Alternative Peer Review: new models, same principles, same issues

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Rigour & Openness in 21st Century Science, Oxford, 12 April 2013

Good practice and quality in peer review is system and access- and business-model independent

'*We encourage increased recognition that peer-review quality is independent of journal business model, for example, there is a "misconception that open access somehow does not use peer review".*'

House of Commons Science and Technology Committee, *Peer Review in Scientific Publications*, HC856, July 2011 (Para 58)

What is (editorial) peer review?

Peer review in scholarly publishing is the process by which research output is subjected to scrutiny and critical assessment by individuals who are experts in those areas.

(Hames, 2012, in *Academic and Professional Publishing*, Chandos Publishing, Eds Campbell, Pentz and Borthwick, p.16)

and

…the critical assessment of manuscripts submitted to journals by experts who are not part of the editorial staff

(ICMJE, International Committee of Medical Journal Editors, http://www.icmje.org/)

"The only way to assess the merit of a paper is to ask a selection of experts in the field.

Nothing else works.

Nothing."

David Colquhoun, *DC's Improbable Science*, August 3rd, 2007, 'How should universities be run to get the best out of people?'

Why does peer review get a bad press?

Criticisms of peer review

"Peer review is broken"

"Peer review is in crisis"

"Peer-review system is breaking down"

"Publish all, filter later"

- Unreliable and unfair
- No clear standards, idiosyncratic
- Open to abuse and bias
- Stifles innovation
- Slow, causes delays in publication

- Expensive and labour intensive
- Reviewers overloaded, working 'for free'

- Almost useless at detecting fraud and misconduct

Can 'fail' in even the best-run systems   [Image, **Gideon Burton, Utah, USA (CC BY-SA 2.0)**]

Critical role of the 'Editor'

"…[peer review] works as well as can be expected. <u>*The critical feature that makes the system work is the skill and insight of the editor.*</u> *Astute editors can use the system well, the less able who follow reviewer comments uncritically bring the system into disrepute."*

(a respondent, Ware & Monkman, 2008, PRC peer review survey)

"Unfortunately, all too often editors relinquish their responsibilities and treat the peer review process as a vote … <u>*the real problem is editors … increasingly, one sees editors who don't use any judgement at all*</u>*, but just keep going back to reviewers until there is agreement."*

(Dorothy Bishop, Professor of Developmental Neuropsychology, Oxford University, 'In defence of peer review', comment 4 Jan 2011, to R Smith (2010) *Breast Cancer Research*, 12(Suppl 4):S13)

Problems due to

- Variable quality of peer review

- Inconsistency in decision making

- Lack of training for new editors

- Unethical behaviour

Three recent cases of 'fake reviewers'

■ For 'suggested reviewers', authors provided:

  ➢ false identities (and emails), which were them or colleagues

  ➢ names of real people but created email accounts for them which they or associates had access to

  ■ Reviews were done very quickly and were positive

■ *"The peer-review process for the above article was found to have been compromised and inappropriately influenced by the corresponding author"*

■ http://retractionwatch.wordpress.com/, 'faked emails' category

■ Involves different disciplines, different countries and different publishers … and often many published papers …

Just one of the cases in 2012 …

Retraction Watch

Tracing retractions as a window into the scientific process

Retraction count grows to 35 for scientist who faked emails to do his own peer review

with 8 comments

Hyung-In Moon, the South Korean plant compound researcher who made up email addresses so he could do his own peer review, is now up to 35 retractions.

The four new retractions are of the papers in the *Journal of Enzyme Inhibition and Medicinal Chemistry* that initially led to suspicions when all the reviews came back within 24 hours. Here's the notice, which includes the same language as Moon's 24 other retractions of studies published in Informa Healthcare journals:

> The corresponding author and publisher hereby retract the following articles from publication in *Journal of Enzyme Inhibition and Medicinal Chemistry*
>
> Effect of betaine on the hepatic damage from orotic acid-induced fatty liver development in rats
>
> Jae-Young Cha, Hyeong-Soo Kim, Hyung-In Moon, and Young-Su Cho
>
> *Journal of Enzyme Inhibition and Medicinal Chemistry* [epub ahead of print], 2012, doi 10.3109/14756366.2011.641014
>
> Antiobesity activity of fermented Angelicae gigantis by high fat diet-induced obese rats
>
> Jae-Young Cha, Jae-Jun Jeong, Chang-Su Park, Hee-Young Ahn, Hyung-In Moon, and Young-Su Cho
>
> *Journal of Enzyme Inhibition and Medicinal Chemistry* [epub ahead of print], 2012, doi 10.3109/14756366.2011.615746

Hyung-In Moon

Pages
About Adam Marcus
About Ivan Oransky
The Retraction Watch FAQ
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'For his part, Moon acknowledged suggesting his friends and colleagues as reviewers, telling Retraction Watch that the results "can be mistaken for fake reviews." But he said it wasn't only his mistake: The editors, Moon said, invited those reviews without confirming the identity of the reviewers.'

Is misconduct in research and publication increasing?

# PubMed publications & retractions 1977-2013 (15 Jan) http://pmretract.heroku.com

Fang *et al., PNAS*, 2012: "*Misconduct accounts for the majority of retracted scientific publications*", 21% attributable to error, 67% to misconduct

■number of retracted articles represents very small proportion (0.04%) of all published articles, but …

■Survey (Martinson *et al*., *Nature*, 2005): <u>33% admitted to misbehaviour in at least one of the top-10 most serious categories</u>

■Systematic review (Fanelli, *PLOS ONE*, 2009)
- ❑ ~2% admitted to fabrication and falsification of data, a third to other questionable research practices
- ❑ <u>14% knew of colleagues who had engaged in falsification, up to 72% for other questionable research practices</u>

What's good about peer review?

- Surveys show researchers value it – want to improve not replace (Ware & Monkman, 2008; Sense About Science, 2009); 'rigorous peer review' rated most important service expected for APCs (Taylor & Francis, March 2013)

- In the right hands it's a powerful tool

- A reciprocal benefit process

- How do we – non-specialists, the public - know what's sound and what to believe without it?

"Peer review in scholarly publishing, <u>in one form or another</u>, is crucial to the reputation and reliability of scientific research" (Para 277)
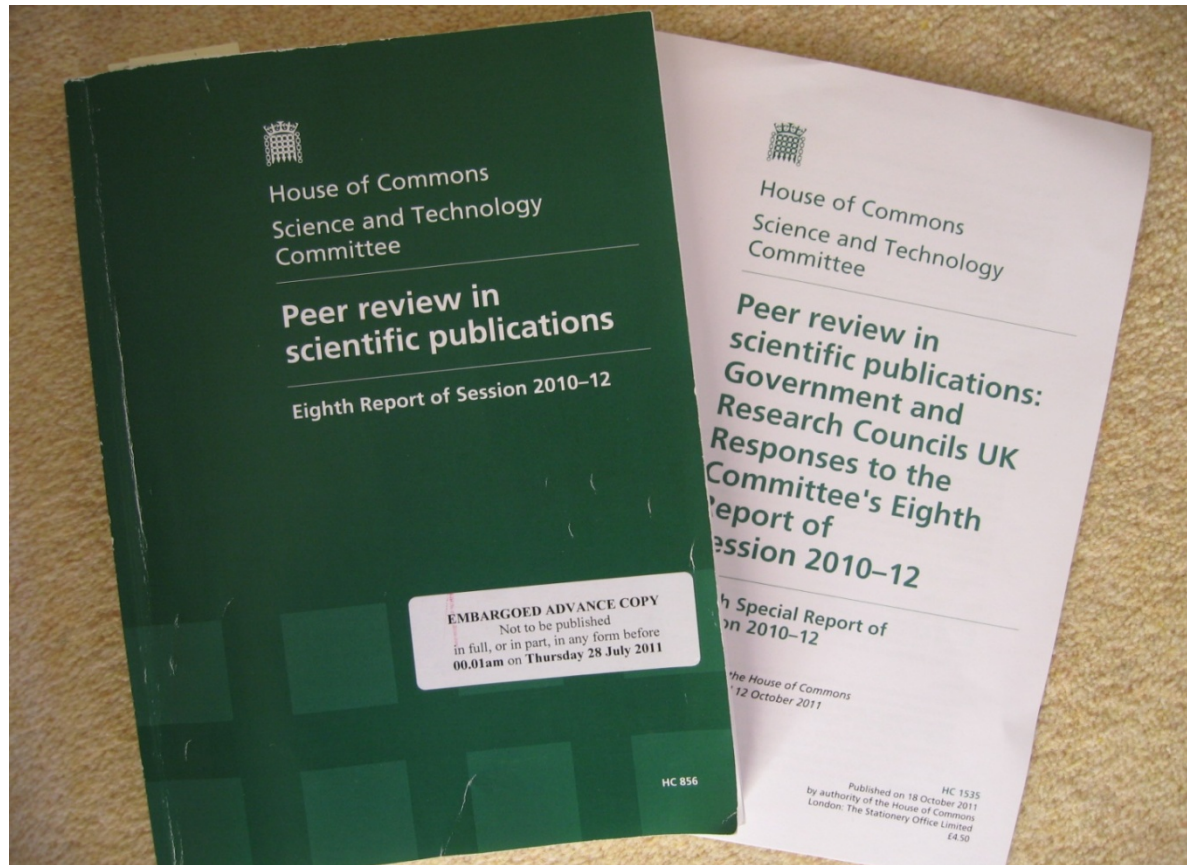
Innovations in peer review

Two functions of peer review separated
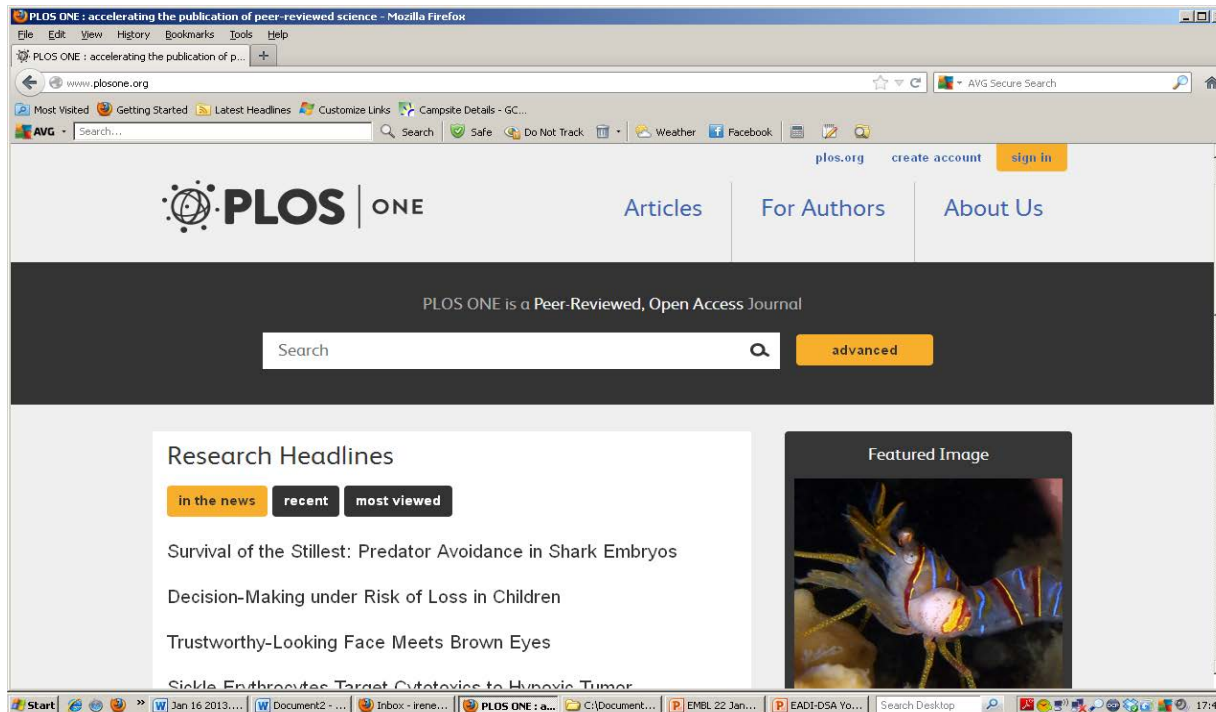
- Publication based on 'soundness' - research methodology, results and reporting - not novelty, interest or potential impact

- Evaluation of interest/impact left for post-publication

PLOS | ONE

- Launched December 2006

- Published 23,468 articles in 2012 (14,000 in 2011) (~1.4% of world's scholarly literature)

- Used >60,000 reviewers in 2012 (38,400 in 2011) from 154 countries

- Impact Factor 4.411

- Open access, 'repository' type journals - '*PLOS ONE* clones' – being launched (*BMJ Open*, *Sage Open*, *Scientific Reports*, *Biology Open*, *AIP Advances, SpringerPLus*)

More transparency and greater interaction

- Publishing reviews, ms versions and editorial correspondence, reviewers' names may or may not be revealed
  - *BMC* series medical journals – 'pre-publication history'
  - *The EMBO Journal* – 'peer review process file'
  - *BMJ Open* – 'peer review history'
  - *eLife* – decision letter + author response (have doi's)

- Reviewer interaction: pre-decision at *The EMBO Journal* ('cross-peer review') and *eLife*
- Reviewer + author + editor interaction: *Frontiers*
- 'Open' peer review and evaluation

New initiatives/models

Also … how to deal with 'questionable' journals & publishers

Journal Transparency Index?

(Marcus and Oransky, 1 Aug 2012, *The Scientist*
http://www.the-scientist.com/?articles.view/articleNo/32427/title/Bring-On-the-Transparency-Index/)
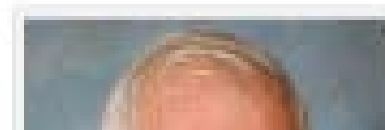
Not everyone gets it …

Retraction Watch

Tracking retrac...
proces...

### Why was that paper retracted? Editor to Retraction Watch: "It's none of your damn business"

with 25 comments

Yesterday, we reported on the retraction of a 2004 study in the Annals of Thoracic Surgery. As we noted, the notice's language was, um, fuzzy, referring vaguely to

Ethics and integrity

- Important in research communication/publication whatever the model

- Lack of knowledge and training

- COPE
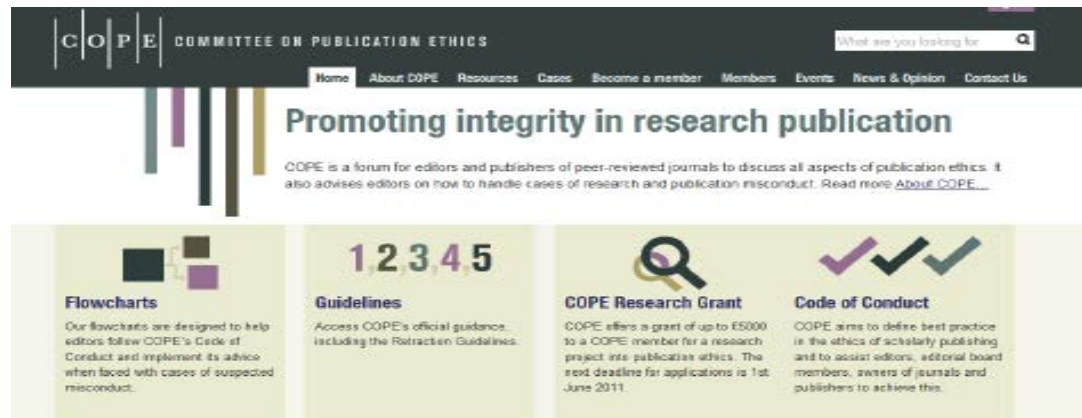
- Guidelines and resources

C|O|P|E COMMITTEE ON PUBLICATION ETHICS

COPE Ethical Guidelines for Peer Reviewers

Peer review in all its forms plays an important role in ensuring the integrity of the scholarly record. The process depends to a large extent on trust, and requires that everyone involved behaves responsibly and ethically. Peer reviewers play a central and critical part in the peer-review process, but too often come to the role without any guidance and may be unaware of their ethical obligations. The COPE Ethical Guidelines for Peer Reviewers set out the basic principles and standards to which all peer reviewers should adhere during the peer-review process. It is hoped they will provide helpful guidance to researchers, be a reference for journals and editors in guiding their reviewers, and act as an educational resource for institutions in training their students and researchers.

Basic principles to which peer reviewers should adhere

Peer reviewers should:

- only agree to review manuscripts for which they have the subject expertise required to carry out a proper assessment and which they can assess in a timely manner

- respect the confidentiality of peer review and not reveal any details of a manuscript or its review, during or after the peer-review process, beyond those that are released by the journal

Thank you!

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