

Who is accountable?

How the responsibilities of co-authors for a scientific paper's integrity could be made more explicit.

The two most notorious frauds of modern science, by the stem-cell biologist Woo Suk Hwang and the physicist Jan Hendrik Schön, both brought into question the responsibilities of co-authors in the oversight of their colleagues' work. But despite the concerns raised after these episodes, there remains a need for a clearer understanding, both within a collaboration and by readers of the eventual papers, of the various contributions made by the authors not only to the research but also to safeguarding its integrity.

One welcome development in transparency was pioneered by the medical journals. Authorship of a paper is justified when a researcher has contributed significantly to the work being described and to the writing or approval of the manuscript. But the traditional publication style is entirely opaque as to which co-author contributed what. Concern about 'honorary authorship' — in which an author is unacceptably included for reasons other than any scientific contribution — and about this lack of transparency has led to the increasing use of statements in papers that specify authors' contributions. Some medical journals require them, and others, including the Nature family, strongly encourage their use and may yet make them compulsory.

Such statements delineate contributions to the work but do not underwrite its integrity. Something more is needed.

It is too glib to state that every co-author of a paper shares full responsibility for its content. A researcher who specializes in the radioactive dating of rock strata cannot necessarily be expected to vouch for a palaeontologist's analysis of fossils within them — especially if the work has been carried out in labs on different continents.

The fact that simple trust may no longer suffice is a sad reflection on recent scientific history, but anything that supports public confidence in research has to be welcomed, provided that its burden is not too great. What follows is a proposal in that direction, on which we invite readers' comments.

We suggest that journals should require that every manuscript has at least one author per collaborating research group who will go on record in a way that collectively vouches for the paper's standards.

Each would sign a statement with reference to *Nature's* publication policies (see www.nature.com/authors/editorial_policies/index.html) as follows:

"I have ensured that every author in my research group has seen and approved this manuscript. The data that are presented in the figures and tables were reviewed in raw form, the analysis and statistics applied are appropriate and the figures are accurate representations of the data. Any manipulations of images conform to *Nature's* guidelines. All journal policies on materials and data sharing, ethical treatment of research subjects, conflicts of interest, biosecurity etc. have been adhered to. I have confidence that all of the conclusions presented are based on accurate extrapolations from the data collected for this study and that my colleagues listed as co-authors have contributed and deserve the designation 'author'."

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Principal investigators traditionally bask in the glory of a well-received paper. We are proposing now that they willingly open themselves to sanctions that could be brought to bear should the paper turn out to have major problems.

Misconduct investigators go out of their way to spare anyone apart from the direct perpetrators, but they have indicated concerns over the degree of oversight within collaborations. If the damage to reputations were more widespread in the event of fraud, researchers would be even more fastidious about the data emanating from their labs and the due diligence they would impose. The chances of major frauds, with their disproportionate impact on the reputation of science as a whole, would be diminished. ■

Readers wishing to offer their views are welcome to contribute to an online discussion at http://blogs.nature.com/nautilus/2007/10/accountability_of_co-authors.html.

In for the cull

A government that asks for independent scientific advice had best be ready to take it.

The question of whether British farmers should be allowed to cull badgers, on the basis that the animals may help spread tuberculosis (TB) among cattle, is perhaps not the most momentous matter on which a government has sought scientific advice. But the mishandling of the issue by David King, the UK government's chief scientific adviser, is an example to governments of how not deal with such advice, once it has been solicited and received.

Back in February 1998, the Independent Scientific Group on Cattle TB (ISG) was set up under the chairmanship of John Bourne, a prominent animal-health specialist, to advise the government department that was responsible for the issue at the time. After much deliberation and the submission of several peer-reviewed papers (such as C. A. Donnelly *et al.* *Nature* **439**, 843–846; 2006), the ISG issued its final report on 18 June this year. Its conclusions were robust: "Badger culling cannot meaningfully contribute to the future control of cattle TB in Britain."

King then proceeded to consider the ISG's report along with, in his words, "other scientific evidence", with the help of five specialists of his choosing. On 30 July he gave his report to the secretary of state with a startlingly different conclusion. "Removal of badgers," it states,