

their own innocence.”

Is there a way out of this confusion? McClay thinks we may have to “concede that forgiveness is an example of a virtue that may not be extensible beyond its religious war-

rant.” Maybe we need another name for our therapeutic absolutions. In any event, it seems we need our foundational moral understandings more than ever. Recalling the true meanings of guilt and forgiveness, McClay

believes, may help us remember that they are concerned with “the soul of the transgressor and the well-being of society, and not merely with the forgiver’s good health and his sweet psychological revenge.”

SCIENCE & TECHNOLOGY

The Research Boomerang

THE SOURCE: “Be Careful What You Wish For: A Cautionary Tale About Budget Doubling” by Richard B. Freeman and John Van Reenen, in *Issues in Science and Technology*, Fall 2008.

BETWEEN 1998 AND 2003 THE Clinton administration started and the Bush administration finished doubling the budget of the National Institutes of Health (NIH), the primary source of governmental funding for biomedical research. The result of this historically abrupt largesse, according to one of the affected researchers, has been a “completely new category of nightmare.”

Instead of producing twice as many jaw-dropping breakthroughs as before, the suddenly enlarged research corps plodded ahead at the same steady pace. And the rapid buildup from

\$14 billion in 1998 to \$27 billion in 2003 seemed to suck dry the government’s enthusiasm for science—resulting in a near freeze of the NIH budget. As a result, the NIH is on track to spend 13.4 percent *less* on

biomedical research in 2009 than it did five years earlier. Young researchers who hurriedly ramped up their labs to handle new grants have been pressured to cut staff as they face longer and longer odds of having the grants renewed. “Young people who build their skills as graduate students or postdocs during the acceleration phase of spending bear much of the cost of the deceleration,” write economists

Richard B. Freeman of Harvard and John Van Reenen of the London School of Economics. A glut of newly trained graduate students is competing for a shrinking number of jobs.

During the doubling, the NIH increased both the value and the number of grants. When the available funds shrank because the annual appropriation failed to keep up with inflation, the number of grants had to be cut by a fifth. With poorer odds of getting funded, researchers submitted many more applications, making competition fiercer. The cuts may also have led to “conservative science, as researchers shy away from

EXCERPT

Naps for Invention

[Thomas Edison] solved many problems by going to sleep and letting an otherwise inaccessible part of his mind work on the challenge. He would lie down on his couch in his laboratory and place a steel ball firmly in his right hand. At the start of his nap his right hand would grip that steel ball, with his arm extended out, over the floor on the right side of his couch. After he went to sleep his hand would gradually relax. The fingers would open, and at some point the ball would fall to the floor, making a sound that would awaken him. Sometimes, he said, the answer to what he was working on would be right there in his mind.

—JAMES OPIE, a writer and businessman in Portland, Ore., in *Parabola* (Winter 2008)

the big research questions in favor of manageable topics that fit with prevailing fashions," Freeman and Reenen say.

The squeeze has struck hardest at scientists just starting their careers. Postdoctoral researchers labor indefinitely in the labs of senior scientists who continue to win follow-up grants while new grantees are turned down. The average age of new grantees rose from 35.2 in 1970 to 42.9 in 2005, the last year for which numbers are available. Twenty-two percent of grants went to scientists 35 and younger in 1980, but in 2005 only three percent did.

In a choice between equally competent young and older researchers, the economists

argue, the government should tilt toward youth. Youthful applicants will have more years to use the new knowledge and it will have a higher payoff.

SCIENCE & TECHNOLOGY

Just Another Prescription

THE SOURCE: "Ten Years of 'Death with Dignity'" by Courtney S. Campbell, in *The New Atlantis*, Fall 2008.

UNLESS YOU LIVE IN THE Pacific Northwest, you may not know that the voters in the state of Washington passed a "death with dignity" initiative on November 4 by a 16-percentage-point margin. In 1997, a ferocious battle

preceded the narrow approval of an Oregon law allowing doctors to write lethal prescriptions for dying patients. In 2006, the law survived a Supreme Court challenge brought by two attorneys general. Now, in contrast to the earlier drama, the extension of the so-called right to die to a second state in November was almost ho-hum news.

Part of the reason is that in 10 years of experience with Oregon's law, only 541 patients in a state of 3.7 million acquired prescriptions for lethal drugs. Of those, only 341 used them. None of the fears surrounding the new law have proved justified. No public outcry has arisen over pressuring dad to die so junior can sell the business. No flood of

EXCERPT

Everyman's Qibla

The black granite Kaaba, the cubical structure that stands as the holiest center of Islam, features at its eastern vertex a small black stone about the size of a grapefruit, the al-hajar al-aswad, which may or may not have fallen to earth in the time of Adam and Eve. Supported in a silver frame, this obsidian-like cipher structures space for some billion Muslims, standing as it does at the culminating point known as the qibla—the direction to which devout followers of Muhammad address their five daily obeisances. Tradition has it that the rock was once snowy white, and has darkened over time through exposure to human sin.

A snowy-white stone that gives shape to the universe: As it happens, we all carry within our skulls the vestige of such a thing, a kind of existentially reversed qibla (this one

perspectival, the other metaphysical) that gives us our sense of being at the center of things, the sense that we are upright at the origin point of a three-dimensional space. The "otolithic organs," as they are known, are a pair of sensors, the utricle and the saccule, nestled in the labyrinthine architecture of the inner ear. . . . The saccule is roughly vertical in our heads, and the utricle more or less horizontal. Together they orient us in the world, since they work as tiny inertial references: Raise your head suddenly (or get a jerky elevator), and the pebbles of the saccule get momentarily left behind as your skull starts upward; this bends down the hairs against which those pebbles lay, and the sensitive hairs function like switches, sending signals to your brain that you register as a feeling of ascent. The utricle does the same work for motion from side to side, and between them these tiny organs generate the neurological data that give us our normal sense of being in the world.

—D. GRAHAM BURNETT, a historian of science at Princeton, author of four books, and an editor of *Cabinet* (Fall 2008)