



The 2009 Goldstone Forum in the Philosophy, Politics and Economics program featured Nobel Prize-winning economist Paul Krugman speaking on the economic challenges lying ahead for the United States and the world. Dubbed “the most celebrated economist of his generation” by the *Economist*, he is the author or editor of 20 books and more than 200 journal articles—many of them on international trade and finance. His most recent book is *The Conscience of a Liberal*, and his previous work, *The Great Unraveling*, was a New York Times bestseller.

Nobel laureate Paul Krugman is a professor of economics and international affairs at Princeton University, Centenary Professor at the London School of Economics and a columnist for the *New York Times*.

In his lecture, Krugman emphasized how different the current global economic crisis is from previous 20th-century recessions, which were generally caused by changes in monetary policy to counter inflation. “This is not your father’s recession,” he said. “There was no inflation, and the economy was going along. Then, at a certain point, people realized they had made investment decisions that didn’t make sense: they had lent money to people who couldn’t repay it, and the whole structure came crashing down. It’s much harder to produce an end to a recession that happened in that way.”



IN CONVERSATION WITH THE PAST



Sarah Barringer Gordon, Professor of History and Arlin M. Adams Professor of Constitutional Law

Throughout the spring semester, history department faculty engaged in a series of public conversations focused on recently published faculty books. Exploring a variety of topics—ranging from the geographic boundaries of slavery in the United States to the evolution of body care in early America—*Not Even Past: New Perspectives on American History* featured Richard Beeman, Kathleen Brown, Thomas Childers, Steven Hahn, Barbara Savage and Thomas Sugrue in dialogue with Sarah Barringer Gordon, Bruce Kuklick and Kathy Peiss.

Alumni can view video clips from the series and take part in online discussions of each book this summer through a free program hosted on Penn’s Open Learning Commons. Visit www.sas.upenn.edu/notevenpast and see “Open Learning,” p. 7 for more information.



Associate Professor of Anthropology Clark Erickson in a dugout canoe on the San Joaquin River in the Bolivia Amazon

DOMESTICATED LANDSCAPE

If you leaf through a coffee-table book on archaeology, you're likely to see photos of magnificent relics and ruins. Much of our knowledge of ancient civilizations comes from archaeological sites—points on a map where archaeologists dig, layer by layer, back into time to study, piece by piece, the artifacts buried there.

“The site is like a sacred category that organizes all of archeology,” says Clark Erickson, an associate professor of anthropology. But what about the map itself, the expanses of land where the coffee-table-book sites are situated? “We think a site has clear boundaries,” he notes, “so all the space around it has been pretty much ignored by archaeologists. Over the years, I’ve gotten more and more interested in what all that landscape between sites can tell you.”

Erickson is curator of the American section of the Penn museum. He is a specialist in—and a pioneer of—landscape archaeology, particularly of the pre-Columbian civilizations that peopled the Amazon in Bolivia and Peru. In that part of the world, Erickson has discovered forgotten trails, silted canals and eroded earthworks crisscrossing savanna and forest from horizon to horizon. Seen from an airplane, the geometric patterns of straight lines, perfect circles and elevated rectangles leave no doubt that these “geoglyphs” are the works of human hands. “In Amazonia,” he argues, “nature more closely resembles an abandoned garden than a pristine wilderness.”

Erickson and his colleagues occasionally excavate a trench through some of the earthworks to date the layers of original construction and renovations by later inhabitants. “So much of landscape archaeology is just reading the pattern on the surface at different scales,” he comments, “from satellite imagery all the way down to walking the area on the ground to get that human perspective.” He spotted many ring-ditch geoglyphs using Google Earth.

The prodigious feats of ancient digging and piling of dirt, Erickson surmises, took more labor than went into the building of antiquity’s greatest monuments. The

earthworks he studies make up a vast, engineered system designed to capture water during the wet season and move it through a network of canals, raised fields for crops, fish weirs and settlement mounds. “They completely transformed these landscapes,” Erickson says, “disturbing the soil, in many cases, a meter below the surface.” He estimates the countryside supported tens of thousands of people with hundreds of miles of causeways and canals. Carbon dating suggests some raised fields were built as long as 3,000 years ago and fell out of production around the time the conquistadors arrived 500 years ago.

“In many societies, the state collapses and the big cities are abandoned, but people go on living out in the countryside as if nothing had happened,” he says. “They were able to sustain large populations, densely packed on these landscapes, and they lived pretty good lives. A vast indigenous knowledge spanning hundreds of generations is physically embedded in the landscape. We could learn a lot from the Amazonians.”

The human brain's sensitivity to unexpected outcomes plays a fundamental role in the ability to adapt and learn, according to a recent study by a team of Penn psychologists and neuroscientists. Published in *Science*, the study used microelectrodes to observe neuronal activity in the brains of 10 subjects while engaged in a computer-based, probabilistic learning task. Results suggest that neurons in a brain structure called the substantia nigra play a central role in reward-based learning, modulating learning based on the discrepancy between expectations and outcomes.

"Similar to an economic theory, where efficient markets respond to unexpected events and expected events have no effect," explains senior author and Professor of Psychology Michael Kahana, "we found that the dopaminergic system of the human brain seems to be wired in a similar rational manner—tuned to learn whenever anything unexpected happens but not when things are predictable."

Previously studied in animal models, this is the first study to directly record neural activity underlying this learning process in humans, confirming the hypothesized role of the basal ganglia—which includes the substantia nigra—in models of reinforcement including learning, addiction and other disorders involving reward-seeking behavior.

LISA GODFREY



COLLEGE GRADUATION '09



Grammy winner and soul singer John Legend, C'99, spoke to the class of 2009 at the College graduation. "Sometimes there isn't a single answer," he said, reminding them of life's gray areas, "but there's always the truth. ... Searching for the truth, in many ways, is the same as searching for your soul." His speech can be seen on YouTube.

WATER WORK

In March, a group of 14 graduate and undergraduate students in Stanley Laskowski's Global Water Issues course took a 5,000-mile class trip to the World Water Forum in Istanbul. The course is offered through the Master of Environmental Studies program in the College of Liberal and Professional Studies. Laskowski's students were among the more than 33,000 participants who took part in this weeklong international gathering dedicated to deepening discussions on 21st-century water issues and raising their importance on the political agenda.

In addition to attending a variety of panels and sessions organized under the forum's six themes—including global change and risk management, the United Nations' Millennium Development Goals, and managing and protecting water resources—Penn students also presented a special workshop on "women and water." They were the only university students selected to host such an event at the forum.

"I am proud of the leadership shown by our students on the important issues of clean water and sanitation," says Laskowski, "problems that, on average, claim the life of a child every 20 seconds."

RUNNING ON EMPTY

In a three-minute online video called “Man on the Street 2,” an interviewer’s voice asks, “Do you know what the current size of the national debt is?”

A self-consciously stiff college student on camera responds, “Three trillion dollars?”

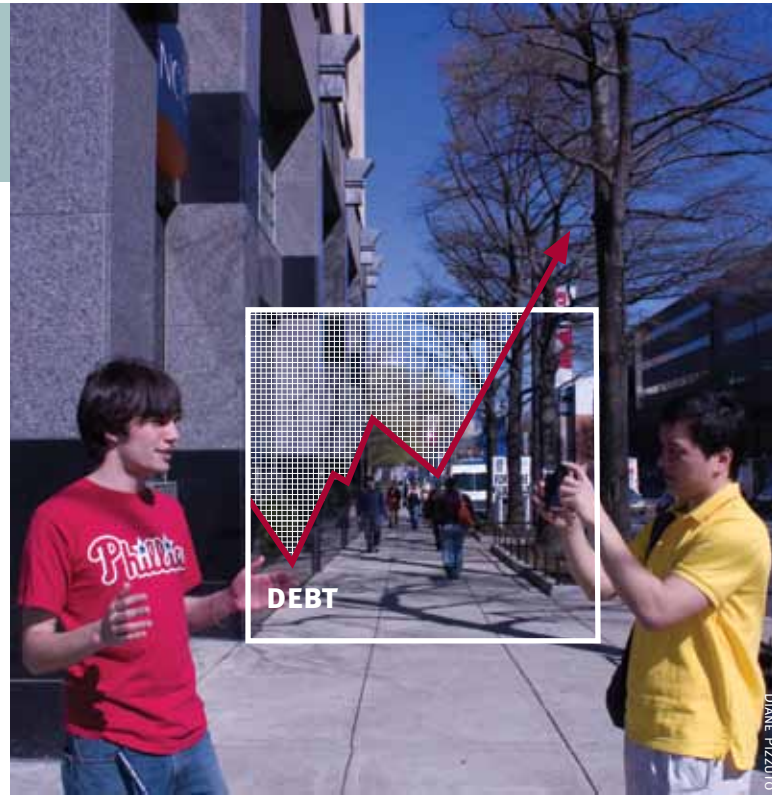
“Well, actually the answer is 10 trillion dollars,” the voice declares.

The student gasps visibly beneath a *BOING!* sound effect.

The video short was put together by undergraduates John O’Malley and Will Son for the Future of American Politics, a freshman seminar they took last fall. The light-heartedly serious documentary won first prize in a national contest sponsored by Facing Up, a nonpartisan program for students concerned about what the federal budget means for their future.

On the first day of the seminar, which met at the height of the presidential campaign season, the instructor told the class, “We’re going to talk about the one thing that politicians won’t be talking about in the upcoming election: fiscal policy.” The students learned about spending on health care, Medicare and Medicaid, Social Security, and the coming retirement of baby boomers with its fiscal burden for future workers. As the housing market collapsed and the stock market crashed, the instructor would come into class each Monday and comment, “Everything we talked about last week—forget about it; it’s all different now.” During class breaks, students consulted their BlackBerrys for real-time updates on the unfolding economic crisis.

Things finally became so bad that candidates did start talking about fiscal policy—sort of. “Politicians don’t want to say we’re going to stop spending because then they’re not going to get elected,” O’Malley observes. “All those bailout bills and all these companies going under that



Undergrad moviemakers John O’Malley (left) and Will Son

want government money—the problem is the government’s spending too much. We’re 10 trillion dollars in debt!”

O’Malley’s and Son’s video gauges student awareness of the federal budget and tries to educate them on the fiscal health of America’s government and society. In the film, several College students at Penn are asked if they know the number for the national debt. They all underestimate it—by a lot. The man-on-the-street students were equally uninformed about—and alarmed by—the federal government’s \$455-billion deficit for fiscal year 2008. “It’s kind of amusing, but it’s also really sad that we’re so uneducated,” notes O’Malley, who’s learned that government’s deep pockets have a bottom. “It’s just that we’re going to run out,” he says, “and politicians don’t want to talk about it.” That makes him angry.

“The future of American politics seems so distant, but it’s right now,” adds Son, who is the interviewer in the video. “The decisions and policies we’re making today will affect us in 10 or 20 years. With our film, we’re trying to get the younger generation to tell politicians that we do care about our future.”

“It’s kind of frightening when you have to think about it as a freshman,” O’Malley remarks. “You’re just trying to get through college and then hopefully get a job. But when you graduate, you’ll need that job because you’ll need to pay for your parents and your grandparents and all your aunts and uncles.”

As for his share of the \$500 in prize money, O’Malley says, “Most of it went to textbooks.”

“Yeah,” echoes Son, “I spent 243 bucks on textbooks this semester. At least we were investing in something important—like our future.”

To view “Man on the Street 2,” visit pound-it.org and click on “video.”

“As a field-worker,” writes sociology professor Charles Bosk, “I seek medical settings where ‘What would you do in my situation?’ is most likely to be asked.” Bosk is a medical sociologist who observes and analyzes the everyday talk and action of health-care workers in major medical centers. On the front lines of clinical care and medical research, the “perils, pains and pressures of terrifying choices” are abundant. “I am not a player of this game,” he confides, “I record the moves of others.” An ethnographer of hospital life, Bosk has spent more than 30 years watching the life-or-death game and has produced substantial participant-observer studies of surgeons and genetic counselors.

In his new book, *What Would You Do? Juggling Bioethics and Ethnography*, Bosk is on display “juggling the concerns of bioethics and the sensibilities of an ethnographer.” In part, the book examines how bioethicists came to stand with doctors and nurses at the hospital

bedside and what it is they’re doing there. When is their expertise needed? How do they make decisions? Whose interests are they serving?

His study of the emerging discipline of bioethics, he writes, “impelled me to think harder about the ethics of my own practices.” Looking

back over his experiences in the field, Bosk details the inadvertent betrayals, innocent-seeming ruses and broken promises that are part of being an outside observer or protector of a source’s confidentiality. Ethnography, he concludes, is not entirely harmless, despite the aspiration to “do good” by doing research.

As a witness of the game, Bosk, throughout his career, had to sidestep the question, What would you do? In the July 18 issue of *The Lancet*, one of the world’s leading medical journals, Bosk is lead author of an essay that reflects on how the public seizes on quick fixes to patient safety—like checklists—while ignoring messier factors like physician socialization and health-care culture. The ethnographer’s outside perspective on the hospital ward still has something important to offer, he suggests in *What Would You Do?* “[W]e ... need to find ways to demonstrate that we can be useful without being helpful.”



2009 LEVIN FAMILY DEAN'S FORUM



Henry Louis Gates, Jr., is the Alphonse Fletcher University Professor and director of the W.E.B. Du Bois Institute for African and African American Research at Harvard University.

This spring’s Levin Family Dean’s Forum featured renowned literary critic and scholar Henry Louis Gates, Jr. Host and executive producer of *African American Lives*, Gates recently authored a companion book to the acclaimed PBS documentary series. Exploring the family histories of subjects including Oprah Winfrey, Morgan Freeman and Maya Angelou, *In Search of Our Roots: How 19 Extraordinary African Americans Reclaimed Their Past* also details the particular challenges Gates encountered in tracing the ancestry of each individual. During his talk at the Penn Museum’s Harrison Auditorium, Gates described the personal discoveries within his own family that initially sparked his interest in genetics and genealogy.



DANE PIZZUTO

OPEN LEARNING

Penn's College of Liberal and Professional Studies (LPS) has harnessed the power of social networking to develop the Open Learning Commons, a new interactive online learning platform that is open to anyone, regardless of enrollment status, education level or geographic location.

"We developed the commons both as an exciting new platform to host online courses and communities, as well as a space for important new open-educational resources," says Marni Baker Stein, director of program development at LPS.

The first course offered on the commons, which launched in January, was Global Environmental Sustainability. This multi-continent discussion of issues about global environmental

policy and sustainability was led by faculty at Penn as well as colleagues at Kyung Hee University in South Korea and Ritsumeikan University in Japan. Students enrolled in the course focused on framing an American approach to the next round of climate change policy, and they made a virtual presentation of their project to attendees at the United Nations World Civic Forum in Seoul, South Korea.

Lectures from the course can be accessed through the commons at www.pennlpscommons.org, the LPS YouTube channel or iTunesU. Online participants can read and comment on student-led blogs; contribute to discussion forums; view the course syllabus and reading list; and engage with students and faculty as well as other professionals in the field of global sustainability.

"This allows participants beyond students enrolled in a particular course, program or even university to join the debate and create a global discussion that crosses national, international and cultural barriers," Stein says.

The Global Environmental Sustainability course drew more than 4,500 visitors from dozens of countries, and 550 students from 31 countries have enrolled in a non-credit positive psychology course to be offered this summer. Additional summer offerings include *Not Even Past: Conversations on American History*, an online book discussion series guided by faculty authors from the Department of History and available free of charge. (See back cover and visit www.sas.upenn.edu/notevenpast for more information.)

A new book by Peter Conn, the Vartan Gregorian Professor of English, argues against the assumption that the Depression decade was characterized culturally by leftist politics and aesthetics. In *The American 1930s: A Literary History*, Conn explores both historical events and the literature of the time to support his claim that, despite the pressures of the Depression, the United States was “a place of enormous ideological and imaginative complexity.”

“The past few decades of scholarship have tended to simplify the imaginative work of the decade by concentrating overwhelmingly on leftwing writing,” Conn says. “On the contrary, as the material in my book demonstrates, the 1930s saw a vigorous cultural debate in which the left, the right, and the downright apolitical competed for attention.”

Conn examines this complexity through the lens of a subject to which many writers in the 1930s turned—the past. Responding, in part, to a present in crisis, many Depression-era novels, non-fiction books, plays, poems and paintings deliberated over history and its symbols. “This sustained absorption in the past,” Conn says, “became for writers on all sides of the various debates a vehicle for testing their competing views of American values.”

THE AMERICAN 1930s *A Literary History*

PETER CONN



Jennifer Tytel at ceremony making her Queen of the Youth of the Ashanti Tribe

AFRICAN QUEEN

At a ceremony presided over by a tribal chief in Tapa, Ghana, communications major Jennifer Tytel, C'09, had to stand up and sit down three times. “The third time I sat down,” she explains, “I was a part of their tribe.” From then on, Tytel was Queen of the Youth of the Ashanti Tribe and would be known as Nana ya Poma.

Her ascent to royalty was the outcome of nearly four years of work on campus and in Africa on behalf of Doc to Dock, a program that collects surplus medical supplies and ships them to where they are needed. Tytel established a Doc to Dock chapter at Penn, which helped raise funds and awareness. A sonogram machine that was shipped to Tapa saved the lives of 20 pregnant women and their infants in the first three months, she reports. The Penn chapter collected shipping funds but has also worked to gather textbooks for Tapa’s library, hair dryers for beauty schools, clothing, sewing kits and other items. Doc to Dock recognized Tytel’s efforts with its Collegiate Surplus into Survival Award.

Tytel has also developed an AIDS education program, which she will bring to Tapa this summer before starting law school. As an Ashanti queen, she is obliged to return to Ghana three times each year. “They offered me a husband,” she comments, “but I declined.”

EVOLUTION OF AGING

“Since lifespan can be inherited, this means it can evolve over time in populations,” says biology doctoral student Annalise Paaby. “If that’s the case, then we should not only be able to identify some of the genes that determine how long an organism lives but also be able to understand how natural selection acts on those genes to eventually produce the different lifespans that animals have.” Working in the lab of Associate Professor of Biology Paul Schmidt, Paaby has been studying the microevolutionary forces affecting lifespan in *Drosophila melanogaster*—the common fruit fly.

All the genes currently identified as affecting longevity also affect other traits. So, although scientists don’t believe there would ever be a case where natural selection would favor an allele—or version—of a gene that would cause a short lifespan, that allele might be favored because it confers other traits that benefit the fitness of the species. One tradeoff well demonstrated across animal models is that alleles which result in a short life span also result in high reproductive success, and vice versa.

Paaby’s research tests the hypothesis that fruit flies living in high latitudes must have adapted to survive seasonal cold stress, requiring alleles that confer a longer lifespan and the ability to resist stress, but also lower fecundity. In flies occupying lower latitudes, she posits, these alleles would be selected against because they confer only a disadvantage, since the tradeoff between reproductive success and stress tolerance is no longer beneficial. Her work builds on mutational genetics research, which induces lab-derived mutations at specific genes in an organism to determine how they impact phenotype, which are the observable traits of an organism.



Drosophila melanogaster

Paaby sequenced the insulin receptor gene—previously identified by mutational screens as affecting aging in *Drosophila*—in natural populations of fruit flies collected in orchards from Maine to Florida. She found a naturally occurring mutation, a polymorphism, in the insulin receptor gene that varies across latitude. “One polymorphism allele was more common in northern fly populations and increased with latitude,” Paaby says, “and another was more common in southern populations and decreased with latitude.” When she tested this polymorphism for functional significance, she discovered that the allele more common in high latitudes conferred stress tolerance and the allele more common in low latitudes conferred high fecundity.

Paaby’s work has been in collaboration with researchers in Australia who sequenced the same gene in fruit fly populations on that continent. They found that the polymorphism there shows nearly identical latitudinal patterns. “This is exciting,” Paaby explains, “because we know these populations have been separate for a really long time and were founded by different source populations. The fact that this pattern is repeating itself suggests it is not random and that there is a deterministic process causing it.” Her next step is to test the alleles to see if they impact lifespan. “I have every expectation,” she says, “that the high-latitude allele that confers the stress tolerance phenotype is also going to confer the longer lifespan phenotype.”

Paaby believes her research provides a powerful example of how scientists can apply findings from mutational genetics to natural genetic variation in order to better understand the nuances of genetic function. “If you want to make the claim that you found something adaptive, you have to come at it from many levels,” she says. “You have to explain its genetics, its phenotype, and you have to make a case that you can correlate the environment to the genes and the phenotype. My research helps complete that circle.”