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Cover photo by Gregory Benson
One of the pleasures of being dean of the School of Arts and Sciences is that you learn something new every day. As our name denotes, the School encompasses the full spectrum of academic disciplines — the humanities and the natural and social sciences. What that requires of a dean is considerable stamina, a sense of intellectual curiosity and a willingness to take up the challenge of understanding a wide span of fields covering everything from poetry to populations to proteins.

As an English professor stepping into this role, I knew from the start that I would be responsible for a high-stakes and immensely important part of the School’s mission, the sciences, even though my expertise is in the humanities. Over the last two years, I’ve worked with our scientists and science chairs to gain a firmer grasp of the issues they face. They have taught me a great deal about science and its past, present and future. It’s been an absolutely fascinating journey and one of the most rewarding aspects of my job.

Our strategic plan calls for targeted investments in five multidisciplinary initiatives. Two of them are in the sciences: nanoscale research and what we’ve come to call genes to brains to behavior. Both areas of research are rich in the promise of breakthroughs in fundamental knowledge and world-changing applications. With technologies that allow us to push around individual atoms, nanoscientists can now build “machines” measured in millionths of a millimeter. Together with faculty from the School of Engineering and Applied Science, physicist Charlie Johnson has created tiny sensors that can detect single molecules in the environment. The minuscule device is made of a carbon nanotube, whose wall is one atom thick, and a single strand of DNA. His nanosensor can sniff out molecular traces of explosives or bioweapons and might even have a future role to play in detecting protein byproducts of cancerous growths.

Detailed brain-imaging technology, a deeper understanding of the genetic origins of human behavior, new techniques to build molecule-size machines with atoms as building blocks — these remarkable tools and theories hold the promise of breakthrough discoveries that couldn’t have been imagined just 20 years ago. With the kind of basic research our scientists carry forward every day — their ceaseless pushing at the frontiers of the unknown — the School of Arts and Sciences can make a vital contribution.

The nano-, cognitive and life sciences are rich in the promise of breakthroughs in fundamental knowledge and world-changing applications.
2007 Dean’s Forum

Guests at this year’s Dean’s Forum heard Paul Farmer talk on AIDS in 2007: Building a Health Care Movement. A medical anthropologist and physician, Farmer has dedicated his life to caring for some of the world’s poorest and sickest populations. He is the subject of Tracy Kidder’s character study, *Mountains Beyond Mountains*. Farmer divides his time between the Harvard Medical School, where he is a professor of social medicine, and Clinique Bon Sauveur, the hospital he founded in rural Haiti while still a medical student. In 1987, he co-founded Partners in Health, which provides medical care to impoverished communities in Haiti, Rwanda, Peru, Russia and elsewhere. Before his afternoon lecture, Farmer met with several groups of students, including majors in the Health and Societies Program, medical students of the Global Health Interest Group and students associated with Civic House, Penn’s hub for community service and social advocacy. “The world’s going to be alright,” he commented at his lecture, “if the people I met today are going to be taking on the world’s problems.”

Democratically Speaking

A new interdisciplinary program set to launch in the fall will bring together some of Penn’s top minds to explore and illuminate the meaning of democracy in our world. The Penn Program on Democracy, Citizenship and Constitutionalism is made possible by a grant from the Andrew W. Mellon Foundation. “We call the members of constitutional democracies self-governing citizens,” observes Rogers Smith, the Christopher H. Browne Distinguished Professor of Political Science and program chair. “But what does that citizenship really mean, and what should it mean in people’s lives? That’s what the program will explore.”

The program consists of six main components structured around an annual theme: monthly faculty workshops with an end-of-year conference, annual edited volumes published by Penn Press, one postdoctoral fellowship, three graduate fellowships, a graduate student workshop and 10 undergraduate research grants. Dean Rebecca Bushnell says, “We expect that scholarship emanating from this program will shed much needed light on efforts to advance democracy, citizenship and constitutionalism around the world today.”

The first year’s theme is Citizenship, Borders and Human Needs. An inaugural lecture will kick off on September 20 at the National Constitution Center in Philadelphia with guest speaker Demetrios Papademetriou, director of the Migration Policy Institute. “Immigration has become a huge issue in many countries around the world for both sending and receiving nations,” remarks Smith. “Next year’s papers will explore the empirical trends and ask normative questions about who benefits and who is harmed by prevailing patterns and what the alternatives facing us are.”

Exceeding the Challenge

For years, it has been the custom of physics professor Eugene Mele to give students in his honors seminar a weekly “challenge problem.” One week in the fall of 2005, he assigned a problem in elementary mechanics that called for students to calculate the point on a sphere where a block of mass would lose contact as it slid down the surface. “I was convinced that this problem wouldn’t admit an exact solution,” he says, “and this would force the students to seek some sort of approximate solution.” Fortunately, freshman Tom Prior didn’t know that. “When I first saw Professor Mele’s challenge problem, I was like all freaking out and scratching my head,” Prior recalls. “I really didn’t even understand what was being asked.” He put it aside for later. Because he didn’t grasp the integral equations needed to work out the kind of approximation Mele was looking for, he tried something different. “It turns out that the method I used gives an exact solution,” he says. Mele thought the result was a mistake, but Prior convinced him to look more carefully. The approach was so surprising and unique that Mele and Prior published a paper about it in the March issue of the *American Journal of Physics*. Prior’s name appears first. “Professor Mele helped me out a lot when I messed stuff up during the publishing process,” he says. “Also his editing was great — most things sound a lot more cool when he says them than when I do.”

Eugene Mele and Tom Prior
Next PIKs

Penn President Amy Gutmann introduced the Penn Compact at her inauguration in 2004. In part, the Compact emphasizes research and teaching across academic disciplines and schools. She could hardly have fathomed then that by 2007 five new Penn Integrates Knowledge (PIK) professors would have already been recruited. PIK professors are chosen for their outstanding intellectual achievement across disciplines. Dean Rebecca Bushnell notes, “We are pleased to welcome faculty of such high achievement and promise, and look forward to the many ways they will enrich our academic community.”

Philippe Bourgois, a world-renowned medical anthropologist, holds a Richard Perry University Professorship and has appointments in the Department of Anthropology and in family practice in the medical school.

John Jackson Jr. is a leading scholar in cultural anthropology and a documentary filmmaker. He holds a Richard Perry University Professorship and has appointments in the Department of Anthropology and the Annenberg School for Communication.

Jonathan Moreno is a bioethicist and ethics commentator for ABCNews.com. He holds the David and Lyn Silfen University Professorship and has appointments in the Department of History and Sociology of Science and in medical ethics in Penn Medicine.

Christopher Murray researches the synthesis characterization and integration of nanostructured materials. He holds a Richard Perry University Professorship and has appointments in the Department of Chemistry and in materials science in Penn Engineering.

Adrian Raine, internationally renowned for the integration of biological and social perspectives on the predication and explanation of violent behavior, holds a Richard Perry University Professorship. He has appointments in the Department of Criminology and in psychiatry in the medical school.

CUREJ Through Research

“My work is about discovery: an exploration of colors, patterns and language of paint,” wrote Trina Gordon, C’06, describing her research project, “In Her Wonderland.” “I am investigating how illusion functions in society.” Her research consists of four works of art. Gordon, a fine arts major, is one of the many students who submitted work to the College Undergraduate Research Electronic Journal (CUREJ, pronounced courage). College dean Dennis DeTurck says, “Research is an important part of undergraduate education. CUREJ provides an outlet for our students to publish the results of the outstanding research they do under close supervision and in collaboration with professors who are experts in their fields.” CUREJ was first published online in the spring of 2006, and since its inception, recommendations for publication have come from nearly every department in the School of Arts and Sciences. Kent Peterman, director of academic affairs for the College, speaks highly of the undergraduate research journal. “By giving examples of the best work our undergraduates are doing, CUREJ helps students understand what forms research takes in the various disciplines across the arts and sciences.” There are currently 45 research papers on the site, and downloads from CUREJ are increasing. Penn’s ability to provide rich opportunities for undergraduate research and publication outlets like CUREJ remain one of the University’s most distinctive features. To visit CUREJ, go to http://repository.upenn.edu/curej/.
Averaged American

Over half of U.S. women now live without a spouse. Nearly seven in 10 Americans disapprove of the president’s handling of the war in Iraq. Statistics, surveys and polls, we believe, tell us what “America” is thinking and doing. “Being studied, and being privy to the results, is an understood and unexceptional feature of modern life,” writes Sarah Igo, an assistant professor of history. “It is perhaps the principal way that we know ourselves to be part of a national community.” In her new book, The Averaged American: Surveys, Citizens, and the Making of a Mass Public, Igo tells the story of the rise of statistical studies in modern America. Her narrative starts with the 1929 Middletown study of Muncie, Ind., and moves through the political polling of George Gallup and Elmo Roper during the ’30s and ’40s, and then looks at the infamous Kinsey reports of 1948 and 1953. The “scientific” tabulations of Middletown showed us what an “average American” is, and the Gallup and Roper polls revealed the fluctuations of the “mass mind,” while Kinsey’s frank reports on American sexual practices brought into question the very idea of “normal.” All this social information — the graphs, percentages, curves and data points that measure and express the nation — became part of America’s popular culture and self-understanding. “By mid-century, it was clear that impersonal techniques and facts about strangers could penetrate the most private domains of individuals’ lives,” Igo writes. “Americans were in effect speaking a new language, one they could not unlearn.”

DNA Gets Bent

The nucleus of each of our body’s cells contains long strands of DNA. To keep the strands from turning into a tangled mess, cells have evolved a tidy packaging scheme, with the DNA wound around tiny bobbins made of protein to form nucleosomes. Physics professor Philip Nelson says that DNA’s propensity to coil and kink when it interacts with other molecules was once considered surprising. “Common sense and physics seemed to tell us that DNA just shouldn’t spontaneously bend into such tight structures, yet it does. In the conventional view of a DNA molecule, wrapping DNA into a nucleosome would be like bending a yardstick around a baseball.” To understand this puzzle, Nelson and Caltech Ph.D. student Paul Wiggins brought together a team of scientists from the U.S. and the Netherlands to test the mechanics of DNA over length scales shorter than had ever been studied. Using atomic force microscopy, they measured the energy needed to bend DNA at lengths as short as five nanometers (about 2,000 times smaller than the width of a human cell). “We found that the properties of DNA when probed at the short lengths relevant to cell biology are quite different from those inferred from earlier, longer-scale experiments,” he explains. “Its resistance to large-angle bends at this scale is much smaller.” Nelson, a member of Penn’s Nano-Bio Interface Center, says that “the nanoscale, where so much exciting materials science is emerging, also happens to be the scale at which cell biology operates. We’re entering an era when we are able to use the tools of nanotechnology to answer fundamental puzzles of biology.”

Topography of a single DNA strand on a surface as reported by atomic force microscopy
Sex and Cigarettes

Population scholars have long observed that life expectancy for women in the U.S. is greater than for men. In recent years, they have noted that the difference in longevity between the sexes has decreased (from 7.8 years in the 1970s to 5.3 in 2003). That narrowing gap in mortality is due primarily to differences and changing habits in cigarette smoking say Samuel Preston, the Frederick J. Warren Professor of Demography, and Ph.D. student Haidong Wang, G’04. “The different smoking histories of women and men provide a telling vantage point from which to view the havoc that smoking has wrought on national mortality patterns,” they write in their study, “Sex Mortality Differences in the United States: The Role of Cohort Smoking Patterns.” Preston and Wang looked at mortality rates in the U.S. over a half century (1948-2003) as a function of age, time period and birth cohort. Incorporating data from national surveys on smoking habits and histories as well as lung-cancer death rates clearly shows that “smoking is principally responsible for change in the pattern of sex mortality differences,” due to recent increases of smoking among women. The authors note that an upsurge in smoking just after World War II blunted a significant fall in mortality during that period, and a sharp drop in the numbers of people who smoke in the last two decades exaggerated more recent improvements in longevity. Mortality for men will continue to fall faster than for women over the next 30 years, Preston comments. “This will help equalize sex ratios at older ages but create a bigger fiscal problem for Social Security.”

Girly Man

At a 2004 Republican rally in an Ontario, Calif., food court, Governor Arnold Schwarzenegger mocked the Democratic-controlled state legislature as “girly men” and bid his supporters to “terminate” the legislators at the polls. The Ballad of the Girly Man, a poem for his son, Felix, calls upon us to celebrate the girly man and indeed, to become one: “So be a girly man / & sing this gurly song / Sissies and proud / That we would never lie our way to war.” A girly man, according to Bernstein, values complexity, reason and interdependence. A girly man proclaims his “faith in listening, in art, in compromise.” A girly man recommends poetry as a form of resistance. His new book, Girly Man, challenges and delights with innovative poetry that addresses many of our current concerns and cultural obsessions head on. The sequence “Some of These Daze” chronicles Bernstein’s response to September 11 and its aftermath; the poem “In Particular” takes the notion of sexual, ethnic and racial identities to ridiculous extremes by listing “types” of people (“A Hindu hiding in an igloo,” “A Sunni boy on a scooter”) linked by rhyme, contingency and wordplay rather than more familiar relationships. Many of the poems in Girly Man are provocative — preposterous, even — in their insistent humor and antic formal play. Girly men, be proud. Charles Bernstein is your fierce defender. — JESSICA LOWENTHAL

Between Two Empires

It has been argued that immigrants to the U.S. must choose between loyalty to their homeland and adopting American traditions. In his latest book, Between Two Empires: Race, History, and Transnationalism in Japanese America, Eiichiro Azuma provides another view. By examining rarely consulted personal papers, vernacular newspapers, immigrant publications and government reports, Azuma, an assistant professor of history, investigates the formation of Japanese-immigrant or Issei communities in the American West before World War II. At the time, Imperial Japan demanded loyalty from Issei, and American racism against Asians was prevalent. Azuma finds that in trying to create a “space where Issei could forge their own interpretations and self-definitions,” they were able to “navigate through the two state ideologies, not only by turning one against the other but also by conveniently fusing aspects together.” Between Two Empires has been widely recognized for its excellence and received numerous awards.

—JOANNE SIDAROV, C’09
There is an Islamic civilization, but it's not defined by a uniform ideology or a single way of life, much less a single-minded enmity for the West.

“We need to get away from stereotypes, generalizations and preconceptions and take care not to let crimes committed by individuals or small groups dictate our image of an entire people, an entire region or an entire religion.”

The words were spoken last fall by former United Nations Secretary-General Kofi Annan. He was in Istanbul to accept the report, “Alliance of Civilizations,” from the High-Level Group he appointed the year before to look into clashes between Muslim and Western societies. “The anxiety and confusion caused by the ‘clash of civilizations’ theory regrettably has distorted … the real nature of the predicament the world is facing,” the group wrote. “The history of relations between cultures is not only one of wars and confrontation. It is also based on centuries of constructive exchanges, cross-fertilization and peaceful co-existence.”

Jamal Elias agrees. “The notion that there are clear civilizational lines is absurd,” he contends. “How can there be a ‘clash of civilizations’ when in every Muslim country huge numbers of people are carrying cell phones or have Internet access, and given the chance, they want to learn English — and all the youth are going to McDonald’s?”

Elias is the Class of 1965 Term Professor of Religious Studies. He came to Penn from Amherst College last fall. A scholar of Islam, he specializes in Sufi thought and literature as well as art and perception in the Islamic context. His books include *Death Before Dying: The Sufi Poems of Sultan Bahu* and *The Throne Carrier of God: The Life and Thought of ‘Ala’ ad-dawla as-Simnani*. He also wrote the primer *Islam*.

Elias grew up in Pakistan. An immigrant from a Muslim society, he has written, “I have come to realize that the lack I have felt most deeply is the absence of a sound, that of the Islamic call to prayer, or *adhan,*” which issues from the local mosque five times a day. He was an “army brat” and “science geek” and in his education was tracking toward a career in applied science. It wasn’t until he went to Stanford as an undergrad that he discovered the “wonders, the richness and the vastness” of Islamic history and heritage. “I saw that it was so complicated as a civilization, as systems of thought — it’s not just one monolith.” Only then did he decide to change course and study Islam.

Elias is not an active practitioner but considers himself “a participant observer.” “My own values are entirely politically secular,” he emphasizes, “and I don’t consider myself an apologist for one side or the other.” Still, on research trips to Muslim cities, he savors the morning *adhan* that rouses him from sleep. “I find the sound reassuring and emotionally evocative.”

Islam is the majority religion in countries as diverse as Morocco, Indonesia and Kazakhstan. It is the second-largest religion in the world.
after Christianity, which claims nearly twice as many believers. “Islam is a religion of well over a billion people on every inhabited continent of the world, from more cultures than I can begin to count,” he explains. “They come in all economic shapes and sizes, with all the different interests and concerns that human beings can possibly have.”

That kaleidoscope of cultures and classes and concerns gives Islam a different look in different times and places. When he teaches courses on Islam, Elias tries to present a “complicated body of data” that is the heritage of Muslim peoples. Although Islam’s distinguishing belief holds that God sent a revelation called the Qur’an through the prophet Muhammad, he explains, “there is no ritual or cultural behavior that applies monolithically to all Muslims, including the most central doctrines. They understand them differently.” There is an Islamic civilization, but it’s not defined by a uniform ideology or a single way of life, much less a single-minded enmity for the West.

In fact, Elias insists, Muslims in other parts of the world are more like us than the caricatures of our television programming and political discourse suggest. Especially in a globalized world where eating falafel and hummus here is as “foreign” as wearing Nike high-tops and listening to hip-hop there. He considers a representative demographic from one of the most populous Muslim countries: a middle-class teenage girl in an Indonesian prep school. “To think that her concerns are not something like getting an iPod and what her peers think about, but are something about her fight with the West; or that her parents’ concerns are not making sure that she behaves in school and doesn’t get into trouble with boys, but are focused on fighting against the West — this is absurd. ... If they are concerned with a global conflict, it’s because it’s hyped in the media and by their government for its own reasons — as it is here.”

Just to create a suicide bomber, Elias points out, recruiters have to convince people like this that everything they want, everything their families and friends are concerned about, is bad. This can’t happen in mainstream Islamic society, he argues, “So it’s not actually just about the West: It’s about creating a separate, cultic identity.”

A clash-of-civilizations outlook provides a potent slogan for terrorist groups “to attract and motivate a loosely knit network of operatives and supporters,” observes the Alliance of Civilizations report. It goes on to state that many of the “self-proclaimed religious figures” who lead these groups propagate “narrow, distorted interpretations of Islamic teachings.”

According to Elias, respected Islamic scholars and clerics from around the world have held that a careful reading of Islamic scriptures and history shows that the teachings of many current groups advocating jihad and martyrdom have no sound religious foundation. He writes, “For many Muslims … the overarching characteristics of God are His nurturing mercy and compassion,” which are seen primarily “in everything from the wondrous complexity of the universe to the very fact of human existence.” Western scholarship on Islam has sometimes portrayed Allah as stern and wrathful, but Elias stresses that one of the most commonly invoked names for the God of Islam is “The Merciful.” Islamic ethical ideals of racial and class equality, the redistribution of wealth and a custodial attitude toward creation — and by extension toward human beings — and other precepts provide guidance to Muslims striving to submit to the law of a benevolent deity. “The ideals may not be realized, but they are articulated” in the Qur’an and the wider tradition, he says. “Obviously, we don’t live in a perfect world, and these are pressing issues for us.”

The concept of jihad — which means “striving in the path of God” — plays an important part in bringing the self and the world to greater perfection. “Jihad doesn’t really have a root meaning that has anything to do with war.”
“They use jihad ideology in some kind of watered-down pop sense that plays well in the newspaper.”

“Most people, Muslim or non-Muslim, really have remarkably similar concerns.”

going to a movie with friends, picking up the kids after school. “This is trivial stuff,” he comments, “but also very significant.”

Elias recalls a photo he had seen a few days before on the BBC News Web site. There was a report on a mortar shell that exploded in a girls’ school in Baghdad. Five students had been killed and at least 20 wounded. The photo was part of a slideshow of images. Unlike the others, it showed little of the pain and destruction, but it disturbed him the most. The photo was of a young girl in a blue-and-white uniform. Her hair was tied back in a ponytail. She was neat and clean, well cared for and worried over. The girl was leaving the school, carrying her satchel and stepping over a puddle of blood that had run down the front of a stone step.

Her parents want her to have a decent education, and they wait for her to come home from school at the end of the day. It’s the trivial things we all share, Elias says, not some clash of civilizations. “Think about your own 9-year-old daughter living in a place like that. … It’s not just that, ‘We’re all human,’ as a moral principle; it’s that in fact we are all human, you know? Her parents want the same stuff for her that a 9-year-old’s parents want over here. Ultimately, exactly the same stuff.”

improvement against one’s baser self to be the Greater Jihad.”

In addition to this spiritual struggle, the term has been used (and abused) to characterize participation in worldly conflict that is thought to be justifiable. He compares it to just-war theory in Christianity, which imposes constraints on killing — the exhaustion of peaceful means, the declaration of war by a legitimate authority, the just and proportional use of force, and other stringent checks. Jihad impresses similar limits on those who wield violence, but like the chronicle of Christendom, the Islamic world too has exhibited historical moments of zealousness when believers have too quickly or too recklessly resorted to violence. Speaking of contemporary Islamic militants, he notes, “They use jihad ideology in some kind of watered-down pop sense that plays well in the newspaper. When someone like Osama bin Laden declares a jihad, he’s not using the term in a traditional manner.”

Beyond a globalized culture shared by most of the world’s inhabitants, Elias points to a more basic kind of sharing. “Most people, Muslim or non-Muslim, really have remarkably similar concerns,” he observes. “We all care about the same kinds of ultimately very trivial things.” They are the ordinary, everyday preoccupations with living — getting that iPod, putting a meal on the table, going to a movie with friends, picking up the kids after school. “This is trivial stuff,” he comments, “but also very significant.”

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“Most people, Muslim or non-Muslim, really have remarkably similar concerns.”
SHiPWRECKS AS TIME CAPSULES FROM ANTiQUITY

Secrets from the Seabed

Most people think of archaeology as something that’s done with picks and shovels (and perhaps a fedora and bullwhip, if your name is Indiana Jones). But Ph.D. student Justin Leidwanger does it with multibeam sonar and magnetometers, searching for ancient history in the crystal-blue coastal waters off the island nation of Cyprus.

Until the past few decades, most of history lurking underwater was largely inaccessible, waiting for the development of scuba gear and sonar in the mid-20th century. “The dawn of underwater archaeology as practiced by traditionally trained classical archaeologists is a phenomenon of Penn,” says Leidwanger, who cites former Penn professor George Bass as one of the founders of the discipline.

After Leidwanger graduated from Loyola University Chicago with a classics degree, a casual conversation with a maritime archaeologist sparked his passion for the burgeoning field. While finishing his master’s degree at Texas A&M, he began surveys of Cypriot waters, a project he’s continued since coming to Penn two years ago.

The summer of 2006 marked the fourth straight season that Leidwanger has been working there. He and his team of researchers and divers are the first to use sonar, magnetometers and remotely operated vehicles around the island, exploring Episkopi Bay and other areas on the southern coast for wrecks and artifacts.

Because land travel was difficult and slow in the ancient world, almost everything of value moved by water. For maritime archaeologists, every unlucky ship that fell victim to the eastern Mediterranean now provides a lucky snapshot of a long-lost age. “People refer to it as a time capsule, which to me is just absolutely fascinating,” Leidwanger notes, “because I can know that every single thing on that ship was in use at the exact same time. It’s sort of like a Pompeii in that sense.” Cargo was usually stored in amphoras, ceramic vases of varying sizes that were the packing crates of the ancient world. The design and decoration of amphoras provide vital clues to a ship’s origins.

Although, as Leidwanger remarks, a lot of people can’t find Cyprus on a map, the island “played an absolutely crucial role for a millennium. Even after the Romans occupied it, it was quiet, it was peaceful. People weren’t necessarily writing about it, but man, was it busy. The economy was absolutely booming in late antiquity, in a time when we usually think of things as starting to fall apart.”

Leidwanger, a lanky, neatly bearded 28-year-old, never expected to end up working underwater. “I’ve never really seen myself as a water person. I was never much of a swimmer,” he admits. “Nor did I know how to dive or what it entailed. It wasn’t until college, really, that I thought I would end up in the water for a career.” His long-range goals include working to preserve the yet undiscovered “cultural heritage of the world that is submerged.”

Meanwhile, he’ll continue to scour the Cypriot seabed for clues to the past. “It’s a small enough place that we can do a lot of work and cover a lot of area, but it’s still going to take a lot of years,” he says. Water person or not, he clearly relishes the challenge.

—MARK WOLVERTON
Ben Horton is a big-picture guy. Just take a look at the world map that spans a width of a 15-foot wall in his office. The world looms large there on the first floor of Hayden Hall.

As the key faculty member in Penn’s Sea Level Research Laboratory, he oversees projects that focus on long- and short-term rises in sea levels around the globe. And yet, his research method depends upon microscopic creatures — namely, foraminifera, which are protozoa, diatoms (single-cell algae) and pollen — to puzzle out where the level of the sea lay in earlier times. “To look at past sea levels, you have to have an indicator of where sea level was at any particular time period and place,” he says. “That’s where microfossils come in. Microfossils tell you about the environment around that [earlier] coastline.”

Trained as a geographer at the University of Durham in England, Horton has been an assistant professor in Penn’s Department of Earth and Environmental Science for the last two and a half years. During the last years of his Ph.D. work at Durham, he studied the present-day relationships between sea levels and microfossil distributions, using various statistical techniques. The research provided Horton with a key to being able to determine how sea level has changed over time. The result, he says, “was the development of a new technique to look at the reconstruction of past sea level.” His modeling method allows researchers to determine exactly where sea level was in the past, which he says is significant because while other methods can tell you whether or not sea levels have risen, they cannot do so with accurate detail. Horton says his work “is at the forefront of a new generation of high precision relative sea-level reconstructions.”

Various research contracts have taken him, along with some graduate and undergrad students, to Australia, Japan, South Africa, the Middle East, Indonesia, the Malay-Thai Peninsula, the east and west coasts of the United States and Alaska. As the debate over global warming grew among scientists and in the media over the last decade, Horton’s work started gaining attention.

According to the Intergovernmental Panel on Climate Change, the 1990s were the warmest decade in the last 2,000 years. But there have not been enough studies to show whether sea levels are rising faster in modern times than they were in the past. “On a long-term scale, sea level and temperature have a one-to-one relationship,” says Horton. “Temperature goes up, melts the ice sheet, sea level goes up. Temperature goes down, ice sheets expand, sea level goes down. I wanted to look at short-term time scales, decades instead of thousands of years. Does the same relationship hold true?”

Horton has been developing new approaches to locate former sea levels using high-resolution geological indicators, which allow for precise and accurate dating.
His modeling method allows researchers to determine exactly where sea level was in the past, which he says, is significant can tell you whether or not sea levels have risen, they cannot do so with accurate detail.

He can, for example, look at just a few centimeters of a sample containing microfossils and determine changes within years or decades. Looking specifically at the east coast of the U.S., he has found a moderate sea-level rise in the last 100 years, which may be more rapid than the long-term rate of rise found in the last 800 to 1,000 years. “The timing of this acceleration,” he says, “may be indicative of a link with human-induced climate change.”

Horton’s research provides a long look backward, as he uses contemporary data to reconstruct the past. He can examine the sedimentary layers of sand sheets on a Japanese island or on the west coast of the U.S. and tell you something about the earthquake or tsunami that deposited them there, or even the time period when breakage or shifting took place in the Earth’s plates deep beneath the ocean. So, when the Indian Ocean tsunami hit on December 26, 2004, Horton, who had worked in Indonesia for four years, knew that he had to be involved somehow. With funding from the National Science Foundation, he put together an interdisciplinary team of scientists, graduate students and undergraduates from the U.K., Singapore, Malaysia, England and the U.S.

“It was the most unbelievable field trip I’ve ever been on,” he says. “I study the past, and you write a lot of grant applications that talk about broader impacts, saying things like, ‘We want to understand earthquakes because they affect society.’ But to actually go out to one of these environments and knock on people’s doors and speak to them is a completely different experience. In Thailand, we went to Khao Lak, where more than 5,000 people died. It was a highly emotional trip. And just seeing the power of nature stripping the landscape bare really affected me.”

The team not only gathered physical evidence about the tsunami but conducted interviews with residents about how their lives had been changed. “The physical investigations could provide data for models that may reconstruct future earthquake and tsunami events,” says Horton, “with the socio-economic data providing information on how a society is affected. There’s also an educational aspect. We’re trying to provide people with educational materials of what you should do if you feel an earthquake. For example, one of the biggest natural signs is that prior to a tsunami wave, the water [on a beach] will draw out.” A second NSF grant will allow him to travel to Sumatra over the summer to take sediment cores that could tell him if there have been similar tsunami disasters in the past. “I am sure there have been others,” he speculates, “but what we don’t know is how often. Was the 2004 event a one-in-100-year event? A one-in-1,000-year event?”

Horton is so adamant about this message that he lectures his students on tsunami warning signs before they leave for spring or summer break, pointing out that the Cascadia margin, from northern California to British Columbia, shows geological evidence of repeated earthquakes and tsunamis of a magnitude similar to the Indian Ocean tsunami. The area is accumulating strain and could go at any moment, he cautions. “If you are sitting on a beach from northern California to British Columbia, you’re not going to get a warning. The wave will hit within 15 to 30 minutes, depending on where it ruptures. You will have to rely on your understanding of the environment. If you see water recede, get to higher ground.”

Although his Indian Ocean work was edifying, Horton says that his proudest professional moment occurred when he was called as a forensic witness to defend a woman accused of murdering her 3-year-old son. As a forensic diatomist, Horton developed a quantitative model to reconstruct aquatic environments based on how diatom species change from one location to another.

The case, which occurred in England, involved Sallie-Anne Loughran, whose son, Thomas, had drowned. Originally, she was cleared of any crime in 1991. But the forensic scientist who had first testified in her favor was later discredited, and the Crown Prosecution Service decided to reopen the investigation 13 years after Loughran was acquitted.

Horton traveled to central England and took samples from the lake where the boy was said to have drowned as well as from the bathtub, where the prosecution claimed the mother had drowned the boy herself. He identified the species of diatoms in the lake, and as he had expected, no diatoms appeared in the bath water (household purification processes...
destroy them). He then examined slides of lung and brain tissue from the child’s exhumed corpse and found the same diatoms he had identified near the boy’s home in the tissue samples. “Not only did I show that this was a lake drowning,” he says, “but the drowning took place in the lake near the house.”

The case was dismissed before it even went to court, and Horton’s findings were listed in *Whitaker’s Almanac*, a publication that documents important evidence connected to British history. “This woman got accused, then was cleared of murder. I was very proud to meet her,” says Horton. “In that trial, my evidence was the key. I could truly say that I made a difference.”

During his Ph.D. research, Horton spent three years collecting samples at a field site near a petrochemical industry. He says, “I went there every day. It was a horrendous place, and I wanted to go someplace nice with tropical beaches. I wanted to see interesting landscapes.” And that’s exactly what happened. The microscopic world gave him entry into the greater world, allowing him to contribute to answering some of the biggest questions of our day and even solve a murder or two along the way.

Gigi Marino is the editor of Bucknell World and a freelance writer.
When I open the blue door to my grandparents’ home in the small town of Rajkot in Gujarat, India, I see my grandfather sitting on the swing just outside. After dinner, I tell him about my research, about how I plan to interview people in the Mother Teresa Ashram area and how I need a few Muslim family contacts.

He brings his arm over my shoulder and tells me, “Everything will be done, Rajiv. You will get your interviews for that paper thing.” I feel reassured. That is how I want to see it: just a “paper thing.” Fill it with statistics and enjoy some time with my grandparents, just like the old days.

I head up to the terrace. Below, rows of whitewashed apartments fade into the horizon. I catch a view of the Muslim neighborhood near the Ashram, a district prone to power failures, a black hole surrounded by lights.

The next day, I walk down to the swing where my grandfather is reading the morning news. “Nana, am I going to meet your contact today?” He puts the newspaper on a chair and begins to sway the wooden swing faster. “Rajiv, why do you want to do this?”

I think back to when I would sit on his lap and listen to him tell about the 1993 riots in India. When my parents refused to tell me details, he would call me into his room and answer all my questions, always proud of my curiosity.

“You see Rajiv, I know this city. ... There is no struggle here to look into. Everyone is happy.” Still, he agrees to arrange an interview with two of his Muslim friends. I give him a hug and walk into the kitchen.

After breakfast, I rehearse my questions in Gujarati with my grandmother. I have written them in a thin Staples notebook. They ask about the struggle of the Muslim community during the 2002 riots in Rajkot. I hope to uncover stories that explain what led to the violence and how Hindu-Muslim relations have changed. Later, I wait for my grandfather’s friends on the front steps, but he returns and explains that they are busy. I grew up telling friends that my family was the support system behind my academic success, but now my strong ties to the family are holding me down. I need to do things myself.

The next day, I go to the Internet café down the street. After flipping through e-mail, I approach the owner, Mohan Singh, a one-time reporter who covered the riots. He tells me stories of Muslim shops burned in broad daylight. How can a Muslim forget these things? Then he gives me the name of a financial reporter, Amit Vakil, from the Times of India.

Amit is a burly man in his late 40s. He explains that Rajkot has maintained good relations between the groups since the riots. Hindus control the city’s economy with Muslims being underclass workers. Even if they wanted to riot, he says, Muslims are financially tied to the Hindu owners. By the end of the interview, he is calling Muslims “dirty people who love goats.”

His comments force me to consider the role of the government, so I write down several questions about Muslims and the government. I also add questions about prejudice Muslims face. Amit gives me phone numbers of some Muslim contacts. The next day, I call one.

“How did you get this number? Are you working for the government? Never call this number again.”

Despite being an outsider to the conflict, my name places me on the Hindu side. What kind of fear makes her see me as a threat? I write the question in my notebook in bold letters.

Back at my grandfather’s, I walk outside to the swing and hear him singing an old Hindi song. He makes room for me. “Is the work progressing, Rajiv? Finding what I told you, right? Everyone is happy?”

Watching his face turn toward me, I want to tell him yes, to sing that old Hindi song with him. “Well, Nana, it is actually not that way. ... I called a Muslim contact today, and they hung up on me because they were scared I was Hindu. ... I think it’s something to do with the government.”

It is a hidden struggle that Muslims keep deep down inside.
His hands tighten up on the sides of the swing. “Let me tell you something about this government. ...They are doing what is necessary. Those people deserve it....You need to understand that.”

“Let me understand then, Nana,” I plead.

He does not pursue it. “Rajiv, tell Nani to take you to the barber Dodiya Bhai. He seemed to know a lot about the government when I went in last time.”

Dodiya Bhai has white hair, a wrinkled face and his stomach juts out of his shirt. I am glad this is not a Muslim interview and sit back in the barber chair as he gives me a history of his time as a police officer. I ask if he feels the government supports Muslims after the 2002 riots.

He takes his time, “Of course, the government is dedicated to all people equally.”

I prod, “So, you think there is no problem between the Muslims and the government, no mistreatment at all?”

He is about to answer but pauses and puts his hand on my shoulder. I feel his powerful grip dig in.

“Listen carefully to me. I do not think you should be asking those kinds of questions around here.”

I nod my head and close my notebook. He gives me a fake smile and shakes my hand until I cannot feel my fingers.

The next morning, I want to be back in Connecticut or at Penn. I check my cell phone and find a message from Mohan telling me he has found a Muslim rickshaw driver who would like to meet me at his Internet café.

I walk in to find Nashar Bhai sitting in a plastic chair. He is wearing a white turban with strips of gold. His face is hidden under a thick white beard, and his white-collared shirt is spotless.

When the café is silent, I ask the difficult questions about the 2002 riots. He talks about the murder of his two brothers’ children and laments that “things have still not changed.” He explains how Muslims suffer in everything from education to jobs to health care and describes the role of government in “pushing down the Muslim.” He also tells me about the rift he feels with Hindus since the riots. “It is a hidden struggle that Muslims keep deep down inside.”

When the interview is over, we go outside to his rickshaw, and I try to pay him for the time he has lost. “Rajiv,” he says leaning in closely, “all I cared about was that you listened to my story. The only thing you can do for me is ... to find more stories and bring them off people’s chests. We need it.” Then he puts his callused hands on mine, spreads open my fingers and slides the hundred-rupee note back into my hand.

I take out my notebook and write down a new set of goals: I want to understand this Muslim struggle. I want to uncover the stories. I want Hindus, my family, my professors, everyone to know about it. I think back to the view from the terrace, the blanket of blackness covering the Muslim neighborhood near the Ashram. I think about the payment Nashar Bhai asked of me. His last words hit me hard: We need it.

Rajiv Bhagat is a sophomore majoring in biology. This excerpt is part of a research project still in progress.
A HOUSE DIVIDED
Political Scientists Probe the Roots and Effects of Polarization
BY LARRY TEITELBAUM
For three years, a reporter in Texas studied the political preferences of every American county over the last generation. What he found in the bedroom community of Montclair, N.J., was startling: the town that had evenly split its presidential vote in 1976 had gone 78 percent Democratic in the last election.

That pattern was repeated in a majority of the nation’s 3,100 counties, revealing a decided preference among Americans to live among like-minded people. Politics by zip code, with a continental divide east, west, north and south of the Rocky Mountains, is a natural form of gerrymandering that portends more intense partisanship.

Enter Diana Mutz with a new model for political accommodation. Mutz is the Samuel A. Stouffer Professor of Political Science and holds appointments in the School of Arts and Sciences and the Annenberg School for Communication. She proffers an unlikely venue for reversing partisan drift: work.

As Mutz sees it, the workplace is like a petri dish for political tolerance. “We don’t pick our co-workers. They aren’t necessarily like our friends, who will tend to be very similar to us. These aren’t people we necessarily have to go home to and continue to get along with in the way that we do in our intimate relationships, so people feel more free to disagree at work than in their voluntary associations and in their neighborhoods.”

In a study published last year in The Journal of Politics, Mutz and Jeffery Mondak of the University of Illinois analyzed social-network data and found a surprising degree of political talk at work. For instance, the American National Election Study of 2000 showed that nearly half of the workers questioned discussed politics with a co-worker. Mutz and Mondak found that sharing political perspectives at work, where there is more disagreement than in any other social context, increases tolerance for opposing viewpoints.

Intrigued, Mutz wants to examine more closely whether the unique, politically mixed nature of the workplace can be used to counter polarizing influences in American politics. In advance of the 2008 presidential election, she intends to tap into the zeitgeist with a unique experiment. The idea is to bring political speakers to workplaces and compare before and after attitudes to determine if employees gain a better appreciation of all sides of an issue from talking to co-workers about them.

Mutz, who joined the Penn faculty in 2003, has been studying mass political behavior for more than a decade. She is author of Impersonal Influence: How Perceptions of Mass Collectives Affect Political Attitudes, which was named best book in political psychology by the American Political Science Association, and the recently published Hearing the Other Side: Deliberative versus Participatory Democracy. In the latter book, she explores tensions in the American polity, contending that people would rather avoid conversations involving political disagreement, so they can maintain harmony in their relationships.

The problem arises when people limit political conversations to those who share their views; it intensifies their beliefs, causing more polarization.

One effort to bridge that gap — to tone down the rhetoric and encourage broader political participation — is taking place at Blue Cross of Minnesota through a six-year-old nonpartisan program called Citizen Blue. Nearly 600 employees meet once a month to listen to presentations on a range of issues. They’ve heard former Republican congressman Tim Penny talk about Social Security reform after he served on President Bush’s task force, a panel of local journalists expound on how the media shapes public policy debates and candidates discuss their party platforms. Although the company has not polled participants, Blue Cross spokeswoman Laurie Halverson says the program has softened employees’ political stances, sometimes changing their views of the other party.
Election Survey

As a barometer of public opinion during presidential campaigns, the National Annenberg Election Survey has emerged as a frontrunner. The huge study produces an almost prophetic snapshot of the electorate’s mood. In two election cycles, the survey has managed to become a go-to source for real-time information on the campaign and a mother lode of material for academics to analyze and debate.

“It’s the largest concentration of research resources, certainly for the study of public opinion and elections — apart from the U.S. National Election Study — in the world,” says Richard Johnston, a professor of political science.

Johnston and his colleague Diana Mutz are architects of the 2008 study, helmed by Kathleen Hall Jamieson, director of the Annenberg Public Policy Center. Johnston is well equipped for the job. He’s written five books on public opinion, party politics and elections, including Letting the People Decide: Dynamics of a Canadian Election. He’s conducted studies of Canadian elections and served as an adviser to election studies in New Zealand, Great Britain, Germany and the United States. And, most importantly, he designed the National Annenberg Election Survey in 2000. That’s largely why Penn recruited him from the University of British Columbia, where he was head of the political science department.

In 2000 and 2004, Annenberg researchers interviewed 82,000 people, including large numbers of important voting blocs, all of whom were asked about their perceptions of the candidates and opinions on prevailing issues. The Annenberg Survey made some surprising findings in the last election: one-third of NRA members supported extending the assault weapons ban, and 62 percent of military families in the sample said President Bush underestimated the number of troops needed to gain control of Iraq.

In 2008, Johnston observes, there will be plenty of subplots to explore in what promises to be a wide-open race in a volatile political climate. He says it will be interesting to see whether Republican conservatism has run its course or if the Democrats can put forth a populist agenda with substance. But, considering the origin of the study, there will be a lot of emphasis on the role of media. Researchers will follow the news and analyze the content of ads in the top 100 media markets to determine, in Johnston’s words, “whether elections are informative or deceptive enterprises.” —LARRY TEITELBAUM

Mutz hopes that other employers will follow in the footsteps of Blue Cross of Minnesota. She says a number of foundations are concerned about polarization and the declining quality of discourse, and have been pouring money into town meetings and voluntary associations to encourage more involvement in political and community activity. Similarly, she believes corporations also have a stake in improving civic life, given the hit they have taken to their reputations in recent years.

“This is new territory,” says Mutz. “The last study that was done on political discussions in the workplace was in the ’50s. … Our research suggests that we ought to make use of the workplace as a context for talking about politics more than we do now. It’s really the new public forum.”

Up the street from the Annenberg Public Policy Center, where Mutz is director of the Institute for the Study of Citizens and Politics, one of her political science colleagues, John Lapinski, is conducting an exhaustive study of a different workplace: Congress.

In what amounts to an unprecedented performance review of the House of Representatives and Senate, Lapinski has spent five years collecting data on every law passed between 1877 and 1994 — nearly 38,000 in total. The purpose of this “empirical reality check,” as he calls it, is to confirm what many political scientists suspect: polarization depresses major legislative activity.

According to Lapinski, the norm for Congress in the postwar period had been to pass 10 to 20 pieces of consequential legislation every two years. But that record of accomplishment changed with the Reagan administration. Since the 1980s there has been a marked increase in polarization and steady erosion in legislative output. From the 1980s through 1994, Congress has passed fewer than 10 major bills per session, and at times nothing of consequence.

Foreign affairs remain unaffected as leaders rally around the flag, but there is a noticeable impact on domestic legislation, although partisanship appears to drive more pork barrel spending. “It’s almost as if the Congress can’t agree on some of the big domestic issues, but they still divvy up the money,” says Lapinski. “Members of Congress want to be re-elected.”

Lapinski, an election analyst with NBC News, came to Penn from Yale University in 2006. In addition to lawmaking in Congress, Lapinski’s research interests include congressional and presidential campaigns and elections as well as American political development. He is co-editor of The Macropolitics of Congress and is working on a book called Southern Nation: On Policy, Representation and Lawmaking, 1877-1965.

Meanwhile, Lapinski is gathering new data on congressional legislation from 1994 onward to bring his project up to date. He says a lack of effective lawmaking carries bigger consequences today than it did in the 1890s, when the federal government administered the budget and not much else.

“Oftentimes you see voters being a lot less polarized than the people who represent them in Congress,” he says. “That’s when people start thinking that maybe democracy is not working as well as it should be.”

Larry Teitelbaum is editor of the Penn Law Journal

“OUR RESEARCH SUGGESTS THAT WE OUGHT TO MAKE USE OF THE WORKPLACE AS A CONTEXT FOR TALKING ABOUT POLITICS MORE THAN WE DO NOW. IT’S REALLY THE NEW PUBLIC FORUM.”
Patrick Fitzgerald never considered himself a businessman or an environmentalist, but that was before he revolutionized how people think about recycling. Today, the company he co-founded is helping neighborhoods transform their empty soda bottles, old soup cans and crumpled-up newspapers into cold hard cash. Meanwhile, the business and environmental communities are taking notice.

Fitzgerald, C’97, is president of RecycleBank, a firm that rewards people who recycle by giving them cash vouchers that can be used at local and national retailers as well as participating charities. The more they recycle, the greater their reward. Begun two years ago in Philadelphia, RecycleBank now serves 15,000 households in several states and has plans to carry 250,000 customers by year’s end — some as far away as Atlanta and Houston.

Fitzgerald hit on the idea in 2002 while studying for the bar at Fordham University. At the time, New York Mayor Michael Bloomberg was debating whether to cancel the city’s recycling program to save money. “It struck me as odd that one of the largest cities in the world had recycling trucks that were only a quarter full,” Fitzgerald says. So he thought about what motivated people to perform the time-consuming task. The incentives — legal enforcement, moral obligation and environmental concern — weren’t enough to make recycling economically feasible. “Why not pay them directly to recycle?” he considered. “I didn’t have the business background to know it would succeed, but I had the gut instinct.”

He contacted a high-school buddy who was studying for an MBA, and they drew up a business plan that used sound economic principles in the service of ecological goals. Households receive a monthly monetary credit based on the weight of their recyclables, which is recorded by collection crews using special garbage bins with computer chips. The going rate is $5 for every 20 pounds of recyclables — up to $400 each year. Residents can check online to see how much they’ve earned and then select where to apply their credits.

Fitzgerald’s company contracts directly with municipalities. Towns pay $24 per household, but RecycleBank guarantees that they will save at least that much in disposal fees as waste is diverted from landfills and incinerators. Recycling companies make more money from processing. Participating merchants, from Starbucks to Home Depot as well as local businesses, gain valuable PR by associating themselves with a socially beneficial organization.

Fitzgerald knew the venture would be successful on the very first day. He was touring the original RecycleBank neighborhoods of Chestnut Hill and West Oak Lane when a woman approached him and said, “I’ve been trying to get my neighbor to recycle for years, and this is the first time I’ve ever seen him put out his can.” Five hours after the first can was picked up, RecycleBank got an online order for rewards. Today, 90 percent of households in these two neighborhoods participate in the program, and the recycling rate there is 30 to 50 percent — far higher than the city average of 5 percent.

Although he never set out to be an environmental businessman, Fitzgerald is growing more comfortable with his role as the company grows. In fact, he credits his lack of experience with fostering RecycleBank’s success. “If we were in the environmental industry, we probably would have reused old methods,” he says. “If we were in the business world, we may not have realized the environmental power of our idea.”

—JOSEPH MCLAUGHLIN

Fitzgerald knew the venture would be successful on the very first day.
Pretty much every day that I stepped onto the campus I got goose bumps and had tears in my eyes,” says Kimberly Lynch, CGS’04. “There is just one reason why I was able to go [to Penn] — and that was Bread.”

Lynch graduated in 2004, having worked full time during her student years while raising the five children in her blended family. The “Bread” she speaks of is Bread Upon the Waters, the School’s scholarship program for academically talented, financially qualified women over 30 who seek to earn a Penn bachelor’s degree by studying part time. The program’s name reflects the biblical injunction to give, trusting in future returns. Originating in the visionary enthusiasm of a Penn grad who knew full well the difficulties such women face, Bread is now 20 years old and benefits 25 women annually.

For many years, Kim Lynch’s second husband worked at night, caring for the children after school so she could keep her day job and take evening classes. Today she remains a natural multitasker, baking brownies while conducting a phone interview for this article.

Lynch was always strong academically, but like so many Bread scholars, her path to Penn wasn’t direct or easy. She married soon after high school, and a year-and-a-half later had a baby. That first husband proved physically abusive. She eventually left him, returned with her three children to her parents’ home and decided to study for an associate’s degree in chemistry at Burlington County College. The night before her scheduled entrance exam, her ex-husband managed to hurt her again. She spent that night in the hospital, fearing she wouldn’t be allowed to leave the next morning. She was discharged, and with the support of her parents, took and passed the exam.

In 1999, she graduated from Burlington with a 3.8 GPA and with two medals for achievement in chemistry proudly hung on her bedroom mirror. By then, she had a strong second marriage, two great stepchildren and an unsettling new consideration: her chemistry professor urged her to apply to the College of General Studies.

As Penn’s home for mature adults returning to school, the College of General Studies (CGS) is important to the access goal of President Amy Gutmann’s Penn Compact: to make “an excellent Penn education available to all outstanding students of talent and high potential who can benefit from and contribute to our University.”

While CGS welcomes part-time students, it has limited scholarship aid to offer them. Administrators quickly became committed to the concept of Bread, says Elin Danien, CGS’82, G’89, Gr’98, the enthusiastic visionary whose idea — and whose seed gift of $1,000 — launched the scholarship program 20 years ago. “CGS is the doorway to an Ivy League education for many people, and Bread makes that doorway wider.”

By now, 60 Bread scholars have graduated, more than half of them with honors and all of them with a B average or better. CGS administrators, a Bread Advisory Board and Danien herself provide moral and program support.

Despite her chemistry prizes, academic record and acceptance by CGS, Lynch remembers telling Rhea Mandell, a former Bread coordinator, “I don’t even know why I’m here. Even if I get into the program, I have five small children, and there’s no way I can afford to go here.” Mandell told her about Bread and warmly encouraged her, and Lynch came. She majored in biology, eventually developing a DNA-sequencing procedure that, for the first time, enabled scientists to detect whether outbreaks of infections caused by the potentially harmful bacterium *listeria monocytogenes* involve the same strain. For that work, she now holds another award, this one from the U.S. Department of Agriculture.

These days Lynch travels widely as director of oncology services for a medical-education company while studying for a master’s degree and remaining much involved with her five teenagers. She and her son Chris, a stroke survivor, do volunteer work for the American Stroke Association, for which they raised $5,000 in just one year — the year she graduated from Penn. “I don’t know when these women sleep!” exclaims founder Danien.

Trim and bright-eyed, Danien is a long-time volunteer guide at Penn’s University Museum of Archaeology and Anthropology as well as a Maya specialist and research associate there. She encourages Bread recipients by telling them her own

left: Bread Founder Elin Danien

“That’s not going to stop me; I’m just going to keep on going.”

WITH BREAD

SCHOLARSHIP PROGRAM SCATTERS MUCH MORE THAN CRUMBS UPON THE WATERS

BY SUE RARDIN
story. A child of the Depression, she enrolled at Penn at the age of 46, feeling academically shaky after attending 20 schools while growing up and then spending years away from the classroom. At a recent reception she exhorted new Bread recipients not to be cowed by age. “I was 68 when I got my Ph.D.,” she told them. “I’m 77 now, and 77 is the new 40. I want them to know it’s not too late. It’s never too late.”

Early on, Bonita Patterson, CGS’99, knew she had a gift for teaching. She also knew she needed more teaching skills and longed to go to Penn, but debated: “I can’t do this. I can do this! Back and forth.” Finally, she went to the CGS office, was thrilled to learn about Bread and applied. Patterson won admission to Penn, but not a Bread scholarship, though she did receive a grant for a single course. She took the course, and then reapplied for a Bread scholarship. Again she received only a grant for another course. Now she was really motivated. “I thought, ‘That’s not going to stop me; I’m just going to keep on going.’” She did, and finally won that scholarship, graduated with honors and later earned a master’s degree in education at Eastern University.

With a business partner, Patterson now runs New Life Alternatives, a state-licensed, non-profit preschool with 18 staff members, which serves 80 children from the age of one through first grade. Last year the kindergarten and first grade students took the SAT 10s, she says, and many of them scored in the 90th percentile nationally on some parts of the test.

The raw talents of other Bread scholars have similarly been boosted at Penn. Joy Bouldin is currently an anthropology major who has been exploring her gifts for creative nonfiction. Her essay “The Mississippi Diaries” was selected and published as Best Memoir 2003 by Philadelphia’s City Paper and the Blue Sky First Person writing competition. An award from the Zora Neale Hurston/Richard Wright Foundation enabled her to attend the 2003 African American Writers Symposium in Washington, D.C., and a fellowship from the Walker Foundation provided a summer residency at the Fine Arts Work Center in Provincetown, Mass.

This recognition, she says, reflects the Penn experience that has increased her intellectual depth and honed her writing skill.

The endowment providing scholarships for Lynch, Patterson, Bouldin and more than 60 other women has grown from Elin Danien’s $1,000 to more than $1,700,000. Fourteen of the 25 Bread scholarships now bear the names of donors who have caught the program’s excitement. One scholarship was recently endowed by CGS executive director Kristine Billmyer, who says that Bread’s “amazing” scholars represent the diversity of America. “They come to Penn with a sense of purpose and urgency, ready to give the relentless effort and focus needed to complete an undergraduate degree at Penn.”

Danien agrees. “I think any university would love to have scholars who all graduate with at least a B average and with more than 50 percent at the honors level. Our women beat the statistics.”

Sue Rardin writes for magazines, nonprofits and corporations.

For Paula A class was scheduled that evening, but a fierce ice storm had kept the professor and his students at home — except for one woman, who stood waiting in the vacant classroom. That was Paula Budnick, CGS’01. For 13 years, while earning her bachelor’s degree, Budnick never missed a class. “Before Penn, Budnick had been raising a daughter, recovering from drug addiction and working for Resources for Human Development, a big social-service agency. Promotions were offered, but she always demurred, explaining that she wanted more education first.” One day, her office mail included a brochure about Bread Upon the Waters, with a boss’s scrawl: “For Paula?” The brochure, she says, seemed like it was addressed to her: “Dear Paula — You too could earn a bachelor’s degree from Penn while working full time.” In that moment, she sensed a “subtle shifting of tectonic plates” that opened her way forward. She still has that inscribed brochure. “Today, Budnick holds a management role in her company. Drug free since 1985, she traces her recovery and growth largely to her job and her education. “You never know what seeds you’ve planted and who has walked in your shoes.” What has Bread meant to her? “I don’t even know that I can express it in words, because my heart bursts every time — it just never ceases to amaze me…. This has been a wonderful, miraculous opportunity.” —SUE RARDIN
In 2007, Virginia celebrates the 400th anniversary of the founding of Jamestown, the first permanent English settlement in America. History professor Daniel Richter, the Richard S. Dunn Director of the McNeil Center for Early American Studies, has worked extensively on the history of Jamestown and early European colonization. His book *Facing East from Indian Country* offers a unique look into the budding American world during the 16th through 18th centuries, often from the untold perspective of Native Americans. The book features a section on the Powhatan chiefdom of the Virginia tidewater region around Jamestown and provides insight into the authenticity of stories and pop legends surrounding Pocahontas.

There are plenty of misconceptions associated with the story of Jamestown. Foremost among them, Richter asserts, is the notion that Native Americans were passive or submissive in dealing with the English colonists. Wahunsunacocock, the leader of the Powhatan chiefdom, was an opportunist. He presided over more than 20 local chiefdoms in the Chesapeake region. With the landing of the English, Wahunsunacocock saw his chance to expand control even further. Although he viewed the band of settlers as dangerous intruders and a potential threat to his people’s way of life, he also saw a great opportunity to obtain “prestige goods” that would further aid in maintaining control in the region.

Chief Wahunsunacocock used ritual, military force and diplomatic strategy to incorporate the English into his political domain. In December of 1607, Captain John Smith was captured by the Powhatan and taken to Werowocomoco to meet the Native American leader. His life was “spared” in what was likely a ceremony to induct him into the chiefdom, rather than as a result of a display of compassion or love by Pocahontas. Richter suggests, “Whether [Smith’s] life was actually in danger on that occasion, whether Pocahontas acted on her own or ...
DOUBLE HELIX

Business and Bioscience Twine Together in New Undergrad Program
The warm glow of yellow leaves lit by an autumn sun poured like molten gold through the windows of an auditorium in the Colonial Penn Center. Twenty-some freshmen were seated at tiered rows of tables that wrapped around three sides of biology professor Philip Rea. He was talking about cardiovascular disease, mortality rates and that peculiar alchemy of scientific discovery and business acumen that can yield what news outlets like to call a “miracle drug.”

In 2003, he told the class, there were about 70 million physician visits for cardiovascular illnesses and about 7 million medical procedures to treat what has been the number one killer of Americans since 1900. “Cardiovascular disease is the most profitable line of health care in the U.S.,” noted co-instructor Mark Pauly from his seat among the students. Pauly is a Wharton professor who specializes in health care, insurance and risk management, and public policy. Together with Rea, he is teaching the first Life Sciences and Management Proseminar.

The class is the foundation course for the Roy and Diana Vagelos Program in Life Sciences and Management, run jointly by the School of Arts and Sciences and the Wharton School. Pauly and Rea are co-directors. The new program provides grounding in the sciences as well as an education in core management principles. Geared to undergraduates interested in the civic and entrepreneurial uses of scientific research, the Vagelos Program sorts through issues from health care and public policy through pharmaceutical and agricultural biotechnology to sustainable production and environmental remediation.

The burgeoning fields and industries spawned by the life-sciences revolution need managers who understand science and can translate discoveries into policies and products of value. “I think there’s a clash of cultures between people who come exclusively through business and those who come exclusively through the sciences,” Rea observes. The Vagelos Program brings the contrasting but complementary worldviews together.

Pauly contends that “it’s better to have somebody who’s comfortable in both areas than to have them learn one and then try to climb over the fence into the other. We want the students to be bilingual, so to speak. If we can train young people who begin their intellectual careers in management and science, that ought to lead to the ideal manager-scientist of the future.”

In his lecture, Rea lays out the chemistry of cholesterol (a lipid), the biology of its production in the liver and the pathology of high cholesterol in the vascular system. He then tells the story of the discovery of statins, molecular inhibitors of an enzyme that helps the body make cholesterol. The first statin was isolated in 1973 by the Japanese company Sankyo, but that research was not carried forward. Rea and Pauly speculate that because Japan did not suffer from an epidemic of cardiovascular disease, Sankyo did not have the American pique of urgency that would turn the laboratory breakthrough into a cholesterol-lowering drug. It was the pharmaceutical giant Merck that brought the discovery to market 14 years later. Early tests showed that Merck’s miracle drug Mevacor lowered by one-third the death rate of patients with cardiovascular disease. The life-saving product became the company’s first billion-dollar pill.

At the time, Merck was headed by P. Roy Vagelos, C’50, Hon’99, a research biochemist and cardiologist as well as CEO. “It often takes a very special scientist-leader to make things like this happen,” Rea observes. “My hunch is that Vagelos’ deep insight into lipid metabolism — he’d been doing pioneering research in that one area for more than a decade — and his direct experience of cardiology — the loss of patients — was the tipping point.”

Underscoring the vagaries of scientific discovery and business success, Pfizer later developed a more potent statin, Lipitor, which is equally effective but at far lower doses, making it a bigger seller than Mevacor or its successor, Zocor. “Sometimes it’s not bad to be second,” Pauly comments about Pfizer’s $10-billion pill.

“We need decision makers with a thorough understanding of the life sciences,” Rea affirms, “and fundamental researchers prepared to take the leap into the world of management with an eye to the general good of society.” Fundamental knowledge and real social benefits are both crucial, he insists. “Otherwise you can count Mark and me out.”

—PETER NICHOLS
PARTNERS Genes to Brains to Behavior

Big science demands state-of-the-art laboratories. But like most things, it’s not just about the equipment. “Science is done by people,” says Richard Schultz, the Patricia Williams Term Professor of Biology and department chair. “People are social, and so science is social. Much of it comes from just talking”—at impromptu gatherings in the hall, over coffee in the cafeteria and during a hundred chance encounters during the day. Proximity is all. If scientists from different fields inhabit the same space, psychology chair David Brainard points out, “ideas from one discipline make it into the other more rapidly.” Nowhere is that more vital today than in biology and psychology.

The two chairs are talking about the cross-disciplinary synergy they expect to ignite in research and teaching, when their two departments are housed together in a planned neural and behavioral science building. “There are interactions yet to happen but that are ripe to happen between these two departments,” says Brainard. A “huge overlap” in these fields already exists. With breakthroughs in brain imaging, powerful computational tools and new methods for tracking gene expression in single neurons linked to specific behaviors, “the great questions about how the brain functions are now experimentally tractable,” Schultz declares. And, Brainard adds, “until you understand how it works, you can’t fix it.”

Some of the synergy they speak of is already happening in SAS programs like the highly successful Biological Basis of Behavior major and in research collaborations between faculty in biology and psychology. Investing in sciences that span the study of genes, brains and behavior is a high priority of the School’s strategic plan. Bringing the two departments together will foster the integration of knowledge and expertise needed to spark unexpected insights that can lead to major discoveries.

“Now is the moment,” Brainard affirms. “We’ve got all the pieces. We have an opportunity to be the place where the connections are made from genes through the brain to behavior. In the future, when scientists from anywhere in the world want to know about those connections, they will say, ‘We should check what’s happening at Penn.’”

Richard Schultz (left) and David Brainard

Journalism Legacy

“When it comes to nonfiction writing,” says Maury Povich, C’62, “it’s the independence of the journalist that is sacrosanct to me.” Povich family roots go deep into journalism. He was a reporter and newscaster before turning host of the Maury Show, and his dad, Shirley Povich, was an eloquent sportswriter at the Washington Post for over half a century. “I basically learned journalism at his knee,” he recalls.

Povich doesn’t want to “see the written word die” in journalism, so he endowed the Povich Writer-in-Residence in the Center for Programs in Contemporary Writing. According to Al Filreis, the Kelly Family Professor of English and CPCW director, “the new position is another way in which we are taking seriously the idea that a practicing writer has something to teach our students.”

National political columnist Richard Polman is the first Povich Writer-in-Residence. He teaches Advanced Journalistic Writing and Political Writing in the Blog Age. “I like talking about writing as much as I like writing,” he says. Polman has written for the Philadelphia Inquirer for over two decades and has been a foreign correspondent, baseball reporter and feature writer. He is still a deadline-meeting journalist and maintains a well-regarded political blog, Dick Polman’s American Debate. “I don’t want to lose that edge,” he explains. “I feel it informs my teaching.”

Povich and Polman are strong backers of old-school journalistic values like accuracy and objectivity, values under attack in a charged political culture where opinion and
ideology hold sway. “You can count the number of great political journalists on one hand,” Povich observes, “and Dick is one of them.” Polman believes there will always be a place for skilled writing and impartial reporting, no matter how the culture and media technology change. “Journalism is a noble calling,” he contends, “and this is a terrific opportunity to take what I know and impart it to the next generation of writers.”

All the World’s a Classroom

“It’s not a curriculum add-on,” emphasizes Donald Kettl. “An internship is an integral part of learning that builds on the need to integrate theory and practice.” Kettl, the Stanley I. Sheerr Endowed Term Professor in the Social Sciences and director of the Fels Institute of Government, understands the importance of testing political theory in “the laboratory of real-world politics and government.” Each summer, the Fels Public Policy Internship Program places undergraduates in D.C.-area federal agencies, lobbying firms, media outlets and even in congressional offices and the White House to do just that.

The College of Arts and Sciences recognizes the value of rich, classroom-enhancing experiences like internships and works hard to make them accessible to as many students as are interested. Each year, the College sponsors about 20 summer research internships, real-world learning experiences in Philadelphia arts and cultural institutions. Ideally, these internships provide hands-on “data” that lead to unique research projects. Urban studies co-director Elaine Simon, GEd’71, says the internships required of majors and minors in her program “can introduce students to a field or career that they can try on.” Undergraduates in the joint SAS-Wharton Roy and Diana Vagelos Program in Life Sciences and Management must do two summer internships. The first gives them direct experience in a business setting and the second places them in a laboratory, where they carry out research. “Working experience is the best way to understand how ideas do — or sometimes do not — get translated into practice,” explains co-director Mark Pauly.

Paid internships are especially needed by students who wish to extend their undergraduate experience through the summer. Many need a modest but critical stipend to support themselves and their study through the academic year. Only with the support of alumni, parents and friends can internships become an enriching mainstay of undergraduate education at Penn. “Students bring the practical experience back to Penn and use it to shape their preparation for positions of leadership,” Kettl says. To offer financial support or paid internship positions, contact Laura Weber at lweber@sas.upenn.edu or 215-898-5262.
What’s in a Name?

BY ELLEN UMANSKY

Years ago, when I first moved to New York, my name got changed. I was setting up phone service for my new apartment, and the woman on the other end ran through a series of questions: Call waiting? Call forwarding? How do you want to be listed? My answers: Yes, no, and by my first initial.

A week later, a thick packet from Verizon landed in my mailbox. It was addressed to “E,” no first name, no last — only that letter sitting alone above my street name and number.

For several years, until I moved in with my boyfriend, “E” I remained — on my calling card, in the phone book, on all Verizon correspondence. I liked the way it looked on its own. My “E” felt full of possibility, like putting on a bright shade of lipstick, like slipping into a slinky dress. Maybe this signaled the new me.

I think of this story now, as I turn to my then-boyfriend, now husband, and say, “Maybe I’ll change my name. Take yours instead.”

“If you want,” he says. Blessedly, he doesn’t mention that I’ve brought it up enough times over the course of our five-year marriage to become something of a joke. “I would love it, but really, it’s up to you.”

At the time of our wedding, the time you’d think I would have answered this question once and for all, I never seriously considered taking his name. It wasn’t who I was. I liked my name, liked that it was different from his. A name struck me as the most incidental of connections. Why would we ever need to share one?

And now — well, now things have changed. Now there are three of us. We have a daughter — a wondrous little girl — who at 17 months is just now saying her first name. I suspect she will not care much that her last name differs from her mother’s. I’m the one who feels a twinge when we receive invitations addressed to the three of us or see our names listed in our building’s directory — the awkwardness of having my husband’s and daughter’s names linked while mine remains alone.

The myriad solutions that others have alighted on never felt right. Would you hyphenate Umansky? And yet I just can’t seem to take the plunge. Change the name I’ve always had, that long clunky name that somehow made it through Ellis Island and fought off the assimilating forces that followed? Change the name that links me not only to my brothers and paternal family but to the little town of Uman in Ukraine, where at the start of the Jewish New Year, thousands flock to the gravesite of Rabbi Nachman and chant, Uman, Uman, Rosh Hashanah?

I decided long ago that I would retain my name professionally, so in many ways, changing it feels slightly ridiculous, a grand, hollow gesture. Perhaps it comes down to this: Five years ago, I worried about preserving my own identity. Now it feels equally important to carve out a collective identity for the three of us, my family.

The last time I brought it up, my husband, daughter and I were walking on a nearly empty beach, on a glorious fall day. It was blissful, and I found myself thinking, with a nervous jab of excitement, Would this be the time I truly decided?

I took my husband’s hand.

“You’d change it legally?” he asked.

I nodded.

He smiled, and then his face clouded over. “What?” I asked.

“Nothing,” he said. “It’s just — it’ll be a lot of paperwork.”

I looked at him, and I felt just the tiniest bit relieved. And that, for the moment, was reason enough to leave things the way they were.

Ellen Umansky, C’91, has published fiction and nonfiction in numerous publications, including the New York Times, Salon and the short-story anthology The Lost Tribe. She lives in Brooklyn and is at work on a novel.
ON WINGS OF DIESEL

PHOTO BY JAMAL ELIAS

Professor Jamal Elias says Pakistan is crowded with trucks and buses "completely covered in a riot of color and design. They might spew diesel fumes; they may take up all of the winding, narrow, under-maintained road one is trying to negotiate, but they are certainly noticeable."