Correspondence

A call to commission more women writers

We have analysed the gender distribution of authors of News & Views articles in *Nature* and of Perspectives in *Science* for 2010 and 2011. Our numbers indicate that both journal sections under-represent women scientists.

We divided the articles into three broad subject categories: biological and chemical sciences (which includes medical sciences); physical sciences; and Earth and environmental sciences. We compared the proportion of women authors with the proportion of women scientists employed in 2006 in the United States in science and engineering in each of the three categories (see go.nature.com/bkechu).

We found that the proportion of women commissioned to write *Nature* News & Views articles was much lower than the proportion of women scientists overall: female authorship was 17.3% for the biological and chemical sciences, 8.1% for physical sciences and 3.8% for Earth and environmental sciences, with the proportion of women authors of Perspectives in *Science* being slightly larger. However, the pool of women scientists in these disciplines was significantly higher than the proportion of female authorship at 32%, 16% and 20%, respectively.

It should be pointed out that a large proportion of invited News & Views authors are full professors, and the percentage of full professors who are women is lower than that for all scientists. Also, the proportion of women full professors is smaller in the European Union than in the United States. However, the present proportion of women authors of News & Views and of Perspectives is very low, and we believe that it is still fair to conclude that fewer women than men are offered the career boost of invitation-only authorship in each of the two leading science journals.

In response to earlier criticism, *Nature* increased the proportion of women authors in its Insight section (D. Conley *Nature* **438,** 1078; 2005). It is time to extend gender parity for commissioned writers across *Nature* and *Science*.

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Competing interests: expanding rapidly

It is biased reports, not "the taint of scandal", that are the real danger in scientific research (*Nature* **488,** 5; 2012). Without full disclosure of conflicts of interest (COI), universities and journals cannot begin to deal with the problem — but a disclosed conflict is still a conflict.

Declarations of conflicting interests shift to the reader the responsibility that should be borne by the editors to detect whether reported findings could have been warped by bias. The reader, even when forewarned, is not always in a position to judge the extent to which the financial interest of an author or investigator has consciously or unconsciously influenced their assessment of the evidence.

Our courts deal with this problem more effectively. For example, a judge or juror with a financial interest in a case must not only disclose it, but also withdraw from the proceedings.

As conflicts of interest become more common, there is a risk that the proliferation of footnotes disclosing them will desensitize our apprehension of bias.

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Competing interests: judged in perpetuity

Full disclosure of competing interests is necessary so that readers can judge the conduct, validity, merit and reporting of research (*Nature* **488,** 5; 2012). But this needs to go beyond simply revealing financial connections, because conflict with non-financial interests can sometimes be more serious (D. F. Horrobin *Br. Med. J.* **318,** 466; 1999).

Arguably, anyone who writes in a scientific journal may be biased in some way or another. Authors who are tempted not to disclose competing interests need to remember that readers continue to act as 'peer reviewers' after publication.

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Biomass energy holds big promise

Australia's government strongly supports the production of energy from renewable sources. But it is not yet tapping into biomass — the country's most cost-competitive renewable source.

Australia could generate at least 50 million tonnes of economically available biomass every year, with potentially millions more coming from sustainable forest management and from decomposed waste. With the help of mature bioenergy technologies already in use in other countries, this could provide more than 20% of the country's primary energy for heat, electricity and transportation. Modern biomass-fuelled plants have a fuel-to-energy conversion efficiency of more than 85%, comparing favourably with Australia's present coal-fired condensing plants and gas-fired turbine systems.

We should follow the lead of countries such as Austria, the land area of which is roughly 1% of Australia's (much of it comprising urban regions and alpine reserves). Austria produces more than 20 million tonnes of biomass as wastes and residues for energy production. In 2009, this constituted more than half of the 30% of primary energy that came from renewable sources.

Using sustainably produced biomass instead of fossil fuels can cut greenhouse-gas emissions, depending on effective use of

the heat produced and increased net carbon sequestration by expanded plantings. Integrating farmed forestry plantations and woody energy crops within current farming areas would increase biomass supply without disrupting water run-off or the production of food and fibre. Fewer conventional water-cooled power plants would also mean reduced consumption of potable water.

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Curb temptation to skip quality control

Daniel MacArthur cautions scientists and journal editors against jumping to "false positive" conclusions (*Nature* **487,** 427–428; 2012). But temptations to leap over the quality-control gap are rife in scientific publishing.

Journals are proliferating, even in the top tier, so they have to compete for eye-catching papers. The quality of these publications necessarily depends on the vanishing time of a small pool of expert reviewers. Those who are competent in statistics are in particularly short supply.

Authors are driven to publish in the leading journals so that they can reap the benefits of academic respect, such as promotion and tenure. Never mind being overly conscientious in underpinning the conclusions — refuted results do not always end in retraction. And if a paper is retracted, it may not always have serious repercussions.

The upshot is that ambitious researchers want to push the limits of credibility in interpreting their results, and the same can be said of journal editors.

This publication 'currency' needs to be brought under tighter control to curb inflationary practices among authors and editors.

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Speed up reviews of misconduct

We call for greater transparency and speed in investigations of scientific misconduct. For the benefit of the scientific community, swift assessment of the validity of published results should be distinguished from legally convoluted verdicts that concern wilful deceit.

Journal publishers and academic institutions have differed markedly in their response to recent cases of alleged misconduct. For example, the committee investigating publications by the Dutch social psychologist Diederik Stapel (*Nature* **479,** 15; 2011) published an interim report within two months and is releasing its findings in under a year (www.commissielevelt.nl). And a panel investigating the papers of another social psychologist, Dirk Smeesters (*Nature* **487,** 18; 2012), reported its results within a week of his resignation. Such prompt and detailed reporting contrasts with that of other protracted enquiries that have culminated in retractions of papers.

Web-based initiatives such as Retraction Watch (www.retractionwatch.com) can help by offering timely, although informal, alerts about suspect papers. Even if fabrication or falsification cannot be proved beyond reasonable doubt, statistical indications of problems with the data — such as gross errors or remarkably consistent findings — are scientifically relevant.

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PhDs fit for industry and commerce, too

You continue to lament the shortcomings of PhD training (see, for example, *Nature* **472,** 259–260; 2011 and *Nature* **486,** 304; 2012) but overlook the encouraging results of reforms to PhD programmes in many European countries.

Programmes in the region have modernized, expanding the traditional apprenticeship model in recognition of the fact that most new PhDs are not destined for academia. Industry and commerce are already welcoming this new batch of graduates.

Training has been broadened to develop such skills as scientific and lay presentation, teaching, grant application, time management, linguistic abilities and networking. These complement the rigour acquired in setting up and completing a three-year research project, and are valuable in any job that demands creative synthesis and the use of initiative, whether inside or outside academia. Flying in the face of convention, students can delegate some of their PhD work and learn how to become managers.

These reforms are being promoted by the European Commission, the European Universities Association Council for Doctoral Education (see, for example, *Nature* **468,** 125; 2010 and *Nature* **482,** 557–559; 2012) and by ORPHEUS, an independent organization that represents more than 100 European biomedical and medical faculties (www.orpheus-med.org).

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Institute to continue climate monitoring

Contrary to what you imply in your online News article, staff cuts are not sounding a "death knell" for the Lauder research station run by the National Institute of Water and Atmospheric Research (NIWA) in New Zealand (http://doi.org/h65). We at NIWA reaffirm the institute's commitment to continuing its long-term atmospheric measurements, which are crucial for climate research.

NIWA sites at Lauder and Arrival Heights, Antarctica, will maintain their multi-instrument measurement programmes to monitor radiation, ozone and a range of atmospheric trace gases. National and international scientific expertise will continue to oversee and support these activities. NIWA is increasing its investment in instrumental capacity at both sites, and is continuing the long-term observations made on behalf of overseas institutions.

The review of NIWA's Lauder staff retains three of six atmospheric-scientist positions and the five technicians, and creates one new measurement-scientist post; two of the departing scientists will still take part in an emeritus capacity. A measurement scientist and a technician based at other NIWA sites will lend further support.

The review outcome is a reprioritization in favour of long-term monitoring, rather than a major change in Lauder's research direction (see go.nature.com/vnnb37).

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Embrace complexity but not jargon

In advocating that science writers should not shun scientific jargon, Trevor Quirk proposes the wrong means to the right end for improving science communication (*Nature* **487,** 407; 2012).

The science writer's tough task is to help readers to grasp the nuances and complex concepts behind obscure specialist terminology by translating it into simple, accurate language. There is nothing patronizing about this. Esoteric terms can develop in any discipline — even some Olympic sports use mysterious labels such as 'keirin' and 'repechage'. And the general reader should not be expected to decode words used by scientists who have years of training under their belts.

The public benefits from skilful clarification, as do scientists.

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