Correspondence

UK research reforms in a Brexit world

Contrary to your view that the UK Higher Education and Research Bill could spell the end of independence for British research and universities (*Nature* **538,** 5; 2016), I believe that, with safeguards, it can provide a strong coherent voice for science and allow strategic decisions to be taken by scientists rather than by government officials (see also *Nature* http://doi.org/brz7; 2016).

In my role as president of the Royal Society, I think that improving and streamlining the highly productive UK research enterprise becomes more important as we enter a post-Brexit world. Funding from UK Research and Innovation (UKRI) will boost cooperation among the research councils; allow a more flexible, interdisciplinary approach to global challenges; and position research at the heart of a new industrial strategy. Including the funder Innovate UK will strengthen links between the innovation and research communities, provided that its unique business-facing focus and customer connections are not put at risk.

Such long-term benefits, championed by the UKRI's interim chair, John Kingman, justify the transition — with the provisos that it safeguards the best in our current research system, retains operational autonomy of research councils and attracts top scientists to lead them. Including these leaders on an executive committee that is responsible for key decisions will ensure a collegial environment and smoother functioning. Evaluation in areas such as the teaching and research interface and the assessment frameworks will need particularly careful scrutiny, and consultation with the research community must be legally guaranteed before major research-council reform.

The government's White Paper on research reforms refers to "the primacy of scientific and academic decision-making" (see go.nature.com/2ekbtx2). It commits to investing in excellent research and legally underpinning balanced funding. These safeguards are not compatible with alleged intentions to reduce British research independence. Moreover, the value of the research endeavour itself provides greater security than any royal charter.

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Religion and science: boost sustainability

We wholeheartedly share Kathryn Pritchard's view that "Religion and science can have a true dialogue" (*Nature* **537,** 451; 2016). So, too, do those who wish to solve our planet's environmental problems by promoting greater cooperation between the sciences and world religions.

We have taken a step in this direction by issuing a joint declaration in several languages on behalf of a group of environmental scientists, theologians and religious leaders of eight major spiritual traditions. Emerging from discussions at an International Seminar on Science and Religion cooperation for Environmental Care (see www.issrec.org), the Torreciudad Declaration is inspired by Pope Francis's Encyclical *Laudato si'*.

The statement shows how religion can help to change people's attitudes and behaviour towards the environment. Together, religion and science can help to integrate humans and ecology, and to promote clean energies and sustainable economies.

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Religion and science: not a true dialogue

With the rise of religious fundamentalism worldwide and the expansion of education in 'faith' schools, I consider that promoting the idea that religion and science have some kind of equivalence risks making societies more divisive and backward-looking (see K. Pritchard *Nature* **537,** 451; 2016).

The idea "that science and theology … can illuminate one another for the benefit of all" would seem to work in only one direction, given that religious beliefs derive from the creation myths of our ancestors many centuries ago. Pritchard discusses the role of religion in "ethical arguments" and in the "human welfare" implications of science, but I would question whether belief in the supernatural confers superior insight in this area.

Moreover, Pritchard's argument considers only the modern European tradition of Christianity, whose interaction with secularism and science over the past two centuries has arguably made it a relatively more tolerant religion. Witness, for example, the ceremonial interment of Charles Darwin in Westminster Abbey in 1882.

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Open data: towards full transparency

We suggest that public archiving of data and setting standards for data citations may not be enough to ensure scientific transparency (*Nature* **537,** 138 (2016) and see D. Roche *Nature* **538,** 41; 2016).

Verification of results and bias limitation are crucial elements of science that call for a more inclusive set of transparency standards (see T. H. Parker *et al. Trends Ecol. Evol.* **31,** 711–719; 2016). For example, in many countries, pre-registration is now a requirement for clinical-trial research studies to discourage publication bias. And the Transparency and Openness Promotion guidelines (https://cos.io/top), designed to be widely applicable across empirical scientific disciplines, have already had a large impact in psychology and are spreading in ecology and evolution.

Acceptance of standards for transparency can be uneven. However, the practice of data archiving in the fields of ecology and evolution indicates that — once funders and journals have established clear transparency standards — scientists will broadly adopt them.

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Resistance to SI units pervades medicine

More than half a century after SI units became standard, pockets of resistance to their adoption still persist — at least in medicine (see also *Nature* **537,** 279; 2016).

Many specialists in the radiological disciplines, including myself, still think in terms of the old units — not for diagnostic dosing (becquerels are well established) but for radiation treatment, measured in curies.

And measuring blood pressure in millimetres of mercury (mm Hg) dates back to 1896, when the Italian physician Scipione Riva-Rocci introduced his mercury manometer. This is still common practice worldwide, perhaps because the SI unit of pressure, the pascal, yields readings that are much less user-friendly: 18.665/11.999 kilopascals for systolic/diastolic blood pressure rather than 140/90 mm Hg, for instance.

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