

# Trust

The Pew Charitable Trusts

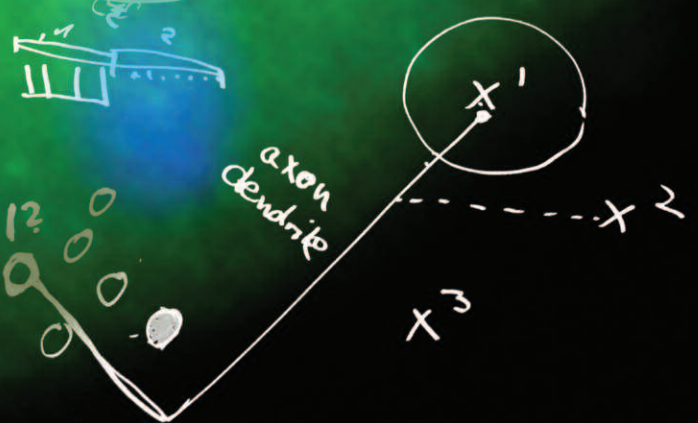
VOLUME 10 / NUMBER 2 / SUMMER 2007

***A Science Community of 400  
Novel Consortium Protects Lands  
Help for Those Student Debts  
Climate Change Gets Hot***

**BRAIN WIRING**  
— RECEPTOR SPECIFICITY —



1 Gene = 38,018 Splice Forms  
19,008 Receptors





## By Degrees

Pew takes a strategic approach to its investments: We set goals and establish tactics to reach them. It is rare, of course, that a goal is reached suddenly, dramatically, without passing through the intermediate stages that our planning anticipates. The outright home run is atypical. Rather, progress tends to be incremental, advancing by degrees. Even in baseball, that's how most games are won.

Science may appear to be an exception. The everyday view is that science proceeds by major breakthroughs. News stories of major discoveries substantiate the impression.

In reality, however, very few, if any, scientific achievements occur instantaneously. As the neurophysiologist Torsten N. Wiesel, Ph.D., has noted, "Frustration is the daily bread of the research scientist." Having devoted a lifetime to laboratory science, he understands the rigor of the process and the long road to discovery. He is also familiar with the rewards, having shared a Nobel Prize for discovering how the visual system functions in mammals. Creativity in the lab, he has said, arises when scientists are free to study what they wish and apply themselves sedulously day after day.

Back in 1985, Pew launched a biomedical scholars program that addresses the importance of work that moves forward by degrees, and we are privileged that Dr. Wiesel chairs its illustrious advisory committee. The program provides flexible funds for research. And it fosters a community among these early- and mid-career researchers to cultivate exchanges of ideas and collaborations that, more than is often recognized, fuel scientific

discovery and excellence. There are now more than 400 Pew Scholars, plus more than 150 in the Pew Latin American Fellows Program in the Biological Sciences. As we had hoped, they have become leaders in their fields—year by year, result by result. By degrees.

Cataclysmic weather events are like the supposed science breakthrough—they turn heads. As tragic as they are, they do serve to awaken people to a longer-term trend that has developed over decades: global warming due to greenhouse gas emissions. To be sure, the carbon-dioxide molecule, a contributor to these emissions, seems like a very small thing to be affecting the world's environment, but it has been increasing by degrees, according to a report for policy makers by the Intergovernmental Panel on Climate Change earlier this year.

As for the impact, we are literally talking about degrees, perhaps (in the most *conservative* scenario) a rise of 3.6 degrees F in average temperatures by the end of the century. Such a difference may not seem like much—after all, the day is pretty much the same at 75 or 78 degrees. Such a permanent and worldwide change, however, is enough to disrupt whole societies.

Pew has been supporting rigorous research on climate change for 17 years. Our initiatives have educated the public and policy makers on the planet's future if action is not taken to curb and reduce greenhouse gas emissions, and they have also promoted solutions. We are pleased to see the growing interest in taking action. And action is urgently needed, especially in the United States, which, because it produces some 25 percent of the world's emissions, is key to any long-term answer to the problem.

A Pew-supported land-trust consortium in the northeastern United States also works by degrees. As privately-held

properties change hands at an unprecedented rate, there is an urgent need to save these lands from development, while also making them available for low-impact public uses, such as recreation and environmental education. The land trusts within the consortium work parcel by contiguous parcel, with ambitious goals of preserving hundreds of thousands of acres.

It is worth mentioning that this article is the first *Trust* feature story to highlight our Donor Relations department, which was established in September 2004. We have formed partnerships with and designed initiatives for more than 100 donors who share Pew's goal of serving the public interest. We have greatly benefited from their guidance, leadership and support in delivering lasting results.

Institutions gain credibility and reputation by degrees as well, and from its founding, Pew has embraced high standards of conduct in order to merit the public's trust. Nowhere is this responsibility better reflected than in the wise stewardship of our board. Alan J. Davis, who joined the board in 2004, shared that commitment, and we were tremendously saddened by his passing in May.

Alan was a wonderful colleague, enthusiastic civic steward and esteemed attorney. On page 38, there is a description of his career and his lasting influence on the city of Philadelphia, which he loved. His thoughtfulness, candor and admirable spirit greatly enriched our institutional deliberations. In one of his last conversations with his wife, when the topic turned to Pew, he expressed his regret that his board service had been so brief. We feel the same way. We are humbled by this devotion and convey to his wife and family our deepest sympathy.

Rebecca W. Rimel  
President and CEO

## A Community of Beautiful Minds 2

*The Pew Biomedical Scholars Program isn't just about the funding.*



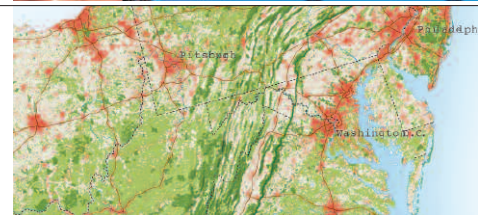
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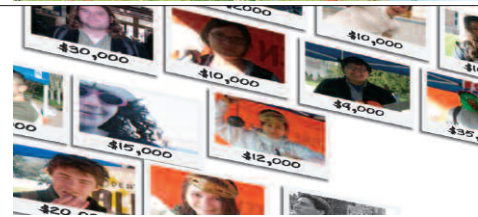
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*The Pew Charitable Trusts serves the public interest by providing information, advancing policy solutions and supporting civic life. Based in Philadelphia, with an office in Washington, D.C., the Trusts will invest \$283 million in fiscal year 2008 to provide organizations and citizens with fact-based research and practical solutions for challenging issues.*

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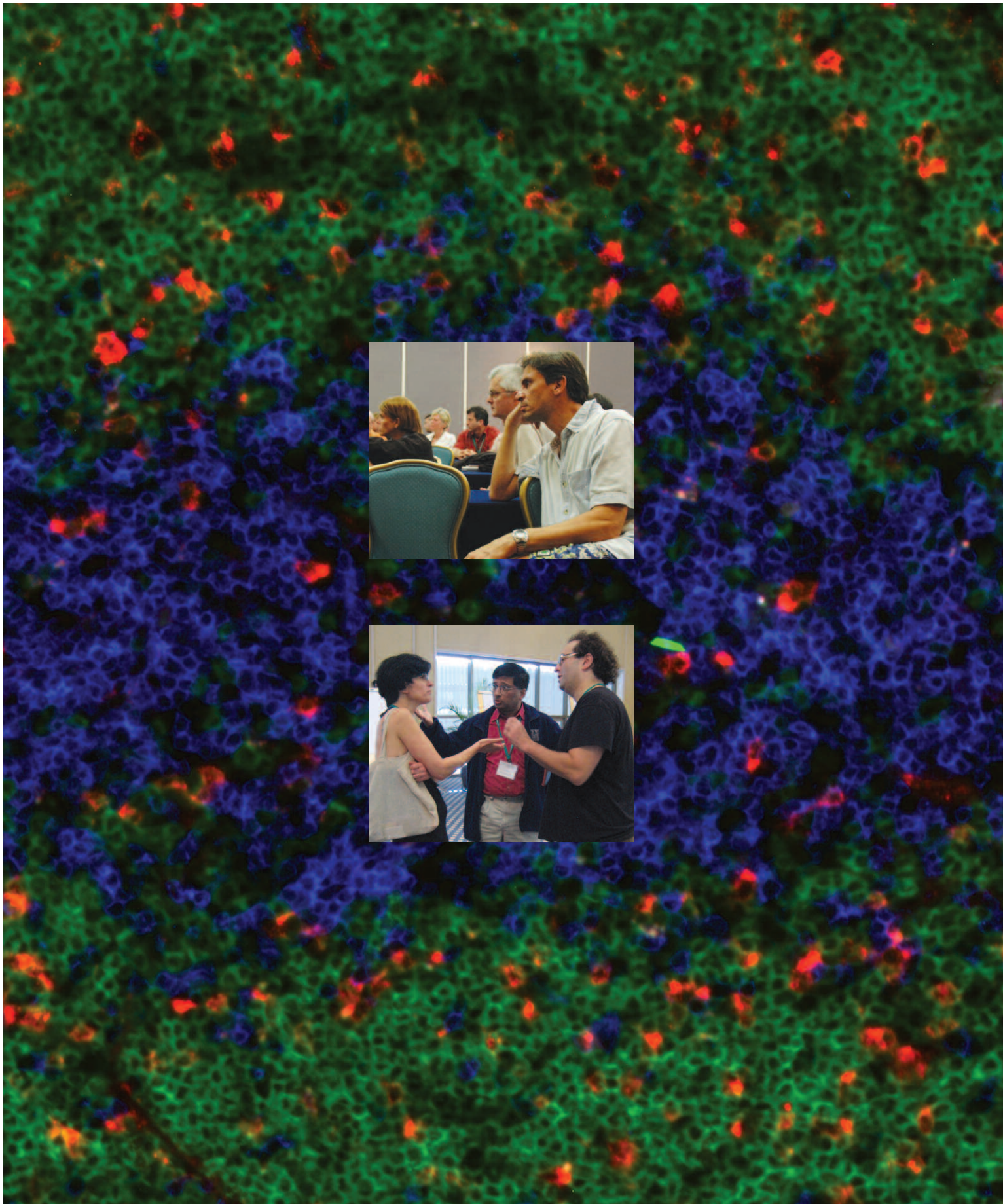
Colleen A. Miller  
Renee S. Wagoner

One Commerce Square  
2005 Market Street, Ste. 1700  
Philadelphia, PA 19103-7077  
Phone 215.575.9050

On the Internet:  
[www.pewtrusts.org](http://www.pewtrusts.org)

Design/Art Direction  
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Cover: relating to the work of Pew Scholars Carol Greider (left, photo by Keith Weller), Craig Mello (right, stained *C. elegans* embryo by Darryl Conte/Mello lab, courtesy of the HHMI Bulletin) and Gregory S. Payne ("chalk talk" during a science fair).



A study from Jan Erikson's lab that highlights a relationship between B cells and T cells: This section through a mouse spleen shows that self-reactive B cells (red)—which are usually constrained from entering the mature B-cell pool—can enter the B-cell follicle (green) if they get help from T cells. Courtesy of the Jan Erikson lab at The Wistar Institute.

*Inset:* Pew Scholars listened to presentations and talked shop among themselves.

**The Pew  
Biomedical Scholars  
Program nurtures  
science—and scientists.**

# A Community of Beautiful Minds

*By Marshall A. Ledger*

*"It gave me a deeper sense of science as a communal enterprise, of scientists as a fraternal, international community, sharing and thinking on each other's work." Neurologist Oliver Sacks, M.D., after a dialogue about a patient's brain disorder with DNA researcher Francis Crick, Ph.D.*

More than 200 Pew Biomedical Scholars were gathered in a hotel ballroom earlier this year for the 20th anniversary reunion of the Pew Scholars Program in the Biomedical Sciences. It's fair to say that they were excited. They were already veterans of annual meetings during their four-year Scholar period (attendance is expected), and many of them had attended previous alumni meetings. They looked forward to hearing their peers present work in progress, scientists outside the program give talks, and other speakers broaden their perspective by connecting the biomedical sciences to societal and policy issues.

And so it was a surprise to me to hear about some Scholars' *lack* of enthusiasm for the meetings—that is, before they attend their first one. When Roderick MacKinnon, M.D. (1992 Scholar), now at Rockefeller University, was preparing to go to his first, he had his doubts.

While he appreciated the Scholar's stipend, he also thought, "Gee, I'd much rather have the money it'll cost to go to the meeting to do more experiments."

He expressed this feeling when, as the first science presenter at the anniversary meeting, he began to describe his latest work. Then he added: "But I certainly have come to realize—and I think everybody here agrees—that, actually, these meetings are far more important even than the funding of the specific science that we could do at the time. They are much more important to our careers."

MacKinnon spoke from experience. His major achievement is elucidating the structure and mechanism of ion channels. The discovery helped open up the chemistry of the cell, and for this contribu-

tion MacKinnon was awarded the Nobel Prize in Chemistry in 2003. During his research, he made progress by using techniques from unrelated scientific disciplines—electrophysiology, biophysics and molecular biology—but the clincher turned out to be tools from X-ray crystallography, which he mastered with the help of William I. Weis, Ph.D. (1994 Scholar), a structural biologist at Stanford University. The two had met at a Pew Biomedical Scholars gathering.

MacKinnon continues to benefit from attending the meetings and talking to Scholars, an opportunity he is afforded as a current member of the program's National Advisory Committee. "The older I get," the 51-year-old said, "it's even more true."

Science can be a highly competitive enterprise, yet here I was hearing the opposite. Is this possible? Are the valuable science updates at the meetings actually upstaged by the contacts the participants make and the resulting sharing of ideas and methods? I thought I'd explore the extent to which this attitude pervades the Pew Scholars—who now number more than 400 from nearly 200 universities and research institutions—and the various ways their personal interactions turn them into a community.

**"The prepared mind requires unfettered opportunity to recognize and follow unplanned paths." Joshua Lederberg, Ph.D., Nobel laureate and former chairman of the Pew Scholars Program National Advisory Committee**

After learning about the program's benefits, it is clear to me why the meetings would not, at first, strike the Scholars as the most valuable part of the experience. The Pew

Scholars Program in the Biomedical Sciences, housed at the University of California at San Francisco, annually selects 20 early- to mid-career investigators in basic and clinical research based on a specific research proposal. For four years they receive annual stipends of \$60,000 for equipment, supplies, travel or other needs—whatever will best advance the research and the Scholar's career. This flexibility has always been the hallmark of the award.

"It encourages them to take a long view of their work, and the program consistently emphasizes this approach," says Jim O'Hara, managing director of Pew's Health and Human Services Policy program. With four years of funding assured, he adds, they might be more venturesome in their research and future applications for support from other sources than would otherwise be likely.

The Pew Scholars are already well vetted for their scientific curiosity. Their selection is determined less by what their proposed project might produce (as they would have to specify on an application for most grants from the National Institutes of Health and disease-based research foundations) than by their own proven excellence, ability to set their own goals, innovativeness as researchers and willingness to try out new investigative directions as the research dictates.

The history of Torsten N. Wiesel, M.D., sets the program's tone. He chairs the program's National Advisory Committee (as well as that of the Pew Latin American Fellows Program in the Biomedical Sciences; see sidebar on page 5), and, with David H. Hubel, Ph.D., won a Nobel Prize for discovering how the visual system processes information. The scientists worked together for 25 years, and Wiesel wryly says that the partnership "can be described as a 'massive fishing trip,' an expression commonly used by [NIH] study sections to

disparage bad grant requests. Our research was seldom 'hypothesis-driven,' to use another term (this one always implying approval). So be it," he says. "But the lack of a hypothesis need not necessarily prevent one from catching big fish."

The National Advisory Committee as a whole leads by example. Like its two chairs (Nobel laureate Joshua Lederberg, Ph.D., preceded Wiesel; both are based at Rockefeller University), they have broad scientific interests, are interdisciplinary in their scientific approaches and methods, and are devoted to training younger scientists. Because they pick the Scholars, they must be seasoned judges of intellectual talent and have interests beyond science. And they must be willing to serve as mentors, inspiring and guiding the Scholars in relationships that often extend long after either's direct connection to the program. At the annual meetings they can be seen deep in discussion with their younger colleagues, asking tough questions and sharing their years of experience.

"If this group were constituted into the faculty of a single department," said Eugene P. Kennedy, Ph.D., a biochemist at Harvard University who has evaluated the program, "that department would be one of the most distinguished in the nation."

**"You enter a room with an idea of your own and someone else enters the room with their idea, and you let those ideas interact. They bounce off each other, and you come up with a new idea. Whose idea is it? Is it mine or yours? Ideas emerge from a conversation more than they do from a person." 1995 Pew Scholar Craig C. Mello, Ph.D.**

That Scholars representing every class since the program's inception continue to attend anniversary meet-



The Scholars talked science throughout lunch, in between presentations and at the science fairs.

ings suggests that they feel part of an ongoing community, and the evaluations of the 20th anniversary meeting confirmed it.

Participants liked the series of three panels on science policy, whose speakers included Francis S. Collins, M.D., Ph.D., former director of the Human Genome Project and now of the NIH; former U.S. Representative John E. Porter, who championed significant increases in NIH funding while in Congress and who continues advocating for research funding as board chair of Research!America; and Sheryl G. Stolberg, an award-winning science writer and now the White House correspondent for *The New York Times*. In addition, Princeton University president and molecular biologist Shirley M. Tilghman, Ph.D. (and former advisory committee member), spoke on a scientist's social responsibility. One participant wrote, "The more global per-

## LA COMUNIDAD

**"After all, science is essentially international, and it is only through lack of the historical sense that national qualities have been attributed to it."  
Marie Curie, D.Sc., twice a Nobel laureate**

A sister initiative of the Pew Scholars program is the Pew Latin American Fellows Program in the Biomedical Sciences, now in its 17th year. The program, administered by the University of California at San Francisco, identifies talented early-career Latin American scientists, helps place them in top scientists' laboratories in the United States so that they can absorb the latest research ideas and methods (they receive \$30,000 for each of two years), and then provides \$35,000 in support for them to establish their own labs when they return home. The Fellows are encouraged to use their postdoctoral training opportunity either to increase knowledge of their current area of research or to explore a new area relevant to their interests.

There are now more than 150 Fellows. Many have published in top-ranking journals, often as first author, and several former Fellows have

obtained prestigious awards, such as being named Howard Hughes Medical Institute investigators, for their continuing research. Virtually all of them play key roles in their institutions' research and development by participating in teaching, research training and supervision activities that draw directly on their experiences in the United States.

They have also proven to be a cohesive group. The Fellows' 15th anniversary meeting occurred in 2005, and more than 80 percent of the alumni attended—a sign of the esteem in which the program is held, observes Jim O'Hara, managing director of Pew's Health and Human Services Policy program. In addition to science presentations by their peers and a talk on competing for grants from the National Institutes of Health, the scientists networked with each other and the advisory committee, sowing the seeds for new collaborations. In their post-meeting evaluations, many praised not only the research but the progress of the presenters since their postdoctoral U.S. training. They appreciated the attention of the advisory committee members. And they enjoyed being able to reconnect with each other after many years and to establish new scientific partnerships—some describing specific collaborations that were set in motion during the meeting.

spective and broader issues are something we often don't have a chance to hear and discuss."

But more than anything, the Scholars praised the opportunity to see one another—as one scientist wrote, "It re-energizes us and gives the 'Old Scholars' and 'New Scholars' a chance to interact for the first time."

They devoted many hours listening to the presentations of their colleagues. Sometimes they felt out of their element, but most relished the challenge to keep up, as I would hear directly.

Gary H. Gibbons, M.D. (1994 Scholar) is a cardiologist at the Morehouse School of Medicine, where his research group's work on vascular biology and the pathogenesis of vascular diseases has resulted in several patents. "We're experts in our field and at the top of our game," he told me during the conference, "so it's interesting to go to talks where we're not only *not* the experts but have only average understanding."

The participants dedicated even more hours to talking shop. Every



Meeting photographs by Martha Ledger and Marshall Ledger

day, I passed a pleasant 45 minutes during lunch, while, on the other side of the table, a couple of scholars, different ones each time, were deep into discussing science, with an occasional wave of the hands or a laugh to punctuate a point. They could have been sitting at a table for two and were not even disturbed by a photographer edging up to record the fact of their conversation.

Seeing these exchanges is a common experience for a former member of the program's National Advisory Committee, Michael B. A. Oldstone, M.D. He is a virologist at the Scripps Research Institute, and his awards include membership in the Institute of Medicine of the National Academy of Sciences. "For me, the heart of the program is the dynamics of people meeting," he said. He regards the gatherings less as a conference and more as a retreat. "The informality is really what's terrific."



Scholars who brought their families found their kids listening closely at the science fairs.

Nancy M. Hollingsworth, Ph.D. (1996 Scholar), a biochemist and cell biologist at Stony Brook University, has a list of exchanges with her fellow Scholars, and she recounted them in the oral history that is part of the program (see box below). Her lab studies chromosome structure and function during meiosis in yeast. She pioneered a "mutant screen" through which she identified the gene *Hop1*, a component of the protein structure (known as synaptonemal complex) that mediates chromosomal pairing. At a meeting during her Scholar years,

she met Carolyn F. Kisker, Ph.D. (2000 Scholar), now a structural biologist at the Rudolf Virchow Center for Experimental Biomedicine, in Germany, and the two collaborated on the structural crystallization of *Hop1*.

At another meeting, Hollingsworth met Kevan M. Shokat, Ph.D. (1996 Scholar), a cellular and molecular pharmacologist at the University of California at San Francisco; they began a collaboration that put her in touch with a company that supplies her with her radioactive analogs free, and that has led to several publications. She teaches with Maurice J. Kernan (1997 Scholar), a neurobiologist at Stony Brook, noting, as faculty colleagues, "we would have done that, anyway, but it helps that we have the bond."

"I always come away inspired to try something new," said Gregory J. Hannon, Ph.D. (1997 Scholar), professor at the Cold Spring Harbor Laboratory. He recalled a Scholars meeting when Craig C. Mello, Ph.D. (1995 Scholar), a molecular biologist

## MAKING A COMMUNITY WITH THE FUTURE

**"If I could be king of the forest, we would be talking about science all day long."**

**Bill Nye, *The Science Guy***

Joshua Lederberg, Ph.D., once agreed to sit for an oral history. In recounting his work on bacterial recombination of DNA, which led to a Nobel Prize, he said, "Look, the purpose of the experiment was to bring bacteria into the mainstream. Behind that was to bring DNA into genetics. Yes, this was the master molecule that was going to be available for further experimentation. I can say that without qualm."

Arthur Daemmrich, Ph.D., told this anecdote to participants at-

tending the 20th anniversary meeting of the Pew Biomedical Scholars. Daemmrich, of the Chemical Heritage Foundation at the time, was discussing the value of oral history, an expertise of the foundation. "Here we have a huge turning point for molecular biology in the 20th century," he said. "Here we have a scientist with an intentional research agenda, developing the framework and then the particular molecule and method. That's an exciting moment to capture."

The Pew Scholars program is already familiar with oral histories—Lederberg, when he served as chair of its National Advisory Committee, recommended that the program cull the Scholars' own accounts of their careers, because he knew the firsthand perspective would be invaluable. The program adopted his idea,

and now scores of Scholar histories constitute a unique story of recent biomedical science.

The Chemical Heritage Foundation, where the program's oral-history project is housed, is not only continuing the project but also enhancing it, Daemmrich said. It is reaching out to Scholars who have not been interviewed (involvement is voluntary) and plans to re-interview some of the scientists who participated previously.

It will establish a Web presence for the series, with a précis of each Scholar's biography as well as a table of contents; the full text, with the Scholar's agreement, will be available to historians and others through interlibrary loan. The foundation is found at [www.chemheritage.org](http://www.chemheritage.org).



at the University of Massachusetts School of Medicine, described his work on RNAi, a biological process that silences genes individually. As a research tool, RNAi can disable genes in laboratory animals, so that scientists can study the effects of the genes' absence. For patients, the technique has the potential to silence genes that cause diseases. Not long afterward, in February 1998, Mello, with Andrew Z. Fire, Ph.D., currently of Stanford University, would publish a paper on that discovery in the journal *Nature*. Eight years later, this discovery would earn the two a Nobel Prize. Mello's talk interested Hannon, and the two chatted, but because Mello is a worm biologist and Hannon works on fruit flies, Mello's idea "just sort of percolated for a year," said Hannon in the RNA Interviews series by the Ambion company.

At the next Scholars meeting, he heard a talk by Richard W. Carthew, Ph.D. (1995 Scholar). A molecular biologist now at Northwestern University, Carthew, last year, contributed to research proving that RNA silencing is the fly's immune response to infection by viruses. At the session Hannon attended, Carthew described how he used embryo injections to show that RNAi worked in the fly. "That's what really pulled me in," Hannon said. "The notion that this phenomenon was going to be universal really captivated me."

He shifted the entire emphasis of his lab to RNAi, although, instead of gene function, he studies the mechanism of RNAi. He and his team identified the activity called RNA-Induced Silencing Complex and one of the complex's protein components. They identified the enzyme Dicer, which begins the RNAi process by cutting long RNA molecules into shorter ones. They showed the gene-silencing effectiveness of "short hairpin" RNAs, thus extending the possibilities for functional studies.

And in June, Hannon's lab and others published a finding that a family of microRNAs enables a crucial tumor-suppressor network, called the p53 pathway, to arrest cancer growth and even eradicate cancers.

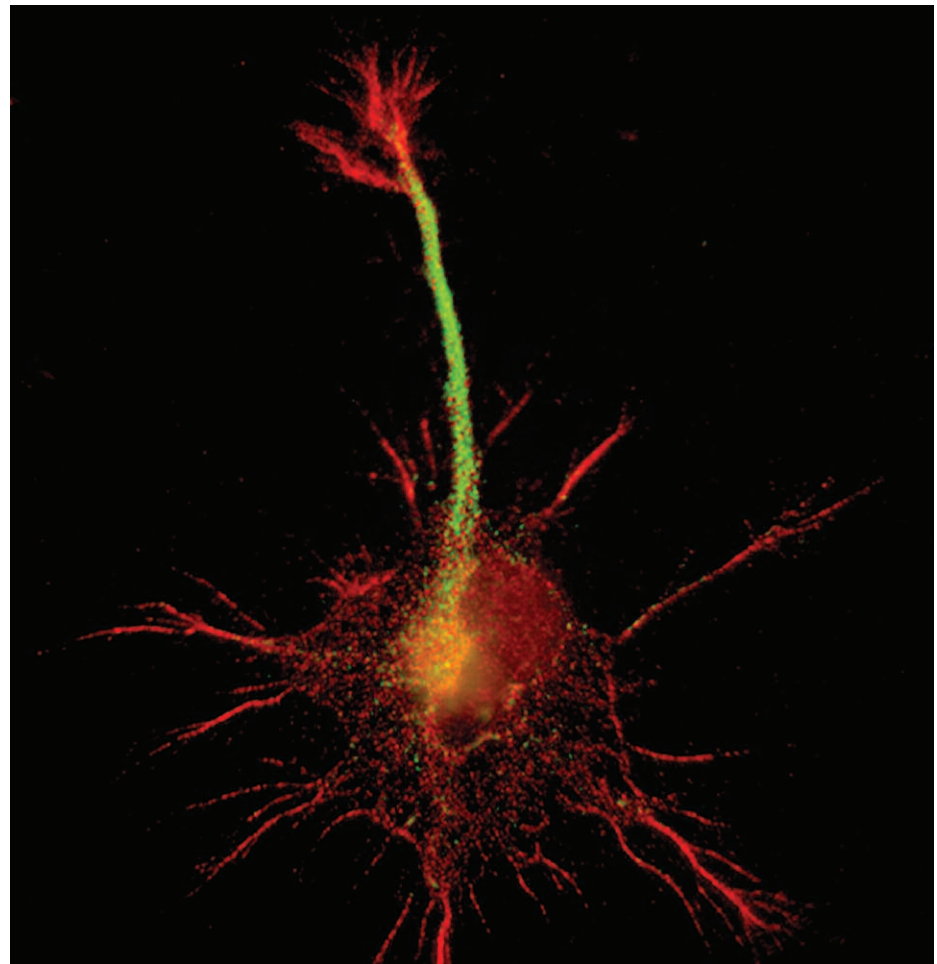
Mello's talk set Hannon thinking, and then Carthew's changed his career, Hannon acknowledged: "I actually called the lab from that Pew meeting and said, 'You know what? Get out those *Drosophila* cells and see if they do RNAi.' And they did."

The reality of a Scholars' community became fully clear to me when I witnessed the start of a potential collaboration. Susan K. McConnell, Ph.D. (1989 Scholar), a neuroscientist at Stanford University, had just given a talk on the development of the central nervous system, her laboratory's

focus. In her conclusion, she had said, "This program is very dear to my heart" (she now serves on the National Advisory Committee). I wanted to follow up and saw her at one of the science fairs. "My first Pew meeting transformed the way I do science," she said. "I have neurobiology training, and after my first meeting, I viewed my own research as primitive compared to others. It was like a bucket of ice water."

Just then, Michael Lagunoff, Ph.D. (2002 Scholar), approached her. He is a microbiologist at the University of Washington School of Medicine and on a normal day does not cross paths with a neurobiologist. He had attended McConnell's talk and was riveted by her movies of living slices of the developing ferret brain, with neurons imaged by a technique called time-lapse confocal microscopy.

A young neuron stained for a microtubule binding protein, Doublecortin (red), and a protein kinase, MARK (green). Together, these molecules regulate the migration and differentiation of young neurons. MARK controls exactly where Doublecortin gets localized stably in the cell. Courtesy of the Susan McConnell lab at Stanford University.





Sue McConnell and Michael Lagunoff sat down to see what their research, developed in different fields, might have in common, and Michael Overstone, former member of the National Advisory Committee, lent advice.

Their work, he felt, might have something in common. “I have movies that we’ve taken from infected cells that change the way they move,” he said, “and I think it might be related to something neurons do, because it looks a lot like the neuron movement rather than a different cell type in the body’s movement.”

They agreed to chat together, but first he answered my request to elaborate on his aims: “What I’m interested in talking to her about is this: Can we understand what the virus is doing in the cell by understanding whether it activates something that is happening in neurons already? Could a virus activate, in a different cell type, something that looks similar to that?”

“The molecular mechanism could actually be similar, and we could get ideas from that,” he concluded, “so we’re taking ideas from one field to a completely different one.”

They retreated to a table and chairs by the side of the room. “See?” McConnell called back to me. “It’s taking place right in front of your eyes.”

**“Back off, man. I’m a scientist.”  
Peter Venkman, Ph.D. (Bill Murray), *Ghostbusters***

Science evokes conflicting feelings. On the one hand, it offers “a seemingly inexhaustible sense of wonder,” as Torsten Wiesel says. But he also remembers hitting the wall, enduring “the frustration that is the daily bread of so much scientific research.” At the anniversary meeting, the Scholars often compressed both of these opposing moods into one sentence.

Francis M. Brodsky, D.Phil. (1988 Scholar), a microbiologist and immunologist at the University of California at San Francisco, described her work on the cell’s mechanism for accepting macromolecules, work that could help explain how the immune system works, which is basic to vaccination and certain therapies. She brought the Scholars up to date on her lab’s progress, ending with this comment: “That’s what we knew in 1988. We’re getting closer—we’re not there yet.”

Brodsky has also written science-based detective novels—“biomysteries”—under the name of B. B. Jordan. They’re easier: The loose ends are tied up and the murders solved by the last page.

Susan McConnell expressed the wonder and frustration in another way. Summing up her talk on neuronal development, she put a slide on the screen and said, “I don’t know if it’s really wonderful or totally pathetic that 15 years of work is summarized on this one slide.”

Then she added, “Science gives us more questions than answers.” She had widespread agreement from 200 knowing, and sympathetic, colleagues.

How important is this? It can make a difference when “things are a little hard,” Jan Erikson, Ph.D. (1993 Scholar), an immunologist at The Wistar Institute, said in her oral history. Then she mused: “I must say, one of the sources of friendship in science has come from the Pew [program], because it has gotten us together in such wonderful ways.”

Erikson knew there was something special at her first meeting. She studied the interplay among the various immune cells that activate or suppress the immune system, and at that meeting she gave a talk on the lymphocytes known as B cells, which are essential to the immune system when it encounters diseases. The thoughtfulness and acuity of the questions startled her. “I talked about this work at immunology meetings,” she recalled, “and had never gotten the kinds of questions that required me to stand back and look at the whole picture.”

In particular, she recalled, she was describing the use of gene segments when a Scholar asked simply, “Why did you do that?” As Erikson told the oral historian, “It wasn’t a question I had ever answered,” because at the time everybody studying B cells looked at gene-segment use. “I answered his question. It just made me think about the work in a new way.”

She continued: “The gift there was the different people I was around, from diverse backgrounds, a group I was privileged to be among, a high level not just of science but of generosity—people happy to listen to someone else’s work and comment on it.

“It’s personal,” she added. “I even get a birthday card from Pew every year.” Then she mused once more: “The truth is I like that. That’s nice. They humanize.” ■

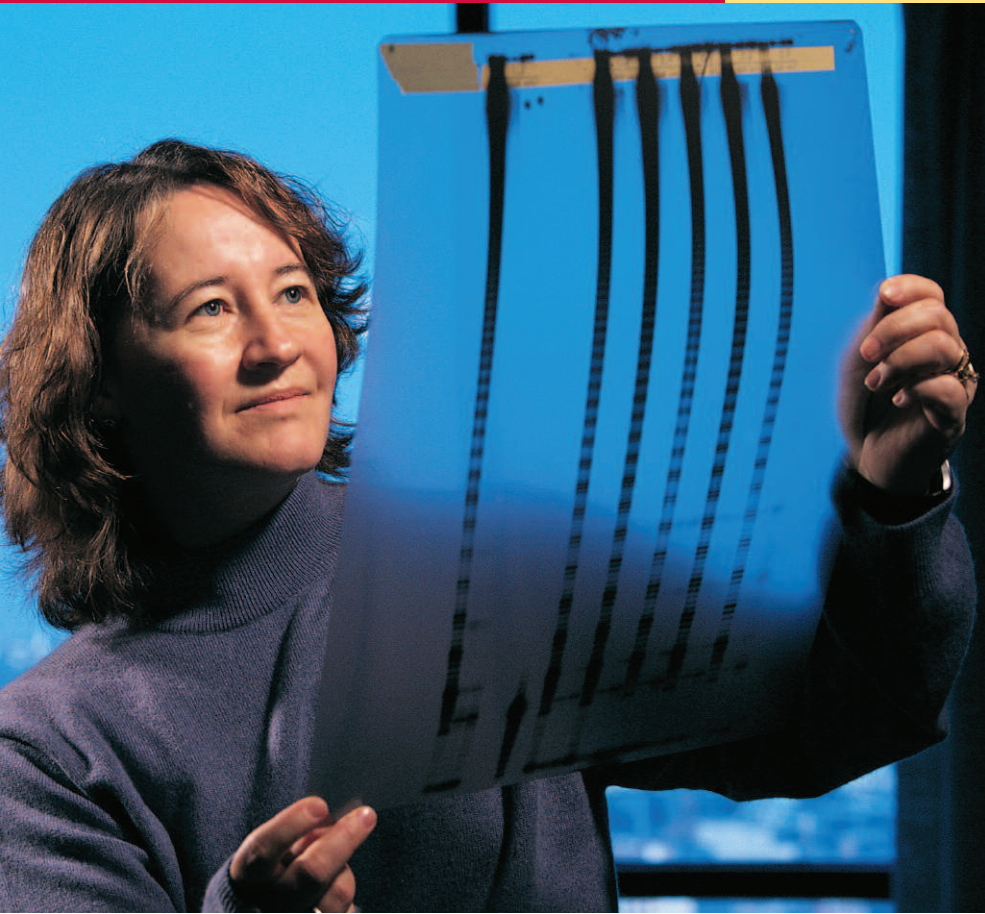
**A full roster of Scholars and their work is located at the Web site of the Pew Biomedical Scholars Program at <http://futurehealth.ucsf.edu/pewscholar>.**

*Marshall Ledger is editor of Trust.*

# Roads to Eureka

By Marshall A. Ledger

They are many, but they rarely, if ever, result in a sudden arrival. Here are two accounts of persistence—and success.



Carol Greider examines the radioactive markers that point the way to telomerase.

When Carol W. Greider, Ph.D. (1990 Scholar), a molecular biologist and geneticist at Johns Hopkins University, gives talks, she likes to help the audience understand her subject by finding analogies. As a graduate student, she once found herself presenting a journal article on the cloning of yeast telomeres. To illustrate the unlikely probability of two pieces of DNA coming together, Greider introduced marbles, saying, “Given a bag of marbles, if you reach into the bag . . .”

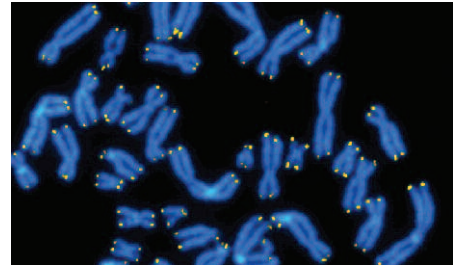
The professor heading the seminar was Elizabeth H. Blackburn, Ph.D., a biochemist/biophysicist at the University of California at San Francisco. She had assigned the paper, which was her own publication, co-written

with Jack W. Szostak, Ph.D., a geneticist at Harvard Medical School. Blackburn praised Greider’s presentation and said she was pleased that Greider would be doing a rotation with her soon.

Greider went on to study telomeres—the physical ends of chromosomes that protect DNA molecules after they divide so that the genes they carry remain intact (the ends have been compared to the plastic tips that preserve the ends of shoelaces). While still a graduate student, she made a major advance by identifying the enzyme telomerase, which extends those ends.

Last fall, Blackburn, Szostak and Greider shared the 2006 Albert Lasker Award for Basic Medical Research—the “American Nobel Prize”—for the

“The most exciting phrase to hear in science, the one that heralds new discoveries, is not ‘Eureka,’ but ‘That’s funny . . .’” *Isaac Asimov, Ph.D., biochemist and author*



Chromosomes (stained blue) with the telomeres (yellow tips). Courtesy of Peter M. Lansdorp, Ph.D., British Columbia Cancer Research Centre.

prediction and discovery of telomerase. Their work “stimulated hundreds of scientists to enter the field in the 1990s,” said Joseph L. Goldstein, M.D., the Nobel laureate who chaired the Lasker jury, at the awards ceremony. “This explosion of research,” he continued, “has led to a new model of how the life span of normal cells is regulated and how this regulation goes astray in cancer.”

Greider herself is one of those leading the way, and she explained her current work at the anniversary meeting. When, she asks in her ongoing research, is it better that telomeres shorten and when it is better that they lengthen? As she notes, as cells get older, their telomeres shorten, and when they stop functioning properly, the cell dies. But the telomerase enzyme of cancerous cells keeps these killers alive indefinitely—so shutting them off might prove to be a cancer therapy. (She has demonstrated this in mice.)

But other telomeres ought to be maintained—for instance, in blood stem cells, which replenish the blood

Keith Weiler/Hopkins Medical News

supply. So, in the case of some diseases of bone-marrow failure, therapy would involve increased telomerase to protect the chromosome ends.

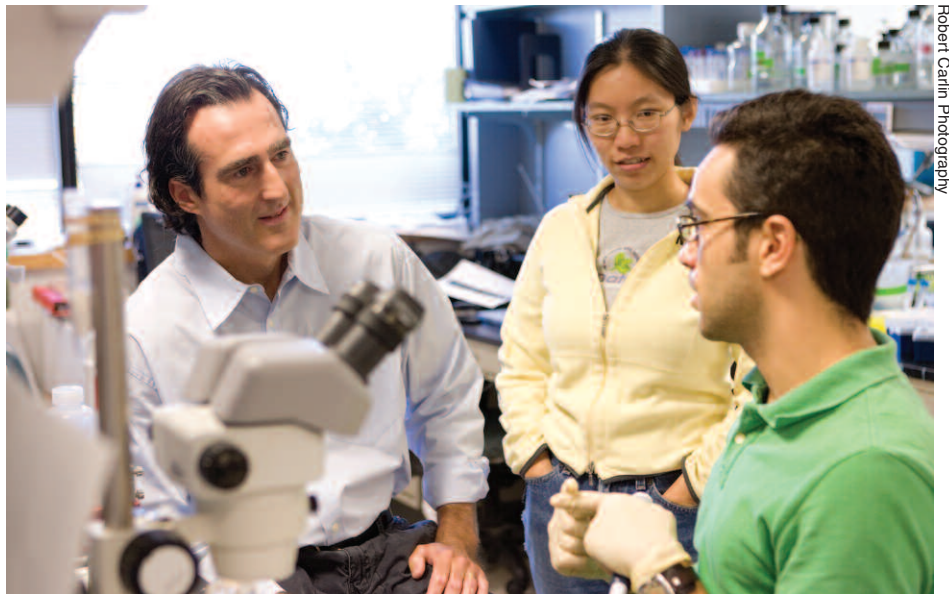
If one were to seek an analogy to describe Greider, her own history provides the best material. As a youngster in northern California, she did handstands on the back of a galloping horse, a sport called “vaulting,” which she performed competitively; and as a teenager, she balanced, arms and legs outstretched, on the shoulders of friends who were standing on a cantering horse. She still competes in triathlons and running races, continuing to dare herself.

As Blackburn recalls, that spirit drew Greider to the search for the telomere enzyme. “For a student to want to get involved in this project was almost unheard of,” she says. “Students want to do safe things, and this was not safe. It could have completely crashed and burned. But Carol had a sense of adventure.”

Greider remembers the arduous process. “The thing about looking for telomerase was that it wasn’t clear how to look,” she says. She tried assay after assay. She used the fresh-water protozoan *Tetrahymena*—“just a weird organism” found in “pond scum,” she notes, indicating its grubby reputation.

After nine months of looking, her discovery came on Christmas Day, 1984, when she finally saw a repetitive pattern on the gel “that looked like what we thought we should be looking for.” Even then, she stayed balanced: “I didn’t want to kind of get my hopes up. I mean, I tend to say, ‘Okay, we’ll just see.’”

Spring arrived before she completed the control experiments that convinced her telomerase was real, and the results were then published in the journal *Cell*. One of the reviewers, understanding the difficulty of the purification work, called it a “heroic effort.” Says Greider: “And I thought, ‘Right on!’”



Craig Mello teaches the next generation of scientists.

**“We’ve never actually proved anything except that we were wrong about what we thought yesterday.” 1992 Pew Scholar Roderick MacKinnon, Ph.D.**

**C**raig C. Mello, Ph.D. (1995 Scholar), professor of molecular medicine at the University of Massachusetts Medical School, started his talk to the alumni Scholars with a caution. “Scientists can get overconfident that they understand the complexity of life,” he said.

“No matter how the answers seem to be complete”—and he alluded to the work of giants: Charles Darwin, Gregory Mendel, the gene discoverer who has been called the father of genetics, and James Watson and Francis Crick, who deciphered the structure of the DNA molecule—“there’s more to learn.”

His own work is a case in point. For decades, the genome of any organism seemed to center on DNA (deoxyribonucleic acid), which contains the genetic code. RNA (ribonucleic acid) was thought to have less glamorous functions—one as a messenger (mRNA), ferrying information from the nucleus of the cell out to the cytoplasm, where it is translated into protein, the body’s building blocks. That seemed to explain how any life form operated. But there was, as

biomedical science found out, more to learn.

Using the roundworm *C. elegans*, Mello and his science partner Andrew Fire, Ph.D., now of Stanford University, discovered that mRNA from a specific gene could be turned off when new RNA molecules were introduced. The key: The new molecules must be double-stranded (they resemble the helical spiral-staircase structure of the DNA) and carry a genetic code identical to that of the gene to be silenced. When cells see RNA in that double-stranded form, their silencing mechanism is activated. It is called RNAi (*i* for “interference”). They also found that RNAi could spread from cell to cell and even be inherited.

They published their work in 1998, and, last year, it won them the Nobel Prize in Medicine or Physiology.

Previously, scientists had learned how to block gene expression with single-stranded RNA, but the method was difficult and unreliable. As it happens, several researchers produced results with the silencing process that Mello and Fire discovered, but without understanding what was occurring. In 1990, plant biologists in California, trying to make a purple petunia deeper in color, induced an RNA gene juiced to intensify the color; they produced flowers that were either mottled or entirely white. Recognizing that something spectacular had

happened, they published their findings. And geneticists at Cornell University in 1995 succeeded in silencing a gene with the older method but were puzzled when the experimental control, which should have done nothing, also disabled the gene.

Mello and Fire's discovery, the Nobel Assembly stated, "clarified many confusing and contradictory experimental observations and revealed a natural mechanism for controlling the flow of genetic information. This heralded the start of a new research field."

In their paper, the scientists also seemed to offer a dare. "The mechanisms underlying RNA interference probably exist for a biological purpose," they observed. This was not taken as mere commentary. "Great papers give rise to whole fields when they not only report a discovery but also pose a challenge to the scientific community," wrote Phillip D. Zamore, Ph.D. (2000 Scholar), in a "Leading Edge" essay in the journal *Cell* last December.

The pull was certainly irresistible to Zamore, a biochemist and molecular pharmacologist at the University of Massachusetts Medical School (where, coincidentally, Mello is located). "I

was bit late in discovering the paper, reading it only in March 1999; by May, RNAi was my consuming passion," he wrote. He was part of a team that, in an in-vitro study of RNA, determined how small RNAs mediate RNA interference ("one of the major discoveries," says Mello). His lab has also discovered that Dicer, maker of silencer RNA, also makes microRNA, molecules that regulate gene expression.

RNAi has become a consuming passion for many others, too. As of last December, according to the Essential Science Indicators database, there were 8,382 articles on gene silencing in the previous decade—5,468 of them in the past two years—involving 27,892 authors from 3,127 institutions worldwide.

For biomedical research, the technique created a paradigm shift because of its value as a tool in experiments. Scientists can shut off genes one at a time, isolating them for investigation in a matter of weeks rather than months or longer. And they can use plants, flies, fungi, worms, humans—apparently any organism.

How potent and reliable it can be for human therapies remains to be seen, but there is no shortage of effort to find out. In mice, scientists have already reversed heart disease by turning off their bad-cholesterol

gene, and they have blocked herpes infections in mice. They are hunting for ways to silence the genes that cause (among other diseases) cancer, macular degeneration, HIV and neurological disorders like Huntington's chorea and Lou Gehrig's disease. There may be yet further uses. RNAi protects the genome against "jumping genes"—DNA sequences that move around in the genome and can cause damage if they end up in the wrong place. And the Nobel citation mentioned agricultural applications.

"It's so important that people almost take it for granted already, even though it was discovered fairly recently," said Thomas R. Cech, Ph.D., who won the Nobel Prize in 1989 for his discoveries about the catalytic properties of RNA.

In addition to RNAi research, Mello's lab is exploring the mechanisms of cells in differentiating and communicating when the embryo is formed and first begins to develop. His work has shown that a cell's position in the embryo can determine the type of tissue it will become, and he has identified genes involved in cell fate in *C. elegans* embryos.

"We have to rethink theories of inheritance and evolution," he told the Scholars at the anniversary meeting, "because it's possible that, in this kind of epigenetic regulation, inheritance of RNA plays a big role in controlling the level of gene expression—a very exciting idea."

Mello's restlessness recalls an anecdote of him told in the *Bulletin* of the Howard Hughes Medical Institute. When the Mello family took hikes in the Blue Ridge Mountains, young Craig typically walked faster than the others. "I just want to see what's past that next ridge," he would say to them.

And his mother would tell him, "You go look, and then come back and tell us." ■



Staining appears around the mouth area of *C. elegans*, where muscle RNA was not targeted by RNA interference. Reduced or nonexistent staining along the body wall shows the inactivation of muscle genes through RNAi. Courtesy of the Mello lab at the University of Massachusetts Medical School.



**I**n protecting wilderness and a land trust consortium also considers agriculture, public access, culture and

Preserving

THESE  
OTHE

# farmland, sustainable forestry and history.

The Trustees of Reservations



Gonet farmhouse in the Allen's Neck area of Westport, Mass.



Katahdin Iron Works in Maine.

**N**ow in his 93rd year, Gus Gonet has spent his entire life in Westport, a farming community on the southeastern coast of Massachusetts. Now, recently widowed, Gonet is sitting at the kitchen table in the farmhouse

that has been in his wife's family for three generations, and telling Anthony Cucchi that he hopes the area around his farm will escape the kind of development that he believes has despoiled much of Westport.

"I've had a very pleasant life here, I don't know where it could have been any better," he says in a broad New England accent. "I'd like to see it stay the same. But half of it's gone."

"We're working on it," says Cucchi, a land protection specialist with The Trustees of Reservations, a Massachusetts land trust.

"You're not working fast enough," Gonet snaps.

# R Edens

By Sandra Salmans

In communities like Westport throughout the northeastern United States, it is a race against time. As one generation gives way to the next, an unprecedented number of property transfers are placing at risk the pristine forests, farmland and waterways that have long defined the landscape of New England—and been identified with crusty Yankees like Gonet. Major conservation groups agree that, given the escalating pace of ownership changes, the fate of the Northeast's last major conservation resources will be sealed within a decade.

But thanks to the dedication of people like Gonet and land trusts such as the one represented by Cucchi, land is being saved from development. From 2000 to 2005, local and state land trusts—nonprofit organizations that are dedicated to land conservation—conserved open spaces at a rate of more than 1 million acres per year, according to the Land Trust Alliance, a Washington, D.C.-based group.

There are two ways to protect these lands. Owners can sell or donate their land to a trust for preservation in perpetuity. Or they can sell or donate a conservation easement, a legal agreement that permanently limits uses of the land. A farmer can continue to farm the land, for example, but not build additional structures on it. An easement also allows the owner to sell the land—under the same restrictions—or pass it on to heirs.

The tax advantages to an easement are substantial. Owners receive a sizable one-time tax deduction, their real estate taxes plummet, and they can bequeath the property without triggering a huge tax bill for their heirs.

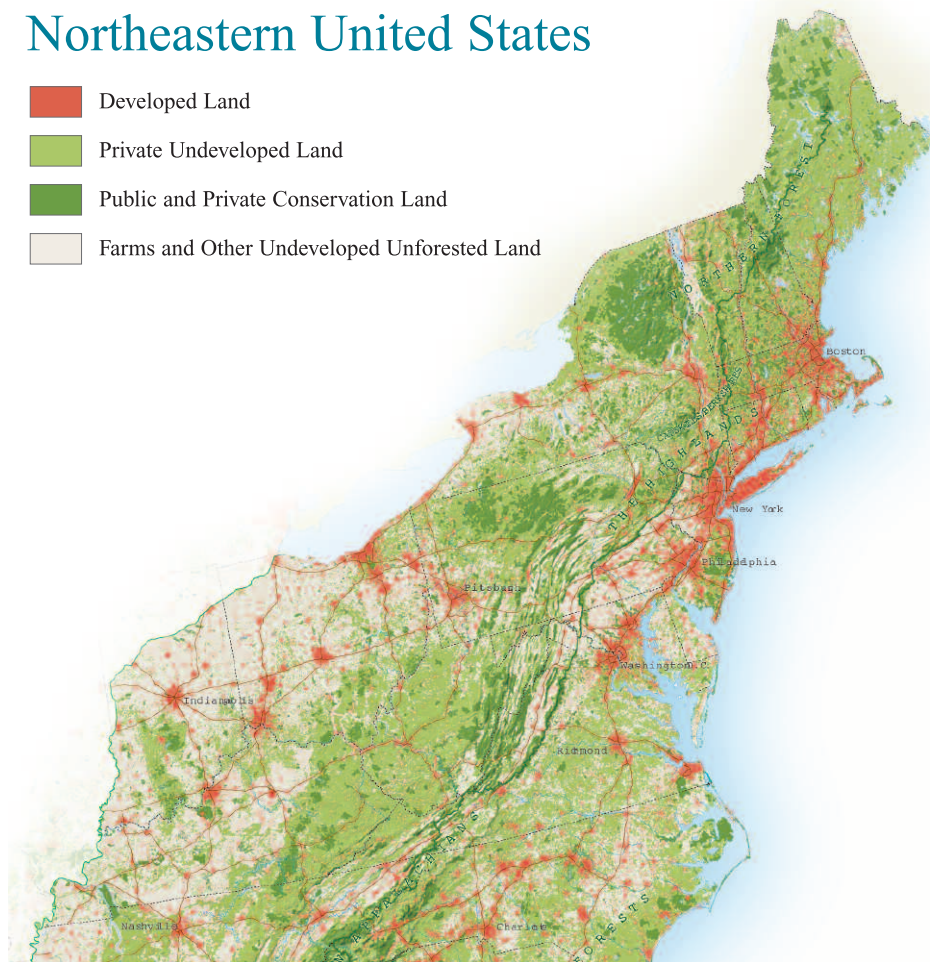
To spur these land conservation efforts, in 2006 Pew launched the Northeast Land Trust Consortium and allocated \$1 million in matching funds to encourage donations; Pew provides \$1 for every \$5 raised, once funds raised reach a specified level.



Forests and shorelines near Grand Lake Stream in Maine.

## Northeastern United States

- Developed Land
- Private Undeveloped Land
- Public and Private Conservation Land
- Farms and Other Undeveloped Unforested Land







The New England Forestry Foundation and the Down East Lakes Land Trust

- The Katahdin Iron Works in Maine, with the Appalachian Mountain Club. A 37,000-acre parcel of land, the Iron Works—some 50 miles from famed Mount Katahdin, the state’s highest mountain—is the first part of an ambitious initiative to protect key properties in an area known as the 100-Mile Wilderness.

That region includes some of Maine’s most scenic vistas, including three mountain peaks and 15 miles of the Appalachian trail.

- Down East Lakes, with the New England Forestry Foundation. The goal is to acquire 342,000 forested acres in eastern Maine.

This area is positioned between tracts that are already protected, including 200,000 acres of state, federal and Native American lands. As a result, the project, when it is completed, will secure 1 million acres of uninterrupted habitat for endangered animals and plants.

- New Hampshire’s Squam Range, with the Lakes Region Conservation Trust. Bordering the White Mountain National Forest, the range is one of the largest unfragmented blocks of land remaining unprotected in New Hampshire.
- The Allen’s Neck area of Westport, Mass., with The Trustees of Reservations. Efforts are focused on two working farms in an area noteworthy for its strong cultural and historic connections to the land and the sea, including an annual clambake that has been going on uninterrupted since 1888.

Earlier this year, Pew boosted its contribution to its “seed fund” to \$2 million, which will enable it to match a total of \$10 million in donations. The consortium is also inviting donors to contribute to the seed fund, providing additional matching funds as a spur to still more philanthropy. And it is planning to work with land trusts

beyond the initial four and extend its reach through the Connecticut and Hudson valleys all the way to rural western Pennsylvania.

In each of its partnerships with a land trust, the consortium vets the arrangement, helps raise the money and matches it with funds from Pew. The local land trust, rather than the consortium, holds title to the property and maintains it over the long term. “Once the deal is done, we’re like the Lone Ranger—we move on,” says Tom Curren, the consortium’s project director. “We leave the local trusts stronger than we found them.”

Curren came to fundraising through a very local commodity—maple syrup. Born in Boston, he was employed as a social worker with the Spaulding

A clambake that has  
been held annually since  
1888 is among the  
traditions being protected,  
along with the land.

Youth Center in Tilton, N.H., in 1982 when he had a bright idea: Why not buy a maple syrup evaporator for the center and let the youngsters make some spending money? The director agreed initially, but later cut the item out of his budget, so Curren convinced the evaporator manufacturer to sell him the product at half price and persuaded a local family foundation to donate the cost. At that point, his director decided that he might be deployed for more fundraising.

“You own a suit?” he asked Curren.

“I own a sports coat,” Curren offered.

Twelve years later, Curren’s fundraising talents—and interest in conservation—brought him to the Lakes Region Conservation Trust, a community-based land trust representing 31 towns in central New Hamp-

**T**he consortium was developed with a set of core values: conservation organizations should be models of nonprofit best practice; wilderness protection is vital; forestry should be practiced in a sustainable manner; the public should have low-impact access to conservation lands; culture and history are important community-conservation values; and local agriculture must be protected and encouraged.

The consortium’s specific brief was to boost the fundraising, acquisition capacity and technical strength of the region’s most effective land trusts.

The fundraising effort was so successful that in its pilot phase, the consortium exceeded its goal of \$5 million, attracting \$6.6 million from 61 donors. Working with area land trusts, it used these funds to support four key projects in Maine, New Hampshire and Massachusetts that ultimately protected 379,900 acres in perpetuity:

shire. He became its president in 1998, leaving to join Pew in early 2006 to launch the consortium, which he directs from his New Hampshire home base.

**I**n selecting the projects, Curren notes, the consortium looks to community-based conservation initiatives for guidance, relying heavily on the expertise of local trusts to select the sites that are the best candidates for preservation because of their location and unique characteristics. For example, the Down East Lakes Forestry Partnership has documented that the land it seeks to protect is home to more than 10 percent of the loon population in northern Maine.

In Maine, the Appalachian Mountain Club had begun the planning process nearly a decade earlier for a project that would protect the 100-Mile Wilder-

The local trusts select the most promising sites for preservation; the consortium helps with fundraising and land acquisition.

ness region. Forestry companies were divesting themselves of acreage they had held for hundreds of years, setting local economies in turmoil and putting Maine's woods in peril. The Maine Woods Initiative, of which the centerpiece is the Katahdin Iron Works parcel, seeks to protect up to 100,000 acres.

The project has many objectives, only one of which is land conservation. It also seeks to give access for recreation; encourage community economic development through sustainable timber harvesting; foster an eco-tourism industry; and promote education, using the area to introduce



West Grand Lake in Maine.

local schoolchildren to the outdoors.

Although the mountain club had agreed in 2003 to buy the Katahdin Iron Works parcel from International Paper Company, it still had to raise millions to pay for it. That is where the consortium came in. It helped raise more than \$2 million in 2006; the goal for 2007 is to cover the purchase price in its entirety and endow a stewardship fund that would support the area's ongoing maintenance.

"If you're a prospective donor, hearing that a project has Pew's stamp of approval does have an influence," says AMC's executive director, Andrew Falender. He also cites approvingly the

extent to which Tom Curren becomes involved with the projects and the donors. Together, the two have met with donors in locations as disparate as a soul food restaurant in New Haven, Conn., and a lodge in northern Maine. While AMC has worked with other challenge grants in the past, Falender says, the consortium's hands-on approach "is where it has really differentiated itself from other matching programs."

The desire to preserve agriculture was the driving force in Westport, which has a greater number of active farms than virtually any other community in the Commonwealth of



Massachusetts. At the mouth of Cape Cod and within a two-hour drive of Boston, Westport could potentially serve a big market for organic produce.

But situated on the Westport River, with miles of sought-after waterfront property, it is also a prime candidate for development. That led The Trustees of Reservations, which is the nation's oldest regional land conservation trust and operates throughout Massachusetts, to target it for preservation.

**G**onet's farm is part of an area of farmland and shoreline in Westport and nearby Dartmouth, where the trustees' goal is to tie together and protect several adjoining parcels of land. As Cucchi notes, "Large blocks of farmland are more economically viable than smaller ones, because you need a critical mass to justify all the support services." If more and more farmland is sold for development, the amount available for farming will diminish, and so will the interest of suppliers that support the farmers.

Although agricultural efforts such as dairy farms are succumbing to competition, the hope is that farmers will eventually be better able to capitalize on the growing interest in locally-grown food, particularly as the rising cost of energy will make long-distance transportation punitive. In this view, those farms that survive will prosper.

That, in fact, is the scenario already being played out at River Rock Farm, a lush expanse on the east branch of the Westport River that is owned by Paul Schmid and his sister, Lisa Schmid Alvord. On the farm's 250 acres and 50 more leased acres, the two are raising grass-fed Black Angus beef cattle.

Schmid and Alvord grew up on the land—their parents bought the first piece in 1961, initially as a summer home—and have a fondness for it that has translated into a desire to preserve it just the way it is. Of the land they own outright, "most of it

is under protection or will be," says Schmid; he and his sister sold an easement to Massachusetts for a portion of the land and donated an easement for the rest.

Although he has run the Westport Land Conservation Trust's fundraising campaign for several years, last year Schmid donated directly to Pew. The match was "very compelling," he says. Beyond that, "to find a partner who's willing to stand with us, that's incredible," he adds. "It meant so much for me to be able to say, what we're doing has the endorsement of a major charitable organization like Pew. It was confirmation that what we're doing matters."

It was money raised by The Trustees of Reservations with the support of the consortium that helped Gus Gonet decide what to do with his property, nearly 28 acres near Allen's Pond. An appraisal had determined that no fewer than 12 homes could be built on his land, giving it an estimated value of \$1.6 million. (Had it been waterfront property, the price would likely have been an order of magnitude greater.) As a restricted farm, the land was worth only \$500,000. That meant that Gonet could sell the easement for about \$1.1 million.

Instead, Gonet agreed to accept \$400,000 for the easement. Half of that sum came from the town, the other half from the land trust. The arrangement preserved his property as farmland and provided "a little income for retirement," an outcome that satisfied him. "We've lived here all our lives," he says. "Why would we want to change things?" ■

**For more information on the consortium, contact Tom Curren at [tcurren@pewtrusts.org](mailto:tcurren@pewtrusts.org) or 603.768.3192. The Web sites of the consortium's partners are: the Appalachian Mountain Club, [www.outdoors.org](http://www.outdoors.org); the Lakes Region Conservation Trust, [www.lrcrct.org](http://www.lrcrct.org); the New England Forestry Foundation, [www.newenglandforestry.org](http://www.newenglandforestry.org); and The Trustees of Reservations, [www.thetrustees.org](http://www.thetrustees.org).**

*Sandra Salmans is senior writer of Trust.*

Paul Schmid



River Rock Farm in the Allen's Neck area of Westport, Mass.



Rob Burbank

Little Lyford Pond in Katahdin Iron Works in Maine.



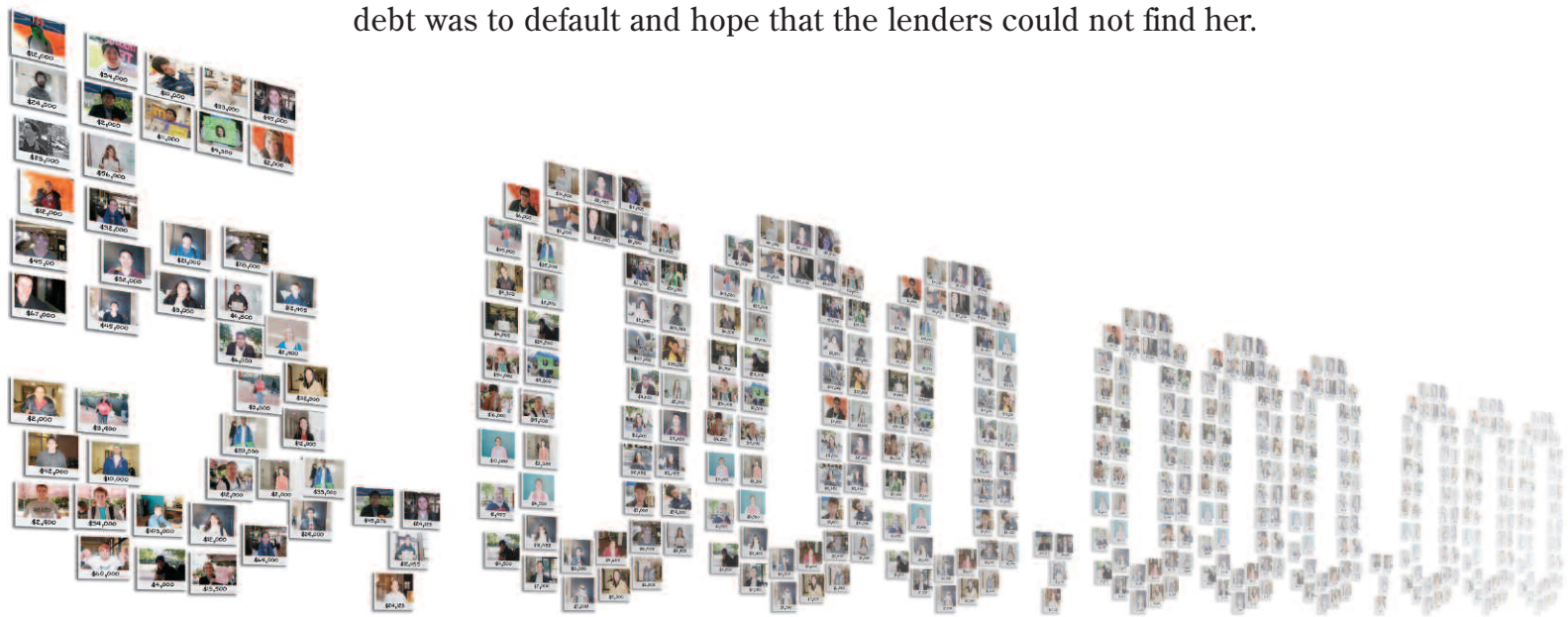
# Debts Out of Sch

By Tim Gray

**A few rational reforms will help people pay off their student loans and free themselves for the next stage of their lives. And they will broaden college access.**

**L**eslie Durham's American dream has curdled into something like a nightmare.

Maybe it began to sour when a lawyer told her that her only realistic option for managing the payments on her \$85,500 of student debt was to default and hope that the lenders could not find her.



Or maybe it was this past May, when she broke off her engagement because her fiancé insisted that, if they were to marry, she would have to quit her job counseling battered women and find a better-paying position in pharmaceutical sales.

Or maybe it was when she was diagnosed with anxiety disorder.

Durham, who is 34 and lives in Austin, Texas, is not sure. She just knows that her plight has left her feeling defeated and insecure. "I have no money in retirement," she says. "I

Thousands of students at hundreds of campuses were photographed for the online student-debt yearbook at [www.studentdebtalert.org](http://www.studentdebtalert.org). Student Debt Alert is a project of the Student Public Interest Research Groups.

ool

have very little in savings. I can hardly afford to pay all of the interest on my loans each month, so the debt keeps growing. It's all very overwhelming."

A graduate of Northern Kentucky University, Durham did exactly what our society has urged generations of high-school kids to do: She got a college degree, even if it meant borrowing scads of money. Her parents, a mechanic and an insurance-company clerk, could contribute little to her education.

"I knew I was taking on a lot of debt," she says. "But I had this idea that as long as I got a degree, everything would be fine."

**T**he Project on Student Debt, which was initiated by The Pew Charitable Trusts, aims to help people like Durham as well as future generations of students who may otherwise face the choice between piling up debilitating debts and skipping college. It is part of Pew's growing portfolio of projects aimed at increasing family financial security by advancing practical policies to help Americans save and borrow wisely in the face of rising college, housing and health-care costs.

"Given the increasing importance of a college degree and its rising cost, we set out to identify meaningful reforms that people from across the ideological spectrum could agree on," says Pauline Abernathy, Pew's deputy director of Health and Human Services Policy.

Abernathy contacted Robert Shireman, one of the nation's leading experts on student financial aid, who had recently founded the nonprofit Institute for College Access & Success with the mission of making college affordable for all.

The institute's first report had spotlighted a costly loophole in the student-loan system. Back in 1980, when the economy was sluggish and private

lenders might have begun offering fewer loans, Congress guaranteed them a 9.5 percent return. They could charge students the relatively low market-interest rate and bill the federal government for the difference.

When the need for the subsidy passed, Congress eliminated it but grandfathered the older loans. A few lenders re-processed those loans to continue claiming the 9.5 rate on an increasing, rather than decreasing, number of loans.

"These grandfathers have turned out to have long lives, and a lot of children," Shireman told *The Des Moines Register* recently, "and have cost a lot of tax dollars"—more than \$1 billion.

**The system's costly loophole: Instead of being phased out, the number of 9.5 percent loans increased.**

The outcry over the report, *Money for Nothing*, ultimately prompted Congress to close the loophole and direct the savings to student-loan forgiveness for teachers.

Based at the institute, the Project on Student Debt was launched in 2005 to advance practical policies to reduce the growing burden of such debt. The need for reform is only increasing. In 1993, fewer than half of college graduates finished school with debt. Today, about two-thirds do, and their average debt has increased by more than 50 percent over the past decade after accounting for inflation.

This gush of debt affects students' lives and career choices after college.



Some young people, unwilling to endure the sorts of stresses that Leslie Durham faces, shy away from lower-paying but socially useful fields like social work, teaching, journalism and the clergy. Others say they are postponing buying cars and homes and saving for retirement. College may have given them a ticket to the middle class, but their debt is preventing them from punching it.

Allan Carlson, president of the Howard Center for Family, Religion and Society, and a participant in a 2005 student-debt symposium co-sponsored by the project and the American Enterprise Institute, has called growing student debt "an anti-dowry" because it discourages graduates even from marrying and having children.

Studies have shown that hundreds of thousands of college-qualified but low-income students skip college altogether, often for financial reasons, including fear of student debt. Studies have shown that Latino families especially tend to avoid debt, contribut-

ing to a growing education gap along socio-economic and ethnic lines, Shireman says.

“We’re not anti-student loan,” he points out. “Loans have been an important element in providing access to higher education. We’re about reducing the negative aspects of student debt. A large part of what we’ve focused on is how student-loan repayment works.”

Adds Lauren Asher, associate director of the project and of the institute: “We want to make sure that repaying debt doesn’t reverse all the individual and societal benefits of higher education.”

To this end, the project has developed an agenda for reform that includes:

- Making income-based repayment more widely available.
- Reforming economic hardship protections for borrowers, including incorporating family size into the formula for determining who qualifies, and eliminating some of the perversities in the current hardship rules. For example, a borrower currently does not receive hardship protection if she earns \$12,000 working full-time but does if she makes the same amount working part-time.
- Simplifying the federal financial-aid application process.
- Expanding need-based grant aid by eliminating excessive lender subsidies.
- Converting the federal tax deduction for student-loan interest into a refundable tax credit, thus allowing lower-income borrowers to benefit.

Taken together, the project’s proposals aim to ensure that responsible borrowers with modest post-college earnings do not face an Everest of debt, and that the prospect of indebtedness does not deter students from attending college or entering low-paying but necessary fields.

“It is not difficult to imagine a better, more rational system of student-loan repayment in the United States,” a project white paper says. “The building blocks are there but need to be assembled in a way that makes sense to borrowers.”

Federal policy makers and presidential candidates have been quick to embrace the project’s proposed reforms. In July, the House and Senate passed student loan reform legislation by wide margins, incorporating several of the project’s recommendations. Both bills would cap monthly loan payments at 15 percent of disposable income and use the savings from reducing excess lender subsidies to

**“We’re not anti-student loan. We’re about reducing the negative aspects of student debt.”**

increase Pell grants, which do not need to be repaid. The Senate also passed legislation incorporating a pilot of the project’s proposal to dramatically simplify the complex federal student-aid application form.

Student debt is a topic that is easy to ignore unless you are facing it or have a spouse or child who is. And it can be tough to gin up sympathy for students who take on big loans—after all, they stand to benefit financially from their education. The evidence is plain. If debt is daunting, life without a college degree is worse: Over the course of a career, someone with a bachelor’s degree earns \$1 million more, on average, than someone with

a high-school diploma.

But when it comes to student debt, straightforward facts like this can get tangled up with misconceptions. “I’ve been surprised at how much people assume that borrowing is just for high-income folks and expensive private schools,” Asher says.

In fact, she points out, low-income students typically borrow the most because funding for need-based grants has not kept pace with the cost of college. And Ivy League universities and their peers often have hefty endowments from which they can provide aid, while state schools lack those resources. According to the project’s research, the average debt for a graduate of a public university more than doubled, to \$17,250, over the last decade. In seven states, the average loan debt for students graduating from public universities is even higher than for graduates of private, nonprofit colleges.

Furthermore, student debt levels also show unexpected regional differences. Mississippi and Louisiana are America’s poorest states, but New Hampshire and Iowa had the most indebted graduating seniors in 2005, both with averages topping \$22,000.

**M**isconceptions about student debt stem partly from the complexity of the current higher-education financing system.

On some issues, the public understands the outlines of the debate and stakes involved. But higher-education finance is far from simple: There is a complex blend of federal, state and institutional dollars at work, each with different strings and restrictions attached. Federal policy grew by patchwork, over decades, with blue-ribbon commissions and presidents setting forth principles and ideas to make Americans better educated, and lawmakers creating new aid programs and amending older ones.

The results often lack clarity, yet the bills have risen inexorably. “College prices have increased faster than the rate of inflation for more than two decades,” says Jamie Merisotis, president of the Pew-supported Institute for Higher Education Policy in Washington, D.C.

At the same time, state and federal money for financial aid, measured on a per-student basis, has declined, and many schools have shifted their grants from need- to merit-based awards. (In the United States, affluence and educational achievement are strongly correlated, so the criterion of merit tends to benefit the wealthier.) “Debt has been the only reasonable alternative for a lot of students and their families,” Merisotis says.

“The problem with the current system is that it isn’t driven by the interests of students,” he adds. “It’s driven by players who’ve benefited from the student-loan system like lenders, loan-guarantee organizations and colleges and universities.”

The Project on Student Debt was created to change that by involving students in the debate. With support from Pew and the Surdna Foundation for the student activities, the project joined forces with the Student Public Interest Research Groups—better known as the Student PIRGs—to encourage students to testify at public hearings, write to policy makers and speak with reporters about their indebtedness.

To raise awareness of the growth in student debt and the need for reforms, the PIRGs launched Student Debt Alert ([www.studentdebtalert.org](http://www.studentdebtalert.org)), complete with a national student-loan debt clock, a student-debt yearbook, and campus rallies and other events where students are photographed next to a giant inflatable ball and chain representing their ballooning debts. Little balls and chains also appeared on students’ mortarboards at graduation.

The campaign recruited students to

testify at the hearings of the Commission on the Future of Higher Education, a panel created by U.S. Secretary of Education Margaret Spellings.

“The students were at every meeting of the Spellings Commission,” says Tobi Walker, the senior officer at Pew who has overseen the institution’s work to engage young people in civic life. “Student debt wasn’t on the agenda when the commission began, but the commissioners really shifted to addressing it, and they all said it was the students who made it a priority for them.”

**Because need-based grants haven’t kept pace with college costs, low-income students are typically the biggest borrowers.**

Efforts to bring attention to the issue received a boost this year from New York Attorney General Andrew Cuomo. His office has been investigating the conduct of players in the student-loan industry—including financial-aid directors—and has uncovered misdeeds and conflicts of interest. A former director at Columbia University, for example, owned stock in a private lender that he was recommending to students. And a director at Johns Hopkins University received consulting fees from lenders the school was recommending.

As a result of Cuomo’s investigation, several schools made payments as



part of settlements—Columbia paid \$1.1 million—and several financial-aid directors, including those at Columbia and Johns Hopkins, were dismissed or resigned. It has also given the \$85-billion student-loan industry a run on the front pages of the nation’s newspapers.

Merisotis, of the Institute for Higher Education Policy, called the financial-aid directors implicated in Cuomo’s investigation “exceptions, not the rule.” He worries that, if students lose trust in their schools’ financial-aid offices, they will be more susceptible to the blandishments of companies offering private loans, which typically carry higher interest rates and fewer protections than those backed by the government.

**D**ebt, like coffee, beer and television, is bad only if you have too much. And most college graduates have debts within reason of repayment, says Sandy Baum, an economist with the College Board, the New York





and Saul Schwartz, a professor of public policy and administration at Carleton University in Canada, recommended keying students' loan payments to their post-college incomes. This would eliminate repayment for people with the lowest incomes and limit most folks' payments to no more than 10 to 16 percent of income. Only borrowers who ended up with the highest incomes—more than \$100,000 for a single person in 2006—would pay a higher percentage than that.

Baum and Schwartz also called for loan-forgiveness programs for people

education and civic groups to call for action on it (the plan is reflected in the House and Senate bills).

The project also advanced loan-forgiveness and bankruptcy proposals similar to those that Baum and Schwartz recommended.

In Austin, Texas, Leslie Durham awaits some debt relief. She earns only \$33,000 a year, so she qualified for repayment relief, but it's of marginal help. Instead of paying \$653 a month for 20 years, she pays \$605—and \$515 of that merely covers interest.

In the meantime, she is trying to buy a one-bedroom condo, which would lower her monthly housing payment—rents are high in a college town like Austin—and enable her to devote more money to repaying her loans. "I know it's questionable whether I'll be approved," she says.

Durham understands that, in social work, she picked a notoriously low-paying profession. "I tried working as a financial advisor for Fidelity, but I lasted two weeks," she says. "I was no good at it."

But the income-based payment plan passed by the House and Senate gives her reason to cheer up a bit. As the bills currently stand, the team at the Project on Student Debt estimates that she would pay \$221 a month for 20 years, contingent on her income and loan amount.

That should enable her to stay in her chosen field. "I really believe that we need social workers," she says. "There's so much poverty and domestic violence and pain in the world. It's what I'm good at, and I feel like it's wrong for me not to do it." ■

**At <http://projectonstudentdebt.org>, you can read the Project on Student Debt's research, policy initiatives and fact sheets. And you can tell your own debt story.**

*Philadelphia-based freelancer Tim Gray previously wrote on the Retirement Security Project for Trust.*

**“The problem with the current system is that it isn’t driven by the interest of students. It’s driven by players who’ve benefited from the student-loan system.”**

who become, say, teachers, and they recommended a relaxation of the restrictions on discharging student-loan debt in bankruptcy. Under current law, student loans, like unpaid taxes and child-support payments, cannot be dismissed.

Building on Baum and Schwartz's work, the Project on Student Debt developed a Plan for Fair Loan Payments to improve borrower protections and help graduates repay. It petitioned the Department of Education to implement the plan and recruited more than 50 leading student, lender, higher-

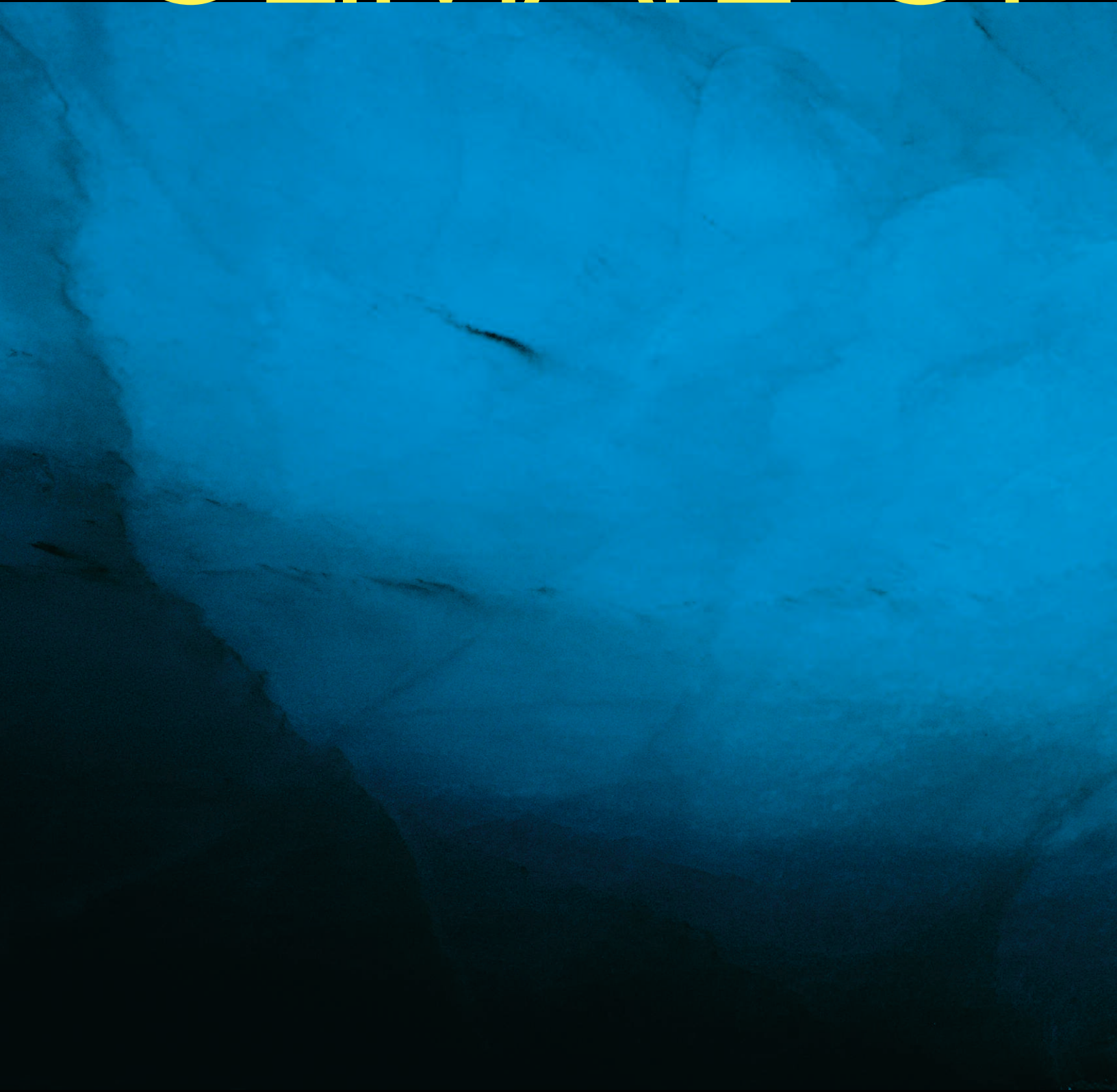
nonprofit that administers the SAT. The amount of debt accumulated by the average college graduate—about \$20,000—is manageable for someone making \$50,000 a year, which is roughly what the typical college graduate stands to earn in current dollars.

"In the public discussion of student loans, what grabs headlines is panic: 'Students drowning in debt,'" she says. "But that's just not true." For most students, Baum views loans as analogous to, say, a businessperson borrowing money—that is, an investment in the hope of creating long-term opportunity. "Everyone thinks it's okay to borrow money to start a business," she points out.

A few students, though, do stumble into a financial tar pit; about 15 percent borrow \$30,000 or more while pursuing their bachelor's degrees, she says. As she told a congressional subcommittee, "Focusing on the plight of these heavily indebted students is more constructive than searching for blanket solutions."

With funding from the project, Baum

# CLIMATE OF



Ice cave on Anvers Island, off the northwestern coast of the Antarctic Peninsula. Because the edges of this glacier are receding, the cave disappeared by about 2005.

*The climate change debate turns a corner, sharper and faster than anyone would have predicted.*

# AGREEMENT

Photographs by George Braasch

By Colin Woodard

**W**hat a difference a year makes.

Last summer, climate policy experts working to get the federal government to take meaningful action on global warming were cautiously optimistic. They sensed a sea-change in the policy debate. Increasing numbers of people, witnessing or hearing about severe or unusual weather events of the past two years, began to reflect on the climate and came to the conclusion that climate change not only was happening but also required a robust response.

Since then, the policy landscape surrounding global warming has shifted with a suddenness and intensity that has stunned even the most optimistic experts arguing for action. After decades of delay and denial, a confluence of events—the policy equivalent of the perfect storm—has put climate change at the top of the national agenda.

“We are really in the phase of designing a response, rather than discussing whether



we are going to have one or not,” says Eileen Claussen, president of the Pew Center on Climate Change in Washington. “We had no idea that it would be tackled with such ferocity.”

Over the past year, federal officials have heard from almost every quarter on this issue: mayors, governors and state legislatures, sportsmen and religious leaders, scientists and retired senior military leaders, the CEOs of many of the nation’s largest corporations, overseas allies, and even a majority of the justices of the U.S. Supreme Court.

Even though the 2006 midterm elections changed the leadership of key congressional committees to those more sympathetic to taking action on climate change, the attention and urgency that policy leaders have given the issue has surprised many observers. At the G-8 summit in June, U.S. House majority leader Nancy Pelosi said that she regarded the issue as one of her leadership’s top priorities after the war in Iraq, while presidential candidates from both parties have called it one of the most important issues facing the next occupant of the White House.

“We went from a state of affairs that kept any debate in Congress about limiting greenhouse gas emissions off the table to one committed to doing something,” says Angela Ledford Anderson, vice president for climate programs at the Pew-supported National Environmental Trust (NET) in Washington, D.C.

The high priority given to climate change is the result of a confluence of events in the past year, many of them originating in state capitols coast-to-coast. Following the lead of the European Union, the six New England states, plus Delaware, Maryland, New Jersey and New York, have created the Northeastern Regional Greenhouse Gas Initiative, which establishes

# PUMPED UP

Pew’s global warming strategy is aimed at adoption of a mandatory national program to reduce greenhouse gas emissions; its centerpiece is a market-based cap-and-trade system. However, complementary measures are needed to create additional incentives to invest in less polluting technologies in key sectors, particularly transportation.

Earlier this year, Pew established the Pew Campaign for Fuel Efficiency, aimed at strengthening fuel-efficiency standards for passenger vehicles. Higher standards would reduce the nation’s dependence on oil, enhance national security, save consumers money and stimulate investments in vehicle technologies that could help reduce global-warming pollution.

Informed by the Pew campaign and others, the U.S. Senate in June passed a bill to increase fuel-efficiency standards to 35 miles per gallon by 2020. Phyllis Cuttino, director of the campaign, called the measure “a landmark victory for all Americans,” noting, “This compromise paves the way for the largest increase in vehicle efficiency in more than 20 years.”

Currently, average gas mileage for new vehicles is lower than it was two decades ago. Over that time, meanwhile, U.S. dependence on foreign oil has nearly doubled, gas prices have climbed more than 55 percent, and U.S. global-warming emissions have increased at an alarming rate.

Nationwide, vehicles account for two-thirds of oil consumption and

one-third of greenhouse gas emissions, with light-duty passenger vehicles—cars, pick-ups, minivans and SUVs—producing about 60 percent of the transportation-related emissions. Globally, U.S. transportation accounts for about 8 percent of all global-warming pollution and 17 percent of an increasingly tight and volatile world oil market.

The Pew Campaign for Fuel Efficiency has advocated for the higher standards by building support among the public, policy makers and the media. It helped coordinate a coalition of environmental groups at both the national and state levels and engaged



diverse constituencies, including energy and national security organizations, and consumer and automobile safety groups.

The campaign used independent, nonpartisan research and analysis to counter arguments made by the auto industry opposing higher fuel-efficiency standards and to advocate meaningful mileage increases for the first time in many years. For instance, a University of Michigan study found that improved vehicle-mileage performance would generate more revenue for U.S. automakers.

And the National Academy of Sciences reported that major increases in efficiency—as much as 50 percent—could be achieved through



**"We'll have to close down."**  
— Henry Ford II on seat belt and safety glass mandates, 1966

**"Complete stoppage of [auto] production could occur."**  
— GM's Ernest Starkman on the catalytic converter proposal, 1972

**"IMPOSSIBLE!"**  
— Ford's Lee Iacocca on emissions controls, 1973

**"It would restrict [us] to producing subcompacts ..."**  
— Chrysler's Alan Loeburrow on gas mileage standards, 1974

**"You can't get 35 mpg average and still have minivans, [SUVs] and pickup trucks as we know them."**  
— Chrysler's Rob Liberatore on gas mileage standards, 2002

**Sound Familiar?**

Once again U.S. automakers are saying "Can't be done."

conventional gasoline-engine technology without compromising vehicle size, performance or safety. Far greater gains are possible with the advent of hybrid gas-electric motors and other emerging technologies.

The campaign's media efforts included a series of advertisements in national newspapers and on radio stations in several states as well as outreach to newspaper editorial boards around the country. (The headlined parts of three ads are shown in this box.) As a result of the Pew campaign and the efforts of other groups, there have been more than 200 editorials articulating support for higher fuel-efficiency standards and 85 editorials in the three weeks just prior to the Senate vote. Campaign spokespeople also commented on the fuel-efficiency debate on nationally televised news programs, in wire stories and in trade publications and local daily newspapers.

Next, the campaign is working to win higher fuel-efficiency standards as part of legislation passed by the U.S. House of Representatives and ultimately have the president sign higher standards into law.

To read the studies in full, find other resources for higher standards and learn more about the campaign's activities, go to the project's Web site at [www.pewfuelefficiency.org](http://www.pewfuelefficiency.org). ■

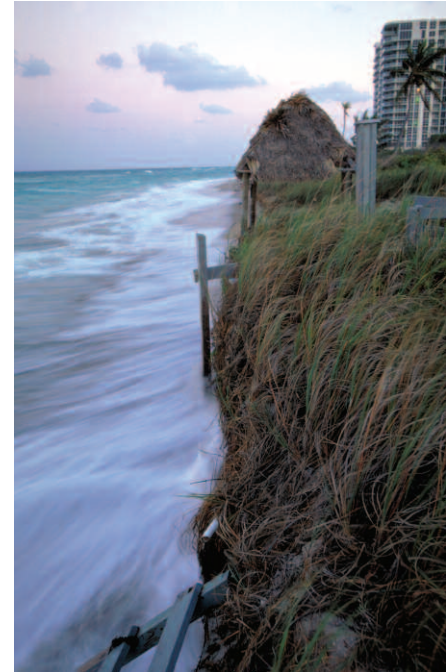
a cap-and-trade system for the region's power plants. The system allows market forces to achieve required reductions at the lowest cost and aims to reduce emissions by 10 percent from 1990 levels by 2009. Five western states—Arizona, California, New Mexico, Oregon and Washington—are creating a similar system, and Colorado, Utah and the Canadian province of British Columbia are considering joining it.

"Governors are really championing the issue," says Lea Aeschliman, a former public utility commissioner who advises the Trusts on developing state climate programs. "You can see it just snowballing in the states."

The most dramatic moves have taken place in California, where Republican Governor Arnold Schwarzenegger and leaders of the Democratic-controlled state house have taken bold action to reduce the state's greenhouse gas emissions. In September, Schwarzenegger signed legislation requiring the state to reduce total greenhouse gas emissions by 25 percent by 2020; mandatory caps will begin in 2012 for all major industrial sources.

"The governor was motivated by the science, which clearly indicated that global warming was going to have very significant consequences for our environment and natural resources," says Eileen Wenger Tutt, assistant secretary for climate change at the California Environmental Protection Agency. "We did analysis on what the economic impact would be of mitigating emissions, and the study indicated that, rather than a cost, there would be a slight economic benefit from increasing energy efficiency and reducing emissions on cars.

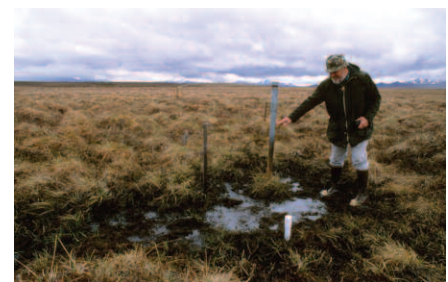
"This is a living example of how caring for the environment can actually benefit economic growth," she adds.



A normal high tide washes away a sandy shore at Dania Beach, north of Miami, Fla., showing how rising seas and stronger storm surges threaten coasts.

The effect on federal decision-makers has been significant. "States and cities are saying that they don't think taking action on global warming is going to bankrupt their economies," says the NET's Anderson. "The clear message was that it's safe for politicians to take action on this."

Rob Sargent, senior policy analyst at the U.S. Public Interest Group, agrees. "It's the action in the states that's been the major factor behind the momentum in Washington," he says. "Water has been building up



Tom Osterkamp's 30 temperature probes in Alaska record an increase of 0.9° to 2.7° F since 1980, when he began his measurements. At this one, near Denali Park, the geophysicist points out ground level when he installed this probe 15 years ago. Thawing has made the tundra sink, and the consequences can be erosion, changes in vegetation and increased carbon dioxide and methane emissions from thawed peat. The process is called thermokarsting.



Temperatures have recently risen 1.5° F in the northwest United States, as these photos of Mt. Hood, taken 18 years apart, indicate (above 1984, below 2002). Rising snow lines, decreasing snowpack and earlier spring runoff mean much less summer ice from mountains that supply the region with water for drinking, irrigation and fish habitat.

behind the dam for some time, even though in Washington things were pretty dry. This confluence of factors has resulted in it beginning to spill over the dam.”

The states' actions were bolstered by the U.S. Supreme Court, which in April ruled, 5-4, that the federal Environmental Protection Agency does indeed have the authority to regulate greenhouse gas emissions, contrary to the arguments of the Bush administration. The decision removed a major roadblock to state efforts to impose such regulations on automakers, a move which requires the agency's permission. “It was a resounding victory for the states,” says Frank Gorke, director of Environment Massachusetts. “We're in a different scene now.”

Meanwhile, automakers have sued Vermont, one of 11 states that wish to regulate vehicular greenhouse gas emissions, arguing that it is impractical for them to deliver the required improvements in fuel efficiency. The ruling, which is expected later this summer, will have considerable implications for efforts to reduce emissions, as transportation accounts for a third of the total.

Rather than resisting action, however, much of corporate America has started pushing for something to be done. In January the top executives of 10 of the nation's largest companies called on Congress and the administration to impose mandatory emissions cuts, create a national cap-and-trade system and invest in alternative-energy research. The companies—including Alcoa, BP, Caterpillar, Duke Energy, DuPont, General Electric, Lehman Brothers and Pacific Gas & Electric—developed the plan in cooperation with the Pew Center on Climate Change and three environmental groups within a group known as the United States Climate Partnership, or US-CAP, Web-accessible at [www.us-cap.org](http://www.us-cap.org). Two more environmental groups have joined, plus 12 companies, including

Dow Chemical, General Motors, Shell, Siemens and Xerox.

“When you have a group of CEOs saying not only that they want a mandatory system, but here's what it should look like, complete with targets and timetables, the effect is just incredible,” says the Pew center's Claussen. Her organization serves as a bridge between the companies and environmental groups within US-CAP. “They all believe that there are going to be regulations in the U.S. and a framework internationally, and they would like to be part of the efforts to design those systems.”

“Industry is realizing that it doesn't want a messy patchwork of state policies and that a mandatory [national] system is the right place for America to be, for both economic and moral reasons,” says Eric Heitz, president of the Energy Foundation, based in San Francisco and created by Pew and the Rockefeller and MacArthur foundations. The Energy Foundation supported the economic analysis behind California's groundbreaking policies. The effect of the US-CAP announcement, he said, was “seismic.”

**T**he world's scientists have weighed in as well. The International Panel on Climate Change, comprising more than 1,000 scientists from 113 countries, began issuing its latest assessment in February. It makes sobering reading. New research over the past six years suggests, with 90 percent certainty, that human-generated greenhouse gases caused most of the rise in global temperatures over the last 50 years and that average temperatures will rise by 2 to 4 degrees Celsius by century's end.

The likely results: an increase in deaths, diseases, injuries and malnutrition due to more frequent, severe and expansive heat waves, floods, storms, fires and droughts; the forced displacement of millions of people in

low-lying areas and small island states; profound food shortages in many African countries; and the loss of tropical rainforests in the eastern Amazon, winter tourism in the European Alps and homes and infrastructure to hurricanes in the United States.

Add to that the combined public impact of *An Inconvenient Truth*, Al Gore's Academy Award-winning global-warming documentary, and the conclusions of the Stern Report, an official British study released in October 2006 that concluded that acting on the issue could be almost 20 times cheaper than doing nothing.

And add this: In July 2006, a National Wildlife Federation survey found that more than 70 percent of U.S. hunters and anglers believe global warming is a serious threat to fish and wildlife, that it has already affected hunting and fishing and that the nation should act to reduce emissions.

And, finally, this past April, a study by a panel of 11 retired four- and three-star generals and admirals warned that climate change presents a serious threat to national security. “We will pay for this in one way or another,” says retired Marine Corps General Anthony C. Zinni, either by reducing greenhouse gas emissions today or “later in military terms, and that will involve human lives.”

Evangelical Christians are also calling for action, with more than 100 of their most prominent leaders having signed on to a major initiative calling for federal action, including mandatory emissions reductions. Signatories to the Evangelical Climate Initiative, first unveiled in February 2006, include megachurch pastor Rick Warren, author of *The Purpose-Driven Life*; and the leaders of the Salvation Army, the National Association of Evangelicals and 39 Christian colleges. Previously, the U.S. Conference of Catholic Bishops had called for action on global warming, as had Pope John Paul II and the senior figure



In Bangladesh, some 1 million people annually are displaced by rising waters. Without action on global warming, the sea level is predicted to rise over three feet, displacing 15 percent of the country's population, or 13 million, and cut into the rice crop.

in the Orthodox Christian world, the Ecumenical Patriarch Bartholomew II.

"Climate change is crystallizing a deeper, broader awakening among religious Americans to the peril of God's creation on Earth, and raising the very most fundamental tenants of scriptural and religious faith," says Paul Gorman, executive director of the National Religious Partnership for the Environment, a coalition of more than 60 Catholic, Jewish, evangelical and mainstream-Protestant organizations working to enact a faith-based response to the issue.

"Our mandate is to be good stewards of creation and to have responsibility for future generations," he points out. "These are perennial religious themes that were in place long before we knew there was a globe, much less global climate change."

This year, partnership members launched a campaign to mobilize their adherents to compel decision-makers to action, not only on curbing emissions but also on developing a more secure and sustainable energy supply. "The dialect of faith and values is one where mainstream citizens can find a more familiar, resonant and comfortable way of looking at this issue, as they might feel insufficiently informed

about the science and put off by the partisanship," Gorman says.

While the religious leaders are motivated by spiritual and moral concerns, their political influence is considerable. "The evangelical climate statement had a huge effect on a lot of members of Congress," says Anderson of the National Environmental Trust. "It shows that this is not some elitist environmental issue, but something that reaches people from all walks of life."

The public is clearly awakening to the issue, she says, pointing to recent national polls in which energy has emerged as a top concern, surpassed



Erosion along Cape Hatteras, N.C., has been about 12 feet per year in recent years, leaving houses stranded. Common remedies—rebuilding structures and bulldozing sand back onto the beaches—actually increase erosion damage, according to scientists.

only by the war, security and health care. "We've never seen energy take that high place in people's minds," she says. "People see that it's linked to their personal economics and security."

Challenges remain, not least of them the thorny issue of coal, which is a plentiful domestic energy resource but releases more greenhouse gases than other sources. "The coal industry has tremendous power in the legislature, and they have yet to see a future for themselves in a carbon-constrained world," says Heitz.

Yet he also notes that there are solutions. *The Future of Coal*, a Massachusetts Institute of Technology study supported by Pew, concluded that the United States must take the lead in developing carbon-capture and sequestration technologies to reduce coal's carbon emissions.

Nonetheless, most climate-change policy advocates think federal action is around the corner. "It seems almost certain that some kind of comprehensive global-warming emissions limits will be put into effect in the next three or four years," says Sargent of the U.S. Public Interest Group. "We are all pushing to get it done as soon as we can." ■

**Pew resources on this issue include the Pew Center on Global Climate Change, on the Web at [www.pewclimate.org](http://www.pewclimate.org), and the National Environmental Trust, at [www.environet.policy.net](http://www.environet.policy.net). News updates can also be found at [www.pewtrusts.org](http://www.pewtrusts.org). Pew and the National Environmental Trust are currently in talks about a possible merger. See page 36 for information.**

*Colin Woodard is an award-winning journalist and the author of Ocean's End: Travels Through Endangered Seas and the newly-released The Republic of Pirates. He lives in Portland, Maine, and has a Web site at [www.colinwoodard.com](http://www.colinwoodard.com).*

*Gary Braasch, based in Portland, Ore., has won awards for conservation photography. His book Earth Under Fire: How Global Warming is Changing the World, just published by the University of California Press, documents climate change photographically. See his work at two Web sites: [www.worldviewofglobalwarming.org](http://www.worldviewofglobalwarming.org) and [www.braaschphotography.com](http://www.braaschphotography.com).*



## Appreciating the Best Organizational Values

BY MICHAEL DAHL AND LESTER BAXTER

**T**hough the “bread and butter” work of Pew’s Planning and Evaluation unit is in assessing and strengthening the design of program strategies, we also play an institutional role in raising “destination questions”—understanding where Pew wants to be in the next decade or so. This is an ongoing process, of course, since we are constantly reflecting on the type of organization we are building.

One helpful way to start the discussion is by recognizing the values we appreciate in other organizations, whether in the private, nonprofit or government sectors. When we asked Pew’s senior management team what they admired about organizations they held in high regard, six characteristics emerged.

### Mission-Driven but Flexible

The management team admired organizations that clearly articulate their long-term missions and maintain this focus despite changes in the environment in which they operate. Such organizations concentrate on their core goals and are also able to adjust their approaches to meet new circumstances.

This line of thought suggests that, even though our institution, as a result of becoming a public charity, has become more flexible in how we work, there must be a continuing, strong commitment to Pew’s core mandate—to develop fact-based solutions to improve society.

### Rigorous and Results-Driven

The directors also highlighted organizations that are rigorous in their approach and committed to evidence-based outcomes. Such organizations never let the quality of their work wane or waste time on unproductive lines

of work (they avoid “mission creep”). They tend to limit the number of projects they undertake, focusing on a few ripe issues that they can approach on multiple fronts.

This finding is a useful reminder to any organization of the need to periodically review its portfolio to see if it is spreading itself too thin.

### Risk-Taking and Entrepreneurial

Being rigorous, however, does not mean playing it safe. The management team noted many organizations that have succeeded by going against conventional wisdom. In particular, the directors admired organizations that took big chances in the pursuit of big returns as well as those adept at identifying unoccupied niches. Pew focuses on measurable results within set time periods, yet must remain open to creative thinking that challenges the status quo.

### Effective in Communications

There is no substitute for positive results. Organizations that rise to the top and stay there perform consistently, year after year.

But how key audiences perceive an organization can be affected by savvy communications, too. The team admired companies that, in addition to having a good product, also project an image of quality. Although the effect of marketing is clear and well documented in the for-profit context, the need to cultivate and manage an organizational image is also critical in our sector, as a positive external reputation strengthens all of our initiatives.

### Open to Creative Partnerships

A common theme was the ability to have influence beyond the immediate

reach of the institution. One way to build influence is through the intelligent and judicious use of creative partnerships, relationships that benefit all parties.

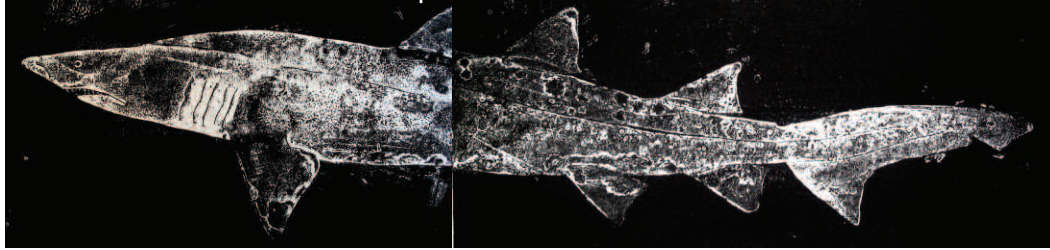
But successfully pursuing such joint ventures requires taking the time to define shared goals, being clear as to respective roles and regularly monitoring the progress of the work. These lessons are particularly germane to Pew, as the problems we address invariably require the resources and support of other groups.

### Professionally Staffed

The directors also highlighted organizations that are able to recruit and retain the best people, while ensuring oversight and accountability at all levels. As Pew grows and becomes more complex, we must give staff the running room they need to be successful within an organizational framework that provides guidance and stresses accountability.

Our review of admired organizations concludes that one must be willing to challenge conventional thought. Although Pew has been involved in notable successes, we recognize the need to adjust our approach to meet new challenges. Such a process preserves the core strengths that have brought us to this point, such as the institution’s commitment to rigorous planning and assessment, and encourages us to be more nimble and flexible, capable of recognizing and pursuing opportunities when they arise. ■

*Michael Dahl, general counsel at Pew, was the managing director of Planning and Evaluation when this exercise was conducted. Lester Baxter is deputy director of Evaluation.*



Lithographs by Alyse Bernstein.

**ADVANCING POLICY SOLUTIONS**

**Environment**

*Conservation of Living Marine Resources*

Oceana  
Washington, DC, \$9,000,000, 2 yrs.  
To strengthen marine conservation policies and improve Oceana's capacity to engage the public, conduct scientific analyses and build institutional support.  
Contact: Andrew Sharpless  
202.467.1900  
[www.oceana.org](http://www.oceana.org)

The Pew Charitable Trusts for the European Shark Conservation Campaign  
Philadelphia, PA, up to \$3,101,800, 2 yrs.  
To renew support for a campaign to strengthen the European Union's existing shark-finning regulation and to obtain a European Union plan of action for sharks.  
Contact: Uta Bellion 31 20 778 7571  
[www.sharkalliance.org](http://www.sharkalliance.org)

The Pew Charitable Trusts for the Fisheries Conservation Initiative - Atlantic Herring Campaign  
Philadelphia, PA, up to \$1,591,000, 21 mos.  
To support a New England forage-fish campaign to ban destructive herring trawling, reduce allowable herring catches to leave sufficient herring in the ecosystem as forage, and establish new bycatch limits and reforms.  
Contact: Steve Ganey  
503.230.0901  
[www.pewtrusts.org](http://www.pewtrusts.org)

*Global Warming and Climate Change*

Pace University  
New York, NY, \$4,700,000, 1 yr.  
For the Clear the Air campaign to support efforts promoting a national program to reduce greenhouse gas emissions.  
Contact: Angela Anderson  
202.887.1715  
[www.cleartheair.org](http://www.cleartheair.org)

The Pew Charitable Trusts for the Pew Campaign for Fuel Efficiency  
Philadelphia, PA, up to \$9,321,000, 2 yrs.  
To support a public-education campaign to strengthen fuel efficiency standards for passenger vehicles and to reduce greenhouse gas emissions from the transportation sector. (See pages 26-27.)  
Contact: Kathleen Welch  
202.552.2130  
[www.pewfuelefficiency.org](http://www.pewfuelefficiency.org)

Union of Concerned Scientists  
Cambridge, MA, \$200,000, 1 yr.  
To launch an outreach and education strategy on the Fourth Assessment Report of the Intergovernmental Panel on Climate Change.  
Contact: Kevin Knobloch  
617.547.5552 x8105  
[www.ucsusa.org](http://www.ucsusa.org)

*Old-Growth Forests and Wilderness Protection*

The Pew Charitable Trusts for the International Boreal Conservation Campaign  
Philadelphia, PA, up to \$15,560,000, 2 yrs.  
For a campaign to protect the Canadian boreal forest.  
Contact: Steve Kallick  
206.783.4806  
[www.pewtrusts.org](http://www.pewtrusts.org)

The Pew Charitable Trusts for the Pew Campaign for Responsible Mining  
Philadelphia, PA, up to \$3,080,000, 2 yrs.  
Contact: Jane Danowitz  
202.552.2132  
[www.pewminingreform.org](http://www.pewminingreform.org)

**T**he mining of hardrock minerals—gold, uranium and other metals—on public lands is governed today by a law that has changed little since it was first signed by President Ulysses S. Grant. The General Mining Law of 1872 was enacted to pro-

mote mineral exploration and development in the western United States.

Today, the Civil War-era statute still guarantees free access to individuals and corporations, both domestic and foreign-owned, to prospect on public lands and lay claim to and develop the minerals without taxpayer compensation. And because interpretation of this old law gives mining priority status, it remains nearly impossible—even today—to prohibit or even restrict mining in special areas, regardless of its impact on critical habitat and other natural resources.

The Pew Campaign for Responsible Mining is a national effort to educate and encourage the public and policy makers to adopt a modern framework for mining in the West. The Pew campaign is working with a diverse group of stakeholders toward responsible reform to reclaim our public lands for future generations.

*Other Projects*

National Geographic Society  
Washington, DC, \$250,000, 1 yr.  
In support of *Wild Chronicles*, the National Geographic Society's weekly conservation news magazine airing on public television stations.  
Contact: Mark Bauman  
202.828.6615  
[www.nationalgeographic.com](http://www.nationalgeographic.com)

The Pew Charitable Trusts for the Northeast Land Trust Consortium  
Philadelphia, PA, up to \$12,775,000, 18 mos.  
To expand upon the pilot project completed in December 2006, further developing a consortium of regional and local land trusts and donors that are working to conserve and, where possible, connect important wilderness and wildlife areas in the northeastern United States. (See pages 12-17.)  
Contact: Thomas S. Curren  
603.768.3192  
[www.pewtrusts.org](http://www.pewtrusts.org)

**Health and Human Services**

*National Program*

The Pew Charitable Trusts for the Credit Card Standards Project  
Philadelphia, PA, up to \$6,000,000, 3 yrs.  
To develop and promote standards for consumer-friendly credit cards to help ensure the financial security of low- and middle-income Americans.  
Contact: Tobi Walker 215.575.9050  
[www.pewtrusts.org](http://www.pewtrusts.org)

Woodrow Wilson International Center for Scholars  
Washington, DC, \$3,000,000, 2 yrs.  
Contact: David Rejeski  
202.691.4255  
[www.nanotechproject.org](http://www.nanotechproject.org)

**I**n 2005 Pew established the Project on Emerging Nanotechnologies to ensure that both the public and private sectors consider the potential human health and environmental risks of nanotechnology along with its benefits. Through public education and nonpartisan research, the project is now in position to advance policy solutions for issues it previously identified in risk research and oversight.

It will work to establish a permanent research entity that can continue to address the potential health and environmental risks of nanotechnology, as well as support the development of a variety of oversight mechanisms, federal and other, to ensure that risks can be identified and managed before incidents occur that could derail this very promising technology. The project also will help focus the government's attention on oversight challenges that will be posed by the second and third generations of nanotechnology products.

*Other Projects*

South Shore Community Service Association  
Chester, NS  
I. For capital support for Bonny Lea Farm, \$172,000, 3 yrs.  
II. For continued operating support for Bonny Lea Farm for services to adults with special needs, \$728,000, 3 yrs.  
Contact: David M. Outhouse  
902.275.5585  
[www.chesterbound.com/bonnylea](http://www.chesterbound.com/bonnylea)

## State Policy Initiatives

### Early Education

The Every Child Matters Education Fund  
Washington, DC, \$200,000, 1 yr.  
To support public education efforts to help promote universal preschool as part of an overall child-investment package.  
Contact: Ursula Ellis 202.293.0202  
[www.everychildmatters.org](http://www.everychildmatters.org)

Rutgers University Foundation  
New Brunswick, NJ, \$6,300,000, 2 yrs.  
Contact: W. Steven Barnett, Ph.D.  
732.932.4350 x238  
[www.nieer.org](http://www.nieer.org)

Five years ago, Pew created the National Institute for Early Education Research (NIEER) to provide the evidence that high-quality preschool is a worthwhile investment. In addition, NIEER informs the development of effective preschool policies by disseminating its research to the public, media, policy makers and advocates at the state and national levels.

With this new support, NIEER will release the results of recent major studies that determine the effects of prekindergarten on young children. The organization will continue to document states' progress with their pre-K programs, develop partnerships that expand the pool of expert voices discussing the evidence for pre-K and respond to immediate requests for data that answer urgent policy questions.

### Improving Elections

Campaign Finance Institute  
Washington, DC, \$1,600,000, 30 mos.

To allow the Campaign Finance Institute to continue its research, evaluation and education efforts on the effectiveness of the Bipartisan Campaign Reform Act and other emerging federal and state campaign-finance issues.  
Contact: Ronda L. Bybee  
202.969.8890 x13  
[www.cfnst.org](http://www.cfnst.org)

### Historical Interests

The Haverford School  
Haverford, PA, \$500,000, 2 yrs.  
To support the construction of a new upper-school science center.  
Contact: Stewart Moss  
610.642.3020  
[www.haverford.org](http://www.haverford.org)

Kimberton Waldorf School  
Kimberton, PA, \$250,000, 2 yrs.  
To support the renovation of the school's heating system and the replacement of the middle school's roof.  
Contact: Cynthia Rutenbar  
610.933.3635 x106  
[www.kimberton.org](http://www.kimberton.org)

Ursinus College  
Collegeville, PA, \$350,000, 3 yrs.  
To support the expansion of the Berman Museum of Art on the campus of Ursinus College.  
Contact: Lisa Tremper Hanover  
610.409.3000  
[www.ursinus.edu](http://www.ursinus.edu)

### Other Policy Projects

National Right to Work Legal Defense and Education Foundation, Inc.  
Springfield, VA, \$100,000, 3 yrs.  
For general operating support.  
Contact: Stefan Gleason  
703.770.3361  
[www.nrtw.org](http://www.nrtw.org)

## SUPPORTING CIVIC LIFE

### Civic Initiatives

The Franklin Institute  
Philadelphia, PA, \$1,000,000, 18 mos.  
To support the renovation and restoration of the Benjamin Franklin National Memorial at the Franklin Institute, including the installation of interpretive displays and audio/visual presentations aimed at educating the public about the life and accomplishments of Benjamin Franklin.  
Contact: Larry Dubinski  
215.448.1180  
[www.fi.edu](http://www.fi.edu)

Independence Visitor Center Corporation  
Philadelphia, PA, \$6,000,000, 30 mos.  
Contact: William W. Moore  
215.925.6102  
[www.independencevisitorcenter.com](http://www.independencevisitorcenter.com)

Franklin Court, in Philadelphia's historical area, is the site of the only house ever owned by Benjamin Franklin. But he never documented its interior features, so, in place of the stately brick house, which was torn down in 1812, visitors since 1976 have gleaned a sense of the founding father's life through a sculptural steel outline of the residence and, underground, an interpretive museum.

The "ghost house" sculpture, designed by Pritzker Award-winning architect Robert Venturi, has endured well, but the museum is outdated for interpretive purposes. This challenge grant will help renovate the museum with dynamic new exhibition space and an inviting entrance.

The new facility will not only educate the public about Franklin's life and continued relevance but also provide tourists with another good reason to travel to Philadelphia and enjoy the region's amenities.

Schuylkill River Development Council  
Philadelphia, PA, \$195,000, 5 mos.  
For the planning and design of a new pedestrian bridge over the CSX rail tracks connecting Center City Philadelphia to the Schuylkill River Park and trail, also known as Schuylkill Banks.  
Contact: Joseph R. Synchron  
215.222.6030 x102  
[www.schuylkillbanks.org](http://www.schuylkillbanks.org)

St. Paul's Cathedral Trust in America  
New York, NY, \$50,000, 1 yr.  
For the restoration of the American Memorial Chapel in St. Paul's Cathedral in London.  
Contact: William R. Miller  
212.546.4412

### The Pew Fund for Health and Human Services in Philadelphia

Arthur Ashe Youth Tennis and Education, Inc.  
Philadelphia, PA, \$195,000, 3 yrs.  
For support of the after-school tennis and tutoring program for elementary and middle school youth in Philadelphia.  
Contact: Tina Tharp 215.487.3477  
[www.asetennis.org](http://www.asetennis.org)

The Attic Youth Center  
Philadelphia, PA, \$195,000, 3 yrs.  
For support of leadership development activities for lesbian and gay youth.  
Contact: Carrie Jacobs, Ph.D.  
215.545.4331 x11  
[www.atticyouthcenter.org](http://www.atticyouthcenter.org)

Big Brothers Big Sisters Southeastern Pennsylvania  
Philadelphia, PA, \$195,000, 3 yrs.  
For support of the community-based mentoring program to provide adult mentors for at-risk children and youth.  
Contact: Marlene L. Olshan  
215.790.9200  
[www.bbbspepa.org](http://www.bbbspepa.org)

Big Picture Alliance  
Philadelphia, PA, \$135,000, 3 yrs.  
For continued support of filmmaking workshops for at-risk teens.  
Contact: Jeffrey A. Seder  
610.383.6000  
[www.bigpicturealliance.org](http://www.bigpicturealliance.org)

Chester County Futures  
Exton, PA, \$145,000, 3 yrs.  
To support academic enrichment and mentoring services for high school students in Chester County.  
Contact: Catherine E. Mesaros  
610.458.9976  
[www.ccfutures.org](http://www.ccfutures.org)

Chester Education Foundation  
Chester, PA, \$160,000, 3 yrs.  
For continued support to provide after-school tutoring, life-skills and career-exploration opportunities to Chester Upland School District students.  
Contact: Cheryl F. Cunningham  
610.364.1212  
[www.chestereducation.org](http://www.chestereducation.org)



By Talia Sachs.

The Children's Hospital Foundation Philadelphia, PA, \$300,000, 3 yrs. To provide behavioral health screening, counseling and referrals for young children receiving primary care services in West and South Philadelphia.  
Contact: Marsha Gerdes, Ph.D. 215.590.2183  
[www.chop.edu/giving](http://www.chop.edu/giving)

Children's Literacy Initiative Philadelphia, PA, \$150,000, 3 yrs. For support of the Blueprint for Early Literacy project to improve the quality of literacy instruction in Head Start centers in Philadelphia.  
Contact: Linda Katz 215.561.4676 x121  
[www.cliontheweb.org](http://www.cliontheweb.org)

Children's Village Philadelphia, PA, \$120,000, 3 yrs. For continued support to provide developmental assessments, referrals and follow-up for young children.  
Contact: Mary E. Graham 215.931.0190  
[www.cvchildcare.org](http://www.cvchildcare.org)

CORA Services Philadelphia, PA, \$225,000, 3 yrs. For support of an after-school program at the Thurgood Marshall School in North Philadelphia.  
Contact: Ann Marie Schultz 215.701.2550  
[www.coraservices.org](http://www.coraservices.org)

Dawn Staley Foundation Philadelphia, PA, \$120,000, 3 yrs. For continued support to provide an after-school program in North Philadelphia for at-risk girls.  
Contact: Angelia Denise Nelson, Ph.D. 215.457.1270  
[www.dawnstaley5.com](http://www.dawnstaley5.com)

Delaware Valley Association for the Education of Young Children Philadelphia, PA, \$235,000, 3 yrs. For support of the Child Care Mentoring and Accreditation project to improve the quality of home-based child care.  
Contact: Sharon K. Easterling 215.963.0094  
[www.dvaec.org](http://www.dvaec.org)

Drexel University Philadelphia, PA  
I. For support of the primary care behavioral health program of Eleventh Street Family Health Services, \$180,000, 3 yrs.  
Contact: Patricia Gerrity 215.769.1105

II. For support of the Grow Clinic to provide behavioral health services to children who suffer from malnutrition, \$225,000, 3 yrs.  
Contact: Mariana Chilton, Ph.D. 215.762.6512  
[www.drexel.edu](http://www.drexel.edu)

Elwyn, Inc. Elwyn, PA, \$220,000, 3 yrs. For support of the Promoting Alternative Thinking Strategies (PATHS) Preschool Coalition to improve the social-emotional development of children in Head Start programs in Philadelphia.  
Contact: Linda Wasilchick 610.891.2053  
[www.elwyn.org](http://www.elwyn.org)

ESF Dream Camp Foundation Bryn Mawr, PA, \$120,000, 3 yrs. For operating support of year-round educational and recreational activities for low-income children in Philadelphia.  
Contact: Michael J. Rouse 610.581.7100 x212  
[www.esfdreamcamp.org](http://www.esfdreamcamp.org)

Family and Community Service of Delaware County Media, PA, \$204,000, 3 yrs. For continued support of the Overcoming Barriers to Opportunity program to provide services to children at risk of school failure and their families in the Chester Upland School District.  
Contact: Alan L. Edelstein 610.566.7540 x222  
[www.fcsdc.org](http://www.fcsdc.org)

Family Services of Montgomery County, PA Eagleville, PA, \$172,000, 3 yrs. For continued support of the Families and Schools Together project to provide services for at-risk elementary and middle school children in Norristown.  
Contact: Mark E. Lieberman 610.630.2111 x221  
[www.fsmontco.org](http://www.fsmontco.org)

First United Methodist Church of Germantown Philadelphia, PA, \$150,000, 3 yrs. For continued support of an after-school program for students from Germantown High School.  
Contact: Amanda Park 215.438.3677  
[www.fumcog.org](http://www.fumcog.org)

Jewish Employment and Vocational Service Philadelphia, PA, \$240,000, 3 yrs. For support of its Family Program to improve family relationships and reduce the likelihood of problem behaviors in children of substance-addicted parents.  
Contact: Ellen Goss 610.325.9512  
[www.jevshumanservices.org](http://www.jevshumanservices.org)

Juvenile Law Center of Philadelphia Philadelphia, PA, \$180,000, 3 yrs. For continued support to improve access to behavioral health services for children and adolescents involved with the child-welfare and juvenile-justice systems.  
Contact: Robert G. Schwartz 215.625.0551  
[www.jlc.org](http://www.jlc.org)

Lutheran Children and Family Service of Eastern Pennsylvania Philadelphia, PA, \$131,000, 3 yrs. For continued support to improve the utilization of behavioral health services by refugee and immigrant children and families.  
Contact: Denise Michultka, Ph.D. 215.747.7500 x249  
[www.lcfsinpa.org](http://www.lcfsinpa.org)

Maternal and Child Health Consortium West Chester, PA, \$195,000, 3 yrs. For support of depression screenings, referrals to community resources, and health and parenting education for low-income, pregnant women in Chester County.  
Contact: Pamela Bryer 610.344.5370 x102  
[www.ccmchc.org](http://www.ccmchc.org)

Maternity Care Coalition Philadelphia, PA, \$250,000, 3 yrs. To provide perinatal depression screening and prevention education to low-income women.  
Contact: JoAnne Fischer 215.989.3550  
[www.momobile.org](http://www.momobile.org)

Mental Health Association of Southeastern Pennsylvania Philadelphia, PA, \$195,000, 3 yrs. For support of the Parent Empowerment for Advocacy through Knowledge (PEAK) program in Montgomery County, to assist parents and other caregivers of children with emotional and behavioral disorders.  
Contact: Catherine Panzarella, Ph.D. 215.751.1800 x513  
[www.mhasp.org](http://www.mhasp.org)

Neighborhood Interfaith Movement Philadelphia, PA, \$180,000, 3 yrs. For continued support of child-development associate training for child-care providers in Northeast Philadelphia.  
Contact: George M. Stern 215.843.5600 x221  
[www.nim-phila.org](http://www.nim-phila.org)

Norris Square Neighborhood Project Philadelphia, PA, \$105,000, 3 yrs. For operating support to provide services for children and youth in the Norris Square community.  
Contact: Guillermo Lopez 215.634.2227  
[www.nsnp.com](http://www.nsnp.com)

Philadelphia Citizens for Children and Youth Philadelphia, PA, \$270,000, 3 yrs. To expand its Child Health Watch



A Dream Camp Kid.



Dream Camp Kids.

Helpline to assist families in the region to secure available behavioral health services for their children.  
Contact: Shelly D. Yanoff  
215.563.5848  
[www.pccy.org](http://www.pccy.org)

Philadelphia Futures for Youth  
Philadelphia, PA, \$262,000, 3 yrs.  
For continued support of the Sponsor-A-Scholar (SAS) program for at-risk high school students in Philadelphia.  
Contact: Joan C. Mazzotti  
215.790.1666 x18  
[www.philadelphiafutures.org](http://www.philadelphiafutures.org)

Philadelphia Mural Arts  
Advocates  
Philadelphia, PA, \$225,000, 3 yrs.  
For continued support of the Big Picture project, an arts education program offered after school and in the summer.  
Contact: Jane Golden 215.685.0750  
[www.muralarts.org](http://www.muralarts.org)

Philadelphia Physicians for Social  
Responsibility  
Philadelphia, PA, \$120,000, 3 yrs.  
For support of the Peaceful Posse program to prevent violent behavior in middle school youth in Philadelphia.  
Contact: Patricia F. Harner  
215.765.8703  
[www.psrphila.org](http://www.psrphila.org)

Philadelphia Society for Services  
to Children  
Philadelphia, PA, \$180,000, 3 yrs.  
For continued support of the Families and Schools Together (FAST) program to provide services for at-risk elementary school children in Philadelphia.  
Contact: Mike Vogel 215.875.4949  
[www.psscikids.org](http://www.psscikids.org)

Philadelphia Youth Network  
Philadelphia, PA, \$175,000, 3 yrs.  
For support of community service opportunities for youth who are out of school and those who have been involved in the juvenile-justice system.  
Contact: Laura Shubilla  
267.502.3717  
[www.pyninc.org](http://www.pyninc.org)

Planned Parenthood of  
Southeastern Pennsylvania  
Philadelphia, PA, \$360,000, 3 yrs.  
For continued support of Youth First, a comprehensive sexuality-education and youth-development program.  
Contact: Dayle Steinberg  
215.351.5538  
[www.ppsp.org](http://www.ppsp.org)

Project Forward Leap Foundation  
Philadelphia, PA, \$240,000, 3 yrs.  
To provide educational enrichment and support to low-income middle school and high school students in Chester and Philadelphia.  
Contact: Melvin Allen  
215.686.3849  
[www.projectforwardleap.org](http://www.projectforwardleap.org)

Reading Terminal Farmers'  
Market Trust  
Philadelphia, PA, \$140,000, 3 yrs.  
For support of the Snack Smart Street Soldiers project to provide nutrition-education services to children in three low-income neighborhoods in Philadelphia.  
Contact: Yael Lehmann  
215.568.0830 x115  
[www.thefoodtrust.org](http://www.thefoodtrust.org)

Resources for Human  
Development  
Philadelphia, PA, \$75,000, 3 yrs.  
For support of The Achievement Project (TAP) to help Chester youth succeed in high school and pursue post-secondary education.  
Contact: Nicola Tollet Jefferson  
484.995.0828  
[www.rhd.org](http://www.rhd.org)

Rosemont College  
Rosemont, PA, \$225,000, 3 yrs.  
For support of the Rosemont Initiative for Success through Education (RISE) program to help girls in Philadelphia public high schools attend four-year colleges.  
Contact: Robert Mulvihill, Ph.D.  
610.527.0200 x2332  
[www.rosemont.edu](http://www.rosemont.edu)

Special People in Northeast, Inc.  
Philadelphia, PA, \$206,000, 3 yrs.  
For support of early-intervention behavioral health services for young children and their families.  
Contact: Annemarie Clarke  
215.612.7575  
[www.spininc.org](http://www.spininc.org)

Summerbridge of Greater  
Philadelphia  
Philadelphia, PA, \$135,000, 3 yrs.  
For support of an academic enrichment program for young people in Olney and North Philadelphia.  
Contact: Darren A. Spielman,  
Ph.D. 215.951.6996  
<http://gfsnet.org/summerbridge>

Support Center for Child Advocates  
Philadelphia, PA, \$225,000, 3 yrs.  
For support of its Outcomes in Behavioral Health project to increase access to needed services for abused and neglected children.  
Contact: Frank P. Cervone  
215.925.1913 x130  
[www.advokid.org](http://www.advokid.org)

Temple University  
Philadelphia, PA, \$225,000, 3 yrs.  
For support of the Partnership Prevention project to prevent behavioral and emotional problems in young children in North Philadelphia.  
Contact: Brian Daly 215.707.9554  
[www.temple.edu/nursing](http://www.temple.edu/nursing)

Trevor's Campaign, Inc.  
Newtown Square, PA, \$160,000, 3 yrs.  
For continued support of the Discover program for homeless and formerly homeless children in North Philadelphia.  
Contact: David C. Buffum  
610.325.0640  
[www.trevorscampaign.org](http://www.trevorscampaign.org)

Village of Arts and Humanities, Inc.  
Philadelphia, PA, \$150,000, 3 yrs.  
For support of the Learning Through the Arts program for young people in North Philadelphia.  
Contact: Kumani Gantt  
215.225.7830  
[www.villagearts.org](http://www.villagearts.org)

Welcoming Center for New  
Pennsylvanians  
Philadelphia, PA, \$105,000, 3 yrs.  
For support of the Bridging Cultures program, which provides assistance to immigrant students at South Philadelphia High School.  
Contact: Anne O'Callaghan  
215.557.2626  
[www.welcomingcenter.org](http://www.welcomingcenter.org)

West Philadelphia Community  
Mental Health Consortium, Inc.  
Philadelphia, PA, \$150,000, 3 yrs.  
For support of Across Ages to provide mentoring to at-risk middle school youth.  
Contact: John F. White, Jr  
215.596.8100 x1043  
[www.consortium-inc.org](http://www.consortium-inc.org)

White-Williams Foundation  
Philadelphia, PA, \$190,000, 3 yrs.  
For support of the College Connection program for disadvantaged youth in Philadelphia.  
Contact: Amy T. Holdsmen  
215.735.4480 x207  
[www.wwscholars.org](http://www.wwscholars.org)

YMCA of Philadelphia and  
Vicinity  
Philadelphia, PA, \$260,000, 3 yrs.  
For continued support of the Family Child Care Network to improve the quality of family child care.  
Contact: Lola M. Rooney  
215.963.3791  
[www.philaymca.org](http://www.philaymca.org)



A new “green team” is taking shape: Pew’s Environment Program and the National Environmental Trust (NET) are scheduled to merge staff and operations as of the new year.

The consolidated team, to be called the **Pew Environment Group**, will have a domestic and international staff of more than 80 and estimated annual operating revenue of approximately \$70 million, making it one of the nation’s largest environmental scientific and advocacy organizations. The Environment Group will have an initial presence across the United States as well as in Australia, Canada, Europe, the Indian Ocean, Latin America and the Western Pacific.

Why merge? One factor was the compelling need to act now. “We have reached a critical moment in our history with the natural world,” says Joshua S. Reichert, who has directed Pew’s Environment Program since 1990 and will serve as managing director of the Pew Environment Group. “For years, scientists have been warning of the potentially devastating impacts of human activity on the land, the Earth’s atmosphere and the sea. We have a rather narrow window of time to address these problems and a corresponding opportunity to reverse course and begin to more sensibly manage our relationship with nature.” The merger, he adds, “will help us to improve the collective ability of organizations in this country and abroad to better address global problems that no single organization can successfully tackle on its own.”

The Pew Environment Group will combine science, policy, campaign and advocacy expertise to reduce the scope and severity of three major global environmental problems: dramatic changes to the Earth’s climate caused by the increasing concentration of greenhouse gases in the planet’s atmosphere; the erosion of large wilderness ecosystems that contain a great part of the world’s remaining biodiversity;

and the destruction of the world’s oceans, with a particular emphasis on global fisheries.

The Washington, D.C.-based NET, founded by Pew and other leading environmental funders 13 years ago, has built an experienced staff of public policy and campaign professionals that has played a central role in both U.S. environmental policy debates and international treaty negotiations. The organization has operations in 18 states and a Washington-based staff specializing in media and communications, government relations and field organizing. It hosts a number of coalitions made up of environmental organizations working on such issues as protection of U.S. national forests and international fisheries conservation.

Philip E. Clapp, NET’s founding president, will become the Pew Environment Group’s deputy managing director, overseeing day-to-day operations, policy development and strategic planning with Reichert. Thomas A. Wathen, NET executive vice president and general counsel, will become deputy director, and will be joined in that capacity by Kathleen A. Welch, currently deputy director of Pew’s Environment Program.

With all three former U.S. presidents in attendance, the **Billy Graham Library** in Charlotte, N.C., was dedicated in May. The 40,000-square-foot library, which received support from Pew, depicts Graham’s life and work through a look at historic evangelistic events, his innovative use of radio, television and films to reach out to millions of people around the world, meetings with presidents and world leaders, his work for racial equality and religious freedom, and a glimpse into his personal life. The library will also be the repository for Graham’s personal papers, including his correspondence and sermon manuscripts.

Billy Graham was a longtime friend of J. Howard Pew, one of the Trusts’

founders. A photograph of the two men together is displayed on the wall of the Library’s Mentors Room.

**B**enjamin Franklin may have been Philadelphia’s most famous citizen, but the only one of his homes still standing is just off Trafalgar Square in London. Franklin lived in a room in a five-story Georgian building from 1757 to 1775, a period during which he designed the lightning rod, charted



Ben Franklin slept here.

the Gulf Stream, served as postmaster of the colonies and argued against the Stamp Act in Parliament—testimony that ultimately persuaded the royal government to repeal the act.

Under the leadership of the **Friends of Benjamin Franklin House**, the building opened to the public in 2006 as a fully restored museum and education facility, in time to celebrate Franklin’s 300th birthday. Pew subsequently provided a challenge grant of \$150,000—met earlier this year—that enabled the Friends to tie off its capital fundraising campaign.

## Click Us!

**G**o to [www.pewtrusts.org](http://www.pewtrusts.org) for anything but the “same old, same old.” Pew’s Web site has been redesigned, the result of 18 months of research, planning, development and testing. It’s high-tech—and easy to use. *Trust* asked Deborah L. Hayes, managing director of Public Affairs, to discuss the changes.

**Q:** Why did Pew decide to redesign its site?

**Hayes:** A Web site is the face that any organization presents to the world, and more of the world is likely to get acquainted with us, at least at first, electronically. A Pew Internet & American Life Project survey finds that three-fourths of all American adults have Internet access. Literally, we’re only a click away.

But we’re seeking more than a good first impression. We want people to understand who we are and what we do, and our Web site is an important way to do that.

The new site, in fact, is an investment in serving our visitors and in continuing Pew’s commitment to being accountable and transparent. We also want to build long-term relationships with our visitors.

**Q:** What do you mean by Web users understanding Pew?

**Hayes:** The new site presents the breadth and depth of Pew’s work, and our projects cover a range of issues. At the same time, it shows the institution as a coherent whole, with a mission and approach—and a legacy—that cut across our projects. And because it is dynamic, the site can be updated frequently, highlighting our new work and offering materials of past initiatives in a way that can be quickly accessed.

**Q:** What can visitors expect?

**Hayes:** For starters, the site is visually inviting, with photographs illustrating our projects, a slideshow of top stories and news of the week.

Second, the organization of the site is driven by users’ needs, so all of our initiatives are grouped within 18 top-level categories written in easily accessible language—the kind of words people are accustomed to using when they search for information online.

And third, our users told us they come to the site for research, polls, reports, issue updates and the like, so it features a Resource Library, where they can browse, search and find what they want. The expression “one stop-shopping” truly fits here.

**Q:** How detailed is the information?

**Hayes:** [Pewtrusts.org](http://Pewtrusts.org) presents the background and context of each project. It also has the documents that

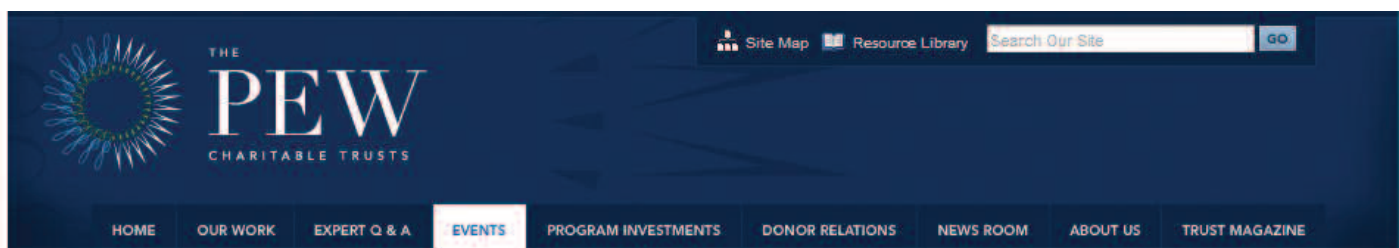
the project produced, so visitors can see what’s at stake for the public and the progress, to date, of the initiative. To investigate further, users simply click on the link to each project’s own Web site.

**Q:** What technological advances will help users?

**Hayes:** Well, a lot of the technology is invisible to the user, but there’s a world of difference from our previous site, which was last updated in 2000. Now, our visitors can receive Pew’s news and information in multiple ways or channels: customized e-mail alerts, multimedia clips, slide shows and RSS, “Really Simple Syndication”—that’s the channel that delivers news content directly to a subscriber’s desktop computer. And we plan to add podcasts. Our new technology enables us to build individual Web sites in-house, which would be easily reachable through our main site. Through our events section, we will be able to communicate about our real-life meetings—press conferences, briefings and the like—with promotional materials, calendars, e-mails and registration.

**Q:** Finally, what would you like *Trust* readers to do?

**Hayes:** Be a Web user. Go to [www.pewtrusts.org](http://www.pewtrusts.org), try it out—and then click on the Feedback button and let us know what you think.





### Pew Remembers Alan Davis

The Pew Charitable Trusts mourns the death of Alan J. Davis, a member of the board, who died on May 8. He was known as a superb defense lawyer and dedicated public servant—"one of the most brilliant, principled, creative and original thinkers the Philadelphia legal community has ever had," said Mark A. Aronchick, former chancellor of the Philadelphia Bar Association.

Mr. Davis was a partner with the law firm of Ballard Spahr Andrews & Ingersoll, where he practiced in the areas of commercial litigation, securities and criminal and municipal law. In 2002, he was listed in *The Best Lawyers in America*, a referral guide to the legal profession compiled through peer-review surveys.

He earned a bachelor's degree in psychology from the University of Pennsylvania and a law degree from Harvard University, serving as editor of the *Law Review*. He was recruited from private law practice into public service in 1966 by U.S. Sen. Arlen Specter, who at the time was Philadelphia's district attorney. As chief of the appeals division, "he made some of the finest arguments in the history of the Pennsylvania Supreme Court," said Sen. Specter.

Mr. Davis served as city solicitor in the 1980s, and in 1998 the city named its law library for him. The invitation to the dedication cited Mr. Davis's credo that "creativity, brilliance and principle start with a commitment to study, think and dream," and noted that the library "will long inspire others to achieve this vision of professionalism and excellence."

In the 1990s, Mr. Davis served the city and the school district as lead negotiator in labor talks. Pennsylvania Governor Edward G. Rendell, who was mayor at the time, called him an "unsung hero" in helping the city avert fiscal disaster, saying, "He was as responsible for the city's turnaround as any single person."

"I haven't been brought into easy situations," Mr. Davis observed in a newspaper interview in the mid-'90s.

Pulitzer Prize-winning journalist Buzz Bissinger, whose 1998 book *A Prayer for the City* follows the Rendell administration from the inside, wrote an essay on Mr. Davis that appeared on the front page of *The Philadelphia Inquirer* the day after he died. "I loved to hear him talk," Mr. Bissinger recalled, "because his observations were shrewd and unpredictable and always to the bone. But I also noticed that he liked to listen, was curious about the world and understood that the only way to sustain that curiosity was to let others talk about it."

Mr. Davis, the reporter continued, was "brilliant, but also intellectually voracious, wise without a hint of pedantry—and perhaps most special of all, kind and gentle, away from the litigiousness that was his life."

Mr. Davis served on the Pew board from February 27, 2004, until his death. Grateful for his devotion and service, the institution's board and staff benefited from his wisdom, compassion and resolute optimism in improving the quality of life for all.

Even though Medicaid is more than 40 years old—it was created by Congress in 1965—and is extensive, covering about 14 percent of the U.S. population, there is little understanding of its structure and reach. This might not be surprising, since the program has evolved significantly, and, as it has grown, fewer people have been able to keep up with the scope of its activities.

This is the rationale for *Faces of the Pennsylvania Medicaid Program*, a recent report from the Pew-supported **Pennsylvania Medicaid Policy Center** at the University of Pittsburgh and directed primarily to policy makers and other key stakeholders in health care. The report's authors are Monica R. Costlow, policy analyst at the center, and Judith R. Lave, Ph.D., the center's director. They state: "The complexity of Medical Assistance (as it is known in the Commonwealth), its eligibility criteria, the type of services covered, governance and funding makes it impenetrable to many and hampers the debate about future reform."

Originally, Medicaid was designed to provide health care services to individuals receiving cash welfare assistance. "It could now be more accurately described as an insurance program that fills in key gaps in the health care financing system and pays for medical and long-term care for eligible low-income citizens, such as children, pregnant women, individuals with disabilities and seniors," say Costlow and Lave.

Some salient conclusions of the *Faces* study:

- The Pennsylvania program covered more than 1.8 million people in an average month in 2006, representing close to 15 percent of the state's population.
- More than one-third of the Commonwealth's children relied on Medical Assistance for their health care coverage in 2005, ranging from



12.4 percent in Chester County to 63.4 percent in Philadelphia County.

- Although children and families constituted the largest proportion of Medicaid recipients in 2005 (61 percent), they accounted for only 24 percent of expenditures.
- Disabled individuals—the second largest enrollment group at 20 percent—accounted for 33 percent of program expenditures.
- The elderly represented 13 percent of Medicaid recipients and accounted for 35 percent of expenditures.

These figures show that the program “plays an important role in reducing the number of individuals who might otherwise be uninsured,” the authors note. As for caregivers, nearly 68,000 hospitals, long-term care facilities, dentists and physicians participate in Medical Assistance, “making it an important funding stream for health care institutions that serve a disproportionately large number of poor patients,” the authors say.

“As the cost of health care rises and thus the impact of Medical Assistance on the state’s budget becomes greater, attention has focused in Pennsylvania on how the program can most effectively meet its mission of providing health care coverage to some of the Commonwealth’s most vulnerable citizens,” they conclude. “This report and future analyses provided by the [center] are intended to provide a nonpartisan, independent and fact-based context for these deliberations.”

More information is available at [www.pamedicaid.pitt.edu](http://www.pamedicaid.pitt.edu).

Since it was launched in 2002, PhillyFunGuide.com, a master schedule of the upcoming week’s arts and cultural events in the Philadelphia region, has become the one-stop shop for consumers looking for entertainment in the Philadelphia region. Along the way, the guide, which was developed by the Greater Philadelphia Cultural

Alliance and funded by the Trusts, has evolved into a powerful tool for local institutions seeking to expand their audiences, sell half-price tickets to selected performances and exhibitions and earn more revenue.

All of which explains why the guide was a perfect gift to the cultural community of hard-hit New Orleans. While the system had been successfully licensed to other cities, the Arts Council of New Orleans, having lost its offices, equipment and most of its staff, was in no position to pay for the program. Accordingly, Pew partnered with the William Penn Foundation to cover the costs of customizing, hosting and operating the program for its first three years. **NOLAFunGuide.com** went online during the city’s famous Jazz Fest in the spring.

**The Philadelphia Music Project** commissions and debuts new work, music which may eventually enter the repertoire and become part of the tradition.

And the project also helps keep important musical traditions alive—often largely unknown and in some cases unheard. Frank J. Oteri recently wrote about several of these efforts in the project’s publication *PMP Magazine*. A New York-based composer and music journalist, he serves as the American Music Center’s composer advocate and is the founding editor of its Web magazine, *NewMusicBox* ([www.newmusicbox.org](http://www.newmusicbox.org)).

“Take, for example, the music of the African-American composer, keyed-bugle virtuoso, and bandleader Francis Johnson (1792-1844),” Oteri wrote. “Johnson’s pioneering social feat of assembling America’s first racially integrated ensemble, despite great obstacles and occasionally life-threatening conditions during one of the bleakest periods of inequality in our history, should alone make him a national hero. Plus his concert programs, which seamlessly blended classical and folk

music, serve as a harbinger of today’s polystylistic eclecticism. Yet, while this Philadelphia native was an international celebrity in his day (he even traveled to England to perform for Queen Victoria), today his music is almost never performed.”

That changed in June, when Johnson’s music was presented by the West Philadelphia Cultural Alliance at the University of Pennsylvania’s Irvine Auditorium. In keeping with Johnson’s pluralism, the concert brought together musicians from different genres, including jazz legend Branford Marsalis; the classically-trained, bluegrass-infused trio Time for Three; and Philadelphia Big Brass, fronted by Rodney Mack, the driving force behind this concert who, Oteri noted, “is something of a modern-day Francis Johnson.”

*The Philadelphia Inquirer’s* music critic Peter Dobrin called the music “compelling,” especially in the arrangements and new settings by Steven Heitzer.

Another PMP rescue project was the concert “Hoshanna!: Hebrew Music of the High Baroque,” performed by the Philadelphia Baroque orchestra Tempesta di Mare at Penn and Haverford College. The program consisted of three 18th-century, European, Jewish-themed cantatas, all of which had been filed in European libraries until Israel Adler, founder of the Jewish Music Research Center at Jerusalem’s Hebrew University, unearthed them.

The compositions were sung in Hebrew. “*Elyon, melits u-mastin*” (“God, Defender and Accuser”) was written for Jews in the Italian town of Casale Monferrato in the 1730s (the composer is unknown). The other two—“*Bo’i beshalom*” and “*Kol ha-neshama*” (“Let everything that has breath praise the Lord!”), a cantata based on the text of Psalm 150—were both composed for Amsterdam’s Jewish community in the 1770s by Giovanni Cristiano Lidarti, an Austrian-born Italian com-

poser of primarily instrumental works trained in a Jesuit seminary.

As David Patrick Stearns, the *Inquirer's* reviewer, noted, "This era required the participation of non-Jewish composers in a convoluted process involving Hebrew texts translated into Italian for the sake of the composer, and then fitting the original Hebrew onto the finished vocal lines. So the music requires tangy Hebrew diphthongs sung like smooth Italian." Noting that the music itself was not original ("that would have defeated the purpose" of showing that the Jewish community could have baroque music), Stearns called the concert quite apt as a "cultural object."

Another PMP find was assembled by Piffaro, The Renaissance Band. Piffaro recreated the Habsburg Hofkapelle, a 1568 concert originally performed by a large ensemble—of almost orchestral size. This might be news to today's music lovers, who generally assume that all Renaissance music was played in intimate settings. The group performed at the Presbyterian Church of Chestnut Hill, in Philadelphia.

And finally, the Philadelphia Folklore Project has featured three artists in its Musicians in Residence Program. Zaye Tete and Fatu Gayflor, from Liberia, focus on their country's rich vocal music heritage.

"Traditionally," Oteri wrote, "the performing arts have been intimately woven into the personal lives of Liberians. All of the important stages of a person's life are expressed through performance, and most people are expected to sing, dance and/or play a musical instrument. But the abilities of both Zaye Tete, a member of the Dan ethnic group originally from Toweh Town in the northeast county of Nimba, and Fatu Gayflor, of the Lorma ethnic group in the northwest village of Kakata, are unique among their compatriots. In the 1970s, both had been selected to perform in the pan-ethnic Liberian National Cultural

Troupe in Keneja, Liberia's national art village, becoming repositories of the musical traditions of all of Liberia's numerous ethnic groups. While prior to the current civil war both had become nationally renowned icons, today both struggle to sustain these musical traditions here in the United States, performing for Liberian communities around this country while maintaining demanding day jobs and trying to bring family members out of refugee camps."

The Folklore Project's third artist in residence is Mogauwane Mahloele, who was exiled from South Africa for decades because of his anti-Apartheid activities. He now lives in Philadelphia, creating music which forges new traditions from his immersions into several cultures. Mahloele, Oteri wrote, is "a born drummer from the BaPedi people adept at both the playing and crafting of a wide range of traditional instruments from the entire continent, including the West African kora and the Southern African kalimba. He is merging these older traditions with more contemporary American jazz idioms in his ensemble, Tharo."

For more on the Philadelphia Music Project, one of the Artistic Initiatives of the Philadelphia Center for Arts and Heritage, go to its Web site at [www.philadelphiamusicproject.org](http://www.philadelphiamusicproject.org).

After he completed his classic television series about the Civil War in 1990, filmmaker Ken Burns—seared by the intense emotional experience as he compiled the raw material—vowed that he was going to stay away from war as a subject. But he changed his mind.

One major reason was that he became aware of young people's ignorance of World War II—for instance, a 2001 survey showed that a majority of high schoolers could not name all three Axis powers in the conflict. Another key reason was the vanish-

ing opportunity to hear stories firsthand from veterans and their families; the war's vets are dying at the rate of 1,000 a day.

The result was *The War* (see right), a seven-part series that received support from Pew and is scheduled to be seen on PBS starting September 23.

The documentary brings together the front-line, eyewitness accounts of soldiers and the recollections of their family and friends who stayed behind in four American towns: Sacramento, Calif.; Mobile, Ala.; Waterbury, Conn., and the small farming town of Luverne, Minn.

Burns and his crew interviewed some 80 Americans about their wartime experiences and ultimately used about half of those in the series; they also included video clips and still photographs of combat, most of them taken by those in the armed services. In spring, following complaints from Hispanic groups that the documentary omitted Latinos' historic contributions to the war effort, Burns agreed to add some material to include the perspectives of Hispanic-American and Native American veterans. For all its material, however, the documentary concerns only one question, Burns says: "What was it like to be in that war?"

The tone is set right at the start, with this piece of narration:

"The greatest cataclysm in history grew out of ancient and ordinary human emotions: anger and arrogance and bigotry, victim-hood and the lust for power. And it ended because other human qualities—courage and perseverance and selflessness, faith, leadership and the hunger for freedom—combined, with unimaginable brutality, to change the course of human events.

"The Second World War brought out the best—and the worst—in a generation, and blurred the two so that they became at times almost indistinguishable." ■



U.S. National Archives and Records Administration.

Siapan, 1944.



U.S. National Archives and Records Administration.

Bitche, France, March 16, 1945.



U.S. National Archives and Records Administration.

Acerno, Italy.



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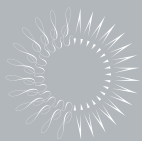
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