LETTERS

edited by Etta Kavanagh

Animal Activism and Intimidation of Scientists

SCIENCE EDITOR-IN-CHIEF DONALD KENNEDY IS ON THE MARK WITH HIS CALL FOR INSTITUTIONS to support their scientists and researchers under siege by animal rights terrorists (“Animal activism: out of control,” 15 Sept., p. 1541). As directors of Americans for Medical Progress, we feel that it is equally important to urge the entire scientific community and their supporters to rally publicly for those targeted by extremists.

Although we criticize illegal and harassing conduct, we also criticize the persistent opposition to animal welfare measures and stringent antiregulation posture of the research community. Millions of Americans care about animal welfare and also hold that harassment and violence are wholly unacceptable and inconsistent with a core ethic of promoting compassion and respect. The Humane Society of the United States, which represents nearly 10 million members and constituents, has repeatedly criticized individuals who break the law in the name of supposedly protecting animals.

The biomedical research community plays into the hands of the radicals when it resists reasonable reforms. Their obduracy also hurts the efforts of groups like the Humane Society of the United States when we counsel young people to work through the system.

DONALD KENNEDY’S EDITORIAL “ANIMAL activism: out of control” (15 Sept., p. 1541) addresses an issue rarely raised in scientific journals despite an onslaught of activist and public agitation. Intimidation of scientists, whose studies are dependent on laboratory animals, has a long extremist-based history in both the United States and Europe. Congressional action on H.R.4239 (the Animal Enterprise Terrorism Act) to defend against direct and indirect attacks on those involved in research and their families is encouraging and should be supported by all in the scientific community.

The failure of the scientific organization hosting the research to publicly defend the use of animals by one of its scientists is not uncommon. Such reluctance seems irrational in light of the fact that institutions review such research before it is conducted, assure granting agencies such as the NIH that appropriate care and use of animals will occur, and accept the funding, including indirect costs, to conduct the studies in question. Likewise, corporate and privately funded institutes dedicated to the advancement of biomedical research are often less-than-inspired defenders of their employees and the need to utilize animals in the advancement of knowledge.

Admittedly, there have been some rare cases where scientists have failed to comply with the common-sense and legal requirements that enable us to have the privilege to work with animals. However, the future of...
A Plea for Justice for Jailed Medical Workers

IN 2000–01, REPORTS BEGAN TO SURFACE of an HIV-1 outbreak in approximately 400 children who were hospitalized or treated as outpatients in the Al-Fateh Hospital, Benghazi, Libya. The Libyan government accused six medical workers (five Bulgarian nurses and a Palestinian doctor) of intentionally infecting these children with HIV-1. The Libyan Head of State, Moammar Kadafi, speaking at the HIV/AIDS summit in Abuja, Nigeria, in April 2001, stated that these children had been deliberately infected as part of a vast international conspiracy to destabilize his country. The six health care workers were imprisoned, tortured with electric shocks to extract “confessions,” tried in a Libyan court, convicted, and sentenced to death by firing squad. The resulting publicity caused the Bengazi pediatric HIV-1 outbreak to become the focus of international scientific efforts to understand how it occurred.

The Benghazi Children’s Hospital was visited by international experts, and the records of infected children were compiled. Many of these children were treated in European hospitals, making it possible to obtain clinical specimens for virology studies. The examination of hospital records showed that without question, HIV-infected children were admitted to several wards of the Al Fateh Benghazi Children’s Hospital in 1997 and early 1998 (with some possibility that HIV-infected children were present in the hospital as early as 1994), before the arrival in Libya of the six accused. The results of serology studies (1) and viral genome sequencing (1, 2) established that the HIV-1 infections in all the children arose from a single source with very low inter-strain variation and the virus was of the CRF02 A/G subtype that is common in sub-Saharan Africa. A high percentage of the HIV-1–infected children were also infected with hepatitis C virus, of several different genotypes, and many also had hepatitis B virus infection despite an active pediatric immunization program (3). All three viruses were present in the children at rates far above those in the local population. Documentation of HIV-infected children admitted to the hospital in 1997 and the prevalence of multiple blood-borne viruses within the children, proves that HIV was present in the Al-Fateh Hospital by 1997, and the most reasonable explanation is that poor infection control practices, including the lack of sterile, disposable injecting equipment, led to the spread of HIV-1, hepatitis B, and hepatitis C. A change in medical practices at the hospital, including the introduction of disposable injection materials, stopped the further spread of HIV-1 infection (1).

Convicting a small group of individuals of such an appalling crime as the deliberate infection of 400 innocent children requires a very high degree of proof. Yet the Libyan court chose to exclude expert testimony from independent scientists and to prevent access to crucial pieces of evidence to test for HIV contamination, while relying instead on “confessions” extracted under torture and making threats of execution for any noncooperation by the accused. At the same time, the Libyan government made demands for ever-increasing financial compensation from Bulgaria for the parents of the infected children. These six innocent health care workers have been incarcerated in a Libyan prison for nearly 8 years, for what we believe was performing their jobs with inadequate equipment, after receiving inadequate training and having been exposed to the same risk of HIV infection as the Libyan children and hospital staff. What has happened to the accused sends a chilling message to all health care workers who choose to work in difficult circumstances to deliver life-saving care to HIV-1–infected or at-risk people worldwide.

Libya is now seeking closer ties with the Western world. We therefore request that our governments reach out to the Libyan people and their political leadership to find a way to release the imprisoned health care workers, provide means to look after the HIV-1–infected children, and help with all efforts to detect, treat, and prevent HIV-1 infection within Libya. If Libya is truly willing to enter into meaningful dialogues with Western nations, it should take the opportunity to benefit from the knowledge Western scientists have gained about HIV-1 and AIDS over the past 25 years and not instead create yet more victims of the AIDS epidemic—in this case, the five Bulgarian nurses and Palestinian doctor.

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Throwing the Dice

THE COVER OF THE 30 JUNE ISSUE SHOWS A board game called “Life Cycles.” Also shown are two dice. For those not familiar with dice, there are “proper” and “not proper” die. A proper die must have the sum of the numbers on opposite sides equal to seven. It is clear that the die on the left is not proper, because it shows on one face a 2, which is not opposite the 5 that is showing on another face.

The die on the right could be proper; it is impossible to tell. If it were proper, it could be either “left-handed” or “right-handed.” To be right-handed, the faces marked with a 1, 2, and 3 must be normal (at right angles) to a right-handed set of x-y-z coordinate axes. To be right-handed, it must have the number 3 on the face on the left. If instead it has the number 4, then it is left-handed.

I make the above comments because it is unlike Science to promote improper information, and it is an advantage for all young researchers to be able to put the correct “spin” on their dice when they play the game of life.

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The Dangers of Pyramid-Mania

IN HIS ARTICLE “MAD ABOUT PYRAMIDS” (News Focus, 22 Sept., p. 1718), J. Bohannon discusses the current Egyptian pyramid-mania and its ramifications, but there is one aspect he did not mention: the loss of important paleontological resources. At the invitation of Semir Osmanagic (also spelled Osmana-gich), chairman of the Bosnian Pyramid of the Sun Foundation, I visited Visoko in late July and early August to study the “pyramids” and surrounding geology. The “pyramid” hills are composed of Late Miocene lacustrine and fluvial deposits; certain strata are highly fossiliferous, containing a variety of thus-far undocumented angiosperm leaves and other plant remains as well as animal trace fossils. I believe this area merits serious paleontological study. On the basis of the sedimentology, the hills could well yield scientifically valuable terrestrial vertebrate specimens. Presently, the fossils are being ignored and destroyed during the “excavations,” as crews work to shape the natural hills into crude semblances of the Mayan-style step pyramids with which Osmanagic is so enamored (1–3).

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CORRECTIONS AND CLARIFICATIONS

Reports: “Large punctuational contribution of speciation to evolutionary divergence at the molecular level” by M. Pagel et al. (6 Oct., p. 119). In conducting further work to identify punctuational episodes of evolution such as reported in the paper, the authors have discovered a previously undescribed bias that affects Bayesian posterior distributions of phylogenetic trees derived from Markov chain Monte Carlo methods. The bias arises when species are closely related and thus the phylogenetic signal is difficult to detect. The bias manifests itself as a tendency in the posterior sample toward asymmetrically branching trees with short but variable branch lengths. Under these circumstances, the posterior distribution of trees can support the inference of punctuational episodes of evolution such as reported in the paper. The bias is distinct from the node-density artifact [e.g., C. Venditti, A. Meade, M. Pagel, Syst. Biol. 55, 637 (2006)], and the authors will describe it in detail elsewhere. Having reanalyzed in light of this discovery the 122 phylogenetic data sets that comprise the data, the authors think that 11 may suffer from this bias, in addition to the 22 trees previously identified and removed for having node-density effects. Removing these 11 trees from the sample does not alter the conclusions. The authors find that 27 ± 4.7% of the remaining trees show the punctuational effect compared to the 35 ± 4.8% that was previously reported. They still find that the frequency of punctuational effects among plants (43.5 ± 10.0%) and fungi (60.0 ± 22.2%) is at least double that in animals (18.0 ± 4.9%; χ² = 7.97, P < 0.02), and the asymptotic estimate of the percentage of genetic changes that can be attributed to the punctuational episodes as the tree size approaches infinity is 16 ± 5.4% as compared with 22 ± 3.6% in the original sample. The size of the punctuational effect predicts departures from a molecular clock-like mode of evolution: The correlation of r = 0.79 reported in Fig. 4 of the Report that measures this effect has increased to r = 0.87, P < 0.0001. The Supplementary Online Material has been modified to reflect these changes.

Reports: “Oxygen-mediated diffusion of oxygen vacancies on the TiO2(110) surface” by R. Schaub et al. (17 Jan. 2003, p. 377). Since the publication of this Report, the authors have realized that the background water pressure in the UHV chamber used was sufficient to replace all oxygen vacancies by bridging hydroxyls (OH) − as reported in S. Wendt et al., Surf. Sci. 598, 226 (2005). Furthermore, new experiments performed under improved vacuum conditions have revealed that the diffusing species observed in the Report are indeed adsorbed water molecules and not O2. [S. Wendt et al., Phys. Rev. Lett. 96, 066107 (2006)]. All observations in the Report are fully reproducible under a deliberate residual water pressure. However, the interpretation proposed in the Report must be revised. The STM movies and images presented actually show water molecules diffusing in Ti troughs and jumping across OH− defects. The reinterpretation of the data reported is revealed from additional STM movies together with DFT calculations presented elsewhere [S. Wendt et al., Phys. Rev. Lett. 96, 066107 (2006)].
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