

# Reclaiming traditional rôles of academies in the digital age?



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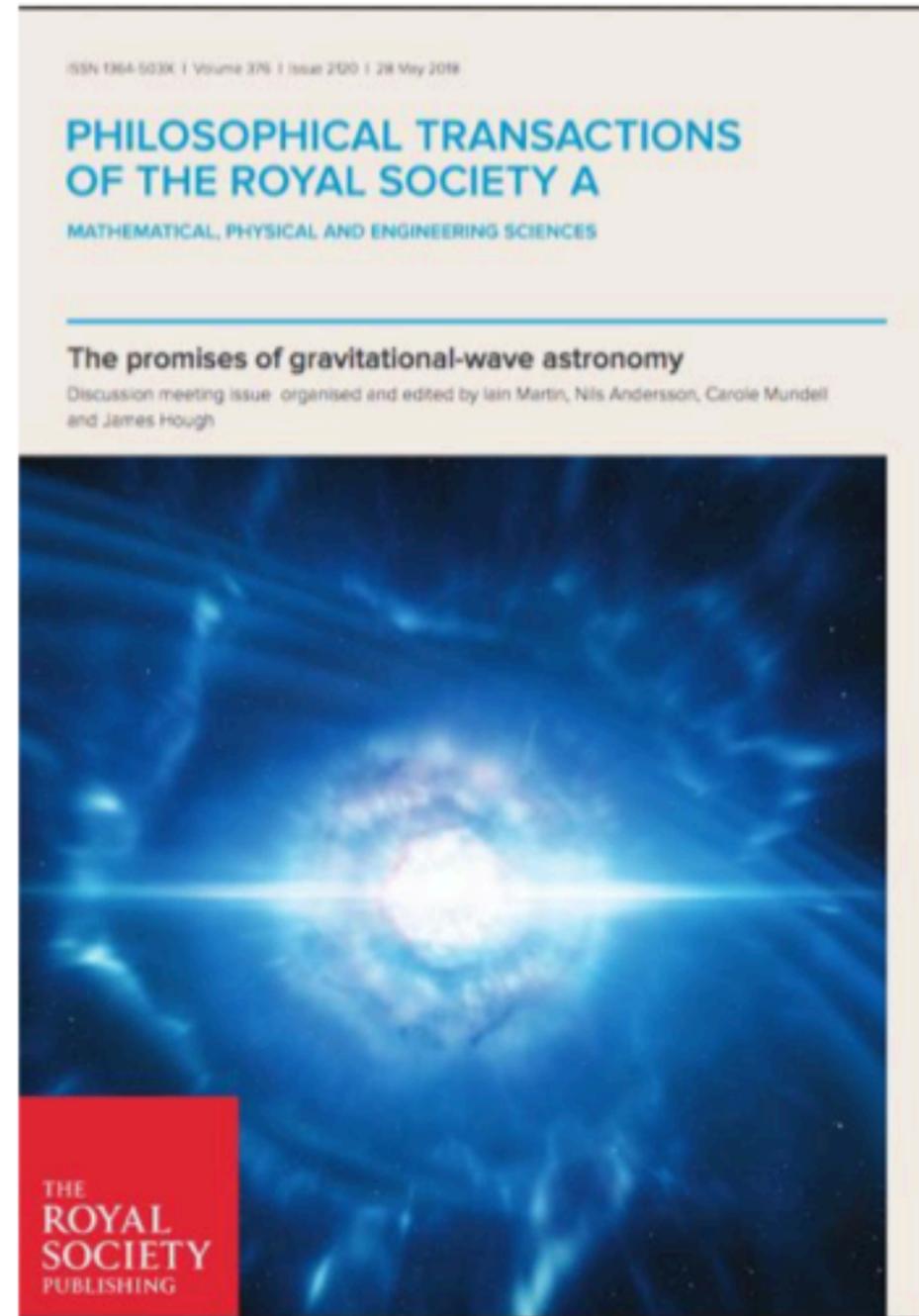
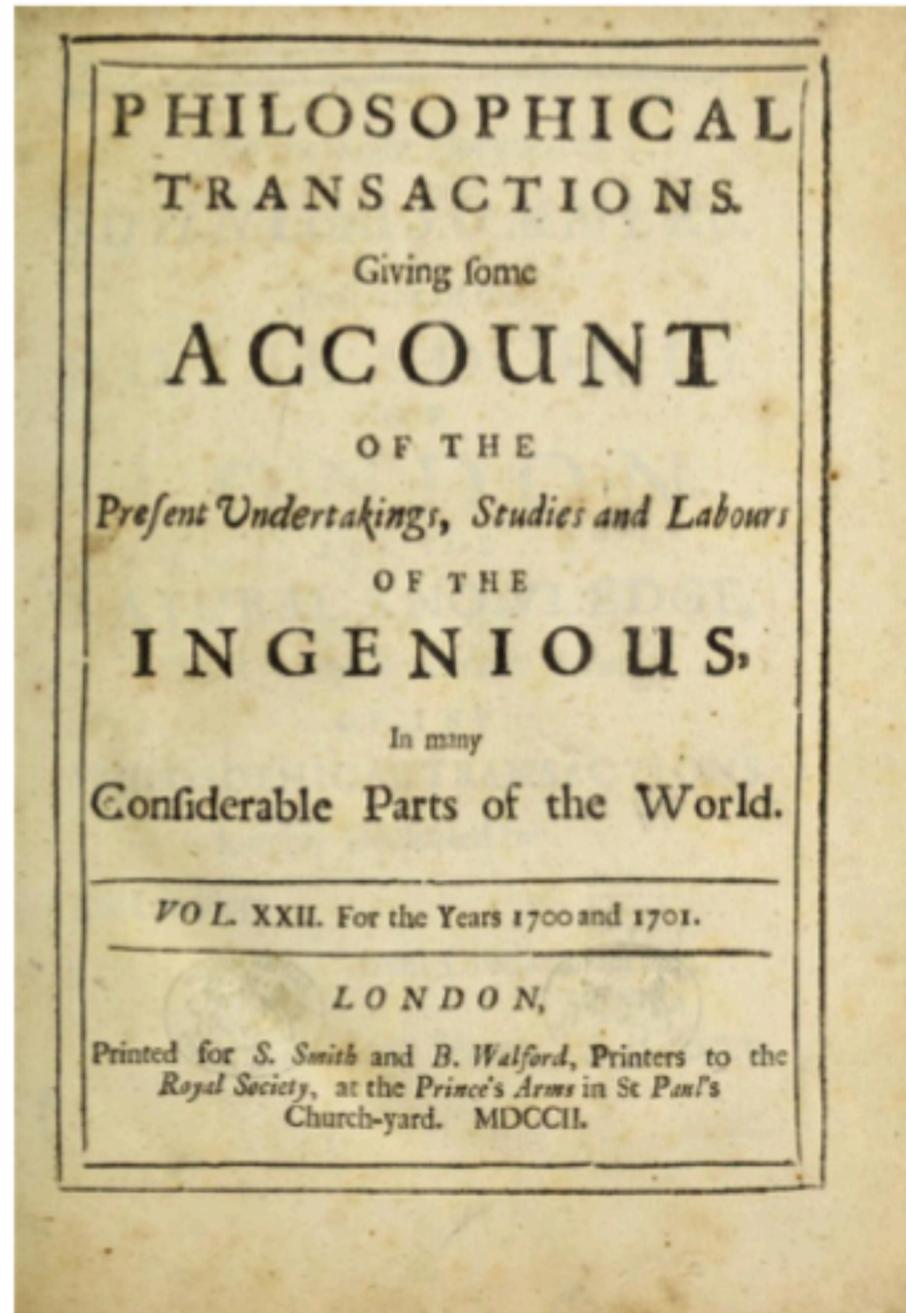
## ALLEA Response to Plan S

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# 350 years of the academic journal!



From COAR presentation at Hamburg 2019

- The norms and conventions of what now constitutes the vast bulk of scholarly communication (short papers published in volumes of a journal) have their roots in the proceedings of Academies.
- Before that science and scholarship was disseminated via monographs and books - still a valid channel especially in the humanities, but has to be seen as a parallel activity to the peer-reviewed journal article (and treated as such in Plan-S).
- The question I want to address is how did the Academy (using this as an umbrella term for the scholarly community) come to lose control of journal publishing, should it now aim to “take back control”, and is this feasible?
- One caveat - I speak as an astrophysicist and inevitably my views reflect the norms of my discipline, but I think it offers an interesting example of how we could do things better.

# Before ca 1980

- Typesetting, especially of mathematical formulae, using metal type was a complex, expensive and highly skilled operation.
- Printing on good quality paper was inherently expensive and required access to printing presses and skilled printers, binders etc.
- Distribution involved postage to subscribing libraries and individuals, largely manual management of subscription lists, invoicing etc.
- Commercial publishers could make a convincing argument that they brought economies of scale and professional expertise to Journal Publishing which the Academies for the most part did not have.

- But in reality the explosion of commercially published journals had more to do with the realisation that there was easy money to be made - academic publishing now has global revenues larger than the music industry and profit margins of over 30%.
- Robert Maxwell in particular, with his Pergamon Press group, drove the proliferation of specialist journals, and Ben Lewin with Cell the concept of the highly selective elite journal publishing “high impact papers”.
- This has seriously distorted the scholarly communication system - optimising for impact is not a good idea; look at social media to see where this leads.

# A Satirical Tweet with a Grain of Truth!

 **Cell Onion**  
@Cell\_Onion

A short history of CELL to commemorate the 20th anniversary of CELL Press acquisition by Elsevier!

"Commercial Exploitation of Laboratory Labor" was first published in 1976. The name was shortened to its acronym CELL in 1988, after which it was purchased by Elsevier in 1999.

7:33pm · 20 Aug 2019 · Twitter Web App

# What changed after 1980?

- Don Knuth released TeX in 1978 which enabled the average scientist to do better mathematical typesetting than most printers and also established a way of encoding mathematics and document formatting that was easy to transmit and process electronically (you can use just the basic ASCII character set).
- The internet started to take off as an essential channel of scholarly communication with early forms of e-mail enabling remote collaboration on papers - drafts often exchanged in TeX format.
- Online storage was already substantially cheaper than paper-based archives in the 1980s and the price has continued to drop exponentially ever since.
- Particle physics and astrophysics already had a paper-based preprint culture inspired by frustration with the long delays in journal publication - rapid adoption of TeX to produce preprints of a quality comparable to journal versions and use of the internet led to the birth of the arXiv preprint server (Paul Ginsparg, 1991).

# Currently in Astrophysics

- We write and typeset our own papers to journal quality (or better) using LaTeX, Overleaf, XeTeX - systems layered on top of TeX.
- We establish priority and get them time-stamped by posting to the arXiv at or before submission to a journal.
- Feed back from colleagues and journal peer reviewers usually lead to revisions in which case we post an updated version (the arXiv stores a record of versions, not just the version of record).
- Articles on the arXiv are fully indexed and discoverable on our virtual library and search engine, the NASA funded Astrophysics Data System.
- So what do the Journals contribute?

# What value do Journals add?

- Peer review - but this is largely free work by the Academy which could be organised differently (and better), e.g. as overlay journals.
- Copy editing - minimal in my experience and mostly time-wasting imposition of out-dated house rules for the formatting of references (just use DOIs and other persistent digital identifiers).
- Discoverability, visibility and PRESTIGE - this is why we are hooked on the commercial journals and why Plan-S insists on DORA.
- To be fair there is a list of things Journal publishers do that lists 102 items.

ADVERTISEMENT

# Focusing on Value — 102 Things Journal Publishers Do (2018 Update)

*By* **KENT ANDERSON** | FEB 6, 2018 | **14 COMMENTS**

<https://scholarlykitchen.sspnet.org/2018/02/06/focusing-value-102-things-journal-publishers-2018-update/>

**Personally do not find this list very convincing!**

# What could the Academies do?

- Offer a better peer-review service delivering article-level measures of peer esteem (not just a binary accept/reject). A key rôle of academies has always been the recognition of excellence - why not do this for articles? Run overlay journals at minimal cost? Run recommendation services like F1000?
- Promote broadly based disciplinary discovery platforms along the lines of the NASA funded ADS in astrophysics - in effect a free virtual library with a smart search engine. We can surely do better than Google Scholar! Put all the journals, archives and repositories on a level playing field with proper text mining and rich meta-data. Who wants to scan tables of contents in this day and age?
- Support and recognise innovative models for research outputs going beyond the traditional article format and conventions - e.g. active links to open data sets and open software, living reviews, etc.

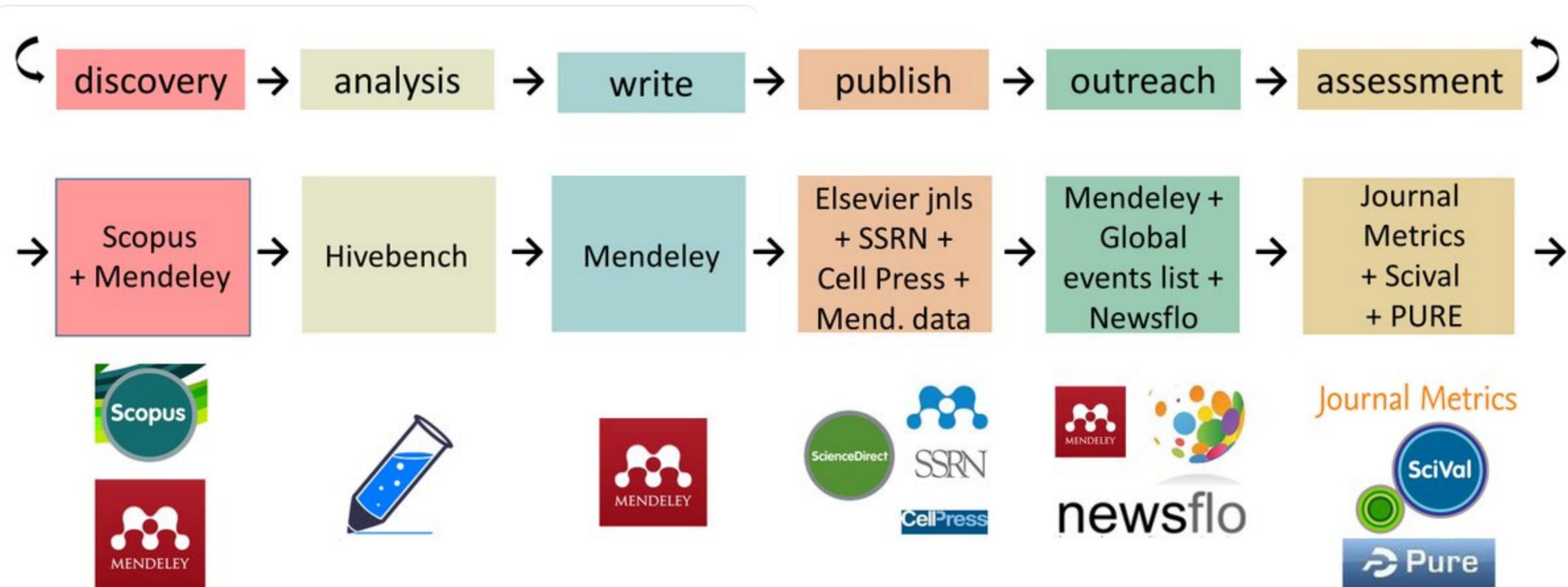
## Elsevier CEO Erik Engstrom

Our number one strategic priority remains unchanged: the organic development of increasingly sophisticated information-based analytics and decision tools that deliver enhanced value to our customers."



Follow

With the acquisition of [@hivebench](#), Elsevier now has products in all phases of the research workflow [#ReCon\\_16](#)



# Conclusions

- It's not just about publishing! Research evaluation and the incentives for research are all affected if you change the publication model.
- The commercial publishers are now data platforms that aim to monetise and control all aspects of research production and evaluation.
- This is a serious threat to the idea that Science is a Global Public Good that everyone has the right to participate in.
- The Academy has to fight back and resist this by offering better value through collaborative open services, which I believe we can.
- The key will be making DORA easy combined with retention of copyright.
- Plan-S is far from perfect, but it has opened up this necessary debate.

Let us now assume that the GCR have been confined for a time  $\tau$  in a volume of size  $V$  containing a target mass  $M$ , then

$$g \approx \frac{\tau c M}{V}, \quad (4.1)$$

and if their energy density is  $\mathcal{E}_{\text{GCR}}$ , then the Galactic GCR luminosity is just

$$L_{\text{GCR}} \approx \frac{\mathcal{E}_{\text{GCR}} V}{\tau} \quad (4.2)$$

from which it trivially follows that

$$L_{\text{GCR}} \approx \mathcal{E}_{\text{GCR}} \frac{cM}{g}. \quad (4.3)$$

Taking fairly standard values of a local GCR energy density  $\mathcal{E}_{\text{GCR}} \approx 1.0 \text{ eV cm}^{-3}$ , a total interstellar gas mass in the Galaxy of  $5 \times 10^9 M_{\odot}$  and  $g \approx 5 \text{ g cm}^{-2}$  gives  $L_{\text{GCR}} \approx 10^{34} \text{ W}$ .