The Future Is Here: Understanding the Burgeoning Field of Systems Biology

T.S. Eliot’s Graduate School Years

The Psychology of “Alien Abductees”

Copland’s Cold War Ambassadorship
The Future Is Here
Harvard scientists Marc Kirschner and Pam Silver explain the burgeoning new field of systems biology and how it’s changing the study of life sciences at Harvard.

The Making of an American Poet
How did T.S. Eliot’s Graduate School years studying philosophy at Harvard inform his poetic genius? A new book explains that and more.

New Writing by Harvard Faculty
Sociologist Prudence Carter explores the myths behind race and school success; anthropologist Steven C. Caton recalls his early days doing fieldwork in a rapidly changing Middle East; and literary scholar Leo Damrosch reveals an ambitious Jean-Jacques Rousseau.

Copland’s Cold War Ambassadorship
Dupe or willing participant? Graduate student Emily Abrams fleshes out the role of American composer Aaron Copland during the Cold War.

Belief, Memory, and the Little Green Men
GSAS alumna Susan Clancy discusses her new book on alien abduction fantasies and the psychology behind them.

Alumni Books
Recently received books on homicide in the Biblical world, reassessments of German philosophical idealism and the struggle for political rights in China, and black Episcopalians in antebellum New York City, among other topics.
from the dean

Bringing Best Practices to Graduate Programs

At a recent meeting of the Faculty Council of the Faculty of Arts and Sciences, I outlined objectives for my deanship—including raising resources for dissertation fellowships, enhancing the training of graduate teaching fellows, and responding to the new interest of faculty and students in various kinds of interdisciplinary research. I also presented some key statistical measures showing how well our PhD programs are doing in admissions, time to Generals and degree, and the use of scarce and precious resources of time and money.

Faculty are often thought to be resistant to challenge and change, but that has not been my experience as dean. Faculty have been very interested in the data I have presented—and departments are meeting to discuss improvements in their programs. My job is to raise questions and point to the facts, leaving departments to make improvements tailored to their varied circumstances. One size does not fit all, but every program can do more to attract the best students to Harvard and move them efficiently through the early stages of graduate training toward work on their dissertations.

One new measure I have developed assesses time to degree and also takes account of PhD students who withdraw after years of study. Including students who withdraw or stay on the books after a decade, I calculate how much faculty and student time and university resources went into developing each PhD degree attained by those admitted in 1992, 1993, and 1994. My statistics show that the median humanities program invested 10.5 years per PhD, while the median social science program invested 9.5 years per PhD, and the median natural science program invested 6.7 years.

Are the resource investment patterns the past decade are the same programs that currently have on their books large numbers of very advanced students in the G8 year and beyond; and they are the same programs where students take a long time to pass Generals.

Important reforms have already been launched. Many programs are moving up the timing of their General exams—and requiring each cohort of students to take exams at the same time. The data I gathered showed that fewer lengthy delays occur when Generals are approached as a social experience, something everyone in a cohort does together at a clearly expected time. When this happens, most students pass—and the few who must retake exams do so sooner. Everyone moves more promptly to defining and researching the dissertation.

GSAS is also coupling improvements in funding with clear expectations for completion of PhD work. From September 2005 on, graduate students enrolling in social science and humanities programs enjoy the promise of a fifth year of dissertation completion funding— but only if they are ready to complete their dissertations some time between their fourth and seventh years. This creates a clear time horizon for students and faculty advisors alike because funds are not promised beyond the seventh year.

The challenges we face in the natural sciences are not the same as in the social sciences and humanities. Most natural science students move relatively quickly through exams to doing experiments and lab work leading to the PhD. At the same time, however, Harvard faces tough competition in attracting the best science students, including international students who are not eligible for support on US government grants. And as our science PhD programs experience rapid growth, each faculty member has more students to supervise. Ensuring good advising and mentoring, as well as a supportive environment for all science students, are the challenges we face at GSAS must face in partnership with the leaders of each department and program.

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THE FUTURE IS HERE

Understanding the burgeoning field of systems biology

BY DAVID HOLZMAN

Every so often, advances in the life sciences give rise to whole new fields. The field of molecular biology, for example, was born about 30 years ago. Over the last couple of years, a new field—systems biology—has come into being. Marc Kirschner, chair of Harvard’s new systems biology department, and Pamela A. Silver, a professor in the department, explain the nature of systems biology and why the times demand it now.

Over the last decade, some of the biggest developments in systems biology have come out of genome sequencing. But while an optimist thinks of sequencing the genome as having provided “the entire parts list of the animal,” a pessimist realizes “that is all it has given us,” says Kirschner.

In other words, having the parts list doesn’t explain how the cell, or the organism, works. Imagine having all the pieces of an automobile in a pile on the floor, he says (there are hundreds just in the engine, and a total of roughly 15,000 parts—on the same order of magnitude as the 20,000-plus genes in the human genome). Then imagine trying to understand a car from its disassembled parts—its function, its limits, and its many hundreds of modes of failure. Then, says Kirschner, “you can understand what life scientists face as they try to make sense of how cells and organisms work using the genome.”

Certainly, scientists have a general idea of how cells work. But—to return to our genomic auto parts list—knowing that a car is a transportation device and the pieces of the engine work together to power the thing tells you virtually nothing about how fast it goes, how much fuel it uses, or how long it might last. Similarly, gene sequences do little to convey how a cell’s parts work together.

Systems biology should ultimately change all that. One major benefit will accrue to the development of new drugs, says Kirschner. Today, the only means of determining whether a new compound will make an effective drug without dangerous side effects is to take it down the arduous path of drug development: from tissue culture to animal studies to extensive human clinical trials. Most compounds that set out on that road fall short, often after millions of dollars have been spent.

But systems biology should enable drug developers to design compounds for specific tasks with great accuracy. While drug development would still be lengthy, a much higher percentage of compounds would reach the finish line: drug approval by the US Food and Drug Administration.

Another area where the vaguest of predictions could be sharpened into something far more useful is in understanding precisely how genes—usually many of them at once—and the environment interact to cause diseases, ranging from multiple sclerosis and heart disease to cancer. (In this context, “environment” is a very broad term encompassing anything from the outside that gets into the body, including pollutants, toxic substances, clean air, and foods of all sorts, as well as changes due to the body’s internal chemistry responding to external stimuli, for example, by producing stress hormones and endorphins.)

The details of these interactions, however, remain obscure. Systems biology may ultimately illuminate them, turning the task of foiling genetic disease into the equivalent of an engineering problem.

The anticipated power of systems biology is evident in Silver’s description of “synthetic biology,” which is, in essence, applied systems biology.

“In the future,” she writes in a co-authored article that ran recently in The Scientist, “bioengineers will create new organisms based on the same strategies that engineers use to design computer chips, bridges, and skyscrapers. Mathematical modeling will drive the design of useful artificial organisms, instead of relying on the blind, trial-and-error methods of natural selection.”

Besides providing new, vastly more effective ways of addressing disease, systems biology may be expected to illuminate fundamental questions that have been raised by genome sequencing concerning, for example, how life evolved and how living systems work.

Surprisingly, it turns out that the human genome is hardly bigger than that of the fruit fly, says Kirschner. Furthermore, from protozoa to Homo sapiens, many of the same basic genes—somewhat modified, to be sure—are used over and over, as if different organisms were made from Lego blocks that were assembled in different ways. Systems biology will help reveal how such similar parts can result in such widely differing products.

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PAMELA SILVER LOVES QUANTUM MECHANICS

As a child, Pamela Silver was so good at math that she became the subject of a study about math and young girls. But what came easily was not what inspired her.

“I always asked myself what is the hardest thing I could do,” she says. In that vein, she pursued physics, which she studied into her undergraduate years. “I loved quantum mechanics and thought it was really cool,” she says. But as time went on she realized she didn’t want to work in a reactor or linear accelerator, which was where physics was taking her. She switched her major to chemistry, and from there, as a graduate student, to molecular biology.

One of her current research projects, an early application of synthetic biology, involves designing a device that could be used to study cellular aging. Animal cells age as they divide, until they run up against the “Hayflick limit,” at which point they die. For human cells, the Hayflick limit is about 52 divisions. The device would be a biological counter built into the cell that could monitor the number of divisions.

“When completed, the counter will allow for systemic isolation of cells of certain ages, a potential screen for genes that affect cellular aging,” she says. It will also “act as a prototype for more sophisticated cell-based computing.”

SPUTNIK LAUNCHES MARC KIRSCHNER

Marc Kirschner “loved science from the day I started playing around with things.” But at the time Kirschner entered high school, in the mid-1950s, his teachers looked upon his passion for science as “tolerable, but peculiar.”

Then, in October 1957, the USSR launched Sputnik, the first man-made satellite, and the space race was on. Suddenly, Kirschner’s passion became something to be indulged. Kirschner says that he “managed to parlay that into... getting out of mostly boring assemblies. The teachers would approve of it. I’d build rockets. I built a model of the solar system with asteroids and the planets, and everything to scale,” sizing the solar system so that it could fit snugly within the school. (He did use different scales for the size of the planets and the distances between the planets, a necessity in order to fit the model inside the school without shrinking the smaller planets down to almost nothing.)

Much of Kirschner’s research focuses on the regulation of cell growth and division—a field that has critical applications in cancer—how cells take shape and how the mechanisms that establish the vertebrate body plan.

Kirschner is also the coauthor of the new book The Plausibility of Life: Resolving Darwin’s Dilemma, with John Gerhart of the University of California at Berkeley. The book proposes an answer to one of the biggest conundrums in evolution: how many small genetic mutations can add up over eons to become the sorts of wondrous biological inventions—the eye, for example—that proponents of intelligent design use to support their claims that biology is irreducibly complex.

Kirschner and Gerhart use cutting-edge research in cell biology and development to show that the body plan is not fixed, like the blueprint of a bridge, but can develop differently due to changes in the environment, as when westerners grew taller as diets improved and childhood diseases were conquered. Thus, when a mutation changes some aspect of physiology, the organism can often adapt, in much the same way, for example, that the concentration of hemoglobin in the blood rises when one travels to high altitudes.
In a new biography, *T.S. Eliot: The Making of an American Poet*, James E. Miller Jr. devotes considerable attention to Eliot’s Graduate School career—and it makes absorbing reading. These pages not only illuminate a lesser-known period of Eliot’s life and its influence on his poetry, but also reveal the nature of graduate study in philosophy at Harvard during the 1910s.

After receiving his degree from the College and taking a post-graduate year in Paris, Eliot began his graduate program in 1911 in a philosophy department that was, in some ways, torn between two strong styles. This division would lead Eliot to question the very discipline to which he initially devoted his career.

By 1911, Eliot had already written important poems and had produced substantive drafts of “Prufrock.” But he was not yet ready to embark upon the artistic career he eventually chose, and he returned to Harvard, prepared to immerse himself in his studies.

It is useful to point out that the philosophy department at that time covered subject areas such as the study of religion and the young field of psychology, both of which Eliot studied.

The department had been dominated by four prominent thinkers: George Herbert Palmer; William James, who’d retired by the time of Eliot’s arrival; Josiah Royce; and George Santayana, who took his PhD at Harvard in 1889. It was the last member of this quartet who was the target of much controversy during Eliot’s years as his student.

For one thing, Miller notes, Eliot’s distant cousin, University President Charles Eliot, and Palmer both opposed Santayana’s promotion from instructor to assistant professor, which occurred before T.S. Eliot’s arrival in the department.

Miller offers evidence that their objections centered upon Santayana’s perceived and probable homosexuality. Another Harvard philosopher, Hugo Münsterberg, defended his colleague in a letter, which led President Eliot to reply, “I am very glad that you can say of [Santayana] that he is a ‘strong and healthy man’…”

Eliot the poet did not share his elder cousin’s doubts about Professor Santayana and, in fact, was a near acolyte of his, according to Miller.

Miller then offers a glance at the rather surprising courses Eliot took in those early years. In his first year, he studied experimental psychology with Herbert Sidney Langfeld, ethics with Palmer, and Greek thinkers with James Haughton Woods. Eliot also began a study of Sanskrit with Charles Rockwell Lanman and later applied that learning to readings of Indian philosophy.

In his second year, Eliot took seminars on the nature of reality with Charles Montague Bakewell and on the philosophy
of religion, the Yoga philosophical system, and Buddhist texts. He later added courses on Kant and modern logic.

Eliot’s third year was occupied with seminars on scientific method and a history of ethics. He also took courses on logic and theories of knowledge with Bertrand Russell, who was visiting at Harvard to deliver the Lowell Lectures.

At this point, Harvard’s philosophy department could be characterized as tending toward idealism. Miller quotes Münsterberg in a letter, significantly broadening the definition of philosophical idealism to present a portrait of department cohesion.

“Harvard’s tradition has been a distinctive leaning toward idealism,” wrote Münsterberg. “In the case of James and Santayana, the pure theoretical metaphysics can hardly be called of idealistic brand, and yet the moral idealism of the one and the aesthetic idealism of the other blended with their general metaphysics so fully that the total impression of the philosophy teaching in Harvard has been an idealistic one, and just this distinctive character has been the source of the strength of the influence.”

Throughout his life, Eliot published essays that referred back to his Harvard graduate days and to the shifting attitudes in the department. Even before that, Eliot’s graduate dissertation, on the English idealistic philosopher F.H. Bradley, indicates the changing times in the field, and Eliot’s own changed attitude.

The dissertation, “Experience and the Objects of Knowledge in the Philosophy of E.H. Bradley,” was eventually published though not until 1963—two years before Eliot’s death. By then, writes Miller, Eliot had disavowed not only the dissertation’s content but the entire field of philosophy as well. “Forty-six years after my academic philosophizing came to an end,” wrote Eliot in the preface, “I find myself unable to think in the terminology of this essay. Indeed, I do not pretend to understand it. As philosophizing, it may appear to most modern philosophers to be quaintly antiquated.”

Eliot had reached that position over several decades, but the doubt began to set in when he was still a graduate student at Harvard. Miller writes that Eliot found the sciences—mathematics, biology, and physics—superior to philosophy for understanding and explaining the world. Eliot’s dissatisfaction with his field as a profession, adds Miller, “lay in the divorce of philosophy from theology.”

Miller discusses the prominence of Eastern philosophical systems in Eliot’s course of study, noting, for example, that reading on Yoga was far from our contemporary understanding of that subject. Yoga, as Eliot studied it, was “a branch of Hindu philosophy prescribing the physical and mental disciplines used to free the practitioner from the material world in continued on page 16

Eliot, pictured here quite a few years after his Harvard graduate career ended. He published his dissertation on the British philosopher F.H. Bradley only two years before his death.
CULTURAL ANXIETIES, AN ANTHROPOLOGIST’S MEMORIES, AND A RESTLESS GENIUS

I N THE SPRING OF 1998, I MET DEANDRE Croix, a charismatic teenager of African American and Antiguan heritage, whose slightly tousled afro was reminiscent of Black power hairstyle trends of the 1970s. He greeted me at his new home where his family and he had been placed after his mother won a spot in a lottery of housing placements for low-income families. We met after he had decided to stop selling marijuana on the streets and instead to concentrate on graduating from high school, despite the “$250 to $400 a day” he claimed he earned—much more than any job at McDonald’s would pay. DeAndre spoke matter-of-factly about how he was attending his third high school, having been expelled from two others. He struggled with school because he found it “boring” and because he was unable to get into the magnet program of his choice.

...DeAndre...criticized the curricular content and the curriculum’s failure to create more complex historical narratives about African Americans in US society. “I hate, like, in school a teacher gives you something and you already know how to do it. Like, in social studies a teacher gives you a report to do on Abraham Lincoln. ... I already know about him. I learned about him back in the sixth grade. Why do I want to learn about him again? I want to learn about somebody I don’t know. Like, I know about Malcolm X, Martin Luther King, and that lady Rosa Parks and stuff that they did. But I want to know stuff about what I don’t know. I want to know about Black, Black...how can I say this...Black historical figures besides the main people. I know that there are other people.” DeAndre sensed that the curricular representation of African Americans needed to go beyond the figurative and familiar names heard annually in February during Black History Month.

December 9, 1979—in the souk today one of the boys called me a little devil for writing the words down that I hear in conversation. He later explicitly stated that I was a spy. I laughed. I can deny [the charge] until I’m blue in the face and they’ll still suspect me. It astounds me that they think Khawlan is so important to America’s security and interests that it would send an agent to spy on its people!

Reading this diary entry more than twenty years later, I am struck by its disingenuous naivety. I knew perfectly well, and even admitted as much to myself at the time, that had I been in their shoes, I would not have trusted me either. What was a lone American, with such an awkward way of explaining himself to others, doing in this part of the world? Worse, I was ignorant of the political importance of Khawlan to Yemen. I had accepted the standard diplomatic line that regions like Khawlan were mere backwaters to the mainstream of national political events in Yemen or international ones in the Middle East. My defensive tone also belied anxiety about my safety.

By November 1979, the Iranian Revolution was at its peak, and a group of student radicals, angered by the United States, whose government had granted asylum to the deposed Shah, had besieged the American Embassy in Tehran and held a large number of its personnel hostage. In the meantime, anti-American, pro-Iranian demonstrations were erupting throughout the Muslim world, and though Yemen was relatively quiet, US citizens there were nonetheless anxious lest they be targets of assault or other aggression.
"Rousseau's Originality"
By Leo Damrosch

Leo Damrosch is the Ernest Bernbaum professor of literature.

Excerpt from Jean-Jacques Rousseau: Restless Genius by Leo Damrosch. Copyright © 2005 by Leo Damrosch. Reprinted by permission of Houghton Mifflin Company. All rights reserved.

Having achieved literary fame by winning a prize [in 1750 for his Discourse on the Sciences and Arts, or the First Discourse], Rousseau began to look about for other competitions, and in 1751 he set himself to answering a question proposed by the Academy of Corsica, “What is the virtue most necessary for a hero, and who are the heroes who have lacked it?” But after a few pages he put it aside, later adding the comment, “This piece is very bad, and I felt it so strongly after writing it that I didn’t even bother to send it in...There can never be a good reply to frivolous questions. There is always a lesson to be learned from a bad piece of writing.”

...An opportunity to compete for a prize came, once again, from the Academy of Dijon. Its question for 1754 was “What is the origin of inequality among men, and is it authorized by natural law?” The topic struck Rousseau as deeply thought-provoking, and he retreated...to the forest of Saint-Germain to ponder the exploitation that seems inseparable from every human society. He had no real need any more of the Dijon imprimatur, and he ignored their length requirement—that the piece be short enough to read aloud in a half hour—so cavalierly that they rejected his submission without reading it (the winner was an abbé who explained inequality as a consequence of original sin). The result of this second illumination was a treatise of a hundred pages, finished in the summer of 1754 and published a year later, entitled Discourse on the Origin and Foundations of Inequality among Men. This First Discourse had made Rousseau a celebrity; this one revealed his greatness. Moreover, it showed that his thinking was developing a powerful unity, his “triste et grand système,” his “great and somber system.”

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lectures this year in Japan, Ireland, England, and Canada to mark the Irish playwright’s centenary year. He is also the editor of the new University of Michigan Press series Michigan Major Modern Dramatists, which will publish its first volumes this year.


J. Hillis Miller, PhD ’52, received the Modern Language Association Award for Lifetime Scholarly Achievement last December. The award has been presented triennially since 1996. Miller is professor emeritus of English and comparative literature at the University of California at Irvine. He is renowned for his work as a reader and interpreter of Victorian literature, and he may be most widely recognized for his contributions to literary criticism and theory.

History of Science
William R. Newman, PhD ’86, a professor of the history and philosophy of science at Indiana University, received the History of Science Society’s Pfizer Prize for Alchemy Tried in the Fire: Starkey, Boyle, and the Fate of Helmontian Chymistry (with Lawrence M. Principe; University of Chicago Press, 2002). The prize, given annually since 1959, is awarded in recognition of an outstanding book dealing with the history of science.

Medical Sciences
John M. Greene, PhD ’89, is a principal and director of Bioinformatics for SRA International, headquartered in Fairfax, Va. He is currently the principal investigator for a $14-million contract from the National Institute of Allergy and Infectious Disease (NIAID) Bioinformatics Research Center for...
COPLAND’S Cold War Ambassadorship

BY LESLEY BANNATYNE

EMILY ABRAMS WAS FACT-CHECKING Aaron Copland’s tenure as Norton Professor at Harvard as part of her research for a book on the composer edited by her advisor, Carol Oja, the William Powell Mason professor of music. The official lectures from Copland’s visit (there were six) were published in the volume, Music and Imagination, in 1952. But Abrams, a second-year musicology graduate student, came upon something very few people knew about.

“I found a letter in the Library of Congress, from Copland to Harvard, where he wrote, ‘Here are the tapes for the series I made that was based on my class at Harvard.’ I discovered he did an additional seminar for undergraduates called Music in the Twenties. What’s more, Copland had turned that class into the bones of a television series with the same name, produced by WGBH-TV in Boston in 1965. The tapes he referred to in his letter were unedited copies of the shows,” says Abrams.

She tracked the tapes to Houghton Library, where they could not be located. “But there were transcripts,” she says with a smile. “(She was eventually able to view another copy of the tapes at the Library of Congress.)

Twelve months and many hours of research later, Abrams has come to know Copland in a role not often conjured anymore—that of a television personality and Cold War cultural ambassador.

Music in the Twenties was Copland’s first big TV project, and his only series.

“It was very much of its time,” says Abrams. “This was the heyday of educational television, a time when artistic and intellectual topics were popular. Half the program is Copland talking to the camera and half is a live performance of music from the twenties.

“He makes some quite eclectic choices, like Paul Hindemith’s There and Back—an amazing opera that goes forward in time and then rewinds. To achieve this, the producers used a mix of live sounds and special effects. [Copland] also programmed other music the general public probably hadn’t heard much before, including Igor Stravinsky and Arnold Schoenberg. Even in the 1960s these seemed very modern. To think even now of a work of Schoenberg’s being heard for fifteen minutes on television is incredible!”

The series was very popular, and it was repeated a number of times. But the transcripts of the unedited tapes gave even more information.

“After they finished shooting the scripted part the producers would chat with Copland and he’d give his honest opinion—‘What did you think of so and so or such and such’—and this you obviously didn’t see in the program.”

Abrams found the composer’s candor illuminating. “Copland was usually very nice and professional, so it’s interesting to hear his honest opinions on some of his contemporaries.” He described Erik Satie and John Cage, for example, as “much more amusing to talk about than to really listen to.” He found the harmonic progressions in jazz—“rather corny,” described Webern’s serial method as “cold-blooded,” and Hindemith as “a true academician, deep-dyed.”

“His personality was the thing,” Abrams believes. “He had a good personality for TV. He was very straightforward, like Bernstein. Not the extravagant personality or glitter and glamour of Bernstein, but he was an affable, honest kind of guy. People wanted to interview him because they knew he could be relied on to repeat his favorite anecdotes and that he’d speak as if he were telling them for the first time. In the later years of his life, I think he loved telling these stories of his youth.”

And the camera liked him as well: Abrams has now found about 35 television documentaries and interviews in addition to recordings of live performances conducted by Copland.

“Copland became like a father figure for American music. For many people—the American composers of his generation—Copland’s was the music in their minds. Aspects of his music were even associated with American landscapes—Rodeo, the American West; Quiet City; Appalachian Spring. Copland was the US from a musical point of view.”

But more than that, Copland epitomized the idea of the American dream that was so important during the Cold War. On American television, “People needed to be shown that honest, straightforward guys from humble beginnings can rise up and succeed without the need for communism,” says Abrams.

Abrams became intrigued with how Copland’s image was used by the US government for propaganda purposes overseas. She discovered that Copland, who was once employed by the State Department to represent America during an exchange of composers, was featured on a US Information Agency (USIA) television program produced for foreign audiences.

“The way he’s portrayed to foreign audiences reveals a lot about what the American government respected in the culture,” notes Abrams. “In the same way that the CIA secretly funded concerts in Europe as cultural propaganda, there were government agencies that selected certain American artists to represent the US overseas. Copland’s USIA television appearance was used to help combat an anti-American sentiment that had started to grow in Europe in the 1960s and 1970s.

“It was like saying, ‘Look, we’re not the bad guys—we have culture too! We have an exciting and diverse musical scene—with brilliant composers and jazz musicians!’ I’m interested in this idea that government organizations believe music can change a country’s ideological outlook. This is the sort of concept one usually associates with totalitarianism, not with America.”

Emily Abrams is in her third year of graduate work in historical musicology, and is pursuing the role of music in Cold War relations as a dissertation topic.

The original version of this article was published in the summer 2005 issue of the Harvard University Department of Music Newsletter.
Systems biology at Harvard is bringing together scientists from such diverse fields as mathematics, physics, chemistry, engineering, and computer science, as well as from life sciences such as molecular biology and genetics to model how cells work, says Silver.

The models will have a level of detail and precision that is currently absent from physiology. It will be necessary, for example, to know how many of each type of proteins are present in the cell, where they are found, where they move, and how tightly they bind to other substances. It is this sort of information and detail she explains, that will turn drug development, for example, into a relatively straightforward engineering problem.

Systems biologists have already made some valuable discoveries. For example, Vamsi K. Mootha, an associate professor in systems biology, showed that genes involved in energy metabolism are less highly expressed in people with type-2 diabetes and their asymptomatic first-degree relatives than they are in people who don’t have type-2 diabetes or first-degree relatives with the disease. In other words, metabolism is impaired in type-2 diabetics, a finding that opened up systems biology.

THE GERM OF THE NEW DEPARTMENT
The germ of the new department dates to about three years ago, when “Joe Martin [dean of Harvard Medical School] asked me to give a speech on the future of biological science,” recalls Kirschner. “You never want to give a speech on the future of anything, [but] I grudgingly accepted.”

Composing the speech crystallized his thinking that “the old kind of physiology was really sort of phenomenological,” and that it was necessary to understand in a quantitative way how genes and proteins influenced physiology. Kirschner also felt that “this more holistic way of looking at biology was something we needed to be teaching students at a much earlier stage as well.”

But the push for a new department initially came from Martin, who wanted Kirschner to chair it. Kirschner was reluctant, but when Martin found money for the project, and Harvard President Larry Summers became involved, the die was cast. “Larry said, ‘It sounds to me like you could be a tremendous help to the growth of biology not just in the Medical School, but in the whole university,’” says Kirschner.

“This was like a law of thermodynamics: that it was necessary to understand the whole system, and made it a reality. I think that says a lot about him, because I always thought that this was like a law of thermodynamics: that money could never flow from a university to a medical school; only in the other direction. By seizing this opportunity for the whole university, [Summers made] it happen.”

Thus, “it” became not only Harvard’s new systems biology department, but also an array of undergraduate classes and a graduate program, which admitted its first class last September. Because of the nature of the field—which draws from an unusually broad range of disciplines—graduate students will be encouraged to work with faculty on both sides of the river.

Says Silver, the program’s director, “I think [the new department] could be a catalyst for something really exciting at Harvard, at both the faculty and the student level. This is the way we are going to attract the best and the brightest to biology.”

David Holzman writes about science for Colloquy. A freelance writer, he resides in Lexington, Mass.
Belief, Memory, and the Little Green Men

BY SUSAN LUMENELLO

In her fascinating, eminently readable, at times amusing new book, Susan Clancy (PhD ’01, psychology) takes readers into the thought processes of individuals who are convinced they were victims of alien abductions.

Abducted: How People Come to Believe They Were Kidnapped by Aliens

BY HARVARD UNIVERSITY GSAS


Abducted: How People Come to Believe They Were Kidnapped by Aliens is the product of five years of research among the “abductees.” Clancy, currently a postdoctoral fellow in psychology at Harvard, took as her starting point a personal disbelief in alien abduction but a firm respect for her subjects’ beliefs. Clancy still doesn’t believe in alien abduction, but she understands why many people do. “Being abducted,” she writes, “may be a baptism into the new religion of our technological age.”

The average abductee, she writes, is not at all psychotic or even psychologically impaired. Rather, abductees tend to be middle-class, educated, sensitive, and usually receptive to “new age” beliefs, like magic and the paranormal. They are also firmly convinced that they’ve been kidnapped and returned to earth by aliens.

As a result of her research, advised by Harvard psychology professor Richard McNally, Clancy has reached several intriguing conclusions about what has become a modern folk tale in American culture.

You write about how alien abduction fantasies didn’t become part of American culture until about the 1960s, and you attribute that to movies and television shows featuring abduction themes.

SUSAN CLANCY: People want to know what came first: Were people reporting alien abductions, or were they watching it on TV, and then reporting it? So I went back, watched all the Hollywood movies and the TV shows, read the books, and what I’ve concluded is that there were movies about aliens in the ’50s, but…there weren’t any themes of alien abduction. In those movies, it was aliens coming to earth and hurting us, or us going up into space and hurting them.

But in the ’60s, the TV show The Outer Limits had a number of episodes on aliens and extraterrestrials, and in some of them, the aliens were abducting people. The show also featured themes like reversible amnesia—aliens take your memories and then you get them back. And in one episode, there was hybridization, mixing genetics between “something else” and humans for the purpose of creating a new breed of creature. Around this time, there was also a lot of interest in UFOs—people were spotting them. But nobody—until 1966—reported that they were actually abducted by aliens.

The first people to do so were Betty and Barney Hill. During hypnosis sessions in Boston with a psychiatrist they recovered memories from about four years earlier in which they’d seen some lights in the sky. Betty Hill had thought she’d seen UFOs. Then four years later they undergo hypnosis and they both remember that they were abducted by aliens. But by the point they remember being abducted by aliens, the idea had already been featured on TV... in The Outer Limits. They were the first people, officially, that I know of or could find, who reported that they were abducted by aliens. It just didn’t happen before that.

The Hills’ abduction experience was turned into a very successful book called The Interrupted Journey by John Fuller, and then later made into a TV movie [The UFO Incident (1975)] on NBC, I believe. So, basically, the whole United States got to hear about their alien abduction experience. After that, people started reporting it was happening to them. It was featured more on TV and in movies, and it was just sort of a snowball effect.

One thing I can say for sure is that the idea of aliens taking humans, reversible amnesia, hybridization, and needles being implanted in you were on TV before people reported them happening.

Why this aliens narrative though?

SC: For as long as people have existed, I’ll argue, they’ve been looking for explanations for experiences that they’ve had or symptoms they have that they don’t understand. And the explanations that they endorse are the explanations that are culturally available. So, what’s culturally available changes based on decades, centuries—and socioeconomic status. In the past, people have interpreted anomalous symptoms and experiences as being ghosts, witches, old hags, the devil, and magic. It just happens that in the 20th century and at the beginning of the 21st, alien abduction is one culturally available explanation.

This does not exist in other countries or continents. I live in Nicaragua and when people have weird things happen to them [there], they attribute it to witches taking over their body, and they need to exorcise them. I mean, there are no aliens in Nicaragua, yet. However, once US media gets here, I’m sure that will change.
What do you think these individuals are experiencing that they attribute to abduction?

SC: A lot of these abduction experiences are the result of sleep paralysis—that weird experience when you wake up in the middle of the night and can’t move. You often feel a number of strange sensations, like levitating and flying.

Do you think your research results would have been different had you met with those who didn’t answer your newspaper ads and calls for volunteers at conferences?

SC: I really don’t. I have to tell you, I have read everything, gone to the conferences, met with the abductees, and talked to and met with [abduction] researchers Budd Hopkins [author of Witnessed], David Jacobs [of the International Center for Abduction Research], and [the late] John Mack [former psychiatry professor at Harvard Medical School and author of Abduction: Human Encounters with Aliens]. I’ve read their books, and it’s all the same. It’s a consistent plot—aliens come down and take me for medical experiments. Depending on who you talk to though, the aliens look very different, the purposes of the abductions were different, and the types of equipment that were used were different.

I really take this as evidence that these accounts are fabricated, that we have this socially available way to understand these symptoms we don’t understand. We then inject the basic plot with our individual psychologies. What are our own personal fears? What needs does this abduction story feed?

Did you ever change anyone’s mind during the course of your discussions?

SC: No. But there’s a big distinction between people who think they might have been abducted by aliens and people who have vivid memories of their abduction experiences. Once you have vivid memories of what happened to you, you are not going to be receptive to other interpretations, which I understand completely. As I say in the book, if I had vivid memories of being sucked up a tube of light, memories that felt real, I would be resistant to anyone telling me it didn’t happen. It’s the power of personal, individual experience.

However, people who have strange symptoms who are asking, “I wonder if this could be related to aliens?”—people who do not have memories—have been receptive to hearing things about sleep paralysis.

You write about how comparable the alien abduction fantasy is to expressions of religious faith because it feeds a spiritual void.

SC: That is just my understanding, my interpretation—and I have gotten so much negative feedback for that. You wouldn’t believe how offended people got by me comparing the alien abduction belief in any way to religious belief. Objectively, they’re the same: people are holding beliefs based on faith, beliefs that have no scientific data to support them—and they’re getting profound meaning out of their beliefs.

You write that hypnosis does not allow subjects to recover buried memories, but only to think that they are doing that. Do you think that buried memories exist?

SC: Absolutely not. When traumatic things happen to us—things that are terrifying, painful—we’ll always remember them. We might forget details—what time of day it was, or what the person was wearing—but we won’t forget the core of it.

Although abductees described experiencing horrific things during their abductions, you found that they also consistently expressed satisfaction that the kidnapping happened.

SC: Nobody wanted to exchange their experiences. I couldn’t believe it. I never met anyone who said they wished it didn’t happen. They’d say it was awful, nightmareish, but after they were returned, they were glad it happened. Why? Because it changed their view of the world and themselves in a positive way.

I think many abduction researchers are tone-deaf to the meaning that these abduction narratives fulfill for these people. They tend to focus on the traumatic aspects of the...experiences. What they are missing is that many abductees report, “Once I was returned to my bed, I was happy I was abducted.” The abduction experiences for many are transformative. Not only do they provide explanations for psychological problems and weird experiences but for their whole lives too. I heard over and over again, “Now I understand that there is something else out there,” “that I am not crazy,” “that there is a higher power,” “that science can’t explain everything,” “that I am not alone,” and so on.

I think many of us are capable of suspending skepticism—and scientific thinking—when our beliefs are fulfilling powerful emotional needs—for instance, the need to feel less alone or feel less insignificant. ☛
NOBEL PRIZES TO HARVARD FACULTY, GSAS ALUMNI

The Nobel Prizes, announced last October, honored several individuals with GSAS affiliations. Roy J. Glauber, the Mallinckrodt professor of physics at Harvard, received one half of the prize in physics “for his contribution to the quantum theory of optical coherence.” John L. Hall of the University of Colorado and Theodor W. Hänsch of the Max-Planck Institut shared the other half of the prize. A University alumnus, Glauber received his SB in 1945 and his PhD in physics in 1949.

GSAS alumnus Richard R. Schrock, PhD ’72, chemistry, shared the chemistry prize with Yves Chauvin of the Institut Français du Pétrole (France) and Robert H. Grubbs of the California Institute of Technology “for the development of the metathesis method in organic synthesis.” Schrock is the Frederick G. Keyes professor of chemistry at the Massachusetts Institute of Technology.

GSAS alumnus and former Harvard professor Thomas C. Schelling, PhD ’51, economics, shared the prize in economics with Robert J. Aumann of Hebrew University (Israel) “for having enhanced our understanding of conflict and cooperation through game-theory analysis.” Formerly a professor of political economy at Harvard, Schelling is Distinguished University Professor at the University of Maryland School of Public Policy.

LARGEST HUMANITARIAN PRIZE TO HARVARD-BASED GROUP FOUNDED BY GSAS ALUMNUS

Partners in Health received the 2005 Conrad N. Hilton Humanitarian Prize for “significantly alleviating human suffering.” At $1.5 million, the Hilton is the world’s largest prize. Partners in Health was founded in 1987 by Paul Farmer (MD ’88, PhD ’90, anthropology) and colleagues, and established its first community-based health project in Haiti. It has since worked in Peru, Russia, inner-city Boston, Mexico, Guatemala, and Rwanda. Farmer is the Maude and Lillian Presley professor of social medicine at the Medical School, where Partners in Health is based. The Hilton Prize, established in 1996, has previously recognized such groups as Doctors Without Borders and the International Rescue Committee.

FALL BRINGS HONORS TO HARVARD SCIENTISTS FOR INNOVATION, ACHIEVEMENT

Junying Yuan, professor of cell biology, was named recently as one of 13 recipients of the National Institutes of Health (NIH) Pioneer Award, which supports innovation in biomedical research. Awardees receive $500,000 in direct costs per year for five years. Yuan, a GSAS alumna (PhD ’89, medical sciences), will use her funding, notes the NIH, “to explore the possible existence of a novel cellular mechanism that detects and removes misfolded, neurotoxic proteins.”

Andrew Knoll, the Fisher professor of natural history and professor of earth and planetary sciences, won the 2005 Paleontological Society Medal. The medal, the most prestigious honor bestowed by the Society, is awarded to a person whose eminence is based on advancement of knowledge in paleontology. Knoll’s research focuses on the evolution of life and the earth’s surface environments. His latest book is Life on a Young Planet: The First Three Billion Years of Evolution on Earth (2003).

CHEMIST WINS WELCH AWARD

George Whitesides, the Mallinckrodt professor of chemistry, won the 2005 Welch Award in Chemistry “for the breadth and depth of his insight into chemical processes and use of this understanding to solve problems in organic chemistry, biochemistry, biology, material science, and surface science,” read a Welch Foundation statement. A leader in nanotechnology, Whitesides joined Harvard’s chemistry department in 1982 and has held advisory positions on the National Research Council, the National Science Foundation, and the Department of Defense’s Defense Advanced Research Projects Agency. His many honors include the National Medal of Science (1998) and the Kyoto Prize (2003). The Welch Award includes a gold medallion and a $300,000 prize.

AAAS ELECTS NEWEST FELLOWS

The American Association for the Advancement of Science (AAAS) elected 376 new fellows, including several Harvard faculty: Robert J. Blendon, professor of health policy and management; H. Franklin Bunn, professor of medicine; Harvey Cantor, professor of pathology; Stephen C. Harrison, professor of biological chemistry and molecular pharmacology and of pediatrics;
Kevin Struhl, the David Wesley Gaiser professor of biological chemistry and molecular pharmacology; Daniel M. Wegner, professor of psychology; and Xiaoliang Sunney Xie, professor of chemistry and chemical biology. Fellows are recognized for meritorious efforts to advance science or its applications. Founded in 1848, AAAS serves some 262 affiliated societies and academies of science.

GSAA COUNCIL: TRANSITIONS

Two new members have joined the Graduate School Alumni Association (GSAA) Council. Betsy M. Ohlsson-Wilhelm, AB ’63, PhD ’69, medical sciences, of Boston is CEO of SciGro, which offers technology assessment and scientific management services for the pharmaceutical, biotechnology, and diagnostic industries. She has served as an associate professor on the medical school faculties of the University of Rochester and the Pennsylvania State University, and was senior vice president of Research and Development for Zynaxis, a small research and development company.

Lee Zhang, AM ’01, medical sciences, of Beijing is CEO of ShanghaiMed iKang, a pioneer online healthcare service provider. While at Harvard, Zhang was a founder of Harvard China Review, a nonprofit organization staffed by Chinese student and young professional volunteers. They organize a profitable annual conference to finance the publication of the review.

Several Council members concluded their terms in 2005. Lisette Cooper, PhD ’87, geological sciences, served on the Graduate Student Life Committee, and was associate chair for the Graduate School Fund and GSAS representative to the Harvard Alumni Association. Barbara Luna, PhD ’75, applied sciences, served on the Chapters and Fundraising Committees and represented GSAS as a member of the board of the Harvard Radcliffe Club of Southern California.

Charles Field, PhD ’71, urban planning, served on the Chapters Committee, was GSAS representative to the Harvard Alumni Association, and represented GSAS as a member of both the Harvard Club at the National Press Club and the Harvard Club of Washington, DC.

Long-time Council member Sandy Moose, PhD ’68, economics, is the new GSAA Council Chair. Moose has served on Council since 1993, working on many committees, most recently nominations and fundraising. She is senior advisor at the Boston Consulting Group (Mass.) and serves on the boards of Verizon Communications, Rohm & Hass, CDC IXIS, Loomis Sayles Funds, and AES Corporation.

CARTER’S MUSIC IS EVERYWHERE

For composer Elliott Carter, AM ’32, music, last year was a professionally outstanding one, and 2006 looks to equal if not surpass it. The Boston and Chicago symphony orchestras hosted simultaneous premieres of Three Illusions (Boston) and Soundings (Chicago) last October. The same month, the Strasbourg (France) Music Festival presented a five-day Elliott Carter Festival. This January, London’s BBC Symphony Orchestra will perform “Get Carter!” a three-day concert series dedicated to the lifework of the two-time Pulitzer Prize–winner (1960, 1973), who recently turned 97. The New York Philharmonic will present Variations for Orchestra (1956), Allegro Scorrevole (1996), and Dialogues (2003) in 2006, and pianist Peter Serkin will perform the New York premiere of Carter’s Intermittances at Carnegie Hall. Finally, Bridge Records will release a seventh volume of the Music of Elliott Carter, featuring the premiere recordings of the Boston Concerto (2002) and Cello Concerto (2001).

SCIENTIFIC LEADERS

The December issue of Scientific American featured the magazine’s “Scientific American 50,” the annual list of the 50 individuals or organizations who have been most influential in science or technology during the past year, in areas from viral vaccine development to research on alternative fuels. Five Harvard researchers were named: Zheng-Yi Chen, assistant professor of neurology, for his research on the applications of gene therapy to hearing loss and other chronic conditions; George Church (PhD ’84), professor of genetics, for inventing a new method to produce synthetic DNA; Bradley Hyman, the John B. Penney Jr. professor of neurology, for developing early brain-scanning tools that help pinpoint the presence of Alzheimer’s disease; Mark T. Keating, professor of cell biology and of pediatrics, for work on therapy to coax heart cells to multiply; and R. Clay Reid, professor of neurobiology, for his research on imaging technology for the brain.

—Compiled by Susan Lumenello.
NOBEL LECTURES
Peace: 1996–2000
Edited by Irwin Abrams, PhD ’38, history

Abrams is considered the foremost expert on the Nobel Peace Prize, and in this volume, he presents insights into more recent awards, as well as acceptance speeches and biographies of the winners. The Antioch College professor of history emeritus, Abrams was on the American Friends Service Committee when that group received the 1947 prize for its relief work in post-war Europe.

HOMICIDE IN THE BIBLICAL WORLD
By Pamela Barmash, PhD ’99, Near Eastern languages and civilizations

Did ancient Israel draw on the Bible for its unique social structure and legal system? The laws on homicide make the closest parallel, says Barmash, an assistant professor of Hebrew Bible and Biblical Hebrew at Washington University (St. Louis). Even Biblical law must be studied in its cultural context, and Barmash, who is also an ordained rabbi, offers a close reading of both worlds, without blurring either.

AFTER PARSONS
A Theory of Social Action for the Twenty-first Century
Edited by Renée C. Fox, PhD ’54, sociology; Victor M. Lidz, AB ’62, PhD ’76, sociology; and Harold J. Bershady

The famed Harvard sociologist Talcott Parsons, who died in 1979, was renowned for his “theory of social action.” This scheme, which emerged out of the late 19th- and early 20th-century European tradition of Weber and Durkheim, proposed that all social action—the conduct of societies—depends not only upon ends and means, but also upon societal norms and conditions. He applied this theory to studies of institutional law and medicine. Although the editors note that Parsons’s influence has waned in recent decades, they present essays that enthusiastically apply the theory of social action to contemporary areas such as religious and cultural institutions. Both Fox, the Annenberg Professor emerita of the social sciences at the University of Pennsylvania, and Lidz, an assistant professor in psychiatry at Drexel University College of Medicine, were students of Parsons’s, as were several of the book’s contributors.

ALL OR NOTHING
Systematicity, Transcendental Arguments, and Skepticism in German Idealism
By Paul W. Franks, PhD ’93, philosophy

The ideas of German idealist philosophers—Kant and Hegel, first among them—have regrettably been overlooked by Anglo-American thinkers, contends Franks, an associate professor of philosophy at the University of Toronto and University of Notre Dame. The time has come, he says, to gather lessons from history and to re-engage with the German idealists’ systemic approach to understanding.

FROM COMRADE TO CITIZEN
The Struggle for Political Rights in China
By Merle Goldman, PhD ’64, East Asian history

The conventional Western view of China’s transformation in recent decades has wrongly overlooked the country’s substantial political reforms, writes Goldman, professor of history emerita at Boston University and associate of Harvard’s Fairbank Center for East Asian
Research. Despite governmental crackdowns, intellectuals and former party officials have fostered “rights consciousness,” joining with workers to establish village elections and term limits on party leadership, among other things. Goldman recounts the ongoing struggle and looks ahead to a century of Chinese citizenship.

**POLITICAL (IN)JUSTICE**

Authoritarianism and the Rule of Law in Brazil, Chile, and Argentina


Pereira maintains that distinct patterns of repression in certain South American nations affected how and why ultimately political trials were initiated, maintained, and abandoned. He also compares authoritarian regimes in Nazi Germany, Franco’s Spain, and Salazar’s Portugal. Pereira, an associate professor of political science at Tulane University, is the author of The End of Peasantry: The Emergence of the Rural Science at Tulane University, is the author of How Far the Promised Land?

**CAVELL ON FILM**


Stanley Cavell, the Cabot professor emeritus of aesthetics and the general theory of value at Harvard, is a philosopher who thinks hard about cinema, and a cinemophile who watches through a philosophical prism. This book spans decades of Cavell’s writing on specific directors (Frank Capra, Ingmar Bergman), film genres (romantic comedies, melodramas), and the place of film in 20th-century Western culture. Rothman is professor of motion pictures at the University of Miami and the author of several books, including The “I” of the Camera: Essays in Film Criticism, History, and Aesthetics.

**FAITH IN THEIR OWN COLOR**

Black Episcopalians in Antebellum New York City


The story of New York City’s historic St. Philip’s Church reveals the little-known struggle for black equality within mid-19th-century Manhattan’s religious hierarchy. Most white Episcopalians in the diocese, writes Townsend, did not consider St. Philip’s congregation “proper associates, and would never change that opinion—but they were going to have to associate with them nonetheless.” The author is an Episcopal priest and associate rector for Manhattan’s religious hierarchy. Most white Episcopalians in the diocese, writes Townsend, did not consider St. Philip’s congregation “proper associates, and would never change that opinion—but they were going to have to associate with them nonetheless.” The author is an Episcopal priest and associate rector for Manhattan’s religious hierarchy. 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**alumni notes**

Please submit Alumni Notes to: Colloquy, Harvard University Graduate School of Arts and Sciences, Byerly Hall 300, 8 Garden Street, Cambridge, MA 02138-3654; or e-mail your news to gsaa@fas.harvard.edu. Please include your telephone number or e-mail address. Alumni Notes are subject to editing for length and clarity.
order to attain union with the transcendent being (or ‘ultimate principle’).”

Miller finds evidence that Eliot’s study of Buddhist and Hindu philosophies—rather than Western systems—figured prominently in his poetry. “Many of his poems not yet written would reflect this influence, and particularly his last poem, so religious in nature, Four Quartets,” writes Miller.

As he neared what would be his last year at Harvard, Eliot began work on his dissertation and experienced a radical shift in attitude that many young scholars can appreciate. When he began writing, Eliot supported the philosophy of Bradley, which depends upon the concept of the Absolute. But in the time he reached the end, however, Eliot found himself unable to support the concept, as he’d initially intended. He ultimately rewrote the entire work, essentially from a viewpoint of philosophical relativism.

As Eliot wrote in a letter to a fellow student, “And Mr. Bradley may say that the Absolute is implied for me in my thought—and who is to be the referee? …The only reason why relativism does not do away with philosophy altogether, after all, is that there is no such thing to abolish! There is art, and there is science. And there are works of art, and perhaps of science, which would never have occurred had not many people been under the impression that there was philosophy.” As Miller writes, “This passage makes clear why, at the deepest level, Eliot was to choose art…over philosophy for a career.”

Nonetheless, Eliot’s advisor Josiah Royce called the dissertation “the work of an expert,” approving it “enthusiastically.” Writes Miller: “It might be claimed that Eliot was not only an innovator in poetry, heralding the modernist period in the early twentieth century, but also an innovator in prose, introducing an informality and a skeptical common sense in a highly readable prose style that provided the basis for a modernist criticism.”

In 1914, Eliot won a Sheldon Traveling Fellowship to study at Oxford. He left Cambridge early to spend the summer touring European capitals. But in a classic case of bad timing, Eliot found himself stuck in Germany when World War I began. The lecture series he’d been planning to attend at the University of Marburg was, naturally, canceled, and Eliot’s priority was leaving Germany for the relative security of England, which he finally reached in late August.

At Oxford, Eliot was a dedicated if uninspired student. More intellectually enticing were his regular visits down to London, where he developed a close bond with Ezra Pound. Eliot began to submit poems to Wyndham Lewis’s modernist magazine Blast, which counted Pound and Rebecca West as contributors. And “Prufrock” was published in 1915 in Poetry.

Yet academe was not quite done with Eliot, who was informed that his Sheldon fellowship would be renewed. He was also nearly offered a position as an assistant professor in philosophy at Harvard upon the war’s end. Interestingly, it was Eliot who was considered to replace the still-controversial Santayana, who was planning to leave the University.

But Eliot the faculty candidate aroused controversy among his former teachers. Of those who were still on the faculty, most strongly supported Eliot’s hiring, but not George Herbert Palmer.

Eliot, he believed, had failed to “make good” on his earlier academic promise, Miller writes, and had “allowed himself to be turned into weak aestheticism by the influence of certain literary cliques in London.” Further, Eliot’s “love of beauty…had turned out to be his weakness, by reason of a certain softness of moral fibre,” Palmer wrote in a letter. Eliot was, ironically, too like Santayana to usefully replace the notable philosopher. Miller adds that Eliot’s “Prufrock” was the last straw against his candidacy: “It is likely that Eliot was never to find out how personal his reputedly impersonal poem had seemed to Harvard’s philosophy department,” Miller writes. Lines such as “I have heard the mermaids singing, each to each / I do not think that they will sing to me” may have raised eyebrows in the philosophy department, however, Miller does not assert that Eliot was homosexual, only that departmental members suspected as much.

But Eliot had already made up his mind: his life and career were in London as a literary man. He accepted an offer to teach grade school and had married Vivien Haigh-Wood, an Englishwoman, though Miller calls that marriage “inexplicable.”

He goes on to say that Eliot’s motivation in marrying Haigh-Wood, which necessarily kept him in England, may have been to make it impossible for his family to compel him to return to America and, thus, to the academic career he did not want but could not outright reject. Indeed, Eliot wrote in a letter: “I believe that I came to persuade myself that I was in love with [Vivien] simply because I wanted to burn my boats and commit myself to staying in England. And she persuaded herself (also under the influence of [Ezra] Pound) that she would save the poet by keeping him in England.” Perhaps the marriage was not as inexplicable as Miller deems it.

Eliot never received his degree because he never returned for final exams, which at the time was the necessary final phase to obtaining the PhD. Nor did he return to Harvard again officially until the 1930s, when he gave a lecture series, published in 1933 as The Use of Poetry and the Use of Criticism.

My philosophy is this: Harvard’s PhD programs need enhanced resources to be competitive—yet we also need to achieve a new level of effectiveness in using the resources we are able to garner with the support of our alumni and donors. Each PhD program has its own unique requirements, but none should take longer than seven years to complete.

To cite a personal example, my dissertation was a comparison of the French, Russian, and Chinese revolutions. It took years to research, and was completed, rather hurrriedly in my sixth year of PhD study, because I was going to lose my first job, on the Harvard faculty, if I did not wrap it up! This thesis could have taken a lifetime had my advisors not urged me on and had I not chosen to settle for a good-enough, not unattainably perfect, product. I finished it and—after I had the PhD and a new job—I continued to revise and improve the project until it became my first book, which eventually won multiple scholarly awards.

Some 30 years later, as GSAS dean, I am working with faculty colleagues to ensure excellent advising, mentoring, and instruction in our graduate programs—and also working to encourage a realistic attitude toward what students should be asked to do en route to a PhD that should be attainable in less than a seventh of an adult lifetime. GSAS will set benchmarks and spread the word about reforms that work well—and I am confident that Harvard’s fine faculty and PhD students will respond with imagination and alacrity. Proceeding in this way should increase the confidence that our alumni and other supporters can have in Harvard’s future as a leading research institution.  

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Helping Graduate Students Connect to the Research Enterprise

By Ann Hall

As graduate students advance in their academic careers, they transition from the social environment provided by attending classes to the more solitary tasks of completing research and crafting their dissertations, a process that often leaves them isolated.

To counter this tendency, the Graduate School of Arts and Sciences in 1994 instituted the Research Workshops program, a forum for students to present their work, obtain feedback, and participate in a collegial community of like-minded scholars and apprentice scholars.

Established with seed funding from the Ford Foundation, the program thrives today thanks to the annual support of donors to the Graduate School Fund. It has grown from an initial 26 offerings to 70 workshops this academic year, an increase that highlights students’ eagerness to participate.

“Research workshops are absolutely invaluable,” says Matthew Underwood, a second-year PhD candidate, who attends the Early Science Working Group.

“Workshops provide an opportunity to develop a real intellectual community for graduate students. They allow you to present your work to a wider audience than your immediate colleagues, who are already familiar with your topic and may approach their work in similar ways,” he says. Underwood, who is affiliated with the history of science department, focuses his interests on how people interact with nature, how they understand that interaction, and how they express that understanding.

As an English major at Yale, Underwood wrote his undergraduate thesis on the travel journals of the 19th-century British biologist Alfred Russel Wallace, concentrating on the interaction between Wallace’s authorial and literary personae, and how the structure of his narrative affected the structure of his scientific arguments.

After graduation, Underwood pursued an MPhil in the history and philosophy of science at the University of Cambridge. His master’s thesis concerned James Bruce, the 18th-century Scottish scientific traveler, and the social challenges he faced in trying to convince his British contemporaries of the truth of his exotic reports about the people and natural features of Abyssinia. Now, Underwood’s research interests have broadened to include artisans and artisanal science, alchemy, and the occult sciences in late-medieval and early-modern Europe.

“The ability to give feedback to advisors on their work and be treated and thanked as a colleague holds great value for students who aspire one day to be academics themselves,” says Biagioli.

Students also organize their own one-day workshops on a specific topic, incorporating students, faculty, and invitees. “The students learn how to organize the event, network in the process, and, on occasion, may produce an edited volume of the proceedings,” says Biagioli. “We have one such volume in press now.”

Underwood also appreciates the interdisciplinary nature of the Early Science Working Group. “Presenting to the group aids my own work because these fellow students work in other disciplines, and their perspectives are always enlightening,” he says. “Much of my own work, for instance, focuses on the material culture of early modern science. I always welcome the input of colleagues in a discipline such as art history, for example, where people often approach similar topics in ways different from those of historians of science. Workshops facilitate bringing those different perspectives together in productive ways.”

Since 1995, Mario Biagioli, professor of the history of science, has co-directed the Early Science Working Group with Katharine Park, the Samuel Zemurray Jr. and Doris Zemurray Stone Radcliffe professor of the history of science and of women’s studies. Their workshop combines student presentations with guest speakers and faculty works-in-progress.

“The informality of the setting benefits students, as does the fact that everyone, including faculty, presents works in progress,” says Biagioli. “The goal is not to impress your fellow students or your advisors, but rather to gain feedback on your own work.”

This supportive environment enables students to introduce their work, and to improve it on the basis of comments from peers as well as advisors.

Another advantage is the opportunity to comment on the works-in-progress of members of the faculty. “The ability to give feedback to advisors on their work and be treated and thanked as a colleague holds great value for students who aspire one day to be academics themselves,” says Biagioli.

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Ann Hall is a senior writer in Alumni Affairs and Development Communications.

Research Workshops are funded by annual contributions to the Graduate School Fund. For more information about supporting Research Workshops or the Graduate School Fund, please contact Marne Perreault, director of GSAS Giving, at 617-495-1629.
Alumni Events and Notices

For more information on GSAS alumni matters, contact GSAS Alumni Relations
(e-mail: gsaa@fas.harvard.edu; tel.: 617-495-5591), or visit www.gsas.harvard.edu/alumni.

Thursday, March 2, 2006
New York, New York
Mahzarin R. Banaji, the Richard Clarke Cabot professor of social ethics in the Department of Psychology and the Carol K. Pforzheimer professor at the Radcliffe Institute for Advanced Study, will speak on “Mind Bugs: The Psychology of Ordinary Prejudice.”

March 25–26, 2006 | New Delhi, India
HAA Global Series

Wedneenday, April 20, 2006 | Philadelphia, Pennsylvania
David Blackbourn, the Coolidge professor of history, will speak on “Have Germans Faced Up to Their History in the 20th Century?”

Friday, April 7, 2006 | Boston, Massachusetts
Division of Medical Sciences Centennial Alumni Reunion
Be a part of the first-ever reunion for alumni of the Division of Medical Sciences. More information will be mailed early in 2006. Luncheon speaker: Steven E. Hyman, Harvard University provost and professor of neurobiology.

Saturday, April 8, 2006 | Cambridge, Massachusetts | Alumni Day
Hear from Harvard faculty on their recent scholarship; catch up with old friends; and enjoy a day of intellectual and social refreshment. Keynote speaker: Douglas Melton, the Thomas Dudley Cabot professor of the natural sciences and an international leader on stem-cell research.