

SCIENCE

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Information for Contributors appears on pages 40–42 of the 1 January 1993 issue. Editorial correspondence, including requests for permission to reprint and reprint orders, should be sent to 1333 H Street, NW, Washington, DC 20005.

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 *Phylllobates* 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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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 Vladimír 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