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# LETTERS

## Tropical Poison Frogs

David Bradley's article "Frog venom cocktail yields a one-handed painkiller" (News, 27 Aug., p. 1117) leads off with a purely fictional statement: "For generations, Ecuadorian Indians have used the venom of the frog *Epipedobates tricolor* as a powerful weapon, even calling the animal the poison arrow frog."

The belief that all or many brightly colored dendrobatid frogs are used for poisoning "arrows" is a modern literary myth (circa 1930s) that we have tried to dispel (*1*, *2*). Three extraordinarily toxic species of *Phyllobates* from rain forest on the Pacific versant of western Colombia are the *only* frogs known to be used for poisoning blowgun darts (not arrows). The *only* Indians known positively to practice this geographically restricted custom are the Emberá Chocó and the Noanamá Chocó (*1*). There is no evidence that other trans-Andean Indians or any Amazonian tribes have ever tipped darts (or arrows) with frog secretion as a primary poison.

The existence of medically important compounds such as epibatidine that are awaiting discovery is often given among other valid reasons for preserving biodiversity. Ironically, dendrobatid frogs are now largely off limits to new research in natural products chemistry. Despite extensive evidence of their abundance, dendrobatids have been accorded "protection" as threatened species through action of the Convention on International Trade in Endangered Species of Flora and Fauna, in violation of the Convention's own criteria requiring evidence of endangerment (*3*).


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1. C. W. Myers, J. W. Daly, B. Malkin, *Bull. Am. Mus. Nat. Hist.* **161**, 307 (1978).
2. C. W. Myers and J. W. Daly, *Sci. Am.* **248**, 120 (February 1983), L. R. Maxson and C. W Myers, *Biotropica* **17**, 50 (1985).
3. N. Mrosovsky, *Nature* **331**, 563 (1988); H. Bringsøe, *Herpetol. Rev.* **23**, 16 (1992).


## Peer Review in the Czech Republic

In his article "Science held back by ghosts of the past" (Science in Europe, 18 June, p. 1748), Steven Dickman quotes Czech researcher Vladimir Pečenka as saying of research funding at the Czech Academy of Sciences that "[i]t's just like under communism—they just give the same amount of money to everybody." This is simply not correct.

The Granting Agency of the Academy of Sciences of the Czech Republic was created in 1991 as the first establishment attempting to rationalize the funding of research carried out in the Academy institutes. The Granting Agency distributes funds after a peer-review process that is, in principle, identical to those used in most developed countries. Because the scientific community in the Czech Republic is small, foreign reviewers are frequently asked for cooperation.

In 1991, 44.4% (in 1992, 39.7%; in 1993, 26.7%) of the grant applications were successful. At present, most of the scientists working in the Academy institutes are supported by grants. Many of those who were repeatedly unable to obtain grants have left. After a drastic reduction of the Academy budget in 1992, one of the major criteria for evaluation of the institutes became their success in obtaining grants. During the last 3 years the number of Academy employees has dropped from 14,000 to less than 7,000.

The internal Granting Agency of the Academy was the first granting establishment to operate in the Czech Republic. When the Government Granting Agency came into being this year, it took the Academy agency as a model for its operation.

We do not think that there is a flawless money-distributing system for science and research, and we realize that our Granting Agency is not an exception to the rule. However, we do believe that the criticism expressed by Pečenka is unfair.


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*Response*: The irony about this dispute is that it seems everyone agrees about the goal: to increase the merit-based distribution of research funds within the Czech Academy of Sciences. One problem is that there is very

little money—just $2 million a year for the 6000-plus researchers. And the system is not as selective as Pačes and Viklický make it sound—through resubmissions of slightly revised grant proposals, many researchers whose proposals failed in 1991 succeeded in 1992 and 1993. It is my understanding that, in making his statement as strong as he did, Pečenka pushed his description of the situation to extremes in order to suggest that Czech science would benefit if the system were more selective.—***Steven Dickman***

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## Misconduct in Science

Howard K. Schachman, in his 9 July Policy Forum (p. 148), presents his view of how federal agencies should define misconduct in science and takes issue with some points I made in my earlier Policy Forum (29 Jan., p. 584). In some significant ways his positions also differ from those taken by the National Academy of Sciences report (*1*), which my paper was addressing.

Schachman objects to broad phrases like "other serious deviation from accepted practices" that occur in the federal agency definitions. He says that Congress in the Health Research Extension Act of 1985 prescribed a limited definition in terms of "fraud" that excluded such broad phrases. In fact, the legislative history of that Act shows that Congress used terms like "fraud" and "misconduct" without construing them narrowly. Since the publication of federal agency definitions, Congress has never indicated that they were too broad. On the contrary, in 1993 two congressional reports attached to agency authorization acts have supported the "other serious deviation" language.

Every federal agency has the intrinsic authority to issue regulations that protect the programs it funds. This authority does not derive from the 1985 Act, as Schachman seems to assume, and that Act does not limit the definitions that any agency may publish in its regulations. Moreover, the Act has no relevance to the National Science Foundation (NSF).

My Policy Forum offered criteria for judging a practice to be misconduct in science in terms of whether it violates the ethical standards of the scientific community and does serious damage to the processes of science. Schachman does not discuss these criteria or offer his own. He also does not appear to take into account the safeguards against overly broad interpretations of the definition that are provided by the NSF regulation and its appeal to community standards. He instead appeals to a general fear of government by referring vaguely to government suppression of science in other countries.

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### References

1. *Responsible Science: Ensuring the Integrity of the Research Process* (National Academy Press, Washington, DC, 1992), vol. 1.

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Schachman addresses the question of "What is misconduct in science?" As he points out, the definition proposed by the National Academy of Sciences/National Academy of Engineering/Institute of Medicine panel in 1992 restricted it to "fabrication, falsification, or plagiarism, in proposing, performing, or reporting research." The arguments have centered on whether additional phrases like "other serious deviation from accepted practices" used in current agency definitions make them too expansive and vague. Schachman and others have expressed their concerns from the