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TAKING SHAPE:
A (snowless) late-winter aerial view of the Fogg Art Museum reconstruction shows a huge crane—put in place once new subsurface floors were built—beginning to place the steel frame for the new Prescott Street entrance. In April, the reopening was deferred; it is now scheduled for fall 2014.

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Animal Research Reforms

DURING THE past half-century, experiments at Harvard Medical School's (HMS) New England Primate Research Center (NEPRC) have yielded a long list of scientific accomplishments, including insights

into addiction, HIV, and neurodegenerative disease. But recently, attention has shifted from breakthroughs in biomedical research and focused instead on lapses in the care of NEPRC's more than 2,000 monkeys. In June 2010, a cotton-top tamarin was found dead in a cage that had just been cleaned. A necropsy revealed that the monkey had died of natural causes before the cage went through a sanitizing, high-temperature wash, but staff members had failed to notice the animal.

That incident, a direct violation of federal animal-welfare regulations, spurred a stern warning letter and the threat of possible fines if problems continued. When a Harvard-initiated comprehensive review exposed troubling gaps in basic procedures and supervision last summer, key leadership at the center was replaced, new research was temporarily suspended, and more rigorous checks and balances began to be implemented. University officials acknowledged that NEPRC had veered off course, but stated that the problems were being addressed and corrected. But three more monkeys have died since—drawing the scrutiny of regulators, the ire of animal activists, and unprecedented steps by senior HMS leadership to more fully explain the problems and the steps being taken to address them in order to ensure the safety of the animals and regain public trust.

“The events that have taken place represent totally unacceptable events in the context of our research activities. They are

unacceptable; they are regrettable.... They are going to be fixed,” dean Jeffrey S. Flier said in an interview with *The Boston Globe* in February, shortly after his return from an hours-long visit to the center triggered by the most recent incident: an elderly cotton-top tamarin, found in poor condition in a cage that was lacking a water bottle, had to be euthanized. (Harvard officials took the unusual step of disclosing the incident right away, even before a U.S. Department of Agriculture [USDA] inspector had visited the facility, and a worker involved in the monkey's care was put on administrative leave.) “My sense is, whatever the procedures are that we put in place, they weren't good enough to prevent this event,” Flier added. “So we are going even further with our procedures, to have an attempt to be more fail-safe.”

The problems at NEPRC and some of the corrective and disciplinary actions taken to right them have emerged piecemeal, but the first hints of systemic issues



A common marmoset

ISTOCK PHOTOGRAPHS

emerged through the probe Harvard initiated after the cage-washing incident. That review revealed a series of troubling gaps and breaks in the basic procedures and supervision that govern animal research. Some procedures were being conducted on animals without the necessary approval of an institutional committee. There was a pattern of incomplete medical records—including

the absence of tuberculosis tests that are critical to maintaining the health of the colony. The two other fatalities also suggested possible training or procedural problems: last October, a common marmoset that escaped while being transferred for an imaging procedure was caught with a net and underwent imaging, but was later found dead; the day after Christmas, two squirrel monkeys were discovered severely dehydrated—staff members had not noticed a malfunctioning automatic watering system—and one had to be euthanized.

The incidents have sparked a federal investigation that includes the February 2011 death of a monkey (from an overdose of anesthesia) at another HMS primate-research facility, in Boston. “They’ve had a tough stretch, and it’s certainly something that’s gotten our attention, and we look forward to them correcting the situation,” David Sacks, a USDA spokesman, told the *Globe*. The department takes the unnecessary death of any animal seriously, he said. Since June 2010, federal inspectors have flagged seven instances at NEPRC of violations directly endangering animals’ health or safety, compared to 25 such “direct” noncompliance incidents at research facilities nationwide in fiscal year 2011, according to Sacks. The most recent USDA finding, from a March inspection, concerned the February monkey death, attributed to employee failure to provide a water bottle.



Jeffrey S. Flier

Animal activists reacted to the incidents with anger and dismay, calling on the USDA to levy large fines, and asking the National Institutes of Health (NIH) to investigate whether federal grant money was used in support of research that violated federal animal-welfare regulations. They also questioned whether the relatively simple problems that contributed to some of the incidents revealed shortcomings in procedures, training, and staff. “Even someone who is not well trained in veterinary care of animals...at the least, they should be making sure there’s a water bottle on the cage,” said Justin Goodman, associate director of the laboratory investigations department at People for the Ethical Treatment of Animals.

The concern over the situation at the primate center rapidly became a priority at the highest levels of Harvard. Flier intervened directly in the situation, and President Drew Faust said in a statement released in March that she was requesting regular progress reports: “This situation is unacceptable. When I was notified of developments at the primate center over the summer, I found them troubling and fully supported a thorough review of procedures and implementation of reforms.” After the most recent monkey death, she said, she requested weekly reports “specifying ongoing assessment of the sources of difficulties, proposed solutions, and timetables for plans of action.”

Animal research is extremely sensitive; institutions are typically secretive about operations at primate centers, largely from fear of retaliation by extremist animal-rights activists: elsewhere, researchers and facilities have been threatened or bombed. But the secrecy that shrouds the research also tends to fuel animal activists’ suspicions, perhaps even bolstering their arguments that such research, even when it is ethically conducted and overseen, should not be done. “Each and every death is unacceptable. We should be doing all that we can to avoid these cases,” said Kathleen Conlee, senior director for animal research issues at the Humane Society of the United States. “I think what gets lost in the shuffle, to some degree, is the deaths of animals due to research, not just accidents.”

But proponents argue that primate research is necessary—although it should always be held to the highest standards.



Amanda Claybaugh

Academics sometimes say you can see the seeds of an entire career in a scholar’s first book. “I’ve always felt that’s not true about my book,” says professor of English Amanda Claybaugh about *The Novel of Purpose: Literature and Social Reform in the Anglo-American World*, “but that is a question for me: What is the purpose behind literature? Is it enough to be *good* and meaningful? Should there also be some kind of *social good*?” After receiving her Ph.D. from Harvard in 2001, Claybaugh moved to Columbia, offering courses in English and comparative literature and earning praise for her teaching, as she had in Cambridge. (Having won two Bok Awards in graduate school, she became the first junior faculty member to win Columbia’s Presidential Teaching Prize.) She returned to Harvard in 2010. She’s currently at work on two books. One is a study of representations of the expanding federal government in post-Civil War literature: “Our political environment today is troubled by our inability to understand what the federal government does for people,” Claybaugh observes, “and if I can get back to the origins of how people thought about it, I hope I can understand our contemporary moment better.” The second is a history of a postbellum emancipated slave community on South Carolina’s Sea Islands. Her interest springs from wondering, “What is it like to be a slave, and then be free, and then basically be a slave again when Reconstruction’s over?” By making use of evidence found in diaries and letters, “I’m telling the story of how these people tried to create a post-Emancipation society.” Claybaugh also works extensively with contemporary literature. She’s reviewed books for *n+1* and the *London Review of Books*, and teaches a class on the contemporary novel: “I find it really exciting,” she says, “to be one of the first people to talk about something.”

They point to the checks and balances used to ensure that research is undertaken responsibly, and that each experiment is evaluated not only on its scientific merits but also on criteria such as whether the research uses the right species and the fewest possible number of animals, and is designed to cause the least amount of suffering. For certain scientific questions, such as developing a vaccine to prevent HIV or trying to solve major problems in neurodegenerative disease, other animal models are a poor approximation of a human being. Primates are “only used when lower animals won’t work, and they’re used in some research that’s been extraordinarily important to human health,” said Deborah Runkle, senior program associate for the American Association for the Advancement of Science.

In the weeks since the February death, NEPRC’s interim director, professor of medicine Frederick Wang, resigned after a six-month tenure, even though Faust and Flier credited his leadership for beginning to steer the center in the right direction. William W. Chin, HMS’s executive dean for research, is temporarily overseeing the center during the search for a successor. Harvard has made efforts to increase transparency: two new interim leaders gave the *Globe* a tour of the center, demonstrating firsthand some of the new procedures intended to increase the accountability and oversight of animal care, including afternoon checks of water availability. More supervisors and staff are being hired. And a seven-member, blue-ribbon panel of experts, including leaders of other primate centers and veterinary specialists, has been created to review the operations, logistics, and staffing at the center.

In a lengthy interview with the *Globe* in mid February, Chin said that incidents would be prevented by better systems and procedures. “Humans do make errors,” he pointed out. “Systems are built so you remove the human element of it, so you are less error-prone. I believe that it just takes time for all these things to take hold.”

—CAROLYN Y. JOHNSON

Carolyn Y. Johnson is a reporter for The Boston Globe’s health and science desk; her extensive reporting on the problems at the primate center is available at www.bostonglobe.com/staff/johnsonc.

Learning’s Leading Edges

THE HARVARD INITIATIVE on Learning and Teaching (HILT), unveiled in October, was inaugurated in a symposium on February 3. More than 300 participants convened from all Harvard’s faculties—principally senior professors and deans—plus invited panelists with special expertise in the field. HILT is the fruit of a \$40-million gift from Gustave M. Hauser, J.D. ’53, and his wife, Rita E. Hauser, L ’58, who attended the symposium and participated actively during the question periods (see “Investing in Learning and Teaching,” January-February, page 60).

In her welcoming remarks, President Drew Faust accented the connection between “thinking and making”—foreshadowing a theme of later discussions: how learning deepens when students have hands-on experiences with the material studied. Director of institutional research Erin Driver-Linn, a central organizer of the event, noted that the first year of Hauser support would launch many pilot studies across the University, and that HILT had already received 255 letters of intent to apply for grants.

Cabot professor of social ethics Mahzarin Banaji, facilitator for the first panel, on “The Science of Learning,” noted that many common beliefs about learning simply aren’t so—for example, that individuals have different ways of learning, so educators should match teaching methods to

each person’s characteristic style. There is no evidence, she asserted, supporting the idea that such matching influences learning outcomes.

Nobel laureate in physics Carl Wieman, a pioneer in effective science education and associate director of science at the White House Office of Science and Technology Policy, noted that although much is known (from cognitive psychology, brain science, and college classroom studies) about thinking and learning, this knowledge is almost never applied to teaching techniques. He cited a few research results that are well established:

- trying to teach anything to someone whose attention is divided will impair learning;
- unnecessary cognitive overload (jargon, complex figures) impedes the learning process;
- covering a topic, testing, then considering the job done may not result in retention of what was learned; and
- telling something to listeners who don’t process the information in some way will not create long-lasting knowledge.

Roddy Roediger, McDonnell Distinguished University Professor at Washington University, described some of his research on college students (whom he called “the *Drosophila* of my field”). “You learn a lot more from exams than from reading material,” he said. Professors and students dislike tests, but frequent assessments outpace more study time as a way

Having winnowed the 255 applications for Hauser Fund grants by more than half, a faculty selection committee met again during the week of March 19 to make final selection recommendations to President Faust and Provost Alan Garber. The finalists will be announced on April 16.

The Harvard Initiative on Learning and Teaching (HILT) program has created a Learning and Teaching Consortium to provide a forum for pedagogical discussion and problem-solving across the University. It includes two representatives from each faculty or organization (e.g., libraries, museums): one representative familiar with the substantive teaching and learning issues under scrutiny, the other (an academic technical manager) responsible for implementing initiative results. Ian Lapp, associate dean for strategic educational initiatives at the School of Public Health, and Katie Vale, director of the academic technology group within the Faculty of Arts and Sciences, co-chair the consortium, which will include about 25 members and begin meeting in April to address both short- and long-term HILT goals.

One first-year goal is the creation of a virtual repository for learning and teaching materials on HILT’s website. Another task is to implement and assess the Hauser grants being awarded—to make sure they have real-world traction and to maximize their impact across the University. And within a few weeks, edited video footage from the February 3 symposium will be posted to the HILT website, including highlights from the breakout sessions and plenary forums.