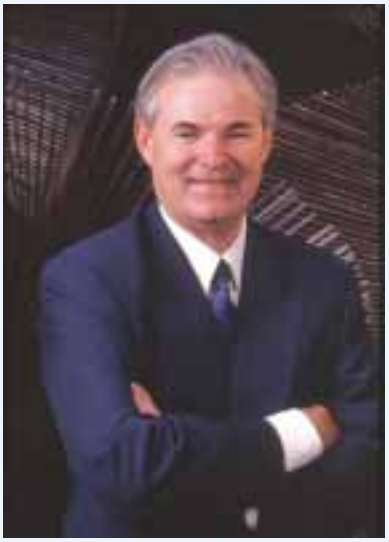
The dean is A. Richard Newton, himself an alumnus who earned his Ph.D. degree here in 1978 and joined the faculty the following year as a researcher and teacher in the areas of design technology, electronic system architecture, and integrated circuit design. He came to Berkeley almost inadvertently, but, a quarter of a century later, is proud of his college's illustrious past, and is a strong advocate for fundamental changes that will keep engineering at Berkeley where it has been so often in its history: well ahead of the pack.

Arnold Yip photo

A dean's journey:
Richard Newton looks ahead

By Dick Cortén

How did you happen to come to Berkeley — and eventually become dean?
I was an undergraduate at the University of Melbourne in Australia when my journey to Berkeley first began. I was a member of the student astronomical society, and we used to use the university computer for plotting the orbits of weather satellites. One day I was at the computer center working on the program and heard this gentleman with a strong American accent cursing. I looked over and saw a man looking over a big box of the punched cards we used in those days. I said, "Can I help you?" I happened to know how to do what he was trying to do, and so I fixed the problem for him.


Bruce Cook photo

It turned out this gentleman was Professor Don Pederson from Berkeley, who would come over to Australia occasionally with his wife, and he'd sometimes spend time at Melbourne University. He was working on a very early version of his program called SPICE, without doubt the most successful program ever in the history of the electronic design automation industry. A version of SPICE is still used today, 30 years after it was first created, in virtually every company doing chip design in the world.

Don offered me a research assistantship if I wanted to come to Berkeley for my Ph.D. I couldn't think of anything better to do at the time, so I came over, not knowing who he really was or how important he was in the world, or even how significant Berkeley's reputation was. I just liked the man and enjoyed working with him. So I took the risk and came over and, lo and behold, found out that Don was probably the most well known researcher ever in this field, one of the most distinguished faculty members ever at Berkeley.

What was your graduate student experience like?
I came as a reasonably inquisitive kid, but with a very narrow view of the world, and what Berkeley gave me, and what my faculty adviser and mentor, Don Pederson, really presented me with was just lots of opportunities and challenges. He gave me a lot of rope — I could have hung myself if I went too far. But he'd always step in and help me. And he personally created many of those opportunities. Let me give you one example.

In 1975, he arranged for me to spend the summer working for Hewlett-Packard in Colorado, trying to speed up a circuit simulator that ran on programmable desktop calculators — before we had workstations or PCs. "He said, 'Rich, I told them you could speed the program up — by an order of magnitude by the end of the summer,' a challenge that intimidated the heck out of me! I worked day and night that summer, but I eventually did it. He somehow knew I could, even if I wasn't so sure. And I came back a different person, feeling a lot more self-confident and far more aware of both my strengths and especially of my limitations. I have had many more such opportunities in my time here, and that's what I try to give to my own students now. It's important in a Ph.D. program that you don't prescribe what a student should do. You don't say, "Here's a problem, I think this is the answer, go away and prove it." You must give the students the opportunity to really do it for themselves, to go through their own personal transitions along the way.

'It's alive!' — a gel mends broken hearts


Peg Skorpinski photo

In the western world, diseased hearts cause one-third of all deaths. Even the miracle of transplant surgery can't stem the tide much; spare hearts are in critically short supply.

Two Berkeley materials science engineers — **Professor Kevin Healy** (above) and graduate student **Timothy Kirk** — are well on their way to providing a technical-medical way to reduce that statistic, and the pain and sorrow that go with it.

They're developing an injectable gel, teeming with living cells and bioactive molecules that can be used to rebuild disease-damaged portions of the human heart.

Unlike cells in bone and liver tissue, which can regenerate after damage, Healy says, "Cardiac cells don't proliferate or grow. You have to go to a renewal source to repopulate a damaged area." Healy and Kirk employ those versatile actors, undifferentiated adult stem cells from bone marrow, as their renewal resource. They've bypassed traditional tissue growth methods, involving structures that must be plugged into the body by surgery. With former graduate student **Ranee Stile,** Healy invented a hydrogel that can be injected at room temperature into the damaged area of the heart using a catheter or syringe. "When it hits body temperature," Healy says, "it stiffens and enables the cells to grow."

The gel is a polymer-based matrix that contains biomaterials: growth factors, peptide sequences, and the like, which help direct the stem cells toward becoming new tissue for the heart and connecting blood vessels.

Healy and Kirk have started small, with mice, whose hearts are remarkably like those of humans. Many steps of research lie ahead, but if all goes well, testing on humans could begin in seven years or less.

Kirk is looking forward to the process - and the result: "I'd like to take a research project all the way from basic science to use by clinicians. This research has the promise and the potential to benefit a great number of people." —DC

Conquering the world (It's a good thing)

"Eighty percent of success is showing up," said Woody Allen. Where you show up probably matters, too.

Carla Trujillo has been showing up with great consistency. When students — and her various bosses — have needed her, she's been there for them. "There," for 16 years, was in the College of Engineering's Graduate Academic Diversity program (GrAD). These days, in 2003, she shows up in 316 Sproul Hall as director of the Graduate Opportunity Program.

Arnold Yip photo

The work in both places is similar, as is her commitment to it. She's active in recruiting underrepresented minority students, but tries to "spend the bulk of my time on retention, because it's harder to do and more important." One-on-one, she helps get students through difficult classes and exams, works with them to find grants, scholarships, and fellowships. An educational psychologist by training, she encourages students to talk about problems, listens, and encourages, "so that when they leave my office they feel they can conquer the world."

Dezba Coughlin, a student from East Oakland, had never faced a serious oral exam, and lacked confidence in her skills despite knowing the material, so Trujillo teamed with another graduate student further along in the program and put her on the hot seat in a "mock-orals" setting. Coughlin went on to pass her real exams.

Many underrepresented minority students "come from environments where they're not encouraged to go to grad school," says Trujillo. "And when they come to Berkeley it can be overwhelming, intimidating, and alienating. So having a place to go to for strategic advice, counseling, and mentoring can really make a difference for their survival in school and ultimately earning a degree."

The success of Trujillo's GrAD program can be measured in degrees. Sixty underrepresented minority students earned the Ph.D. in the most recent 11-year period, compared with only 13 in the previous 11 years, giving Berkeley one of the highest rankings of numbers of women and students of color in master's and doctoral engineering programs in the country.

Since GrAD began in 1986, it has increased graduate enrollment 58 percent for women and 460 percent for other underrepresented minorities (African American, Latino, and American Indian). "It really helps that the faculty has come on board and are supporting diversity," Trujillo says. "They're encouraging women and other underrepresented minority students to come here, and they're mentoring them, too. It's like a fever that's caught on, and it's done quite well." Trujillo, who started her new job with the Graduate Division in January, is working with Associate Dean Elaine Kim to achieve similar success in graduate programs campuswide. A tough act to follow, but she's following herself — so it's just part of conquering the world. —DC

I saw taking on the job as dean as an opportunity to give back to this institution and to support the next generation of young faculty, graduate students, and staff, as I have been supported for 25 years, by trying to build upon the strengths we have here and rebuilding the infrastructure, to continue to develop and expand upon our reputation as a national and international treasure.

How would you assay that treasure?

One way is to look at the impact Berkeley research has had on the world. For example, many people don't know that the idea behind the Ground Fault Interrupter, the GFI, was invented at Berkeley, many, many years ago. The GFI is the little button you see in the middle of a power outlet that you have to press — reset — sometimes, and if you happen to touch an appliance like a toaster that has a leakage to ground, the little button pops out and shuts the thing off instantly. It's a Berkeley invention that's saved thousands of lives, because it keeps people from being electrocuted. That's the key role of engineering, applying the physical sciences in ways that ultimately serve the good of society.

Which results in safer mine tunnels, dams, faster and cheaper transportation, earthquake-resistant buildings, and mind-boggling change via computers.

That's right, and also amazing economic value as well. When I was chair of the Department of Electrical Engineering and Computer Science, I did a back-of-the-envelope calculation of the total value that Berkeley students, faculty, and alumni have created, in terms of value to shareholders, and it's roughly a trillion dollars — a thousand billion dollars — that we've created.

For example, two companies started by my own students with technology from Berkeley, are Cadence Design Systems and Synopsys; those two companies alone, founded in the '80s, represent $6 billion of market cap today, even in today's economy, about 10,000 jobs, and about $2 billion a year in software revenue. They're both among the top 25 software companies in the world. And that's just one very small piece of what Berkeley engineers have accomplished.

Our graduates are out there, taking on tasks others think are impossible. For example, John Neerhout '53 is the person most responsible for the successful completion of the Channel Tunnel, the "Chunnel" between England and France. Our graduates are in government service, as well. Floyd Kvamme '59 co-chairs the President's Committee of Advisors on Science and Technology (PCAST).

If you use the Internet, you know about Google, one of the major Web search engines, even if you haven't heard of Eric Schmidt, M.S. '79, Ph.D. '82, who is the CEO. When I was a student, we would often hear the very worn joke promoted by our friends at Stanford: "What does a Berkeley graduate call a Stanford graduate." Answer: "Boss." Well, I'm pleased to say that Google is just one example of where the opposite is true today.

Is Berkeley as enmeshed in Silicon Valley as Stanford, which has the advantage of being even closer?

That depends on how you measure it. Both universities are pioneers, and without either of them the whole industrial revolution we're seeing in Silicon Valley might have happened

elsewhere or very differently. Berkeley produces over a thousand graduating engineers at all levels each year. Stanford produces a small fraction of that number, as do most other local schools. Berkeley is a big, complex, diverse public university, and we produce the very best of the best, in large numbers. Many of us believe that the complexity and diversity of our institution are key factors in why we produce such excellent graduates and leaders.

For example, we had the first integrated circuits laboratory of any university anywhere on the planet, also started by Don Pederson in the early '60s. At the time, Berkeley was told that it was impossible for a university to actually implement an integrated circuits lab. But we just didn't believe them, so we did it. That's been the tradition of Berkeley. The SPICE computer program that I mentioned earlier was developed at Berkeley more than 30 years ago, with open source code, so anybody who wanted a copy could get one at no charge. In many engineering disciplines we have found that people respect and appreciate the value that we create far more when we give the ideas away openly than if we license them or try to obtain royalties.

This campus has given the world technologies that are household words in the industry today, known by their acronyms: Berkeley UNIX, RISC computing (jointly with Stanford), and RAID — Redundant Array of Inexpensive Disks — by itself a $28 billion industry last year, providing faster and cheaper data storage. The impact of Berkeley research is huge, and that is what drives our reputation and continues to fuel the engine. The reason that industry wants to work with us is that they know whatever we do will be available to everybody and that our goal will be to maximize the impact of our research.

Sometimes we measure our success through the creation of standards. For example, Professor William Kahan in computer science won the Turing Award, which is sort of the Nobel Prize for computer science, for inventing the IEEE floating point format. More than a trillion dollars worth of computers have been sold using his standard. While he hasn't made a dollar on it, his work's impact on the world is tremendous.

Bill Joy, M.S. '79, for instance, is often referred to as the Edison of our time. While a grad student, he was principal designer of the Berkeley version of UNIX, which became the backbone of the Internet, and he and his co-workers at Berkeley also helped pioneer and promote the "open source" concept. Today, he's chief scientist of Sun Microsystems, and he has been leading their technical strategy since he co-founded that company in 1982.

Is the Silicon Valley a major destination for Berkeley engineering grads?

People thought for a long time that the majority of our graduates went to startups, but the tradition has been that our students have gone into larger companies. IBM, HP, and Intel have more of our graduates today than any other companies, largely because EECS is 40 percent of our college today and therefore produces a very large percentage of our graduates.

For much of our history, civil engineering played that role. We have many key people at Bechtel Engineering, for example.

He gave up school for 40 winks

Bart Nagel photo

You can't predict what someone will do with a Berkeley degree, especially one in mechanical engineering.

Rube Goldberg, a 1904 grad, used his technical training to lampoon, in vastly popular cartoons, humanity's tendency toward absurdly complicated solutions to simple problems, along the way earning a Pulitzer prize and entering the English language as an adjective.

Following that tradition, with a modern twist, is alumnus **Oren Jacob,** M.S. '95.

Whereas Goldberg always wanted to draw, he majored in mechanical engineering to please and appease his father.

Oren Jacob, however, chose the major because it wasn't computer science, which would have been both too easy, with his particular aptitude — and a possible source of burnout. He was already doing computer science in his outside job for Pixar Animation Studios; day and night every day would have been too much.

Computer animation became Jacob's walk of life when he was 16 and saw Pixar's seminar short, *Luxo, Jr.* His decision to study at Berkeley was made, in part, on its proximity to Pixar, where he vowed he would someday work.

He got a summer internship there between his freshman and sophomore years, worked for free when it was over, then was hired full time — all while he was still an undergrad, and he kept wearing both hats "through my master's," he says, "then stopped. I needed some sleep."

Once out of school, his work grew beyond award-winning commercials. He contributed lighting and special effects for the chase sequence at the end of *Toy Story,* helped assemble the opening of *A Bug's Life,* and was the special effects supervisor for *Toy Story 2,* which won a Golden Globe award as best picture — comedy/musical in 2000.

His training in fluid dynamics came in handy on his latest project as supervising technical director for Pixar's *Finding Nemo,* this summer's mega-hit. The production, starring animated fish, involves "fully 3-D water simulation," Jacob says. No equations "completely define how splashing water moves and looks," but his engineering background helped him make it look real. —DC

Finding Nemo image courtesy of Pixar Animation Studios

The environmental engineers are starting to show their strength now; the bioengineers are the next generation, and this year materials science and engineering is drawing fantastic students, primarily through their nanoengineering initiatives.

What are your priorities for the College of Engineering?
Rebuilding the infrastructure as a way to protect and enhance the college as an international treasure — raising funds and support from many sources — state, private gifts, industry — to provide offices, labs, and social spaces for our students, and a high-quality staff that will let faculty spend time on being great teachers and great researchers.

Finding ways to provide scholarships and fellowships for our students is also a high priority. I am very concerned that university fees and the cost of living in the Bay Area are affecting the demographics of the student population we have at Berkeley, as well as making it impossible for many parents, even if they're relatively well off, to send their talented children here.

Maintaining our diversity is a large, ongoing challenge. Diversity, in all its forms, is a large part of the reason we are who we are today; it's a key contributor to our reputation for excellence. When I started as dean three years ago I decided to take on the easiest aspect of this challenge first, improving our percentage of women students and faculty in the college. I'm very proud of the fact that today we have the highest percentage of women students in the history of the college, across our undergraduate and graduate programs. And in the last two years, for 11 available faculty positions, we've hired five women. With the possible exception of MIT, we have more women faculty in engineering, as a percentage, than any other major research university in the nation.

"Maintaining our diversity is a large, ongoing challenge. Diversity, in all its forms, is a large part of the reason we are who we are today; it's a key contributor to our reputation for excellence."

We're working hard to attract some of the very best of the other underrepresented groups in the college, African American and Hispanic students in particular. We have effective, pioneering programs to bring talented students here at both the undergraduate and graduate levels. MESA — the Mathematics, Engineering, and Science Achievement program we developed for high school outreach — has become a statewide phenomenon and has been emulated in other states as well.

What are the biggest challenges facing the college?
One, and you'll hear it from every dean, is funding, and this is a huge challenge. Some of the wonderful student programs offered by comparable institutions are things I would do in a heartbeat. For example, Stanford recently put $12 million aside to provide research experiences for undergraduates. We just don't have the same tradition of giving that Stanford has today, and so we just don't have the funds to do things like that. A major priority is to work with development staff to create a stronger tradition of giving, to encourage our friends and alumni to help, and to work with foundations so they understand the impact that every dollar of support has on the next generation of national and global engineering leadership.

Another challenge today is communication. One of the projects I undertook when I came in as dean was to develop a master plan for the college. The bottom line is that we should have a core infrastructure dedicated to multidisciplinary engineering education and research, where we break down the barriers between the "stovepipes" of the engineering disciplines and integrate people from many disciplines together, not only from the college but also from outside the college. This emphasis represents a major transition for engineering as a discipline. The faculty is very excited about it, but because it means working in different ways, outside of their own groups, a lot of open discussion and debate is necessary.

I'm pushing very hard right now to create a new water institute on the campus. Water's going to be our next big challenge in the state and beyond. Drinking water is more expensive than gasoline in most parts of the world today. In fact, in most large cities, a minimum of 50 to 70 percent of their water leaks away before it reaches the consumer. If we could detect that and correct it, we could halve the price of water right there. That's a huge challenge, interdisciplinary, involving public policy, natural resources, engineering — people across the entire campus.

Another opportunity for us is nano — nanosciences and nanoengineering. We have so many of the world's great scientists and one of the best engineering colleges. Berkeley is perfectly positioned for cross-disciplinary activities.

The CITRIS initiative — Center for Information Technology Research in the Interest of Society — is the first phase of our master plan and a perfect example of the way we want to work. One of four California institutes for science and information, CITRIS was created through the vision of Governor Gray Davis and the entire California legislature. Nearly a third of the faculty involved in CITRIS are from outside engineering, so it's significantly interdisciplinary. We have $60 million committed from industrial sponsors to support CITRIS research over the next four years. All the research we do is being published and licensed so that anybody in the world, not just the sponsor, is freely open to use it.

CITRIS has already been the genesis for amazing innovations, such as the mechanical flying insect or "Robofly," which may be used for search-and-rescue work or reconnaissance. CITRIS is a partnership between UC, the state, industry, and private donors to harness the potential of information technology to solve society's most critical needs, and you'll be hearing a lot about it in the near future.

What do you think the College of Engineering will be like ten years from now?

By then we'll have our CITRIS building constructed, with a new microfabrication lab where we'll be extending our work to materials other than silicon, in particular organic semiconductors. That promises to allow us to build circuits much less expensively than the chips made today in Silicon Valley.

We'll have a new interdisciplinary core in the college, and we'll be talking about the applications of technology in society and in the world in many ways that we've never done before. I think we'll have a renewed sense of responsibility for society in evolving many of these new technologies, especially for those in the world who have far fewer opportunities than we have — the global poor.

The nanosciences and nanoengineering are already allowing us to look at the world on a very, very small scale, and we'll be simulating molecules and biosystems, to make membranes for biomedical use and inexpensive, low-pollution energy production, for example.

For me, the beauty of it all is that some of the most basic and fundamental problems faced by the world today — energy, health care, water, transportation, the environment, and so on — are going to be solved using some of the most sophisticated technologies, and at incredibly low costs. I think it's going to be truly wonderful to be able to look back and say, wow, we were able to put the pieces together that allowed all that to happen. ■

Engineers honor four of their own

Peg Skorpinski photo

Outstanding Young Leader Award recipient Valerie Taylor (holding plaque) shared her elation with husband Jacques Richard (on her right) and friends from her Berkeley years, including Professor and EECS Chair Shankar Sastry (right).

Thoroughly different as individuals, they share a great deal — all successful professionally, all public-spirited, and, one evening in mid-November, all handed honors by their peers in the Berkeley Engineering Alumni Society.

Valerie E. Taylor, who earned her Ph.D. in electrical engineering and computer science in 1991, received the society's first recognition as Outstanding Young Leader. Her research in improving performance in parallel and distributed computing applications is making a major impact on the disciplines of cosmologic, molecular dynamics, and high energy physics. She places equal importance on building societal bridges across the "digital divide" between technological haves and have-nots. Taylor is a founder of the Institute of African-American E-Culture. She has taught math and science in a Chicago housing project, judged science fairs, and encourages women and minority students to study engineering. After teaching at Northwestern University since 1991, she moved to Texas A&M University at the end of last year to head the computer science department.

Three other distinguished engineers received alumni awards for lifetime achievements:

George Leitman earned his Ph.D. in engineering science in 1956 and promptly joined the Berkeley faculty, becoming a full professor of mechanical engineering in 1963, now emeritus. While seeking his Ph.D., he worked as a physicist at the U.S. Naval Ordnance Test Station at China Lake, California, where he wrote the first proposal for a U.S. satellite. During the troubled Vietnam years from 1968 to 1970, he acted as a bridge between students and the administration as the first Ombudsman on any UC campus. A recipient of the Berkeley Citation, he is still active on campus as director of international programs. Known as the father of modern geometric optimal control and game theory, he has been a mentor to more than 100 postdocs who now hold important positions around the world in academia, government, and industry.

Robert S. Pepper earned his Ph.D. in electrical engineering in 1961, on the strength of which he was invited to join the faculty, where he remained until private industry lured him away. At Sprague Electric, he developed the ignition trigger for the rocket motor that allowed the Apollo 11 lunar excursion module to lift off from the surface of the moon. His group also etched for NASA the permanent messages from world leaders on silicon, the "moon wafer" that Neil Armstrong left behind for posterity. Pepper went on to become a leader in the semiconductor industry and built a highly successful company that provided high performance connections to the Internet. His love of speed — motorcycles and power boats — competes with his love of family and the University, the latter demonstrated by helping raise funds to build Soda Hall, establishing a Distinguished Chair in his discipline, and more.

Ted Van Zelst, who graduated in 1944 with a bachelor of applied science degree, is an inventor and a visionary. As a naval officer working for NASA's predecessor at Moffett Field, California, he and a colleague devised a swing-wing design that allowed supersonic aircraft to pass through the sound barrier. In 1948, he co-founded Soiltest Inc., which became the world's largest provider of instruments for testing soil, rock, concrete, and asphalt. These instruments have been used all over the earth and beyond, from the Aswan Dam to the Alaskan Pipeline, and even on the moon. —DC

Peg Skorpinski photo

Distinguished Engineering Alumni Award recipients Robert Pepper (left), Theodore Van Zelst (seated), and George Leitman (right).

Leviathan with a Hook

An interview with Kimberly Johnson

By Lisa Harrington

The road winds slowly through a quiet neighborhood wrapped in tule fog, Mount Diablo looming in the distance. At the stop sign, there's a lane that leads to several apartments clustered beneath redwoods, birch, and weeping willows. In courtyards, swimming pools reflect the sky, and wind chimes murmur from balconies. We are on our way to meet Kimberly Johnson, author of the widely praised *Leviathan with a Hook* (Persea Books, New York), her first collection of poems.

At the top of a second floor landing, a door opens and Johnson steps out to invite us into her home, where we will spend the morning over tea and conversation about her life as a graduate student, scholar, poet, and mother. For the past few years, Johnson has been living in Walnut Creek with her husband, Michael, and their son, Elijah, an inquisitive two-year old who is very fond of books, soon climbing upon his mother's lap with a stack of his favorites.

Born and raised near Salt Lake City, Johnson earned her undergraduate degree in English at the University of Utah and then moved to Ireland "to escape for awhile." She returned to earn an M.A. from the Johns Hopkins Writing Seminars, an M.F.A. from the Iowa Writers' Workshop, and a Ph.D. in English Renaissance Literature at Berkeley, where she has been studying 17th century religious poetry. In May 2003, she filed her dissertation.

Leviathan with a Hook cover illustration, courtesy of Persea Books, New York.

Former Poet Laureate Mark Strand, who became her mentor at Utah, says Johnson's first book "celebrates a world forever ripening into its own generative occasion. Its remarkable lucidity, its seductive energy, its lushness, and its music form a vision in which the real and the transcendental are indistinguishable." He adds, "It is a beautiful book, and an unusual one."

Searching for the roots of language, and fascinated by the chemistry of words, Johnson fuses linguistics, the sciences, and the divine in her poems. Lyrical as they may be, they are not odes to nature. Scratch the surface, and you'll find layers of meaning beneath her rivers, trees, and rocks.

A recipient of Berkeley's Eisner Prize in Poetry, the Merton Prize for Poetry of the Sacred, and the Cook Prize in Poetry, Johnson draws inspiration from the poetry of Andrew Marvell and Gerard Manley Hopkins, the Book of Psalms, and John Milton's "Paradise Lost." Her poems have appeared in numerous magazines and journals, including *The New Yorker, Pequod,* and *The New England Review*.

How do you manage being a mom and a graduate student?
(She laughs.) Well, in some ways it's exhausting. But, in other ways, it's helped me to really focus. It's hard for some people to set down the time to work on their dissertation, but I only have 2 or 3 hours a day when Elijah takes a nap. And so, when those 2 or 3 hours come, that's what I do, and there's no variation. I don't take phone calls, I don't do email, I turn off the world, and I just work.

You've dedicated your book to your husband, Michael, whom you call "my south wind, my wingspan."
Yes, he's a great stabilizer for me. I'm a little mercurial in my personality, and he calms me down and also challenges me. He is very good about pressing me on my assumptions about the work that I'm doing and about the world. So he's a breath of fresh air.

How long have you been married?
Six and a half years.

Where did you meet?
We met at Hopkins. He was in the master's program there as well, in nonfiction.

What was your experience at the Johns Hopkins Writing Seminar?
Well, it was more rigorous than Iowa. I learned a lot about poetry. I learned a lot about criticism. I became a much better writer of academic papers, but there was not a lot of time to just sit down and write poetry. There was not a lot of time to figure out what I was trying to do. But I was very glad that I went because, when I got to Iowa, I already had done a lot of thinking about my poetry project and could sort of step forward in the process, maturing maybe.

How did your work develop at the Iowa Writers' Program?
Iowa was great in that the requirements were very fluid for the master's degree and, more than anything that gave me time to work. I was happy just to have the time to take what I'd learned about poetry and to crystallize my style. I think that a lot of poets, when they begin, are great imitators. You read people that you love and want to write just like them, and so you sort of do. It takes time and effort, I think, to break away from imitating and figure out what elements of style are intrinsic to what you're trying to do.

Your poems often speak about places in your past, for example Utah.
Yes. Utah is a landscape that imprints itself on you in a lot of ways. You can't go through your day without being aware that there's a huge mountain right there or that the air is very dry. You can't drive for very far without getting to a place where nothing is there. That's attractive to me.

Then, why did you decide to go to Ireland, and what did you do there?
I wanted to be dissolute for awhile and it seemed like a pretty good place for that. (She laughs.) I have some family roots there, and I'm sort of a language freak, so the opportunity to learn a new language was appealing to me. I also played music in pubs, and I took a job doing some translations.

In your acknowledgements you thank your family for teaching you the names of things.
Yes, for me, this book is about language and its limitations. I have this passion for language because of the discourse that I inherited. My family's discourse touched a lot on nature, on place names that were important, and on science. Because my dad was a pilot, there were a lot of science conversations in the house. My family taught me that specificity, in what you call something, is important, whether it comes from the formal naming of something, like the constellations, or just knowing the difference between a swale and a valley. Those distinctions are important.


Peg Skorpinski photo

Kim Johnson and her son, Elijah.

Can you talk a little bit about choosing the title for your book, its reference to the Bible?
Sure. After several chapters, Job and his friends have been sitting around and asking, "Why do bad things happen to good people?" They're arguing about that universal paradox. After 40 chapters, God shows up and says, "Listen, you knuckleheads. You don't know anything. You weren't there when I created the world. You don't have the capacity to understand divine things. Can you wrestle with these huge questions? Can you draw out leviathan with a hook, this big sea monster? Can you, with your puny little hook, bring out this massive thing?" So I guess the title is a little hubristic, because I'm asking the same question. Can we, with finite language, reach out to encompass larger, more sublime questions? So I guess the title is my attempt to bring out leviathan with a hook.

And you attempt this in three parts — "Angling," "Electric Life," and "Eastward." What does each one represent?
Well, I like the word "Angling" because, in addition to sort of coming at things from different angles, there's also the sense that you're fishing for something. The first section of the book is where I intended to set up this problem of the attempt to represent accurately. The second section, "Electric Life," is what I think of as the section of the fall. There's failure in the second section.

As when you refer to "seamless electric life" in "The City?"
Yes. That poem was written in Baltimore. I was very unhappy there, because I'm not a city person. So I say, "This city is a cold fire, a flattening lens. In the alley, cicadas sound like frogs, frogs sound like crows, crows leapfrog out of dumpsters like rats, seamless electric life." I was trying to describe a state of consciousness where everything blurs together. If, in my mind, the perfect form of representation is where everything is distinct, then if everything becomes seamless electric life — cicadas sound like frogs, and frogs sound like crows — then there's nothing particular about our contact with them.

And the last section, Eastward?
In Genesis, it said that there was a garden eastward in Eden. So there's this idea that eastward is a place where you can return to something good. Yet, Adam and Eve were cast out of the East Gate of Eden, so "Eastward" is an ambiguous place of return. Is it a promised place, or is it a place where things are less than hopeful?

The cover illustration is beautiful — where did you find it?
It's in the Bancroft Library. I chose it myself. It's from this gorgeous Bible, with illustrations on every other page. The illustrator is Johann Scheuchzer, a 17th century Swiss naturalist. He wrote

a lot of scientific tracts, and he was also an engraver and illustrator.

How did you discover that it was there?
When I was in Iowa, Stephen Jay Gould came and gave a lecture on the fusion of art and science, and he mentioned Scheuchzer and showed slides of his engravings. I emailed him when I got to Berkeley and said, "You did this lecture and I loved these engravings." He emailed back and said that the *Physica Sacra* is in the Bancroft Library at Berkeley, and I've been in there about every four months to gaze at it ever since I got here.

When do you do your writing, and how do you get started?
I write when I'm running.

Really?
I know it sounds very strange to say it, but for me poetry is not in any way autobiographical or personal. It's sort of like a crossword puzzle. I'm sort of turning things around to see how they can fit together. When I run, not only do I have some peace and quiet for a few minutes, there's also this rhythm, a physical rhythm and a pulse that's already taking place. I write maybe half a line at a time, and then I come back and put it on paper and live with it for awhile. Then, maybe a couple of nights later, a little more will happen. Revision gets done when I'm sitting at my kitchen table late at night, but the initial contribution usually happens on the run.

So your poetry isn't necessarily autobiographical?
Right. If there happens to be an event or element that has happened in my life that serves my linguistic ends, fine. But I don't really think of myself as having any responsibility for actual events. There's a school of contemporary poetry called language poetry that is relatively impenetrable. It's all about language, and a lot of my mind is influenced by that or attracted to that school, but when I write it always comes out looking like lyric poetry.

The writing process, for me, is very much about words. I like to know their etymologies. I like to know their history of usage, and I like to have all that available to me. For example, in the 17th century the word "frequent" also meant crowded, and I see no reason why I can't continue to use it like that. I also want to be able to use slang words like "skewampous" and "chump." I want all words to be available to me. So I guess that writing is the process of sitting down with a piece of paper after I have maybe a line or two in my head, making word families, and then finding out how to link them in a particular story or narrative. It's not narrative-driven at all.

Pater Noster

This garden is a miracle.
Aphids dropped with April, gorgeous emeralds
with teeth. They preen against the petals,
distill sweet sap to honeydew.

Down bark, down fencepost, tazzled branches
dart and pull their braiding shadows, a slapstick
of diffraction. Downwind the barnstormers
perfect their spectacle—stiff cloth, wood

prop, 2-cycle engine ascending like a prayer
to flame out, hang breathless, cartwheel
over and power swooping earthward.
It's all for show, the windswept scarf

from forties matinees, the smoky trail,
the drama of the stall. The pilot streaks
to level, tilts a greeting as he buzzes
overhead, milks the throttle, rolls

headlong into a spin, whining, frictive, the form
of glory, and gloriously sunstruck. Seasonal
the ritual, pinching aphids as I kneel
upturned, squinting sunward for the sleek

daredevil flight, for the promise of the climb,
of sunlit wings, of plain things charged
and fulgent, of one perfect
performance, of *earth as it is in heaven.*

—Kimberly Johnson

At what point do you share your work, and with whom do you share it?
That's a good question. At some point I just don't see how I can revise it anymore. It seems to be doing everything that I want it to do. I've taken out all the words that aren't vital. Then I read it to my husband. I may share it with a couple of friends by email, but at this stage I share it with fewer people because I guess I'm trying to figure out where I'm going with the current batch of poems. Once I'm ready to send it to journals for consideration, that's when I know that a poem is done.

How do you work with your publisher?
My editor is my main liaison with my publisher. He's a great reader, and he's a poet himself. He also understands the larger picture — each individual poem has to stand on its own but also contribute to the arc of an argument in the course of a book. He's very good about seeing whether the poems are doing both.

How long did it take to complete the book?
About 6 to 7 years. The oldest poem was written at Hopkins, and the newest one was stuck in just before the book went to the printer. I'm not a fast writer.

In addition to the dissertation, do you have other works in progress?
Yes, I'm translating Virgil's "Georgics," and I'm about halfway through that. I'm also in the process of a second book, which is tentatively called "A Metaphorical God," taken from one of Donne's devotional essays. I'm about a third of the way through it.

What do you want to do after graduate school? Write, teach?
I am going to teach. I can't really extricate doing criticism from doing creative work at this point. The work that I do in my critical study of the Renaissance is informed and moderated by the same questions provoked by my creative work. I can't necessarily stop doing one and keep the other one up. In periods when I've stopped doing academic or creative work, I've stopped writing poetry. There's just nothing to feed it. I've been applying for jobs in academia and in both academic and creative fields, and all the offers I've gotten have given me the option to teach widely, to teach creative and Renaissance, so I hope I'll be able to continue doing both.

What advice do you have for beginning poets?
Read. Read all the time. Read everything you can. Pay attention to words; don't take them for granted. Beginning poets are sometimes very casual with language. They don't realize that this is the medium and that words are all they have. Make sure that you know exactly what words mean, and don't use them casually or without a lot of thought. And *read*, so that you can see how other people have used words successfully in a variety of styles and genres. Make sure that you know what language has been called upon to do and what its possibilities are. ■

Celebrating Chang-Lin Tien

By Dick Cortén

John Blaustein photo

"On October 29, the light that so brilliantly shines from our great University flickered for a moment. One of our brightest leaders and dearest friends had left us. We grieve for him and his family.

Chang-Lin Tien, who served Cal for 42 years as a professor of engineering and as chancellor from 1990 to 1997, was a remarkable man and an exemplary scholar. His boundless love of the University of California was matched only be his devotion to his family and a determination to do what was right. His energy and optimism, his willingness to fight for the principles he cherished, and his loyalty and love for this campus made it a stronger and better place.

To honor Chang-Lin Tien — professor, chancellor, and Golden Bear — there is but one appropriate sign-off, said with spirit, even if accompanied by tears:

Go Bears!"

— Robert M. Berdahl, Chancellor at Berkeley

Howard Ford photo

At the end of last October, the Berkeley campus lost a small man who was, to everyone who encountered him, a giant: Chancellor Chang-Lin Tien.

Chancellor from 1990 to 1997, Tien was almost certainly the most visible chief executive in Berkeley's history — and this may include the ubiquitous Robert Gordon Sproul, who commanded the entire multicampus University of California from his office in California Hall. From that visibility, we are bequeathed pictures that speak directly about Tien's approach to living and working, and about people's reactions to him. Voices accompany these images, to add detail to the portrait of a very complex individual.

Tien's capacity for sheer continuous work, on minimal sleep, was legendary. He was outgoing, effervescent, and seemingly everywhere. He walked the campus not to patrol it but to be available and see it as it was, day to day, firsthand.

He came to the job as a scholar whose pioneering research had earned him a worldwide reputation in mechanical engineering. Along the path, he proved time and again that he was thoughtful and goal-oriented. It took him only two years to earn his master's and doctorate degrees at Princeton. Heading west, he became the youngest, at 24, ever to be appointed to Berkeley's mechanical engineering faculty. Only two years after that he won a Distinguished Teaching Award — the youngest recipient in that honor's history. He made heat transfer and thermal science practically his own branch of mechanical engineering. He designed or consulted on exhaust nozzles for Saturn rocket boosters, insulating tiles for U.S. space shuttles, fire-retardant materials for high-rise buildings, magnetic-levitation trains in Japan, and emergency core-cooling systems for nuclear reactors (in response to the meltdowns at Three Mile Island and Chernobyl).

As chancellor, to the surprise of many, including close colleagues, he championed and reinvigorated intercollegiate athletics, not only with strokes of his pen but with his physical presence at pre-game rallies, striding the sidelines during games, and appearing in the stands without fanfare to root for the Bears in minor sports as well as major ones, cheering on individual women athletes as well as men.

Less surprisingly, Tien believed to his core that Berkeley is not only diverse as well as excellent, but excellent because its students, faculty, and staff are different in so many ways. He stood as a mighty pillar when, bending before the social wind that would blow in as Proposition 209, the Board of Regents voted to end the use of race, ethnicity, or gender in hiring and admissions in the UC system. He publicly and courageously defended affirmative action. Once the Regents made their decision, however, he enforced it as required, but went an extra mile and a half: among other initiatives, he announced the Berkeley Pledge, an ambitious program to help

Peg Skorpinski photos, except where noted.

"IN A PLACE AS BIG and as impersonal as Berkeley, building a sense of community is a difficult task. Chang-Lin did it in part by being everywhere. He walked the campus; he dropped in. I'm told his staff had a special telephone extension just for people to report 'Tien sightings,' so they could try to figure out where he was."

— Carol Christ, vice chancellor and provost under Chancellor Tien, now president of Smith College

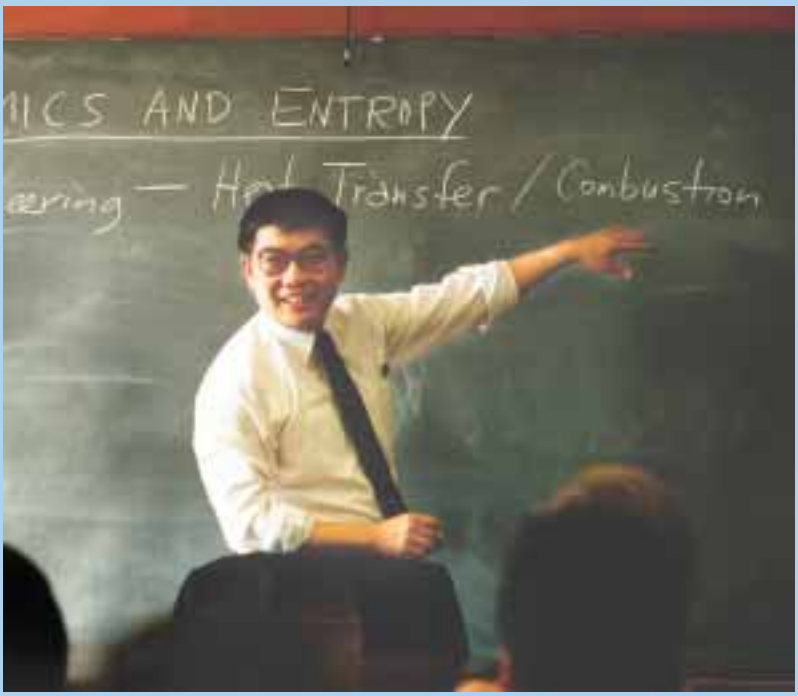
"EACH TIME he presented a new idea in a class, he did it with such a sense of discovery and excitement that you felt as though you were the first ones hearing it. He made topics come to life — even engineering topics! You couldn't help but learn from him. You started out thinking that you were working 'for' Professor Tien, and then developed into a student working 'with' him."

Whenever I think I'm too busy to respond to a colleague or a student, I remember Professor Tien, then Chancellor Tien, returning my calls late at night, ready to advise me with my problems, and they were no doubt very small compared to whatever issues he had dealt with that day."

— Richard Buckius, Class of '72, M.S. '73, Ph.D. '75, one of Tien's graduate students, now chair of the department of mechanical and industrial engineering at the University of Illinois's Urbana-Champaign campus

"ELEVEN YEARS AGO, as my wife and I were helping our freshman son move into his dorm, Tien walked into the room and began to pitch in. My son didn't know who he was, but when he was introduced, he thought it was the epitome of cool that the chancellor would take the time to greet the new kids in that way. None of us will ever forget the gesture."

— Tim Comstock, Class of '68, Sacramento



Below, students crowd around Tien to wish him well upon his retirement.

Chang-Lin saw himself first as a teacher and scholar. — C. D. (Dan) Mote, Jr., Class of '59, M.S. '60, Ph.D. '63

public school students, starting in kindergarten and up through high school, meet UC's eligibility requirements, and personally contributed $10,000 toward its launch. These efforts continue and serve as a model for federal programs.

His never-ignored primary objective, however, was maintaining the excellence of Berkeley's academic programs and its faculty. Staggering state budget cuts shocked the entire UC system, but Tien mitigated their effects at Berkeley. He used astute competition to attract new young faculty stars and retain existing faculty tempted by offers from other universities. In a campaign which raised well over $1 billion, the most ambitious ever undertaken by a public university, he took Berkeley's case to non-state funding sources — alumni, foundations, corporations, and more. Part of his evidence that the campus was an asset worth investing in was its valuation by the National Research Council, which ranked 35 of Berkeley's 36 doctoral programs in the top 10 in the nation, a feat bested by no other institution.

Looking ahead, Tien once said: "Perhaps the most important thing that I would like to be remembered for is that I injected a bit of a human touch on the campus and made it more humane, personal, and caring."

These pages reflect how well his wish came true. ■

Chancellor Tien really loved Berkeley and everyone in the Berkeley "family." — Elaine H. Kim, Associate Dean of the Graduate Division, Professor of Ethnic Studies

"HAVING SERVED as a teaching assistant while pursuing his Ph.D., Chancellor Tien was particularly supportive of the contributions that graduate student instructors make to the educational mission of the University. He also played a key role in the establishment of the GSI Teaching and Resource Center's Language Proficiency Program for international GSIs."

— Linda von Hoene, Ph.D. '02, Director, GSI Teaching and Resource Center

Jane Scherr photo

Tien with outstanding GSIs at the 1993 Teaching Effectiveness Awards reception.

"CHANG-LIN'S POSITION as chancellor and his personal ties with prominent leaders in Asia made him a particularly powerful informal ambassador, especially to Hong Kong, Taiwan, and China. As a trusted and respected leader himself, he was one of the few people who could move across political boundaries and carry messages between governments across the Taiwan Strait. Especially during the latter years of his tenure, he used his personal prestige to broker peace and to take stands for democratic reforms and economic development in the region. The government of Hong Kong awarded Tien its highest award, the Grand Bauhunia Medal, for service to the territory. When we walked down the street in Taipei, it was like walking down a street in Chicago with Michael Jordan. People ran out of shops and restaurants to greet him."

— C. D. (Dan) Mote, Jr., Class of '59, M.S. '60, Ph.D. '63, former Berkeley faculty member and vice chancellor, now president of the University of Maryland.

"CHANG-LIN TIEN was a superstar engineer who won the Distinguished Teaching Award, Chinese accent and all, when he was still a new teacher. Conscientious and collegial, canny and sociable, he was someone about whom people said only positive things. What I found most remarkable about Chancellor Tien was that unlike other powerful and effective leaders, he did not have a big ego. I could see that he cared sincerely and deeply about others, about the collectivity, the community — meaning the university. It was never just about himself. I think that was at the root of his greatness.

Chancellor Tien really loved Berkeley and everyone in the Berkeley "family." Although he didn't know me well, I experienced his warmth and kindness. When my house burned down in 1991, he showed up at a party that students held for me to express his concern and support. When I was offered a position at another university, he asked me to come into his office so that he could talk to me about that offer and about what he knew about that university. He made me feel appreciated and cared about. I had never felt that way about Berkeley before. I am so sorry that he is gone. I don't think I will ever stop missing him.

— Elaine H. Kim, Associate Dean of the Graduate Division, Professor of Ethnic Studies

"AS THE FIRST ASIAN American to lead a prestigious American research university, he was a role model for all of us who are minority. Yet he always insisted that he was no role model, that he was an ordinary person who happened to be blessed with exceptional opportunities."

— Jesús Mena, former director of media relations at Berkeley, now director of communications and public affairs at Harvard University's John F. Kennedy School of Government

Chang-Lin Tien is survived by his wife, Di-Hwa; three children, Norman, Christine, and Phyllis (all graduates of UC Berkeley); and four grandchildren.

Grad Central: news & events

Spring Visit Day

On a clear day, you can see forever from the floor-to-ceiling windows of Pauley Ballroom in the student center on campus. Spring Visit Day, on March 17, 2003, was such a day. Splendid views of green hills, towering redwoods, and the San Francisco Bay helped encourage newly admitted graduate students to choose Berkeley for their graduate education, as did a number of deans, professors, and current graduate students who had turned out to greet them.

Arnold Yip photo

Student discussion panelists Julian Lippman, mechanical engineering, and Dori Takata, English.

"Berkeley is the best university in the world," proclaimed Dean Mary Ann Mason, in her welcome address. "If you decide to come here, you will enjoy the intellectual excitement of a world class university."

Jessica Quindel, president of the Graduate Assembly, offered, among her own reasons for choosing Berkeley, "its legacy of activism," she said. "There are so many opportunities to get involved."

The day began with breakfast and conversation with Berkeley students and faculty from their chosen departments, followed by a student discussion panel. Afterward, there was time to explore the many resources on campus, including the library's Research Services for Graduate Students.

A straw poll indicated that more than half of the visiting students came from colder climes. They laughed and nodded when Carla Trujillo, director of the Graduate Opportunity Program, recalled attending graduate school in the East and Midwest and said, "I learned new phrases that I hadn't heard growing up in California, like 'wind chill factor,' 'blizzard conditions,' 'ice storm,' and 'Can you give my car a jump?'"

Choosing where to pursue a graduate program is an important decision, especially when top schools are competing for you. Jeffrey Reimer, associate dean of the Graduate Division, delivered the keynote speech with that in mind.

"It's very hard to escape excellence at Berkeley," began Reimer, explaining how the highly-charged academic climate on campus invigorates his own research. For example, on occasional walks across campus to his favorite café he often ventures inside the buildings for art and architecture, just to see the work going on there. "Across the campus, you'll find people who are as passionate about their fields as you are about yours," he said.

Reimer also talked about his students, their different backgrounds, learning styles, and how much he has learned from them. For many years a mentor to graduate student instructors in his department, he said teaching is exciting work at Berkeley, as classroom demographics begin more and more to mirror state demographics.

The city of Berkeley, he added, is a place where multiculturalism is part of daily life, where families mix beyond the artificial boundaries of economics and professions. In sum, he said, many things seem possible here.

Bear in Mind

When Chancellor Berdahl interviewed Dean Mason on "Bear in Mind," his radio show, in February 2003, she talked about her goals to increase housing and graduate student support. She also mentioned her ongoing study with Marc Goulden, "Do Babies Matter?" — a look at why women are turning away from tenure track careers. Their initial findings appeared in the November-December 2002 issue of *Academe* (http://www.aaup.org/publications/Academe/02nd/02ndmas.htm). If you missed it, you can replay the broadcast on the "Bear in Mind" Web site (http://www.berkeley.edu/news/chancellor/bim/).

Bonnie Powell photo

Web Award

The Graduate Division Web Site (http://www.grad.berkeley.edu) received an Award of Excellence in Electronic Media from the University & College Designers Association (UCDA) last fall. The site was redesigned by a team that included Lisa Harrington, director of Graduate Communications and Events; Web administrator Arnold Yip; Web developer Patrick McMahon; and former senior writer Elizabeth Babalis.

Summer Institute

In summer 2003, the Graduate Division piloted a new Summer Institute for Academic and Professional Development, to enable graduate students to excel in all aspects of academic life as they make the transition from graduate school to future academic and nonacademic careers. During the six-week program, Institute Fellows took the core course (*From Graduate Student to Faculty Member)*, co-taught by Linda von Hoene, director of the GSI Teaching and Resource Center, and Sabrina Soracco, head of the Grant Proposal Advising and Outreach Program. Fellows also chose a second course (either *Academic and Professional Writing* or *Developing a Teaching Portfolio)*.

Graduate Council Lectures

Comets and the solar wind, moral philosophy, clocks and chaos, and psychological anthropology were the subjects of distinguished lectures by astronomer Alexander Dalgarno, legal scholar Ronald M. Dworkin, mathematician Dr. David Mumford, and anthropologist Gananath Obeyesekere, on campus in 2002–2003. If you missed the chance to see them in person, you can hear their lectures on the UCTV Web site (http://www.uctv.tv/schedule.asp). Lectures in 2003–2004 will bring legal scholar Harold Koh, geneticist Richard Lewontin, historian Carlo Ginzburg, and others to

campus. For more information, please visit the Graduate Council Lectures Web site (http://www.grad.berkeley.edu/lectures).

AIGP Fall Speaker Series

Representations of Native Americans in the media as well as in museums, herbal medicines, and healing were just some of the topics covered in a series of lectures sponsored by the American Indian Graduate Program, Graduate Assembly, and Graduate Division last fall. Speakers included Winona LaDuke, a Native American environmental activist; Cristina Azocar, director of the Center for Integration and Improvement of Journalism at San Francisco State University; Jack Forbes, professor emeritus and former chair of the Native American Studies department at UC Davis; Charles Garcia, director of the California School of Traditional Hispanic Herbalism; and Robin De Lugan, a Cherokee, Choctaw, and Shawnee doctoral student in anthropology.

A college behind bars

A story, which ran in the *Berkeleyan* in January 2003 (http://www.berkeley.edu/news/berkeleyan/2003/01/15_sanq.html), about the San Quentin Prison College Program, generated a flood of response from the campus and far beyond. Many readers offered to volunteer as teachers or to contribute money to the program, which is led by Jody Lewen, who completed her Ph.D. in December. The response was so overwhelming that Lewen scheduled extra training sessions for volunteers.

Lewen taught communications, composition, critical thinking, and literature at San Quentin for two years before she became head of the program in 2000. She received a Chancellor's Community Service Award in 2002 for her efforts to keep the programs going. Lewen is one of 60 people from throughout the Bay Area — most of them graduate students — who teach college-level classes at San Quentin. The two-year associate's degree program, accredited by Patten College, a Christian college located in Oakland, has for a number of years been the sole onsite degree-granting program at any of California's 33 state prisons. Since its inception in 1996 (around the same time that Congress banned federal tuition-assistance to prisoners and California ended public funding for higher education in state prisons), it has been kept alive entirely by volunteers. The program runs year-round and offers12 classes per semester — fall, spring, and summer — to approximately 140 prisoners.

Lewen first learned about the program the way most volunteers do, through word of mouth. "I knew it was a good idea to provide education to inmates," she recalls, "but I wasn't sure I wanted to go into a prison." Once inside, she overcame her initial wariness. "The students are extraordinarily motivated," she says, "and this makes them a pleasure to work with. For teachers — especially those who wish their professional work had more of a direct political impact — this is a dream job."

2003 Distinguished Teaching Awards

Peg Skorpinski photo

The Committee on Teaching selected three recipients for the Distinguished Teaching Award in 2003: (left to right) Jeffrey Reimer, a professor of chemical engineering, and an associate dean in the Graduate Division; Glynda Hull, a professor of education; and Martha Olney, an adjunct professor of economics. The award, which has been given annually since 1959, recognizes and encourages excellence in teaching at UC Berkeley. Awards were presented during ceremonies on April 29 at Zellerbach Playhouse.

Gates Cambridge Scholarships

Simon Grote, a doctoral student in history, has won a Gates Cambridge Scholarship, allowing him to earn a graduate degree at Cambridge University in England. The scholarships were established three years ago by the Bill and Melinda Gates Foundation. At Cambridge, Grote will pursue a master's degree combining his interests in the intellectual history of late antiquity with 17th and 18th century intellectual history.

Paul & Daisy Soros Fellowships for New Americans

Gerardo Vildostegui, a doctoral student in philosophy, has won a two-year fellowship from the Paul and Daisy Soros Foundation. The fellowships were established in recognition of the contributions that new American citizens have made to American life — and in gratitude for the opportunities that the United States afforded the donors and their family.

Vildostegui was born in Miami to a family originally from Cuba. He received his B.A. in Philosophy from Yale University in 1996, where he graduated summa cum laude and was elected to Phi Beta Kappa after his junior year. He received his J.D. from Yale Law School in 2000, where he was editor-in-chief of the Yale Law Journal. As a Luce Foundation scholar, he worked in Japan at the International Movement Against All Forms of Discrimination and Racism (IMADR) and at the University of Tokyo. He also worked in Puerto Rico, helping to write a federally-mandated report on prison conditions; at the Office of the Legal Adviser in the State Department; in Costa Rica at the Center for Justice and International Law; and in Chile with Chilean law students. ■

By Lisa Harrington

If you have news or announcements to share with the graduate community at UC Berkeley, please email The Graduate (gradpub@uclink.berkeley.edu).

California Alumni Association President

Nadesan Permaul '72, MA '73, Ph.D. '90, took the top chair as president of the California Alumni Association on July 1, 2003. A lecturer in rhetoric and political science, he has been director of transportation on the Berkeley campus since 1992. In the photo above, he and Dean Mary Ann Mason got together on March 7 at the alumni association's annual Charter Day Banquet to help honor attorney, former state legislator, and former UC Regent William Bagley '49, JD '52, as the association's Alumnus of the Year.

Kristen Loken photo

Fred Cody Award

Ronald Takaki, Ph.D. '67, received the 2002 Fred Cody Award for lifetime literary achievement and service to the community in April. The award is named after the founder and proprietor of Cody's Books in Berkeley and is given annually by the Bay Area Book Reviewers Association. Past winners have included Berkeley faculty members Ishmael Reed, Maxine Hong Kingston, and Robert Hass.

Photo courtesy of Ronald Takaki

A professor of Asian American studies, Takaki helped found Berkeley's doctoral program in ethnic studies, which was established in 1984 and was the first of its kind in the country. He also played a key role in developing the American cultures requirement, which requires all Berkeley undergraduates to complete a course designed to broaden their understanding of racial and ethnic diversity.

Takaki has authored 11 books, including the critically acclaimed *Iron Cages: Race and Culture in 19th Century America* (1979) and *Strangers from a Different Shore: a History of Asian Americans* (1989). His latest project is a television miniseries based on his book, *A Different Mirror: A History of Multicultural America* (1993), which was hailed by *Publishers Weekly* as "a brilliant revisionist history of America that is likely to become a classic of multicultural studies."

First Chancellor, UC Merced

The newest campus in the UC system will be led by Carol Tomlinson-Keasey, Ph.D. '64, the first chancellor of UC Merced. She has served the University of California as a faculty member at UC Riverside; vice provost for academic planning and personnel and dean of the College of Letters and Science at UC Davis; and vice provost for academic initiatives at the UC Office of the President. Most recently, Tomlinson-Keasey helped launch the California Virtual University and was instrumental in developing the UC Center in Washington. Her scholarly works include books and articles on cognitive development, gifted children, and the career development of women.

Roger J. Wyan photo

Nobel Prize in Economics

Daniel Kahneman, Ph.D. '61, who taught psychology at Berkeley from 1986 to 1994, received the 2002 Nobel Prize for Economics. Currently a professor at Princeton, Kahneman was cited for integrating psychological research into economic science. His work is "social science at its best," said George Breslauer, dean of the social sciences at Berkeley. "Fundamentally, he's been interested in figuring out how people really think — how they go about figuring out the odds, deciding whether something is worth the risk." ■

Photo courtesy of Princeton University

Public health heroes

Indian health activist Gordon Belcourt, MPH '80, received a Public Health Heroes Award from UC Berkeley's School of Public Health. The awards recognize individuals and organizations for their significant contributions and exceptional commitment to promoting and protecting the health of the human population. At the awards ceremony last March, Native American graduate students in the School of Public Health surprised Belcourt with a blanket in the Native American morning star design. The students included Larry Murillo, Karen Garcia, and Clay Akiwenzie.

Peg Skorpinski photo

Public Heroes recipients (left to right) Gordon Belcourt, Ela Bhatt, Martha Ryan, and Lester Breslow.

Belcourt was born and raised on the Blackfeet Indian Reservation. He serves as the executive director of the Montana-Wyoming Tribal Leaders Council and Area Indian Health Board, where he addresses issues affecting all aspects of health on behalf of reservation people. A past executive director and continuing board member of the National Indian Health Board, he advocates on behalf of 556 federally recognized tribes in 36 states.

In the 1970s, Belcourt became nationally recognized as an expert in the field of American Indian alcoholism. As national field director for the American Indian Commission on Alcoholism and Drug Abuse, he visited *every* American Indian reservation, community, and enclave to assist in developing alcoholism and substance abuse prevention programs.

The 2003 Public Heroes recipients also included Ela Bhatt, founder of India's largest trade union; Lester Breslow, professor emeritus, UCLA School of Public Health; and Martha A. Ryan, on behalf of the Homeless Prenatal Program in San Francisco.