

Best tests for candidates

Science in presidential debates? Absolutely. A science debate? Not so sure.

Many of the great and good in US science — from the National Academies to Nobel laureates and various journals, including some parts of the Nature Publishing Group — have joined an initiative calling for the American election campaigns to feature a science debate. Such is the groundswell of support that their call is starting to feel like an idea whose time has come, and indeed it may prove to be so. You can join the throng at www.sciencedebate2008.com.

But in true scientific spirit, the proposal itself requires critical scrutiny — see, for example, page 621. And the campaign's website goes too far in saying that science and technology “may be the most important social issue of our time”. In reality, science and technology are a factor in many issues, sometimes a defining one, but most often not. They can and must inform political debate, but will rarely be at its centre.

Take the key issue of climate change, which is at the top of the science debate list. The Bush administration's self-interested denialism and subsequent heel-dragging have infuriated informed opinion at home and abroad. But this anger, widely felt by scientists and others, should not lead us to raise science above other concerns out of a sense of slight. The science of the Earth system is crucial to understanding climate change; that does not mean that climate is best debated as a science issue.

Climate change should indeed be debated by the ultimate contenders for the presidency. The optimum format would allow them to question each other freely, with expert interlocutors able to challenge claims and highlight both common ground and inconsistencies. Scientific issues — how to deal with the uncertainties of climate sensitivity when deciding goals for emissions, or how far to shift federal research priorities towards near-to-medium-term innovation in alternative-energy systems — would play a key role in such a debate. But they would not be the whole story: tax policy, international trade, treaty law and foreign policy are just as crucial.

A similar approach, with candidates interacting with experts as well as each other, could be applied in other areas that are both of concern to scientists and significantly dependent on scientific data and research. The provision of health care, the encouragement of economic growth and the avoidance of nuclear proliferation are obvious possibilities.

Tests of the candidates' mettle might go further. In 2001, Democratic senator Sam Nunn played the role of the president in a much reported war-game, *Dark Winter*, which simulated a bioterrorist smallpox attack (the terrorists won). If the voters want a sense of how the presidential hopefuls respond to rapid influxes of technical expertise, why not ask the candidates and their chosen staff to submit separately to some similarly gnarly scenario containing a strong dose of science in front of the cameras. Aired back-to-back, the war games would undoubtedly make riveting viewing, and might reveal more about a candidate's relation to scientific expertise — knowing how to ask questions, how to value responses, how to face uncertainties — than an opportunity to discuss the science budget (see page 610).

“Science and technology can and must inform political debate, but will rarely be at its centre.”

Turning a presidential campaign into a reality-TV version of 24 is obviously far fetched, and not necessarily desirable. But any sort of science debate is quite a stretch from business-as-usual. Well meant though it may be, the idea of Tim Russert or some other journalist-interrogator looking Republican hopeful John McCain in the eye and asking “What balance will you seek in federal science funding between major-programme project research and investigator-initiated basic-research grants?” is somewhat fantastical.

It is also slightly disturbing. For all that it claims to be a ‘grass-roots’ phenomenon, the proposed debate can be seen as an attempt by various elite institutions to grab the microphone and set the agenda from the top down.

Proponents might respond that this is the only practical way in which these issues can be raised. If so, any success of the debate proposal will mark a failure as well: a long-term failure to have the important contribution of science play an appropriate role in all levels of political discourse, which cannot be blamed solely on the Bush administration. To rectify that will require the long-term and possibly grubby work of cultivating broad political constituencies. But that offers more certain sustainability. The debate, if it happens, may be a grand thing on the night, but what will it change? ■

Working double-blind

Should there be author anonymity in peer review?

Double-blind peer review, in which both authors and referees are anonymous, is apparently much revered, if not much practised. The Publishing Research Consortium (PRC) has assessed attitudes towards peer review among 3,000 academics in an international survey across the sciences and humanities. The results, released last month¹, strongly affirm the value of peer review. They

also highlight that 71% have confidence in double-blind peer review and that 56% prefer it to other forms of review. Support is highest with those who have experienced it (the humanities and social sciences) or where it is perceived to do the most good (among female authors). The least enthusiastic group is editors. So is it time for editors, and those at *Nature* in particular, to reconsider their position?

If referees know the authors' identities, it may leave the latter vulnerable to biases about them or their previous work, their gender, their nationality or their being new to an area of research. But the PRC survey supports the contention of *Nature* and others that identifying authors stimulates referees to ask appropriate questions

(for example, differentiating between a muddy technical explanation and poor experimental technique). Knowing author identities also makes it easier to compare the new manuscript with the authors' previously published work, to ensure that a true advance is being reported. And knowing rather than guessing the identities of authors encourages reviewers to raise potential conflicts of interest to the editors.

Is there evidence that double-blind peer review presents a better alternative? It would do so if it generated more constructive comments in the minds of editors and authors, or if the identity of authors were truly protected, or if biases were reduced. So far, the jury is out. Although at least one study in the biomedical literature has suggested that double-blind peer review increases the quality of reviews, a larger study of seven medical journals^{2,3} indicated that neither authors nor editors found significant difference in the quality of comments when both referees and authors were blinded. Referees could identify at least one of the authors on about 40% of the papers, undermining the *raison d'être* for double-blinding. The editors at the Public Library of Science abandoned double-blind peer review because too few requested it and authors were too readily identified.

The one bright light in favour of double-blind peer review is the measured reduction in bias against authors with female first names (shown in numerous studies, such as ref. 4). This suggests that authors submitting papers to traditionally minded journals should include the given names of authors only on the final, published version.

The double-blind approach is predicated on a culture in which manuscripts-in-progress are kept secret. This is true for the most part

in the life sciences. But some physical sciences, such as high-energy physics, share preprints extensively through arXiv, an online repository. Thus, double-blind peer review is at odds with another 'force for good' in the academic world: the open sharing of information. The PRC survey found that highly competitive fields (such as neuroscience) or those with larger commercial or applied interests (such as materials science and chemical engineering) were the most enthusiastic about double-blinding, whereas fields with more of a tradition for openness (astronomy and mathematics) were decidedly less supportive.

Where does this leave journals? Editors have the responsibility to provide a neutral bridge between referees and authors and so may help to better shield authors from bias. Easily said! The evidence of the PRC survey suggests little faith in that impartiality, but editors — certainly at *Nature* and its related journals — take that responsibility seriously.

Nature's policies over the years have generally moved towards greater transparency. Coupling that with the lack of evidence that double-anonymity is beneficial makes this journal resistant to adopting it as the default refereeing policy any time soon. But many of our readers are referees as well as authors. We welcome their views on author anonymity from both vantage points. To that end, this Editorial will be posted for comment at http://blogs.nature.com/peer-to-peer/2008/02/working_doubleblind.html. ■

1. Publishing Research Consortium *Peer Review in Scholarly Journals* (Mark Ware Consulting, Bristol, 2008); available at <http://www.publishingresearch.net/PeerReview.htm>
2. Justice, A. C. et al. *J. Am. Med. Assoc.* **280**, 240–242 (1998).
3. Cho, M. K. et al. *J. Am. Med. Assoc.* **280**, 243–245 (1998).
4. Budden, A. E. et al. *Trends Ecol. Evol.* **23**, 4–6 (2008).

Don't ban labels

Providing context for sensitive declarations is the job of industry and government.

You are what you eat' notwithstanding, it is only recently that most consumers have become interested in the technical details of their food's composition, production and transport. With obesity and climate change now major concerns, and 'localvore' and 'food miles' entering the lexicon, shoppers are clamouring for information. And many food companies are happy to supply it, resulting in a dizzying array of multicoloured labels and claims.

But not everyone is happy. A proposed law in Indiana is the latest attempt in the United States to ban milk labels proclaiming that the cows from whence the milk came were not treated with recombinant bovine growth hormone (rBGH, also called recombinant bovine somatotropin or rbST). This hormone is produced by engineered bacteria, is virtually identical to the cow's own and can increase milk production by 10–15%.

There are two bad arguments for banning such labels. The first — that it is impossible to determine from the milk whether the cow was injected with rBGH — is the reason cited in the bill language. The second — that a proliferation of 'no rBGH' labels will train consumers to distrust the product — is the real motivation.

The first argument can be disposed of easily: it is already illegal to make false claims about a product. The second argument may seem

more convincing. There is no firm scientific evidence that injecting cows with rBGH affects human health in any way, but prevalent labelling touting the absence of rBGH would suggest to consumers that there are some differences. The mandating of an additional phrase such as that agreed last month in Pennsylvania — "No significant difference has been shown between milk derived from rbST-treated and non-rbST-treated cows" — ameliorates this problem.

The hormone injections may not affect the milk, but they are rough on the cows: producing all that milk causes problems such as udder infections and lameness. For some consumers, this may be a sufficient reason to avoid milk from dairies using the injections. Indeed, it was, in part, animal welfare that led Canada and the European Union to ban them.

There are good reasons not to ban accurate labels. More information means that consumers can be more discerning, and not just about their own health. They can vote with their purchases for farming practices they prefer. And if a company wants to use a technology with a bad reputation, it is the firm's responsibility to educate the consumer about why it is beneficial. If consumers choose irrationally to reject it, that is their prerogative. Capitalism thrives on the irrationality of consumers, from their noted fear of smelling bad, to their preference for redness in apples, farmed salmon and fast-food signage.

Indeed, if consumers were suddenly to become rational, an economic cataclysm would result, as households in all the rich nations would cut their consumption to only what they really needed. Such a crash would no doubt make the current economic doldrums look like the mildest hiccup. ■



S. CHANDRA SEKARAN/THIAGARAJAR COLL. **The alga *Kappaphycus alvarezii* is choking coral.**

cultivation sites, whereas PepsiCo says the more likely source is the institute's seaweed depot on the island. According to CSMCRI, that depot was closed down in 2003.

Ecologists are worried that *K. alvarezii*, which is currently spreading asexually, could switch to sexual reproduction by spores. These could be carried by wind to the remaining 20 coral-fringed islands in the bioserve.

Donation breathes life into Fermilab's balance sheet

A private donor has given US\$5 million to particle physics. The donation ends unpaid leaves of absence that physicists at Fermi National Accelerator Laboratory in Batavia,

Illinois, have been forced to take since February because of budget cuts.

The money, from a family that wishes to remain anonymous, was given on 27 May to the University of Chicago, which in turn will hire Fermilab to do contract work on neutrinos and rare particle decay. The furloughs, scheduled to last into September, were intended to save \$12 million. The \$5 million gift, plus an additional \$1 million of savings through early retirements, allowed the leaves to end on 31 May.

Fermilab has also reduced from 200 to 140 the number of lay-offs it expects to make starting in June.

Researchers kidnapped near Atacama telescope

Officials at the Atacama Large Millimeter Array (ALMA) telescope are stepping up security at its construction site in Chile after two researchers were kidnapped on a nearby road.

On 11 March, Rolf Güsten, an astronomer with the Atacama Pathfinder Experiment, an ALMA-related project, and a senior engineer were stopped by four men dressed as policemen on a highway near the site in a remote part of northern Chile. The men commandeered the vehicle and drove it into

Bolivia, where a few hours later they left the pair at the side of the road. "Fortunately, none of us was injured," Güsten says.

ALMA has since increased security by hiring more guards and adding more cameras and phones at the site, and is working with Chilean authorities.

Correction

The Editorial 'Working double-blind' (*Nature* **451**, 605–606; 2008) referred to a study¹ that found more female first-author papers were published using a double-blind, rather than a single-blind, peer-review system. The data reported in ref. 1 have now been re-examined². The conclusion of ref. 1, that *Behavioral Ecology* published more papers with female first authors after switching to a double-blind peer-review system, is not in dispute. However, ref. 2 reports that other similar ecology journals that have single-blind peer-review systems also increased in female first-author papers over the same time period. After re-examining the analyses, *Nature* has concluded that ref. 1 can no longer be said to offer compelling evidence of a role for gender bias in single-blind peer review. In addition, upon closer examination of the papers listed in PubMed on gender bias and peer review, we cannot find other strong studies that support this claim. Thus, we no longer stand by the statement in the fourth paragraph of the Editorial, that double-blind peer review reduces bias against authors with female first names.

1. Budden, A. E. *et al. Trends Ecol. Evol.* **23**, 4–6 (2008).
2. Webb, T. J., O'Hara, B. & Freckleton, R. P. *Trends Ecol. Evol.* doi:10.1016/j.tree.2008.03.003 (2008).