

# Peer-review as organisational cognition



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# Overview

1. Cognition –more than Minded behaviour.
2. Peer review is *not* Quality Control
3. So... what *is* editorial peer-review for?
  1. Improving/rejecting submitted documents
  2. Adding scientific/scholarly *substance*
4. Conclusions



# “Peer review is a cornerstone of science”

In post-academic science (Ziman, 2000), peer review is of **organisational** importance...” it is a complex, large-scale collaboration process ...sensitive to motivations, incentives and institutional contexts.“ Peer review brings the past to the present, takes time and changes in time.... it is

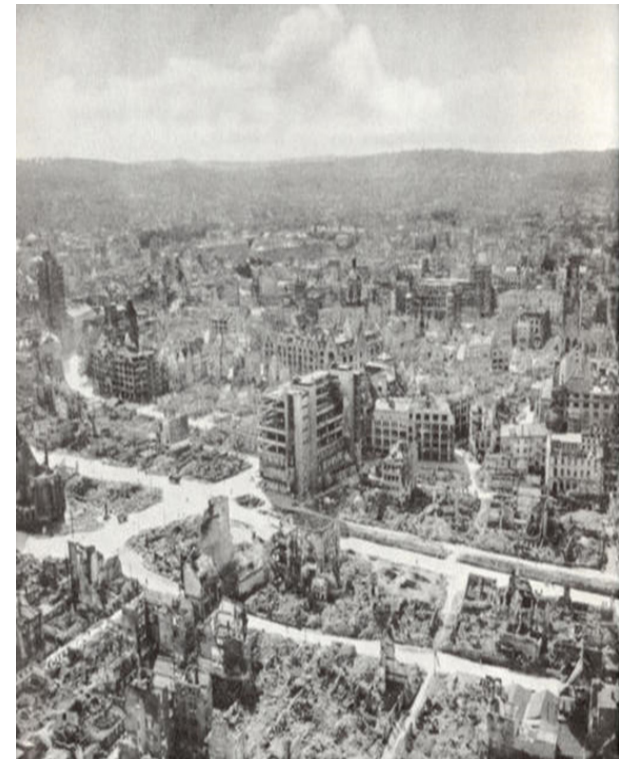
**cognitive** in that it enacts”*enabling* conditions for flexible adaptive behaviour” (i.e. involves many ‘actants’).

It is also **minded**: living human scholars contribute to cognitive outputs through collectives, groups and as individual persons.

# In organisational cognition

Activity serves organisations, and re-shapes thinking, practice and institutions that are depend on people.

In what Simon (1947) calls *intelligence units (IU)* –aggregates fine tune human actions and alter outcomes. Using multi-scalar temporality (see, Madsen, 2017), members of IUs bind experience, use of instruments and body-based understanding. Peer-review takes place in IUs.

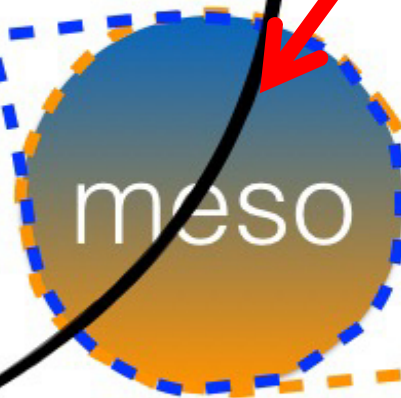


A discipline,  
a university  
or an IF of  
0.826

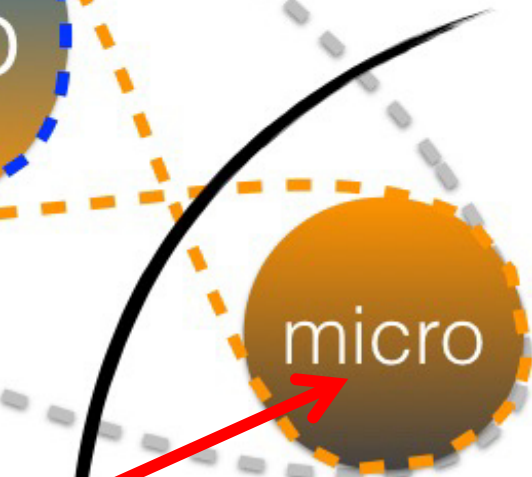


organizational  
sphere

Intelligence Units  
connect up multiple  
time scales (MST)



social  
organising



individual  
sphere

Figure from:  
Secchi & Cowley, 2016

Neurophysiologies  
in interaction

# As part of PEERE we know

In peer reviewing, individuals deal with what is new for them: their judgements use incomplete information. One needs supraindividual controls).

Peer review is neither reliable, valid nor a predictor of future impact (see, Bornmann 2011; Cowley, 2015).

This is unsurprising: it relies on judgements of *substance*. **Quality control can only deal with standards –not projected outcomes.**



# The quality myth

1. Quality, if any, does not lie in reviewing: it depends on *perceiving substance in what is reviewed* --be it technoscience, science, scholarship or, indeed, pseudo science.
2. Peer review links research, economic, governmental and other vested interests, --and, of course, other concerns. All science both epistemic and social (Reinhart, 2010)
3. The quality myth undermines scientific credibility (as well as scholarship and the academy).

# Peer-review: two questions

The focus shifts:

1. How does peer-review add substance to scientific publications?
2. How do macro factors use PR to alter people, practice and the world?

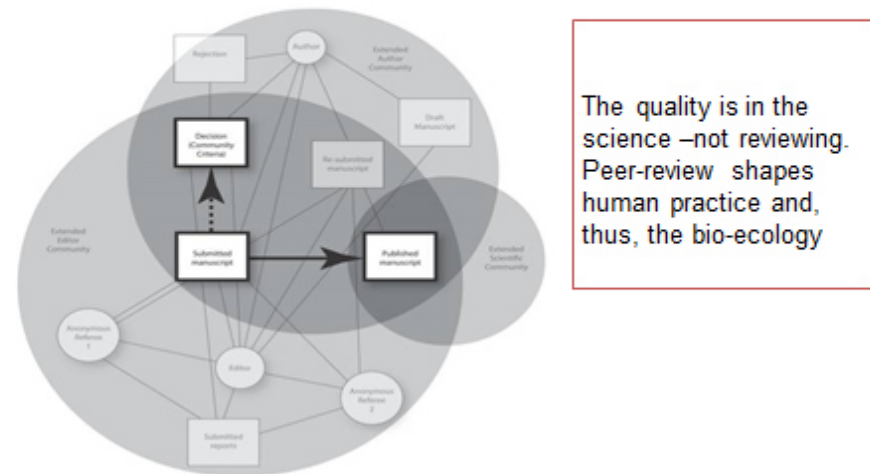


Figure from Cowley, 2015



# By hypothesis

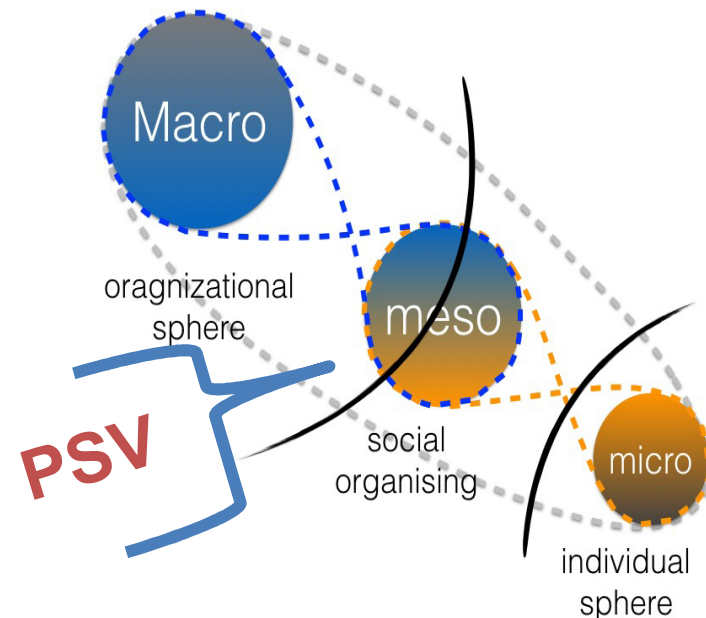
- Peer-review adds value to submitted manuscripts, scientific work and author-displays by suggesting ways of making pre-publication changes.
- Systems of actants (“complex, large-scale collaboration”) use what Secchi & Cowley (2017) call *perceived scientific value* (PSV) in scholarly decision making.

# PSV arises in intelligence units

In ecological, institutional and economic settings, humans act as members of intelligence units.

If they deem PSV low, manuscripts are rejected and lines of research end; if PSV is deemed high, people re-tune manuscripts and lines are rewarded.

Can we study PSV? And human judgements of the same?



# Judgements of PSV link expertise, reading and intuition

But qualitative and quantitative research rely on the linear flow of time ( as defined by mathematical convention).

In IU, substantive change arises as material, bodies and multi-scalar temporality contribute to judgements of PSV.

ABMs can simulate how the slow affects the fast (and vice versa). In a world of MST, the emergent and the immergent co-function (see, Conte et al, 2013) ... in IUs as well as minds, people come to grasp substantial matters.

# ABMs

Models act as heuristics that can be used to pursue, for example, how cultural factors impact on judgements of PSV in intelligence units (viz. in a meso scale).

One can ask how individuals cluster, break free of IU and self-organise. One can pursue changes in judgements of PSV (and, by extension, science, manuscript preparation and peer-review and how one understands chosen domains).

# New questions

How does peer-review affect scientific substance (and scientists)? How do living subjects adapt –and, as they do so, develop and/or compromise scientific work.

Let's model how macro constraints affect IUs –for example, the use of advanced methods or metrics (e.g. IF) that affect peer-reviewing and judgements of PSV.

# Daide Secchi

Daide's ABM models how *Impact Factor* influences judgements of PSV: and how 0.826 affects members of IU<sub>1</sub> or *IF contrarians* and of IU<sub>2</sub> or *IF enthusiasts*.

What do you expect?

How will the groups change?

Will anyone's PSVs remain unchanged?



**ANSWERS on THURSDAY**

# Let a 1000 flowers bloom

1. If a metric like IF affects PSV, it further shows that peer-review is social/biased.
2. Let's stop pretending that peer review has more than a tiny part in quality control.
3. The importance of peer-review lies in how it adds value to science, scholarship, experience and, ultimately, human understanding



# Conclusion

Peer-review links people who vary in breadth/depth of experience, attitudes to methods, use of metrics etc.

Unlike quality control, peer-review is like measuring, experimenting or using statistics. It is scholarly activity of variable quality that changes understanding.

Judgements of PSV lead to substantial change and shape science and scientists. Like editors, reviewers are important players in IU and organisational cognition.





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