News in brief

SOFTWARE TRACKS RIGOUR OF SCIENTIFIC PAPERS OVER TIME

Researchers are getting better at communicating science in a rigorous and reproducible way, according to a text-mining analysis of around 1.6 million papers. But the findings have also sparked fears that progress is too slow.

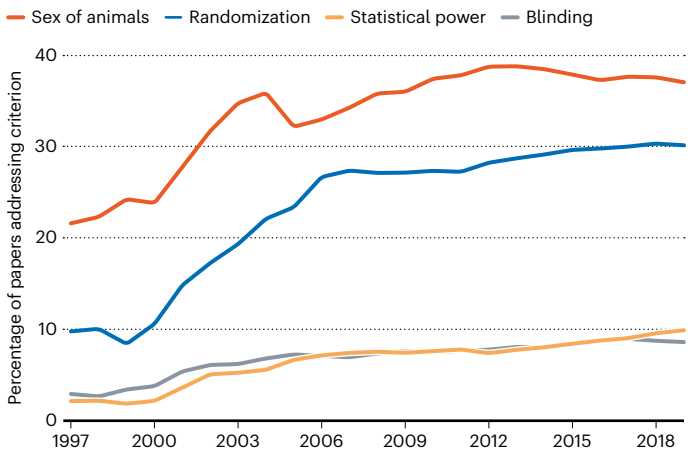
The study used software called SciScore, which gives papers a mark out of ten for 'rigour and transparency' (J. Menke *et al*. Preprint on bioRxiv http://doi.org/dkg6; 2020). SciScore searches the text in papers' methods sections for around 20 pieces of key information, which act as proxies for how rigorous the experiments are, and how easy it would be for other researchers to reproduce them. The software can flag where authors have specifically identified the reagents and tools they use, such as antibodies, software, cell lines or transgenic organisms. It also checks whether they have discussed factors such as sample sizes, how tests have been blinded or the sex of animals used.

The researchers who created SciScore — led by Anita Bandrowski, an information scientist at the University of California, San Diego — analysed 1.58 million freely available life-sciences papers indexed in the PubMed Central database. They found that between 1997 and 2019, the average score across all papers more than doubled, from 2 out of 10 to 4.2. The analysis also showed that individual measures of rigour are on the rise. For example, less than 10% of papers published in 1997 discussed randomization in the methods; this had risen to around 30% in 2019 (see 'Rigorous research').

But the numbers overall haven't increased as much as some researchers would like. By calculating the average SciScore rating for all the papers in a given journal, Bandrowski and her colleagues created a metric they dubbed the Rigor and Transparency Index. Although the study finds that all journals' average scores have increased since 1997, no title among those analysed has an index of more than five out of ten. This suggests that "less than half of the rigor and reproducibility criteria are routinely addressed by authors", the study says.

RIGOROUS RESEARCH

Scientists are increasingly publishing details about the rigour and reproducibility of their experiments.



SOURCE: MENKE *ET AL.*; PICTURES: ISABELLE RIBOT; GIULIA PARAVICINI/REUTERS; MARC ANDERSON/ALAMY

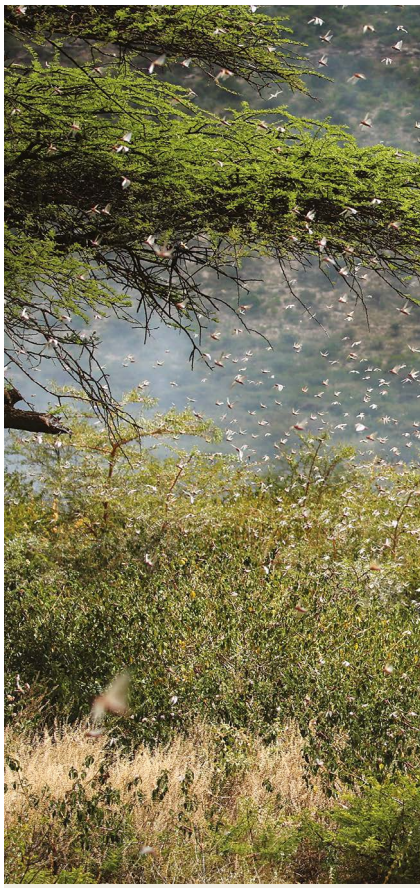
ANCIENT AFRICAN GENOMES OFFER GLIMPSE INTO EARLY HUMAN HISTORY

Researchers have sequenced the genomes of four children who lived in what is now Cameroon several thousand years ago.

Their genomes — the first to be collected from any ancient human in West Africa — raise questions about the origins of a migration called the Bantu expansion, which carried languages and agriculture across the continent around 3,000–5,000 years ago. They also hint at older events in human history, such as the emergence of *Homo sapiens* and its spread out of Africa.

David Reich, a population geneticist at Harvard Medical School in Boston, Massachusetts, and Mary Prendergast, an archaeologist at Saint Louis University — Madrid Campus, analysed remains from a rock shelter in Cameroon called Shum Laka. They generated full genomes for two young boys, who lived 8,000 and 3,000 years ago, and collected more limited genome data from a boy and a girl from the same periods, respectively.

A genetic analysis, published on 22 January (M. Lipson *et al*. *Nature* http://doi.org/dkh4; 2020), showed that all four children descended from a group of *Homo sapiens* that branched off from the common ancestors of our species more than 200,000 years ago.



United Nations appeals for locust help

Hundreds of millions of desert locusts, in swarms larger than cities, are ravaging East Africa. The Food and Agriculture Organization of the United Nations and a number of aid agencies are appealing for urgent help to deal with the crisis. Kenya has been worst hit — it has not seen locusts on this scale for 70 years — but the infestation has also struck Ethiopia (pictured) along with Somalia. Desert locusts (*Schistocerca gregaria*) have been breeding in large numbers because of unusual weather patterns, including heavy rains. The UN says that they need to be controlled by pesticides dropped from the air. If left unchecked, the locust population could grow 500-fold by June. A swarm the size of Paris will eat the same amount of food in a day as half the population of France.

US OFFICIALS REVISIT RULES FOR RISKY DISEASE EXPERIMENTS

US disease researchers are pushing the government to be more transparent about federally funded research that involves making pathogens more deadly or more transmissible.

Several scientists who attended a meeting of the National Science Advisory Board for Biosecurity (NSABB) on 23–24 January say that the US government should offer a public explanation when it approves such 'gain-of-function' experiments, which are designed to help improve responses to outbreaks. The scientists also call for the government to disclose who decided to fund such research, and make a broad public announcement when a study begins. Others say that greater transparency could make it harder to approve necessary research.

The NSABB is reviewing guidelines for sharing information on gain-of-function research at the request of the National Institutes of Health (NIH) and the White House. The board is an independent panel that advises the NIH's parent, the Department of Health and Human Services.

The debate over how much to disclose is revving up because the government is preparing to revisit rules that guide gain-of-function research — especially with regard to communication with the public.

"We're not trying to say the policy is wrong — we're trying to say the policy is ambiguous," says Marc Lipsitch, an epidemiologist at the Harvard T.H. Chan School of Public Health in Boston, Massachusetts, and one of the researchers calling for more transparency.

ABORIGINAL SITES PROBABLY DAMAGED IN AUSTRALIAN FIRES

Indigenous communities and archaeologists fear thousands of historic Aboriginal sites and artefacts have been damaged by fires that have ravaged Australia.

Since September, fires have razed more than 10 million hectares, mostly in the eastern states of Queensland, New South Wales and Victoria.

Much of that land is in national parks and other forests, where tens of thousands of important Indigenous sites are found, including many that have not been officially recorded, says Tiina Manne, an archaeologist at the University of Queensland in the Gold Coast and president of the Australian Archaeological Association (AAA).

These sites show where people lived and how they moved over tens of thousands of years, and help to reveal the development of cultural practices such rock art (pictured).

Researchers have yet to do a formal assessment, but Manne says thousands of Aboriginal sites will have been affected. The AAA is calling on the government to conduct assessments of cultural sites as part of its fire-recovery plans.

The fires might also have opened up densely vegetated areas, potentially revealing undocumented sites, says Paul Taçon, who studies rock art at Griffith University, Gold Coast.