



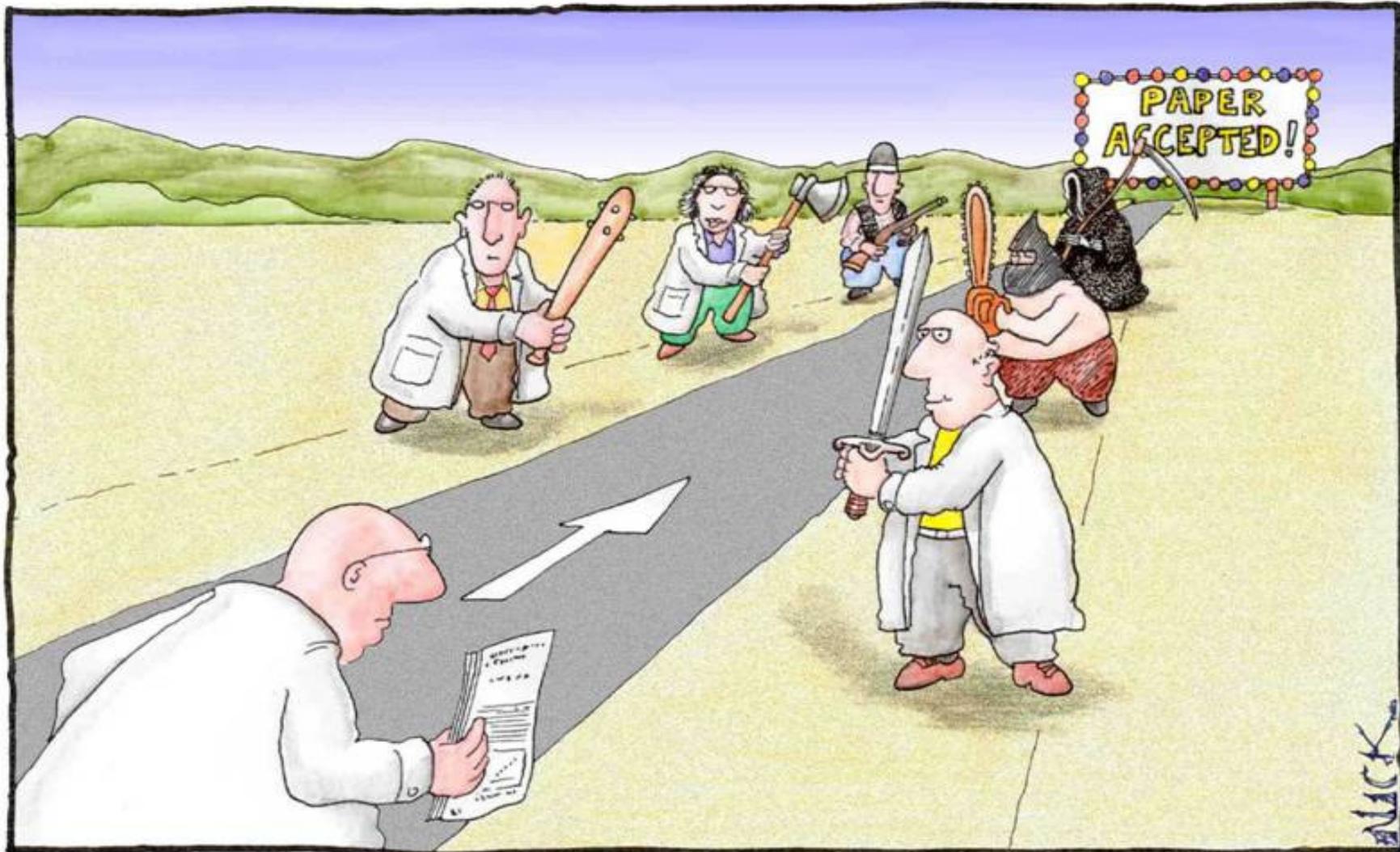
Why do women publish less in climate science, and what can be done about it?

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Olive Heffernan, PhD, CMarSci | Chief Editor| *Nature Climate Change*



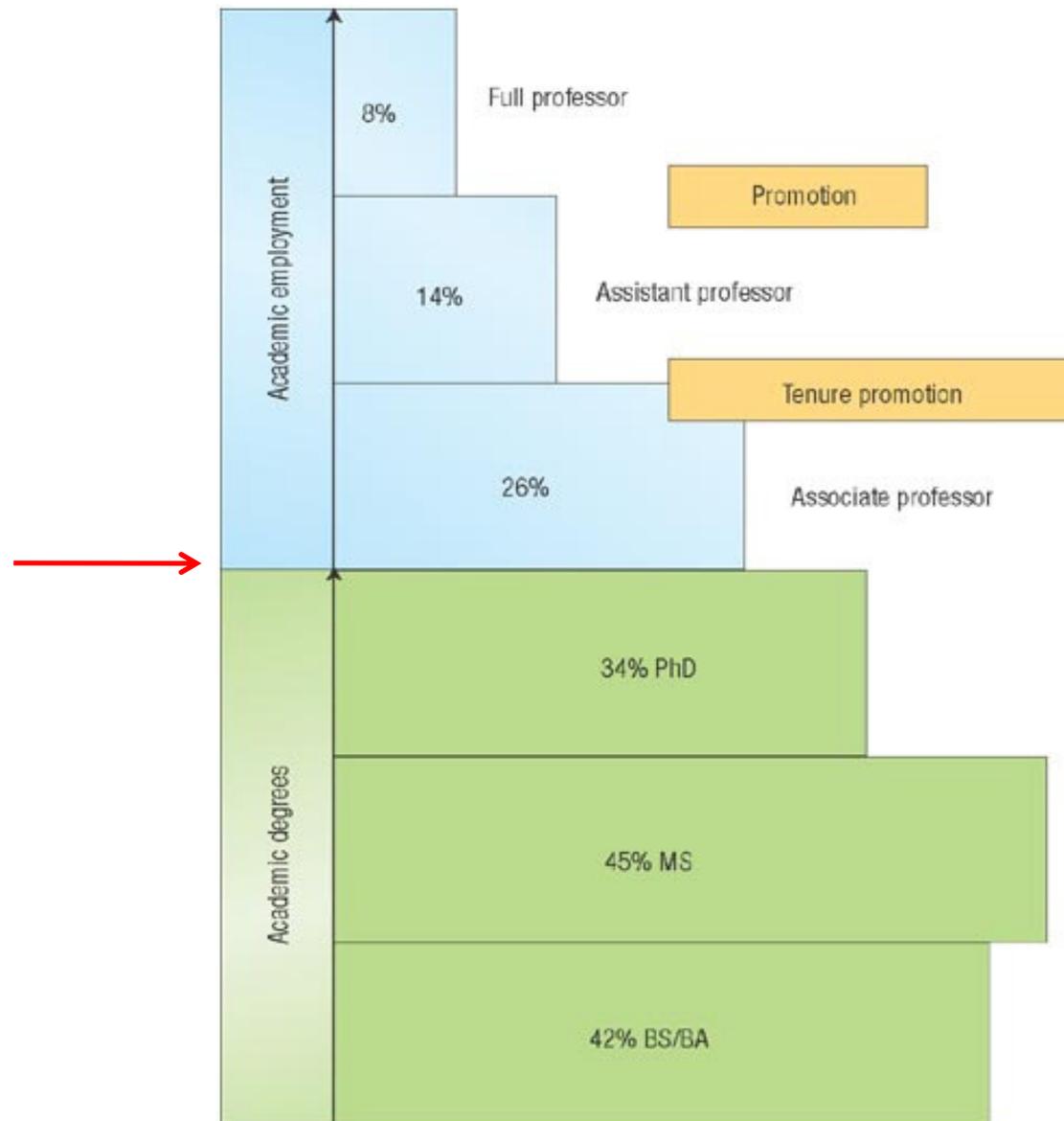
“Publish or perish”



Most scientists regarded the new streamlined peer-review process as ‘quite an improvement.’



The postgraduate brain drain



Holmes, M. A. et al Nature Geoscience 1, 79 - 82 (2008)

...Leads to fewer women in geosciences



- More women in geosciences than physics and engineering, but still lag fewer than chemistry and biological sciences.
- Women comprise around 26% of Assistant Professor positions in the geosciences (in '04-05).
- Proportion of women on faculty declines with increasing rank, from around 26% Assistant Professors to 8% Full Professors.

Data from Association of Women Geoscientists



But what of climate research?



- Interesting case because now truly interdisciplinary including both natural and social sciences.
- In some areas, women are better represented. At postgraduate level, the majority of students in the humanities and arts (52%) are female (Europe, 2006), and almost half (47%) of social sciences and business students are female compared to 25% of engineering and technology students.
- This carries on up the ranks to some extent. According to an EU report (She Figures, 2009), the proportion of women among full professors is highest in humanities and the social sciences (respectively 27.0% and 18.6%), compared to 7.2% in engineering.

Data from 'She Figures 2009' study of Women in Science across Europe



An issue of impact



- Women still vastly underrepresented in climate research. Gender imbalance reflected in influential organizations e.g. of the 31 bureau members of the IPCC, just 5 are women.
- Women's voices are heard less than men's in academic and public debates on climate science.
- One recent MSc thesis found that female academics publish 21% less than their male counterparts. This may be biased by a few high-publishing individuals.
- The number of male authors on science papers in general, and in Nature, far outweighs the number of female authors. Carries through to commissioned content, with articles most frequently authored by males and by those who have published recently.



Gender imbalance in commissioned content, NRCC



Year	Female first-authored articles (%)	Total number
2010	14.29	7
2009	0.00	31
2008	4.35	23
2007	7.14	14

Data from Nature Reports Climate Change commentary section



Bias in peer-review?



- No systematic evidence for gender bias in peer review, and no statistics collected for Nature research journals on the gender of the contributing authors.
- Little research in fields outside of biomedical research.
- Marsh and Bornmann (2009) analyzed 353,725 grant proposals from 8 countries and found no effect of the applicant's gender on the peer review of their grant proposals.

Budden, A. et al. *Trends in Ecology & Evolution*, 23(1), 4-6, 2008.



Solutions in sight?

- Mentors/Role models
 - Research from US NAP (2009) suggests that having females on boards for job and grant applicants increases female candidate pool.
 - True for journals too? Recent research in *Frontiers in Ecology and Environment* shows most journal editors are male.
- Double-blind peer review?
 - Evidence for bias weak, but under consideration for *Nature Climate Change*
- Awareness in choosing referees/authors for opinion and review
- First Nature-branded journal to publish social science so will have naturally have more female authors.



3 wishes

- More females in high level positions e.g. as lead authors of the IPCC reports
- More climate science papers with females as first authors
- More females voicing strong opinions on climate change science and policy

