(Continued from page 1035)

as an attraction to big-name speakers encourages an unfortunate reverence for authority figures that is unbecoming the skeptical scientific mind.

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Science is to be commended for dedicating a portion of its 23 June issue to the topic "Conduct in Science" and for including in it Gary Taubes's descriptions of novel approaches to formal teaching about research conduct. I wish to make two comments, one general, the other partly self-serving (not untypical for a scientist).

The special section emphasizes the biomedical sciences, where NIH training grants predominate, with their concomitant requirement for some formal lecture-teaching exposure to ethical issues. There is, however, no coverage of the physical sciences, where training grants are rare. As the only chemist member of the original Institute of Medicine–National Academy of Sciences committee on the ethical conduct of research, I called attention to this operational difference in research support, which led me to suggest that recipients of research *grants* should also be obligatorily exposed to such instruction. This has not yet happened, which makes the question of pedagogic experimentation even more relevant.

Taubes's description of pedagogic experiments omits one that I believe merits some emphasis, as it also serves to enlighten the general lay public about conduct in scientific research. The general public knows little enough of *what* we do, but it knows even less *how* we do it. I am currently working on a tetralogy of novels in the infrequently used literary genre of "science-in-fiction" (not science fiction) to illustrate in an accurate way in the guise of fiction the behavior of contemporary research scientists.

The reception of the first novel, *Cantor's Dilemma* (Penguin, New York, 1991) has convinced me that "science-in-fiction" is a pedagogic tool well worth implementing, as it can cover the gamut from the general public to graduate students and postdocs. In the afterword of *Cantor's Dilemma*, I said, "Publications, priorities, the order of the authors, the choice of the journal, the collegiality and the brutal competition, academic tenure, grantsmanship, the Nobel Prize, Schadenfreude—these are the soul and baggage of contemporary science. To illustrate them . . . I write about behavior and attitudes surely more common than we like to admit." This novel has been translated into six languages, and was serialized daily in Germany's largest newspaper, the *Frankfurter Allgemeine Zeitung*. More relevant to the coverage of teaching such issues, it has become a text or recommended reading in many American colleges and universities.

Finally, nowhere in the otherwise extremely well-done coverage of scientific conduct do I find comment on the gender aspects of our science research culture, other than tangentially through description of the legal travails surrounding Sarvamangala Devi. There is more to it than just featuring women as whistleblowers or plaintiffs. How to compete on the tenure-track treadmill while pregnant and how the rest of the scientific establishment responds are issues well worth exploring as part of a broad overview of conduct in science, rather than in a group of articles about the special problems facing women in a tough laboratory science. I have made this a key element in my science-in-fiction series and have found from my lectures and even book reviews that it raises more questions and comments than any other.

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Government agencies are eager to reduce science funding. But this could turn into wild enthusiasm when it is generally realized that the money supports an enterprise in which costly duplication of effort predominates, an enterprise in which the participants positively hinder the efforts of talented colleagues in order to advance their personal careers. It is good that problems of scientific misconduct and lack of cooperation between scientists are discussed openly. However, unless the scientific community deals effectively with the problems, it may provide those wishing to reduce spending on science with their most powerful weapon.

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Readers of the special section "Conduct in Science" may be interested to learn that a program at the State University of New York at Stony Brook is attempting to introduce the study of these issues into the secondary school science classroom. A team of science and philosophy faculty from Stony Brook and Dowling College in conjunction with the university's Center for Science, Mathematics, and Technology Education, is operating a series of summer institutes supported by the National Science Foundation that enable science teachers to analyze case studies and grapple with ethical issues that often emerge in their classrooms and laboratories. The teacher participants in this program, which is in its second year, develop ethics and values teaching materials for integration into their classroom science lessons.

These matters are much too important to be put off until citizens become undergraduate or graduate students. Secondary school students and teachers can engage in serious discussions about the conduct of science and the ethical obligations of scientists. At a time when so few of our citizens have any notion of what the enterprise of science is about, we must take advantage of all opportunities to shed light on topics with such important implications.

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Although I appreciate how issues of credit arise when important scientific discoveries are made, the article "The culture of credit" by Jon Cohen (Conduct in Science, 23 June, p. 1706) omits one important point. No issue of credit will ever diminish the thrill of understanding an astonishing fact of biology for the first time, or the scientific self-confidence that arises from a major discovery. Discussing only how credit is awarded gives a one-sided impression of the research process. In the end, no issue should be relevant other than the beauty of the science itself. For me, the overwhelming lasting memory remains the view under the microscope, not above it.

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The Johns Hopkins Institutions

The article "Management overhaul at Johns Hopkins" by Eliot Marshall (News & Comment, 30 June, p. 1842) calls for some clarification about the structure and governance of the health care enterprise at Hopkins.

First, it should be made clear that there are two distinct Johns Hopkins institutions—Johns Hopkins University and Johns Hopkins Hospital/Health System (JHH/S). Since their origins in the 19th century, the university and the hospital have had separate charters, separate governing boards, and separate budgets. This will continue to be the case.

In devising a new governance structure, the trustees sought to ensure that these distinct but interdependent corporations will respond to the health care marketplace in an integrated way. Hence, the new Office of Johns Hopkins Medicine was created, chaired by the president of the university. This new office will more tightly coordinate all of the Johns Hopkins University School of Medicine and JHH/S health care delivery activities. The president of the Hospital/Health System and the dean of the School of Medicine are a part of the office and retain responsibility for the operations of the Hospital/Health System and the School of Medicine.

We also would like to point out that the Hopkins Health Maintenance Organization (HMO), which was known as the Johns Hopkins Health Plan, was developed and sold by the Johns Hopkins Health System, not by the university.

The important point to emphasize, however, is that after 4 months of intense study, in which they examined every imaginable model for governance, the trustees decided on an organization they determined would best serve the two Johns Hopkins institutions. At a time when many of the old economic and policy assumptions are being turned upside down, we are determined still to succeed. We will do so through cooperation and collaboration between a medical school and a hospital–health system that, although separate, share the same name, the same heritage, and the same longstanding commitment to innovation and excellence.

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Genes and Grocery Stores

The opposition of religious leaders to the patenting of genes and genetically engineered organisms (R. Stone, News & Comment, 26 May, p. 1126) illustrates the confusion generated by treating DNA as equivalent to life itself (*1*). The United Methodist Church objects to the patenting of engineered genetic material because it constitutes "the commodification of life," as if DNA, and only DNA, could be equated with "life" (*2*). No criticism here of grocery stores, farmers, or restaurants for "[reducing] life to its commercial value and marketability," although one might think that the sale of tomatoes, chickens, and whole-wheat bread also constitutes the commodification of life. Also, most of the (former) life on sale at the grocery has been "engineered" as thoroughly as any synthetic gene through techniques such as selective breeding, pruning and training, and the generous use of fertilizers and pesticides.

Scientists who write about DNA in ways that raise it to the status of a mythic entity should not now be surprised to find an unfortunate convergence between scientific and religious mythology, one that in the present political and social climate is likely to play out to their disadvantage.

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Source of Comets

Richard A. Kerr portrays the discovery of comet-size bodies in the Kuiper belt by Anita Cochran *et al.* ("Home of planetary wanderers is sized up for first time," Research News, 23 June, p. 1704) as another example of an overblown discovery by the Hubble Space Telescope (HST). The implication is that Cochran's work is not important, when, in fact, it is quite significant and used the HST at the limits of its capabilities. It would not have been possible with ground-based instruments.

Gerard Kuiper's idea of a comet belt beyond Neptune has received considerable attention since being revived by J. A. Fernandez in 1980 (*1*) [although the 1988 work (*2*) mentioned by Kerr was highly significant, cometary dynamicists were discussing the idea of a trans-Neptunian comet belt throughout the early 1980s]. In the early 1990s, the advent of an enabling technology, large-area CCD's, made possible the discovery of the first several objects in the Kuiper belt by David Jewitt and Jane Luu, who continue to do outstanding work in finding these distant giant comets. However, all of these objects are on the order of 100 to 400 kilometers in diameter, far larger than typical comets observed passing through the inner planets region. The existence of a handful of large bodies in the Kuiper belt (as this cometary reservoir has come to be called) is not proof that the much larger population needed to supply the short-period comet flux in the inner solar system actually exists. Indeed, Jewitt and Luu point out (*3*) that, given the limited number of discoveries to date, they cannot rule out a Gaussian-size distribution for the Kuiper belt objects, in which there would only be large bodies and no comet-size bodies with diameters of 1 to 10 kilometers.

Cochran *et al.*'s discovery thus provides the missing link in the Kuiper belt problem and demonstrates that typical comet-size bodies do exist, and in sufficient numbers to provide the observed short-period comet flux. Luu's comment quoted in Kerr's article that the population can be extrapolated from the ground-based discoveries, appears to contradict her own paper (*3*). She and her co-author (*2*, p. 1873) stated, "We note that Gaussian or weak (e.g., $q = 2$) power-law distributions may not accommodate the large number of $D \sim 1$ to 10 km sized objects that are required if the trans-Neptunian region is the source of the short-period comets." Jewitt and Luu conclude (*2*) that the size distribution of the largest bodies was characterized by a weak power law with $q < 3$.

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Corrections and Clarifications

In the report "Tissue- and species-specific expression of sp56, a mouse sperm fertilization protein" by L. H. Bookbinder *et al.* (7 July, p. 86), the units in the third column of table 1 on page 88 should have been "fg" (for femtograms), not "pg."

In the News article "Share and share alike isn't always the rule in science" by Jon Cohen (Special section: Conduct in Science, 23 June, p. 1715), the name of the International Union of Crystallography was given incorrectly on page 1718.