

Correspondence

Academics unite with policy analysts

In our view, academics and funders need extra guidance in working with policymakers (see C. Tyler *Nature* 552, 7; 2017). This would improve the design of policy-relevant research and help to counter political criticism of academia.

Government ministers rarely have time to build relationships with scientists. Instead, policy analysts in government departments collect information, craft papers for internal discussion and condense these into policy briefs.

These civil servants are typically asked to produce discussion papers on areas outside their expertise within a week (see, for example, M. Howlett and J. Newman in *Policy Work in Canada* 58–76 (Univ. Toronto Press, 2017)). They therefore rely on the most readily available information, including non-peer-reviewed and Internet sources. These might be out of date, flawed or biased. Being able instead to draw on established relationships with scientists would result in policy being developed from a broad and reliable evidence base.

We therefore recommend that academics identify and cultivate relationships with the policy analysts who source raw material for the political machine.

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Leading journals lack female authors

Our analysis of primary research papers in 15 prestigious multidisciplinary and neuroscience journals in the MEDLINE database indicates that the proportion

of female authors in these journals has been consistently low over the past 13 years. Publication in distinguished journals advances careers, so this under-representation negatively affects the careers of thousands of female scientists.

In *Nature*, for example, women accounted for fewer than 15% of last (senior) authors. By comparison, female scientists received about 27% of prominent research grants from the US National Institutes of Health and from the UK Medical Research Council over the same period.

In these leading journals, we find an impact-factor effect: a negative correlation between the 5-year journal impact factor and the percentage of female first ($r_s = -0.75$, $P < 0.01$) and last ($r_s = -0.56$, $P < 0.05$) authors (for details, see Y. A. Shen *et al.* Preprint at bioRxiv <http://dx.doi.org/10.1101/275362>; 2018).

The proportion of female authors in our set of high-profile journals rose by less than 1% annually in 2005–17. Increasing female representation needs to be a stronger priority (see, for example, *Nature* 541, 435–436; 2017). Like Microsoft, Google and Walmart, publishing houses have a legal responsibility to avoid discrimination and to implement practices that increase the representation of women and minorities.

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Gender gaps in astronomy

Many high-income nations are lagging behind some less-prosperous ones with regard to gender parity in astronomy, according to the International Astronomical Union's (IAU's) latest statistics (see go.nature.com/2fdji7o).

In most wealthy countries, women account for less than

18% of astronomers — including in Switzerland, Germany, the United Kingdom, the United States, Australia and the Nordic nations. Italy (26%), France (25%), Ireland (22%) and Spain (20%) are exceptions. To my knowledge, hardly any women head space agencies such as NASA or the European Space Agency, or lead the editorial boards of astronomy's top journals (see *Nature* 528, 471–473; 2015).

The proportion of female astronomers is higher in some Latin American and Eastern European countries. Women comprise more than 30% of astronomers in Serbia, Venezuela, Peru, Romania, Bulgaria and Argentina, for example.

Given wealthy countries' reputation for education and outreach, this difference is disappointing. It recalls an age when astronomers were hand-picked royal courtiers and women were excluded. The IAU is taking steps to include more women in its leadership positions (see, for instance, go.nature.com/2cptoq4).
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Work together for water security

We endorse the proposal for the Indian and Pakistani governments to form a coalition to tackle their transboundary toxic smog (M. Usman *et al.* *Nature* 552, 334; 2017). A similar approach could be deployed to help resolve the water conflict that has persisted between the two countries since the subcontinent's division in 1947.

The conflict arose because the sources of the rivers flowing into Pakistan are located in India. Despite the signing of a treaty in 1960 that granted Pakistan most of the control over the three western rivers and India full control over the three eastern rivers, tensions have escalated.

These result from inadequate political leadership in the face of increased water demand due to rapid population growth, unpredictable water flow caused by climate change, and dam construction to generate hydroelectricity.

In our view, resources and energy should be directed away from animosity and towards development, with the aim of ending poverty, and improving education and health care.

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Electric fish inspire an age of invention

Inspired by the eel's electric organ, Thomas Schroeder and colleagues built a device that provides electricity in a variety of situations (*Nature* 552, 214–218; 2017, and see go.nature.com/2hzh4jd). This example of technology derived from a biological concept has echoes of Alessandro Volta's invention of the battery more than two centuries earlier.

Volta (1745–1827) was professor of physics at the University of Pavia in Italy and a fellow of the Royal Society. On 20 March 1800, he sent a letter to Joseph Banks, president of the Royal Society, to communicate his new apparatus (*A. Volta Phil. Trans. R. Soc. Lond.* 90, 403–431; 1800). He termed this the *Organe électrique artificiel* because it was designed to reconstruct the natural apparatus of electric fish (see also M. Piccolino *Trends Neurosci.* 23, 147–151; 2000).

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