

FALL 2008

Colloquy

ALUMNI QUARTERLY

The GRADUATE SCHOOL of ARTS AND SCIENCES • HARVARD UNIVERSITY

CREATIVITY IN THE POST-GOOGLE GENERATION

Harvard Engineer and Visual Artist David Edwards on Artscience

Economist Martin Weitzmann on
Global Warming's Effect on the
Financial Landscape

The Weatherhead Center for
International Affairs at 50

New Writing by Harvard Faculty:
Robert Bates, Marjorie Garber,
and James Wood

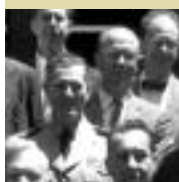
Alumni Books



- 2 Creativity in the Post-Google Generation**
Harvard engineer and visual artist David Edwards's new book *Artscience* explores the unique "zone" between the two disciplines and how it can catalyze innovation in areas from music composition to industrial design.



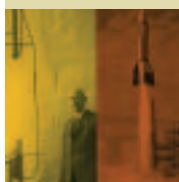
- 4 The Heat is On**
We've all heard about how damaging radical climate change will be on the natural environment. Economist Martin Weitzmann explains its effects on the world's financial landscape. The prognosis is not good ...



- 6 The Weatherhead Center for International Affairs at 50**
A look back at Harvard's largest center for international research—actors, controversies, and the future.



- 8 New Writing by Harvard Faculty**
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A New Era Begins

I begin the academic year with high hopes and expectations for the Graduate School of Arts and Sciences. This is an unusual time in the history of the University, one that offers important new opportunities for innovation and collaboration. As dean of GSAS, I am a member of President Faust's Council of Deans. This group—the deans of all the University's schools—meets regularly to discuss our particular and collective goals. We also constitute the Allston Planning Group, a committee that will advise the president about developments on the new campus. There is a remarkable spirit of cooperation and engagement among this group, which augurs well for the future of GSAS and the University.

As we begin to think *concretely* about the Allston campus (the first major science complex there is now under construction), I want to bring you up to date on some of the other activities and developments at GSAS.

We continue to enhance and refine existing programs and initiatives. For example, the *English Language Program*, now in its ninth year, has had a substantial impact in achieving our goal that all GSAS students should master English as part of their studies. Such mastery is not only vital to assuring excellence in teaching—even more important, it will enable our students to participate in the central discourse and debates of their fields.

This year also marks the appearance of the first seven *Graduate Seminars in General Education*. This program (described in the last issue of *Colloquy*) invites faculty and graduate students to undertake the planning and development of courses for the new Harvard undergraduate General Education curriculum. Giving graduate students a substantive role in course design

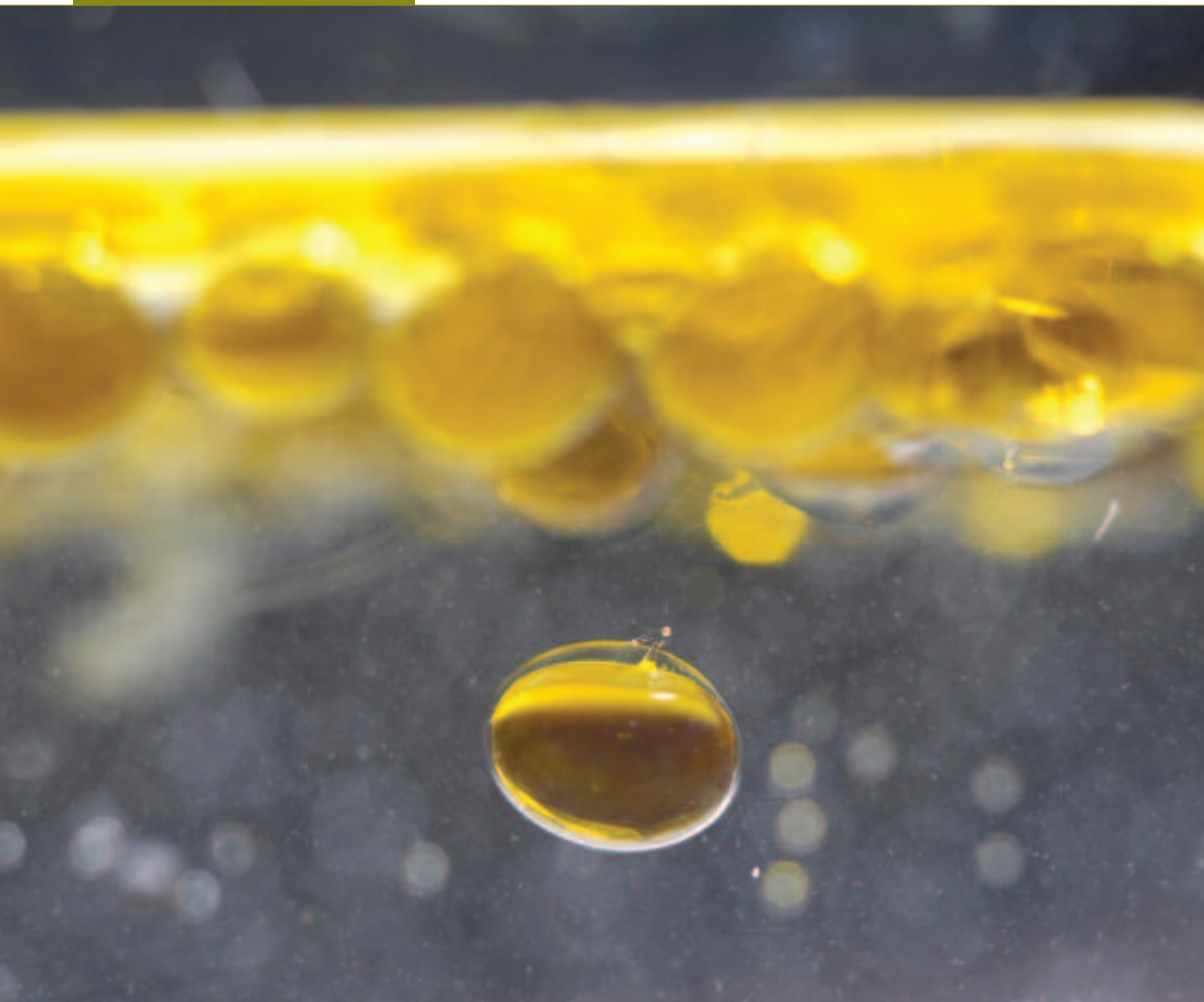
and implementation offers them a chance to sharpen important intellectual and pedagogic skills. Among this year's offerings are a seminar on the history of food in America and a course on probability that's jointly taught by a philosopher and a molecular biologist. In coming years, we expect the number of Graduate Seminars to grow substantially, helping build and sustain the new curriculum while simultaneously strengthening graduate education.

We will also be establishing *Harvard Interdisciplinary Graduate Consortia*. This new program will encourage collaboration not only between adjacent disciplines but across the University—interdisciplinary initiatives that our students and faculty have eagerly sought. Graduate Consortia will draw together faculty from a range of Faculty of Arts and Sciences departments, as well as from other schools, to offer pro-seminars, courses, lectures, and conferences in important interdisciplinary topics.

The first such consortium will go “live” this fall and is being offered by the University's Microbial Sciences Initiative, a field that has attracted intense interdisciplinary interest. Still in preparation are consortia in Energy and Environment and in Global Health. In each instance, the goal will be to draw together faculty and graduate students from across Harvard as a means of enhancing collaboration and promoting innovative, interdisciplinary approaches to complex intellectual and social problems.

All these activities reflect core priorities that I'm eager to focus on. Most important, I want to insure that our students have strong financial and social support during their sometimes arduous course of study. Given the demands of graduate education, it remains absolutely

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Imagination at Work

ARTSCIENCE: CREATIVITY IN THE POST-GOOGLE GENERATION

By Michael Patrick Rutter

About ten years ago, during a pause between hunting and pecking at a shared sushi platter, I asked the late, acclaimed neuroscientist Mircea Steriade why he decided to become a researcher. “When I was eighteen I realized I would never be good enough to become a world-class concert pianist,” I recall him saying. “So I took the only logical path. I gave up music and went to medical school.”

“You,” he said, eyeing me like an acolyte, “should dedicate your life to *one thing* and one thing only. I still play piano but just to teach my daughter.” The native Quebecer was as sure of the axiom as he was that, despite the early hour, 11.30 a.m., one could not eat raw fish without having the proper beverage: a tall, cold glass of beer.

Five years later, I had a far different conversation with David Edwards, Gordon McKay professor of the practice of bioengineering at the Harvard School of Engineering and Applied Sciences (SEAS). He bounded into my office, black hair all jangled in comic contrast to a neatly ironed white silk scarf tucked into his open collar. Sporting a light beard and black rectangular framed glasses, he looked like a French cinema star. At the time, Edwards was writing a book

about the 19th-century French scholar and political figure Édouard Laboulaye, an ardent admirer of the United States who originally suggested the idea for the Statue of Liberty. Edwards was also in the midst of organizing a new Harvard course on innovation and idea translation; designing a lab/museum hybrid in Paris (his second home); and continuing his research into a nanoparticle-based inhalation delivery system for a tuberculosis vaccine. An entrepreneur to boot (his biotech company, AIR, sold in the late 1990s), Edwards had also just been awarded an \$8-million-dollar grant from the Gates Foundation. “Sometimes, I am doing so much, in so many areas, I have no idea what I am doing,” he said.

Despite his successes, he seemed less certain of his method—leaping over academic fields and juggling multiple interests—and more isolated than Steriade, who chalked up all accomplishments to singular dedication within a single locus. In *ArtScience: Creativity in the Post-Google Generation* (Harvard University Press, 2007), Edwards seeks to reassure readers that there are alternatives to business-as-usual pigeonholing. Through his own experience

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Professor David Edwards



Edwards wrote the book, he says, “in the pragmatist spirit of John Dewey’s landmark 1934 essay *Art as Experience*.” Dewey (1859–1952), pictured, was an American psychologist, philosopher, educator, social critic, and political activist—and a primary originator of both functionalist and behaviorist psychology.

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riences—and interviews with like-minded others—he raises the exciting prospect of operating not just “outside the box” but beyond boxes altogether. It’s a bracing read, especially if you’ve ever found yourself dancing among plural disciplinary or professional allegiances.

His interview subjects and fellow *artscientists*—from France, Germany, and the United States—all belong to the “post-Google” generation and have all succeeded in their mixing of art and science.

Readers will meet, among others, Don Ingber, a Harvard cell biologist who, after becoming inspired by a sculpture class, pioneered a radical view of the cell; Diane Dabby, a lauded concert pianist who, having a mid-career itch, studied electrical engineering and discovered musical variation based upon the chaos theory; Peter Rose, a professional skier who replicated in architecture the freedom he found on the slopes; and Anne Goldfeld, a physician turned documentarian who used photography and theater to advocate for refugees scarred by land mines and to create a public health program in Africa.

At first, Edwards’s approach smacks of “personalized colonialism”, attempting to hang the same label on a handpicked collection of individuals who have blended the worlds of art and science. He, however, probes deeper, searching for an explanation for the ineffable ‘ah-ha’ moments that led such “artscientists” to break down traditional barriers despite experiencing “loneliness, institutional discouragement, and even fear.”

Moreover, his Virgil leading him through the depths of creativity is pragmatist John Dewey. Edwards relies upon exemplars (as above), examples (a science exhibit in the middle of the Louvre), and results (using music to heal patients).

That said, readers expecting *Artscience* to be a paint-by-numbers guide to creativity (*here’s how to think outside the box!*) or a volume of business wisdom told through animal anecdotes will be disappointed. Likewise budding historians of science beware, as Edwards steers clear of the standard debates about “what is art?” and “what makes science scientific?” He dismisses the tired dichotomy of C.P. Snow’s *Two Cultures*. In fact, Edwards and his fellow artscientists remain mystified about the origins of their epiphanies. Innovation simply found a way.

In the case of Ingber’s blending buckyballs with biology, Edwards writes, “This was not his idea. At this point Don had no real idea. He did not know how to think yet as a researcher, was not confident it was even what he wanted to be. But he was very curious, and this particular curiosity seemed his own.”

For the skier/architect Rose, Edwards reports, “Skiing made Peter decide there was something else he could do with his life that would make him feel free. Nobody had told or showed him that as he grew up in Montreal.” Likewise, when Edwards turns the lens on himself—a closet fiction writer, researcher, and accidental entrepreneur—he says, “I felt like an imposter.”

By not filling in the blanks to assert meaning, does Edwards leave the reader with little more than a series of idiosyncratic anecdotes? Innovators whose stories are fascinating, likely connected, and hinting at some central truths, but whose take-home message is—basically—“Don’t try this at home”? Edwards, thankfully, weaves between individuals and institutions, dedicating a chapter each to cultural, academic, humanitarian, and industrial organizations.

Although the artscientists Edwards interviews serve to inspire (“those who

personally and rather uniquely possess an idea”), the idea to action path will take place not in their heads but in labs, studios, and museums. His goal, after all, is to encourage a “free and relevant path to innovation” not to articulate a full understanding of the creative process.

Practically, this means removing barriers (departments, political bottlenecks, lack of funding), while keeping the overall support structure intact. Open walls are fine, but not having a roof will leave even the most creative minds wet. Institutions, particularly knowledge-based ones like universities and museums, often provide just enough freedom (or benign neglect) for motivated individuals to flourish; Edwards, Ingber, Rose, and many of the other artscientists found their footing in such places. Yet, Edwards warns that even the most liberal institutions exist for their own ends, frowning on cell biologists who sculpt or artists who long to be engineers.

Imagine, Edwards proposes, a young graduate student dedicated to her degree/career. She discovers that her research on luminescent algae, if taken a few steps further, could revolutionize eco-friendly lighting. However, she is so focused on institutional expectations or so distracted by other pressures (funding, family life, a demanding advisor) that she takes the road more traveled. As a result, “her idea ceases (at least temporarily) to translate toward greater human impact because her organization is not prepared to measure impacts outside its particular idea-impact realm.” For every bold artscientist, there are countless others who suppress the creative spark or are so tightly focused that they miss the glimmer of an idea altogether.

To be fair, think back to my friend Mircea—his singular focus worked well for him. True, Edwards, might say, but there

alumni notes

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In Memoriam

Stanley W. Page, PhD '47, history, died June 22, 2008, at age 94. He taught Russian history and psychohistory (a field he helped develop) at City College of New York (CCNY) for 35 years. His books include *Lenin and World Revolution*, *The Formation of the Baltic States*, and *Russia in Revolution*. In 1975, Page was part of what came to be known as the “City College Five,” a group of professors who opposed the lowering of standards for graduation as they strove to maintain CCNY’s standing as one of the finest schools in the country. His outspoken stance almost cost him his tenure, but the New York Civil Liberties Union intervened, and Page continued to teach until his retirement in 1983. He then became editor of the English edition of the *Korea Times* and was a frequent contributor to the *New York Times* and other New York-area newspapers. Fluent in Russian and German, Page also took great pride in helping immigrants adjust to America by teaching English as a second language at Touro College (New York). He was, writes his daughter, “a caring and loving soul who radiated warmth and joy.”

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are other routes to innovation, especially in the open source, global, Internet age. Edwards's overarching aim is thus far less personal than it first seems: “What if research institutions were to find ways to lower these barriers to artsience? Might more ideas—and idea translators—flow into them?” Again, the goal is not simply to populate such places with people like Edwards and his fellow artsientists, but also to catapult ideas into actions—the kind of actions that make a far richer world. At the very least, lowering barriers could encourage everyone to uncork a nascent dream or two.

Ever the pragmatist, Edwards is building what he calls an “idea lab” based upon a few basic tenets: Process matters

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Writes Edwards: The story of Archimedes leaping out of the Greek baths and running naked down the street (shouting his eponymous “Eureka!”), after having discovered the principle of buoyancy, is perhaps our most famous metaphorical illustration of the ultimate creative insight. Of course, the years of learning, the countless times Archimedes needed to enter the baths and notice the water spill over the edge, the long development of the liberated personality that had euphoric Archimedes running to see the king without a stitch of clothing—all that goes unspoken. Pictured: *Archimedes* (1630), by Jusepe de Ribera (1591–1652), in Spain’s Prado Museum.

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more than results. Experiments are never repeated. Results are never bad.

“An artsience laboratory gives the power back to the creators who gave us power in the first place. It asks them to create and not absorb lessons. It gives them the advantage of experience and the opportunity for discovery. It shows them how to fail and recover and how to communicate,” he writes. Whether this concept will translate and scale to larger institutions is not clear, but in several small ways, Edwards’s concept for innovation has found a way.

In his “Idea Translation” course, ES 147, a group of students won funds to develop their low-cost microbial fuel-cell lighting system for Africa that relies on dirt for power; Ling Wong, one of Edwards’s talented graduate students, once having received money from the Gates Foundation, now works for them to give the money to others to help improve global health; and Le Laboratoire, the first artsience gallery, opened last October in Paris. On a larger scale, such thinking may be trickling upwards. Harvard, for example, is actively re-inventing interdisciplinary research, creating school-to-school collaborations, centralizing funding, and promoting “start-up” initiatives—all concepts unheard of less than a decade ago for a place famed for putting “every tub on its own bottom.”

With the desire to keep innovation percolating, surprisingly, Edwards does not address what such channeled creativity should “do” or be directed toward. Just as the process of creativity remains in a black box, results, while very real, often are secondary. The artscientists profiled rarely set out to cure a disease, invent a new art form, or—more broadly—to make the world a better place. He hints that having a fixed end in mind limits vision; better to be swept along.

With barriers lowered, field-mixing encouraged, and freedom preserved in a suitable structure, the sought-after “Eurekas!” will likely flourish even (and perhaps especially) if they can never be fully explained. The simple truth: It is best not to worry about what artsience actually is (that includes Edwards’s own definition) any more than trying to codify the taste of a perfect meal or to bottle the experience of a rosy sunset. As the iconoclast—and no doubt honorary artscientist—Buckminster Fuller wrote, “There is nothing in a caterpillar that tells you it’s going to be a butterfly.” In other words, allow yourself to be surprised. 🍷

Michael Patrick Rutter is communications director at Harvard’s School of Engineering and Applied Sciences.

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critical that we have adequate financial aid for our students. The provision of a dedicated five-year package of funding for doctoral students has been a major step forward for GSAS. But to attract the most talented students (in a highly competitive setting) we must be sure that our offers provide appropriate support so our students can sustain and complete their important work.

Besides financial support, our students benefit from an exceptional intellectual and social environment. In this respect, Dudley House and all its activities are central to life and learning in GSAS. In addition, we need to see that our students have access to quality health care and that those who are—or become—parents during the course of their studies will have access to child-care benefits and support.

The Graduate School Alumni Association (GSAA) Council has served, even in this early phase of my deanship, as an outstanding source of support and an invaluable sounding board on these and other critical issues facing GSAS. This remarkable group of alumni remains centrally involved in seeing that GSAS retains its stature as a place of great learning and discovery.

This fall we will mark an important transition in the Alumni Council. Sandy Moose, PhD ’68, economics, who has led the GSAA Council with great dedication and insight, will be succeeded by Allen Sangines-Krause, PhD ’87, economics. Allen is a longtime council member, and I am confident that his energy and enthusiasm will be invaluable as he takes on this new challenge. I am enormously grateful to both Sandy, Allen, and all the council members for their service and commitment to GSAS.

During the coming year, I look forward to working closely with the GSAA Council and to meeting many alumni at GSAS chapter events around the country. And I’m eager to have your ideas and counsel as we move forward. 🍷

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