A Civil War Hero for Our Times

Adventures in Stealth: A National Security Pioneer Looks Back

Engineering and Applied Sciences Gets a New Leader

GOING TO THE DOGS

Marc Hauser on canine cognition and the evolution of the human mind
An Open-Source Model for Innovation
Cherry A. Murray takes the helm at the School of Engineering and Applied Sciences.

American Heroes
Cultural historian John Stauffer explores the unlikely alliances that helped transform a nation.

Colloquy with F. Robert Naka, SD ’51
The pioneer of stealth opens up about a life in science.

Going to the Dogs to Get at What’s Human
Cognitive scientist Marc Hauser probes our evolving minds.

Alumni Books
GSAS authors on the nature of addiction, yoga as philosophy, the meaning of “the Moor,” the modes of deceit, and the artist Blinky Palermo.

On Development
How I spent my summer vacation, grad-school style.

On the cover: Marc Hauser, professor of psychology, organismic and evolutionary biology, and human evolutionary biology — with Calvin. Photograph by Martha Stewart.
A Global Impact

The international students who enroll in the Graduate School’s summer English Language Program undergo an unseasonably rigorous orientation that has them in classes all day and in work mode all evening. But when I spoke to a group of ELP students about their experiences this summer, they reported that it was a commitment they were glad to make. They said that the language immersion had helped them do more than gain confidence in their English skills. It helped them get acclimated to the ways of GSAS and Harvard, to the American classroom, and to a cultural and social melting pot that is far different from what they left at home.

This was the 10th year that GSAS had sponsored ELP, an intensive four-week language course taught by instructors from the Harvard Institute for English Language Programs (IEL). The curriculum was developed by IEL, the Derek Bok Center for Teaching and Learning, and an advisory committee of GSAS students and faculty. Tuition is paid by the Graduate School with funding that comes directly from alumni donations to the Graduate School Fund.

ELP is one of several manifestations of the Graduate School’s commitment to building and supporting a globally diverse community on its campuses. Another is the Host Student Program, now in its 21st year, which matches entering international students with continuing GSAS students for friendship and informal advice as the newcomers make their transitions to Harvard and the U.S. Host students get to know their matches over the summer via e-mail and then meet them in person in August. The program culminates with a welcome dinner at Dudley House, an event that has become one of the most enjoyable of the year at GSAS.

Students come to the Graduate School from more than 63 countries and from a broad range of cultural and ethnic backgrounds. As of October, there were 1,299 international students in our programs, out of a total student population of 3,998. It hardly needs stating that these students greatly enrich the intellectual and cultural life of GSAS. Their perspectives and interests energize our community.

One of the ways in which Harvard attracts talented international students to its PhD programs is by working cooperatively with governments and nations to establish scholarship aid agreements. The most recent of these agreements, with the Republic of Chile, was signed in September by Andrés Vela Coa, the Chilean minister of finance (and former Harvard Kennedy School professor), and Jorge I. Domínguez, Harvard’s vice provost for international affairs. The agreement will provide scholarship support to graduate students in master’s and PhD programs and in research positions at the University. The parties hope that the project will increase the number of Chilean students and scholars at Harvard in a given year to at least 50.

The scholarship program developed out of a commitment by Chile’s president, Michelle Bachelet, to develop and nurture the country’s future leaders by supporting promising students in advanced education and training abroad. Harvard’s relationship with Chile is longstanding, as the parties to the agreement noted in remarks at the signing ceremony. The David Rockefeller Center for Latin American Studies has maintained a regional office in Santiago since 2002, and our scholars have worked in the country for years. The respect engendered by that familiarity helped pave the way for the Chilean government’s decision to invest in a Harvard graduate education for its brightest students.

As I looked out at the audience assembled to witness the signing ceremony, I took note of how many Chilean PhD students had turned out for the event. They were clearly proud that their home country had made this investment. And we at the Graduate School share in the pride that comes with watching investments pay off — watching the brightest students fulfill their potential and assume leading roles in universities, governments, and societies around the world.
AN OPEN-SOURCE MODEL FOR INNOVATION

Cherry A. Murray takes the helm at the School of Engineering and Applied Sciences
For Cherry Murray, boundaries — between art and engineering, campy science fiction and the classics, academic disciplines and scholars — exist only if you build them.

The new dean of the Harvard School of Engineering and Applied Sciences (SEAS) sees no contradiction in celebrating the spirit of innovation in both its pure form and its more fantastic one, where the rules of physics are relaxed for the sake of a good yarn. Fond memories of watching the 1969 moon landing in a crowded living room in South Korea, where she was living at the time, sit in easy compatibility with memories of a day eight years later, when she stood in line to witness a different kind of space saga, becoming among the first to see Star Wars.

Murray, who came to SEAS from the Lawrence Livermore National Laboratory (LLNL), where she was principal associate director for science and technology, is a natural advocate — and practitioner — of interdisciplinarity. Until ninth grade, when a young chemistry teacher showed her the “beauty” of math and science through assignments that were sufficiently challenging and right-brained, Murray planned to become an artist like her parents. Her decision to study physics was, in part, the result of a dare from her older brother, who came home from MIT and declared that “there was no way” she could handle the subject, let alone get into MIT. Murray went on to earn two MIT degrees in the field, a BS in 1973 and a PhD in 1978, proving him doubly wrong.

But the switch did not commit her to an “either/or” paradigm. A print of a brilliant-orange Georgia O’Keeffe flower hangs in her office in Pierce Hall, at home alongside nanotechnology-inspired images by physics faculty member Eric Heller.

Solving the big problems will demand big thinking across the disciplines, Murray says.

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TOLERATING WEIRDNESS, SHARING COOLNESS

“Follow what you like doing, and if you do it well, you’ll get a job,” Murray once told a group of female students at the New Jersey Institute of Technology. In her case, channeling a passion for applied physics also attracted mentors and guides, who came together to form a strong web of support.

At MIT in the late 1970s, Murray was one of just three women studying physics; the entire faculty included only two women. One of the two, Mildred (“Millie”) S. Dresselhaus, became an unexpected advocate.

“Millie pulled me aside one day and said, ‘I remember your application in particular,’” Murray said. Dresselhaus, intrigued by Murray’s artistic accomplishments, made an effort to get to know her,
and in the process, helped to define and personalize Murray’s academic experience.

Joining Bell Labs right after earning her PhD, she worked under Arno Penzias, then the vice president of research, who soon became her role model administrator. “Arno cultivated a culture of toleration,” explains Murray. Eccentricity, diversity, and even arrogance were accepted at Bell, justified by the lab’s remarkable productivity (inventing modern telecommunications) and penchant for Nobel Prizes (six in six decades). More broadly, the innovative powerhouse “tolerated weirdness,” Murray says, recalling a mathematician who walked backwards (all the time). Another researcher wore “short-shorts and a pith helmet every day of the year.”

While she “backed into management roles,” eventually becoming a senior vice president at Bell, Murray soon realized an open secret, one she suggests graduate students and young researchers consider before balking at the idea of entering the bureaucracy. “You get the control, the money, and the direction,” she says of taking on administrative positions. “And if you take the job,” she adds, “you will not be working under someone you may not want to work for.”

Influenced by the open structures at Bell and LLNL, she dislikes empire builders. She is looking to nurture an organic environment at SEAS. And while she’s pragmatic and decisive, Murray says she also wants to foster “what’s cool.” Murray doesn’t see “coolness” as isolated and exclusive to technology, but rather as something that should be celebrated — and shared across disciplines.

**SYSTEMS-LEVEL THINKING**

In the coming year, Murray wants to invest in a comprehensive planning process, engaging both faculty and administrators in an effort to determine how best to build upon recent growth at SEAS and strengthen connections to programs within the Graduate School of Arts and Sciences and across Harvard.

While SEAS has existed as a school within the Faculty of Arts and Sciences for just two years, the disciplines that fall under the engineering and applied sciences umbrella have matured enormously over the past decade, bolstering the University’s core strengths in fundamental science and increasing its capacity to translate knowledge into innovative tools and applications. “SEAS has made initial investments in the fields that are growing, such as materials scientist Michael Aziz has developed a potentially viable **CARBON SEQUESTRATION PROCESS**. Now his technology may lead to greener cement and concrete, shrinking a large carbon footprint.

By mathematically modeling how a humpback’s flipper allows the massive mammal to fly through the water, applied mathematician Michael Brenner and colleagues may one day **BUILD BETTER BLADES AND WINGS** for aircraft and wind turbines.

Joanna Aizenberg and colleagues have discovered a way to **SYNTHESIZE AND CONTROL THE FORMATION OF NANOBristles**, akin to tiny hairs, into highly ordered helical clusters. This “clumping” has potential for energy and information storage, photonics, and adhesion, among other functions.
technology, bioengineering/bio-inspired engineering, information theory, and computational science,” she says. (To find some examples, see “Right Now at SEAS,” preceding pages.)

In keeping with her predecessor, Venkatesh “Venky” Narayananmurti, now director of the Science, Technology, and Public Policy Program at the Kennedy School’s Belfer Center, Murray is eager to tap into the immense breadth offered by the other schools at Harvard, from Business to Divinity.

The network of professional schools, combined with the classical liberal arts environment of FAS, makes SEAS “different than a purely technical institution,” Such positioning, she says, will help dispel the idea that “the applied sciences merely lay down theory” for scientific problems that exist outside the realm of everyday issues. In her view, the mission is much broader, and the applications much more immediate.

She is fascinated, for example, by the work of Stuart Shieber, the James O. Welch Jr. and Virginia B. Welch Professor of Computer Science, who develops computational approaches to language and communication, and who has become a thought leader in the area of open-access scholarship. His work takes intriguing turns — revealing, for example, that the future of publishing relates as much to behavioral economics as it does to novel e-reading devices.

Tackling global health, Murray says, is another “systems-level problem.” Delivering information, minding cultural mores, and managing resources are as important as delivering a cure, and together they call for a complex system akin to the Internet or urban transit.

Murray believes that to create an inclusive network at Harvard to tackle global problems — “issues like the state of the planet, water quality, energy, and the environment,” she says — will take something more than new programs, courses, or research collaborations. It will also take faculty, researchers, and students who can “explain their work” and advocate for its possibilities.

“At SEAS, we already have all the aspects of what is going to be important not just in terms of research, but in terms of the future of society,” she says. She wants to share those specialized resources, advocating an open-source model for innovation and increased interaction with industry partners.

Solving the big problems will require “everything from ethics and economics to biology and applied mechanics,” she says. Luckily, the sources of inspiration are equally boundless.

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**alumni notes**

**Astronomy**

Debra Mely Elmegreen, PhD ’79, the Maria Mitchell Professor of Astronomy and chair of the Department of Physics and Astronomy at Vassar College, has been elected president of the American Astronomical Society. She is the first president from a liberal arts college in the 110-year history of the organization.

**Biochemistry and Molecular Biology**

Phillip D. Zamore, AB ’85, PhD ’92, has received the Schering-Plough Award from the American Society of Biochemistry and Molecular Biology for outstanding research contributions. Zamore is an investigator of the Howard Hughes Medical Institute and the Gretchen Stone Cook Professor of Biomedical Sciences in the Department of Biochemistry and Molecular Pharmacology at the University of Massachusetts Medical School.

**Business Studies**

Scott B. Cantor, PhD ’91, was promoted to the rank of professor in the Department of Biostatistics at the University of Texas M. D. Anderson Cancer Center in Houston. He is a past president of the Society for Medical Decision Making, whose mission is to improve health outcomes through the advancement of proactive, systematic approaches to clinical decision making and policy formation in health care.

**Comparative Literature**

Lawrence F. Rhu, AB ’67, MAT ’69, PhD ’87, was appointed to the William Joseph Todd Chair in the Italian Renaissance at the University of South Carolina, where he is a professor of English and comparative literature.

**East Asian Languages and Civilizations**

Chun-shu Chang, PhD ’64, has won the 2008 University of Michigan Press Book Award (for the best published work in the prior two calendar years) for the first two volumes of his *Rise of the Chinese Empire*, part of a ten-volume history of China. Chang is professor of history at the University of Michigan at Ann Arbor.

**English and American Literature and Language**

Epifanio San Juan, PhD ’65, has published *Critique and Social Transformation: Lessons from Antonio Gramsci*, Mikhail Bakhtin and Raymond Williams (Edwin Mellen Press, 2009). San Juan was a fellow at the W.E.B. Du Bois Institute last continued on page 7
It was an interesting and unusually public summer for John Stauffer, a literary critic and cultural historian of the Civil War era who crafts powerful narratives from his scholarly explorations of abolition and interracial alliances. His new book resulted in a blogosphere mini-rumble that drew coverage from the *New York Times* and the *Chronicle of Higher Education*. And the book before that was one of a handful of titles taken to task in a long essay by Sean Wilentz in the July 15 *New Republic* that was broadly critical of trends in contemporary Lincoln scholarship.

The commotion seems to have bothered Stauffer not at all. An interdisciplinary humanist, he welcomes the occasional chance to “evangelize” about the essential role of the humanities in a good society, and a scholarly back-and-forth that puts history in front of people’s eyes, in unexpected places, is one way to do that. Another way to do it is to enlist Hollywood, and that’s something else that Stauffer’s recent agenda has included. His new book arose, perhaps counter-intuitively, from a screenplay he helped develop with the producer, director, and writer Gary Ross, whose credits include *Pleasantville* (1998) and *Seabiscuit* (2003).

The book is *The State of Jones*, chronicling the remarkable and quintessentially American story of Newton Knight, “the most famous Civil War hero you’ve never heard of,” says Stauffer, chair and professor of the history of American civilization at Harvard, where he is also professor of English and of African and African American Studies. It was cowritten with *Washington Post* reporter Sally Jenkins.

Newton Knight was a southern Unionist — a creature many Americans may not know existed, according to Stauffer — and a thorn in the Confederacy’s side. A poor farmer from the Piney Woods of Jones County, Mississippi — a county that Stauffer argues never voted to secede, and did so only because its delegate to the secession convention turned traitor — Knight deserted the Confederate army in 1863. He formed a Unionist militia, raised a federal flag above the county courthouse, and spent the next two years engaged in a guerrilla campaign against the Confederacy. He was the grandson of a slave owner who declined to take slaves for himself (at a time when that would have distinguished him among southern white men seeking to make their way in the world). He had two families, one with his first wife, a white woman, and a second with a black former slave named Rachel, to whom he deeded 160 acres of land after Reconstruction, ensuring her safety and that of his mixed-race progeny.

Knight was “never without his gun,” Stauffer says. “He’d load his gun with double the shot. He was a mean guy. But he fits the model of the ideal American outlaw, one who sees a huge gap between America’s ideals and its reality, and who has little faith in the laws, or will take the law into his own hands.”
It’s the stuff of legend, and indeed the tale of Knight’s Unionist militia became almost apocryphal as the years passed, obscured by myth and regional politics. The extent of his alliance with Rachel and his passion for the Unionist (and, Stauffer argues, antislavery) cause has been unreported in other accounts of the Jones County story; Stauffer only began to uncover it when he agreed to serve as a consultant on Ross’s screenplay and started to probe the official records of the war and congressional testimony following it.

Ross had “the same curiosity that a scholar does,” Stauffer says, and was insistent on making a film that was true to the times. “Jones County was mostly swampland and pine forest. Gary would ask me, ‘How does someone survive in the swamp? What do you live on, how do you defend yourself?’ So when I would describe these larger historical themes and questions, he’d say, ‘I’m a filmmaker, I need to film this. How does this happen on the ground? It’s a great technique, because to write about the past experientially is to nuance and make much more ambiguous some of the larger historiographical or critical assumptions that people have.”

The high-profile nature of the project appealed to Stauffer. “Look, the humanities in general in the academy is under siege,” he says, citing his Harvard English colleague Jim Engell’s research. “I think it’s important — not for everyone, but if one is so inclined — essentially to evangelize what it is we do, to recruit more people, to make people aware of why it is the humanities are crucial for a virtuous society. Filmmakers are brilliant at that.”

The film project is now on hold, a victim of the economy. But Ross thought the research should become a book, and through the editor at Doubleday who handled the project, he put Stauffer in touch with Jenkins. The pair made several trips to Mississippi; on one, Stauffer found Newton Knight’s neglected grave, on an overgrown plot in a black cemetery. The gravestone reads, “He lived for others.”

Their book is a colorful narrative of battlefield horrors, acts of resistance, and political wrangling. Its style and assertions have rankled some people. Victoria Bynam, a historian at Texas State University and the author of an earlier book on Jones County, uses her blog, Renegade South, as a public venue for criticism, her own and that of fellow Jones County enthusiasts. Stauffer posted a rebuttal but has since mostly declined to enter the bloggers’ fray.

What probably most drew him to the story of Jones County is his longtime interest in exploring the boundaries between permissible and impermissible expression in American society. His work on interracial friendships and alliances involves writing the history of relationships that may not be representative of the American experience, but that show the possibilities of it. That was at the root of the book he published late last year, Giants: The Parallel Lives of Frederick Douglass and Abraham Lincoln. Stauffer positions the two as the preeminent self-made men in U.S. history. “Neither had virtually any formal education,” he says, “and both became among the greatest respective black and white figures in American history. Both used language and literacy as their main source of rising up, both cut their eyeteeth on the same six books or authors.”

Lincoln and Douglass “understood ‘self-making’ as a self that was in a state of continual evolution or flux. Both believed that the true self-made man sought to reform or transform his society.”

This kind of self-making, in concept and practice, cuts against racism and slavery, Stauffer says. “Slavery, by its very definition, prohibits any kind of evolution,” he says. “And racism is predicated on the idea that one person is permanently superior to another. The idea of a self that’s continually fluid contradicts those notions. Self-making is essential to democracy.”

Stauffer’s new book tells the story of a Unionist in the heart of Mississippi.
In 1942, when Bob Naka was 18, his life was upended when he and his parents were imprisoned at California’s Manzanar Relocation Center, one of ten camps where more than 110,000 Japanese Americans were forcibly detained during World War II. With help from the Quaker-supported National Japanese American Student Relocation Council, Naka was released after nine months (though his parents remained) and resettled at the University of Missouri, where he earned a bachelor’s degree in electrical engineering in 1945. He earned a master’s from the University of Minnesota and then a doctor of science from Harvard in 1951.

In the early 1950s, with Lincoln Laboratory at MIT, Naka helped invent the first automated radar detection system, which automatically sounded an alarm to warn of approaching radar signals, replacing the need for humans to detect aircraft visually. He also helped design the Millstone Hill radar that tracked Sputnik in 1957. His radar expertise got him tapped to work on the U-2 spy plane, and he became a pioneer in stealth technology, much of which remains classified.

In 1969, he assumed the public title of Deputy Undersecretary of the Air Force for Space Systems, running the covert National Reconnaissance Office (NRO) and overseeing the launch of new national-security satellite systems.

In later positions, as one of the nation’s leading players in the development of space detection and instrumentation systems, Naka worked at senior levels in both private- and public-sector spheres, including a stint as chief scientist for the Air Force. He was a member of influential advisory councils for NASA and the Air Force, and he remains a member of the Global Positioning System Independent Review Team.

Naka is also a member of the National Academy of Engineering, as well as other honoraries. In 2008, he received a Doctor of Science honoris causa from the University of Missouri, and in August 2009, he was inducted into the Space and Missile Hall of Fame in Colorado. He talked with Colloquy about his life’s path.

Fame in Colorado. He talked with Colloquy about his life’s path.

What were your parents like?
Both of my parents came from fairly wealthy families in Japan. My father was the eldest son of a landowner in a farming community on the island of Kyushu. A man from the same community had emigrated and started a potato farm in Stockton, California, and he persuaded my grandfather to let my father come to the United States. My father ultimately graduated from the University of California, Berkeley, with bachelor’s and master’s degrees in economics and a minor in English literature, which made him a formidable parent. He had memorized poetry, the Bill of Rights, Lincoln’s Gettysburg Address, the Constitution of the United States. . . .

The wartime internment must have been devastating for them.
I think it must have been very devastating. This land of opportunity turned out to have some bad consequences. I don’t think my parents really recovered from it.

I was in my second year at UCLA. We were taken on a train in May of 1942, guarded by armed personnel. Living conditions in the camp were very primitive. The structures were very hurrriedly built, with uncured wood. In that dry, desert climate, the wood shrunk and left big cracks — a disadvantage in a region where there are merciless dust storms.
What was it like leaving the camp and resuming college in a new place?
The night before I was to leave, my parents got into a big argument. My father said, ‘He’s our only child, I don’t want him to go.’ He was thinking I might face physical harm. My mother said, ‘If he stays here, he’s as good as dead. It’s better that he get out there and take his chances. I say he goes.’ So I went.

A bus came and took me to Reno, where I was to catch a train for Kansas City and then Columbia, Missouri. I was accompanied by a man who took me as far as Reno. When we reached the bus station, he said, ‘Good luck, you’re on your own.’

At Missouri, I was just another kid on the campus. It was quite benign. In the middle of the country, you hardly knew there was a war on.

What did you work on at Harvard?
I was planning to do my thesis in high-voltage engineering, but the head of the department asked me whether I might like to pursue improving the electron microscope. He said, ‘We are five orders of magnitude poorer than the theoretical limits, and if you could puzzle your way through that, it would be very helpful.’ After considerable work, I was able to show, among other things, that the industry building the microscopes had made a fundamental error in the negative potential and physical placement of the control electrode.

After making substantial contributions to the fundamentals of radar signal detection, you were tapped for the U-2 project. Isn’t it ironic that someone who was imprisoned by the government was later entrusted with the highest clearance?
I wasn’t terribly sure that I would be allowed to work on classified projects. I dutifully filled out the forms, and I didn’t dodge any questions. As it turned out, I was given secret clearance and worked on the Distant Early Warning Line radars. But I didn’t expect to be asked to work on the U-2 aircraft.

When I was cleared into that, I figured, well, that’s kind of the ultimate secret of the United States. The three of us who were brought into the program were told that only 200 people in the United States knew the full extent of the program, that this airplane was being built to spy on the Soviet Union and fly high enough that it couldn’t be shot down. The problem was that it had a very high radar cross section, which made it susceptible to detection by search radars. Our job was to reduce the radar cross section [the area that can reflect radar signals].

Thus, the birth of stealth.
To me, this was scientific activity, and as far as I was concerned, it was just a progression into solving scientific problems. The ironies didn’t bother me as much as, gee whiz, I’m working on espionage, and is this something I don’t really want to do?

I came to the conclusion that espionage, in spite of its mata hari forebodings, was probably an honorable activity. My rationalization was that the better you know your neighbor, the more likely you will be to get along with him. Knowing your neighbor means that every so often you look over the neighbor’s fence, because you can better gauge his reaction to some of the things you do.

You eventually shifted your focus to space-based reconnaissance systems.
I’ve always been excited by technology. Going to the NRO represented a whole new set of technologies. The satellites had to operate in a vacuum and in a gravity-free environment. The details of that are very exiting. It’s a whole new set of problems and issues.

In some interviews, you’ve spoken of your time at the NRO as a sort of golden age for military research.
There are too many checks and balances now. Research and design for new systems is much too stylized. The way it worked in the case of the Distant Early Warning Line, the early work on stealth, and the NRO was, you put a few very good people on a job, you tell them what you want, and then you leave them alone.

What would you tell a newly minted PhD embarking on a career?
My professional life has been satisfying, but so was my family. Somehow I managed to marry my graduate school classmate [Patricia Ann Neilon], who had a career of her own as a registered clinical psychologist. We had four children and nine grandchildren. So I would recommend that you work hard at your job, but work hard at your family life, too.
Going to the Dogs to Get at What’s Human

Cognitive scientist Marc Hauser explores our evolving minds
The dog is a love. A loping black mutt — parts retriever, malamute, and sheepdog, his owner says — he radiates an eagerness that hints at a species-transcending urge: He really wants to ace this test. It’s a big day, and the pressure is not insignificant. He’s at the new Canine Cognition Lab at Harvard, in a room on the tenth floor of William James Hall, taking part in a series of videotaped trials designed to reveal how dogs think.

Lab manager Jordan Comins runs the shaggy black dog through a variety of behavioral tests, some analyzing his response to human emotional signals, others exploring how accurately he can solve a problem or find a reward. In one series, Comins shows the dog two buckets, one affixed with a succession of food images (a bloody steak, a slice of pizza, a bone), the other with images of non-food household items like a bottle of detergent or a piece of furniture. Comins looks intently at the dog, puts the buckets down, and then steps back and bows his head so his chin reaches his chest, implicitly inviting the dog, sitting across the room with his owner, to approach. There’s a treat hidden in the bucket bearing the food image, and the buckets are smell-proof. Will the dog recognize the pictures, make the association, and find the reward?

He seems a sensitive sort; several times he approaches Cumins, not either of the buckets, and nuzzles and cuddles, as if offering comfort. Other times, the dog seems to be reasoning; he slowly circles both bins and then approaches the correct one, locating his treat. And a few times, as when the images show a piece of chicken and a chair, the dog simply lays down halfway to the bins and looks out the window. Boring!

The canine lab is the latest project by the prolific cognitive scientist Marc Hauser, professor of psychology, organismic and evolutionary biology, and human evolutionary biology. Six months into its existence, the lab has already seen more than 350 dogs and has a waiting list of more than 1,000 others, thanks in part to a Boston Globe feature last spring that sparked strong regional interest. Dog owners have always anthropomorphized, attributing intelligence, feelings, and qualities like adventurousness or bravery to their pets; here, they can help researchers uncover the basis — if any — for those inferences.

“There are questions that get raised in dogs that wouldn’t arise in primates,” Hauser says. “Dogs live with humans; what aspects of human behavior have they suckled in? Some of the main questions we’re going after are: To what extent are dogs sensitive to the emotions that humans have? To what extent can a dog read our expressions? To what extent do dogs have a sense of ‘in group’ versus ‘out of group’ — do they show biases the way we show biases? Do they have musical preferences, language preferences?”

Brian Hare, PhD ’04, biological anthropology, had done work with dogs and domestication as an undergraduate at Emory, and he helped stir Hauser’s interest when he joined his team as a graduate student. Now an assistant professor of evolutionary anthropology at Duke, where
he directs primate and canine research programs, Hare says dogs represent a rare opportunity to see evolution at work. “What’s unique about dogs is that within a single species that is incredibly closely related, genetically, you have incredible phenotypic variance — behavioral, morphological, physiological variance. It means you have an opportunity to really map out how you get changes, which can help us understand how evolution progresses, and how cognition evolves.”

And that’s precisely what motivates Hauser, whose broader project is to explore the development of cognitive abilities that are uniquely human. His research, conducted under the umbrella of an interdisciplinary effort known as the Cognitive Evolution Laboratory, looks at animals — in the past, mostly cotton-top tamarin monkeys, but also human children and adults — from a broad comparative perspective, uncovering “how we got to have the distinctive kinds of thoughts and emotions that we have,” Hauser says. He’s particularly interested in the evolution of language, conceptual abilities in animals and human infants, concepts of cooperation, and morality.

Biology is clearly at the root of human capacity, says Hauser, “because, after all, a child growing up in an environment acquires language, but a dog growing up in the same environment doesn’t. So that opens up the evolutionary question of what happened before there were humans on the planet. The question is, What were the foundations?”

It’s a question that biologists, psychologists, and neuroscientists have been asking for years, from perspectives that have evolved alongside cognitive theory — much of which was pioneered at Harvard, most famously by B. F. Skinner, PhD ’31, psychology, who joined the faculty in the late 1950s. “When I starting this work in college (at Bucknell),” Hauser says, “the field was very much dominated by B. F. Skinner’s tradition, which was really to think of animals as little black boxes that you could condition, and everything they did was simply a reflection of the history of reinforcement. There was a real aversion to speaking about animal minds, animal consciousness.”

Thinking shifted in the late 1970s, largely as a result of work on animal awareness done by Donald Griffin, PhD ’42, biology, while he was on the faculty of Harvard and Rockefeller University. “That opened the floodgates,” Hauser says. “The cognitive revolution in psychology was going full swing, and people like Noam Chomsky and [Harvard psychologists] George Miller and Jerry Bruner were really hammering away at the Skinnerian enterprise in psychology and opening the door to very rich and intricate hypotheses about the nature of the human mind.”

Soon, concepts of animal cognition turned almost full swing in the other direction: animals were found to be more like us than we ever thought, with feelings, reasoning abilities, languages, and even art forms all their own. Hauser worked in that vein, too — his doctoral research at UCLA had to do with language-like vocalizations in wild vervet monkeys, and he continued to study animal communication when he arrived at Harvard. But the emphasis of his work has shifted over the years, he says, from probing the parallels in cognitive development across species to articulating the differences and getting at what makes humans uniquely human.

In a paper published in *Nature* last July, he counters the idea that the difference between human and animal cognitive ability is just a matter of degree, and that the range of cultural variation and ability within and across species is limitless. He identifies two fundamental gaps: The first, he says, has to do with phylogenic differences between humans and all other animals that may be impossible to bridge through evolution; the second, based in part on Chomsky’s linguistic theory, results from constraints on imaginable cultural varieties and possibilities. The “uniquely generative brain” that evolved in humans is also subject to constraint, in other words; Hauser is advocating a new mind science that explores the neural mechanisms that both allow the generation of rich cultural forms and constrain their development altogether.

Hauser has identified four ingredients that make up human uniqueness — charac-
teristics that distinguish the human mind from the animal. The first is our extraordinary capacity to iterate a rule, to embed a rule into a rule. “That’s what gives language its extraordinary generative power,” he says, “or gives music its generative power, or gives mathematics its generative power. And it’s just not there in animal cognition.” The second ingredient is our capacity to spontaneously attach external symbols — words or images — to our thoughts. The third is our abstract thinking. “Infinity, greater than . . . these concepts are not anchored to the sensory perceptual world in which we live,” he says.

The final ingredient in our uniqueness, one that he’s exploring in a new book, is our capacity to combine pieces of knowledge from different domains. Hauser calls these intersections “promiscuous interfaces”; they allow for many positive abilities, he says, but also very negative ones. He’s looking at how humans “uniquely took the systems for aggression and violence and married them to the reward systems,” something that “reinforces our thirst for violence,” he says. “When we punish someone for doing something that’s unfair, our reward areas light up as if we just ate an ice cream cone.”

For all that we share with animals, it’s what we don’t share that’s most striking, says Hauser. “At the end of the day, the gap is cavernous,” he says. “And we have to explain that.”

New department reflects the evolution of human evolution

Last spring, the Faculty of Arts and Sciences approved the creation of a new Department of Human Evolutionary Biology, making official what scientists worldwide have known for years: Harvard is a hotbed of research and teaching in the field of human evolutionary biology — the study of why we are the way we are.

Human evolutionary biology can help address the underlying causes of major global problems.

“Why do we cook our food? Why are we able to run long distances? Why are we so susceptible to diabetes?” asks Daniel Lieberman, professor of human evolutionary biology, who has been part of the effort to launch the new department over the past five years. “Nothing in biology makes sense outside of evolution. You can’t hope to understand species or their traits without first knowing why they’re there.”

The Department of Human Evolutionary Biology itself evolved from the biological anthropology wing of the Department of Anthropology, one of three distinct divisions in existence since 1972. The research expertise of the faculty associated with the new department touches on many of the most pressing social problems of our time: infectious disease, obesity, overpopulation, and aging, to name but a few.

It’s clear, Lieberman adds, that a holistic view — such as that embraced by his colleagues — is key to addressing problems of this complexity. And, he says, with its insights into what makes us us, human evolutionary biology can help address the underlying causes of major global problems, rather than just the symptoms.

The field of human evolutionary biology is itself evolving fast, says Richard Wrangham, Ruth Moore Professor of Biological Anthropology, with advances in genetics, genomics, and neuroscience playing a particularly important role.

“The great thing about this area is that we can pull together advances from many different disciplines,” Wrangham says, “offering an integrated view of the effects of biological and cultural influences.” — Steve Bradt

Are dogs really brave, or loyal, or any of the things dog owners claim? Hauser’s lab wants to find out.
ARS AMATORIA: AN ANTHOLOGY
By Author Anonymous
(a.k.a. Robert Manson Myers, AM’43, English and American literature and language)

An accomplished alliterator and affirmed anglophile, Myers has taken off from Ovid to produce this novelty: 190 poems containing only words that begin with the letter A. With “shades of Mother Goose, Edward Lear, Lewis Carroll, and Ogden Nash,” the book achieves an A-plus, as this excerpt suggests:

Adorée
Appalling angst at amative Astoria:
Astonished Adorée admits aporia
As anguished Amédée admits aphoria
And argues abstinentia amatoria.

An Anxious Adorée’s adoring auntie. An alamode appealing ammirante, Advancing amatorial arts andante, Annexes Adorée’s adored amante!

— BEW

PROFIT POWER ECONOMICS
A New Competitive Strategy for Creating Sustainable Wealth
By Mia de Kuijper, AM ’80, MPA ’83, PhD’83, economics

De Kuijper outlines an economic-revolution-in-the-making — the transparent economy, in which information is widely accessible and markets are more and more defined by interdependent decision-making. This might seem antithetical to profits (in the “buy cheap and sell dear” sense), but de Kuijper identifies twelve “power nodes,” from brand recognition to regulatory protection, and attendant strategies for long-term financial success. In doing so, she draws on extensive firsthand experience as an executive with, for example, PepsiCo and AT&T.

YOGA, KARMA, AND REBIRTH
A Brief History and Philosophy
By Stephen Phillips, AB ’72, PhD ’82, Sanskrit and philosophy of religion

Not a work for beginners, Yoga, Karma, and Rebirth offers a detailed discourse on yoga’s terminology and philosophical traditions (Vedantic, Tantric, Buddhist, and others). Phillips, both a scholar and devotee of the practice, emphasizes that yoga is not just a set of physical or mental exercises but also a philosophy and worldview. He discusses contemporary yoga instruction, ancient texts explaining the practice, and the concept of karma. He also — though less convincingly — argues for the logical coherence and plausibility of reincarnation.

ADDITION
A Disorder of Choice
By Gene M. Heyman, PhD ’77, experimental psychology

This provocative work criticizes current approaches to drug addiction. Criminalizing addiction hasn’t eliminated it, and characterizing it as a “chronic, relapsing brain disease” surely discourages addicts who want to stop using. Instead, Heyman sees addiction as a matter of choice that (like other volitional behaviors) will respond to incentives, in particular, perceived personal cost. But upon reading that heroin is more potent than morphine — and morphine, ten times more so than opium — one wonders when volition gives way to duress.

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WHILE WE WERE SLEEPING
Success Stories in Injury and Violence Prevention
By David Hemenway, AB ’66, PhD ’74, economics

Hemenway, a professor at the School of Public Health, views this volume as “my personal ode to public health.” Detailed, vivid, and instructive, the book focuses on successful injury-prevention campaigns, mainly over the past 150 years, in topical chapters (e.g., “Car,” “Work,” “Play”). Perhaps most important, he singles out individual “heroes” (e.g., “Car,” Work,” “Play”). Perhaps most important, he singles out individual “heroes” of such efforts. In recounting their stories, he reclaim a neglected part of our public-health history and makes a compelling case for the importance of individual activism in bettering society.

RAISING STEAKS
The Life and Times of American Beef
By Betty Fussell, AM ’51, English and American literature and language

Fussell’s follow-up to The Story of Corn (1992) explores our fascination with beefsteak. Her richly detailed narrative, both paean and critique, juxtaposes gustatory delight, cowboy mythology, and the reality of today’s beef business. She explores the industry’s consolidation, which has implications political and economic; its over-reliance on antibiotics (encouraging antibiotic-resistant strains of E. coli); its resistance to rigorous screening for mad cow disease; and — behind everything — its dependence on oil and oil by-products, including the corn used as cattle feed.

SPEAKING OF THE MOOR
From Alcazar to Othello
By Emily C. Bartels, AM ’83, PhD ’87, English and American literature and language

In analyzing how “the Moor” was constructed in early modern England, Bartels combines traditional history with Derridean criticism. She deconstructs four Elizabethan dramas, including Titus Andronicus and Othello. Locating these works in their larger literary and historical contexts, she finds the term Moor elusive (designating North Africans, Muslims, black Africans, and even, at times, Jews). Moreover, the dramatists gave such characters “multiple and multiplex identities.” One wonders to what extent Elizabethans generally saw “Moors” in more than racial (or black and white) terms.

BLINKY PALERMO
Abstraction of an Era
By Christine Mehring, AM ’95, PhD ’01, fine arts

In the 1960s and ’70s, Blinky Palermo helped transform German art, but in the United States today, he’s almost unknown. Mehring’s lavishly illustrated volume seeks to redress that unmerited obscurity. But surprisingly little is known of Palermo’s biography: Peter Heisterkamp took the name “Blinky Palermo” in 1964 as an art student and by 1977 was dead, probably due to drug use. However, in the intervening years, he produced a challenging, socially engaged, and often quite playful body of abstract art.

DECEPTION
From Ancient Empires to Internet Dating
By Brooke Harrington, AM ’96, PhD ’99, sociology, ed.

Deception casts its net widely, and the “phishing” is good. Diverse essays address lying, paltering (misleading actions short of lying), doctored photos, web scams, and other forms of deceit. Invoking P.T. Barnum and physicist Leo Szilár, Kant and Coyote (the Native American trickster), contributors analyze deception and its obverse, trust — along the way exploring botched federal responses to the 2001 anthrax poisonings, Allied efforts to mislead the Germans before D-Day, investors’ responses to being swindled, and ways of identifying liars.

FATAL JOURNEY
The Final Expedition of Henry Hudson
By Peter C. Mancall, AM ’82, PhD ’86, history

Determined to find a shortcut to Asia, English explorer Henry Hudson (he of the Hudson River and Hudson Bay) made three voyages that, though unsuccessful, established his reputation as a bold but careful captain who hadn’t lost a man. His final voyage of 1610–11 was far different, ending in mutiny and bloody conflict with Arctic natives. Hudson and most of his company died. Mancall — though constrained by heavy reliance on the main primary source for these events (apart from several depositions) — recounts the voyage and, most memorably, the hardships of over-wintering in the Canadian North.

Alumni authors: If you have published a general-interest book within the past year and would like it considered for inclusion, send a copy to Colloquy, Harvard Graduate School of Arts and Sciences, Holyoke Center 350, 1350 Massachusetts Ave., Cambridge, MA 02138. Questions? E-mail gsaa@fas.harvard.edu.
A NEW YEAR

GSAS, Dudley House, and most of the rest of Harvard officially embraced the dawn of a new era — and a shortened summer — as the University’s new unified academic calendar took effect this fall. The term began on September 2, the week before Labor Day, pushing opening activities like the annual Discover Dudley (at left) into August.

The new calendar calls for exams to be held in December, before winter recess, and for the spring term to begin in late January. For the first time, Commencement will take place in May — this year, on May 27.

The unified schedule is expected to make it easier for students to cross-register for courses in other Schools and for faculty to teach in Schools beyond their own, enhancing cross-disciplinary intellectual exploration. The changes were recommended in 2004 by a University-wide committee led by Professor Sidney Verba, and they were approved by Harvard’s governing boards in 2007.

To take advantage of the free time in January, the Graduate School will offer a three-week mini-term called January at GSAS, featuring collaborative skill-building, intellectual and professional development opportunities, and assorted extracurricular activities, many of which will be student-conceived and led. January at GSAS is “an exciting project, one that we believe will tangibly benefit our students in their academic and professional progress,” says Administrative Dean Margot Gill. “We hope it will also give them a chance to stretch their wings a little, explore something new, and take advantage of Harvard resources at a time when there are fewer competing demands than usual.”

DO THE RIGHT THING

For 20 years, political philosopher Michael Sandel’s “Justice” has been one of Harvard’s most popular and influential undergraduate courses. In a packed Sanders Theatre, Sandel asks students (14,000 of them, over the years) to examine hot-button contemporary issues and their own moral and ethical beliefs in light of the world’s great philosophical thinking. The course has been available to Harvard alumni since 2007 through web streaming and podcasting, and this fall, audiences around the world will have a chance to join in as well, as public television producer WGBH Boston and Harvard University partner to create 12 one-hour episodes for broadcast and downloading.

After each episode, viewers can join discussion sessions at www.JusticeHarvard.org; schools or political groups can form their own groups, with GSAS teaching fellows and Sandel himself sometimes participating.

Sandel, the Anne T. and Robert M. Bass Professor of Government, released his latest book, Justice: What’s the Right Thing to Do (Farrar, Straus and Giroux), to coincide with the start of the series in September. Last June, he delivered BBC Radio’s prestigious Reith Lectures, the first Harvard faculty member chosen to do so since John Kenneth Galbraith in 1966. All four lectures — in which Sandel explored the prospects for a new kind of citizenship and a new politics of the common good — can be streamed online at www.bbc.co.uk.

Photos by Jonathan Ruel and Harvard News Office
ON DEVELOPMENT

Americans Abroad | Dublin

Linda Chavers, a fourth-year PhD student in African American Studies, went all the way to Dublin this past summer to connect with two uniquely American writers, Richard Wright and William Faulkner. Thanks to GSAS funding made possible by alumni contributions to the Graduate School Fund, Chavers attended an intensive weeklong writing seminar at the University College Dublin’s Clinton Institute for American Studies Summer School. The program brings together scholars and graduate students from around the world to engage in wide-ranging discussions and interdisciplinary study of the United States.

Chavers took a course entitled “Memory, Trauma, Mediation” that helped her develop her dissertation, which she says explores “the literary trajectories of violence between Wright and Faulkner — specifically how each author depicts death as resistance in his fiction.”

“The isolation and time to focus on my work, and in such a beautiful setting — it was a very productive week for me. I wouldn’t have been able to do this without the funding,” Chavers says.

How I Spent My Summer Vacation

Alumni support fuels adventures in off-season learning

By Jamie Doyle

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Sound and Vision | Nepal

Stephanie Spray, MTS ’04, a fourth-year PhD student in anthropology, has now spent several summers in a rural Nepali village using multimedia tools to chronicle the lives of the people once deemed “untouchable” by the region’s strict caste system. This summer she worked on a “soundscape” based on various field recordings and on a film documenting the life of a house builder whose own home is literally and metaphorically falling apart.

“I’m very much interested in trying to get intimate portraits of people and their stories in ways that aren’t just ethnographic,” Spray says. “I often think of my work as literature, but on film.”

Alumni contributions made her GSAS funding possible, and that in turn made the work possible. “There’s no way I could have done any of this without the funding I got, “ she says. “I feel lucky because I know a lot of graduate students struggled to get funding this past summer and I was one of the fortunate ones. So I worked really hard.”

Hands-On | Berlin

Joshua O’Driscoll, a third-year student in the history of art and architecture, spent the summer at the Bode Museum in Berlin, cataloging a group of early medieval ivory carvings that date from the 9th to 12th century.

“It was a chance for me to do a crash-course on these objects that have not made it into mainstream research. I discovered how important it is to spend time with objects — to be able to handle and study them up close.”

Because of the support from GSAS, made possible by the Graduate School Fund, O’Driscoll was able to extend his research to other parts of Germany and to Italy, where he viewed similar ivory collections. “The funding gave me real flexibility,” he says. “It let me see how my work developed and supported me where my curiosity and the research led me.”

For information about supporting the Graduate School Fund, and about the critical role of unrestricted giving in the life of GSAS, contact Marne Perreault, director of GSAS Giving, at 617-495-1629 or marne_perreault@harvard.edu.
DECEMBER 1 | SAN FRANCISCO
Dinosaur Forecast: Cloudy — And Other Lessons from Past Warm Climates

Eli Tziperman, Pamela and Vasco McCoy Jr. Professor of Oceanography and Applied Physics, will lead an exploration of the physical processes that affect our climate, on timescales of a few years to millions of years. He’ll discuss the origins of climate variability — the nonlinear, sometime chaotic, physical interaction of the oceans, the atmosphere, and the biosphere.

JANUARY 2010 | LONDON
Gather with UK and European alumni, and greet GSAS faculty and deans, at the London offices of Freshfields Bruckhaus Deringer LLP, 65 Fleet Street. Details are being confirmed; contact gsaa@fas.harvard.edu.

FÉLICITATIONS, FELICITACIONES!
Congratulations to Graduate School alumni and their supporters from France and Mexico! Key scholarship funds in those two countries are celebrating important milestones this year. France is marking the 50th anniversary of the Arthur Sachs Scholarship Fund, awarded to students with French citizenship who are admitted for graduate study to Harvard. And Mexico is commemorating the 20th anniversary of Fundación Mexico en Harvard, A.C., established by Mexican alumni to ensure that all Mexicans admitted to graduate and post-graduate programs at Harvard have adequate financial resources. An agreement among Harvard, the Fundación, and Mexico’s National Council on Science and Technology (CONACYT) has specifically supported PhD students in the natural sciences, social sciences, and humanities at GSAS since 2004.

ALUMNI WEEKEND | APRIL 9–10, 2010
Paul Farmer to deliver keynote; East Asian reunion!

GSAS is planning a weekend of social and intellectual opportunities that will nourish the mind and strengthen connections with fellow alumni and your alma mater. Our keynote speaker will be Paul Farmer, PhD ’90, anthropology, MD ’90, Maude and Lillian Presley Professor of Social Medicine in the Department of Global Health and Social Medicine at Harvard Medical School and a founding director of Partners in Health, the renowned international health-care nonprofit.

A special note to alumni of East Asian programs: The departmental reunion this year (on Friday, April 9) is for you! Alumni of Regional Studies–East Asia, East Asian Languages and Civilizations, History and Far Eastern Languages, and History and East Asian Languages — and alumni of any department whose dissertations focused on East Asia — are invited to stay tuned for more information.