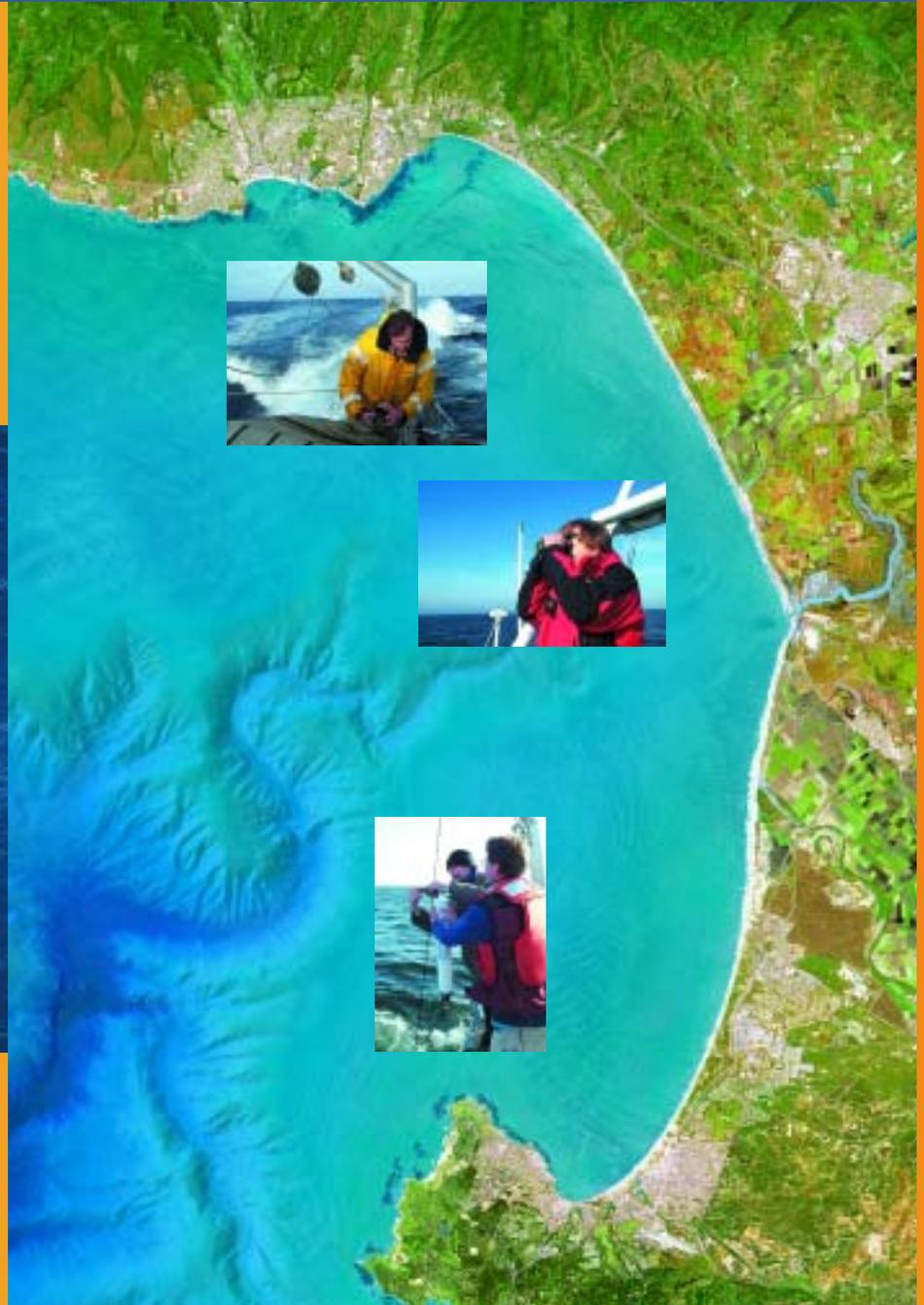


# UC SANTA CRUZ

## R E V I E W

*What attracts blue whales, the largest animals ever to inhabit the Earth, to Monterey Bay?*



*The answer begins with the wind (see page 8).*

Also in this issue: UCSC in the year 2010, students help nonprofits get “wired,” a post-9/11 language program

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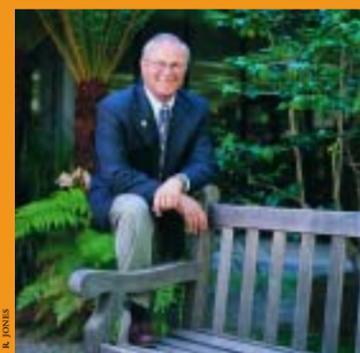
Satellite composite image of Monterey Bay:  
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JOHN CALAMORIKIDIS



R. R. JONES



R. R. JONES

UCSC researchers are beginning to understand what makes the Monterey Bay such a fertile marine ecosystem—with productive fisheries and an abundance of whales, dolphins, and other forms of marine life.

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## Dear Friends of UC Santa Cruz,

FAT LUX! "LET THERE BE LIGHT," the motto for the University of California, is the guiding ideal for UC Santa Cruz. At no time in recent history have the importance and global consequences of education been more appreciated. UC Santa Cruz is steadfast in its commitment to promote the values and principles of education and research. In this issue of *Review* magazine, you will find examples of the myriad ways that faculty, staff, alumni, students, and volunteers indeed illuminate the past, shape the present, and invent the future.

Understanding the mysteries of the ocean and applying this new knowledge to protect it. Inspiring wider understanding of other languages and cultures. Offering opportunity for our brightest young scholars. Animating the human spirit through the arts. Preserving and transmitting the insights of literature. These are only a sampling of the ways that UC Santa Cruz honors the public's trust to enlighten our society through research, teaching, and service. I invite you to share my pride in the accomplishments that distinguish UC Santa Cruz.

As a public university, UC Santa Cruz receives support from the state of California. However, only about 40 percent of our annual operating cost is derived from state funds. California's current economic downturn will most certainly result in budget cuts at UC Santa Cruz. Now, more than ever, our



R. R. JONES

**As a public university, UC Santa Cruz receives support from the state of California. However, only about 40 percent of our annual operating cost is derived from state funds. California's current economic downturn will most certainly result in budget cuts at UC Santa Cruz. Now, more than ever, our campus must rely on other sources to provide the balance of our funding.**

campus must rely on other sources to provide the balance of our funding.

Private philanthropy from foundations, alumni, parents, and other friends is critical to UC Santa Cruz's success. These gifts fund scholarships and graduate fellowships, support world-changing research, and provide the classrooms, laboratories, and other learning environments in which our students prepare for the future.

This year, the campus received its largest gift from an alumnus to launch the STEPS Institute for Innovation in Environmental Research. We dedicated two new buildings—the Center for Ocean Health and the Center for Adaptive Optics. Our Telephone Outreach Program passed the million-dollar mark. And we initiated the Center for Informal Learning and Schools. All were made possible with nonstate support.

On behalf of the extended UC Santa Cruz family, I offer heartfelt thanks to our generous benefactors, and I applaud the exceptional work of the volunteers who help us in countless ways.

If you do not already enjoy a place among the ever-widening circle of donors and friends, please join us. Without your generous gifts of time and money, we will be unable to meet fully our commitment to keep bright the light of learning.

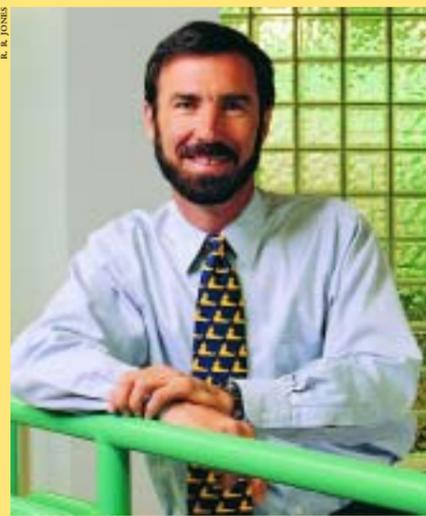
M.R.C. Greenwood  
Chancellor

## Alumnus's gift supports new environmental research institute

UCSC HAS ESTABLISHED a new environmental research institute, building on the campus's tradition of interdisciplinary research in the environmental sciences. To help launch the new institute, alumnus Gordon Ringold and his wife, Tanya Zarucki, have provided a gift of \$500,000—the largest gift the campus has received from an alumnus.

The STEPS Institute for Innovation in Environmental Research is designed to encourage an approach that integrates science, technology, engineering, policy, and society (the “STEPS” approach) in studying and solving environmental issues.

The overall goal of the institute is to foster research



Gordon Ringold

linking global and regional environmental processes, a major scientific challenge that has been identified as a top priority by several national environmental task forces over the past two years.

“Human health depends on ecosystem health, and ecosystem health depends on the

processes linking the Earth's ecosystems,” said John Thompson, professor of ecology and evolutionary biology.

The STEPS Institute will focus initially on water and biodiversity issues, Thompson, who will serve as director, said.

“The STEPS Institute is one that I feel really builds on the tremendous diversity and

strength in the environmental sciences that UCSC has established,” said Ringold, chairman and CEO of SurroMed, a company developing pharmaceutical and biomedical technologies. Ringold earned a B.A. in biology from UCSC and a Ph.D. in microbiology from UC San Francisco.

stration pictures in May. Among the suite of “suitable-for-framing” images is a stunning view of a colliding galaxy, dubbed the “Tadpole,” located 420 million light-years away.

While the galaxy itself is

Among the photos released by NASA were one dubbed “Tadpole,” right, a view of a colliding galaxy; and another called “Cone Nebula,” left, a pillar of gas and dust.

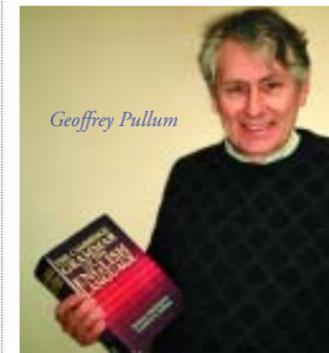


## Linguist takes aim at ‘grammar myths’

YOU CAN'T AFFORD TO casually ignore this new book, especially if you've ever been cited for breaking traditional grammar rules—such as splitting infinitives.

*The Cambridge Grammar of the English Language*, coauthored by UCSC professor of linguistics Geoffrey Pullum, is the first definitive grammar reference book of standard international English in more than 20 years.

Pullum hopes that among other things, the book will help



Geoffrey Pullum

debunk what he dubs “grammar myths” that have long plagued the world's most widely used language.

“People have been living in fear of grammar rules that don't exist,” said Pullum, who wrote *The Cambridge Grammar* with Rodney Huddleston of the University of Queensland.

Here are a few of the “rules” that Pullum and Huddleston debunk:

- ▶ You must never split an infinitive.
- ▶ It's wrong to end a sentence with a preposition.
- ▶ “They” must never occur with a singular antecedent.
- ▶ The word “since” must be used only in the time-reference sense.

## Chancellor Greenwood addresses Washington policy colloquium

IN THE AFTERMATH of September 11, the science and technology community

is being asked to contribute to new counterterrorism efforts. And some of these programs may be subject to regulations that restrict access to information or to laboratory procedures.

In an address delivered in Washington, D.C., in April, Chancellor M.R.C. Greenwood asked her audience to consider balancing the need to restrict information for security reasons and the value to society of the free flow of scientific ideas. Greenwood's presentation of the 2002 William D. Carey Lecture was sponsored by the American Association for the Advancement of Science.

The Carey Lectureship is awarded each year to one of the nation's most distinguished leaders in science and policy.



Chancellor M.R.C. Greenwood

## Milk: Perfect food or deadly poison?

HOLLYWOOD STARS don't milk mustaches to ask the ubiquitous question, “Got milk?,” while vegan activists decry cow's milk as unhealthy and tainted by antibiotic residues, hormones, and genetically modified organisms.

Like it or not, milk is a staple of the American diet and, more than any other food, milk has become a symbol of wholesome goodness and pastoral purity. With all the forces of Madison Avenue arrayed against them, how can milk's

dissenters take on “nature's perfect food?”

“For years, milk has been championed as the perfect food, and now it is being demonized as a symbol of the degradation of modern society,” said E. Melanie DuPuis, an assistant professor of sociology at UCSC and author of the new book *Nature's Perfect Food: How Milk Became America's Drink*. “The fact is that we need to get beyond the idea that milk is either perfect or it's poison.”

In her research, DuPuis has found that social reformers—from Temperance workers to today's critics of genetically

## UCSC presents ‘The Classical Music of India’ concert

ONE OF INDIA'S most important musical artists, sitar master Ustad Vilayat Khan, starred in “The Classical Music of India,” a concert sponsored by UCSC on June 2 at the Flint Center in Cupertino.

Given the title “radiant star of the sitar” by Fakhruddin Ali Ahmed, the late president of India, Khan is widely regarded as the greatest living sitar player. He traces his musical heritage back seven generations and has revolutionized contemporary sitar performance by furthering sitar techniques pioneered by his grandfather. In addition to performing in-



From left: Zakir Hussain, Vilayat Khan, Hidayat Khan, Shujaat Khan

ternationally and recording extensively, Khan has scored films for Satyajit Ray and Merchant and Ivory productions.

“The Classical Music of India” was one of Khan's increasingly rare public performances. For the UCSC concert he was joined by two of his sons, sitar players Shujaat Husain Khan and Hidayat Khan. This was the first time these three musicians had performed together in the U.S. since they appeared at Carnegie Hall in 1997. The concert also featured the tabla virtuoso Zakir Hussain.

The concert was held in honor of Talat and Kamil Hasan, Silicon Valley entre-

preneurs and members of the San Francisco Bay Area Indo-American community, in recognition of their gift establishing an endowment in classical Indian music at UCSC.

The concert, sponsored by UCSC's Arts Division and Arts & Lectures program, was dedicated to Ustad Ali Akbar Khan, in celebration of his 80th birthday. A distinguished adjunct professor of music at UCSC, Ali Akbar Khan teaches master classes and workshops and advises the South Asian music program. Proceeds from the concert were earmarked for the South Asian Arts Fund at UCSC, which supports the study and performance of the classical arts of South Asia.



DuPuis, above, says milk has long been a symbol of wholesomeness and pastoral purity, exemplified by this 19th-century advertisement for kitchen products.

modified foods—have used milk as an organizing tool. “Because it represents purity and the goodness of nature, milk has been a lightning rod for social reformers for more than 150 years,” she said.

As ironic as it seems to compare today's activists to the leaders of the Temperance movement, DuPuis concludes that both movements reflect the unique status of milk. “Using milk as the focal point of a campaign against genetic engineering hits people on a deeper level than would a campaign about soybeans,” she said.



Undang Sumarna, who has led UCSC's Gamelan Ensemble since its inception, performed at the concert.

## Gamelan Ensemble celebrates 25 years

THE UCSC WEST JAVANESE Gamelan Ensemble celebrated 25 years of performing with a gala concert in May at UCSC.

A gift of heirloom instruments from the Republic of Indonesia helped found the ensemble a quarter century ago.

The Gamelan Ensemble is composed of UCSC students, faculty, and alumni. They have performed in many venues, including the Olympic Arts Festival in Los Angeles.



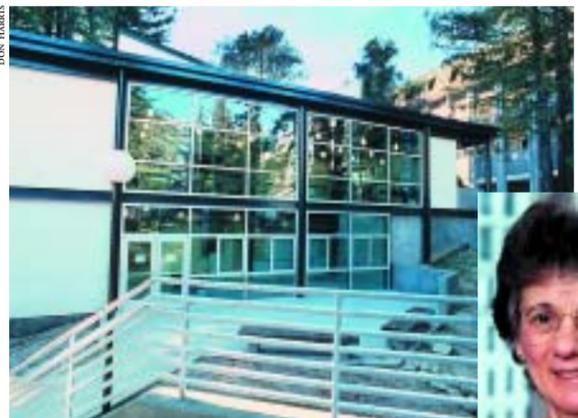
**Shakespeare Santa Cruz** will bring its audiences tales of wealth, power, and fame during its 21st season this summer. The 2002 festival selections are Shakespeare's *Merry Wives of Windsor* and *Coriolanus*, and Anton Chekhov's *The Sea Gull*. The plays will be running in repertory July 10 through September 1. For more information, see [shakespearesantacruz.org](http://shakespearesantacruz.org). (Above: a scene from last summer's *A Midsummer Night's Dream*)

## NSF director scheduled for Center for Adaptive Optics dedication

RITA COLWELL, director of the National Science Foundation (NSF), was scheduled to visit the campus in late June for the dedication of the NSF-funded Center for Adaptive Optics. During her visit, Colwell was also to meet with faculty and students, tour the campus, and give a speech on "Research Trends and Opportunities at NSF."

The multi-institutional Center for Adaptive Optics, headquartered at UCSC, was established in 1999 as an NSF Science and Technology Center focused on the advancement and application of adaptive optics technology.

Adaptive optics (AO) is used in astronomy and vision science to correct the blurring of images caused when light travels through an unstable medium. For example, turbulence in the Earth's atmosphere limits how clearly astronomers can see stars and other objects with even the largest ground-based telescopes.



Rita Colwell, director of the National Science Foundation since 1998, and the new center

Similarly, internal imperfections and fluids in the eye not only affect vision but also limit the ability of doctors to get a clear view of the retina to diagnose and correct retinal defects and disease.

"In astronomy, adaptive optics can remove much of the blurring caused by the atmosphere, giving us the sharpest images of stars, planets, and galaxies ever obtained with ground-based telescopes. But there are still significant technical challenges to overcome before we can realize the full potential of this technology," said Jerry Nelson, director of the Center for Adaptive Optics, professor of astronomy and astrophysics, and a leading innovator of AO technology.

"We are also seeing some major advances in vision science through the use of adaptive optics, and we expect to see new ophthalmic instrumentation developed in the near future," Nelson added.

At press time, the dedication was scheduled to take place on June 21 and celebrate recent progress in adaptive optics and the completion of a new headquarters building. The 4,000-square-foot building on Science Hill provides offices and meeting space for faculty, visiting scientists, students, and administrators.

## Two UCSC astronomers elected to Academy of Arts and Sciences

TWO PROFESSORS of astronomy and astrophysics—Douglas Lin and Claire Max—have been elected to the American Academy of Arts and Sciences. The academy honors the nation's most distinguished artists, scientists, and business and political leaders. The selection of Lin and Max brings

the number of academy fellows



Douglas Lin is director of the California Space Institute's Center for Origins Studies. Claire Max is an associate director of the Center for Adaptive Optics.



in UCSC's Department of Astronomy and Astrophysics to nine and the UCSC total to 17.

Lin is an expert on the formation and evolution of planets and solar systems. Max has been instrumental in developing adaptive optics systems for the Lick and Keck Observatories.

## White youth's difficulty with racial identity

FOR WHITE YOUTH, coming to terms with being white in an increasingly diverse U.S. society can be a painful and contradictory experience marked by feelings of guilt and privilege, relief and persistent prejudice.

In her new book, *Shades of White: White Kids and Racial Identities in High School*, UCSC sociologist Pamela Perry reveals the complex feelings white youth today have about being white, and she identifies powerful forces in our nation's schools that reproduce racial inequality.

"As we become a more diverse society, we can't afford to raise our kids in racial isolation," said Perry, an assistant professor of community studies.

"We need to understand the formation of racial identity in multiracial settings and what's happening in schools that contributes to racism. In this day and age, schools need to nurture a generation of young people able to live and work together with dignity and respect."

Perry spent two and a half years immersed in the culture of two northern California high schools to explore the development of racial identity among white youth in schools with very different racial balances. The first school, which she calls

"Valley Groves," is a suburban school where 83 percent of the students are non-Hispanic whites. The second, which she calls "Clavey," is urban and racially diverse, with 54 percent African American students, 23 percent Asians, 12 percent whites, and 8 percent Hispanics.

In presenting findings based on participant observation in the schools and in-depth interviews with 60 students, Perry paints a portrait of racial identity formation among whites that varies dramatically by proximity to students of color. She asserts that merely interacting with students of different races and ethnic backgrounds in a multicultural school is not enough to counter the forces of racism that persist in American society.

## UC Regents endorse bond measures

THE UC BOARD OF REGENTS has endorsed the Facilities Bond Acts of 2002 and 2004, which would provide funding for K-12 and higher education facility needs over the next four years.

The 2002 Bond Act, which goes before voters in November, would authorize more than \$13 billion for K-12 and \$1.65 billion for higher education capital projects. The 2004 Bond Act would authorize \$10 billion for K-12 and \$2.3 billion for higher education.

AB-16, the measure which created the bond issues, also authorizes \$651.3 billion in lease revenue bond funding for higher education that does not require voter approval.

UCSC projects that are included in the measure are the Engineering Building (\$41.2 million), the Humanities and Social Sciences Facility (\$1.5 million), and the Emergency Response Center (\$517,000).

Pamela Perry



A genetic analysis of the damselfish species *Dascyllus trimaculatus* indicates that it may actually include three distinct species, all with the same color pattern.

Biological Sciences, challenge long-held beliefs about damselfish species distinctions.

"What is a species is a fundamental question in evolutionary biology.

Almost by chance we went straight to this issue," Bernardi said.

Bernardi's work focused on four closely related damselfish species, each with a different coloration pattern.

The researchers looked at DNA from damselfish mitochondria, tiny cellular structures that provide energy to the cells of higher organisms. Bernardi and his colleagues compared the DNA and used the similarities and differences to group closely related individuals.

Surprisingly, the groupings based on DNA sequences were not the same as the color-based species designations for two of the four species. "We have found that the definition of 'species' is more complicated and a lot more interesting than we thought," Bernardi said.

## Computer scientist receives 'early career' grant from NSF

JAMES WHITEHEAD, an assistant professor of computer science at UCSC, has received a prestigious award from the National Science Foundation's Faculty Early Career Development Program.

Whitehead will use the grant of \$300,000 over five years to support his research on configuration management systems, which help teams of software developers coordinate their work on complex projects.

Configuration management is analogous to document management, in which a word-processing program is used to save many drafts of a report or other document and to track changes made by different people.

A single software project may involve 50 to 100 people, so configuration management systems are usually more complex than document management systems.

Configuration management is essential to understanding the state of the software during its development and controlling the changes made to it by different people, Whitehead said.

## UCSC alumnus awarded Mellon Fellowship

WHEN DAVID JACOBSON starts his Ph.D. studies this fall, he'll be able to focus more on learning and less on worrying about tuition and expenses, thanks to his 2002 Andrew W. Mellon Fellowship in Humanistic Studies.

The prestigious award, which supports exceptionally promising first-year doctoral students preparing for careers in humanities teaching and scholarship, will cover all tuition and required fees for the UCSC alumnus in his initial year of graduate study, as well as providing a one-time stipend of \$17,500.

"I used to think it was a cliché when people said 'It's an honor just to be nominated,'" said Jacobson. "But now I know it's true. I was thrilled to find out I was a semifinalist, and ecstatic when I won." This year's 95 Mellon Fellows were selected from 753 applicants.

Jacobson is the 17th UCSC student to win a Mellon Fellowship, and the sixth winner from UCSC's classics program. A 2000 graduate with a double major in classics and history, Jacobson begins a doctoral program in classics at UC Berkeley this fall.

### David Jacobson



ANN M. GIBB

## Space-based missile defense systems could jeopardize research

THE BUSH administration's plan to develop space-based missile defense systems has generated heated debate, but most commentators have overlooked an important and potentially destructive consequence of placing weapons in orbit around the Earth: The militarization of space could create a permanent halo of orbiting debris that will interfere with important scientific and communication satellites.

"In science fiction movies like *Star Wars* there are constant explosions, but a few seconds later the screen is clean. It's not going to work that way near a planet," says UCSC professor of physics Joel Primack, who issued the warning during a speech at the UN's Educational, Scientific and Cultural Organization in Paris.

About 3 million kilograms of debris (roughly 6 million pounds), from dead satellites to paint chips, already orbit the Earth. The U.S. Space Command tracks more than 9,000 objects larger than four inches in diameter, and operational satellites can take evasive action to avoid being hit by one of these objects.

The most serious current hazard is the non-trackable debris smaller than a marble that orbits at around 17,000 miles per hour, 10 times faster than a bullet from a high-powered rifle. A BB-sized fragment traveling that speed has the destructive power of a bowling ball moving over 60 miles per hour.

Space-based missiles will generate huge amounts of small debris particles, said Primack. Some will arise from weapon explosions, but even more will come from the resulting small projectiles hitting larger objects already in orbit.



Joel Primack

UCSC PHOTO SERVICES



FROM LEFT: The center's architect, Jon Schleuning; alumnus Robert Stephens; Julie Packard, vice chair of the David and Lucile Packard Foundation and alumna; and keynote speaker and Ida Benson Lynn Professor of Ocean Health Terrie Williams, at the dedication

## Institute of Marine Sciences dedicates its Center for Ocean Health

THE CENTER for Ocean Health, the Institute of Marine Sciences' new state-of-the-art research facility at UCSC's Long Marine Laboratory, was dedicated in February with a ceremony hosted by Chancellor M.R.C. Greenwood. The dedication was attended by elected officials and leaders in ocean conservation, such as UCSC alumna Julie Packard (B.A. and M.A., biology), executive director

of the Monterey Bay Aquarium.

The keynote speaker at the dedication ceremony was Terrie Williams, the Ida Benson Lynn Professor of Ocean Health. Williams said the scientists who work in the building are motivated by their love for the ocean environment and the sense that it desperately needs protecting.

"The bottom line is, these scientists are trying to save the oceans, and they have dedicated their lives to it," she said.

In addition to Greenwood and Williams, speakers included Packard, in her capacity as vice chair of the David and Lucile Packard Foundation, and Gary Griggs, director of the Institute of Marine Sciences.

Construction of the center was largely funded by a \$5 million grant from the Packard Foundation.



FROM LEFT: UCSC Foundation trustee Paul Irwin, UCSC Institute of Marine Sciences director Gary Griggs, Chancellor M.R.C. Greenwood, and alumna Julie Packard

UCSC PHOTO SERVICES

## Findings support 'Out of Africa' hypothesis

AN ABRUPT EPISODE of global warming and major changes in plant and animal life marked the transition between the Paleocene and Eocene epochs about 55 million years ago.

Several groups of mammals, including early primates, made their first appearances in Asia, Europe, and North America around this time.

A new study published in

ed to Asia as the center of origin for several important groups of mammals, including primates and two orders of hooved mammals. The study also shows that an extinct family of mammals, the *hyaenodontids*, definitely appeared first in Asia.

"These groups probably spread to North America across the Bering land bridge in response to the warming of the climate that occurred at the Paleocene/Eocene boundary," said Gabriel Bowen, a Ph.D. candidate in Earth sciences at UCSC and



The bright red sedimentary layers in this photo mosaic from northern Wyoming are about 10 meters above the Paleocene/Eocene boundary.

P. L. KOCH

the journal *Science* supports the idea that Asia was the center of origin for at least one important group of mammals, and probably for several others.

The study allows paleontologists for the first time to compare the fossil sequences of Asia, Europe, and North America for this dramatic period in Earth's history, said associate professor of Earth sciences Paul Koch, a coauthor of the paper.

"We can finally see what was happening in Asia at the same time that there were dramatic changes in the faunas of North America and Europe," Koch said.

The results are consistent with studies that have point-

first author of the paper.

The boundary is marked in the geologic record by an anomalous blip in carbon isotope ratios. Geochemists have linked this anomaly to a massive release of methane gas from the ocean. Since methane is a powerful greenhouse gas, this oceanic belch of methane may well have driven the transient global warming that occurred at this time, dramatically altering the global climate for about 100,000 years.

Koch and Bowen worked with researchers from the University of New Hampshire and the Chinese Academy of Sciences to collect and analyze samples from the Hengyang Basin in southern China.

## In Memoriam

**Mary A. Holmes**, a founding member of the faculty of UCSC and a beloved artist and art historian, died in January after a brief illness. She was 91.

Holmes, who grew up in various towns in the West, and in Chicago, began her career as a painter and became equally well known for her work as an art historian, hosting a series of community lectures.

"She was remarkable in many respects," said John Dizikes, a fellow founding faculty member. "She was an incomparable colleague; there was no one like her.

I admired her intense professionalism as an art historian, which she rather disguised because she was full of so many eccentric opinions. Above all I admired her courage; she was indomitable."

Holmes's affiliation with UCSC began in 1965 when she arrived from Los Angeles as a lecturer in art; she retired as a full professor in 1977.

Holmes was a painter of visionary and mythical forms, though she chose to teach art history rather than painting.

**Albert E. Whitford**, an acclaimed astronomer, former director of UC's Lick Observatory, and a professor emeritus of astronomy and astrophysics at UCSC, died in March in Madison, Wisconsin, after a short illness. He was 96.

"He was a very important figure in American astronomy and at Lick Observatory," said Donald Osterbrock, professor emeritus of astronomy and astrophysics at UCSC and a close friend of Whitford. "He did a tremendous amount of excellent

observational research, chiefly on the structure of our Galaxy, and was a leader of American astronomy."

As director of the Lick Observatory on Mt. Hamilton from 1958 to 1968, Whitford oversaw the completion of the Shane Telescope in 1959.

Contributions in Whitford's memory should be made payable to the UCSC Foundation, designated for the UCO/Lick Observatory's Crocker Fund, and sent to UCSC Gift Administration, Carriage House, 1156 High Street, Santa Cruz, CA 95064.

**Lionel Cantú Jr.**, an assistant professor of sociology, died unexpectedly in May at the age of 36 after a very brief illness.

Cantú specialized in the ways in which sexuality influences migration. His other interests included race and ethnicity, and Latinos in the U.S. He joined the UCSC faculty in 1999.

"He was probably responsible for more students hanging on and triumphing—getting their Ph.D.s—than any other faculty member, certainly for Chicano and Latino students," said sociologist Candace West.

Contributions in Cantú's memory should be made payable to the UCSC Foundation, designated for a scholarship fund in his name, and sent to UCSC Gift Administration, Carriage House, 1156 High Street, Santa Cruz, CA 95064.



DON HARRIS

# from WIND to WHALES:

## Understanding an Ecosystem

By Tim Stephens



*At sea, surveying Monterey Bay's vast web of life are (from top) Donald Croll, observing whales, dolphins, birds, and other animals; Baldo Marinovic, collecting samples of the tiny pelagic crustacean, krill; and Nancy Gong, filtering seawater samples to measure concentrations of chlorophyll, an indicator of phytoplankton abundance.*

**I**N 1996, Donald Croll set out to answer a simple question: What makes Monterey Bay such a great place for blue whales? Probably the largest creatures ever to live on Earth, blue whales congregate in the bay every summer, feeding on swarms of shrimp-like crustaceans called krill.

So the simple answer to Croll's question is that blue whales come here to eat. But Croll, an assistant professor of ecology and evolutionary biology at UCSC, wanted a deeper understanding of the relationships between blue whales, krill, and conditions in the bay.

It turns out that the whales come for the same reason that Monterey Bay attracts all kinds of marine life: It is quite simply one of the most fertile marine ecosystems in the world. And Croll, in collaboration with a diverse group of researchers at UCSC and other institutions, is starting to develop a comprehensive picture of how this highly productive ecosystem works.

"Our research centers around how physical processes, from water chemistry to wind dynamics, ultimately determine how much food is available for animals at the top of the food chain, like whales and seabirds," Croll says.

Croll's investigation is one of many such projects in which UCSC researchers are sorting out the complex and elegant networks of interactions that govern marine ecosystems. Their work is helping to establish a solid scientific basis for the conservation and management of marine resources and the protection of endangered species.



A blue whale's feeding lunge captures a swarm of krill.

While Croll's group focuses on the open-water or "pelagic" habitat, other researchers are studying the nearshore habitats—the rocky reefs and intertidal zone. Biologists in both groups work with oceanographers to get a better understanding of the physical processes that influence these ecosystems.

By studying the dynamics of marine

ecosystems over a long period of time, researchers hope to understand them well enough to tell the difference between natural variability and disturbances caused by human activities.

"That's what this is all about," Croll says. "If you're trying to manage resources, you have to understand what creates variability

in those resources. Humans are affecting the world in so many ways, but at the same time we know that we live in a variable world. The problem is that we haven't had the long-term data to know what the natural variability is."

Ultimately, Croll's concern is the health of the marine ecosystems on which blue

whales, and so much else, depend. Important fisheries, such as squid, rockfish, and salmon, rely on these ecosystems. So do seabirds, dolphins, many kinds of whales, and other wildlife.

It's all part of a natural environment that draws millions of people to the California coast. The challenge is to manage these marine resources and protect the natural habitats so that people can enjoy them without destroying them.

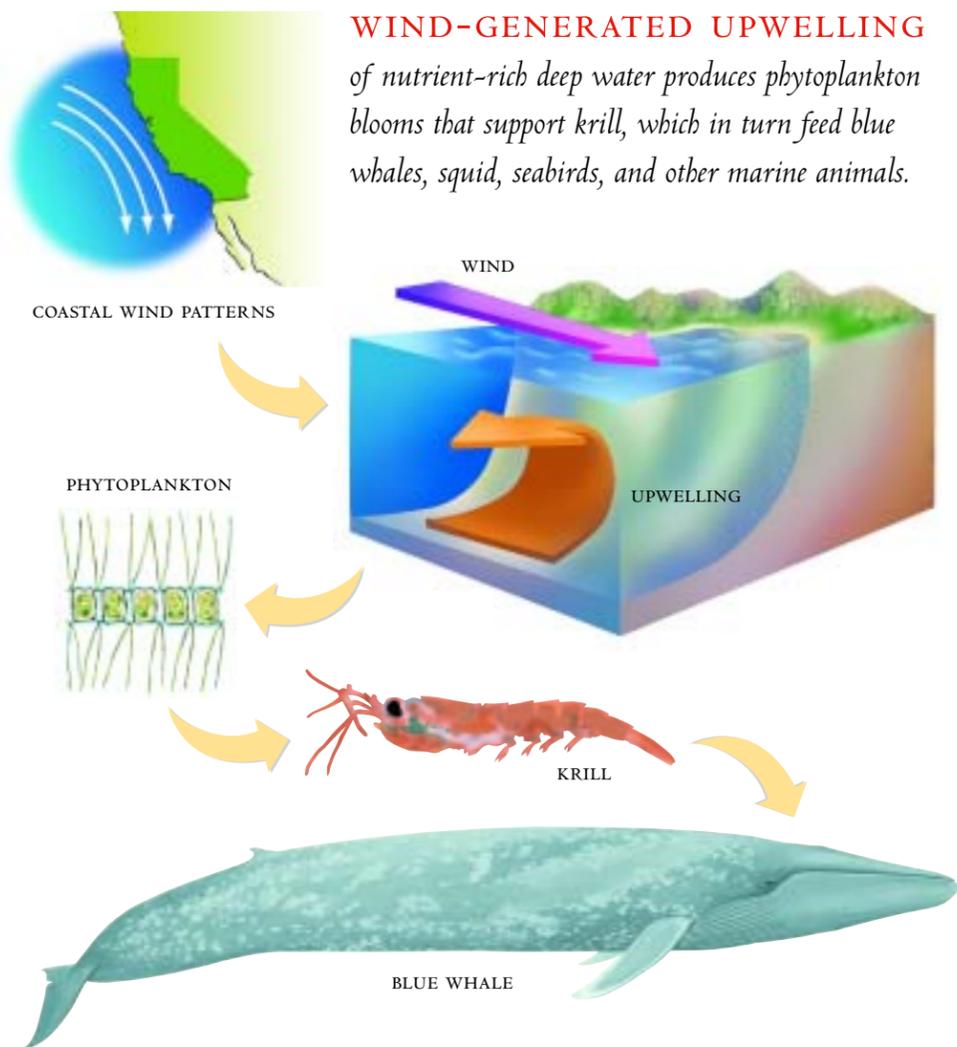
**T**HE DRIVING FORCE behind the high productivity of California's coastal waters is wind. Every spring and summer, winds blowing from the north act in combination with the rotation of the Earth to move warm surface waters offshore, drawing cold, nutrient-rich deeper water to the surface. This seasonal upwelling of nutrient-rich water sparks massive blooms of phytoplankton, microscopic algae that support a rich web of marine life.

Krill graze on phytoplankton, and blue whales feed almost exclusively on krill. It's a pretty simple food chain, but its simplicity offers a window onto more complex aspects of the Monterey Bay ecosystem and the upwelling process that drives its productivity.

There are only a few major coastal upwelling regions worldwide. While they make up about one-tenth of a percent of the ocean's surface area, 95 percent of the global marine biomass is produced in these regions. Not surprisingly, upwelling regions support many of the world's most important fisheries.

Along the coast of California and Oregon, intense upwelling tends to occur in certain places due to complex interactions of wind, currents, and topographic features of the coastline. Plumes of upwelled water enter Monterey Bay mainly from the north, from an upwelling center off Point Año Nuevo, about 20 miles north of Santa Cruz.

Spring is a crucial time in the annual cycle, when wind-driven upwelling typically stimulates the first big phytoplankton blooms of the year. Krill populations respond with a burst of reproductive activity, leading to a peak in the abundance of larval krill in April and May. These larvae reach adult size by July, when the blue whales start to show up, migrating north from their winter breeding grounds in the Gulf of



**WIND-GENERATED UPWELLING** of nutrient-rich deep water produces phytoplankton blooms that support krill, which in turn feed blue whales, squid, seabirds, and other marine animals.

California and other more southerly waters.

Regular pulses of upwelling are needed to keep the system going through the summer, but that doesn't always happen, says Baldo Marinovic, a research biologist at UCSC's Institute of Marine Sciences (IMS) and one of Croll's longtime collaborators.

"It's like getting someone going on a swing. It takes a big kick-start in the spring to get the productivity going, and then just a push now and then to keep the system productive," Marinovic says.

The strength of the upwelling determines how many of the juvenile krill survive to become adults, and also whether the krill stay bunched up in the dense swarms blue whales like to feed on, Marinovic says.

The system varies from year to year and also from place to place along the coast. If the upwelling is weak in one area, it may be strong somewhere else, and the whales move around accordingly, says Croll.

"I realize now that, in terms of the spatial scale, Monterey Bay to a whale is probably like a grocery store is to us, and they're in this grocery store looking for the krill aisle," Croll says. "But that store may be all out of krill, so they have to go across town to another store. For a whale, that might mean going from Monterey Bay to the Channel Islands off southern California or the Cordell Bank north of San Francisco—that's their idea of local stores."

**B**ECAUSE OF THEIR great size, blue whales have the highest average daily energy requirements of any species. As a result, they only feed in areas of exceptionally high productivity, Croll says.

People often marvel that blue whales, which are far bigger than the largest dinosaurs were, eat something as small as krill. An average blue whale is about 80 feet long and weighs about 110 tons,

*The driving force behind the high productivity of California's coastal waters is wind. Every spring and summer, winds blowing from the north act in combination with the rotation of the Earth to move warm surface waters offshore, drawing cold, nutrient-rich deeper water to the surface. This seasonal upwelling of nutrient-rich water sparks massive blooms of phytoplankton, microscopic algae that support a rich web of marine life.*

while the krill species found along the West Coast are less than an inch long.

But Croll points out that blue whales don't eat individual krill, they eat entire schools of them.

"They're really eating a superorganism, and the way they do it is pretty amazing. The blue whale has a tremendously bizarre feeding apparatus," Croll says.

A feeding blue whale, as Croll describes it, swims toward a school of krill at about 15 miles per hour and engulfs the krill along with the entire volume of water they occupy. The whale does this by dropping its mouth open until the lower jaw is at an angle of 90 degrees to the body. The whale's tongue inverts into its gullet as the mouth inflates with about 17,000 gallons of water. Then the whale shuts its mouth and forces the water out through the baleen, fibrous plates that hang down from the upper jaw and filter out the krill.

"It's one of the largest biomechanical events that has ever occurred on this Earth," Croll says.

A single whale can consume more than two tons of krill a day during the peak summer feeding season. But the krill come and go, and a blue whale may have to travel great distances and go for long periods without food before it finds another good spot to gorge itself on krill. Their large size is a key feature that enables blue whales to survive on patchy, ephemeral concentrations of krill.

"They have large energy stores, so they can go a long time without feeding while they travel from one patch of krill to another. Their size also helps them take in a lot of food once they find it," Croll says.

**C**ROLL'S RESEARCH on the upwelling-driven ecosystem in Monterey Bay grew out of a general interest in the ecology of all the great whales—including blue, fin, and humpback whales—that forage for food along the West Coast. As a research biologist at UCSC in 1996, he and a group of collaborators began conducting systematic surveys of several areas regularly visited by these whales. They mapped the distribution of whales over large areas, attached monitoring devices to whales to follow their diving behavior, and used echo sounders to locate and track aggregations of krill.

The researchers found that blue whales tend to feed in certain spots along the coast where the continental shelf drops off steeply into deeper water. One of the most dramatic examples is Monterey Bay, where the immense Monterey Submarine Canyon cuts a big wedge out of the continental shelf. By tracking both krill concentrations and the diving patterns of whales, the scientists could see that the blue whales dove directly down to the densest swarms of krill along the edge of the canyon.

"Whether here in Monterey Bay, or north of the Channel Islands, or off the coast of Mexico, it was always the same pattern—they were feeding on dense aggregations of krill off the edges of these steep underwater cliff faces," Croll says.

The researchers recognized that all of these places are associated with major upwelling centers. With a classic upwelling region practically in his backyard, Croll

decided Monterey Bay was the best place to try to understand the behavior of the whales in relation to the dynamics of upwelling systems.

Croll's main collaborators include Marinovic, an expert on krill; UCSC research biologist Bernie Tershy; and Scott Benson, a graduate student at Moss Landing Marine Laboratories working with MLML professor James Harvey. Every summer, the group conducts regular surveys of Monterey Bay from Moss Landing's research vessel *John Martin*.

The boat plows back and forth across the bay in straight, parallel lines, while researchers and volunteers perched on the flying bridge record every sign of life on the bay—including whales, dolphins, and seabirds, sometimes in astonishing numbers. The scientists also take water samples, collect krill, and gather oceanographic data, such as water temperature and salinity.

While it has never been easy for scientists to get funding for long-term monitoring of ecosystems, various agencies have provided funding for Croll's work, including the Office of Naval Research, the Environmental Protection Agency, California Sea Grant, and the Monterey Bay National Marine Sanctuary, which is especially interested in gathering data on the sanctuary.

Having years worth of data allows scientists to ask questions they couldn't otherwise address, Croll says. "These data start to take on a life of their own and suggest new questions to explore. Now that we have five years of good data, we have enough information to start to understand how the system works and how variability between years occurs."

**O**NE OF THE most important sources of variability from year to year is El Niño, which originates in the tropical Pacific and drastically alters the normal oceanographic and weather patterns along the West Coast. In an El Niño year, unusually warm, nutrient-poor water from the south moves up the coast and disrupts the usual layering of warm surface waters over deep cold water. Coastal upwelling becomes much weaker than usual, resulting in a drop in phytoplankton production that affects the whole coastal food web.

ILLUSTRATIONS: BLUE WHALE BY PETER FOLKINS, COURTESY UCSC INSTITUTE OF MARINE SCIENCES; ALL OTHERS, LINDA KNUDSON

El Niño is important not only as a source of natural variability, but also as a possible harbinger of things to come as a result of global warming, Croll says. Sea-surface temperatures are expected to increase with global warming, as they do along the coast during El Niño. Furthermore, the frequency and intensity of El Niños may increase with global warming.

Croll's group already had one year of survey data when the 1997–98 El Niño came along. It was a perfect opportunity to study the effects of El Niño on coastal ecosystems.

Croll expected low krill populations to result in a bad year for whales in Monterey Bay. Instead, whales and other marine life showed up in record numbers and were seen much closer to shore than usual.

"Although there wasn't a lot of krill, this was probably one of the few places where there was any food at all," Croll says. "Ordinarily, they would be feeding in a number of places up and down the coast, but during El Niño this area became like an oasis in the desert. That means Monterey Bay may be even more important for the whales than we had thought."

**I**N COLLABORATION with UCSC environmental studies professor Marc Mangel, Croll's group is now beginning to develop and test computer simulations that could be used to forecast the abundance of krill, indicating whether it will be a good year for whales and other animals that feed on krill. Salmon and rockfish eat krill, as do sardines and anchovies, which in turn are preyed on by larger fish and marine mammals.

Squid also depend on krill for food, and the squid fishery is California's largest fishery in both volume landed and commercial value. Mangel is looking at how the abundance of krill influences the squid fishery, and developing computer models that could be used to guide the management of the fishery.

"If we can forecast krill dynamics, we may be able to forecast the fate of the squid fishery, and that could tell us how much squid the fishing boats

should be allowed to take in a given year," Croll says.

This kind of forecasting, however, will require extensive monitoring of oceanographic conditions, as well as an understanding of ecosystem dynamics detailed enough to translate into mathematical formulas. Croll says scientists still have much to learn about how upwelling fuels the productivity of coastal ecosystems.

One of his collaborators, Francisco Chavez of the Monterey Bay Aquarium Research Institute, has established an intensive, long-term monitoring program to examine the physical dynamics and productivity of Monterey Bay, using instruments on moorings and ships. And Croll has been adding new collaborators, at UCSC and other institutions, as his research progresses. Their investigations are already revealing new layers of complexity in coastal ecosystems.

It turns out, for example, that some of the nutrients that stimulate phytoplankton blooms originate in runoff from the land. Kenneth Bruland, professor of ocean sciences, has shown that phytoplankton growth may be limited by the availability of iron, which enters coastal ecosystems in sediment from rivers and streams.

Croll is also working with Raphael Kudela, assistant professor of ocean sciences, who uses satellite images to measure phytoplankton productivity in coastal waters. His data provide detailed pictures of what's going on at the bottom of the food chain.

Pulling together data from diverse sources to obtain a comprehensive picture of the Monterey Bay ecosystem will not be easy. But Croll and others at UCSC have already gone a long way toward assembling the kind of broad-based interdisciplinary collaboration that can accomplish that goal.

"As we develop our understanding of the whales, we see where we need input from other disciplines. We've found that other scientists get excited when they see what we're doing, that we're not just hugging whales but trying to address important ecological questions," Croll says.

# THE CENTER *for* OCEAN HEALTH:

## Integrating science and policy

**T**HE NEW Center for Ocean Health at UCSC's Long Marine Laboratory is more than a state-of-the-art research facility. It is a building with a mission, serving as a focal point for scientific research, education, and policy programs that address ocean conservation and management issues. By bringing together university researchers, government agencies, and conservation organizations, the center encourages the integration of research and policy efforts to protect and manage marine ecosystems and biodiversity.

"We are targeting scientific questions that have strong policy implications, where there is a need for solid research to address issues of great importance to the region and the state," says Peter Raimondi, an associate professor of ecology and evolutionary biology.

Raimondi is one of about a dozen faculty and researchers in UCSC's Institute of Marine Sciences (IMS) who moved their offices and laboratories from the main campus to the Center for Ocean Health last year, bringing with them postdoctoral researchers, graduate students, and technical support staff. The center was dedicated in February (see story, page 6).

The researchers in the center are primarily involved in studies of marine vertebrates and coastal biology. The center gives them easy access to the other research facilities at Long Marine Lab, including tanks and pools for marine mammals and seawater laboratories for fish, plankton, and marine invertebrates.

Two nonprofit conservation groups have offices at the Center for Ocean Health: the Nature Conservancy's Coastal Waters Program and the Island Conservation and Ecology Group. Also located nearby are the Seymour Marine Discovery Center, with a university teaching lab and public education programs; the National Marine Fisheries Service Santa Cruz Laboratory, where federal scientists are studying major West Coast fisheries; and a marine wildlife center run by the



California Department of Fish and Game.

"Having all these other groups around us has led to a lot of dynamic and healthy interactions. It's a really vital and vibrant place to work," Raimondi says.

"It's been exciting to see the synergy that's developed at the new center," adds IMS director Gary Griggs. "Bringing the scientists down here where they can be close to their research and interact with each other has paid off in a lot of ways."

Raimondi and Mark Carr, associate professor of ecology and evolutionary biology, lead UCSC's participation in the multi-institutional Partnership for Interdisciplinary Studies of Coastal Oceans (PISCO), a large-scale research program that focuses on understanding the nearshore ecosystems of the U.S. West Coast. In many ways, PISCO exemplifies the aim of the Center for Ocean Health to integrate science, policy, and education. The project's findings are applied to issues of ocean conservation and management, and are communicated and shared through public outreach and student-training programs.

"Some of the most urgent issues in California and throughout the world involve these linkages of science and policy in the

coastal zone, because that's where most of the people are and where so many conflicts occur between people and the coastal environment," Raimondi says.

UCSC researchers and students work closely with scientists at the state and federal laboratories adjacent to Long Marine Lab. Churchill Grimes, director of the Fisheries Service lab, notes that cooperative research projects involving the lab and UCSC scientists are currently supported by \$1.2 million in federal funds.

The Fisheries Service lab, overseen by the National Oceanic and Atmospheric Administration (NOAA), is also home to NOAA's Institute for Marine Protected Area Science, established as part of a national effort to create a scientifically based, comprehensive national system of protected areas representing diverse U.S. marine ecosystems.

"We are in the middle of the nation's largest marine sanctuary here in Monterey Bay, with a national center at the fisheries lab that's looking at how to use protected areas to conserve marine resources, and the IMS is doing research that's helping them understand how to do this. All these things are complementary," Griggs says.

Michael Beck, director of the Coastal

Waters Program for the Nature Conservancy, says his organization's partnership with UCSC is mutually beneficial.

"I'm able to transfer important new knowledge about marine science from UCSC researchers to the people working at our field sites. We have marine conservation practitioners on the ground in more than 25 countries, and it's important to connect them with sources of knowledge and expertise," Beck says.

In return, Beck gives feedback to UCSC scientists about what kinds of information are most needed to improve marine conservation and management efforts. UCSC graduate students and interns work on Nature Conservancy projects, gaining firsthand experience with marine conservation issues.

"There are few places in the world where there is such good synergy between scientists, managers, conservationists, and public educators working to understand and preserve marine diversity," Beck says.

The Island Conservation and Ecology Group (ICEG) was founded in 1994 by IMS researchers Donald Croll and Bernie Tershy. It is primarily concerned with problems caused by introduced species on islands. For example, the group is helping to save breeding colonies of marine birds that are threatened by introduced rats and other exotic species on coastal islands of Mexico and California. ICEG works with UCSC scientists, postdoctoral researchers, and graduate students involved in research projects related to the group's goals.

The Center for Ocean Health draws on the full range of expertise in the Institute of Marine Sciences. With 43 affiliated faculty and over 50 professional and postdoctoral researchers, the IMS is known for cutting-edge interdisciplinary research in environmental toxicology, marine mammal biology, nearshore ecological processes, marine biogeochemistry, paleoceanography, and continental margin geology. —TIM STEPHENS

# Tech Tutors

## *to the Rescue*



GIIP intern Brandon Wright  
at the United Farm Workers field  
office in Watsonville with UFW  
staff member Lupe Sánchez

**UCSC students help 'wire'  
those being shut out of  
the information revolution**

**THEY AREN'T** your classic superheroes: They tackle such modern-day villains as surly computer servers, indecipherable software manuals, and database snafus. But they rival Superman and Wonder Woman in the minds of those they've rescued.

**Consider mild-mannered Melody Liu Shuk Han, a UCSC undergrad who arrived on the doorstep of the Center for International Policy in Washington, D.C., and proceeded to resuscitate the nonprofit's web site.**

"We will be eternally grateful to her," said Frick Curry, the center's director of fundraising. "We're a small nonprofit, and we don't have an information technology expert on staff, or even a consultant. It's catch as catch can."

Liu soared to heroine status as an intern with UCSC's Global Information Internship Program (GIIP, pronounced "jeep"), a new initiative steeped in the issues of globalization. GIIP trains undergraduates in computer skills they take to organizations that need a boost to make the most of today's technology.

UCSC sociology professor Paul Lubeck launched GIIP in 1998 to address growing inequality in access to information networks and global communications. "Computer networking is a powerful organizing tool, but the poor and disenfranchised are being shut out of the information revolution," said Lubeck.

"Helping these groups get wired gives them a chance to mount web pages, communicate their message, and connect with others who share their interests. It democratizes globalization by putting people within each other's reach."

For groups like the Center for International Policy, a think tank founded in 1975 to promote peace, human rights, and a U.S. foreign policy that reflects democratic values, GIIP was the difference between having a web presence and vanishing from the virtual world. Liu not only corrected long-standing problems with the center's web site and got it back online, she took proactive steps to avoid future snafus. "She definitely helped bridge our digital divide," said Frick.

Anyone who uses e-mail, the web, or a database on a regular basis knows how vital computers can be in today's world of high-speed communication. They have trans-

formed work, the workplace, and the world. But the benefits of information technology are limited to those who can afford the hardware and master the software. To broaden access to these powerful new tools of democracy, Lubeck—with funding from the UCSC Center for Global, International and Regional Studies—built a program that serves groups large and small, here and abroad.

GIIP honors the campus's tradition of service toward social equity by training students in information technology and placing them as interns with community, human rights, environmental, and other nongovernmental organizations (NGOs). From Santa Cruz to South Africa, interns earn academic credit while upgrading the information resources—and thereby the economic and social opportunities—of their sponsoring organizations. "We are committed to helping nonprofits and social groups achieve their goals more effectively and at lower cost," said Lubeck.

About 75 students have participated to date. Although most come from the social sciences and humanities, Lubeck estimates that 10 percent of students are science majors. To prepare for their internships, students enroll in a nine-month class that provides 40 hours of computer-based technical training and 80 hours of project work focused on network technology, computer back-up systems, and web-page development. Required courses cover subjects such as global inequality, democratic social movements, fieldwork methodology, and language instruction, if needed. Interns

also learn about grantwriting and computer-based fundraising, an untapped realm that budget-strapped organizations typically are eager to explore.

Like many interns, Liu had no particular computer skills before enrolling in the prep course. "I used the computer for e-mail and writing papers, and that was about it," she said. During her internship at the Center for International Policy (CIP), she quickly became the resident computer expert.

"She kept telling us she was just a beginner, but we said, 'That's okay. You know 100 percent more than anyone else!'" said CIP intern coordinator Leah Riley.

After performing triage on the center's web site and untangling a number of computer problems that cropped up shortly after her arrival, Liu spent much of her internship conducting in-depth online research about potential donors.

"She did what no one else here, especially myself, had the time to do, which is use all these new online databases to gather information about foundations," said fundraising director Frick. Liu's work helped Frick sharpen his focus and target his fundraising pitches. "She's a self-starter and a fast learner," he said of Liu, who studied politics at UCSC as an exchange student from the Chinese University of Hong Kong.

A world away in South Africa, GIIP intern Gabe Collett was promoting technology in a vastly different setting. During an internship with the University of Natal at Durban, Collett used his computer savvy to create new online classes and to design and launch a web site for the university's Industrial, Organisational and Labour Studies Department. By night, he helped "wire" organizers at the

**"Computer networking is a powerful organizing tool, but the poor and disenfranchised are being shut out of the information revolution. Helping these groups get wired gives them a chance to mount web pages, communicate their message, and connect with others who share their interests. It democratizes globalization by putting people within each other's reach." — UCSC professor of sociology Paul Lubeck**

nearby Worker's College, teaching students how to use e-mail, spreadsheets, word-processing programs, and the World Wide Web.

Most of South Africa, like much of the Third World, lacks the infrastructure of telephone lines to support sophisticated computer networks. In KwaZulu Natal Province where Collett worked, few homes had computers. "For people who have no concept of how computers work, there was a real feeling of empowerment," Collett said of introducing his students to e-mail as a tool for organizing, lobbying, and building overseas alliances. But Collett found it difficult to sustain interest when there was no computer access outside the classroom.

"There's a massive skill shortage in South Africa, and the university graduates with the necessary skills head for the United Kingdom," he said.

Such roadblocks, coupled with cultural resistance to the use of computers—"many are distrustful and see computers as a new form of imperialism," said Collett—present real challenges to those hoping to bridge the digital divide.

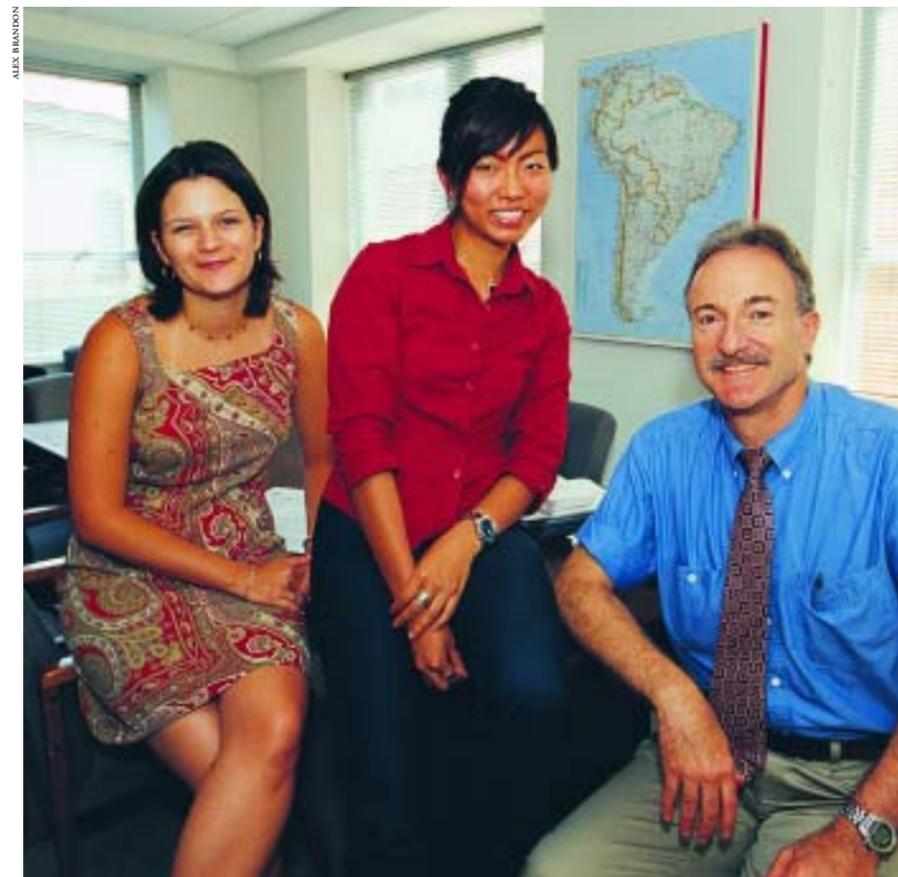
Yet Collett remains unfazed. Getting his own grandmother online "was not an easy sell," and he is confident the oppor-

tunities for collaboration outnumber any risk of exploitation. "If we're serious about promoting democracy to people who need greater self-determination, we have to use the tools of information technology," he said.

Collett's experience illustrates the technology void that exists in many countries around the globe. But technology gaps abound in even the most modern, industrialized nations, where access is unpredictable in both the public and private sectors. In the United States, nonprofits and grassroots organizations frequently lack the funds and expertise to keep pace with the constant flurry of new products, faster software, and updated hardware. "The term 'digital divide' is far too tidy a phrase to convey the social implications of the inequities we're seeing," said Lubeck.

During an internship with the United Farm Workers (UFW) in the summer of 2000, undergraduate Brandon Wright was struck by the disparity in computer know-how between Silicon Valley and the nearby agricultural communities of Watsonville and Salinas.

Wright took it upon himself to upgrade the woeful computer infrastructure of the UFW's field office in Watsonville. Although the union's headquarters were



GIIP intern Melody Liu Shuk Han (center), with Leah Riley and Frick Gurry of the Center for International Policy

networked, Wright was appalled by the limited resources he found in the Central Coast office: Computers were old, slow, and unreliable—when there were any computers at all. Organizers in field offices relied on phone calls, faxes, and "snail mail" to communicate with colleagues, often driving hundreds of miles to meet with other union leaders. Staff in Watsonville literally had to walk across the street to their satellite field office to send e-mail or do a web search.

"It seemed like the union hadn't changed much since the days of Cesar Chavez," recalled Wright. "They were at a huge disadvantage when facing opponents in corporate agriculture who have all the tools of technology at their disposal."

Ironically, the research office had received a small grant to upgrade its computers and office equipment but lacked the money to hire a consultant who could

put the money to use. Aided by those funds, Wright set about acquiring reliable, low-cost, and durable computers and abolishing what he called "the fear of technology" that pervaded the office.

Using a one-on-one, hands-on approach, Wright showed union staff members how computers could help them do their work more efficiently and effectively. He connected local office computers to the Internet, taught staff how to create a basic web page and enhance the graphic appeal of their petitions and flyers, and introduced useful online databases. Finally, Wright showed staffers how to get free Internet access and free e-mail accounts, and how to use search engines and free online translation and map services.

Wright, who became a part-time union employee, paved the way for subsequent GIIP interns, including Esther Rojas, who led a daylong computer

course in Spanish last summer tailored to the needs of UFW managers.

Mary Mecartney, who coordinated research out of the union's Watsonville office, said Wright and Rojas brought the ideal blend of expertise and respect to their work. "Most of the employees in our local field offices were farm workers before joining the staff," she said. "They haven't been to college or used computers to write term papers. But the interns did a wonderful job of breaking through the idea that computers are something too complicated for a nontechnical person to use."

Mecartney, too, is a convert, declaring computers "a fact of life in our work now. GIIP helped accelerate our understanding of that." And she is eager to continue working with UCSC students. "Our focus is organizing, working with people," said Mecartney. "We don't have time to figure out all the intricacies of computers, and we don't have the funds to go out and hire professional consultants."

For Rojas, working with the union reminded her of the connection between education and community involvement. "Being a student is not just about passing your classes, but it is also about taking charge of your education and using your knowledge to teach others," said Rojas, a senior majoring in global economics and Latin American and Latino studies.

If GIIP interns feel empowered by their experiences and are able to help empower the organizations they work with, the program has accomplished its goals, said Lubeck. "If the program can be a catalyst for that kind of win-win relationship," he said, "we're doing something right."

—JENNIFER MCNULTY

For more information, visit the GIIP web site: [www2.ucsc.edu/giip](http://www2.ucsc.edu/giip)

اللغة العربية

Arabic

[Language Lessons]

हिन्दी पाठ  
اردو سبق

Hindi

Urdu

In an academic year that began with the world-changing events of September 11, UCSC has expanded the global dimensions of its Language Program to include Arabic, Hindi, and Urdu.

IN THE DAYS FOLLOWING SEPTEMBER 11, appeals from U.S. intelligence officials scrolled across the bottom of television screens as the government sought help translating documents in Arabic. These urgent requests confirmed what Wlad Godzich, dean of humanities at UCSC, already knew: Arabic language classes were in very short supply at American colleges and universities. The government's appeals also reinforced his decision to expand the variety of language courses at UCSC, a process he had begun prior to that tragic September day.

Campus offerings have traditionally been rich in European languages, with courses in French, German, Italian, Portuguese, Russian, and Spanish. But UCSC offered only two Asian languages, Chinese and Japanese, and one Middle Eastern language, Hebrew. Godzich had already added the South Asian languages Hindi and Urdu to the fall 2001 curriculum, and he was preparing to phase in Cambodian, Korean, Tagalog, Thai, Vietnamese, and Arabic.

Then came the terrorist attacks. "The events facing us made everybody realize that offering Arabic had become a top priority," said David Orlando, chair of UCSC's Language Program.

In less than 10 weeks—warp speed when it comes to implementing a new course—an instructor was recruited, classroom space found, and a five-quarter sequence of

Arabic was begun in winter quarter 2002. Enthusiasm for the course was so strong that not all interested students were able to enroll in Arabic 1.

Arabic is one of only six official languages of the United Nations, with translation into Arabic available for all official U.N. meetings and documents. Arabic has the largest and most flexible vocabulary of any language in the world, a quality that lends it "an infinite capacity to generate new words," said Brian Miller, a graduate of UCSC (Kresge College '80) who was hired to teach Arabic.

Arabic's mutability played a crucial role in the transfer of knowledge back into Europe following the expansion of the Byzantine Empire in the eighth century A.D. Islamic scholars, for example, translated Greek mathematical texts into Arabic, before developing the math concepts and reintroducing them to Europe centuries later.

But Arabic's large lexicon has also contributed to its rating as one of the four most difficult languages for English speakers to learn, according to the Defense Language Institute Foreign Language Center in Monterey, California. Arabic usually requires three years of study for functional fluency, while two years is generally considered the minimum period necessary to achieve a useful knowledge of most other second languages.

Instituting the Arabic sequence was a

rapid response to international policy concerns, but Godzich had additional criteria in mind when he added Hindi and Urdu to UCSC's Language Program last fall. "Let's look at where we are, on the edge of the Pacific," said Godzich, "and what languages are spoken around us."

Hindi, the national language of India, is the fourth most widely used language in the world, with approximately 500 million speakers. Closer to home, a South Indian population of about 65,000 resides in the San Jose area alone. In addition, UCSC has a growing number of courses and programs involving the art, music, history, and film of South Asia (see related story on UCSC's "The Classical Music of India" concert on page 3).

UCSC also has an increasing enrollment of students from Hindi- and Urdu-speaking families as well as students who are "heritage learners." "These are students who are from that language background," said Orlando, "but don't speak the language of their parents and grandparents. We have quite a few heritage learners in Hindi classes."

Like Arabic, Hindi and Urdu have become important languages in international politics and diplomacy. Grammatically, Hindi is nearly identical to Urdu, the national language of Pakistan. "As words heard, you can't tell them apart," said John Mock, UCSC instructor in Hindi and Urdu. "But as words seen, they are totally different." Hindi is written from left to

right in Devanagari script, which is also used for writing Sanskrit. Urdu uses a Perso-Arabic script, and is written from right to left.

The addition of three new languages in 2001–02 is only the first step in Godzich's plans to reshape UCSC's Language Program. He also envisions a time in the not-too-distant future when the program will enable the Humanities Division to adopt a language requirement and proficiency standard for all of its students.

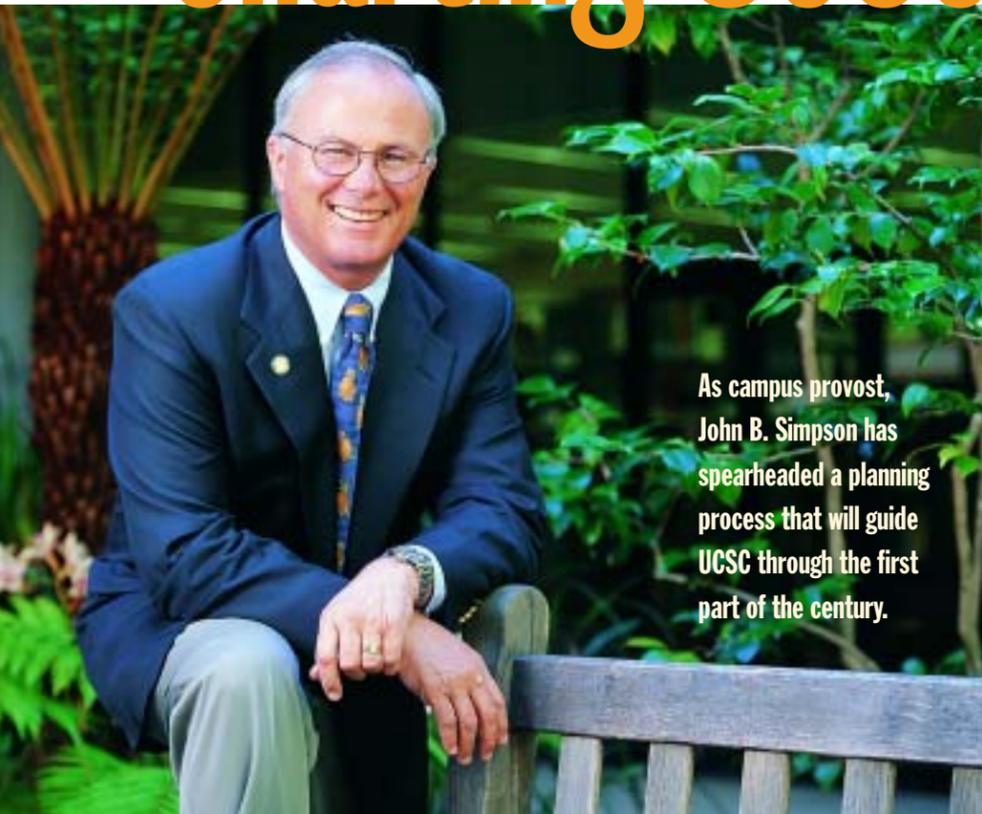
The process of language learning will be changing at UCSC as well. Godzich has proposed that the program use emerging digital technologies, such as wireless handheld devices, to transform how languages are taught. This kind of development would also enable UCSC students to receive language instruction from other institutions, inside and outside the United States.

Combined with UCSC's proximity to the Defense Language Institute and the Monterey Institute of International Studies, digital communications also create possibilities for regional collaborations in foreign language instruction. "Traditional, isolated language labs are giving way to interactive learning environments and closer integration with other institutions," said Godzich. "UCSC is poised to join institutions around the Monterey Bay Area in the rapid evolution of language teaching and learning."

—ANN M. GIBB

In less than 10 weeks—warp speed when it comes to implementing a new course—an instructor was recruited, classroom space found, and a five-quarter sequence of Arabic was begun in winter quarter 2002.

# Charting UCSC's Future



As campus provost, John B. Simpson has spearheaded a planning process that will guide UCSC through the first part of the century.

**F**or more than a year, John Simpson has led UCSC through an unprecedented campuswide planning effort. The goal: to produce a roadmap guiding UCSC to the year 2010 and beyond. Many of the questions posed by Simpson during the planning project have focused on UCSC's academic offerings. What programs, for example, make sense to add? And how will the campus build on its research strengths in the next decade? The give-and-take effort has also considered a number of nonacademic issues, such as how the campus should use emerging technologies to interact with students. And what will it take to secure the financial resources necessary to pay for the activities described in the 2010 plan.

These and other topics raised during the 18-month project have fostered extensive dialogue throughout the campus community. In fact, Simpson believes the project's final report, expected to be completed later this summer, may be less important than the process required to produce it.

In the interview that follows, Simpson shares his impressions of the project and describes why he thinks this an opportune—if not absolutely critical—time to plan for the UCSC of tomorrow. — Jim Burns

## Why undertake this major planning effort at this time in UCSC's history?

Several years ago, a number of us in the faculty and administration determined that the campus would have a fairly predictable rate of growth in the first decade of this century—and that this growth provided us with an unusual opportunity for long-term planning. We knew that, according to a 1999 study, 63,000 additional students would be eligible to attend a UC campus by the year 2010. And that UCSC, as its share of that growth, would expand by about 6,000 students in that time period.

So instead of doing our thinking, planning, and budget projections on a year-to-year basis, we decided to imagine what the campus could be like in the year 2010 and think about how we're going to get there. It breaks out of the usual mold of thinking short term, thinking piece by piece, position by position, initiative by initiative, and considers in a much broader sense what the UCSC of the future will look like.

Indeed, in its own way, I think this process is as interesting an opportunity as Dean McHenry and Clark Kerr had when they conceived of and started UC Santa Cruz, because the development of the campus in the next ten years will have a defining influence on its character over the next half century or longer.

## How successful has this effort been at producing a detailed campus plan?

I think that the goals and aspirations that have been articulated as part of this process have given all of us at UCSC a very good idea about what we want to do in this decade and why we want to do it.

We took a long view, and we sought input from all faculty and staff. So, the planning to date reflects the visions of more people in greater detail than ever before.

Personally, this project has also

confirmed for me that the faculty and staff of UCSC have an enormous dedication to this institution. People could have seen this project as just another planning exercise. Instead, they have been genuinely engaged in considering how the UCSC campus should expand and how it should be operating by the time we begin the next decade.

## Would you share a few of the academic initiatives that have been proposed?

In the Arts, for example, the division is interested in establishing graduate programs in the field of audiovisual media. One interesting idea is the creation of a Digital Arts/New Media Master of Fine Arts program, which would be the first M.F.A. degree at UCSC. Graduate program growth like this is an acknowledgment of the division's development and reflects the blending of art and engineering processes that goes into the creation of some of today's art.

The Humanities Division has a number of very creative proposals, including a master's program in Public Humanities designed to prepare students for careers related to the management, promotion, and interpretation of cultural events. And the division's recently established Institute for Humanities Research is very interested in expanding its scholarship in the areas of Mediterranean Studies, Jewish Studies, Modernist and Avant-Garde Studies, and South Asian Studies.

In the Social Sciences, the division has defined an agenda including multidisciplinary programs that enrich research and teaching. One of these includes a new master's in Social Policy and Public Advocacy. Addressing society's challenges will be a common research theme for many social sciences and humanities faculty, including those affiliated with College Ten and with the newly established Center for Justice, Tolerance, and Community.

The Natural Sciences see growth in a variety of thematic areas in which faculty collaborations from several departments illustrate the value that UCSC places on multidisciplinary scholarship. Research will address human needs in environmen-

tal science and technology, biomolecular medicine, and health sciences. The Center for Biomolecular Science and Engineering [CBSE], which spans natural sciences and engineering, will help apply new understandings of biology to medicine, agriculture, and ecology.

The Baskin School of Engineering sees its future in three very timely areas of inquiry: biotechnology, information technology, and nanotechnology. A focus is interdivisional work through the CBSE, one of 20 centers in the world that make up the International Human Genome Sequencing Consortium. Graduate program growth will include a new master's and doctoral bioinformatics program, the first in the UC system.

## Are there campus values that this process has helped rearticulate?

Yes. I think UC Santa Cruz is, in a very real sense, unique among first-tier public research universities. It is not, and probably defiantly so, going to copy the mold that is set by most large, public, state-supported universities, including other campuses of the University of California.

For example, we balance in a meaningful way the academic worlds of teaching, research, and public service. While many campuses describe themselves as balancing these three activities, paying attention to all three is deeply embedded in UCSC's culture. Indeed, in my experience, this is a rare ethos for a state-supported university.

I believe that as we go forward and think about where we will be programmatically in the second decade of this century, the campus's long tradition of fostering, indeed pushing, an interdisciplinary agenda—where the assumption is that the interesting lines of inquiry are often at the boundaries between traditional disciplines—is a tradition that will be emphasized.

To my mind, that is very progressive for a research university. In fact, one of the troubles other, older, more established universities have is getting out of what is sometimes referred to as the "tyranny of the disciplines." Our history of valuing interdisciplinary scholarship makes it much easier to steer clear of that outdated model.

## Are you considering UCSC's traditional strengths as you assess the proposals?

Absolutely. I think one responsibility that Chancellor Greenwood, I, and other members of the central administration have is to make sure that our plan for UCSC's future incorporates the values and ideals that have so successfully guided the campus's development in its first 40 years of existence. Developing a plan for UCSC's future does not mean that we should abandon our past.

In fact, UCSC's long-standing commitment to quality instruction, the high degree to which we have been able to view teaching and research as complementary—not competing—activities, the exemplary manner in which we have encouraged our students to apply what they have learned in the classroom to society's most pressing challenges, these are among our truly great strengths. And they will be preserved, even enhanced, in this plan.

## Given the state's budget uncertainties, how will UCSC pay for these proposals?

Obviously, the state government is still a critical source of financial support for UCSC. But your readers may not realize that state funds represented only 44 percent of the campus's budget last year. It's the gifts and grants from individuals, foundations, business and industry, and others that support the agenda of academic excellence in this and in all state universities.

Plus, we don't have much control over what we get from the state. I'd rather be in a position in which our ability to develop new and exciting programs is not compromised during the state's lean budget years. If we are to achieve the aspirations detailed in our 2010 plan, we have to diversify our support base, meaning that gifts and grants will be more important than ever.

Want more information about UCSC's 2010 planning project? See the following web site, which includes proposals from UCSC's academic and nonacademic divisions: [planning.ucsc.edu/plans2001](http://planning.ucsc.edu/plans2001)

## Alumni Association Councilors, 2002–03

### Cowell

ADILAH BARNES '72, *Vice President for External Affairs*  
GREGORY CANILLAS '90  
KAREN RHODES '77  
ALLISON TOM '93

### Stevenson

SANDOR NAGYSZALANCZY '77, *Vice President for Administration*  
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### Crown

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M.R.C. GREENWOOD, *Chancellor*  
MATT JONES, *Chair, Student Union Assembly*  
LEE RITSCHER, *President, Graduate Student Association*

## Online Community allows old friends to connect—and more

LIKE MOST ALUMNI, Adam Balch (Cowell '81) fell out of touch with some of his friends after leaving UCSC. And like most alumni, he occasionally wondered what became of them.

"I don't know what the sociology is about it, but to this day, my two best friends are people I met at Cowell. We had a pretty special group, and I missed some of them," says Balch, who now works in finance and lives in Los Angeles.

This spring, Balch was among the first people to make use of the Alumni Association's Online Community. In his first try, he was able to find two old friends—one of whom was in California and the other on the East Coast—and ended up making arrangements to meet several more during the Banana Slug Spring Fair reunion weekend.

According to Balch, using the Alumni Association's Online Community is "a fun way for people to stay in touch. You don't have to make a commitment to phone someone you haven't seen in a long time. Once you're registered (with the Online Community), e-mail makes it easy to reconnect where there's a bond, but you'd fallen out of touch. It's a good thing."

Balch made use of the Online Community's other top feature: the ability to set up a web-accessible "affinity" alumni e-mail address ([alumname@ucscalumni.com](mailto:alumname@ucscalumni.com)). Affinity e-mail addresses are free for Alumni Association members. "I was getting a lot of junk e-mail at my old address. I wanted to create a personal e-mail address to use with my friends—keep the riffraff on my old account," he jokes.

Whether it's renewing old friendships or showing "Slug" pride with an affinity e-mail address, thousands of alumni are using the new Online Community at [www.alumni.ucsc.edu](http://www.alumni.ucsc.edu).

For the first time in UCSC's history, these free online services are allowing alumni to:

- ▶ Use the Alumni Online Directory to get in touch with classmates and friends.
- ▶ Sign up for a web-accessible alumni e-mail address ([alumname@ucscalumni.com](mailto:alumname@ucscalumni.com)), free to Alumni Association members.
- ▶ Update their individual profile with current information so fellow alumni can find them.
- ▶ Share news of recent milestone events, and even a photo, by posting a "class note."
- ▶ Post resumes, search for jobs online, and exchange business cards.
- ▶ Register for reunions and alumni events with the added benefit of being able to see a list of who plans to attend.
- ▶ Join or renew membership in the Alumni Association online.
- ▶ And much, much more.

All alumni are welcome to use the free Online Community and Alumni Directory. Register today at [www.alumni.ucsc.edu](http://www.alumni.ucsc.edu).



Scholarship winner Stacy Williams and Chancellor M.R.C. Greenwood

## History major honored with Alumni Association scholarship

STACY WILLIAMS is the kind of student who might not have made it to UCSC.

She's the fifth of seven children. Her father is a disabled veteran; her mother suffers from schizophrenia. While she was growing up, money was tight, and there were times when the family recycled cans and used food stamps just to get by. Williams found solace at school. "We took our time walking home each day because we knew what little would be there to greet us," she remembers. "That's

a horrible feeling that, unfortunately, is a fact of life for far too many children. I wish I could let them know things get better. Because things do get better."

That's certainly been the case for Williams, now a history major looking forward to junior year abroad at the University of London. "Towns in England date back to the first century," she says with relish. "I can't wait."

Being at UCSC has been a great experience. "I've matured," she says. "UCSC teaches you to think. With each class, I become more of an enlightened person, more analytical and critical. I truly believe that if we gave a college education to everyone, 90 percent of the world's problems would disappear."

Her enthusiasm for learning brought Williams to the attention of the Alumni Association Scholarship Fund selection committee, which awarded her a \$2,500 scholarship, renewable at \$1,500 every year until she graduates. Williams was one of 16 financially needy undergraduates who received one of the coveted awards in 2001–02. The UCSC Alumni



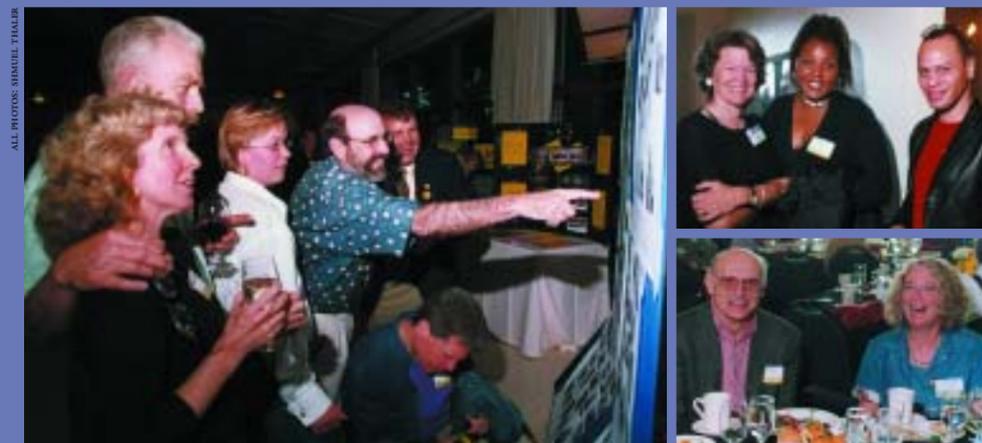
David Graves (Crown '74), general partner at the acclaimed Saintsbury winery, pours chardonnay at last summer's UCSC Alumni Vintner's Wine Tasting. This year's wine tasting is scheduled for Saturday, July 27, and will feature 15 wineries, hors d'oeuvres, live music, a silent auction, and more. To get on the invitation list, contact the Alumni Association by phone at (800) 933-SLUG or via e-mail at [alumni@cats.ucsc.edu](mailto:alumni@cats.ucsc.edu). Or, get more information and R.S.V.P. on the web at [www.alumni.ucsc.edu](http://www.alumni.ucsc.edu).

Association, generous alumni, and friends fund the awards.

"It is remarkable to think that someone has faith in me, invested confidence in my abilities, and hopes that I will succeed," Williams wrote to the Alumni Association. "I await this coming school year with great anticipation,

where I hope to return your kindness with diligence. Thank you once again."

To make a donation to the Alumni Association Scholarship Fund, send a check payable to the UCSC Foundation, 74 River Street, First Floor, Santa Cruz, CA 95060-4593 (note "Alumni Association Scholarship Fund" on your check). For more information, call Jennifer Wood, director of Annual and Special Gifts, toll free at (800) 933-SLUG.



## "If you plan it, they will come." Plan your reunion NOW for Banana Slug Spring Fair (April 2003). Contact Lynn Zachreson at the UCSC Alumni Association, (800) 933-SLUG or [lynnz@cats.ucsc.edu](mailto:lynnz@cats.ucsc.edu).

Banana Slug Spring Fair 2002 photos, clockwise from left: Patty Durkee, Paul Lawton (Crown '72), Monika Wolff, Ken Feingold (Cowell '71, pointing), Bill Justin (Stevenson '72, crouched), and UCSC Vice Chancellor Ron Suduiko enjoyed the Class of '72 Thirty-Year Reunion exhibit of early '70s photos by alumni; Cowell Programs coordinator Angie Christmann met up with grads Alvaretta Baxter (Kresge '90) and Gregory Canillas (Cowell '90) at the Cowell Provost's reception; the All-Alumni Reunion Luncheon allowed history professor Peter Kenez to reconnect with his former student Judy Flynn-O'Brien (Crown '72).

## All-Alumni Career Conference

Sponsored by the Alumni Associations of the University of California (AAUC)

Saturday, Sept. 28, 2002  
8 A.M.—3 P.M.  
Doubletree Hotel Pasadena  
Pasadena, CA

COST: \$30 members /\$45 non-members before Sept. 7; registration after 9/7, add \$15.

Find more information and register at [www.ucalumni.net](http://www.ucalumni.net)

Questions? Contact Allison Garcia at the UCSC Alumni Association, (800) 933-SLUG, or via e-mail at [agarcia@cats.ucsc.edu](mailto:agarcia@cats.ucsc.edu)

# ALUMNI NOTES

## Cowell College

'67 **Barbara BULLOCK-Wilson** is the coauthor of a new book on photographer Wynn Bullock, published by Phaidon Press in 2001.

'69 **Jane KENNER** is training to become a psychoanalyst at the Psychoanalytic Institute of Northern California. **Margaret WADE Krausse** and her husband, Jeff Krausse, are planning a sabbatical trip to France this year to do research on French writers of North African origin. **Barbara VIKEN** had one of her photographs published in the book *Animal Blessings: Prayers and Poems Celebrating Our Pets*.

'72 In fall 2001, **Adilah BARNES** appeared in guest-starring roles on CBS's *Family Law* and *The Agency*, UPN's *Roswell*, and Warner Brothers' *Gilmore Girls*; she also performed at the New Work Festival 2001 at the Mark Taper Forum in Los Angeles, and she has begun work on a book. **Kate STAFFORD**, a self-employed writer and photographer, has been working on several projects, including a documentary on horticultural therapy projects for the mentally disabled, homeless, and at-risk youth in group homes; and photographing organic farms throughout the Santa Cruz and north bay areas.

'73 **Scott CRASK** was recognized recently for over four years of service to Buckelew Programs, which provides housing and rehabilitation services for adults with mental illness, at the agency's annual meeting at the Embassy Suites in San Rafael, Calif. **Kathryn WRIGHT** is program and medical director of Horizons, a complete clinic for HIV-positive adolescents; she is also the mother of an 11-year-old daughter, Jordan.

'74 **Michele WILKIE** is a registered nurse; she and her husband have two sons, ages 12 and 10.

'77 **Kate O'SHEA** is teaching workshops developed by Peggy Huddleston and based on Huddleston's book *Prepare for Surgery, Heal Faster*.

'78 **Aaron SILVERBERG**'s first book of poetry, *Thoreau's Chair*, was published by Off the Map Enterprises in Seattle in November 2001, and he was planning a series of readings in the Pacific Northwest; in addition to writing poetry, he's an improvisational flutist, ecstatic dancer, organic gardener, and personal-life coach.

'81 As producer in the public affairs department of KQED-FM and foreign student adviser at City College of San Francisco, **Naomi MARCUS** is using the languages she learned at UCSC and the master's in journalism

she earned from Columbia University; "one job for the head, and one for the heart," she writes.

'82 **Henry "Rennie" COIT Jr.** is chief operating officer for the University of Washington Physicians Network; prior to this appointment, he served as medical director at Regence Blue Shield in Seattle, and before that he had a general practice in pediatrics. **Jonathan SPAULDING** was featured in a 90-minute documentary by filmmaker Ric Burns, titled *Ansel Adams*, which was telecast on PBS in April 2002; he is associate curator of the Seaver Center for Western History Research at the Natural History Museum of Los Angeles County.

'84 **Kevin MICKEY** is living in Spokane with his wife, Amy, son, Matt, and daughter, Molly; he is still practicing law and enjoying it; friends are invited to look him up when they are in the area.

'86 After receiving an M.S. in Earth sciences from UCSC and a Ph.D. from the University of Colorado, Boulder, **Lisa CAMPBELL** is living in Houston and working for Conoco; she is married and has two children, ages six months and three years. **Darrick YUN**'s historical adventure novel, *The Chronicles of Dat Seung, the Young Monk*, is a perfect summer read (complete with

romance and martial arts) and is available at [www.greatunpublished.com](http://www.greatunpublished.com).

'87 **Lucia SMALL**'s film about her long-estranged father, dreamer and visionary architect Glen Small, titled *My Father, The Genius*, was shown at the Slamdance 2002 Film Festival in Park City, Utah, where it won an award for best editing and the Grand Jury Prize for best documentary.

'90 **Laura MALEY Rumelhart** married Peter Rumelhart, whom she met in graduate school at UCLA; they both work as geologists in Houston.

'94 **Catherine BRESEE** is involved in drug addiction studies in the Psychiatric Research Department of Cedars-Sinai Medical Center in Los Angeles.

'95 **Verónica CONTRERAS** is finishing a Ph.D. in biochemistry at the University of Texas Health Science Center in San Antonio and plans to marry Mike Shannon in 2003.

'97 **Brian DEVINCENZI** is a realtor and mortgage broker.

**Helen FAITH** has been happily married since 1998 and is working in the Financial Aid Office at UCSC; she is putting her husband through college and raising their two cats while singing soprano with the Santa Cruz Chorale. **Leigh MURRELL** is teaching Spanish

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## From the ground up

**Alexander Gonzalez (psychology, M.S., Ph.D. 1979) didn't plan on going to college; now he's president of CSU San Marcos**

"I DIDN'T START OUT to be a university president," observes Alexander Gonzalez. What the president of California State University, San Marcos, *did* start out as was the son of Mexican immigrants in East Los Angeles, the middle child of seven. After graduating from Garfield High School—the school made famous in the 1988 film *Stand and Deliver*—military service, not college, was in Gonzalez's immediate future.

"My friend and I were going to join the Navy, but the recruiter had gone out to lunch, so we joined the Air Force," he remembers. After a four-year

stint, including service in the Philippines, Gonzalez began to consider college. No one else in his family had gone to college, and his parents had received just a few years of schooling. But when he was recruited by Pomona College, he enrolled, earning a degree in history.

In 1998, 30 years after he first set foot on the Pomona College campus as a 23-year-old freshman, Gonzalez became president of his own campus, CSU San Marcos in northern San Diego County. He had served just a year of what was expected to be a two-year temporary appointment as interim president, but CSU Chancellor Charles Reed said Gonzalez had earned the permanent appointment "the old-fashioned way—through dedication and hard work." Since then, *San Diego*

*Magazine* has placed Gonzalez on its list of "people to watch," describing the college president as "hard-charging" and a "no-nonsense educator."

All this apparently caught the eye of the Bush administration, which tapped Gonzalez to serve on the newly created Commission on Educational Excellence for Hispanic Americans. The commission is focusing on K–12 education. Gonzalez is the only representative from higher education.

Gonzalez says "there is nothing magical" about the ingredients of school success for Latino—and non-Latino—students: "Parents have to get involved, and students need to take the right mix of courses and stay engaged." Making all that happen, he adds, is the difficult part. "But I really do believe that education is the key. Without it, advancement is difficult. Besides, it's fun."

The issues before the commission bring Gonzalez back to his time in Santa Cruz County. As part of his UCSC work toward a master's and Ph.D. in psychology, he observed students at Watsonville High to understand social interactions in an educational setting. At UCSC, he also taught psychology, and he and his wife, Gloria, were residential preceptors.

After earning his degrees at UCSC, Gonzalez was a post-doctoral fellow at Stanford and taught at California State University, Fresno, where he served as chairman of the Psychology Department. Gonzalez says he was "steered" into other administrative posts, eventually serving as provost and vice president of academic affairs at Fresno State. "It turned out I had a talent in that area," Gonzalez says.

He has always felt a strong

bond with students, and his decision to move into administration went against the advice of many close to him, including his wife. He misses the one-on-one with students from his teaching days but gets satisfaction from his work as an administrator. "I can really influence a lot more students."

As president of a 6,200-student campus expected to quadruple in size over the next 20 years, Gonzalez will have plenty of influence. "We're building the campus from the ground up," he says. A science building and a visual and performing arts building are nearing completion. To keep class sizes from ballooning, Gonzalez has made sure buildings are designed to hold mostly small classes rather than lecture halls.

Writing has been emphasized, thanks in part to a student-writing requirement. San Marcos has also stressed lifelong sports and wellness rather than big-time athletics; golf, track, and cross-country are the three competitive sports. The sports scene at San Marcos, he says, is closer to the UCSC model than the football fever he witnessed at Fresno State.

When its first dorm is completed this fall, San Marcos will become more than the commuter campus it has been since it opened in the fall of 1990. Gonzalez looks forward to the greater level of student-faculty interaction this will bring. "It's going to change everything—it'll be 24/7."

Approximately 20 percent of the students currently enrolled at San Marcos are Hispanic, with backgrounds similar to Gonzalez's. "I represent the university for everyone," he says. "But my success is not lost on those particular students."

—LOUISE GILMORE DONAHUE

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in a San Diego high school and pursuing her master's in Spanish at San Diego State University.

'99 **Shannon HERNDON** is teaching seventh grade at Moreland Notre Dame School in Watsonville, Calif.

'00 **Adele BARRETT** obtained a master's in educational policy analysis and evaluation from Stanford University in June 2001.

'01 **Kelly FERRIS** is in graduate school at the University of Washington in Seattle; she is also doing therapeutic work with children with autism.

## Stevenson College

'71 **Terry BERTOLINO** is coauthor with Joel Hawkins of the book *The House of David Baseball Team* (Arcadia, 2000); the book, which recounts the exploits of the Israelite House of David baseball team, a group of bearded barnstormers originally from a devout religious sect in Michigan, was chosen by Sporting News–Society for American Baseball Research as one of two outstanding research projects conducted during 2001.

'73 **David KRAWITZ** is managing director and senior vice president of the Los Angeles office of APCO Worldwide, a global public

affairs and strategic communications firm; prior to this appointment, he served as chief of staff to former Michigan senator Don Riegle. **Deborah PAGE** is an educational consultant, curriculum developer, and writer who specializes in environmental and energy issues; she is also a part-time program specialist, designing and delivering instruction in reading and writing at a progressive public school in Claremont, Calif.

'78 **Mark STEINBERG's** book, *Voices of Revolution, 1917*, was published by Yale University Press in 2001; he directs the Russian and East European Center at the University of Illinois.

'82 **James SHARMAT** is an attorney and plays Irish traditional music; he is now doing tax relief work but has done environmental and public interest work as well.

'83 **Kim RIVERO-Frink** received her master's in public administration from San Diego State University in 1994 and now works for the San Diego County Children and Families Commission.

'91 After a 14-year hiatus, **Paula Gay LINDSAY** has returned home to Sacramento; she loves her work as a graphic designer and has a web site located at [www.paulagay.com](http://www.paulagay.com). **Jennifer YEARLEY** will be starting a three-year residency in veterinary clinical pathology at North Carolina State University in Raleigh in July 2002.

'94 **Douglas DURWARD** is an attorney practicing civil rights law; his wife, **Amy Beth THORNHILL Durward** (Merrill '96) is a pastor with the United Methodist Church; they are expecting their first child in July 2002. **Ami EHRlich** is working on a project called Women with Altitude, a mountaineering expedition that is raising awareness and funds for victims of domestic violence; learn more about the project on the web at [www.womenwithaltitude.org](http://www.womenwithaltitude.org).

'96 **Dan WILSON** received his M.S. in 2001 and is currently working on his Ph.D. in sociology at the University of Oregon.

'97 **Adam BIEN** is a research analyst at the Hawaii Visitors and Convention Bureau in Honolulu; in August 2001, he married a beautiful and intelligent Argentine. **Ricky TECZON** was admitted to Stanford University's graduate program in civil and environmental engineering.

'01 **Colleen FLYNN** and **Lawrence SHIN** are first-year law students at Southwestern University School of Law in Los Angeles.

## Crown College

'72 **Arthur BRIDGE** completed an allegorical journey-tale (a novel) in 2001, entitled "The Sojourns of Anton Reisen."

'75 **J. Michael PARRISH** was named a 2002 Presidential Research Professor by Northern Illinois University, where he is chair of the Department of Biological Sciences; his primary academic focus is on dinosaurs and other extinct reptiles; in addition to teaching, administration, and editing the *Journal of Paleontology*, he writes rock, jazz, folk, and world music reviews for the *Chicago Tribune*.

'76 After living for 15 years in Egypt, **Mark DREESSEN** is now teaching at the University of Chicago Laboratory Schools; he has three children, Sam, Ramzi, and Amina (aged 13, 11, and 8), and they live on campus in Hyde Park on the South Side of Chicago, an invigorating and culturally diverse part of town. "Getting used again to crime (violent crime, that is) after living in a virtually crime-free society has been tough. Cairo, with twice the population of New York City, has a minuscule violent crime rate in comparison, mostly due to the extraordinary ways in which Egyptians resolve their differences face to face," he writes.

'79 **Steven WALLACE** was promoted to full professor at the UCLA School of Public Health and completed a yearlong Fulbright Fellowship and sabbatical in Chile accompanied by his wife, **Trudy SONIA** (Crown '80), and son, Brian Sonia-Wallace.

'83 **David HORWITZ** is now a lawyer in San Diego fighting for truth and justice.

'85 Last year was a big year for **George WILLIAMS II**, who became a new father in July 2001 with the birth of his son, Kyle, and received an M.B.A. with an emphasis in information technology management from California Lutheran University in December 2001.

'86 **Bernt WAHL** has received a Fulbright Fellowship and will spend the 2002–03 academic year as a professor of business and technology in Kuala Lumpur, Malaysia, where he plans to continue his work on Internet search technology and integrated mass transportation systems.

'89 **Pamela Kaye QUINN Griffey** works at Theodore Judah Elementary School in Sacramento; she and her husband, David Griffey, enjoy relaxing along the American River with their Border collie, Sadie.

'90 **Jeanne BUCKTHAL Greene** married **Todd GREENE** (Kresge '94) in February 2002; they live in Houston, and he is a geologist for Anadarko. **Elizabeth "Libby" ROUAN** has worked for 10 years as a hazardous materials specialist with the San Mateo County Environmental Health Services Division and as a volunteer with the Golden Gate Raptor Observatory in the Marin Headlands; *Whole Earth* magazine recently published a

report she wrote summarizing raptor-tracking results for the 1999 season.

'91 **Mark REED** received his Ph.D. in psychology from the University of Maryland in 1999; he and his wife, **Margaret MAHONEY Reed** (Crown '89), had a daughter, Julianna, in 2001; they currently reside in San Diego.

'96 **Sandy HODGES** is pursuing a master's degree in applied developmental psychology at Portland State University.

'99 **Anna VON GEHR Marcoux** is married to **Jason MARCOUX** (attended College Eight) and they live in the Bay Area; she is finishing an M.A. in museum studies and is working as the major-gifts coordinator at the Oakland Museum.

'00 **Amy PRESSWOOD** is living in Reno, Nev., with her husband, Reagan, and working as a software engineer; they were expecting their first child in June 2002.

'01 **Lorena MEZA** is a first-year student at Southwestern University School of Law in Los Angeles.

## Merrill College

'75 In May 2002, **Laurie GARRETT** received the San Francisco Exploratorium's 2002 Public Understanding of Science Award; she has received all three "Big P" journalism awards: the Peabody, the Polk, and the Pulitzer; she currently works for *Newsday*.

'80 After teaching ESL in Italy for seven years and at Soledad Prison for six years, **Dan ASPROMONTE** is working in the family business, managing Best Western hotels; he and his wife, **Randa TAWASHA** (M.A., applied economics '99) have a baby daughter, Amira Fiorella. **Lilianne CHAUMONT** opened Chaumont Law Group in 2001; the firm specializes in construction and alarm and security law.

'86 After spending four years with the American embassy in the Dominican Republic, **Nancy SOLORIO-Murray** has relocated to southern California with her seven-year-old daughter, Elizabeth; Nancy works with bilingual students as part of the Rolling Readers, a nonprofit children's literacy program; she would love to hear from other UCSC grads at [solorionan@hotmail.com](mailto:solorionan@hotmail.com).

'87 **Lisa JEFFERS-Fabro** is married to Ati and living in Hawaii, where she is also a mother and full-time elementary school teacher.

'88 **Lili SOLOMAN** and her husband, Chul Ho Lee, have two daughters, Sylvie Genevieve and Shinae Estella; Lili teaches second grade in San Leandro, Calif.

'92 After founding and serving five years as superintendent of Audubon School in Port-au-Prince, Haiti, **Malherbe BELIZAIRE** is completing a Ph.D. in international relations and consulting. **Sherry ROUSH** is an assistant professor of Italian

at Penn State University; her book, "Hermes' Lyre: Italian Poetic Self-Commentary from Dante to Tommaso Campanella," is forthcoming from the University of Toronto Press.

'93 **Tamu GREEN Mitchell** is the director of research and knowledge development for People Reaching Out (PRO) in Sacramento; she was selected by the Robert Wood Johnson Foundation for its program in Developing Leadership in Reducing Substance Abuse, and she was awarded the Harold Cole Award by the Sacramento County Alcohol and Drug Advisory Board and the Alcohol and Drug Services Division.

'95 **Eric GUETSCHOFF** is currently living in Sacramento, working to develop affordable housing; he can be reached at [ericgetch@yahoo.com](mailto:ericgetch@yahoo.com).

'97 **Kristi BERES** works for the California Employment Development Department and has run seven marathons; she has a new puppy and a rabbit and just bought her first home.

'00 **Nathan MOYA** is a systems engineer in the Optical Networking Group at Cisco Systems.

'01 **Sarah GIORGETTI** is moving to Hawaii.

## Porter College

'71 **Maria VON BRINCKEN** has a landscape design firm in Sudbury, Mass.; her design for a front-yard garden in the

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Northeast was one of six regional gardens featured in the March/April 2002 issue of *Fine Gardening* magazine; her design includes native plants that provided “color and texture in a sequence of bloom, berry, and leaf for four-season interest.”

**'73 Ron KAPPE's** son, Wilson Kaiser, graduated from Oakes College in June; Ron has an architectural firm, Kappe + Du Architects, located in San Rafael, Calif., specializing in civic and educational buildings. **David NEAL** is working in Minneapolis as a private portfolio manager for individuals and small institutions; he visited the campus in summer 2001 with his wife, Mary, and three daughters; he misses the redwoods and the ocean; friends may write him at [dneal@tealwood.com](mailto:dneal@tealwood.com).

**'74 Michael SCHIPPLING** is currently “wholly owned chattel of IBM,” but he hopes to retire to New Mexico with a bunch of other UCSC grads.

**'80 Jennifer COLBY** received her Ph.D. in humanities from California Institute for Integral Studies in 2001; she is a lecturer in liberal studies and service learning at CSU Monterey Bay and the owner of Galeria Tonantzin in San Juan Bautista, Calif.

**'85 Rob LAMMÉ** recently took a job as director of governmental relations for the North Carolina Department of Health

and Human Services, and he is training for a triathlon; friends can contact him via e-mail at [rob.lamme@ncmail.net](mailto:rob.lamme@ncmail.net).

**'88 Mayumi WATANABE** is still painting.

**'89 Seath AHRENS** has a daughter, Madison Jane Ahrens, born in January 2000, and he's working on a CD, called “Mental Floss,” for his band Twist of F8; he started Curious Labs in April 2000 and is working on Poser and other 3-D graphics software. **Wendy BETTS** and her husband, **Evan HUNT** (Merrill '91), recently had a baby boy, Ben Hunt. **Vinnie DeRAMUS** is a production coordinator and digital/animatronic puppeteer in training at Jim Henson's Creature Shop in Los Angeles.

**'90 Julie GERNGROSS Baker** has opened a gallery, Julie Baker Fine Art, in Grass Valley, Calif., offering cutting-edge exhibitions, corporate and collector's services, and cultural activities; her husband, **Richard BAKER** (Porter '89), is an architectural designer and photographer.

**Hewitt RYAN Jr.** was planning to marry his college sweetheart, **Caroline TAO** (Crown '91), in April 2002 in the Santa Cruz Mountains.

**'94 Batyah SHTRUM** is pursuing a graduate degree in art conservation at the University of Delaware.

**'95 Jennifer BRO** and Craig Haskett were planning to be married in September 2001.

**'00 Eleanor SOMMERS** was planning to begin law school at the University of San Francisco in fall 2001.

## Kresge College

**'79 Doug FRIEDMAN** writes, “Fans of Francisco Bizarro can e-mail [friedmand@pdsd.ocgov.com](mailto:friedmand@pdsd.ocgov.com) for an update; paying customers can contact his agent, Marian Berzon Talent.” **Blanca PORTELLA** is the proud owner of two bakeries in the San Diego area, the Zen Bakery (100 percent natural) and the Ultimate Cinnamon Roll (100 percent delicious); she has two great teenagers and still goes to Brazil to see family when she can.

**'89 Adam MARKUS** lives with his wife, Akiko, in Tokyo.

**'94 Jennifer ABATO Uecker** and her husband, an Internet product manager, married in 1995 and have a daughter, Daphne, born in July 2001; Jennifer received her master's degree in educational technology from Pepperdine University in 2000.

**'98** While in her third year (2001–02) at Southwestern University School of Law in Los Angeles, **Anna GREENSTIN** was once again appointed to the school's interscholastic trial advocacy team; she and fellow students participated in national trial-competitions. **Adolpho MERCADO** is working with Upward Bound at Yuba College while completing an M.A. in anthropology.

## Oakes College

**'84 Brad GARDNER** is living in San Diego, sculpting, painting, and writing a book about California's correctional system.

**'92 Xavier TSOOU** married Sarah Forman, an Australian, in 2001, and they live in San Francisco.

**'94 Daniel BARNHART** is a former Slug basketball player now coaching at the high school level. **Stephanie BYSTRY** and **Paul GOEBEL** (Crown '95) got hitched in May 2002; they met in San Diego, but it was “their common Slug background that convinced them to seal the deal.”

**'95 Don MESA** was planning to get married in July 2002.

**'98 Ben ARCANGEL** earned a graduate certificate in theater arts from UCSC in 2000, and he is currently at the University of Hawai'i at Manoa, where he is a graduate student in Asian studies and a lecturer in dance in the Department of Theatre and Dance at the Kennedy Theatre in Honolulu; he was selected as the Outstanding Performer in the Southwest Region at the American College Dance Festival in Arizona this year.

## College Eight

**'79 Kevin DANN's** latest book, *Lewis Creek Lost and Found*, was published in 2001 by the University Press of New

England; he is now working on a biography of Henry David Thoreau.

**'80 Donn HURD** is working for the New Mexico State Agency on Aging, counseling older unemployed persons and helping them search for jobs.

**'81 Jane TEAGUE-URBACH** is the environmental education coordinator for the Butte Environmental Council in Chico, Calif.

**'83 Julie JOHNS** graduated from Mercy College in Dobbs Ferry, N.Y., with a master's degree in acupuncture and Oriental medicine.

**'85 Carolyn RICE-Losee** is owner and principal of Archaeological Resources Technology, an environmental consulting firm specializing in cultural resources management.

**'86 Heather ROSS Rasnick** and her husband have a son, Ryan Garrett Rasnick, born in March 2000.

**'88 Mysti RUBERT** was a finalist at the 2001 Mendocino Coast Writers Conference in the fiction category.

**'89 Dan SWERBILOV** was laid off (along with 90 others) from Macromedia, where he had worked for eight years; he and his wife, Diane Jacobs, have bought a house in Portland and are trying their luck there; they have a one-year-old son, Max.

**Leslie VAN ZWALUWENBURG Van Vaekenberg** earned a master's degree in 1992 and a doctorate in education in 1998; she has taught in medium-security prisons for men for the past eight years.

**'91 Elyssa ELDRIDGE** is living in Oakland with her husband, David Standish, and is a full-time mom to her two-year old daughter, Arianna. After graduating with an M.F.A. in dance from Ohio State University in 1996, **Stacy REISCHMAN** is dancing and choreographing and is an assistant professor of dance at the University of Southern Mississippi; she will be chair of the dance program in fall 2002. **Dennis SULLIVAN** is living in Santa Monica and working as director of distribution for Fremantle Media North America; he is planning to start law school in fall 2002.

**'93 Shannon HAZELTINE Peacor** is program director of Trinity Children and Family Services, part of a residential treatment program for teenagers in Sacramento; she and her husband were expecting their first child in December 2001.

**'98 Carmen MALLOY** served in AmeriCorps in San Francisco and is currently teaching second grade in Sacramento; friends may contact her at [cmallo@hotmail.com](mailto:cmallo@hotmail.com).

**'99 Patrick CHANDLER** is a program officer with the California governor's Academic Volunteer and Mentor Service Program, which funds and

monitors mentoring programs throughout California for at-risk children in the school setting.

## College Nine

**'01 Michael LOFGREN** recently received his commission as a naval officer after completing Officer Candidate School at Naval Aviation Schools Command, Naval Air Station, in Pensacola, Fla.

## Graduate Studies

**'75 Marc HOFSTADTER** (Ph.D., literature) has published his second volume of poetry, *Visions: Paintings by Jackson Pollock, Mark Rothko, Chang Dai-chien, Georgia O'Keeffe, and California Impressionists Seen Through the Optic of Poetry* (Scarlet Tanager Books, 2001), which consists of 110 poems about modern paintings.

**'78 David BEAR** (Ph.D., chemistry) is professor and chairperson of the Department of Cell Biology and Physiology at the University of New Mexico School of Medicine; he published an article, titled “Oculopharyngeal Muscular Dystrophy in Hispanic New Mexicans,” in the November 21, 2001, issue of the *Journal of the American Medical Association*.

**'89** After living and teaching overseas on five continents, **Gwen LACY** (cert., education) returned to the East Coast to

attend law school and is now an attorney with Connolly Bove Lodge & Hutz LLP, an intellectual property firm.

**'94 Polly MOLLER Springhorn** (M.A., music) is working on her third CD of original music, to be titled “Diogenes.”

**'01 Scott MORGENSEN** (Ph.D., anthropology) is an assistant professor in lesbian, gay, bisexual, and transgender studies in the Women's and Gender Studies Program at Macalester College; his ethnographic dissertation, titled “Metropolitan Desires, Utopian Practices: Contesting Race, Sex, and Other Colonial Legacies in U.S. Queer Communities,” examined how colonial discourses shape queer organizing in U.S. sexual and racial politics.

## In Memoriam

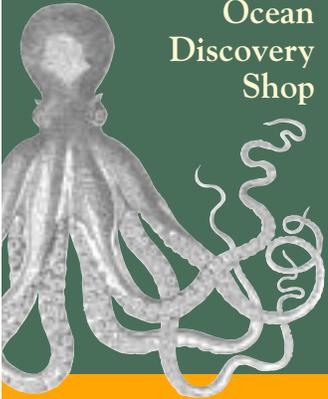
**Ted Lawrence BENJAMIN** (College Eight '90), an independent art director for film, video, and television, died in Costa Rica November 11, 2001; he was 35.

**Donal FORRESTER** (Ph.D., history of consciousness, '74), a Paulist Father, died March 4, 2002, in New York City; his colleague, Father Dennis Hickey, wrote that Father Forrester “was very proud of the fact he had received a Ph.D. from UCSC when in his late 60s.”



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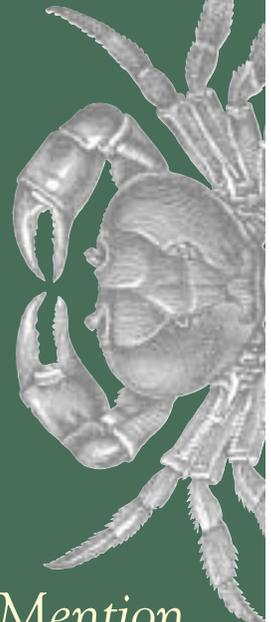


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