ECR Referee Workshop: refereeing across multiple fields

(subtitle: “proliferating sub-fields, cross disciplines & journals”)

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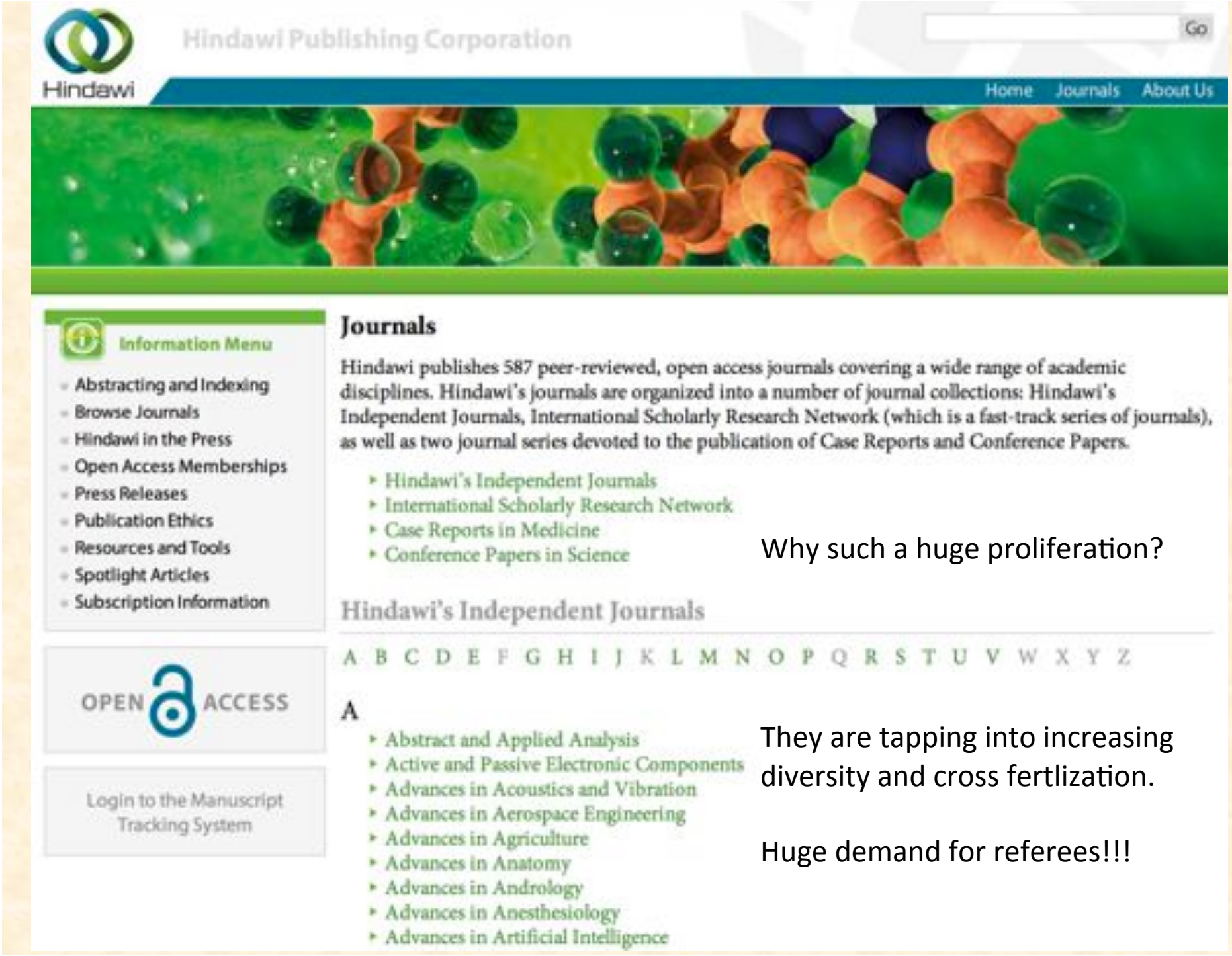
Specialist:

someone who knows more and more about less and less…

who comes to know everything about nothing.

Ultracrepidarian:

specifically of a critic, one who holds forth on a topic beyond the bounds of his or her understanding



Why such a huge proliferation?

They are tapping into increasing diversity and cross fertlization.

Huge demand for referees!!!

- Advances in Artificial Neural Systems
- Advances in Astronomy
- Advances in Bioinformatics
- Advances in Biology
- Advances in Biomaterials
- Advances in Botany
- Advances in Chemistry
- Advances in Civil Engineering
- Advances in Computer Engineering
- Advances in Condensed Matter Physics
- Advances in Critical Care
- Advances in Decision Sciences
- Advances in Ecology
- Advances in Electrical Engineering
- Advances in Electronics
- Advances in Emergency Medicine
- Advances in Endocrinology
- Advances in Environmental Chemistry
- Advances in Epidemiology
- Advances in Evolutionary Biology
- Advances in Fuzzy Systems
- Advances in Geology
- Advances in Geriatrics
- Advances in Hematology
- Advances in Hepatology
- Advances in High Energy Physics
- Advances in Human-Computer Interaction
- Advances in Materials Science and Engineering
- Advances in Mathematical Physics
- Advances in Mechanical Engineering
- Advances in Medicine
- Advances in Meteorology
- Advances in Molecular Biology
- Advances in Multimedia
- Advances in Nephrology
- Advances in Neuroscience
- Advances in Numerical Analysis
- Advances in Nursing

I get invitations to write or referee for these, most unknown to me…

Also to attend conference sponsored by same people…

This is big business so beware!

My problem with cross disciplinary research and refereeing these papers (e.g. astrobiology)

- Author who works in A, B *and* C:

  perceived by B and C to be expert in A
  perceived by A and C to be expert in B
  perceived by A and B to be expert in C

- Author:
  - Who to aim at? Field A, B or C?
  - If field A, how much introduction to B and C required? etc.

- Editor:
  - Does it belong? Is there a better journal for it?
  - Does it have enough of Field A to belong? to have lasting impact?
  - Who to referee?

- Referee: see below

Refereeing across multiple fields:
I. A journal approaches you to review a paper

- **Do I know or trust the journal?**
  - I was asked to write for New Astronomy Review. I looked at
    - impact factor
    - rejection statistics
    - highest cited papers in that journal
    - who else publishes in the journal (do I know them?) and on what topics?
    - latest issue: Is it open access or does the reader have to pay? Opposed to closed journals, e.g. New Astronomy, Nature Communications, SPIE, …
    - sometimes I look at the Editorial Board and maybe even contact one of them, e.g. I emailed one of the sub-editors on New Astronomy Review, discovered Eggleton on the board of Optical Communications, etc.

- Can I usefully contribute? Does the field interest me?
- Read the journal refereeing guidelines – styles differ a lot
- Consider opening up a dialogue with the Editor to get a sense of what the journal is all about, intended market.
  - I have done this with Nature, Science, Optics Express, some astro journals. Science and Nature want “glitz” these days. Nature has spin-off journals as well.

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- Can I usefully contribute? Does the field interest me?
- Read the journal refereeing **guidelines** – styles differ a lot
- Make contact with someone prominent in the field – I almost always find a **mentor**
- Open up a **dialogue** with the Editor to get a sense of what the journal is all about
  - Intended market? I have done this with Nature, Science, Optics Express, some astro journals.
  - Science and Nature want “glitz” these days. Nature has spin-off journals as well which has greatly increased their demand for solid referees.

Refereeing across multiple fields:
2. Refereeing a paper outside your field

- **Demand for referees.** We are called upon more and more to help out across fields, often because the Editor perceives the paper does not sit squarely in their field. Any mention of imaging, spectroscopy, etc. will have them screaming for an astronomer. I always check the reference list of a new sub-field to see if I am cited, to see how I came to be selected for this paper.

- **Credibility.** I almost always quickly establish the author's credibility
  - What's his or her citation impact? Who are they working with? (Beware PhDs so maybe check out a few of the collaborators). *Beware:* citation rates differ hugely across fields.
  - Look at the last few published papers.

- **Readability.** Does the paper set up well, tell a **good story** for the general reader? For the specialist? Can I follow the gist from the **figures** and **captions** alone – hallmark of a good paper.

- **Emphasis.** How much of their earlier papers do I need to read? How much prior knowledge is assumed? Can I infer this is an important issue independently? Look for a **review** on that field.

Refereeing across multiple fields:
2. Refereeing a paper outside your field, contd.

- **Jargon.** I can read two papers in the same issue of Science on climate change, for example. One is easy on the eye, the next is just impossible.

- **Experience.** It's not easy to help across fields; it takes a lot of experience.
  - Jargon, acronyms that are not defined
  - In photonics, no percentages, only dBs; "efficiency in % = insertion loss in dBs"
  - Tracking down even the cited journals can be hard

- **Proliferation.** People download complex code, just publish output, even filled with eqns, all grabbed from help manual, incremental parameter search, no attempt to fit data. We spot this easily in astronomy; in other fields, harder to spot unless you know the codes.

- **Hiding details.** Look at their acknowledgments to see if a funding agency is being credited. You often find commercial companies involved and this can seriously affect what's presented in the paper. *I have no problem rejecting these*, as I have done many times. I get steamed up at the words "protected by patent pending; commercial in confidence…"