

Correspondence

Darwin brokered others' publications

Charles Darwin was not just an occasional contributor who used *Nature* to share his own findings and discussions (see Y. Liu *Nature* 574, 36; 2019). He also gave voice to naturalists around the world, at a time when the journal was not easily accessible to the international scientific community.

Roughly half of Darwin's contributions to *Nature* were transcripts (with due credit) of reports and findings sent to him. The writers of the letters were from Brazil, the United States, Peru and Poland. His most frequent correspondent was Johann Friedrich Theodor (Fritz) Müller, a German scientist who emigrated to southern Brazil in 1852. Müller, like several of Darwin's interlocutors, tested and observed facts described in *On the Origin of Species* (1859).

Müller's support for the theory of evolution was expressed in his book *Für Darwin* (1864). Darwin considered it of such importance that he himself sponsored its translation into English, published the year of *Nature's* launch, 1869, under the title *Facts and Arguments for Darwin*. This initiated a 17-year friendship between the two naturalists, documented by intensive correspondence. Between 1874 until the year before his death in 1882, Darwin transcribed seven of the scientific reports he received from Müller and submitted them to *Nature*.

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Scientism and the abuse of science

The economist Friedrich Hayek originally popularized the term 'scientism' in his 1952 book *The Counter-Revolution of Science* as a synonym for pseudoscience. The word later came to represent the expansion of science into domains where it really has nothing to say, such as evolution into atheism. Nathaniel Comfort now positions 'scientism' as the abuse of science in ways that obscure today's concerns for equity, inclusion and diversity (see N. Comfort *Nature* 574, 167–170; 2019).

Comfort condemns this version of scientism, in which practices and policies endorsed by scientists have had adverse consequences for vulnerable groups in society – although he is careful not to brand the scientists involved as malicious or ignorant. The implication is that history should help to ensure that such scientism will not happen again.

In my view, it is a misuse of history to oversee the future. What counts as good and bad in scientific practice or in science-based policies can be understood only in retrospect, because our judgement depends on witnessing the consequences. As we move forward in history, those judgements will change. It follows that the moral character of any action is indeterminate at the time it happens. Science itself is a quantum phenomenon – and 'scientism' is its observer effect.

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Engage egg donors in editing debate

We argue that egg donors should be more involved in discussions on the ethical aspects of human germline gene editing (see *Nature* 574, 465–466 (2019) and E. S. Lander *et al. Nature* 567, 165–168; 2019).

Experimental data from large numbers of human embryos could be necessary to refine and improve germline gene editing, as well as to evaluate the technique's safety and efficacy. Moreover, studies involving the creation of embryos seem preferred for testing for specific mutations and to reduce mosaicism (H. Ma *et al. Nature* 548, 413–419; 2017). This means that oocytes will have to be procured from large numbers of women.

Oocyte harvesting exposes the donors to serious short- and long-term health risks, raising questions about the ethical acceptability of experiments that require this procedure. Although donors are often compensated for the inconvenience, the practice prompts concerns about undue inducement – particularly for financially vulnerable women. The ethical issues are exacerbated because it is by no means certain that clinical applications of germline gene editing will eventually be permitted.

Above and beyond the physical risks, these wider ethical and policy issues should be made clear to potential donors so that they can make an informed choice and have a chance to be properly engaged in the debate.

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How will we fund open-access fees?

The international Plan S research-funder consortium cOAlition S proposes that institutional libraries should transition from subscription to 'pure publish' deals with open-access journals by 2024 (see *Nature* 572, 586; 2019). However, the coalition represents just 16 European funding agencies and 3 international charity foundations. Many other European funders are not in a position to pay open-access publication fees on behalf of their researchers.

For example, Denmark's 14,000 private foundations that currently support half of the country's research are stretched to the limit. Their researchers will therefore have no choice but to pay the bill out of their own research grants, which are already under intense pressure from spiralling costs.

Remedial action is urgently needed if publication and knowledge flow are not to be skewed towards the wealthiest countries and universities. For example, national or European Union funds could be established to help cash-strapped researchers cover their publishing costs.

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Correction

The article 'Scientism and the abuse of science' (*Nature* **575**, 51; 2019) erroneously described Friedrich Hayek as a philosopher and stated that his book was published in 1979. In fact, he is an economist and his book was first published in 1952.