

Journal Peer Review: Cautious innovator or sleepy giant?

IMPER: Improving Peer Review



ZonMw



COMMUNICATION
IN SCIENCE



PRESSURES
AND
PREDATORS

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Essay

Why Are Fa

John P. A. Ioann

Summary

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Who's Afraid of Peer Review?

A spoof paper concocted by *Science* reveals little or no scrutiny at many open-access journals

On 4 July, good news arrived in the inbox of Ocorrafoo Cobange, a biologist at the Wassee Institute of Medicine in Asmara. It was the official letter of acceptance for a paper he had submitted 2 months earlier to the *Journal of Natural Pharmaceuticals*, describing the anticancer properties of a chemical that Cobange had extracted from a lichen.

In fact, it should have been promptly rejected. Any reviewer with more than a high-school knowledge of chemistry and the ability to understand a basic data plot should have spotted the paper's shortcomings immediately. Its experiments are so hopelessly flawed that the results are meaningless.

I know because I wrote the paper. Ocorrafoo Cobange does not exist, nor does the Wassee Institute of Medicine. Over the past 10 months, I have submitted 304 versions of the wonder drug paper to open-access journals. More than half of the journals accepted the paper, failing to notice its fatal flaws. Beyond that headline result,

subscriptions. Most of the players are murky. The identity and location of the journals' editors, as well as the financial workings of their publishers, are often purposefully obscured. But *Science's* investigation casts a powerful light. Internet Protocol (IP) address traces within the raw headers of e-mails sent by journal editors betray their locations. Invoices for publication fees reveal a network of bank accounts based mostly in the developing world. And the acceptances and rejections of the paper provide the first global snapshot of peer review across the open-access scientific enterprise.

One might have expected credible peer review at the *Journal of Natural Pharmaceuticals*. It describes itself as "a peer reviewed journal aiming to communicate high quality research articles, short communications, and reviews in the field of natural products with desired pharmacological activities." The editors and advisory board

8/22/29 December 2005



Universiteit

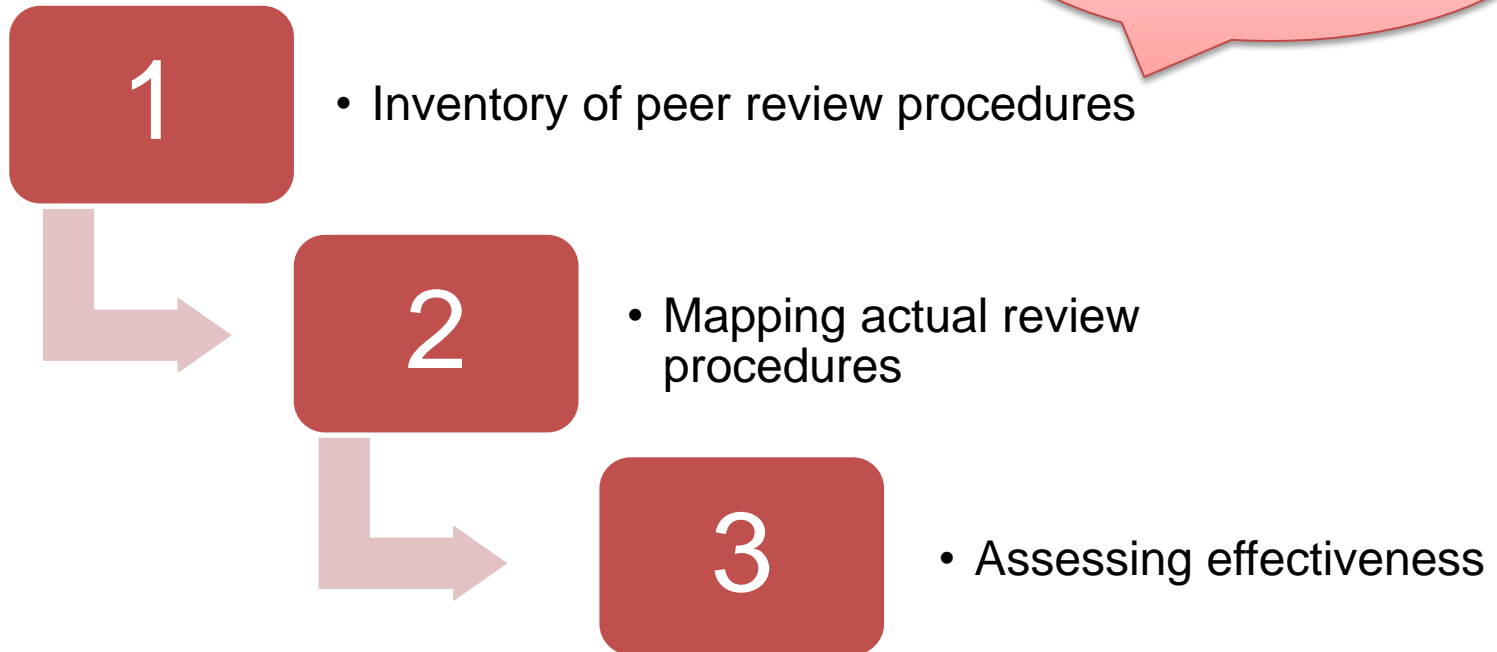


Pressing questions

- What does peer review aim to regulate?
- How is peer review structured?
- What responsibilities does it have? And what are its abilities?
- How did this develop over time?

IMPER: Three phases

“The changing forms
and expectations of
peer review”
SPJM Horbach & W Halfman



Mapping actual review practices

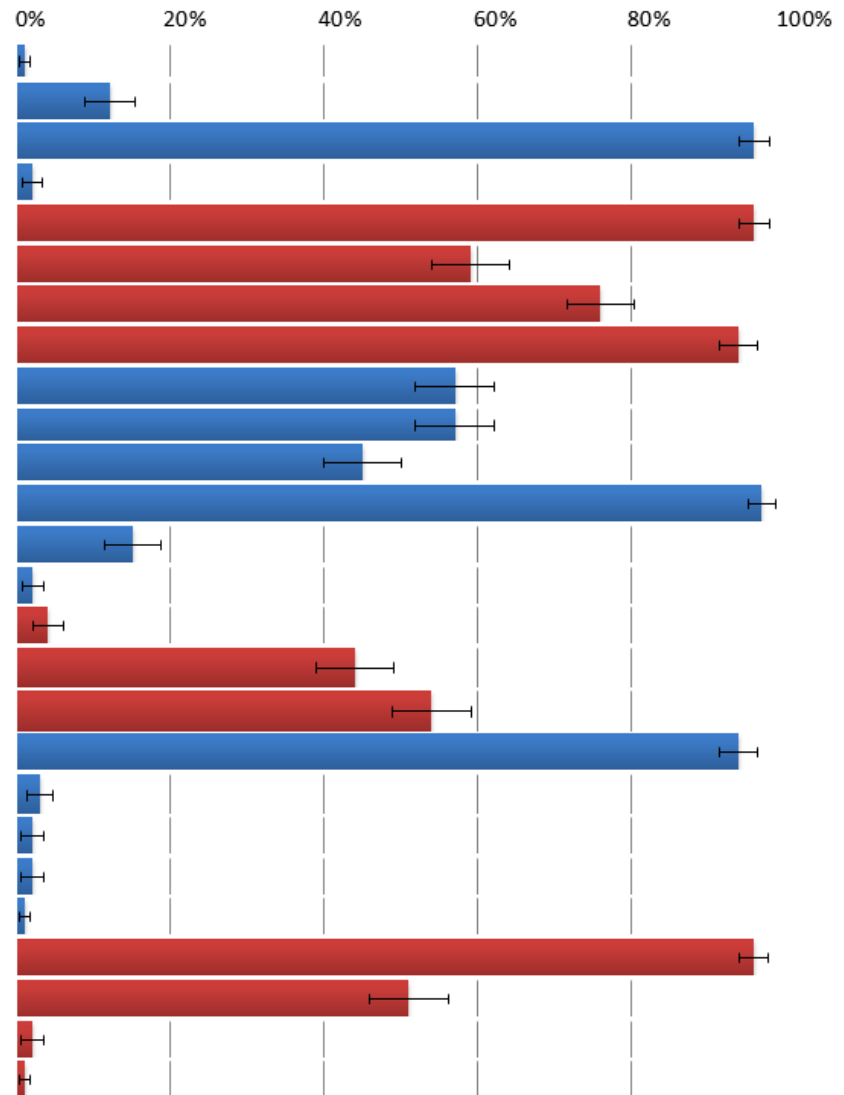
Online survey among editors

Centered around two questions, based on peer review inventory with 12 dimensions:

1. How do you organise your peer review system?
2. How did this change since the year 2000?

361 journals – Well spread over the scientific disciplines

Dimension	Attribute	Range
Selection conditions	Timing	a. No review
		b. Pre-submission (including registered reports)
		c. Pre-publication
		d. Post-publication
	Criteria	a. Methodological rigour and correctness
		b. Anticipated impact (either within or outside of science)
		c. Novelty
		d. Fit with journal's scope
Identities and access	Type of reviewer	a. Editor-in-chief
		b. Editorial committee
		c. External reviewers selected by authors
		d. External reviewers selected by editor(s)
		e. Wider community / readers
		f. Commercial review platforms
	Anonymity of authors	a. Author identities are blinded to editor and reviewer
		b. Author identities blinded to reviewer, known to editor
		c. Author identities are known to editor and reviewer
	Anonymity of reviewers	a. Anonymous reviewers
		b. Reviewers' identities are open to the authors
		c. Reviewers' identities are open to other reviewers
		d. Reviewers' identities are open to the reader
		e. No response
	Availability of review reports	a. Review reports are accessible to authors and editors
		b. Review reports are accessible to other reviewers
		c. Review reports are accessible to publication readers
		d. Review reports are publicly accessible



Mapping actual review practices

High diversity in review procedures:

- Only few review characteristics are more-or-less universal
- Journal's review procedures tend to differ in small and subtle ways

High homogeneity when aggregating over research disciplines and publishers:

- Only two exceptions: Level of author anonymity and statistics review

Mapping actual review practices

Innovation is (very) slow:

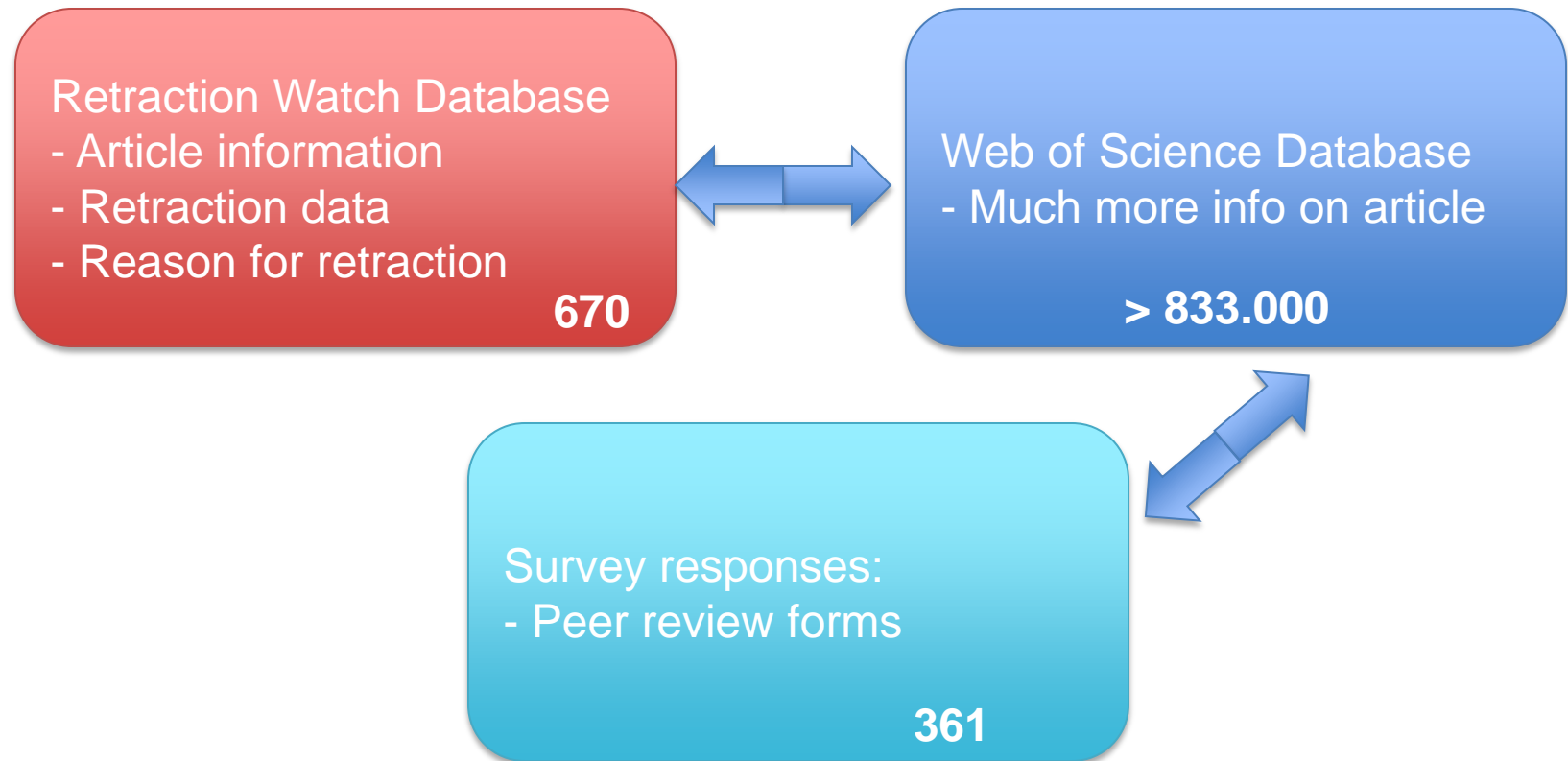
- + Single- or double-blind, pre-publication review is still prevalent
- Almost no: Open, post-publication review, or involvement of wider community.
- Little: registered reports, cooperation, IT-assistance

In general, editors report very little changes in their peer review model since 2000:

- Only 47% report at least one change, 3% report at least three changes
- Majority of changes involves introduction of plagiarism detection
- Main motivators to change: (software) became available & New EIC

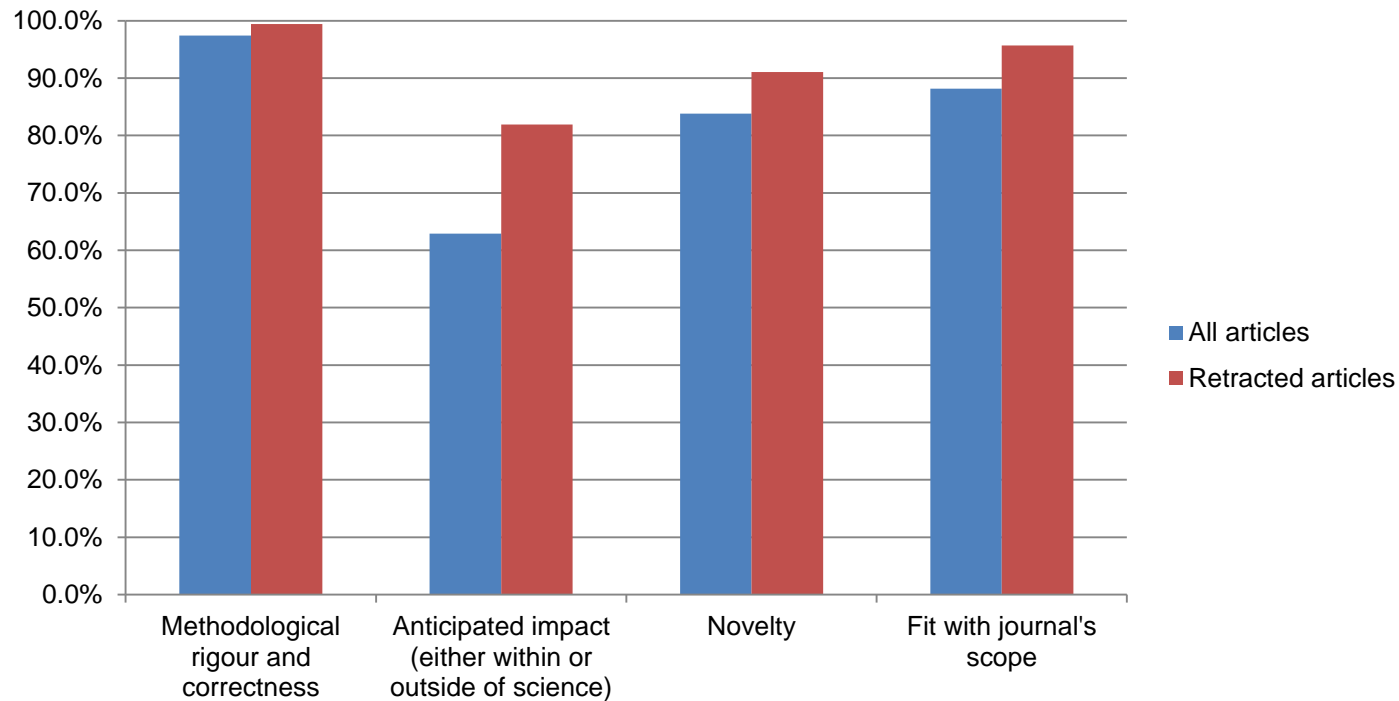
Effectiveness of review forms

Using retracted journal articles



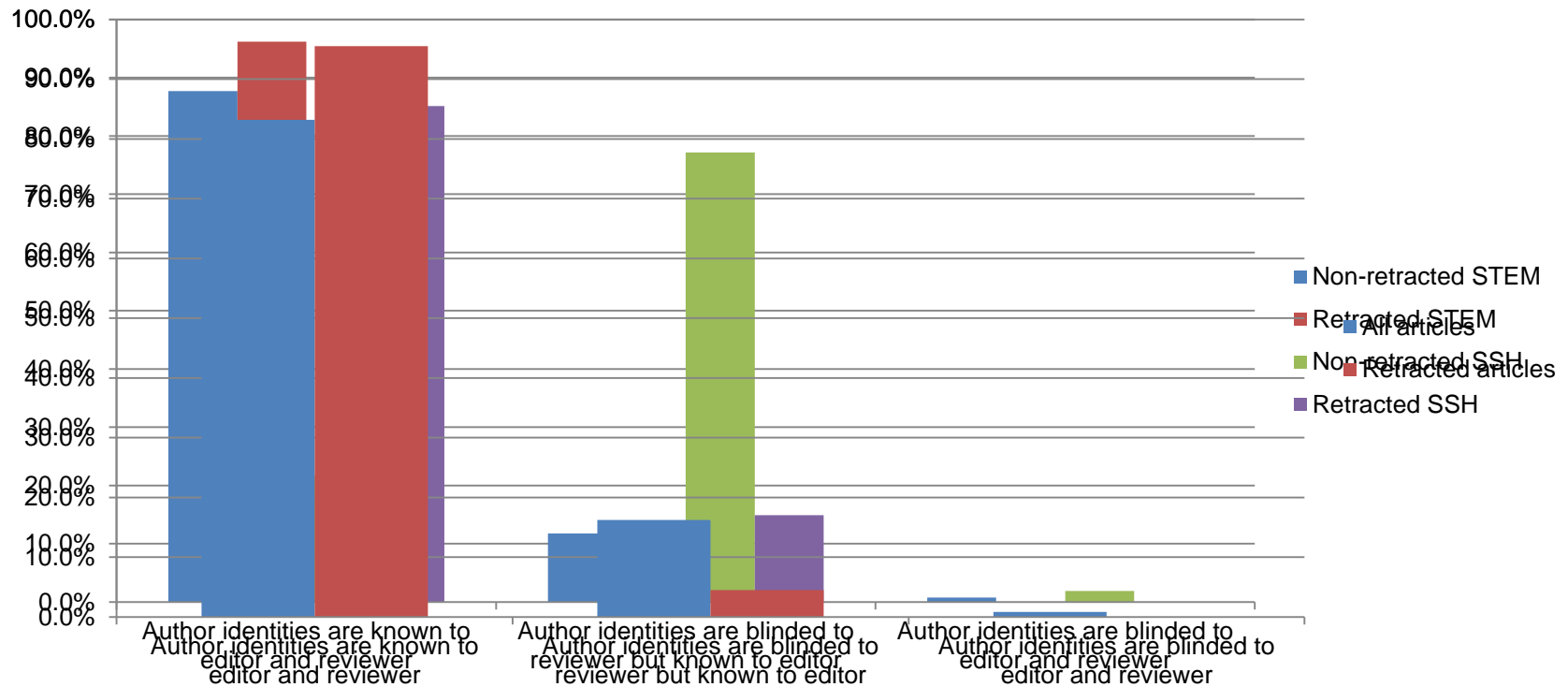
Effects of peer review practices on retractions

What quality criteria does your journal use for peer review?



Effects of peer review practices on retractions

To what extent are authors anonymised in your journal's review process?



The issue with using retractions

Retractions indicate troubles as well as the willingness to address those.

Many papers with (critical) issues are not retracted (Dark number)

Journals without retractions are not necessarily 'better'

Assumption: papers with issues are submitted equally to journals with different review formats.

Conclusions

- Peer review comes in (increasingly) many formats but innovations in the system are remarkably slow
- Some review formats, including
 - double-blind review
 - with little interaction between authors and reviewers
 - Assisted by the wider community
 - Not focused on expected impact or relevance
 - Using plagiarism detection softwareAre related to significantly fewer retractions

Hence there seem to be good reasons to innovate peer review, but journals generally fail to do so.

Time for discussion



Horbach, S. P. J. M., & Halfman, W. (2018). The changing forms and expectations of peer review. *Research Integrity and Peer Review*, 3(1), 8. doi: 10.1186/s41073-018-0051-5

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