Correspondence

Women's prize: be more generous

Your announcement of awards to celebrate women in science (*Nature* **556**, 150; 2018) recalls another such prize announced more than 100 years ago (see *Science* **28**, 832; 1908).

The Sarah Berliner Research Fellowship for Women came about in 1909 thanks to the efforts of mathematician Christine Ladd-Franklin, who completed all the requirements for a PhD at Johns Hopkins University in Baltimore, Maryland, in 1882 but did not receive her doctorate until 1926. (Similar to many US universities at the time, Johns Hopkins did not award PhDs to women.)

Ladd-Franklin convinced Emile Berliner — inventor of the gramophone, the flat-disc record and a type of microphone used in the first practical telephones — to endow a fellowship for female scientists in the name of his mother.

The fellowship enabled female scientists with a PhD to spend one year doing research at a US university. The stipend was US$1,200 at a time when the average salary of "assistant professors in the leading universities" was $1,800 (*Pop. Sci. Mon.* **76**, 615; 1910). The fellowship, today administered by the American Association of University Women, is now worth $30,000, matching the estimated 25-fold increase in prices since 1910.

It might be argued on these grounds that the *Nature* awards should be doubled from the stipulated total of $15,200.

Richard P. Elinson *Huntington, New York, USA.*
elinson@duq.edu

Women's prize: act to boost all diversity

We applaud your announcement to further promote gender equality through your Inspiring Science and Innovating Science awards (*Nature* **556**, 150; 2018). More such initiatives are sorely needed to address the severe under-representation of people from minority racial and ethnic groups in science, technology, engineering, mathematics and medicine (STEMM).

These inequalities have arisen from much the same social and historical drivers that have made the contemporary STEMM sphere biased in favour of men (N. A. Fouad and M. C. Santana *J. Career Assess.* **25**, 24–39; 2017). Barriers to equality — such as sexism, poverty and racism — compound one another, making it even harder for members of multiple minority groups to pursue an academic career (see *Nature* **547**, 266–267; 2017).

Overcoming the planet's unprecedented challenges will demand all of our combined intellectual power — regardless of gender, race, ethnicity, sexuality, disability or any other diversity dimension that is currently under-represented in STEMM.

Ricardo Rocha, Fangyuan Hua *University of Cambridge, UK.*
rr552@cam.ac.uk

India's push for solar geoengineering

India has been contributing to the evaluation, discussion and implementation of solar-geoengineering research for almost a decade, in line with the call by A. Atiq Rahman and colleagues for developing countries to take the lead in this realm (see *Nature* **556**, 22–24; 2018).

The Indian government's Department of Science and Technology launched a major research initiative in 2017 at the Indian Institute of Science in Bangalore to understand the implications of solar geoengineering on developing countries. The first annual meeting of experts and policymakers to discuss how this research could be done in India was held in 2017.

The department has also funded a geoengineering climate-modelling research programme over the past five years. This has revealed, for example, how solar geoengineering could affect the global water cycle and extreme events and cyclones in the Bay of Bengal (see G. Bala and B. Nag *Clim. Dyn.* **39**, 1527–1542; 2012; and A. Nalam *et al. Clim. Dyn.* **50**, 3375–3395; 2018).

Furthermore, New Delhi's Council on Energy, Environment and Water has held three international conferences since 2011 to identify India's role in developing regional and global governance of solar-geoengineering research and technologies.

Govindasamy Bala *Indian Institute of Science, Bangalore, India.*
Akhilesh Gupta *Department of Science and Technology, Government of India, New Delhi, India.*
gbala@iisc.ac.in

Cooperate on research integrity

As an institutional research-integrity officer, I see first-hand how cooperation between journals and institutions is crucial for addressing research misconduct. As both camps consider utilizing the latest tools for detecting image duplication (see, for example, *Nature* **555**, 18; 2018), it is important that they work closely together to deal with uncovered issues.

Last year's CLUE Recommendations put forward best practices for cooperation between editors and institutions to ensure research integrity and to protect the scientific record (E. Wager *et al.* Preprint at bioRxiv https://doi.org/10.1101/139170; 2017). For example, institutions need to be more willing to share information with journals, including research-misconduct reports. They should also consider asking journals to correct or retract publications as soon as data are known to be false, rather than waiting for lengthy misconduct processes to be completed. And when research misconduct is suspected, journals should consider contacting institutions directly so that raw data can be properly secured.

Adopting best practices and cultivating strong partnerships are in everyone's best interests.

Lauran Qualkenbush *Northwestern University, Chicago, Illinois, USA.*
lhaney@northwestern.edu

Microbes set to alter the economy

Gene editing stands to accelerate the engineering of microbes for industrial production of food ingredients, pharmaceuticals, biofuels and biomaterials. There is a risk, however, that microbial biotechnologies could destabilize economies and employment in the developing world that depend on supplying naturally occurring ingredients. For example, a biosynthetic process for making a precursor of the antimalarial drug artemisinin has been developed, which could threaten the jobs of farmers who harvest its natural source, the plant *Artemisia annua*.

Microbial processes hold promise for global sustainable development: they are cheaper, consume less energy and pollute less than oil-based manufacturing, and they use renewable feedstocks (V. de Lorenzo *et al. EMBO Rep.* **19**, e45658; 2018). Yet it is imperative that international stakeholders assess and address any social-justice problems that could arise from such applications (see C. G. Acevedo-Rocha in *Ambivalences of Creating Life* 9–53; Springer, 2016). Long-term commitment will be necessary to close the communication gap between scholars from different disciplines, cultures, values and generations (see also S. Jasanoff and J. B. Hurlbut *Nature* **555**, 435–437; 2018).

Carlos G. Acevedo-Rocha *Biosyntia, Copenhagen, Denmark.*
car@biosyntia.com