



# Open Peer Review

Dr. Bernhard Mittermaier



0000-0002-3412-6168



@bmittermaier

b.mittermaier@fz-juelich.de

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# Peer Review

„Peer review is the evaluation of work by one or more people with similar competencies as the producers of the work (peers). It functions as a form of self-regulation by qualified members of a profession within the relevant field.“

[https://en.wikipedia.org/wiki/Peer\\_review](https://en.wikipedia.org/wiki/Peer_review)

## Origin

“Ordered, that the Philosophical Transactions, to be composed by Mr. Oldenburg, be printed the first Monday of every month, if he have sufficient matter for it; and that the tract be licensed under the charter by the Council of the Society, being first reviewed by some of the members of the same.”

Charles R. Weld: A History of the Royal Society, Volume I (London, 1848)



Henry Oldenburg (1615 - 1677)

# Significance

- De facto standard
  - Royal Society: Introduction in the 17th century
  - Royal Society of Chemistry: introduction at the end of the 19th century
  - American Physical Society: introduced at the beginning of the 20th century, only mandatory since the 1960s
  - Compulsory for Nature since 1973
- Improving the quality of the publication
- Validation of the correctness of the methods
- Verification of the correctness of the statements
- Self-regulation within a field
- Gatekeeper function



# Significance

“When I divide the week’s contributions into two piles — one that we are going to publish and the other that we are going to return — I wonder whether it would make any real difference to the journal or its readers if I exchanged one pile for another.”



Sir Theodore Fox, The Lancet’s editor-in-chief 1944-1964

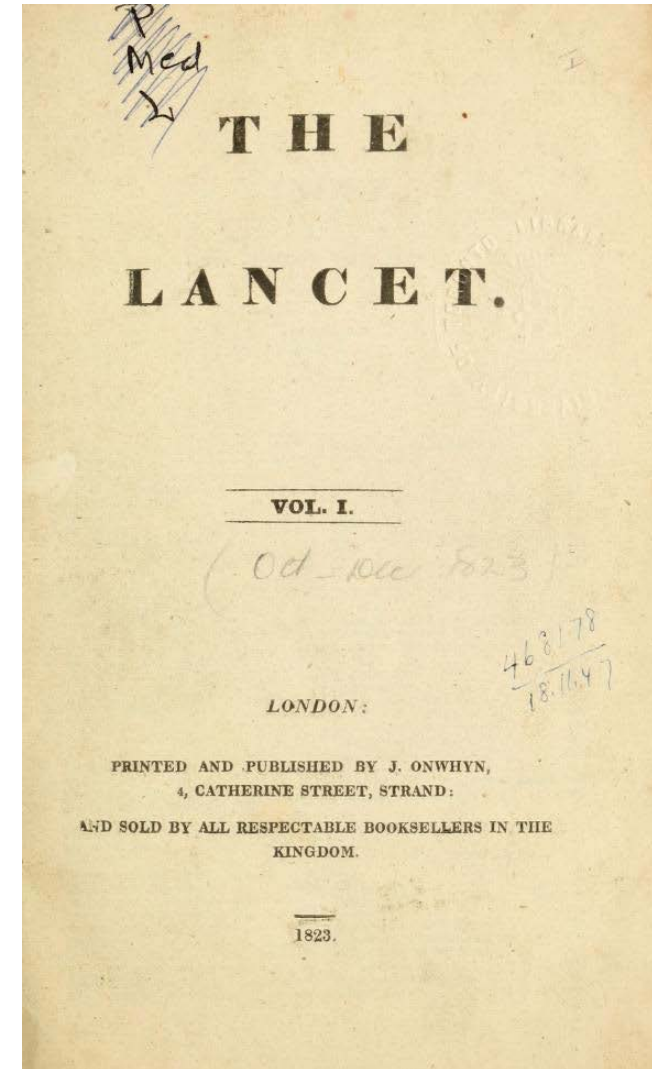
Theodore Fortescue Fox: Crisis in communication: the functions and future of medical journals. London 1965.



# Significance

“In the United States far too much is being demanded of peer review. Careers and the viability of whole departments now depend on publication in peer-reviewed journals. In the public domain the process is sometimes seen as a guarantee of truth, which is silly; (...) Journals do things differently, and long live those differences, but there was consensus that **turning away papers within the editorial board or ‘in house’ without an outside opinion by no means disqualified a journal from calling itself peer reviewed** and that reviewers are advisers (always The Lancet’s preferred term) not decision makers.”

The Lancet 333 (1989): S. 1115-1116



# Criticism

- (1) Peer review is time-consuming and expensive.
- (2) Publications are delayed.
- (3) Innovative and unconventional ideas can be blocked.
- (4) Peer-reviewed work, also in high-ranking journals, is not free of errors or even scientific fraud.
- (5) Reviewers might use and publish results by themselves.
- (6) The reproducibility and reliability of peer review are poor.
- (7) The fate of a particular proposal is only partly determined by its scientific value.
- (8) In single blind reviews, the recommendations of the reviewers are often biased; the fairness of the procedure is questionable.

# Open Peer Review

Open Peer Review is “an umbrella term for a number of overlapping ways that peer review models can be adapted in line with the aims of Open Science, including making reviewer and author identities open, publishing review reports and enabling greater participation in the peer review process”.

Ross-Hellauer, T: What is open peer review? A systematic review. *F1000Research* **6**, 588 (2017). <https://doi.org/10.12688/f1000research.11369.2>



# Open Peer Review – an improvement?

## Open Peer Review ...

- is feasible in practice
- lowers the tendency to biased reviews
- minimizes the risk of data theft
- limits the power of the editors
- offers the potential to provide the reviewers scientific refund through a recognition system
- often leads to qualitatively better reports
- can increase the citation rate
- may reduce the willingness to review
- can lead to public campaigns



Alex Holcombe  
@ceptional

8% of journal editors believe it's OK to change the reviewer's recommendation, even without permission.

OPEN UP peer review!

"Fiona Fidler... was outraged... her appraisal of a submitted paper had been changed before being sent to the author"

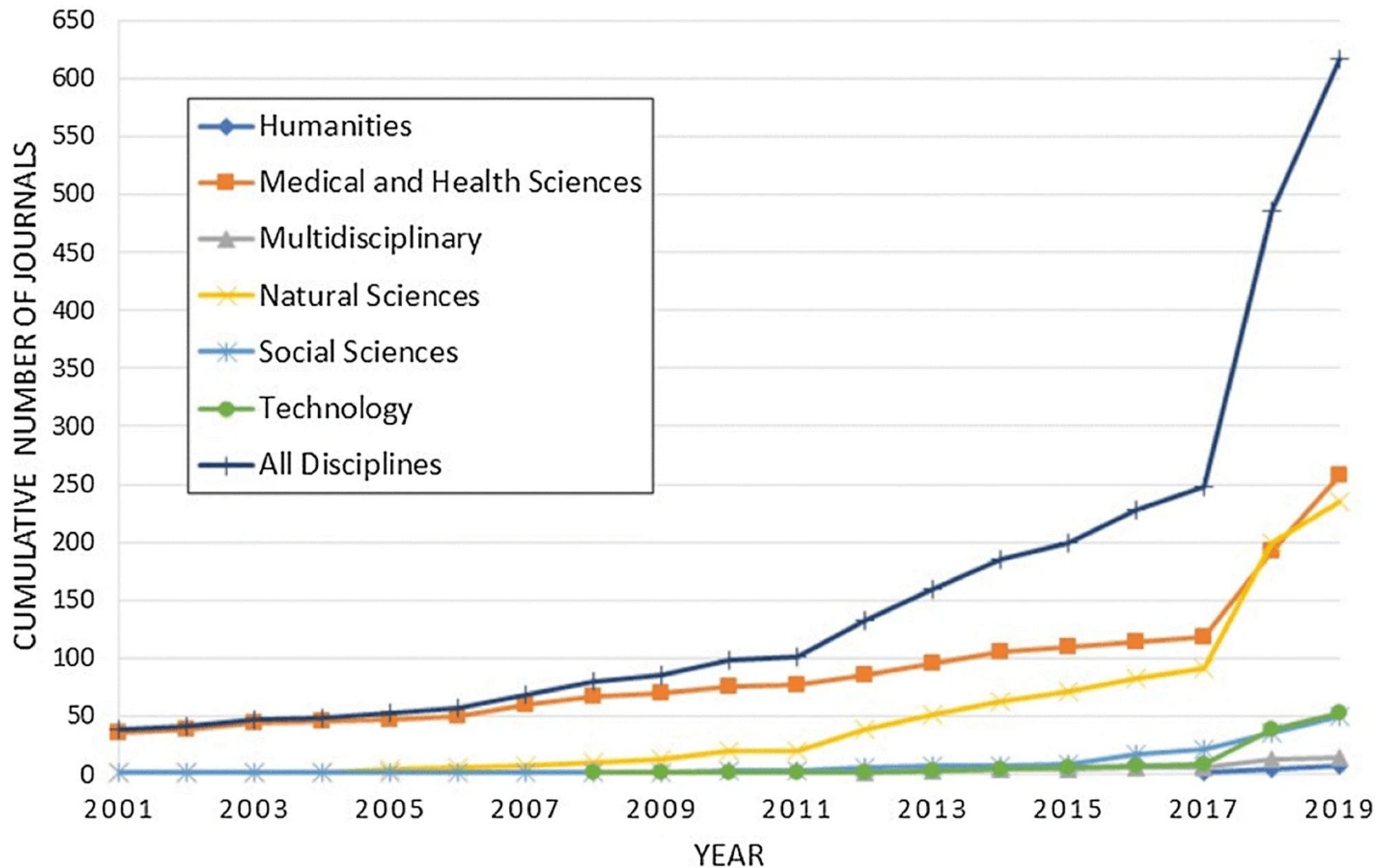
[Tweet übersetzen](#)



Delete offensive language? Change recommendations? Some editors say it's OK ...  
Survey finds widespread support for editing, little guidance from journals  
[sciencemag.org](https://www.sciencemag.org)

9:44 nachm. · 28. Okt. 2020 · Twitter Web App

5 Retweets 17 „Gefällt mir“-Angaben



Wolfram, D., Wang, P., Hembree, A. *et al.* Open peer review: promoting transparency in open science. *Scientometrics* **125**, 1033–1051 (2020). <https://doi.org/10.1007/s11192-020-03488-4>

<b>Publisher</b>	<b>OPR journals</b>	<b>Percentage of OPR journals (%)</b>	<b>Headquarters location</b>
MDPI	204	33.0	Switzerland
SDI	111	18.0	India
BioMed central	70	11.3	United Kingdom
Frontiers media S.A	64	10.4	Switzerland
Kowsar	51	8.3	The Netherlands
Wiley	40	6.5	USA
Copernicus publications	21	3.4	Germany
PLOS	7	1.1	USA
Elsevier	7	1.1	The Netherlands
EMBO press	5	0.8	Germany
Other publishers	37	6.0	11 countries*
Total	617	100.0	

\*United Kingdom (19 journals), United States (9), Argentina (1), Bulgaria (1), Canada (1), France (1), Germany (1), Ireland (1), Kenya (1), The Netherlands (1), Switzerland (1)

Wolfram, D., Wang, P., Hembree, A. *et al.* Open peer review: promoting transparency in open science. *Scientometrics* **125**, 1033–1051 (2020). <https://doi.org/10.1007/s11192-020-03488-4>

# COVID-19

„I’m getting probably ten to twenty review requests a week. Then I’ve been reviewing five to six per week. Before the outbreak, I was sticking to mostly four to six coronavirus papers per month.”




Perlmann, S., zitiert in: Jarvais, C.: Journals, Peer Reviewers Cope with Surge in COVID-19 Publications, The Scientist 17.03.2020  
<https://www.the-scientist.com/news-opinion/journals-peer-reviewers-cope-with-surge-in-covid-19-publications-67279>

## Fast peer review for COVID-19 preprints

The public call for rapid sharing of research data relevant to the COVID-19 outbreak (see [go.nature.com/2t1lyp6](https://go.nature.com/2t1lyp6)) is driving an unprecedented surge in (unrefereed) preprints. To help pinpoint the most important research, we have launched Outbreak Science Rapid PRereview, with support from the London-based charity Wellcome. This is an open-source platform for rapid review of preprints related to emerging outbreaks (see <https://outbreaksci.prereview.org>).

Johansson M.A. , Saderi D.:  
Nature 579 (2020)  
<https://doi.org/10.1038/d41586-020-00613-4>



Stage	Problem	Solution	Helps to know...	Agents
<b>Data collection and analysis</b> 	Waste of research (duplication)	Preregistration	Who is doing what, how and when?	Researchers to adopt it Journals to enforce it
	Ethical concerns	Preregistration	Is the study in line with good research practices?	
	Flawed studies	Registered reports	Is the study designed appropriately to answer the question of interest?	
<b>Publication process</b> 	Expedite reviewing	Open reviews	Are the findings verified by independent researchers?	Researchers to adopt it Journals to enforce it Institutions and funding agencies to value it Policymakers to allow it
	Distrust of published results	Data and code sharing	Can scientist obtain similar results from the same data?	
	Conflict of interests	Disclosure of conflict of interests, including editorial roles	Are the authors incentivized to publish these findings and to publish in this journal?	Researchers to adopt it Journals to enforce it
<b>Communication</b> 	Misuse of preprints	Collaboration between journalists and scientists	Can the public trust scientific news in the media?	Journalists and news editors Institutions
	Misleading headlines, exaggerations			
	Paywalled manuscripts	Open Access on all manuscripts	The exact content of manuscripts used as a source. Can accelerate research through universal access to scientific findings	Researchers to favor it Policymakers and institutions to enforce it

# Conclusion

Thank  
You

- Peer Review is rightly criticized, among other things because of
  - delay of publication
  - prevention of innovative ideas
  - idea and data theft
- Open Peer Review can avoid some of the weaknesses of classic Peer Review
- Open Peer Review is the natural way of reviewing overlay journals and thus for the possible future of scientific publishing

For references see also <https://juser.fz-juelich.de/record/865096>  
and <https://www.b-i-t-online.de/heft/2020-02-fachbeitrag-mittermaier.pdf>