

Correspondence

Europe: yes to philanthropy

The COVID-19 pandemic has highlighted the limited coordination among European countries when they need to act quickly and forcefully. As scientists and national academy members from 15 European countries, we endorse a call for a European Foundation for the Prevention of Environmental and Health Crises. Its aim would be to forge an alliance between European scientists and philanthropists so that we are better prepared for our shared future.

Individual donors and foundations established by benefactors account for 1.95% of gross domestic product (GDP) in the United States, but only 0.65% of the GDP of the European countries for which data are available (see go.nature.com/2ykyarb).

The new European body would be similar to the Bill & Melinda Gates Foundation set up in Seattle, Washington, 20 years ago. It would need an initial endowment of about €20 billion (US\$22.5 billion) from European philanthropists (see <https://europe-foundation.eu>).

With advice from an independent scientific advisory committee, the foundation's council of donors would support European research into technology and therapeutics to help counter epidemics and environmental threats in the future.

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*On behalf of 75 co-signatories; for a full list see go.nature.com/2uxaydx.

Space leaders urge COVID-19 unity

As a former head of China's National Space Science Center and former directors of the European Space Agency (ESA) and NASA, we call for a one-planet approach to tackling the COVID-19 pandemic.

Coming from three continents, we are united by our passions for space – as an engineer, a scientist and an astronaut. We are crew members of Planet Earth and friends for life. As such, we appreciate the power of a holistic vision of our world.

Since astronauts first shared their space-based views of Earth and its thin, fragile atmosphere, we have felt a responsibility to protect the planet. Many of those pioneer astronauts became environmentalists, advocates for international cooperation and sustainable development, and world-peace envoys. As space exploration moved into the Apollo era and beyond, we discovered that thousands of exoplanet systems could exist. Some might even host intelligent life. More people will come to share these new world views as space tourism takes off.

We call for a global effort to end the pandemic and to then shape the world into a better place for international cooperation and sustainable development.

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Racism: words are fine, now act

You will appreciate the scepticism in Black and minority-ethnic researchers (whose experiences I study) about whether statements such as yours on ending systemic racism in science (see *Nature* **582**, 147; 2020) will be followed through, or just dissolve as the news cycle moves on – as tends to happen.

If *Nature* is sincere, it must do four things now.

The first is to detail how systematic racism in science has operated throughout history. This can no longer be denied – from the erasure of the scientific achievements of scholars who are not white or from Western countries, to the enduring application of racist classification systems to people outside Europe, their languages and ideas.

The second is to admit the complicity of the institutions of science in the oppression and subjugation of populations through colonial and imperialist actions. These were led by (but were not exclusive to) the state and corporations of Britain such as the British East India Company, and their equivalents in other European nations.

Steps three and four are follow-up actions. Issue regular reviews of the diversity of staff, as well as of the scientists who submit to, review and publish in the journal. And scrutinize the scope of the publication: it should be truly reflective of its global reach.

So, what will *Nature* as an institution now do to address the injustices that you have highlighted so eloquently?

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From 1950s malaria to COVID-19

News coverage of the COVID-19 epidemic makes frequent reference to the reproduction number, R_0 , the average number of new cases of a disease that arise from a single case. As well as recognizing its simple mathematical power and the challenges its use poses (see C. Uzoigwe *Nature* **582**, 341; 2020), it is important to understand how it originated.

The R_0 concept has been attributed to the late Robert May (1936–2020). Although May championed R_0 and contributed to its application (see R. M. Anderson and R. M. May (eds) *Population Biology of Infectious Diseases*; Springer, 1982), it was first developed more than 60 years ago by the epidemiologist George Macdonald, then director of the Ross Institute of the London School of Hygiene and Tropical Medicine. His aim was to understand quantitatively the transmission of malaria, a mosquito-borne disease (G. Macdonald *The Epidemiology and Control of Malaria*; Oxford Univ. Press, 1957). He derived R_0 , originally designated Z_0 , from a reproduction ratio established by the demographer Alfred J. Lotka (see D. L. Smith *et al.* *PLoS Pathog.* **8**, e1002588; 2012).

The number became known as R_0 in the 1970s, and has since been widely applied in disease epidemiology.

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