Correspondence

Aboriginal fish farms atop volcanoes

For many thousands of years, the Gunditjmara Aboriginal people have been re-engineering their landscape at the top of the Newer Volcanics Province in southeast Australia in response to volcanic eruptions and changes in climate. The Budj Bim site was last month designated by the United Nations Educational, Scientific and Cultural Organization as a World Heritage site (see go.nature.com/2yg5krt).

After Budj Bim erupted between 36,000 and 42,000 years ago, the Gunditjmara built a system of weirs, channels and ponds to manage water flows across the 120-square-kilometre Tyrendarra lava flow to harvest Kooyang eels (*Anguilla australis*). They maintained these networks over generations, preserving and modifying the infrastructure as needed. This aquaculture system is thought to have supported one of the largest population settlements in Australia before Europeans arrived.

The Gunditjmara continue to use these traditional mechanical and engineering practices. Their resilience, relationship with and management of the landscape are a striking example of adaptation to changes in climate and land use.

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**On behalf of 4 correspondents; see go.nature.com/3tv3jxa.*

Notable anniversary for global science

As we mark the centenary of international research cooperation, humanity faces its biggest challenge ever — to live sustainably on the planet. It has never been more important for our society to understand and value science.

The International Research Council (IRC), founded in 1919, comprised 16 national academies and research councils (*Nature* **103**, 464–466; 1919). Around the same time, international unions were created for astronomy, biology, chemistry, geodesy and geophysics, mathematics, physics and radio sciences.

As the international activity of these groups flourished, the IRC became the International Council of Scientific Unions (ICSU) in 1931. This helped to launch programmes such as the International Geophysical Year, the World Climate Research Programme, and Integrated Research on Disaster Risk.

Despite political and economic difficulties after the Second World War and the cold war, ICSU fostered cooperation between thousands of scientists to promote science for society, development and peace.

ICSU merged with the International Social Science Council last year to form the International Science Council, bringing together more than 180 national and international organizations to address global issues of major concern to science and society.

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Africa's science momentum builds

We at the US National Institutes of Health (NIH) are encouraged by Africa's growing ownership of its biomedical research enterprise (see A. Atickem *et al. Nature* **570**, 297–300; 2019). In ten years, NIH funding support for African scientists has advanced from subcontracts in US institutions to one-third of merit-based grants awarded to foreign institutions.

For example, the Human Heredity and Health in Africa project — in collaboration with the Wellcome Trust, the African Academy of Sciences (AAS) and the African Society of Human Genetics — funds research to tackle local health challenges. With the AAS and the Bill & Melinda Gates Foundation in Seattle, Washington, the NIH launched the African Postdoctoral Training Initiative, which admits African postdocs to our two-year intramural programme and supports them for a further two years after they return to their home institutions. Africa's governmental, scientific and business leaders strongly support these and related efforts, and have formed a unique partnership to promote sustainable and autonomous biomedical research (see https://aasciences.ac.ke/cari).

Under such awards, Africa's scientists serve as lead investigators responsible for formulating research plans and directing resources. Recent advances in HIV prevention, now globally applied, are the direct result of their innovative capability (see M. S. Cohen *et al. Health Affairs* **31**, 1439–1449; 2012). The long-term success of these early ventures will hinge on African governments' future investment in research.

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In-depth approach to river management

In our view, Jonathan Tonkin and colleagues' modelling approach is just one of a raft of measures needed to manage freshwater ecosystems and mitigate conflicts between their use and conservation (see *Nature* **570**, 301–303; 2019).

Alteration of river flow is one of several stressors exacerbated by climate change. Focusing on mechanistic understanding and modelling of hydrological stress might therefore be risky unless interactions with other stressors are considered.

River management should be guided not only by natural-history data, but also by biological- and environmental-monitoring data — both of which are woefully underused. Making such data available according to the FAIR principles for data accessibility could provide greater insight into cause–effect relationships in freshwater degradation and restoration.

Models for adaptive river management should consider future climate, human-population and land-use scenarios. These can incorporate multiple stressors so that researchers can consider their impacts on different scales, enabling comparison between regions and consideration of large-scale ecosystem management.

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Look beyond the lab for reusable data

Not all science starts in the lab, as is implied by Heather Pierce and colleagues' advice to give credit to people who generate data for reuse (*Nature* **570**, 30–32; 2019). We should not overlook the crucial work done by collectors of clinical and field samples.

Lab-dwellers risk ignoring the science that goes into determining what types of naturally occurring sample are needed and where these can be found, and into developing and executing procedures that ensure the future usefulness of these samples. This is an important part of the scientific process. Examples include ice-core collection to supply climate data, unearthing archaeological specimens, fossil hunting and collecting rare biological material to understand species diversity.

I have been in meetings where everyone wants such samples, but no one is willing to collect them because they know that their contribution will go unrecognized. Correcting this would boost the number and variety of samples available.

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