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INSIDE INSIGHT

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Flexibility displayed

Research at ASU's Flexible Display Center, which is establishing the groundwork for a new type of flexible information display for computer screens and beyond, has been cited as one of the top technological breakthroughs in 2008 by *Wired* magazine.

Information-rich displays that can be carried anywhere are tantalizingly close to reality, thanks in part to the groundbreaking work of the Army's Flexible Display Center at ASU, according to *Wired* (www.wired.com/gadgets/miscellaneous/news/2008/12/YE8_techbreaks).

Because these display screens are a significant departure from traditional rigid, glass-based screens, the underlying technologies that will make flexible displays had to be completely reworked.

To make displays flexible enough to be body-contouring – or even folded or rolled up – FDC researchers and their industrial partners have developed new display designs, developed new materials for the displays and associated electronics, and re-worked existing manufacturing methods. The end result for consumers will be a new technology that could have a major impact on how we interact with the world.

"Flexible displays could change the way we interact with the info-universe, creating new kinds of cell phones, portable computers, e-newspapers and electronic books," *Wired* states in the article. "This year, the research moved from the realm of science fiction to plausible reality. With the help of the Army, ASU's Flexible Display Center has created a prototype for soldiers and hopes to have the devices in field trials in the next three years."

"This recognition is a great tribute to the talented and dedicated team we have put together here at ASU and our industry and government partners," says Greg Raupp, FDC's founding director. "Working together, we have rapidly achieved what our stakeholders refer to as an extraordinary accomplishment and with results that no other university could have achieved in this time frame."

ASU on the Web

Officials with ASU's Office of the Vice President for Research and Economic Affairs have unveiled the Legacy of Research Web, which allows everyone on the World Wide Web the opportunity to explore the last 50 years of ASU's research efforts.

For more information – and a glimpse into ASU's research past – visit the Web site **http://asuresearch.asu.edu/legacy.**

To suggest a Web site to be profiled in *ASU Insight,* send the site address to asuinsight@asu.edu.

ASU, Penn team up to commercialize technology

By Sharon Keeler

In what is believed to be a unique relationship in higher education, ASU and the University of Pennsylvania (Penn) have entered into a partnership to assist one another with commercialization of selected technologies for their respective universities.

The collaboration will use the resources, networks and contacts of Arizona Technology Enterprises (AzTE), ASU's technology venturing arm, and the University of Pennsylvania's Center for Technology Transfer (CTT) for the purpose of transferring university technology to the marketplace.

"We are moving beyond the conventional tech transfer model by combining the collective resources of our offices for the mutual benefit of our respective clients," says Augustine Cheng, managing director of AzTE. "Penn will likely have relationships that we do not have with certain companies, or venture firms that may be interested in licensing or investing in ASU technology. Their licensing professionals will likely have expertise in fields that we lack in our office. The same will be true the other way around."

Each university technology transfer office will share a percentage of any resulting income received by the other, based on the amount of effort and activity involved in commercializing the technology. The universities will remain the owners of their respective intellectual property.

ASU already has innovative partnerships in place to translate university-created technologies into products for the benefit of society. AzTE has entered into separate global arrangements to market technologies developed by ASU's partner universities, Dublin City University in Ireland (through its technology commercialization organization, Invent DCU Limited) and Tecnológico de Monterrey in Mexico.

"This latest collaboration with Penn, along with those established with partner universities in Mexico and Ireland, constitutes an alternative pathway to commercialization of university technology in the public interest," Cheng says.

"The University of Pennsylvania

(See ASU-PENN on page 7)

Wurzburger closes book on 48-year ASU career

By Judith Smith

When she began working in ASU's Matthews Library on July 18, 1960, Marilyn Wurzburger had no idea that she still would be collecting a paycheck from the university 48 1/2 years later.

It just sort of happened, says Wurzburger, who will retire Jan. 23. One year melted into another, and another, and new challenges came along to be met. Friendships developed, and soon Wurzburger became one of the two or three longest-employed faculty or staff members ever at ASU.

Wurzburger was born in Kirkwood, Ill., and received her bachelor's degree in English from MacMurray College in Jacksonville, Ill. She taught high school for a year, then fourth and fifth grades for four years in Illinois.

Her husband, Dick, who was an electrical engineer with Motorola, was offered a chance to transfer to Arizona – and the couple, always adventurous, packed their bags and moved.

Wurzburger taught a final year, at Loloma School in Scottsdale, then she and her husband went to San Diego, where he had accepted a job with another company after Motorola's B-70 project was canceled.

When Motorola reinstated the B-70 project and asked Dick to return, the

TOM STORY PHOTO

According to Marilyn Wurzburger, the book she's holding in this photo has significance. "It's the book that was presented to the ASU Libraries on the occasion of the Hayden Library dedication by the guest speaker – and noted book collector – Norman Strouse," she says. "The book is 'Diogenes Laertius. Vitae et Sententiae Philosophorum,' printed by Nicholas Jensen in Venice in 1475."

Wurzburgers happily came back to Tempe and moved into their house – which, fortunately, had not sold.

It was then that Wurzburger made the choice that would bring her to ASU for a record tenure.

"I had been taking classes in library science to keep my certification, and I was certified to be a school librarian,"

(See LONGTIME on page 7)

'Honest indicator' sniffs out cheaters

By Margaret Coulombe

An "honest indicator" has been discovered by a scientific team at ASU that reveals reproductive cheating. But for those who might consider buying an infidelity identification kit, know that it only works for ants.

While it's well-known that workers in ant colonies typically support one reproductive female – a queen – it turns out that cheating can be a problem.

Cheating is found in all sorts of animal and insect groups, including other highly organized social organisms. Humans cheat on their partners roughly 15 percent to 18 percent of the time (according to scientific studies), but worker ants that stray from acceptable celibate social norms rarely, if ever, are successful. Cheaters are weeded out by other workers and brought back into line, through a process called "policing."

So how can workers in an ant colony, with hundreds or thousands of sister-workers around them, locate one cheater in an ant hill?

Through fertility hydrocarbons, says Jürgen Liebig, an assistant professor in the School of Life Sciences and member of the Center for Social Dynamic and Complexity in ASU's College of Liberal Arts and Sciences.

(See 'HONEST INDICATOR' on page 7)

ASU makes commitment to energy conservation

Conserving resources for the future is as easy as flipping a switch or turning a thermostat down a few degrees.

ASU is committed to energy conservation through numerous efforts including the nation's first School of Sustainability, but it's through simple, everyday acts that valuable energy is saved and operating expenses are reduced. Energy consumption is the university's largest non-personnel expenditure.

Immediate savings in energy consumption are being realized on all of ASU's campuses by setting winter thermostats at 65 degrees and summer temperatures at 82 degrees in buildings that are not restricted by regulatory or other temperature compliance requirements. These changes are expected to save the university more than $900,000 per year.

Facilities Management also is reviewing and revising heating, ventilation and air conditioning operating schedules to match hours when buildings are regularly occupied. A reduction of 10 percent overall could add up to about $500,000 per year.

Energy improvements on the Tempe and West campuses are currently under way through a series of capital investments that are expected to further reduce energy usage once they are completed in 2010.

Other energy savings methods that are being implemented by the university include:

- Unplugging personal appliances such as refrigerators, coffee makers, microwave ovens, hot plates, fans and heaters in individual offices.
- Turning off lights in work areas when they are unoccupied. Also, employees are being asked to use only the lighting in work areas necessary wherever possible.
- Turning off computers or setting them to sleep mode when not in use. For more information, visit the Web site www.energystar.gov/index.cfm?c=power_mgt.pr_power_mgt_users.
- Keeping exterior building doors closed when HVAC systems are operating.

ASU welcomes ideas from students, faculty and staff members to help reduce energy usage and minimize the impact of pending state budget reductions. To contribute ideas for reducing the university's environmental footprint, and to suggest cost-savings measures for the university, go online to www.asu.edu/president/suggestions.

Geographer receives Presidential Early Career Award

By Carol Hughes

ASU geographer Paul Torrens is among the newest recipients of the competitive Presidential Early Career Award for Scientists and Engineers (PECASE).

Torrens, an associate professor in the School of Geographical Sciences at ASU's College of Liberal Arts and Sciences, was recognized in a ceremony at the White House Dec. 19.

PECASE, established in 1996, is the highest award given to young scientists and engineers by the U.S. government. It was presented to Torrens in recognition of his innovative, immersive three-dimensional computational modeling, which is designed to help predict crowd behavior. The reusable and flexible modeling environment Torrens is constructing looks at putting behavioral geography into classic artificial intelligence, then applying it to a general kind of social behavior in crowds: riot situations, pedestrian behavior, behaviors of shoppers and throngs along retail streets.

"Most of this work is usually done by computer scientists," Torrens says. "They're usually most interested in the computational efficiencies – to try to get the most efficient or elegant algorithm – so they usually turn to physics in search of their algorithm.

"Under certain conditions, crowds behave the same as particles behave in flowing in a conduit. So they use equations from physics for the motions of particles. But human crowds are not very well known, and they're not well-behaved. So there's a small niche there for me to do some work."

Torrens' work is mostly in urban geography and behavioral geography – "classical social science stuff," he says.

"But I also build my own tools if there's a question I want to answer and there are no tools," he adds.

In addition to his work as an associate professor in the School of Geographical Sciences, Torrens is director of the Geosimulation Laboratory at ASU and an affiliate faculty researcher in the Center for Social Dynamics and Complexity, as well as the GeoDa Center for Geospatial Analysis and Computation. His research is focused on geographic information science (GIS).

"In the area I work in, GIS, geographers are playing a huge role in the next generation of cyber infrastructure," Torrens says. "Geographers in the past have been peripheral to these initiatives, but they are becoming more central to it."

Luc Anselin, director of the School of Geographical Sciences and the GeoDa Center, says Torrens is a pioneer in the emerging field of geosimulation, "which tries to better understand complex spatial phenomena like urban sprawl and the development of megacities."

"This work attracts worldwide attention, including from some very promising future graduate students," Anselin says. "Torrens directs the new geosimulation laboratory in the School of Geographical Sciences, which is establishing a cutting-edge reputation. This not only helps the school attract new research funding, but also appeals to promising graduate student applicants."

Paul Torrens

It's this kind of work that earned Torrens a National Science Foundation (NSF) Faculty Early Career Development (CAREER) Award in early 2007, in the amount of $400,000 over five years. That award was the foundation for the PECASE honor.

NSF and other federal agencies annually nominate scientists and engineers at the start of their independent research careers for the PECASE awards. Selection for this distinguished honor is based on innovative research at the frontiers of science and technology that is relevant to the mission of the sponsoring organization or agency, in addition to community service.

Torrens was one of 20 PECASE recipients nominated by NSF. The other 2007 PECASE awardees were nominated by NASA, and by the departments of agriculture, commerce, defense, education, energy, health and human services (National Institutes of Health) and veterans affairs.

"It's a huge honor," Torrens says. "It really catapults your career to a whole new level of success. For me, it is a validation that what I'm working on is really important and well-supported. When you receive a CAREER award, you become more of an NSF citizen; you're folded more into the process, and you become better aware of what's going on."

Torrens also notes the support he's received at ASU, saying: "I don't think I would have been able to do this research if not at ASU. If you have an idea and you make a convincing argument for it, people here just support you. They don't really care about what discipline you're in or who else is doing it, or how senior you are."

Torrens, who was born in Dublin, Ireland, joined the ASU faculty in 2005 as an assistant professor.

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Tao to lead Center for Bioelectronics and Biosensors

By Joe Caspermeyer

The Biodesign Institute at ASU has announced the appointment of Nongjian (N.J.) Tao as director of the Center for Bioelectronics and Biosensors.

The center will focus on research to develop advanced sensors that can quickly and reliably detect trace chemicals and biomolecules to improve health care, environmental safety, pollution and sustainability, and national security.

The ability to develop fast and accurate technology platforms that detect the presence of specific chemicals in the environment or in the body often can be a matter of life or death. Exposure to toxic gases, monitoring of biomarkers in body fluids, testing for harmful compounds in foods and water, and early alert of chemical and biological agents all require reliable and sensitive integrated devices.

While adopting the computer industry's mantra of faster, cheaper and more reliable, Tao's research moves beyond silicon-based microelectronics to advance molecular electronics that are needed to develop sensing tools capable of detecting trace chemicals, as few as a single or just a few molecules. The surge of interest in nanotechnology – the science of the very small – lets scientists develop devices by manipulating extremely small materials, on the scale of atoms and molecules.

"Dr. Tao's elegant and innovative research crosses seamlessly into multiple disciplines of science, enabling him to make groundbreaking discoveries," says George Poste, director of the Biodesign Institute and chief scientist for ASU's Complex Adaptive Systems Initiative (CASI). "This boundary-breaking approach is what the Biodesign Institute believes is needed to improve human health and the health of our planet, and we are excited to have Dr. Tao join us."

Tao is a professor of electrical engineering in ASU's Ira A. Fulton School of Engineering, and also a researcher in the Center for Solid State Electronics Research. He joined the ASU faculty as a professor of electrical engineering and an affiliated professor of chemistry and biochemistry in August 2001.

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Liberal Arts and Sciences names new associate dean

By Erica Velasco

Paul LePore, a sociologist, is the new associate dean for Student and Academic Programs in ASU's College of Liberal Arts and Sciences.

LePore comes to ASU from the University of Washington, where since 2001 he was assistant dean for educational programs in the College of Arts and Sciences.

As associate dean at ASU, LePore will work in the college and throughout the university on student issues, including recruitment, retention and graduation; academic advising; program development; learning assessment; course scheduling; and enrollment management.

"My goal will be to find ways of making ASU understandable to our students and provide them the frame of mind, insights, and the resources they need to navigate the university and make the most of the intellectual opportunities we offer," he says.

LePore is well-prepared for the challenges before him. He earned his doctorate in sociology, in addition to a master's degree in educational administration, from the University of Wisconsin. He also earned a master's degree in sociology, and bachelor's degrees in sociology, educational studies and business economics, from Brown University.

Before his administrative roles at the University of Washington, LePore was a faculty member in the sociology department.

Paul LePore

He is a member of the American Sociological Association, the Association of American Colleges and Universities, the Council on Undergraduate Research and the American Educational Research Association.

"Paul has a passion for helping students achieve great levels of success," says Quentin Wheeler, ASU vice president and dean of the college. "He will be responsible for the creation, support and evaluation of undergraduate and graduate programs in the college and will touch essentially every aspect of student life. Our No. 1 priority is a quality education and college experience for our students. Paul brings creativity, a wealth of ideas and great energy to meet this challenge."

LePore's faculty appointment will be in the School of Social and Family Dynamics in ASU's College of Liberal Arts and Sciences.

As a social psychologist and sociologist of education by training, LePore's scholarship looks to identify the factors that promote student success. In addition to his administrative duties as associate dean, LePore will continue to work with students for his research that identifies and analyzes trends affecting the U.S. educational system.

His latest research looks at how teachers perceive intelligence in children, and the effects these perceptions have on student performance.

"ASU is a vibrant and energetic place – an institution that, at its core, encourages and promotes creative risk-taking and innovation," he says. "I am excited about the opportunity to shape and enhance the academic experiences for all of our students."

Gerry Corey, who had been serving as interim associate dean, will resume her role as senior assistant dean for the college. Corey has been with the college for 18 years, the last 12 as assistant dean for student and academic programs.

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Expert on modern slavery to speak in Phoenix

By Matt Crum

Kevin Bales, the world's leading expert on slavery, will visit ASU's West campus at noon, Jan. 20, for an event that is free and open to the public.

Bales, president of the international nonprofit organization Free the Slaves, will deliver a presentation titled "End World Slavery Now" in the La Sala ballroom of the University Center Building at 4701 W. Thunderbird Road.

Bales' appearance is sponsored by ASU's master's degree of arts in social justice and human rights (MASJHR) program, and co-sponsored by the Light of Hope Foundation and ALERT (International Rescue Committee).

"Perhaps no single person has done more to end slavery in all its forms than professor Bales," says Michael Stancliff, an assistant professor of rhetoric in ASU's New College of Interdisciplinary Arts and Sciences. "His visit to the West campus will be a tremendous learning opportunity for MASJHR students, and we are excited to offer the public the opportunity to meet him as well."

The public lecture is part of a two-day visit to Phoenix by Bales, who also will serve as a guest lecturer in the "Contemporary Slavery and Human Trafficking" course that Stancliff is team-teaching with Frances Bernat, an associate professor of criminal justice. Bales also will meet with community leaders from the co-sponsoring organizations during his visit.

"It is a common misconception that slavery is a problem of the past," says Bales, a professor emeritus of sociology at Roehampton University London. "The current number of people enslaved worldwide – 27 million – is larger than at any time in human history. The price to purchase a slave is lower today than it has ever been."

While the problem is greatest in areas of Asia and Africa, slavery exists in the United States as well. The U.S. State Department estimates that at least 14,500 people annually are trafficked into the country and forced into slavery, on farms and in factories, in the sex industry, and as domestic servants.

Bales' organization, Free the Slaves, works around the globe with governments, businesses, and grassroots organizations in an effort to eradicate slavery. His book "Disposable People: New Slavery in the Global Economy" was nominated for a Pulitzer Prize and published in 10 languages.

Bales has served as a consultant to the United Nations Global Program on Human Trafficking, and as an adviser to the U.S., British, Irish, Norwegian and Nepali governments.

For more information about Bales' visit to Phoenix, send an e-mail to michael.stancliff@asu.edu or call (602) 543-6241.

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ASU's MLK breakfast to take place at West campus

By Sarah Auffret

ASU will celebrate the ideals of Martin Luther King Jr. at an MLK celebration breakfast to be held at the West campus for the first time, from 7 a.m. to 9 a.m., Jan. 29, in La Sala Ballroom.

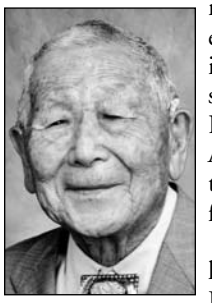
The event also will honor 24 schoolchildren from across the state who won ASU's annual MLK poster-essay contest.

Masaji Inoshita, a lifelong historian and civil rights advocate who came to Arizona as a Japanese-American internee during World War II, will receive ASU's 2009 MLK Servant-Leadership Award.

Inoshita, now 89, was sent with his family to the Gila River Relocation Camp. He enlisted in the Army and served with the intelligence services. Years later, he began speaking about his experiences in the camp, teaching about the need for diversity of races and religions in society.

Inoshita, a retired farmer, has spoken before local and national groups and has won many awards, including the Army Presidential Merit Citation and the Arizona Veterans Hall of Fame. His audiences are fascinated by his stories, but his main lesson is one of love and respect for others.

Elodie Billionniere will receive the MLK Student Servant-Leadership Award for her efforts to help others in the community. While studying for both a master's of education and a doctorate in computer science, she serves as president of the Black Graduate Students Association, reaching out to support students at all four campuses.



Masaji Inoshita

She also volunteers regularly at the YWCA Haven House shelter for abused women, serves as a Big Sister, conducts workshops for homeless persons at St. Vincent de Paul, organizes community service projects at her church, mentors undergraduate students and works with refugee families.

This is the 24th year for ASU to recognize King and the achievements of the civil rights movement. A team of six graphic design students in the classes of professors Alfred Sanft and Mookesh Patel won a design contest to create this year's MLK posters and promotion pieces.

Offices and classrooms on the four ASU campuses will be closed Jan. 19 to observe the MLK holiday, but students will gather to perform community service that day in the Garfield neighborhood in downtown Phoenix. To register to volunteer, visit the Web site www.asu.edu/mu/community.

Two additional events will take place Jan. 29 following the breakfast. ASU will welcome 500 schoolchildren for the traditional March on West at 9:30 a.m. on Fletcher Library lawn at the West campus, re-enacting King's march on Washington and his "I Have a Dream" speech by Charles St. Clair. An MLK student rally will take place at 11:30 a.m. outside the Memorial Union at the Tempe campus.

Related events are scheduled for February at all four ASU campuses in conjunction with Black History Month. For details about all of the events, visit the Web site www.asu.edu/mlk. To see the children's winning posters, go online to www.asu.edu/vppa/photogallery.

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Study: Religion in U.S. shapes nanotech opinions

By Corey Schubert

Americans are "partly relying on their religious beliefs when they make sense of science and technology issues," says Elizabeth Corley, an associate professor of public policy in ASU's School of Public Affairs and co-author of a new report on the subject.

Published online in the journal *Nature Nanotechnology,* survey results from the United States and Europe reveal a sharp contrast in perceptions of nanotechnology and its capacity to alter the fundamentals of nature. Those views correlate with the levels of religious views in each country surveyed.

In the United States and a few European countries, where religion plays a larger role in everyday life, nanotechnology and its potential to alter living organisms or even inspire synthetic life is perceived as morally less acceptable. In more secular European societies, such as those in France and Germany, individuals are much less likely to find it ethically suspect and view nanotechnology through the prism of religion.

"It's estimated that nanotechnology will be a $3.1 trillion global industry by 2015," says Dietram Scheufele, a University of Wisconsin-Madison professor of life sciences communication and lead author of the study. "Nanotechnology is one of those areas that is starting to touch nearly every part of our lives."

Nanotechnology involves controlling matter of an atomic and molecular size to develop devices of an incredibly small scale, usually 100 nanometers or smaller. The technology is becoming more pervasive, with more than a thousand products ranging from more efficient solar panels and scratch-resistant automobile paint, to souped-up golf clubs already on the market.

"The level of 'religiosity' in a particular country is one of the strongest predictors of whether or not people see nanotechnology as morally acceptable," Scheufele says. "What we captured is nanospecific, but it is also representative of a larger attitude toward science and technology."

The study compared answers to identical questions posed by the 2006 Eurobarometer public opinion survey, and a 2007 poll by the University of Wisconsin Survey Center conducted under the auspices of the National Science Foundation-funded Center for Nanotechnology and Society at ASU. The survey was led by Corley and Scheufele.

The findings from the 2007 U.S. survey also suggest the U.S. public's knowledge of nanotechnology has been static since a similar 2004 survey. Scheufele and Corley point to a lack of media interest, as well as the notion that people who already hold strong views on the technology are not necessarily seeking information about it.

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Cord blood study analyzes babies' health risks

Researchers focus on dangers caused by mothers who smoke

By Joe Caspermeyer

Despite the well-known dangers of smoking, an estimated 10 percent of pregnant women in the United States continue to light up cigarettes. Exposure of a developing baby to harmful cigarette byproducts from mothers who smoke affects an estimated 420,000 newborns each year and poses a significant health care burden.

Now, in the first study of its kind, a team of researchers has completed a global assessment of newborns' umbilical cord blood to better understand the fetal health risks from smoking mothers. The research was led by Johns Hopkins University and included Rolf Halden, a researcher from the Biodesign Institute at ASU.

"Cigarette smoking is a massive onslaught on human physiology," Halden says.

Cigarette smoke is known to contain more than 4,000 chemicals, potentially affecting the health of a newborn baby on multiple levels, including low birth weight, premature delivery and small size for gestational age. The exact cause of these health effects continues to be the subject of investigation.

"Unfortunately, maternal cigarette smoking puts babies at risk of adverse birth outcomes and increases susceptibility to other diseases later in life," Halden says.

The research team's goal was to provide the first assessment of proteins detectable in infant blood and to identify possible molecular predictors, or biomarkers, of fetal health risks.

The emergence of improved analytical tools allowed the researchers to address newborn health risks and explore the environmental effects of a well-known toxin in a level of detail not previously available. These tools include high-speed DNA sequencing, a powerful instrumental analysis called proteomic mass spectrometry to enhance the detection of proteins in complex samples, and bioinformatics, or the raw computing power to perform massive data crunching to tease out and identify biomarkers.

In doing so, the team described more than 200 serum proteins contained in umbilical cord blood, the vital link between mother and developing baby that shares between the pair both essential nutrients as well as unwanted toxins absorbed by the mother.

"Modern tools in mass spectrometry and bioinformatics have enabled us to obtain a first view of proteins contained in fetal cord blood serum and to single out among these more than a dozen interesting ones whose concentrations change as a function of chemical exposure," says Halden, who also is an associate professor in the Ira A. Fulton School of Engineering. "These biomarkers of exposure and early effect are the gold of protein mining."

Halden, who joined ASU's Biodesign Institute in 2008, initiated the study while at Hopkins along with lead author David Colquhoun, and colleagues Lynn Goldman, Frank Witter, Robert Cole, Marjan Gucek, Malini Mansharamani and Benjamin J. Apelberg. The results were published in the early online edition of the journal Environmental Health Perspectives (www.ehponline.org).

To best obtain a snapshot of fetal proteins at birth, the study needed to obtain cord blood samples as soon as possible after newborn delivery. This required the coordinated efforts of multiple investigators and the resources of the large teaching hospital at Hopkins to recruit study subjects.

Among the participants were many doctors and nurses to help with deliveries and obtain cord blood samples along with graduate students who were on call and had to rush out in the middle of the night to collect samples, transfer and process them, and analyze the data from the study population.

The group started with a large pool of more than 300 cord-blood samples, and after adjusting for parameters such as the age of the mothers, narrowed down their focus to a dozen babies: half from non-smoking mothers, and the other half from pregnant smokers.

"The study was a little bit challenging in that we went out on a fishing expedition," Halden says. "We wanted to look at everything at the same time, and the ability to tease out from the soup of proteins only those of interest was the chief technical challenge of this project."

The team looked for new proteins or proteins levels that may have changed between the smoking and non-smoking groups. After analyzing more than 200 proteins through mass spectrometry in smoke-exposed and control groups, they found small changes in the levels of some proteins, which represented biomarkers of cigarette smoke exposure.

"Of 17 proteins that were significantly up- or down-regulated in the cord blood of babies born to smoking mothers, 14 have previously been described to be related to smoking in either adults or in the fetus," says Goldman, a professor in the Department of Environmental Health Sciences at Johns Hopkins' School of Public Health.

The protein biomarkers have been linked to key metabolic pathways involved in regulating nutrients, oxygen and inflammation processes.

After their analysis, the team also discovered some surprising results that illustrate the subtlety of using biomarkers as an approach to peer into the molecular makeup of human health.

"There was not a single protein unique to either the smoking or non-smoking group," Halden says. "The remarkable finding is that there were no unique biomarkers."

Halden explains that only through the combined use of the new technologies was the research team able to tease out the small differences in the protein levels between the two study groups.

Caspermeyer, with the Biodesign Institute, can be reached at (480) 727-0369 or joseph.caspermeyer@asu.edu.

In THE NEWS

ASU experts frequently are called upon by the local and national news media to provide insight and opinion on current events and issues of public interest. Following are excerpts of recent news articles featuring ASU representatives.

Alex Molnar, director of the Commercialism in Education Research Unit at ASU, says introducing advertising into the classroom affects professors' abilities to act as "impartial arbiters who attempt as best they can to seek truth and express the truth as they see it." Molnar adds: "In a classroom, the point is to provide an educative experience that gives students greater knowledge and power control over what they know. The point of advertising is 180 degrees different. It is to manipulate and to control through manipulation people's choices in a particular and favored direction." *Chronicle of Higher Education,* Dec. 12.

Against a tide of people eschewing cosmetic medicine in the new economy, ASU sociology professor **Deborah Sullivan** predicts a countercurrent of consumers having procedures to feel proactive. "People who would not have considered it, when they get laid off at 45, 50, 55 and are back on the job market, might consider it as they try to enhance their human capital," she says. *New York Times,* Dec. 18.

A new study has found that problems typically reported by couples in relationship counseling reflect misconceptions about love and romance depicted in Hollywood films. ASU journalism professor **Mary-Lou Galician,** whose research in the 1990s found similar results as the recent study, says uncovering conscious and subconscious romantic motivation is a difficult process, and the role of movies is uncertain. However, she says, "if there were suggestions something was dangerous for you, even if the results were in small numbers, it might not be a bad idea to be cautious." *Time,* Dec. 23.

For almost 100 years, researchers have known that the ancient Nasca people of South America took trophy heads, but the origin of the skulls has long been debated. Based on studying diet-related substances in the teeth of the trophy heads, ASU archaeologist **Kelly Knudson** and her team have determined that the heads are those of Nasca individuals. "Rather than obtaining heads from enemy warriors through geographic expansion or warfare as seen in other parts of the world, we argue that Nasca trophy heads derived from the local Nasca population," she says. *Science News,* Dec. 29.

There are fault lines in Arizona, although many of them aren't visible on the surface of the Earth, says **Matt Fouch,** a School of Earth and Space Exploration professor at ASU. "If you just look at the geology around here, the mountains, we know there were a lot of earthquakes around here in the past to generate those mountains," Fouch says. He adds that two ASU students will specifically look at risk in populated areas, which is important for a state that doesn't have building codes designed for earthquake activity. "We want to do the best job we can at being as least surprised as possible," Fouch says." *East Valley Tribune,* Dec. 30.

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Events are free, unless otherwise noted. Items in the "Exhibitions" section run at exhibit opening and on the first of each month only. Building abbreviations are listed according to the official ASU phone directory. Send information to Judith Smith at jps@asu.edu or fax (480) 965-2159. For information about ASU events, visit the Web at http://events.asu.edu.

Meetings

Sunday, Jan. 18

Phi Delta Gamma, 2 p.m., location TBA. PDG is a national honor society for graduate students and those who have earned graduate degrees. Information: Kathleen Vampola, (480) 567-2114 or mom7phd2001@gmail.com.

Thursday, Jan. 22

Arizona Board of Regents, 8 a.m.-5 p.m., University of Arizona. Also, Jan. 23. Information: (480) 965-2222.

Monday, Jan. 26

University Senate, 3-5 p.m., Education Lecture Hall (EDC) room 117. Information: (480) 965-2222.

Tuesday, Jan. 27

Welcome-back Breakfast, 7:30-9 a.m., Memorial Union (MU) Arizona Room (221). Sponsored by University Senate. R.S.V.P.: academicsenate@asu.edu.

Lectures

Tuesday, Jan. 20

Biodesign Lecture, 11 a.m., Biodeisgn Institute Auditorium. Speaker: Joseph Lustgarten, associate professor, Department of Immunology, Mayo Clinic. Sponsored by Biodesign Institute Center for Innovations in Medicine. Information: (480) 727-0370.

Wednesday, Jan. 21

"Transforming the Energy Economy: Economic Policies for the New Administration," 3 p.m., Global Institute of Sustainability (GIOS) room 481. Speaker: Robert Pindyck, Bank of Tokyo-Mitsubishi Professor, economics and finance, Sloan School of Management, Massachusetts Institute of Technology. Sponsored by Global Institute of Sustainability. Information: (480) 965-2490.

"Inconvenient Truth About Phoenix," 3:30-5 p.m., Fulton Center sixth-floor board room. Speaker: Patricia Gober, ASU professor of geography and past president of the American Association of Geographers. An Emeritus College Colloquium. Information: (480) 965-0002.

Thursday, Jan. 22

"Law at Toyota," 12:10-1 p.m., Armstrong Hall (LAW) room 118. Attorneys Fred Mau and Dan Fuchs will lecture on the responsibilities of a legal department at a major motor vehicle manufacturer. Co-sponsored by the Law & Science Student Association, and ASU's Center for the Study of Law, Science & Technology. Information: (480) 965-2465 or Andrew.Askland@asu.edu.

"Potential for Development of a Vaccine for African Swine Fever," 1-2:30 p.m., Biodesign Auditorium. Speaker: Daniel Rock, Department of Pathobiology, College of Veterinary Medicine, University of Illinois, Urbana-Champaign. Sponsored by Biodesign Institute Research Management Office. Information: (480) 727-0370.

Friday, Jan. 23

"Ecological Restoration and Restoration Ecology: Using Streams as a Case Study," 2-3 p.m., Life Sciences Center (LS) E-104. Speaker: Margaret Palmer, professor and director, University of Maryland Center for Environmental Sciences. A School of Life Sciences and Wrigley Series seminar. Information: (480) 965-2705.

"Biomaterials at the Beach: Characterization and Synthetic Polymer Mimics of Mussel and Barnacle Adhesives," 3:30 p.m., Bateman Physical Sciences Center (PS) H-150. Speaker: Jonathan Wilker, Department of Chemistry, Purdue University. Sponsored by Department of Chemistry and Biochemistry. Information: (480) 965-2093.

Tuesday, Jan. 27

"Nanotechnology," 12:10-1 p.m., LAW room 114. Speakers: Matt Kim, founder and president of QuantTera, a research and development company whose mission is to develop functional, cost-effective nano-engineered photonic devices for telecommunications, and power-efficient and energy-generation applications, and Cynthia Pillote of Snell & Wilmer, whose practice focuses on intellectual property counseling; patent, trademark and copyright prosecution; related technology transfer; and licensing. Sponsored by Law and Science Student Association. Information: (480) 965-2465 or Andrew.Askland@asu.edu.

"Who are we? What are we doing? Why should you care?" 6-8:30 p.m., Tempe Center for the Arts, 700 W. Rio Salado Parkway, Tempe. ASU President Michael Crow speaks on how the university is advancing innovative knowledge production and leading-edge initiatives to address the social and economic challenges facing Arizona. Sponsored by ASU Foundation. Free, but reservations required: (480) 727-7070.

Thursday, Jan. 29

"Ecology and Conservation of the Tiger Rattlesnake in the Sonoran Desert of Arizona," 4-5 p.m., Classroom Laboratory/Computer Classroom Building (CLCC) room 246, West campus. Speaker: Matt Goode, University of Arizona, School of Natural Resources. Sponsored by Department of Integrated Natural Sciences. Refreshments at 3:30 p.m. in third-floor breezeway. Information: Sally.Rastad@asu.edu.

"The Navajo People, Culture and Language," 4:30-6 p.m., University Club. Speaker: Peterson Zah, past president of the Navajo Nation and special adviser to ASU President Michael Crow. Sponsored by the Arizona Chapter of the Fulbright Association and the ASU Center for Learning and Teaching Excellence, with support from an Enrichment Grant from the U.S. State Department. Refreshments served at 4 p.m. Information: (480) 965-9401.

"Living With the Humanities," 5:30 p.m., Old Main Carson Ballroom. Speaker: Gayatri Chakravorty Spivak, Columbia University. Book-signing follows lecture; pre-lecture reception begins at 4:30 p.m. Sponsored by Institute for Humanities Research. R.S.V.P.: (480) 965-3000 or ihr@asu.edu.

Friday, Jan. 30

"Bootstrapping and Defeasible Reasoning," 3 p.m., Coor Hall room 174. Speaker: Stewart Cohen, ASU. Sponsored by Department of Philosophy. Information: (480) 965-9860.

Conferences

Wednesday, Jan. 21

"Understanding the Chemistry of BioSeparations" Symposium, 8:30-11 a.m., Biodesign Auditorium. Sponsored by the Biodesign Institute and Waters Corp. Also 8:30-11 a.m., Jan. 22. R.S.V.P.: phil_kim@waters.com.

Miscellaneous

Friday, Jan. 16

Decision Theater Tour, 3-4 p.m., Decision Theater, 21 E. Sixth St., suite 126A, Tempe. A unit of the Global Institute of sustainability. Reservations required: Michele.nobles@asu.edu.

Closing reception and fundraiser for "Map(ing)," 7-9 p.m., Night Gallery. Information: Mary Hood, (480) 965-6800.

Friday, Jan. 23

"Locating Funding," 2:30-4:15 p.m., Computing Commons (CPCOM) room 107, Tempe campus. This hands-on workshop will introduce faculty and staff to the basics of locating funding from government, foundation and commercial sponsors, and the use of the PRIDE opportunity development Web site to help identify funding opportunities. Sponsored by the Office of Research and Sponsored Projects Administration. Information and registration: http://researchadmin.asu.edu/training/workshops.

Sunday, Jan. 25

"Magnificent Mind at Any Age," 2 p.m., Orpheum Theatre, 200 W. Washington St., Phoenix. Daniel Amen explores how the brain works, how damage can reveal itself in negative behaviors, how to improve brain health, and more. Sponsored by Eight/KAET-TV. Admission. (480) 965-2877 or www.azpbs.org/eightboxoffice.

Thursday, Jan. 29

"Family Issues in Elder Caregiving," noon-1 p.m., Memorial Union (MU) Rincon Room (248). Sponsored by ASU Family Resources. R.S.V.P.: Maureen.Duane@asu.edu.

Friday, Jan. 30

Ollie's Storybook Adventures, 10-11 a.m., Deer Valley Rock Art Center, 3711 W. Deer Valley Road, Phoenix. A story session for children ages 3 to 6 and their parents, titled "Caring for Our World." Admission: $2.50 per child; older siblings, $2; Center members and accompanying adults, free; additional adults, $2. Reservations: (623) 582-8007.

Events and Performances

***Indicates tickets are available at Herberger College of Fine Arts Box Office, Nelson Fine Arts Center, (480) 965-6447.**

****Indicates tickets are available at ASU Gammage, Mill Avenue and Apache Boulevard, (480) 965-3434; ASU Kerr Cultural Center, 6110 N. Scottsdale Road, Scottsdale, (480) 596-2660.**

Friday, Jan. 16

"The Lion King," ASU Gammage. Marvel at the breathtaking spectacle of animals brought to life by award-winning director Julie Taymor and thrill to the pulsating rhythms of the African Pridelands. Performance times: 7:30 p.m., Tuesday-Friday; 2 p.m. and 7:30 p.m., Saturday; and 2 p.m. and 7 p.m., Sunday, through Feb. 8.**

Friday, Jan. 23

"West Side Story," 7:30 p.m., Evelyn Smith Music Theatre. Set in Manhattan's west side Hell's Kitchen in the mid-1950s, the musical explores the rivalry between two teenage gangs of different ethnic and cultural backgrounds. Other performances: 7:30 p.m., Jan. 24; 2 and 7:30 p.m., Jan. 25. Presented by the Herberger School of Music's Musical Workshop.*

Sunday, Jan. 25

"The Gentleman Doc Holliday," 3 p.m., ASU Kerr Cultural Center, Scottsdale. Wyatt Earp (yes, he is a descendant of Tombstone's famous Earp) portrays Doc Holliday in this family show.**

Tuesday, Jan. 27

Tuesday Morning Music & Tea, 10:30 a.m., ASU Kerr Cultural Center, Scottsdale. ASU's Ocotillo Winds perform. Free, but R.S.V.P. required: (480) 596-2660. Bring a can of food or sealed personal item for Vista del Camino food bank.

Wednesday, Jan. 28

Exhibits @ Noon, noon-1 p.m., Center for Meteorite Studies. Sponsored by the Museums, Galleries and Collections Committee. Information: www.asu.edu/museums.

Tokyo String Quartet, 7:30 p.m., Katzin Concert Hall. Free, but tickets required: (480) 965-6447.

Friday, Jan. 30

Coffee at Kerr, 10:30 a.m., ASU Kerr Cultural Center, Scottsdale. Native American classical guitarist Gabriel Ayala previews his 8 p.m. concert. Free, but R.S.V.P. required: (480) 596-2660. Bring a can of food or sealed personal item for Vista del Camino food bank.

Gabriel Ayala, Native American classical guitarist, 8 p.m., ASU Kerr Cultural Center, Scottsdale.**

Exhibitions

ASU Art Museum, Nelson Fine Arts Center—Regular hours: 11 a.m.-9 p.m., Tuesday; 11 a.m.-5 p.m., Wednesday -Saturday; 1-5 p.m., Sunday. Summer hours: 10 a.m.-5 p.m., Tuesday-Saturday. Information: (480) 965-2787.

Opens Jan. 24, "Breathing is Free: 12,756.3; New Work by Jun Nguyen-Hatsushiba." Reception: Feb. 20, 7-9 p.m.

Japanese-American-Vietnamese artist Jun Nguyen-Hatsushiba is well-known on the international art circuit for his striking video installations. This exhibition presents new work and examines his abiding interest in the evolution of cultures in the face of globalization and interpretations in the idea of "memorial." Co-organized with the School of the Art Institute of Chicago, each venue will serve as a host to the ongoing piece, in which the artist is running the equivalent distance of the diameter of Earth (12,756.3 kilometers) in cities of the world at different times. "Breathing is Free: 12,756.3" is a virtual earth drawing that places the artist as the subject, running to create a memorial project for refugees and exploring how their movement effects both the refugee populations and those they leave behind. The accompanying museum installation will include video, photography, maps and other details. The ASU Art Museum exhibition is the U.S. premiere of the "Breathing is Free: 12,756.3" project.

Through Jan. 25, "ASU Herberger College School of Art Faculty 2008-2009 Exhibition." Recent works created by the faculty will be exhibited in the biannual ASU Herberger College School of Art Faculty Exhibition at the ASU Art Museum. The exhibition offers students and the public an opportunity to see the talents of the faculty members. This year's exhibition will feature work in media as diverse as painting, photography, drawing, sculpture, intermedia, fiber and ceramics, as well as research by art history and art education professors.

Through Jan. 25, "Nadia Hironaka: The Late Show." In this multichannel video installation, Hironaka expands the cinematic experience into the realm of the gallery environment. By synthesizing video projection, videos on monitors and audio, Hironaka entices the viewer to imagine characters leaving the

confines of the projected image and entering the real space of the gallery. Using an abandoned drive-in movie theater as her point of departure to examine the convergence of cinematic and real space, Hironaka also asks us to reflect on how mood and emotion are constructed within the context of film.

ASU Art Museum Ceramics Research Center—11 a.m.-5 p.m., Tuesday-Saturday, Tempe Center.

Through Feb. 28, "Midstream: New Ceramics from the Heartland" uncovers the work of three artists who are defining a new generation of clay workers, reflecting diverse backgrounds working with new issues of identity. Their work is bold in its commentary on global issues and moves to a broader examination of humanity through humor, fantasy or direct honesty.

Ongoing: Open storage of more than 3,000 items in the permanent collection.

ASU Gammage—1-4 p.m., Monday. Information: (480) 965-6912.

Through Feb. 15, Mixed media by Mesa Art League.

Deer Valley Rock Art Center—9 a.m.-5 p.m., Tuesday-Saturday; noon-5 p.m., Sunday. 3711 W. Deer Valley Road, 2 miles west of I-17. Information: (623) 582-8007.

Through Sept. 30, "The Rock Art Paintings of Hueco Tanks" is an exhibition of 19 photographs by artist Clay Martin, the 1997 winner of the American Rock Art Research Association's Oliver Award. Martin's photo-essay aims to educate visitors about Hueco Tanks, a spectacular site of 3,000 pictographs. "The astonishing abundance, cultural diversity and degree of aesthetic achievement found in these pictographs have few parallels," Martin says. Information: (623) 582-8007.

The Galleria—8 a.m.-6 p.m., Monday-Friday, located in Mercado Building C, 502 E. Monroe St., Phoenix. Information: (602) 496-1500.

Through February, "Different Strokes." Glendale Community College art professor Sharon Forsmo presents a wide range of paintings and drawings on a variety of media such as paper, linen and hardboard. The artwork is inspired by Forsmo's ongoing exploration of different media and their relationship to a variety of surface grounds. The paintings represented include both oil- and water-based media and display the color characteristics and expressive qualities that are unique to them.

Museum of Anthropology—11 a.m.-3 p.m., Monday-Friday, Cady and Tyler Malls. Information: (480) 965-6224.

Through Jan. 23, "Ancient *Ofrenda:* Elements of the Altar." Presented in collaboration with CALACA Latino Cultural Arts Collective. For the past nine years, the museum has played host to a vibrant community-centered *Día de los Muertos* (Day of the Dead) Festival Exhibit. Traditionally, the museum has featured a gallery filled with individual altars. This year, the gallery will be transformed into one altar through individual works of art. Each piece of art in the exhibit will represent one of the many offerings that compose a traditional altar. Emphasis will be placed on the four elements (earth, wind, water and fire) found on traditional altars that tie this celebration to its Aztecan roots.

Defenses

Paula Stice, PhD, Bio. Engr., 8:30 a.m., Jan. 20, GWC 409.

Nancy Turley, PhD, Engl. (Rhet/Comp and Ling.), 9 a.m., Jan. 21, CPCOM 123.

Program marks graduation of 5,000th parent

By Corey Schubert

ASU celebrated the graduation of the 5,000th parent from the American Dream Academy during a ceremony Dec. 16 in Phoenix.

The academy works with schools in low-income, disadvantaged residential areas to provide a transformative experience for parents by teaching them how to navigate the school system and take an active role in their children's education. It is the signature program of the Center for Community Development and Civil Rights at ASU's College of Public Programs on the Downtown Phoenix campus.

Parents of K-12 students receive free training through the nine-week program, which aims to create a community where parents and teachers collaborate to transform each child's educational environment so that all children can achieve their greatest academic potential.

"The heart of the program is education because we believe that is the key to the American dream," says Alejandro Perilla, director of the Center for Community Development and Civil Rights. "To really transform education, we have to give families the skills and tools that help to support and further develop what their children are learning in school."

More than 5,055 parents have graduated from 58 program offerings in school districts across the Valley. The program has influenced more than 15,000 low-income, minority youth throughout the Phoenix metropolitan area since it began in 2006.

For many parents, the ceremonies mark the first time they've graduated from any program, and they often beam with pride while walking across the stage with their children. Several parents work two full-time jobs, but still make time to complete the program to ensure their children get the most from their education.

"I feel very confident that the information learned through these classes will help me advocate for my children's social, emotional, academic and physical well-being, while building a mutually beneficial relationship with school and community," says parent graduate Elijah Washington.

More than 75 volunteers use a curriculum that explains how to navigate the school system, use effective communication and collaboration with teachers and administrators, create a positive home learning environment, and support a child's emotional and social development.

Schubert, with the College of Public Programs, can be reached at (602) 496-0406 or corey.schubert@asu.edu.

PHOTO BY FELIPE RUIZ-ACOSTA

Mark Meza, right, smiles as he becomes the 5,000th parent to graduate from ASU's American Dream Academy. From left to right are: emcee Luis Avila; Queta Disanto, field director for the academy; Sean Hannafin, principal of Larry C. Kennedy Elementary School in Phoenix; and Claudia Ximena Correa, volunteer facilitator for the academy.

Refugee memorial project runs diameter of Earth

By Diane Wallace

ASU Art Museum presents the U.S. premiere of a personal and moving project by internationally exhibited artist Jun Nguyen-Hatsushiba, titled "Breathing Is Free: 12,756.3; New Work by Jun Nguyen-Hatsushiba."

The project is conceived as part installation, part exhibition and part memorial.

Nguyen-Hatsushiba is known for his underwater films that have been shown in Bienniales and museums around the world. His new work represents a departure, as it is based on ongoing projects in which the artist plans to run 12,756.36 kilometers (the diameter of the Earth) in different international cities at different times.

His installation in ASU Art Museum begins Jan. 24, with the artist's exhibition run in Phoenix scheduled in the spring.

"Breathing is Free" sports a breadth of formats, allowing for deeper exploration of the artist's continuing concern with the evolution of cultures in the face of globalization and interpretations in the idea of "memorial."

"The running is really about breathing," Nguyen-Hatsushiba says. "Drawing breath becomes more difficult as one runs farther, as one's entire body begins to wear out. … But what counts here is to record my 'running struggle' to discuss the refugee topic through distance and location via GPS watch. It's conceptual and physical. It's a real struggle, not a performance."

A film series of underwater memorial projects previously kept Nguyen-Hatsushiba, who was raised in America but lives in Ho Chi Minh City, behind the camera. The new project places the artist as the subject, running to create a memorial project for refugees. He wants to experience the distance of the Earth and struggle like refugees on the run from their homeland.

Nguyen-Hatsushiba's run in Phoenix reflects the fact that Phoenix is a major destination for refugees from around the world. In running, the artist re-enacts the unpredictability of the refugee's flight as he traverses the landscape for the first time, even though in his mind – and on paper – he has drawn the lines of the itinerary. The physical sensation of running, of cutting through the landscape with his body, brings him closer to the Earth and the struggles associated with significantly changing one's environment.

The exhibition, an evolving project that is planned to include two major video works, begins with sketching a diagram of the run on satellite photos and maps and is then recorded to global positioning satellite coordinates, filmed and photographed. It is then transformed into a form of drawing using the lines that the artist has made through his running.

His video work "The Ground, the Root and the Air," which comprises three chapters that are merged into one film, is filled with charged locations and activities reflecting the cultural negotiations between tradition and youth of the city of Luang Prabang, Laos.

The U.S. premiere of "Breathing is Free" is co-curated by Heather Sealy Lineberry, senior curator and interim director at the ASU Art Museum, and Nora Taylor, Alsdorf Professor of South and Southeast Asian Art at the School of the Art Institute of Chicago.

Wallace, with the ASU Art Musuem, can be reached at (480) 965-0014 or diane.wallace@asu.edu.

Book club pages through new reads

By Judith Smith

Memoirs about growing up in Nogales, Ariz., and surviving a bicycle accident, poetry that was written in China and a novel about biracial sisters are on the winter and early spring calendar for ASU's Piper Online Book Club.

This month's book is "Just Breathe Normally" by Peggy Shumaker, a poet and professor emeritus at the University of Alaska-Fairbanks. She tells her story of recovery and of searching her past.

The selection for February is a book of poetry by Mary Ruefle titled "Apparition Hill." One critic said of the book, "These jolly poems about disappointment, irrelevance, and peripheral experiences give the willing reader a feeling not unlike that delivered by a tumbler of armagnac." Another reviewer said, "A master of memorable imagery and lyrical clarity, 'Apparition Hill' continues to document Mary Ruefle as a master poet."

Ruefle, born in Pennslvania, spent her first 20 years traveling around the United States and Europe with her mother and her father, a military officer. She graduated from Bennington College in 1974.

The book for March is "Caucasia," Danzy Senna's debut novel. The book tells the story of two biracial sisters growing up in racially charged Boston during the 1970s. It has won numerous awards, including the BOMC Stephen Crane Award for First Fiction and an Alex Award from the American Library Association.

Senna received her bachelor's degree from Stanford University and her master's degree in creative writing from the University of California-Irvine, where she received several creative writing awards. She also writes about issues of race, identity and gender, particularly on the experience of being mistaken for white.

April's selection is Alberto Rios' "Capirotada," a memoir of growing up in Nogales, Ariz., which also was chosen for OneBookAZ, a program that sponsors discussions of the winning book throughout the state.

Rios, the Katharine C. Turner Endowed Chair in English and a Regents' Professor at ASU, has written nine books and three collections of short stories. He has won numerous awards, including the 2007 PEN/Beyond Margins Award, the Walt Whitman Award and the inaugural Western States Book Award for Fiction.

For more information about the Piper Online Book Club, which is sponsored by the Virginia G. Piper Center for Creative Writing, visit the Web site www.asu.edu/piper, or call (480) 965-6018.

Smith, with Media Relations, can be reached at (480) 965-4821 or jps@asu.edu.

KAET airs student newscast

For the first time, "Cronkite NewsWatch," the award-winning student newscast produced by ASU's Walter Cronkite School of Journalism and Mass Communication, is airing on Eight/KAET-TV, Arizona's public television station.

The 30-minute newscast will air at 9 p.m. on Tuesdays, Wednesdays and Thursdays, and at 8 p.m. when daylight savings time begins in March. It can be seen on KAET digital (Cox Cable Channel 88) and over the air on digital channel 8.3.

"This is big step forward for Cronkite NewsWatch," says news director Mark Lodato. "It gives us a true broadcast (over-the-air) presence."

Christopher Callahan, the Cronkite School's dean, adds that it is extremely rare for student productions to air in a major media market such as Phoenix, which is the nation's 12th-largest television market.

Eight, which has been operated by ASU since 1961, reaches more than 80 percent of Arizonans. It is among the most-viewed public TV stations per capita in the nation, with 1.3 million viewers each week.

"We are extremely fortunate to have the great support of the entire Eight team," Callahan says. "Now, thousands of new homes will have access to the strong content Cronkite students produce each week."

The newscast will continue to air live on ASUtv, Cox Cable 116, at 5 p.m. on Tuesdays, Wednesdays and Thursdays. Plans are under way to expand the newscast to four nights a week this spring, with the addition of a Friday broadcast, Lodato says. The spring semester's programs begin airing in February.

"Cronkite NewsWatch," under the direction of Lodato, sends student journalists across the Southwest to find compelling stories that affect the lives of Arizonans. The program, which began in 1975, has been widely recognized as one of the top student newscasts in the country.

Spanish-language version of 'Cronkite NewsWatch' airs

A Spanish-language version of "Cronkite NewsWatch" is being aired on Univision's TeleFutura network in Phoenix.

"NewsWatch Espanol" is produced by top bilingual students in ASU's Walter Cronkite School of Journalism and Mass Communication. It airs twice a month on weekend mornings. Spring semester broadcasts will begin in February.

Telefutura can be found over the air on channel 35, on Cox Cable channel 54 and on DirectTV channel 13.

The 30-minute program features stories about major events and issues on campus and around the region. Recent stories have examined Arizona ballot propositions, new measures to protect the Mexico-Arizona border and programs designed to help Valley residents facing home foreclosures.

Student wins national contest

By Julie Newberg

A junior in ASU's Walter Cronkite School of Journalism and Mass Communication has placed first in a national public service announcement contest that spotlights the importance of free speech.

Christie Roshau's 30-second TV spot was honored by the National Association of Broadcasters Education Foundation, the McCormick Foundation and the Broadcast Education Association.

Roshau's PSA was selected from 55 entries, several of which were submitted by student teams rather than individuals. Graduate and undergraduate college students from across the country were judged on originality of style, artistic vision and novel presentation, as well as innovative use of graphics, animation and special effects.

Roshau enlisted the help of friends, who played drums and danced on the 30-second spot.

"What I wanted to show is that our actions – how we live our life, how we treat others, how we interact with those around us, what we are passionate about, what we do with our lives – speak louder than words," she says. "Freedom of speech is more than saying what we believe. It's living for what we believe in."

As the first-place television winner, Roshau was awarded $3,000.

National Freedom of Speech Week was recognized Oct. 20-26.

Newberg, with Media Relations, can be reached at (480) 727-3116 or julie.newberg@asu.edu.

In BRIEF

Web site details ASU Libraries' hours

Regular hours for all ASU Libraries for the spring semester begin Jan. 20. Hours for individual libraries vary, so visit the Web site http://lib.asu.edu/hours or call (480) 965-3605 for information for all libraries on all campuses.

During the fall and spring semesters, the Hayden Library on the Tempe campus is open 24 hours a day, from Sunday mornings through Friday at midnight. Overnight hours are restricted to ASU students, faculty and staff members, who are required to show identification to be in the building between midnight and 7 a.m.

For more information, contact Jennifer Duvernay at (480) 727-7636 or jennifer.duvernay@asu.edu.

Talk to examine differing views of autism

What does it mean to be autistic? Majia Holmer Nadesan, an ASU faculty member who wrote the book "Constructing Autism: Unraveling the 'Truth' and Understanding the Social," will speak on the topic from 2:30 p.m. to 4:30 p.m., Jan. 23.

The event, which takes place in the Kiva Lecture Hall at ASU's West campus, is free and open to the public.

The title of Nadesan's talk is "Constructing Autism and Promoting Advocacy." A question-and-answer session will follow the presentation.

Todd Drezner, a documentary filmmaker from New York, will film the event. He plans to use footage from Nadesan's presentation in "Loving Lampposts," a film about autism that he is producing.

In her talk, Nadesan will address topics including how perceptions of autism have changed over time; how science and medicine define autism; the social implications of such definitions; and the relatively new concept of autism advocacy.

Nadesan is an associate professor of communication studies in ASU's New College of Interdisciplinary Arts and Sciences. She studies the topic of biopolitics, focusing on how expert understandings and technologies shape our experiences and treatment of our bodies and minds. She has written two books on biopolitics, including "Constructing Autism," and is working on a third book exploring the biopolitics of childhood.

For more information about Nadesan's presentation, call (602) 543-6668 or (602) 543-6606.

Crow to discuss ASU's role in state growth

The public is invited to hear ASU President Michael Crow discuss the institution's ongoing development of the New American University and what this innovative model for higher education means for our community, state, region and world.

The event will take place from 6 p.m. to 8:30 p.m., Jan. 27, at the Tempe Center for the Arts. A reception will begin at 6 p.m., followed by the presentation at 7 p.m.

ASU is drawing on leading-edge ideas and knowledge production to create change on a local, regional, national and global basis. This presentation is an opportunity for community members to learn directly from Crow about how ASU is spurring Arizona's intellectual, economic and cultural development by fostering strategic partnerships, creating jobs and producing an educated work force capable of turning big ideas into bold solutions for society's most pressing issues.

The public is invited to learn about and discuss the university's accomplishments and challenges, as well as the innovative trajectory it is pursuing as a new model for higher education.

Reservations are required for this complimentary event and can be made by calling the R.S.V.P. line at (480) 727-7070.

For more information, contact Sally Moore, director of President's Community Enrichment Programs, at (480) 965-4814.

'Regift' sale to benefit Carillon Society

Did Santa bring you a gift that you don't need or want?

Bring it to ASU's Tempe campus Jan. 29 for a "Ring Out the Holidays" white elephant sale to benefit the ASU Carillon Society.

The Carillon Society will have a table on Cady Mall from 11 a.m. to 2 p.m. Just drop off your item with a suggested price – and check out the other white elephants.

All unsold gifts will be donated to the Junior League of Phoenix for the league's annual rummage sale Feb. 21.

For more information about the Carillon Society or the sale, call Judith Smith at (480) 965-4821, or send an e-mail to jps@asu.edu or carillon@asu.edu.

Institute announces date for book award

In October, the Institute for Humanities Research presented the first IHR Transdisciplinary Book Award to Marita Sturken for "Tourists of History: Memory, Kitsch and Consumerism from Oklahoma to Ground Zero" (Duke University Press, 2007). Sturken is a professor in the Department of Media, Culture and Communication, and co-director of the Visual Culture Program, at New York University.

The annual book award recognizes, in alternate years, the work of ASU and non-ASU authors. This year's award will honor a book of academic non-fiction by an ASU humanities faculty member on any campus.

To be eligible, books must be written in English, published in 2007 or 2008, and written or co-written by a tenured or tenure-track, full-time ASU faculty member whose work reflects the finest contemporary, transdisciplinary, humanities-based scholarship on any topic. Edited collections are not eligible.

A book that is transdisciplinary in methodology and scope works between, among and within foundational models set up by disciplines. It also transforms or transcends those disciplines by restructuring conventional idea systems and practices; developing new knowledge frameworks or domains; or constructing new paradigms or focal concepts.

In keeping with the mission of the IHR, the book should also focus on compelling topics of social or cultural importance.

Books can be nominated by the author, colleagues or publishers (one book per author).

The deadline for nominations is Feb. 15. The author of the winning book will receive a cash award of $1,000, publicity in IHR materials and an award certificate.

The author (or authors) will be featured at an awards ceremony in the upcoming fall semester, and asked to give a presentation and engage in a discussion of the winning book.

For information and nomination forms, visit the Web site http://ihr.asu.edu/research/bookaward, or contact the IHR at (480) 965-3000 or ihr@asu.edu.

Ceramics studio tour celebrates 8th year

More than 40 professional ceramic artists, many with regional and national prominence, will participate in the eighth annual ceramics studio tour. The self-guided tour is organized by the artists' advisory committee of the ASU Art Museum's Ceramics Research Center.

Ten studios throughout the Valley will each conduct between two and eight different artists. This free tour offers the public a rare opportunity to view the working and living spaces of participating ceramics artists.

Studios will offer live demonstrations of wheel throwing, hand-building and glazing techniques. Participating artists will have a wide range of functional and sculptural artwork on exhibit and for sale.

Attendees will be able to attend different participating studios at their leisure from 10 a.m. to 4 p.m., Feb. 21-22. A brochure is available at the Ceramics Research Center that includes photos of the participating artists' work, directions to the studios and a map of the locations. A downloadable brochure in PDF format also is available online at http://asuartmuseum.asu.edu/ceramicsresearchcenter/index.htm.

The Ceramics Research Center is located on the northeast corner of Mill Avenue and 10th Street in downtown Tempe. Free parking is available in marked spaces directly outside of the building.

For more information, contact Diane Wallace with the ASU Art Museum at (480) 965-0014 or diane.wallace@asu.edu.

Retirees group to visit Canyon de Chelly

The ASU Retirees Association will sponsor a trip to Canyon de Chelly April 13-15. The trip will include lunch at La Posada Hotel and Gardens in Winslow, a stop at the Hubbell Trading Post, two nights at the Holiday Inn in Chinle, the canyon tour, a visit to the Hopi Cultural Museum and a tour of the 1,000-year-old village of Oraibi on the Hopi Reservation.

The trip is open to members and guests of ASURA. Cost is $395 per person, double occupancy ($465 single).

For more information, send an e-mail to rich.stephens@nau.edu or patricia.moore@asu.edu.

For membership information for ASURA, call (480) 965-7668.

Students earn award for public service

The public service and community volunteer efforts of two graduate students in ASU's School of Public Affairs helped them earn awards from the Phoenix Women's Commission for the Mary Ann Huerta Jenkins Fellowship.

The fellowship honors the strength of women in public service as a memorial to Jenkins, a longtime assistant to the Phoenix city manager, recognized for supporting women's issues and the underprivileged in the community.

Students Erin Thomas and Dolly Haddad in the master's program received $2,500 scholarships.

Thomas has mobilized community resources and served as a teacher for at-risk and underperforming students in area schools. Haddad is a founding member of Home Safe, ASU's violence prevention resource and advocacy center.

The award is intended to support their education and preparation for further public service. Both students are Phoenix residents and will be honored in March.

The annual fellowship was developed in 2003 as a partnership between the Phoenix Women's Commission and the School of Public Affairs in the College of Public Programs at the ASU Downtown Phoenix campus.

'Honest indicator' helps sniff out cheaters

(Continued from page 1)

According to research findings published in the journal *Current Biology* Jan. 8, hydrocarbons on the outside cuticle of fertile ants form "a particular chemical signature blend." It's a cocktail that an ant apparently can't deny, cover up or lie about – and one that brands a cheater much like the red "A" on the bosom of Hester Prynne in Nathaniel Hawthorne's "The Scarlet Letter."

Social insects, such as ants, bees and wasps, rely heavily on chemical signals to communicate. While earlier studies indicated that chemical signatures are associated with fertility, it was ASU doctoral student Adrian Smith's studies with Aphaenogaster cockerelli worker ants that established that these chemical signatures are what allow workers to locate and police cheaters.

To do this, Smith painted a non-fertile (non-cheating) worker with a potent pentocosane (hydrocarbon), making her a reproductive mimic. When Smith placed the ant back within her colony, fellow workers sniffed out the "cheater," biting and attacking her.

"While we knew for some time that fertility status in ants was correlated with particular blends of hydrocarbons on the surface of the cuticle, no one was able to demonstrate that this hydrocarbon blend served as an indicator of fertility status to other nest mates," says ASU's Bert Hölldobler, the Pulitzer Prize-winning author of "The Ants," which he co-wrote with Harvard professor emeritus Edward O. Wilson.

A second set of experiments confirmed the group's findings. In an ant colony that lacked a queen, and in which some workers were reproducing, colony members had no aggressive response to the chemically altered, fake fertiles.

"This discovery is strong evidence that these hydrocarbons are 'honest indicators,' meaning their expression on the cuticle is intimately coupled with the physiological processes that regulate fertility status," says Hölldobler, a professor in ASU's School of Life Sciences.

Fertility is signaled through hydrocarbon signatures on the eggs and the cuticle of a worker ant. An A. cockerelli worker ant's egg has the same fertility signal as the queen.

According to Smith, these hydrocarbons serve as a red flag to other workers, announcing: "This one is capable of laying viable eggs." Since egg surface hydrocarbons and cuticular hydrocarbons are physiologically linked, a change in one results in a change in the other.

But why are the hydrocarbons then especially suited to prevent reproductive cheating? Research shows that the chemicals don't lie, and worker ants cannot eliminate them to escape detection.

To be successful cheats, reproductive workers need to escape being identified – and they still need to assure that their eggs escape detection. Hiding their eggs in plain sight, amongst those of the queen, would be the easiest solution. But to achieve this, the worker's eggs would need to express the fertility signal, like those of the queen.

"The dilemma is that, if you do not produce the fertility signal on the cuticle, you can escape detection, but if you don't produce it on the egg, it won't escape detection," Liebig says. "This seems to make cheating impossible, since they cannot solve both problems at the same time."

The idea that ant colonies stabilize their social structure by maintaining a system for punishing miscreants, with a built-in mechanism for reliably identifying individuals as cheaters, is where work such as Smith, Hölldobler and Liebig's finds application in other systems.

All animal societies share the common problem of individuals exploiting group resources for personal gain at a cost to the group. Smith points out that trying to understand how ant societies deal with this problem "gives us a basis for looking into the mechanisms used by other successful societies."

"This paper opens a new window in our understanding of the social regulation and evolution of reproductive division of labor, a key trait in eusocial insects," Hölldobler adds.

In addition to this collaborative work, which will be highlighted in the journal Nature, Hölldobler's nearly half-century study of insect societies has created a proliferation in many new areas of discovery. A book will be released in his honor by Harvard Press in February, titled "Organization of Insect Societies: From Genome to Sociocomplexity."

Coulombe, with the School of Life Sciences, can be reached at (480) 727-8934 or margaret.coulombe@asu.edu.

ASU-Penn partnership focuses on technology

(Continued from page 1)

has a robust technology pipeline, including technologies developed by faculty, researchers, and clinicians at one of the world's leading medical schools and health systems," says Michael Cleare, associate vice provost and executive director of CTT at Penn. "ASU's signature research initiatives, such as the Biodesign Institute and those relating to flexible display technologies and sustainability, are highly complementary to Penn's research.

"CTT has undergone significant changes over the last 18 months, particularly through the addition of experienced licensing professionals with extensive industry and investment experience, and this investment has led to a large increase in invention disclosures from our faculty. Our collaboration with AzTE will provide us with extra valuable resources for supporting our mission to transfer more of these technologies with the goal of public utilization.

"I am confident the results will be reciprocal, and we look forward to working closely with AzTE to advance our mutual objectives."

AzTE was established in 2003 as an Arizona limited-liability company and wholly owned subsidiary of the ASU Foundation. It is staffed by professionals with extensive industry and university experience in intellectual property and related business development.

AzTE operates as the exclusive IP management and technology transfer organization for ASU.

CTT was established in 1986 with the mission of transferring inventions and innovative knowledge from Penn to outside organizations for the benefit of society, including the licensing of Penn's intellectual property to new "Start Up" ventures for product development and commercialization. CTT serves as a bridge between Penn faculty and researchers and the business community through the patenting, marketing, and licensing of technologies and the generation of sponsored research programs.

Keeler, with Media Relations, can be reached at (480) 965-4012 or sharon.keeler@asu.edu.

Longtime employee Wurzburger turns page on 48-year career at ASU

(Continued from page 1)

she said. "When we came back from San Diego, I worked as a substitute teacher for several months, but I thought I really wanted to get into library work."

A job in cataloging was open at ASU, so she applied and was hired.

That was the beginning of a new challenge – working with the then-head librarian, whom Wurzburger called "Mr. B."

Mr. B believed that married women should not be working, Wurzburger says, adding: "He thought that jobs should be reserved for women who didn't have husbands to support them."

He also seemed to go out of his way to intimidate some of his staff, particularly those like Wurzburger, whom he considered to be in the "Cadillac and mink coat crowd."

Once he asked a favored staff member to pick out items for Wurzburger to catalog, and the staff member "selected all the things she did NOT want to catalog," Wurzburger says. "As I result, I learned a lot about cataloging, because they were the 'snags' – the hardest things to catalog – that no one else wanted to tackle."

Some of Mr. B's actions were ruinous to the library, Wurzburger says, and she shuddered when she learned what he had done.

"He stamped and perforated pages of rare books, which you should never do," she says. "And he made many errors in cataloging."

Eventually, Mr. B was transferred from his job as head librarian to the faculty of the department of library sciences – but Wurzburger's former nemesis came back to haunt her. She had been taking graduate classes to finish her master's degree, and whom did she find on the committee that would have to approve her coursework? Mr. B, of course.

"I just didn't want to go near him," she says. "I never asked him to approve my coursework, so I couldn't finish my degree."

But fate intervened again, and she eventually was promoted to full librarian – without her degree – thanks to the intervention of another head librarian, Donald Riggs.

Riggs based his decision on articles Wurzburger had published in library journals and her training in rare books, which she received from the then-associate librarian Jay Dobkin, who had once been a rare-book librarian.

There were other characters in the library. Wurzburger recalls a Miss Haskell, who felt that Wurzburger – who was the "baby" of the staff at age 26 – was enjoying herself too much and having too good a time at work.

"She said to me, 'You are much too happy,' " Wurzburger recalls.

In 1973, Wurzburger was named acting head of Special Collections, and the job was given to her permanently in 1974.

Her job was to buy and acquire rare books and collections, and to help scholars with research using ASU's materials.

There have been many memorable moments in her Special Collections work, and she has made friends from many countries – some of whom she and her husband have visited several times.

Among her "prizes" for the collection is the Doris and Marc Patten Collection of Herbals and Early Gardening Books, a rare assemblage of books about botany and herbals dating from the 15th century.

"The Pattens had thought about donating the collection to the University of Wyoming, but the university told them they would keep it for three years and sell it," Wurzburger says. "Doris Patten didn't want it broken up. I wrote a letter to Duncan Patten, their son, who had been a professor here, urging the family to give it to our Special Collections. He replied that I had convinced him that it should be at ASU."

Another exciting acquisition was a leaf from the Gutenberg Bible, which was donated by the now-defunct Friends of the Library group. The Friends paid $15,000 for the leaf, which is now worth about $70,000, Wurzburger says.

So what will Wurzburger do now that she won't be making the trek from her home in Scottsdale to Tempe anymore?

She says she and her husband will travel more, though they have seen much of the world already.

Or perhaps she'll dust off her tools for making stained glass, or instead finish the history of the library she started many years ago.

Wurzburger, an avid cook who has been a Pillsbury Bakeoff finalist twice, might even spend more time in her kitchen.

She will, however, leave a part of her heart – and a few tears – in Hayden Library, her home away from home for so many years.

"This has been such a great job," she says. "I have had such a wonderful staff."

Smith, with Media Relations, can be reached at (480) 965-4821 or jps@asu.edu.

Wurzburger to be honored

Marilyn Wurzburger, who has been on the staff of ASU Libraries for 48 1/2 years, will be honored at a retirement reception from 1 p.m. to 3 p.m., Jan. 21, in the Staff Lounge on the Concourse Level of Hayden Library.

Wurzburger, who was named acting head of Special Collections in 1973, was appointed permanent director in 1974.

Under her guidance, the acquisition of rare and unique materials increased substantially. Notable additions to our special collections included the Doris and Marc Patten Collection of Herbals and Early Gardening Books (sample images are available online at www.asu.edu/lib/speccoll/patten/index.html), and founding of the Child Drama Collection, which documents the history of professional theater for children in the United States and abroad.

For more information about the reception, call Margaret Schmidt at (480) 965-5889.

EMPLOYMENT

The following positions are available as of Jan. 16 and are subject to change. All positions will be advertised in *Insight* only once. The staff requisition or job order number for each position is indicated by the (#) sign. ASU is an equal opportunity-affirmative action employer.

ASU POSITIONS

A complete job announcement for classified, administrative and service professional positions at the Downtown Phoenix, Polytechnic, Tempe and West campuses is available on the Human Resources Web page at www.asu.edu/asujobs, or the Telecommunication Devise for the Deaf at (480) 965-3002.

For complete position descriptions and application requirements for academic positions, contact the appropriate department listed below. Faculty, academic professional and graduate assistant positions are also listed on the Human Resources Web sites and details must be obtained from the hiring department. Application deadlines are listed.

Dates listed are application deadlines, and application material is due by 11:59 p.m. on that date. Positions are 100 percent, full-time employment (FTE) unless otherwise noted. Code below is: (O) – position is open to the public.

STAFF POSITIONS

TEMPE CAMPUS

Professional

Academic Success Specialist #22119 (O) – School of Life Sciences (Jan. 26).

MBA Accounts Specialist Sr. #22042 (O) – W. P. Carey School of Business/MBA Programs (Jan. 21).

Research Advancement Administrator #22078 (O) – College of Liberal Arts and Sciences: Psychology (Jan. 20).

Student Support Specialist #21855 (O) – VP University Student Initiatives: Undergraduate Admissions (Jan. 22).

Administrative support

Administrative Secretary #22017 (O) – VP University Student Initiatives: Undergraduate Admissions (Jan. 21).

DOWNTOWN PHOENIX CAMPUS

Administrative support

Academic Success Specialist #22111 (O) – College of Nursing & Healthcare Innovation (Jan. 21).

ACADEMIC POSITIONS

TEMPE CAMPUS

Assistant/Associate/Full Professor #9261 – Ira A. Fulton School of Engineering: Mechanical and Aerospace Engineering (Feb. 2; every week thereafter until search is closed).

Ancient oceans reveal secrets on survival of life, researcher says

By Jenny Green

In the search for life beyond Earth, scientists "follow the water" to find places that might be hospitable.

But every home gardener knows that plants need more than water, or even sunshine. They also need fertilizer – a mixture of chemical elements that are the building blocks of the molecules of life.

ASU scientists are studying how the distribution of these elements on Earth – or beyond – shapes the distribution of life, the state of the environment and the course of evolution.

Ariel Anbar, a professor in the Department of Chemistry and Biochemistry, and the School of Earth and Space Exploration in the College of Liberal Arts and Sciences, weaves together threads from geoscience, chemistry, biochemistry and biology in his article published in the Dec. 5 issue of *Science.*

The "Perspectives" article reviews what we know about changes in the availability of some key nutrients in the oceans over the sweep of geologic time and suggests directions for research.

"The history of our planet is like a natural laboratory of 'alternative worlds,' " Anbar says. "The chemical composition of the oceans has changed dramatically over billions of years. Elements that are abundant today were once scarce, and elements that are scarce today were once abundant. So Earth's ancient oceans are a good place to go if we want to understand how organisms and ecosystems evolve to cope with changing abundances of elements. Studying the ancient oceans also stretches our minds to imagine what we might find someday in alien oceans on other worlds."

Visiting billion-year-old oceans is not so easy, however. Anbar says biogeochemists cannot directly sample oceans of the past, but they can make inferences about their compositions by examining sedimentary rocks that were deposited on ancient sea floors.

For example, the ocean floor rocks from the first half of Earth history include massive deposits of iron oxide – essentially, rust. Those rusty rocks tell us that the oceans in those days were rich in dissolved iron. Today, iron is so scarce in seawater that organisms living in vast areas of the oceans are starved for this biologically essential element. These organisms have evolved clever strategies to find and capture this key nutrient.

But Anbar stresses that iron is only one of many critical nutrient elements to consider. Sulfur, nitrogen, phosphorus, copper, zinc, nickel, and even obscure elements such as molybdenum are all essential nutrients whose abundances have gone up and down in the oceans over time. These changes are a consequence of increases in the amount of oxygen in the atmosphere and oceans.

Different elements are important in different ways for biological processes that affect the environment. As a result, Anbar says that changes in ocean chemistry probably had many unusual consequences in Earth history.

For instance, he points to a suggestion made by a colleague, professor Roger Buick of the University of Washington, that changes in the availability of copper could have affected the amount of nitrous oxide – so-called "laughing gas" – in the atmosphere. The idea follows from the fact that copper is present in the reaction center of the enzyme that bacteria use to convert nitrous oxide to ordinary nitrogen gas.

Buick proposes that copper-poor oceans could have led to a "laughing gas" atmosphere between 1.8 billion and 700 million years ago.

"Ironically, it's no laughing matter," Anbar says. "Nitrous oxide is a powerful greenhouse gas. It may be that copper scarcity helped keep the Earth warm at that time."

Anbar is most excited by the possibility that changes in ocean chemistry affected the composition of life itself.

"Take iron, for example," he says. "It's needed by virtually every organism on the planet. Is that because the basic biochemistry of life on Earth developed in the iron-rich oceans of Earth's distant past? Or is it because the chemical properties of iron are so special that evolution would have selected for it even if it was always rare?"

The answers to such questions will come from continued study of the past, combined with research into how the use of elements by organisms is affected by changes in element abundances in their environment. Much of this biological work will take place at ASU in a project Anbar is undertaking with professors James Elser and Susanne Neuer in the School of Life Sciences, Everett Shock in the School of Earth and Space Exploration and the Department of Chemistry and Biochemistry, and other ASU scientists.

That effort is supported by a $7 million grant from the NASA Astrobiology Institute.

"NASA is really interested in the idea that they should 'follow the elements' in addition to water when searching for life out there," Anbar says. "They recognize that ASU is an exceptional place for such research."

Green, with the Department of Chemistry and Biochemistry, can be reached at (480) 965-1430 or jenny.green@asu.edu.

Center broadens international scope of demography

By Erica Velasco

ASU's Center for Population Dynamics is changing the way people think about demography, while at the same time creating an inclusive and multidisciplined approach to research.

The center, which is based in the School of Social and Family Dynamics in the College of Liberal Arts and Sciences, offers research assistance for ASU faculty members. Its affiliates from across the university share interests in social demography, which goes beyond measuring population size, composition and distribution, and study societal factors that shape population characteristics.

"Population issues can be studied from different perspectives: sociology, economics, geography, anthropology and history, to name a few," says associate professor Victor Agadjanian, the center's director.

The center was established in 2005 by a group of faculty members in recognition of the importance of population issues globally and nationally, as well as on the state level – and, more specifically, the Phoenix metropolitan area.

"In terms of issues of population growth, urban expansion, environmental challenges and immigration, Phoenix is a great laboratory for social demography," Agadjanian says.

Immigration policies affect social networks

Changes and shifts in immigration policy and public perceptions of immigration and immigrants are affecting entire social networks in Phoenix.

Jennifer Glick, an associate professor in the School of Social and Family Dynamics and the center's associate director, leads an interdisciplinary research team that examines consequences of immigration policies in the southern Phoenix Latino community. Reduced access to resources as a result of policy changes, aggravated by rising anti-immigrant feelings, has had a negative effect on the overall well-being of social networks of the community.

The study, funded by the National Science Foundation, aims to evaluate how these social networks are affected by adverse policies and attitudes. Glick and her collaborators seek to determine how households have adjusted their social and economic strategies – and their resources – in response to changes in immigration policy and enforcement, growing xenophobia, and whether these processes have detrimental implications for health and other outcomes in the communities.

Study focuses on Southwest migration

To better examine the dynamics and consequences of immigration in metropolitan Phoenix, the center has broadened the scope of this research beyond the U.S. border and has developed new international partnerships.

A new study funded by the School of Social and Family Dynamics will explore the large-scale immigration to the Phoenix metropolitan area from the Mexican state of Sinaloa. The study, led by associate professor Scott Yabiku, hopes to demonstrate the interconnections of immigration, the environment and health.

"We want to look at both ends of the migration process to better evaluate its environmental causes and health consequences, which is why we are partnering with the Universidad Autónoma de Sinaloa in Mexico," Yabiku says.

The study also explores immigrants' labor force participation, socioeconomic outcomes and ties to Mexico.

HIV and AIDS: Childbearing in sub-Saharan Africa

Research on social and demographic consequences of HIV and AIDS in sub-Saharan Africa also exemplifies the center's international reach. Two studies funded by the National Institutes of Health look at how HIV and AIDS each affect childbearing.

Jenny Trinitapoli, an assistant professor in the School of Social and Family Dynamics, leads a study in rural Malawi, a sub-Saharan country. Malawi has one of the highest levels of HIV and AIDS prevalence in the world. The study investigates how young adults transitioning to parenthood, amid a generalized epidemic, simultaneously navigate the dual goal of avoiding HIV and AIDS and assuring healthy childbearing.

This three-year study will follow a cohort of young women and their partners to examine how knowledge of their own and partner's HIV status affects decisions to marry and to have a child.

Agadjanian leads another study in Africa in rural Mozambique. His study focuses on how knowledge of HIV status or perception of HIV risks shape reproductive choices and behavior of married women, especially those whose husbands are labor migrants and spend a long time away from their families.

Poised for rapid growth

"The Center for Population Dynamics was meant from day one to become a magnet for researchers across the campus who would be interested in different aspects of population research," Agadjanian says. "They can come and collaborate, share their ideas and put together proposals to carry out research projects. We are a young center, but we are in the process of rapid and ambitious expansion."

Velasco, with the College of Liberal Arts and Sciences, can be reached at (480) 965-1156 or erica.velasco@asu.edu.

ASU's Design Innovation program earns national notice

By Julie Russ

Annual rankings from *America's Best Architecture & Design Schools,* published by DesignIntelligence, show that the programs and faculty of one of ASU's newest units – the School of Design Innovation – continue to be highly recognized and ranked for excellence.

The 10th annual edition, published this year, confirms the College of Design's capacity for maintaining strong programs and momentum over the long term.

For the first time, the publication ranked schools according to a system that combined five scoring criteria, including the results of 10 years of rankings and opinion surveys and independent analyses. The ASU College of Design was identified as a school "With High Distinction," the second tier of a five-tier ranking system and in good company with Pratt University, Rhode Island School of Design and Rice University, among others.

In rankings of the individual design degree programs, the Interior Design undergraduate program ranked ninth and the graduate program ranked sixth nationally.

The Interior Design program has ranked in the top 10 programs for all 10 years of the publication's surveys.

The Industrial Design undergraduate program is ranked 13th, and its graduate program ranked 10th and has been ranked in the top 15 industrial design programs for the last three of the four years that America's Best has been ranking industrial design programs.

In addition, the Industrial Design program was ranked seventh in the nation by *U.S. News & World Report* for 2008.

Though America's Best is concerned with ranking programs, it also identifies other points of reputation and excellence in design schools. Industrial Design associate professor Prasad Boradkar was named one of the "Most Admired Educators of 2009" by the publication, one of 26 individuals noted. Boradkar is the project leader for InnovationSpace, an entrepreneurial joint venture among the College of Design, the Ira A. Fulton School of Engineering and the W. P. Carey School of Business.

InnovationSpace received the 2008 ASU President's Award for Innovation, and Boradkar was awarded the inaugural Faculty Achievement Award in Design Imperatives from the Office of the Provost in 2007.

This recognition as an educator covers the disciplines of architecture, interior design, industrial design and landscape architecture.

Russ, with the College of Design, can be reached at (480) 965-6693 or jruss@asu.edu.

Rose invited to be affiliate, faculty in history department

By Judy Nichols

Professor Jonathan Rose of the Sandra Day O'Connor College of Law has been invited to join ASU's Department of History as an affiliate – and, in a separate action, the history department's doctoral program voted to admit Rose as a member of its graduate faculty.

Rose, who is a Willard H. Pedrick Distinguished Research Scholar and a faculty fellow in the Center for the Study of Law, Science and Technology, earned his bachelor's degree at the University of Pennsylvania and his undergraduate degree in law at the University of Minnesota.

Rose joined the College of Law faculty in 1968. After spending most of his career focusing on antitrust, regulation and legal ethics, he changed direction. His primary scholarly interests involve medieval and early modern English legal history, and his research focuses on the history and regulation of the legal profession and the operation of the medieval legal system. He also has written on early defamation law, medieval prisons and the historiography of legal history.

Rose teaches legal history, antitrust, contracts and legal ethics, and he has received numerous teaching awards. He also is a faculty affiliate of the Arizona Center for Medieval and Renaissance Studies at ASU. He is the author of numerous articles on legal history, antitrust, economic and occupational regulation, and legal ethics.

Rose is a member of the Selden Society, the American Society of Legal History, the American Law Institute, and the BNA Antitrust and Trade Regulation Report advisory board. He is a life member of Clare Hall, University of Cambridge.

Rose also has served on numerous committees and boards, and as a consultant for various departments of the state of Arizona, including as a special assistant to Gov. Bruce Babbitt.

Nichols, with the College of Law, can be reached at (480) 727-7895 or judith.nichols@asu.edu.