About ten years ago, Madeleine Joullié, G’50, Gr’53, was about to leave a clinic at Jefferson Hospital in Philadelphia following some medical tests. “You’ve got to see the doctor,” she was told. “You’ve got to wait.” Joullié braced for bad news.

“It’s an honor to meet you,” the physician, a woman, greeted her. “You probably don’t remember me.” “No, I don’t, but probably I taught you Organic. “ Joullié has been teaching Organic Chemistry in the School of Arts and Sciences (or its predecessor) since 1953, when she became an instructor. Later she would become the first woman to join the department’s standing faculty.

“I was a bio major,” the doctor reminded her. “I was scared to death of Organic. They told me there was this hysterical woman teaching the course. I came and talked to you, and then you encouraged me. You tutored me on Saturdays. You took me to ACS (American Chemical Society) meetings. You wanted me to be a chemist, but I wanted to be a doctor. You wrote me letters of recommendation....I’m here because of you.”

For 50 years, future doctors, nurses, chemists, and other bright young minds have been taking...
Not long ago, a visiting committee, made up of distinguished scholars from some of the nation’s finest universities, arrived on campus to carry out a comprehensive review of the School of Arts and Sciences. The process, the first in the School’s history, was invaluable in helping us to gauge progress toward achieving the ambitious goals set forth in our strategic plan and in providing us with thoughtful feedback.

The report cites a number of impediments to progress. “Without modern facilities that keep pace with those improvements,” the committee warned, “Penn will fall from the top tier of universities in the scientific disciplines — an unfortunate result during an age when the revolution in biology, medicine, and information are creating opportunities for academic leadership.” For that reason, we’ve made construction of a new life-sciences building a top fund-raising priority. The restoration and modernization of Bennett Hall and the music building are major items on our facilities agenda. Other aging buildings, such as Williams and McNeil, are also in serious need of an upgrade.

An eroded physical plant impedes faculty recruitment and undermines morale. Faculty remain our most vital resource, and we have done a good job building upon the foundations of existing strengths. “Some of the departments in the arts and sciences already rank among the very best of their kind,” the external committee observed, “and its faculty includes scholars and scientists who would be considered valuable additions at any of the leading research institutions.” Still, the reviewers added, the size of our faculty is small compared to other top-tier schools, and SAS “continues to face strong competitive pressures from its peers, some of which offer, on average, higher salaries and, in some cases, more generous sabbatical policies.”

We continue to search vigorously for resources and strategies to enhance our faculty, with one eye on delivering better educational opportunities and the other on enhancing our scholarly reputation.

I am proud of our successes and our progress, and eager to take up the sobering challenge the reviewers set before us: “The School operates in an intensely competitive world with a small set of peers, many of whom have stronger starting points — larger resource bases, larger faculties, smaller student populations, better facilities, higher prestige, stronger histories. Its peers, moreover, are not standing still. They are making significant investments of their own, with the result that the challenges facing the School are going to become more complex rather than less. Thus, finding the revenues to make further advances relative to its peers will be a major undertaking.”

I am grateful for the committee’s hard and careful work, its generous encouragement and frank assessment. “Penn is already an outstanding institution,” the external review concluded. “Enhancing the School of Arts and Sciences’ place as its core will make it even better.” I am confident that SAS and the university possess the abundance of innovative talent and vision, and the hunger for excellence to meet the challenge ahead.
Drawing Water from the Well of Science

Last fall, chemistry undergraduate chair Don Berry opened an e-mail from a young alumnus who was working on a television script. “One of our characters has the chemical formula for fudge brownies,” the former English major explained. To lend the authority of science to their show, the writers wanted to use the actual molecular structure, but their search for the formula had turned up nothing more scientific than a recipe. “So I thought I’d e-mail you, since you’re at my alma mater, and see if you could point me in the right direction.”
The right direction, Berry indicated, was an about-face to reconsider the ill-advised query.

In scientific parlance, a brownie is a “mixture” of many ingredients—from cocoa to nuts—each of which is composed of several chemicals. A formula identifies the kinds and number of atoms that make up each molecule of a uniform substance—H_2O for water; C_2Cl_4 for tetrachloroethylene, the dry-cleaning fluid Nobel laureate Ray Davis, Hon ’90, used to capture solar neutrinos (page 8). “A formula implies there is a single type of ‘brownie molecule,’” Berry wrote back, “which there isn’t.”

Conceding that popular television “mangles” the science “most of the time,” Berry still was surprised a College graduate, even one who had not majored in chemistry, should fail to grasp so basic a concept. “In an ideal world there would be a level of science literacy that all educated people should achieve,” he says, “but I have no idea how to define it,” although, it seems, it should include a grasp of the difference between a recipe and a chemical formula.

Despite the observation that America’s basic research in science, mathematics, and engineering is world-class, its education is still not. America has produced a significant share of the world’s great scientists while most of its population is virtually illiterate in science.”

Almost three-quarters of SAS undergraduates major in something other than the natural sciences, but they must take some science as part of the general requirement for a liberal arts degree. Teaching science to non-science majors is an important priority for the College, but, as several faculty point out, the professional rewards for the scientists who do the teaching are weighted more toward research, grant getting, teaching department majors and graduate students, and running a laboratory. With that kind of reward structure, declared one, teaching the “unwashed masses” is not necessarily in their best interests.

“This isn’t a Penn problem,” College dean Rick Beeman comments, “it’s a national problem. And if it were an easy one, it would have been solved a long time ago.”

Biology professor Richard Schultz proposes one solution. If science were spinach, he contends—and many non-science majors think it is—then undergraduates just have to eat it. At least eight full servings in the course of an undergraduate education: two semesters of biology, two of chemistry, two of physics, a semester of math, and one of statistics. It’s good for them, he insists, and there’s no need to make it more palatable to College students who, according to senior surveys, regularly turn up their noses at the science portion of the general requirement.

Department staples like Biology 101 and 102, says Schultz, prepare future leaders, policymakers, and citizens to make informed decisions in a world where science and technology touch their lives everyday—diet ads, cloning, acid rain and ozone depletion, reproductive technology, consumer and political marketing, genetic fingerprinting and genetically engineered food, global warming, and much more. He is not alone among science faculty in touting the advantages of “real” science courses and lab work for non-science majors. Students need to learn the basics of science, the argument goes, and the best way to do that is through the traditional introductory courses that majors must take.

“I think it would be wonderful in principle,” says Berry of that rigorous ideal. “A good background [in the sciences and math] gives you a firm ability to deal with scientific issues you might come across in daily life or reading the Tuesday [Science Times section of the] New York Times—but I can’t give that to everyone who is at Penn.”

It’s not simply because Schultz’s solution would overload the liberal arts curriculum with science. Education for science majors is structured vertically, with each layer of knowledge stacked on top of a lower tier of prerequisite learning. The intro-level science courses that Schultz would hold.
out to non-majors are aimed primarily at laying the foundation of vocabulary and concepts needed to ascend the major’s many-storied superstructure of courses, which handle increasingly complex ideas and delve more deeply into disciplinary subfields. “Once you go beyond the introductory courses, you’re supposed to jump in with both feet,” remarks Larry Gladney, an associate physics professor.

Many introductory science sequences are also “service courses,” fulfilling requirements for pre-med curricula and other professional programs as well as providing foundational knowledge for other science disciplines to build upon. The classes are among the university’s largest, and the students are highly motivated and work hard.

“If you try to add on teaching [these courses] to students who really aren’t interested in science but are coming in with completely different motivations for what they’re supposed to get out of the course—I suppose it’s too overloaded as it is to do that right.”

Gladney touches on one of the more vexing issues in teaching science to non-scientists. Many undergraduates want merely to fulfill the science sector of the general requirement as painlessly as possible. Others are genuinely interested in learning more science but want something more engaging and relevant than the groundwork of details and jargon that majors need. Many are also insecure about their ability to handle the math—or else are bored by it.

“We feel as though if you put physics in the title [of a course],” Gladney complains, “the number of people who will actually voluntarily sign up for it is approaching zero.”

“My soundbite on this,” Beeman puts in, summarizing the annual senior survey, “is that we found maybe a third of our students enter Penn fearful and ignorant of science and leave Penn fearful and ignorant of science.”

Some solutions

I think the notion of minimalist literacy in modern science is a responsible notion,” affirms Bob Giegengack, chair of earth and environmental science. “I don’t know how you do it, and I don’t know how you get this into someone who is determined not to receive it.”

Some SAS faculty think they know how, and a few have developed science courses aimed at teaching non-science majors.

Physics professor Gino Segre distinguishes two possible approaches: exploit in some depth a particular field or range across a number of sciences, stringing them together along a single theme. His new spring-semester course on The Ups and Downs of Temperature embraces the latter. “It’s my personal attempt to . . . teach a course that has a little bit of lots of different kinds of science,” he says.

The main text for the course is his new book, A Matter of Degrees, a narrative for general readers that probes “what temperature reveals about the past and future of our species, planet, and universe.”

The book—and the course—use temperature as the “connecting thread” that winds through some of the great scientific questions of the last century: the origins of life, DNA, the Big Bang, plate tectonics, the birth and death of stars, the microcosm of subatomic particles, and other big ideas that Segre wants...
Biology professor Sally Zigmond chooses the discipline-in-depth pole of Segre's dichotomy. For six years she has taught and refined a course that moves along the front-lines of scientific discovery: What Every Lawyer, Businessman, and Citizen Needs to Know about Molecular Biology. The course looks at genetics, gene expression, cancer, the immune and nervous systems, and viruses with forays into bioethics, evolution, and genetic engineering. The main resource for the class is a basic biology text, but Zigmond mixes in plenty of readings from what booksellers call popular science literature as well as articles from Scientific American, Discover magazine, and other substantive sources of science reporting. “I try to get students interested in reading about science in ‘lay’ texts that are well written and palatable to them,” she explains.

She also recognizes and takes advantage of students’ strong writing skills, assigning frequent papers—five short, two long—in which they must trace out the linkages holding together the evidence and conclusions in scientific studies. Almost all her students say they take the course to fulfill the science requirement, but Zigmond measures success by how excited they become over some of the ideas. “What I want is for them to come out with some kind of increased understanding of modern biology and how it impacts their life,” she remarks, “and enough of a foundation and interest that they will continue to read the New York Times science section” or other science news.

Ingrid Waldron, another biology professor, believes all non-science majors should develop some perspective on how scientists see the world. Students need to “understand discussions of science enough to be competent citizens, competent healthcare consumers, etcetera,” she argues. “What I want is to find something they are interested in and use that as a hook to get them to learn some of the other things that I, as a professional scientist, want them to learn.”

Waldron reels in groups of students on a line baited with Biology of Human Reproduction and Sex Differences, a course cross-listed with women’s studies. It discusses anatomy, genetics, hormonal control, infertility, contraception, sexual behavior, sexually transmitted diseases, and other health-related topics. Students are eager to learn
basic concepts of molecular biology and rudimentary statistics, she finds, if it will help them understand better the issues that concern them personally. Waldron uses a mix of popular press articles and scientific papers to make students more adept at evaluating scientific information—how scientists put together experiments and what makes a persuasive study. The approach, she stresses, leaves out lots of the detail and complexity that science majors would be responsible for. “I want them to be aware that what they’re getting is a version that’s comprehensible to them, starting from where they’re starting.”

the E word

Ask science faculty to define a minimal level of science literacy, and you’ll commonly hear them invoke as a standard the ability to understand and critique the Tuesday Science Times section of the New York Times. Many seem to respect the caliber of writing and read it themselves to keep abreast of sciences outside their own specialties.

Gina Kolata, a science writer for the Times, wants readers to understand “the logic and the big point” that she’s writing about. “One of the things that you can get from reading the Science Times,” she says, making a point that faculty keep coming back to, “is an appreciation for how to reason. And I think that it carries through into every aspect of your life.”

Kolata talks like an educator but she thinks of herself more as an entertainer. She’s not trivializing her job but pointing up how science, like reading a good book, going to a museum, or any other form of intellectual stimulation, can be pleasurable, a kind of entertainment. Stripping away the jargon that obscures the science for the nonscientist, she tells stories about the experiments, the chain of evidence, the reasoning to results, and the scientists behind the latest strides forward. “If I can’t make you read it,” she asserts, “it doesn’t matter how important it is. If you stop after the first paragraph, it doesn’t matter how interesting it is.” That’s why she uses the “dinner table test” to see if her themes and writing strategies can draw family and guests into more than polite conversation. It’s Zigmond’s excitement measure of a successful course.

For some of the science faculty, their first, memorable encounter with their discipline felt like a kind of entertainment. Biology professor Dan Janzen, who teaches Humans and Their Environment for non-science majors, rhapsodizes about his experience taking Biology 101: “When I was a freshman, you know, it was the most—it was like going to the movies. It was the most marvelous thing that ever happened to me.”

It’s important, he says, not to “force feed” science but to convey to nonscientists a sense that the work of science is fun. “I tell Just So Stories to undergraduates about how the world works,” is how he describes his approach. “What I really am is entertainment. . . . The only way you’ll get any of that [scientific knowledge] into them is by making it interesting in the way a TV program is interesting or a movie is interesting or what your uncle’s telling you over Thanksgiving dinner is interesting.” He tries to get students to look at their surroundings more closely and to think about what they observe with stories about how cars, for instance, would be different if people were shaped like giraffes. The narratives he concocts can lead students to a sense that the everyday, just-so world is quite surprising—extraordinary even—when you understand it from the point of view of science. And he’s delighted when a student comes back to him with a story about the antics of a squirrel they’d been passing for years but had never noticed before.

Biology chair Andy Binns agrees that “there are good courses [in the curriculum] for our non-science majors, but there probably aren’t enough.” Still, adds chemistry professor Marsha Lester, who’s putting together a new course on environmental chemistry, “it’s just an obligation that we have as

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catching the sun

Ray Davis' neutrino "telescope" in the Homestake mine measured 20 feet in diameter and 48 feet long.
Nearly 40 years ago, physics professor Raymond Davis, Jr., Hon'90, went almost one mile underground to study the Sun. He used 100,000 gallons of dry-cleaning solution as a telescope. For his trouble, the Royal Swedish Academy in 2002 gave him a Nobel Prize.

Davis was the first scientist to detect solar neutrinos, an achievement that proved the Sun shines because of nuclear fusion. He shares the prize in physics with Masatoshi Koshiba of the University of Tokyo for “pioneering contributions to astrophysics, in particular for the detection of cosmic neutrinos.” Riccardo Giacconi of Associated Universities, Inc., was also named for his work in X-ray astronomy.

When hydrogen atoms in the solar core fuse to make helium, the reaction also releases neutrinos, elusive particles that stream away from the Sun in a cosmic blizzard. Neutrinos are about as close to nothing as you can get without actually arriving. Zillions pour over the Earth every second; almost all of them pass through the planet as though it weren't there, making them nearly impossible to detect.

Davis' solution was ingeniously simple: 600 tons of tetrachloroethylene, a chlorine-rich liquid. The giant tank was placed at the bottom of the Homestake gold mine in South Dakota to shield it from cosmic particles more interactive than neutrinos. A collector counted argon atoms, which are created when a neutrino strikes a chlorine atom. Only ghost-like neutrinos, Davis reasoned, could pass through that much rock to reach his apparatus deep underground. Over a period of 30 years, he managed to catch about 2,000 neutrinos from the Sun.

The accomplishment settled one question, but raised another: Why did his experiment capture only a third of the neutrinos predicted by theorists? The discrepancy between the measurements and the yield expected by the standard solar model became known as the “solar neutrino problem,” spawning decades of neutrino astrophysics, which has now come to fruition.

Scientists from Penn’s physics and astronomy department are on the forefront of neutrino research, contributing to discoveries at some of the world’s leading neutrino observatories. Professor Ken Lande has carried out research with Davis at the Homestake facility since 1972, and emeritus professor Alfred Mann has worked with Masatoshi Koshiba’s group in Japan on the Kamiokande detector.

In 1999, an international team of scientists, which included SAS professors Eugene Beier, Douglas Cowen, and William Frati along with some graduate students, began operating a giant neutrino detector more than a mile below ground in a Canadian nickel mine. The Sudbury Neutrino Observatory (SNO) uses an acrylic sphere that holds 1,000 tons of heavy water, surrounded by 10,000 photo-sensors, which detect neutrino collisions.

With that more sophisticated instrument, the SNO researchers found that the solar neutrinos thought to be missing all these years had been there all the time. During the eight-minute journey to the Earth, about two-thirds of the electron neutrinos created in the Sun’s core morphed into tau or muon neutrinos, which Davis’ telescope was not designed to “see.”

A major implication of the SNO discovery that neutrinos “oscillate” from one “flavor” to another is that to do so, they must have mass. Since the miniscule particles are the most numerous bits of matter in the cosmos, new questions about what this result means for the fate of the universe are now open for exploration. And some basic assumptions of particle physics, which posited a massless neutrino, are being rethought.

“SNO has hit two homeruns,” observed Princeton astrophysicist John Bahcall, who provided major theoretical underpinning for Davis’ work. “The first is the precise confirmation of solar theory and the second the proof of new physics that changes the textbook description of neutrinos.” Discover magazine ranked the SNO breakthrough as number two in its 100 Top Science Stories of 2002.

With his innovative neutrino telescope, Ray Davis opened the book of neutrino astronomy. Notes Bahcall of the SNO discoveries, “It closes one chapter and opens a much richer book.”
ON CAMPUS

Campus Perspectives: War with Iraq

Weighing Both Sides
As the prospect of war with Iraq became a reality, SAS faculty and students came together to examine the pros and cons. The Christopher H. Browne Center for International Politics sponsored a series of talks with Stephen Walt, academic dean of Harvard’s Kennedy School of Government, addressing “Why War with Iraq is Unnecessary and Unwise,” and Kenneth M. Pollack of the Brookings Institution, author of The Threatening Storm: The Case for Invading Iraq, who presented the opposing viewpoint. A review of Pollack’s book by Merriam Term Professor of Political Science Ian Lustick appeared in the March 17 issue of The Nation. Lustick also recently appeared on ABC News’ Nightline.

End of the Beginning?
A symposium entitled “Iraq: The End of the Beginning?” brought students and faculty together to debate the unfolding invasion and the likely repercussions for ethnic relations, humanitarian disaster management, stability in the Middle East, and U.S. foreign and security policy. Sponsored by the Solomon Asch Center for Study of Ethnopolitical Conflict and SAS, faculty participants were political scientist Brendan O’Leary, the Stanley I. Sheerr Endowed Term Chair in the Social Sciences and Asch Center director; Ian Lustick, Merriam Term Professor of Political Science and associate director of the center; history professor Arthur Waldron, Lauder Professor of International Relations; Bruce Kuklick, Nichols Professor of American History; and Nubar Hovsepian, associate director of the Middle East Center.

On the Road
In January, three busloads of Penn students, faculty, and staff joined an antiwar protest in Washington, D.C., to encourage public dialogue on the war. SAS associate dean Walter Licht, who participated in the protest, stated, “Millions of people are marching in protest throughout the world. . . . In the absence of substantive critique in the media and minimal opposition from the Democrats, opponents have no alternative but to take to the streets to stop this runaway history.”

Show Business
How do you make mega stars like Julia Roberts and Mel Gibson? Jeffrey Berg, Par’06, chairman and CEO of International Creative Management, Inc., came to campus to talk about his 30-plus years as a talent, literary, and film agent for one of the leading agencies in the U.S. and Europe.

Goldstone Forum
The third annual Goldstone Forum, sponsored by the Philosophy, Politics and Economics Program, was held on February 26. This year’s event featured Nobel laureate Gary S. Becker of Chicago University, who spoke on “Knowledge as Human Capital in a Modern Economy.” Becker is a pioneer in the use of economics to analyze human behavior. The Goldstone Forum was established in 2001 by SAS overseer Steven F. Goldstone, C’67.

Granoff Forum
James D. Wolfensohn, president of the World Bank Group, spoke on “Poverty Reduction: The Future of Global Development and Peace” at the 2003 Granoff Forum. While on campus, Wolfensohn met with MA and MBA students in the Lauder Institute of Management and International Studies and discussed policy with the faculty and doctoral students in the economics department. The Granoff Forum was established in 2000 through a generous gift from Michael Granoff, C’80, to offer leading decision makers an opportunity to examine globalization and its impact with the students and faculty at the University of Pennsylvania. Previous forum speakers include President Bill Clinton and George Soros.

RESEARCH FRONTIERS

David Roos, Merriam Professor of Biology and director of Penn’s Genomics Institute, was part of an international team of scientists who recently decoded the genome of the malaria parasite, Plasmodium falciparum. Roos’ group, in collaboration with genetics research professor Chris Stoeckert and colleagues at the Penn Center for Bioinformatics, developed the parasite genome database, an online resource (http://PlasmoDB.org/) that receives more than 15,000 hits per day from more than 100 countries. A CD version has been distributed to researchers worldwide who lack reliable high-speed Internet access. This breakthrough research has been published in Nature, highlighted in Science, featured as the cover story in the major annual compendium of genome database resources, and listed by Discover magazine as one of the top science...
stories of 2002. Roos' laboratory has also been a leader in mining the parasite genome database to develop new targets for antimalarial drugs. He recently received a Senior Scholar Award in Global Infectious Diseases from the Ellison Medical Foundation.

Biology professor Nancy Bonini averted the onset of a neurodegenerative disease in fruit flies by administering medication to flies genetically predisposed to a disorder similar to Parkinson's. Her findings, which have significant implications for the treatment of human diseases like Parkinson's and Alzheimer's, were published in the November issue of *Nature Medicine*.

**FACULTY AWARDS**

The Franklin Institute awarded Franklin Medals to Robin Hochstrasser, Donner Professor of Physical Sciences, for his use of ultrafast lasers to study the structure of molecules in solution and to physics and astronomy research professor Raymond Davis, Hon'90, for his work in neutrino physics. Davis received the Nobel Prize (story on p. 8) in physics for pioneering work in neutrino astronomy.

**STUDENT AWARDS**

Adam Zimbler, a senior in the Huntsman Program in International Studies and Business, was one of 40 students to receive a Marshall Scholarship this year. This award from the British government provides American students with two-year scholarships for graduate study in the United Kingdom. Zimbler will pursue a master of philosophy degree in politics at Oxford University.

**Dean's Scholars**

The 2003 Dean's Forum, which was to feature two-time Pulitzer Prize-winning author David McCullough, was cancelled due to the “snow storm of 2003.” Initiated in 1984 to celebrate the richness of the arts and sciences, the Dean's Forum offers the University community and the public the opportunity to meet with leading intellectual figures who exemplify the liberal arts tradition. At the time of the lecture, the SAS Dean's Scholars are recognized for their outstanding academic performance and intellectual promise.

**Undergraduate Dean's Scholars**

Laura Chang
Dominic DiPalantino
Peera Jaru-Ampornpan
Eric Knibbs
Jason Lewis
Erica Miao
Avshalom M. Rubin
James R.A. Shaw
Katie Turner

**Graduate Dean's Scholars**

Christopher M. Adams
Veronica E. Aplenc
Erin Fay DiMauro
Ömür Harmansah
Aislinn Melchior
Dierdra Reber
Jessica Rosenfeld
Erika Summers-Effler
Sayumi Takahashi
Allison R. Tumarkin-Deratzian

**College of General Studies Dean's Scholar**

Charles N. Lord

**ALUMNI**

Each year, SAS alumni from a variety of professions return to campus to speak and share their professional experiences with students. These alumni are representative of the broad—and often surprising—range of career opportunities that await College graduates.

**Leadership Lessons**

Lively discussions and insider info continue to make the Robert A. Fox Leadership Program’s Lessons in Leadership series a success. In the fall, Aliy Zirkle, C'92, mushed onto campus to talk about her career as an Alaskan dog breeder and the experience of being the first woman to win the Yukon Quest Sled Dog Competition. She continues her quest for first place in the Iditarod. After Zirkle came David Montgomery, C'68, WG'70, president and CEO of the Philadelphia Phillies, whose job this year included getting a new stadium built and signing Jim Thome as the ball club's first baseman. Next came Richard Kelson, C'68, executive VP and CFO of Alcoa, Inc., whose responsibilities include information technology, business support services, e-business activities and environment, and health and safety areas.

**Author Photo**

Aliy Zirkle
Farah Jimenez
The spring brought John J. King II, C’72, a senior VP at Rosetta Inpharmatics, Inc., to talk about working as a leading provider of genomics and proteomics technology for the pharmaceutical and biotechnology industry. Marjorie “Midge” Rendell, CW’69, U.S. Court of Appeals judge and First Lady of Pennsylvania, spoke about a career in law and politics. Jean Chatzky, C’86, spoke about her career as editor of Money magazine and financial advisor for the Today Show. Finishing up was Alan Hassenfeld, C’70, CEO of Hasbro, whose family toy manufacturing business has kept Mr. Potato Head on store shelves for 50 years.

Rachael Goldfarb, C’99, Michael Feinberg, C’91, and Farah Jimenez, C’90, L’96, came back to campus to help the College launch a new publication to assist students in preparing for the wide range of career opportunities that await them. The brochure, Where will you go from here?, is online at http://www.college.upenn.edu/career/careers.pdf.

A panel discussion on careers in finance gave SAS students a glimpse of what their liberal arts degree prepares them to do. Gerry Scott McClure, C’86, director of BV Group Ventures LLC; Gordon Paris, C’75, WG’77, managing director of Berenson Minella & Company; Jonathan Rosenstein, C’86, senior managing director of Trilogy Capital; and Jeff Solomon, C’88, principal with the Ramius Capital Group, talked about their paths to finance careers.

Art collectors Robert Lehrman, C’72, and Katherine Stein Sachs, CW’69, and her husband Keith Sachs, W’67, are among the alumni who have opened their private collections to art history students studying exhibition planning and design. The course, taught by Jennifer Hirsh, C’93, combines art history and theory with visits to public and private collections, galleries, and alternative display spaces. Students then curate their own exhibition at Penn’s Institute for Contemporary Art, guided by ICA’s Whitney-Lauder Curatorial Fellow. The exhibit, (show), runs from May 3 to July 27.

Distinguished Alumni
The 2003 Distinguished Alumni Award was shared by Stanley Prusiner, C’64, W’68, Hon’98, and Melinda Wagner, Gr’88. Prusiner won the 1997 Nobel Prize in medicine for his discovery of the prion, a rogue protein that is unlike anything else previously known to cause infectious disease. Melinda Wagner received the 1999 Pulitzer Prize in music for her Concerto for Flute, String, and Percussion.

Philadelphia’s Book
The City of Brotherly Love has chosen a book by Lorene Cary, C’78, G’78, a teacher in the English department, for One Book, One Philadelphia, a program to unite Philadelphians in the reading and discussion of a single book. Cary’s The Price of a Child tells the story of a young slave who escapes while traveling through Philadelphia, and “rides” the Underground Railroad to freedom. The Penn Humanities Forum participated in the project by hosting a town meeting on April 8 with Cary, Penn president Judith Rodin, CW’66, Philadelphia mayor John Street, Richard L. Fisher Professor in English Wendy Steiner, and Duke University professor Houston Baker, Par’93.

College Alumni Society
The College Alumni Society, Penn’s oldest alumni body, fosters the intellectual relationship of alumni with the University and provides support to undergraduates in the College and to the School at large. Led by president Steve Sokolow, C’77, and vice president Laurie Nelson, C’91, the society offers programs such as a recent talk on Woodrow Wilson by Bruce Kuklick, C’63, Gr’68, Roy F. and Jeannette P. Nichols Professor of American History, and a discussion of the Bread Upon the Waters scholarship program by Elin Danien, CGS’82, G’89, Gr’98.

Philadelphia Music!
Join us Alumni Weekend for Philadelphia Music!, an examination of the city’s contributions to jazz, gospel, and rhythm and blues. Assistant professor of music Guthrie Ramsey will provide commentary and perform with some of Philadelphia’s finest musicians. Friday, May 16, from 3 to 5 p.m. in Irvine Auditorium’s Amado Recital Hall. For more information and to register, look up the 2003 Alumni Weekend online at http://www.alumni.upenn.edu/alumni_weekend2003/.
CHANGING OF THE GUARD

Richard R. Beeman, dean of the College of Arts and Sciences and the history professor most likely to teach dressed as Davy Crockett or Thomas Paine, will step down as dean. Beeman’s five-year tenure as head of the College produced several initiatives, including a revamping of the advising system and the introduction of the Pilot Curriculum, an experiment in curricular renewal. He will spend next year at Oxford University as the Distinguished Harmsworth Professor of American History.

Rebecca Bushnell, professor of English and current associate dean for arts and letters in SAS, will step in as the new College dean. Bushnell has served as associate dean for five years, overseeing the School’s humanities departments. A scholar of early modern English literature, culture, and history, she came to Penn in 1982 and is the recipient of the Lindback Award for Distinguished Teaching.

SAS Welcomes New Overseers

Jon Avnet, C’71, Par’02, film producer and director
Christopher J. Carrera, C’88, partner, Goldman Sachs
Daniel Dosoretz, Par’99, Par’04, president, CEO, and COO of Radiation Therapy Services
George H. Walker, C’91, W’91, WG’92, managing director, Goldman Sachs

MOVING FORWARD THROUGH PHILANTHROPY

New Home for McNeil
The search is on for an architect to develop plans for a new building, on the corner of 34th and Walnut streets, to house the distinguished McNeil Center for Early American Studies. Construction and upkeep of the new building has been made possible through a $6 million gift from the Barra Foundation and Robert L. McNeil, Jr.

Writing Right

If you would not be forgotten,
As soon as you are dead and rotten,
Either write things worthy reading,
Or do things worth the writing.
—Benjamin Franklin

Following Franklin’s dictum, SAS has created the Center for Programs in Contemporary Writing to unite Penn’s three key writing resources: the skills-based Critical Writing Program, the Creative Writing Program, and the Kelly Writers House, a thriving extra-curricular writing community. Kelly Family Professor of English Al Filreis directs the new center. The programs will help students organize and articulate their thoughts through writing; develop their own style and enjoy the writing of others; and interact with emerging and world-renowned writers. The center’s new home at 38th and Walnut will offer a seminar room with state-of-the-art instructional technology, equipment for digital editing and archiving, and convenient access to the nearby Writers House.

Professorships in Criminology
The Jerry Lee Foundation has endowed two new assistant professorships to recruit faculty in the field of criminology. Dean Preston and Jerry Lee, president of Philadelphia radio station WBEB FM, recently signed documents establishing the new chairs, which will be closely affiliated with the School’s Jerry Lee Center of Criminology. The center was established in 2001 by Lee’s foundation, which has given more than $7 million to the study of criminology at Penn.
Michael Eric Dyson asked his mom long ago. More questions piled one on top of the other with growing urgency: Why can’t I go outside to play? Why is the city on fire? And why are people running up and down the street with televisions and stereos?

Last fall, Michael Eric Dyson, the Avalon Foundation Professor in the Humanities, came from DePaul University to join the religious studies department in SAS. He also holds an appointment in the Center for Africana Studies.

The city he watched burning as a little boy was Detroit. It was the hot summer of 1967. By the time the fires were put out, 43 people were dead, over 7,000 had been arrested, and 14 square miles of city neighborhoods had been looted and burned. Less than a year later, Martin Luther King would be murdered. He remembers the visceral "Humpf!" his father let out when news of the killing was announced on TV.

Dyson grew up in a working-class, poor-black community, where the schools and churches endowed children with a "sense of somebodyness." He recalls, "We took for granted that black folk could achieve and love each other without hating anyone else, including white brothers and sisters." His father labored in an automobile factory, and when the kids were old enough, his mother went to work as an aide in the public schools. With five boys in a three-bedroom house, it was a struggling but intact family.

Up until the '67 riots, young Dyson had given almost no thought to matters of race. "But that's when it all came crashing in on me," he says. "I was just aghast at the destructive cycle that had ripped through our neighborhood. It was so perplexing. Why is it that skin color should make that big a difference?" The questions have been coming hard ever since, and Dyson says he's just trying, as the hip-hoppers say, "to represent." ("Tell it like it is," for older alumni.)

MANY SELVES, MANY KNOWLEDGES
Before becoming an Ivy League professor, Dyson had donned a number of identities: ghetto golden boy, prep-school expellee, knife-toting gang
member, teenage welfare dad, factory worker and odd-job man, preacher, philosophy major in a white Southern Baptist college—he lived out of a car for a month—Ivy League Ph.D., prolific writer of popular books, public intellectual. He still preaches most Sundays and remains an ordained and committed Baptist minister, but he doesn’t have his own pulpit. He was booted out of a church for trying to ordain women deacons, and he likes to “rub against the feathers of [his] Baptist brethren” by advocating for gays and lesbians.

“I view myself as a work in progress,” he says, “an improvised expression of identity that is constantly evolving.” The glint in his eye is part mischief and part take-all-comers militancy. As a professor and public intellectual, he revels in playing the “paid pest.” The record of his publications and appearances suggests it is money well spent. In print, his byline appears in journals of religious opinion, mainstream newspapers, scholarly publications, and mass-market magazines, not to mention eight mostly brisk-selling books. He is also sought after on the national lecture circuit and by TV anchors and radio talk-show hosts, and the press often looks him up for sound-bites on hot-button issues of race.

A MORE MILITANT KING

Dyson has written books about more palatable African American icons—Malcolm X and Martin Luther King — but, if they are more acceptable to mainstream sensibilities, it is because their message has been robbed of its discomforting sting. Writes Dyson, “King’s true legacy has been lost to cultural amnesia.” The civil rights leader began his activism as a liberal reformer who believed that racism could be overcome with appeals to the conscience of white society. By the time of his assassination—when the civil rights struggle had moved from the boldface racism of the South to confront a more subtle and implacable racism that held Northern ghettos in its grip—King’s views had darkened.

“He later concluded that most Americans were unconscious racists,” Dyson contends, and that race, poverty, and war are intimately connected, thus challenging the deep-held belief that American capitalism and its overseas exploits were righteous undertakings. As one of the earliest critics of the war in Vietnam, “King shattered the prism through which America viewed itself as a world power, and he linked its global expansion to forces of oppression that made it a bully. . . . This is not the King we choose to remember.” Instead, we honor him with a national holiday that sentimentalizes the black orator’s oft-cited “dream” of a nation, where people “will not be judged by the color of their skin but by the content of their character.”

“[W]e have frozen King in a timeless mood of optimism that later that very year he grew to question,” Dyson writes. We listen selectively to just 34 words of that speech and forget the nightmare of

THE CONTRADICTION BETWEEN THE PRINCIPLE OF DEMOCRACY AND ITS PRACTICE HAS BEEN MOST POWERFULLY GLIMPSED THROUGH THE LENS OF RACE.”
What we’re trying to do through African American studies is teach the broader world what kind of issues have been at the heart of this experience,” notes Michael Eric Dyson, a new faculty member with the Center for Africana Studies. “We want to open up vistas and horizons of understanding that educate and enlighten, because so many of us are unmolested by enlightenment.”

The earliest study of matters relating to African American perspectives at Penn (and elsewhere) took place without the benefit of formal courses. The first such course at Penn was The Condition of the Negro in Philadelphia, taught by sociology professor Samuel Lindsay in 1896. That same year, W.E.B. Du Bois came to the university to study the lives of blacks in the city’s seventh ward, ground-breaking research that yielded his epochal work The Philadelphia Negro.

By the late ’60s, in the wake of the preceding decades’ civil rights struggle, new history courses began to appear in Penn’s curriculum: The Negro in America, Controversial Topics in Negro History, and Black History. Writer John Edgar Wideman, C’63, then an associate English professor, began to put together the university’s first African American Studies program. “The revolution called the ‘Black Studies Movement,’” says Tukufu Zuberi, the current director of the Center for Africana Studies, “transformed our assumptions about the need to simply study Western society in order to know civilization.” Today, the center offers over 30 courses each semester, mostly through SAS departments.

Pain and betrayal, of segregation and deprivation that it also recounts. Conservatives have ingeniously taken over the “brilliantly disturbing rhetoric” of I Have a Dream, according to Dyson, twisting the meaning into something its author never said, and thereby repudiating the legacy of King.

California’s Proposition 209, which eliminated affirmative action in college admissions and job applications in 1996, “pilfered” the language of the 1964 Civil Rights Act: “…the state shall not discriminate against, or grant preferential treatment to, any individual or group on the basis of race, sex, color, ethnicity…” When each piece of legislation was written, Dyson points out, the “racial presumptions and practices were radically different.” In ’64, segregation reigned and the law was intended to counter the social heritage of slavery and Jim Crow. The university’s treatment within the California law assumes that equal opportunity is no longer a “dream,” despite the poverty and disadvantage that afflict great numbers of African Americans. “As a presumed achievement,” Dyson writes, “color-blindness reinforces the very racial misery it is meant to replace.”

King himself was critical of the self-help, “bootstraps” approach to achieving equal opportunity that conservatives favor and a strong advocate of affirmative action. The fundamental aim of race-conscious remedies is the correction of past and present inequities—the positioning of historically excluded minorities to better access opportunities that most have by virtue of being American citizens. “You have to take race into account,” Dyson maintains. “If race has been taken into account to hurt us, then it must be taken into account to help us.”

On the birthday of Martin Luther King earlier this year, President George Bush announced that his administration would file briefs with the Supreme Court challenging admission policies at the University of Michigan. Calling the university’s affirmative action practice a “quota system,” the president declared, “Our Constitution makes it clear that people of all races must be treated equally under the law.”

Comments Dyson, “The ingenuity of the right wing has been to appropriate the language of civil rights and turn it against the very people who fought for it to become real.” In choosing the birthday of the slain civil rights leader to make his proclamation, Bush acknowledged the power of King’s legacy while at the same time abjuring it, casting remedies as “quota systems that use race” to parcel out jobs, education, and other advantages. “This is the perverse genius of making King the patron saint of the movement to destroy affirmative action.” In these circles, King is portrayed as a color-blind loyalist at all cost. Perhaps the most tragic
price paid for viewing King in this manner is that racial justice is trumped under the baleful banner of ‘true equality.’

RACE AND TERROR

We can’t pretend that race is not a significant factor in social relations, asserts Dyson, that we are so color-blind nobody even notices race anymore. As evidence he offers an incident from his own life, which demonstrates in living color how being black dogs his movements through society.

Unsure about why he had been stopped by police late one night, he protested, “Sir, I’m a Baptist minister and a Ph.D. student at Princeton.”

“Yeah, and I’m the damn president. Now get out of that car and walk this line.”

Alarmed by the hostility in the officer’s voice and alert to the brutality visited upon black men at the hands of police, he exited the car with unease. No violence came of the incident, but Dyson was shaken by the intimidation.

“If you never experience that every day,” he explains, “you don’t really understand it—that kind of terror, that kind of not-knowing, that kind of arbitrary violence. If you’ve never had that experience, you don’t understand the flinching that comes when the voice is raised. . . . That’s why 9-11 was so interesting to me. I think for the first time many white Americans knew what it meant to be black. . . . Your life can be going swimmingly. You’re doing all the right things: getting your education, working very hard, living by the American creed. At any moment, the terror of race can impose itself on your life with lethal intensity, and it can just crush you. That’s what terror does, and that’s the experience of many black people for most of our history in this country.” He can recite a list of names from recent newspaper accounts of black men who’ve been viciously maltreated by police, and he adds, as far as equal opportunity goes, the higher echelons of American society remain disproportionately white.

“I don’t think the president is an evil man,” Dyson stresses. “I think he’s probably a nice guy with good intentions,” but many whites “have consciences that have been spared strong scrutiny by a willful innocence.” The only blindness that pervades American society, he contends, is a racial naiveté, an incurious and complacent ignorance of how white-skin privilege is deeply inscribed in the American contract. “[A] crucial function of whiteness is to blind itself to its worst tendencies, its most lethal consequences,” he writes in Open Mike, one of his latest books. “[E]ven if the intent to harm does not exist, the malevolent consequences of white supremacy are just as real.”

Americans’ failure to grasp why extremists from the Arab world should hate us and want to harm us is a version of this culpable blindness, he observes. “We have been doing some nefarious, exploitative stuff globally, and we have not paid the price for it on our own soil. . . . It just shows how strong we were—we didn’t even feel it necessary that we should understand why they didn’t like us because we didn’t have to deal with the consequences. Now we have to deal with the consequences. It’s similar to when white society finally felt the reprisal of black people in riots.”

A BIG DIFFERENCE

Dyson’s self-identification as a “paid pest” compels him to keep hammering away at issues of race in writing, in speaking, in teaching, and in the scattering of soundbites like seeds of hope. A preacher-professor, he thirsts for justice, and he seeks to make it happen by opening eyes and clarifying, for anyone who will listen, the structures of oppression. “Whiteness invests in its own ignorance and denial,” he declares. “It protects our conscience from being torn and shredded by the sharp edges of knowledge.”

Dyson remains clear-eyed about the dark history of race in this country, but he holds pessimism about the future in abeyance. Racial beliefs and behaviors are learned and therefore reversible. A lifetime of socialization and learning is a fragile thing, he notes, and can be wiped away—for good or for ill—by a single experience. “I reserve a measure of unknowing [about the future], in deference to the fact that unexpected things can ambush you and give you a sense of a joie de vivre.” It could be just a little thing, like the time he walked into a soul-food restaurant with his wife and started kidding with a group of white people seated at a big table strewn with food.

“I’m so hungry,” he said to them. “I want some of that chicken ya’ll got right there.”

“Oh, sure. You can have some,” they laughed.

He sat down with the group, and two white women from another table, with more food than they could eat, contributed their leftovers: catfish, chicken wings, ribs, and greens to the spur-of-the-moment feast.
“No way was I going to compromise my project or artistic vision for him.”

DESPERATELY SEEKING THE SELF
Freshman Creates Self-(and Other) Portrait

My photos for my self-portrait project turned out pretty well,” freshman Laura Goldberg told her boyfriend back home in Cleveland.

It was November, and she was working on a project for her class, The Self-Portrait. The interdisciplinary course pulled apart some of the tricks and props that artists use to represent themselves in literature, art, drama, and film. Besides the usual analytic work, the class had an end-of-term creative project.

“Cool,” replied the boyfriend. “I’m glad that worked out.”

“I hope you don’t mind,” she followed up, “The photos are nude.”

“Oh no!” he exclaimed. “If someone else sees you nude, what does that say about you?”

In the conflagration that went up, the boyfriend’s protestation posed a query that was surprisingly pertinent. What others thought, it turned out, became an integral part of the “self” Goldberg tried to portray in her portrait.

“We wanted the students to experience what it would be like to try and do this thing they’d been analyzing all semester,” explains instructor Catriona MacLeod, an associate professor of Germanic languages and literature. Tina Lu, an assistant professor of Asian and Middle Eastern studies, and Victoria Coates, Gr’98, a lecturer in art history, co-taught The Self-Portrait with MacLeod.

An avid photographer, Goldberg decided early on to use photos of herself. She posed nude because clothing choices might reveal something of her personality. “You just see a body,” she explains. “You’re not gonna know there’s a real me, an ‘essential self,’ if you just see the outside of me.”

Goldberg, who has “horrible” eyesight, also blurred the images—a montage of body parts—to mimic how the world looks to her when she’s not wearing contacts. Initially she planned to fill in the background with painted objects that “represent me” and call the work 20/400, the measure of her visual acuity. Then her boyfriend “flipped out.”

“No way was I going to compromise my project or artistic vision for him,” she insists, describing the two-hour phone discussion, the tears, the heated back and forth.

After confiding to her journal the argument with her boyfriend, Goldberg lifted some of the recurring lines she uttered in her defense and used them as a red-over-black graffiti background for the photographs. “I’m innocent,” plead the red words. “I didn’t mean to.” In black: “such a big deal;” “it’s just a school project;” “it’s art;” “will you still love me?”

In the fire of feelings, Goldberg found that her self-portrait was “tainted” by this other self, so she called it Tainted by Love. “The whole project was changed because of ‘love,’” she elaborates. “My emotions and project were both tainted by someone close to me.”

If you look closely at a bottom corner of Tainted, in dark-blue lettering obscured by overwritten text, you can make out an “I’m Sorry.”

Goldberg got an A in the course, and her boyfriend still loves her.
"At first they tried to discourage me and make fun of me, but when they realized that I was doing well, they wanted to copy my class notes."

Madeleine Joullié
Continued from Front Page

Chem 241 and 242, or some earlier versions, from Joullié. In 1978, the ACS awarded her the Garvan Medal, in part for "devoted and inspirational teaching." At the time, Chemical & Engineering News reported that Joullié was teaching more than 250 students each semester. "Every time I go to the hospital, there's a good chance that I'll run into someone I taught, but I don't remember what grade I gave them."

When the Nobel committee announced that alumnus Michael Brown, C'62, M'66, Hon'86, had won the 1985 prize for medicine, Joullié quickly called the College office. "Thank God," she muttered when they told her Brown had received a good grade in Organic Chemistry. "I just loved being in the lab and making things," she says. Many of her weekends were spent studying at the Boston Public Library, which maintained a set of Chemical Abstracts.

"I remember one time on a Saturday," she recounts, "some girl was crying in her room. I asked, 'Why are you crying?' I thought something was wrong with her. She said, 'Because I don't have a date.' I was pretty surprised that one would cry for something like that. It never occurred to me that I should have a date on Saturdays or any other day."

Few of her classmates embarked upon careers at graduation: most went on to marriage. "I didn't have a clear idea of what I would do," she recalls. "But I didn't feel comfortable with what I had learned, so I decided to go learn some more."

Born in Paris, Joullié grew up within a protective family in Rio de Janeiro; she was not permitted to go downtown by herself. Hoping to expand his daughter's horizons, her father shipped her off to Simmons College, a small women's college in Boston, where she took all the chemistry courses that were offered, earning a degree in three years. "I just loved being in the lab and making things," she says. Many of her weekends were spent studying at the Boston Public Library, which maintained a set of Chemical Abstracts. "I remember one time on a Saturday," she recounts, "some girl was crying in her room. I asked, 'Why are you crying?' I thought something was wrong with her. She said, 'Because I don't have a date.' I was pretty surprised that one would cry for something like that. It never occurred to me that I should have a date on Saturdays or any other day."

Few of her classmates embarked upon careers at graduation: most went on to marriage. "I didn't have a clear idea of what I would do," she recalls. "But I didn't feel comfortable with what I had learned, so I decided to go learn some more."

Her heroes were the likes of Louis Pasteur, Madame Curie, and Armauer Hansen, who discovered the leprosy bacillus. "I had the idea that I was going to cure diseases..."
and save the world. “So, at the recommendation of "this guy" at MIT, Joullié came to Penn, where she was the only full-time female graduate student in chemistry.

In those days (1949), there were no bathrooms for women in the Harrison Chemical Laboratory, which housed the chemistry facility. Joullié had to cross an alley to the old Smith building, then known as the Hygiene building, where women technicians were at work on a government project. Many of the grad students were not reticent about reminding her of her place. "Girls don't do well" in science, they told her. "At first they tried to discourage me and make fun of me," she remembers, "but when they realized that I was doing well, they wanted to copy my class notes."

A company only hired women in their library, not in their research divisions. She accepted a non-tenure-track position as an instructor at Penn, teaching undergraduate organic chemistry five days a week and running the lab. For five years, she had no graduate students and carried out research in collaboration with undergraduates. Later, only female grad students began to work with her. At faculty meetings the secretarial duties were usually delegated to her, and often the men would not take her comments seriously. "I got no respect, and," she underscores, "I didn't want any from people like that."

In 1970, Joullié served on the Committee on the Status of Women, which collected and analyzed data to document the second-class standing of women on Penn's faculty. The committee found that women constituted only seven percent of university faculty, fewer than six percent in the arts and sciences. "[That was] far fewer than would be expected by the number of women in the pool [of qualified Ph.D.s]," remarks Helen Davies, Gr'60, a professor of microbiology in the medical school and fellow committee member. "The probability of that having been due to chance was . . . simply astronomical." The report also found that women who held professorships were concentrated in the lowest ranks, received lower salaries, and waited longer for promotion than men. Joullié, an assistant professor at the time, was one of the "very, very few" women science professors on the arts-and-sciences faculty. Davies notes. The committee issued a number of recommendations that set the university on the path toward equal opportunity for women.

"There were a few women in the early '70s who changed this institution," observes chemistry professor Marsha Lester. "Madeleine was one of them." Lester is the second woman to join the ranks of the chemistry faculty. "Madeleine is very outspoken," she comments. "She has an edge to her . . . For a woman to have done this 30 years before I came—there had to be an edge." Adds Hirschmann, "Whenever she speaks at faculty meetings, there's never any doubt about what she meant. It's one of her charms."

Later in the '70s, just before one of the regular faculty meetings, Vartan Gregorian, then SAS dean, put his arm around Joullié and pronounced, "Madeleine, I'm making you my affirmative action officer."

"What is that?" she replied. "I've got to find out what it is, first." "Never mind," he explained, "we're announcing it."

Even though she was conscripted and was given no staff, Joullié didn't wait to be told what to do but set the pace for change. Reviewing the NIH bluebook, which outlined affirmative action guidelines, she then met with department chairs — all men, she recalls pointedly — and explained how they would be required to make efforts to recruit women and minorities or else risk losing federal funding. From 1976 to 1980, she monitored the hiring and promotion of SAS faculty, comparing resumes of male and female candidates and sometimes refusing to sign off on hires that overlooked qualified women. "Even though I was told that I was crazy, that I would cause faculty to resign, and that I didn't know what I was doing," she says, "I think I made the faculty aware of affirmative action."

Provost Eliot Stellar later appointed her chair of Penn's Council for Equal Opportunity, which oversaw the activities of all schools' affirmative action officers.

"Madeleine was pivotal in this whole women's movement at Penn," says Davies. "One of the important things about her is that she is fearless and formidable. No matter what the cost to herself, if Madeleine feels that some information needs to be discussed—it may not be diplomatically correct at that moment—she will do it. She's a brave human being and just plain honest."

There is still some subtle and "hidden discrimination," Joullié points out, but she believes women have made "tremendous progress" over the course of her career. "I used to say the best thing affirmative action did for women was to put a ladies' room on every floor, which is true in a way. But it's really done more than that. I think now, if they really want to, women can essentially do anything."

In her field of research, Joullié is a standout both as a woman and as a leading scientist, regardless of gender. "She's one of the very few women—we can count them on two hands and maybe a foot—who do hardcore synthetic organic chemistry," says Cynthia McClure, a young chemist from Montana State University who spent the fall in Joullié's lab and in her home as a guest. McClure wanted to move into research on nitrogen-containing compounds, which are active..."
in biological systems like human bodies and thus key to making new drugs. “In order to be on the cutting edge” she explains, “I needed to become better versed in the techniques and methods” the Penn chemist had pioneered for building customized and complex organic molecules. “She’s highly respected because her chemistry’s awesome and she publishes an amazing amount, and she develops new ways to make compounds—that’s what we all look for.”

“SHE’S HIGHLY RESPECTED BECAUSE HER CHEMISTRY’S AWESOME AND SHE PUBLISHES AN AMAZING AMOUNT, AND SHE DEVELOPS NEW WAYS TO MAKE COMPOUNDS—THAT’S WHAT WE ALL LOOK FOR.”

Joullié has also played a leading role in research on didemmins, natural products isolated from sea squirts. Didemmins are known to initiate apoptosis, or cell death, and thus have potent antitumor and immunosuppressive activities. She has produced several didemmin analogs, and she has synthesized probe molecules to track and study the biological activities of didemmins. One of the didemmin relatives she made, didemnin B, was reported to induce apoptosis more rapidly than any known compound. Newer, more potent versions are being synthesized in her lab.

Some of the substances Joullié has put together could previously be derived—with great effort and in small amounts—only from natural sources. Her syntheses have made available quantities of compounds that allow scientists to more thoroughly test and study their biomedical effects. Research she did on ninhydrins prompted a visit by Secret Service agents and led to fluorescent products now used in some countries for fingerprinting. “My experience is that nothing is trivial in chemistry,” she maintains, “but mostly we just have fun.” One of her current projects involves the synthesis of Isoroquefortine C, a substance found in the blue veins of Roquefort cheese.

Two years ago, Philadelphia Magazine named her one of the “76 smartest people in Philadelphia,” and she has a closet full of awards, culminating in the prestigious 2002 Cope Senior Scholar Award from the ACS. “Madelaine’s career is that of a woman pioneer,” notes Hirschmann, who is a member of the National Academy of Sciences and a National Medal of Science laureate. “She was the first woman organic chemist to be appointed to a tenure track position in a major American University. She has a distinguished record as a scientist, as a teacher, and as a mentor of students...”
Looking back over her research achievements, Joullié muses ruefully, “We had big ambitions of doing things to make the world better, but I don’t think I’ve done anything great. I was pretty naïve, right?”

You can never tell. Over her half century at Penn, she has produced a lot of basic research, yielding a rich body of knowledge whose future application is impossible to make out. “Sometimes things turn out [to be] more important than you think,” she considers. “In this business, it’s not always easy to predict.”

She’s right—not just about the vagaries of doing science but about the unforeseen futures that unfold from teaching. In 1998, the American Chemical Society honored Joullié for her contributions as a mentor and teacher with its Award for Encouraging Women into Careers in the Chemical Sciences.

As a graduate student in 1959, Helen Davies took Qualitative Organic Analysis with Joullié. “She was magnificent,” Davies recalls. “I had never had a woman teacher at the University of Pennsylvania until I had Madeleine. . . . It made me aware that a women faculty member could exist, which was not always apparent then in most departments.” The sentiment echoes the undergraduate who long ago took Organic with Joullié and later examined her as a physician: “I’m here because of you.”

“I think that’s true in so many, many cases,” surmises Davies, counting herself as one among that multitude. “It’s just the story of her life.”

regardless of sex, and she remains a highly active, highly productive, well-funded organic chemist.”
"Detective" Tukufu Zuberi, a professor of sociology, is on the case. Director of the Center for Africana Studies, Zuberi is one of four people in charge of the “detective bureau” that will check out “the history hidden on America’s doorstep” in the new PBS series History Detectives. In the program, which premieres in July, world-renowned architects, antiquarians, and historians will use the latest investigative methods to make amazing discoveries about the homes and histories of everyday Americans.

Series producer Tony Tackaberry says Zuberi was picked because, “He’s a fantastic personality . . . and he brings this incredible brain to a variety of stories. We want persons with the intellectual credentials to investigate weighty and serious topics, but with the charisma and personality to engage the viewer, and I think Zuberi does this.”