

CORRESPONDENCE

Scientists should cut waste too

Your call for scientists to rally for continued federal funding (*Nature* 470, 305; 2011) places no responsibility on them to reduce the \$1.3-trillion US budget deficit.

As many scientists depend on taxpayers' money for research, they have an obligation to reduce waste and inefficiency and to work within their means. Funding agencies cannot and should not continue to do business as usual.

For example, the National Institutes of Health (NIH) imposes a salary cap of \$199,700 for scientists; most other federal agencies do not. The 'indirect costs' claimed by academic institutions range from 55% to 60% of the total grant budget. This implies that the taxpayer will pay \$199,700 for an NIH-funded radiologist but \$398,571 if the post were funded by another agency. Also, 55–60 cents of every research dollar will be spent on administrative and facilities costs, even though buildings and utilities have been paid for many times over.

Unlike companies, non-profit academic institutions deliver a paltry return on taxpayers' investments. In 2010, after spending nearly \$3.1 billion of taxpayers' money on intramural research, the NIH received \$91.6 million in royalties and was issued with 134 patents. By contrast, in 2009 IBM spent \$6.5 billion on research and development, generated \$15.1 billion in revenue and was issued with 4,914 patents. **Matthew Kumar** *Mayo Clinic, Rochester, Minnesota, USA.* mkumar@mayo.edu

Anthropology: it can be interdisciplinary

Adam Kuper and Jonathan Marks's gloomy portrait of

integrative, big-question research in anthropology (*Nature* 470, 166–168; 2011) does not square with the large body of literature that covers areas such as behavioural ecology, cultural evolution, cognitive anthropology, gender studies, cross-cultural economics, moral psychology and environmental change. Publishing this work in high-impact general science and focused interdisciplinary journals ensures wide attention beyond the discipline.

The Evolutionary Anthropology Society was created to cut across traditional anthropological divides. It has some 350 members drawn from biological, cultural and archaeological specialities. Other interdisciplinary scholarly associations are The Human Behavior and Evolution Society, the European Human Behaviour and Evolution Association, and the Society for Anthropological Sciences. Each has hundreds of members active in the kind of research the authors claim is scarce or lacking. Productive interdisciplinary centres, such as the Centre for the Evolution of Cultural Diversity based at University College London, also catalyse innovative research that integrates biological, cultural and archaeological perspectives.

We feel that a genuinely interdisciplinary field of human diversity is emerging, synthesizing ideas and data from the social and behavioural sciences with theory and modelling techniques from evolutionary biology and game theory. Unlike Kuper and Marks, we see ample evidence that this work features in current debates about cognition, altruism, economic behaviour and environmental degradation (see, for example, M. Borgerhoff Mulder *et al. Science* 326, 682–688; 2009).

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Anthropology: follow field primatologists

Field primatology is one area of anthropology in which a classical cross-disciplinary approach is thriving (*Nature* 470, 166–168; 2011).

Field primatologists search the archaeological record of tool-using primates to gain insight into their cultures and traditions. Similarly, researchers of primate communication have set up a linguistic framework to investigate its intricacies in the context of the evolution of human language and music.

Like Jane Goodall and Birute Galdikas, whose studies on the great apes could read as ethnographies of a human group, field primatologists embrace long-term participant observation, a hallmark of social anthropology.

With the decline of natural forests, primate populations are nearly all intimately linked with their human neighbours. Field primatologists study their interactions, balancing the need for primate conservation with the cultural practices of the humans on whom the animals depend.

They advise on issues such as bushmeat hunting, the pet trade and the evolution of diseases that affect both human and non-human primates. They join cultural anthropologists and local people in examining data on past distributions and recent local extinctions of non-human primates and other animals.

In short, field primatology is successfully retaining and expanding the spirit of anthropology.

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Intolerance: UK chief scientist responds

Andy Stirling and Brian Wynne (*Nature* 471, 305; 2011) call respectively for a democratic approach to scepticism and for recognition that scientific evidence often forms only part of complex decisions. I agree with them on both counts.

Of course it is true that advancement is attained through criticism, scepticism and debate. But my point was that there can sometimes be a thin line between healthy scepticism and a cynical approach that ignores or distorts inconvenient evidence.

Where significant consensus exists on an issue, this has not always been made obvious; also, tokenistic opposing views can be presented in a way that exaggerates their support.

Clearly, the role of scientific evidence in decision-making must be considered in the wider political and social context.

However, I make no apology for demanding that the fundamental evidence and weight of consensus in such cases is set out in a proper and fair way.

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Negative results are published

Jonathan Schooler argues in favour of an open-access database of negative results (*Nature* 470, 437; 2011). But publishing such results in scientific journals is

advantageous for authors, who can then list them among their papers.

Several journals specifically publish negative results. I'm aware of the *Journal of Negative Results in Biomedicine*, the *Journal of Negative Results — Ecology and Evolutionary Biology* and the psychology *Journal of Articles in Support of the Null Hypothesis*. There is a forum in the *Journal of Universal Computer Sciences* for negative results, and *PLoS ONE* also publishes them. Several other such journals have come and gone; all, I think, are open access.

Even so, negative findings are still a low priority for publication, so we need to find ways to make publishing them more attractive.

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Animal research: a personal lesson

Had I been a participant in your survey on animal-rights activism (*Nature* 470, 452–453; 2011), I would have replied that animal extremism once had a negative effect on me — but in an unexpected way.

I worked for many years as a primate researcher studying animal models of abnormal development. Two years after the publication of Peter Singer's *Animal Liberation* (New York Review/Random House; 1975), my lab was attacked and its rhesus monkeys released. The monkeys were all recaptured and none was seriously injured. I felt intimidated, insulted and furious at what I saw as anti-science stupidity.

My anger was such that I did not give a thought to the possibility that the perpetrators might have been infected with deadly herpes B virus from the monkeys. I failed to alert the emergency departments in the area about this lethal possibility.

For years, my fury blocked the self-reflection that is expected of any scientist who harms vulnerable animals for presumed human benefit.



I dismissed even reasonable ethical questions directed at me and my work. Eventually, however, I took up a fellowship at the Kennedy Institute of Ethics at Georgetown University in Washington DC, and at the National Institutes of Health Clinical Center, where I studied bioethics on the moral standing of animals. My intellect and sense of compassionate responsibility broadened; research ethics became my life's focus.

Healthy debate about animal research and the ethical and scientific issues involved must be encouraged, even in the face of hostility. We must also remember that it is unreasonable and inaccurate to label everyone who opposes animal experiments as 'extremists'.

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Animal research: the peaceful approach

In your articles on animal activism (www.nature.com/animalresearch), there was no mention of the many individuals and organizations who work

peacefully and legally to educate the public and policy-makers about the ethical and scientific issues surrounding the use of animals in research.

At the American Anti-Vivisection Society, we seek to bring about meaningful, long-term change for animals in laboratories through the development and use of high-quality, non-animal-based teaching, testing and research.

Founded in 1883, the society brings a long-term perspective on opposing views and tactics. Biomedical research lobby groups in the United States have for decades opposed modest improvements to animal welfare laws and convinced researchers that there is too much red tape surrounding animal work. Yet the use of the most common lab animals — rats and mice — remains unregulated in the United States, and there is almost no accountability to the public, even regarding how many of these animals are used.

The same lobby groups attempt to sully the terms 'animal rights' and 'activists' by amplifying the illegal and offensive actions of individuals who do not represent any of us (see, for example, go.nature.com/bxabrm). The reality is that 'peaceful' activists

often drive public policy on social issues. This has been true for animal issues for several decades and includes improvements to the US federal Animal Welfare Act.

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Animal research: replacing the lab rat

Your coverage of animal research (www.nature.com/animalresearch) focuses on well-worn themes from proponents, but does offer a way forward.

British biologist Peter Medawar predicted years ago that the use of animals in research would some day be completely replaced by more innovative methods (*The Hope of Progress*, Methuen; 1972). And Colin Blakemore, an ardent defender of animal research, has repeatedly stated that: "Everyone hopes that a time will come when no animal is used at all." To translate these congruous perspectives into action, we need to develop the kind of proactive strategies that you call for.

The results of your poll (*Nature* 470, 452–453; 2011) indicate that some scientists might be ready to take this idea forward. Others are clearly not immune to the ethical tensions in animal research. Sadly, most feel that the polarized debate on animal research makes it difficult to express more nuanced views, presumably because they do not want to be perceived as giving ammunition to the extremists.

Medawar's vision to replace animal experimentation is a goal that is worthy of serious effort, for the sake of scientific innovation, ethical responsiveness and animal protection. We should not be deterred by either the scientific challenges or the actions of a handful of extremists.

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