

Who Watches Over Scientific Misconduct?

BY DAVID VAUX

The quality of Australian science is diminished because, unlike most OECD countries, Australia does not have an office or ombudsman for scientific integrity.

Errors can enter the scientific literature in three ways. Some “false facts” are due to the statistical nature of scientific evidence: if 20 labs all do the same experiment, one is bound to get results that have a *p*-value (a probability of finding differences when there really aren't any) of less than 5%. This lab would then publish the apparently new, statistically significant, finding.

Other errors are not so innocent. Some are due to incompetence, such as over- or mis-interpretation of results, or selective reporting of data. Others are due to deliberate falsification or fabrication of results – scientific misconduct.

Another form of scientific misconduct is plagiarism – taking someone else's ideas or words and using them without attribution. While plagiarism might not necessarily introduce scientific errors into the literature it is, in essence, theft of credit, and if tolerated will undermine confidence in careers in science.

For science to advance most efficiently, and for scientists and the public to have confidence in it, it is important that mechanisms are put in place so that errors in the scientific literature are identified and corrected as rapidly as possible, whether the errors are inadvertent or deliberate, and whether the person who has concerns is in the same institution as

the author, or is from another country.

The USA and most European countries have Offices of Research Integrity or Ombudsmen for Scientific Integrity. These bodies provide oversight and advice to individuals and institutions to ensure that if concerns are raised, they are investigated and handled appropriately. They also perform other important functions, such as improving scientific codes of practice, collecting data, acting as an avenue for appeal, and providing a mechanism for avoiding conflicts of interest.

Currently there is no office or ombudsman for scientific integrity in Australia. There are no mechanisms to handle concerns raised from outside an institution, and if the allegations come from a whistle-blower within the institution there are powerful incentives to dismiss them or cover them up.

The recently revised Australian Code for Responsible Conduct in Research describes the duty of researchers to perform science honestly and responsibly, and also lists responsibilities of institutions in fostering scientific integrity and handling allegations of misconduct. Unfortunately there are no processes in place to provide oversight or ensure compliance.

The result is that misconduct or sloppy science goes unreported or, if concerns



David Vaux says that there are no processes in place to ensure compliance with the recently revised Australian Code for Responsible Conduct in Research, enabling misconduct to remain unreported or swept under the carpet.

are raised, they are swept under the carpet by institutions keen to protect their reputations. Only the most serious cases are reported, sometimes creating a scandal in the popular press that undermines public confidence in Australian science.

We need an Ombudsman for Scientific Integrity to enhance the quality of Australian research by handling allegations of scientific misconduct and correcting errors in the scientific literature, whether their cause is innocent or malignant. Such an Ombudsman would cover all published research and be funded by universities, government agencies (e.g. the National Health and Medical Research Council, Australian Research Council and CSIRO), by charities or the private sector.

Its job would be to receive allegations of misconduct or expressions of concern, from any source, and provide oversight to ensure that they are properly managed and that corrective action is taken.

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