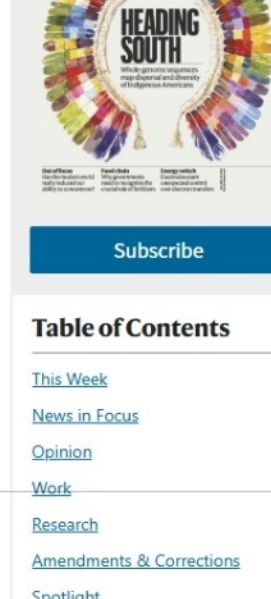


Volume 653 Issue 8113, 7 May 2026

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Heading south

The last continent in the world to be settled by humans was the Americas. Beringia, a land bridge that replaced the Bering Strait during the last ice age, allowed the ancestors of Indigenous Americans to travel from northeast Asia into North America. Once there, they dispersed south, settling in and adapting to dramatically different environments as they did so. But many questions remain about this dispersal, largely because there is a lack of genomic data from Indigenous American populations. In this week's issue, [Tobias Höfer](#) and colleagues help to — [flow on](#)

Cover image: Emiliano Bellini.

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Responses to the AI grant flood must prioritize fairness as part of excellence
Research funding agencies are battling a wave of AI-assisted applications. Countermeasures should not erode existing power structures.



06 May 2026

'Alternative COP' must drive real, cooperative change in climate action
A new climate coalition to steer the transition away from fossil fuels is good news, but it must avoid undermining existing global scientific structures.

World View

01 May 2026

European funder must increase capacity to meet the ambition of scientists
To avoid sabotaging science, the European Research Council needs more funding and structural change.

Jobo Conde

Research Highlights

30 Apr 2026

An electrifying test to find a good coffee

Technique determines roast level and strength by applying voltage to the brew.

30 Apr 2026

Blood test hints at breast-tumour response to treatment

A biomarker shows which people with certain types of breast cancer are more likely to respond to an immune-based therapy.

Collection: Cancer at Nature Portfolio

28 Apr 2026

The politics of playful primates

Apes, monkeys and their relatives that live in despotic societies are less likely to clown around as adults.

30 Apr 2026

Forest pests hit trees hard as temperatures rise

Damage by certain insects and fungi tends to be greatest in US woodlands where maximum temperatures during the warmest months are increasing.

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News in Focus

News

27 Apr 2026

Mitochondria can spawn new 'organelles' — hinting at how modern cells evolved

Discovery bolsters theory that ancient mitochondria formed brand-new, specialized 'sacs' in cells by shedding their outer membranes.

Viviane Callier

23 Apr 2026

How your heartbeat could keep cancer at bay

Pressure on the heart as it pumps blood stops cancer cells from multiplying in mouse hearts.

Rachel Farkhouse

Collection: Cancer at Nature Portfolio

26 Apr 2026

Entire NSF science advisory board fired by Trump administration

Members of the National Science Board, which the US Congress founded in 1950, were given no explanation for their termination.

Dan Geristo

28 Apr 2026

First detailed 'smell maps' reveal how noses track odours

Detailed maps of smell receptors in the nose overturn textbook models of olfactory receptor organization in mice.

Chris Simms

23 Apr 2026

Did kraken-like octopuses rule Cretaceous seas? Massive jaw fossils offer clues

Extinct cephalopods might have been up to 19 metres in length and probably dined high up the food chain in ancient oceans.

Ewen Callaway

24 Apr 2026

How much for a fake authorship? Ad database reveals secrets of scientific fraud

An analysis of thousands of paper-mill adverts could help journals to crack down on misconduct.

Miryam Nassif

27 Apr 2026

'The job description is changing': mathematician Terence Tao on the rise of AI

The Fields medalist discusses how ever-evolving technology is transforming mathematicians' work.

Davide Castelvecchi

28 Apr 2026

'World models' are AI's latest sensation: what are they and what can they do?

Training AI world models on data about physical environments could improve their real-world capabilities in technologies such as robotics.

Davide Castelvecchi

Features

06 May 2026

Are attention spans really shrinking? What the science says

Digital distractions are vying for people's focus, but our underlying capacity to pay attention seems to be undiminished.

David Adam

05 May 2026

Testosterone therapy is trending. Who really needs it, and why?

Some clinicians are pushing to broaden testosterone use, but there is debate about its benefits and risks.

Mariana Lembaro

Opinion

Comment

05 May 2026

How fertilizer shortages caused by the energy crisis threaten food security

Unless governments treat fertilizer production as strategic infrastructure, the world will keep lurching from energy shock to harvest failure.

Melhua Yang, Xing Wang ... Asim Biswas

Correspondence

05 May 2026

AI agents in research: when productivity comes at the cost of apprenticeship

Jing Hu & Tony Hsueh Zhang

05 May 2026

Legal rights for insects: a global imperative for stingless-bee conservation

Shi-De Wang & A. J. Waite

05 May 2026

Precision medicine without equity is just stratified inequality

Altanah Shiran

05 May 2026

Thymic health under the microscope

Henry J. Kaminski, Linda L. Kusner ... Rozem Le Panse

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Work

Feature

16 Apr 2026

The nine-to-five PhD: mere myth or an achievable goal?

Can you squeeze your graduate programme into a 40-hour working week? These 13 current and former PhD candidates reveal their top time-management tips.

Laura Woodrow

Collection: Career resources for PhD students

Technology Feature

04 May 2026

These powerful tools reveal the 'control knobs' of the genome

By accelerating the identification of DNA sequences that control gene expression, assays are revealing the hidden grammar of the regulatory genome — and giving scientists the means to rewrite it.

Michael Eisenstein

Collection: NatureTech

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Research

News & Views

05 May 2026

In twisted graphene, some electrons are heavier than others

When two graphene layers are twisted at a 'magic angle', their electrons can behave as both heavy and light particles, depending on momentum.

Hongyun Zhang & Shujun Zhou

08 Apr 2026

Tumour trap: engineered enhancer sequences enlisted to kill cancer cells

New cancer therapies are needed that do not harm healthy tissue. An engineered DNA sequence shows promise as one of the tools in a method to target brain tumour cells.

Shi-Wing Yung & Raf Jauch

21 Apr 2026

Triple-decker solar cells reach efficiency milestone

A promising solar-cell architecture, in which two layers of perovskite semiconductors are stacked on silicon, is making strides towards achieving its full potential.

Terry Chen-Jen Yang & Samuel D. Stranks

29 Apr 2026

Algorithm that gets 'under the hood' of AI models could effectively steer their responses

A method for identifying representations of concepts in neural networks could provide a more effective way to control and monitor artificial-intelligence systems.

Aaron Mueller

05 May 2026

Marvellous microscopes impress guests at a London party

A sensational scientific soirée, and reflections on how F. C. L. Watton advanced photography in this week's pick from the Nature archive.

22 Apr 2026

A bat coronavirus can enter human cells through a previously unknown gateway

The identification of a receptor that is recognized by a subset of alpha-coronaviruses provides insights into 'spillover' risk and pandemic potential.

Huan Yan

15 Apr 2026

Therapeutic mitochondria transplants made more efficient with targeting tool

A system of protein binders directs energy-generating organelles to targeted cells, potentially improving ways to treat mitochondrial dysfunction.

Samantha J. Krysa & Jonathan R. Brentoff

Perspective

06 May 2026

Two decades of PARP inhibitor synthetic lethality in cancer

The past two decades of PARP inhibitor synthetic lethality in cancer is explored.

Christopher J. Lord, Andrew N. J. Tutt & Alan Ashworth

Collection: Cancer at Nature Portfolio

Articles

29 Apr 2026

Charge-dependent spectral softenings of primary cosmic rays below the knee

The DAMPE satellite observed an universal charge-dependent spectral softening in primary cosmic rays, and ruled out mass-dependent softening with >99.999% confidence.

Francesca Alemanno, Qi An ... Yan Zhu

29 Apr 2026

Digital quantum magnetism on a trapped-ion quantum computer

Simulations performed using Quantum's H2 trapped-ion quantum computer for observing thermalization on challenging timescales demonstrate the usefulness of digital quantum computers for investigating continuous-time dynamics regimes that classical simulation methods find difficult.

R. Haghshenas, E. Chertkov ... M. Foss-Fig

06 May 2026

Quantum coherent manipulation and readout of superconducting vortex states

Vortices trapped in superconducting granular aluminium films can behave as a quantum two-level system that can be manipulated and read out, suggesting that they could be used for future quantum technologies.

Ameya Nambisan, Simon Günther ... Ioan M. Pop

06 May 2026

Imaging the flat bands of magic-angle graphene reshaped by interactions

Quantum twisting microscopy is used to directly image the interacting energy bands of magic-angle twisted bilayer graphene, allowing characterization of the dual nature of its electrons at the magic angle.

J. Xiao, A. Imbr ... S. Iani

01 Apr 2026

Structural modifications in strain-engineered bilayer nickelate thin films

Using multistructure electron ptychography to directly measure the atomic-scale structural evolution of the nickelate La₂NiO₇ under a range of biaxial strains, a theoretical framework is constructed for specific structural motifs for stabilizing superconductivity.

Lopa Bhatt, Edgar Abarca Morales ... Benji H. Goodge

29 Apr 2026

Intrinsic polar vortex crystals in A-site layer-ordered perovskites

A two-dimensional polar hedgehog lattice spontaneously forms in layer-ordered perovskites, showing stable topological ferroelectric states without external constraints and enabling new pathways for functional material design.

Chao Xu, Nengmeng Luo ... Ye Zhu

17 Mar 2026

Triple-junction solar cells with improved carrier and photon management

The use of a non-volatile additive 4-hydroxybenzylamine to suppress non-radiative recombination, a three-step deposition strategy enabling thick lower-bandgap middle absorbers, and low-refractive-index SiO₂ nanoparticles acting as an optical middle reflector together enable the manufacture of perovskite-perovskite-silicon triple-junction solar cells with a certified efficiency of 35.02%.

Kerem Arıık, Deniz Turker ... Christian M. Wolf

22 Apr 2026

Electronic origin of reorganization energy in interfacial electron transfer

Separating the entropic/enthalpic thermodynamic and dynamic components from internal stability in water precipitation trends in the mid-latitudes shows that thermodynamic effects agree with models and observations but the role of dynamic response remains uncertain.

Sonal Marco, Leonardo Coelho Escalante ... D. Kaaberna Bedisko

29 Apr 2026

Decarboxylative alkylation of alkenes

A Fe-catalyzed method enables regio- and diastereoselective C-H alkylation of diverse alkenes using carboxylic acids, expanding synthetic access to complex substituted alkenes.

Tipsesh Kumar Roy, Federico Maria Tamborini ... Tobias Ritter

29 Apr 2026

Uncertain dynamic response of mid-latitude winter precipitation

Separating the entropic/enthalpic thermodynamic and dynamic components from internal stability in water precipitation trends in the mid-latitudes shows that thermodynamic effects agree with models and observations but the role of dynamic response remains uncertain.

Lei Gu, Dominik L. Schumacher ... Reto Knutti

08 Apr 2026

Mummified early Permian reptile reveals ancient amniote breathing apparatus

A mummified fossil of the early Permian reptile *Coptosaurus* reveals the potential ancestral amniote breathing mechanism and its impact on terrestrial vertebrate evolution.

Robert R. Reisz, Ethan D. Mooney ... Jun Chen

18 Mar 2026

Local agricultural transition, crisis and migration in the Southern Andes

In the Uspatiza valley, agriculture was adopted by local populations, as evidenced by genetic continuity from earlier hunter-gatherers to farmers; maize-dependent groups from the same regional population later experienced stress and demographic decline and likely used social organization and migration as resilience strategies.

Ramiro Barberena, Pierre Lulsi ... Nicolás Rascoff

22 Apr 2026

The evolutionary history and unique genetic diversity of Indigenous Americans

Analysis of 128 high-coverage Indigenous American genomes shows extensive diversity shaped by several South American dispersals, ancient Australasian admixture, archaic introgression and long-term adaptation, indicating a far more complex evolutionary history than previously assumed.

Marcos Araujo Castro e Silva, Kelly Nunes ... Tábata Hünemeier

25 Mar 2026

Rapid concerted switching of the neural code in the inferotemporal cortex

Face cells in the macaque inferotemporal cortex are initially able to detect faces and then rapidly switch to a face-specific neural code to discriminate between different face identities.

Yuelin Shi, Dasheng Bi ... Doris Y. Tsao

18 Mar 2026

Adaptive evolution of gene regulatory networks in mammalian neocortex

The evolutionary neuron diversity and specialized connectivity of complex, multilayered mammalian neocortex are driven by mammalian-specific co-regulatory elements bound by ZBTB18, deletion of which disrupts gene expression and results in projection patterns resembling those of non-mammalian brains.

Zhuo Li, Najot Kaur ... Nehad Sestam

08 Apr 2026

Single-cell spatiotemporal dissection of the human maternal-fetal interface

A single-cell multiomic atlas of the human maternal-fetal interface across pregnancy reveals cell types, states and spatial niches, developmental tissue architectures and transcriptional programmes, and identifies cell types with roles in pre-eclampsia, spontaneous preterm birth and miscarriage.

Cheng Wang, Yan Zhou ... Jingling Li

22 Apr 2026

Heart-nosed bat alphacoronaviruses use human CEACAM6 to enter cells

Human CEACAM6, which is widely expressed in the lung, is identified as a receptor used by the spike proteins of *Coronaviridae* cor (heart-nosed bat) alphacoronaviruses to enter cells.

Giulia Gallo, Antonello Di Nardo ... Dalan Bailey

02 Feb 2026

A broadly neutralizing antibody targeting gammaherpesvirus gB

The antibody Fab5 cross-neutralizes gammaherpesviruses by binding to a conserved region in the membrane fusion protein gB on the virus; this region could form the basis for a herpesvirus vaccine.

Cong Sun, Chu Xie ... Mu-Sheng Zeng

04 Mar 2026

Lipid metabolism drives dietary effects on T cell ferroptosis and immunity

The susceptibility of mouse and human T cells to ferroptosis is determined by the balance of systemic polyunsaturated and monounsaturated fatty acids, highlighting a key role for lipid metabolism and dietary composition in regulating T cell function.

Naiqi Wang, Zhan Chen ... Di Yu

11 Mar 2026

A mechanism to initiate emergency type 2 myelopoiesis

Myelopoiesis in response to a parasitic worm infection and the mechanism selective to this form of parasite are revealed.

Alexandre Fagnan, Cristina Di Gemma ... Claus Nerlov

15 Apr 2026

Cell-type-targeted mitochondrial transplantation rescues cell degeneration

MitoCatch is a cell-type-specific mitochondrial-targeting system that links mitochondria and the cell surface by protein binders and delivers mitochondria into the target cell.

Temurkhan Aynov, Verónica Moreno-Juan ... Botond Roda

08 Apr 2026

Synthetic super-enhancers enable precision viral immunotherapy

Synthetic super-enhancers enable specific delivery of anticancer payloads, achieving tumour elimination after a single dose in a mouse model of aggressive glioblastoma.

Ute Koerber, Mantas Matyjasaitis ... Steven M. Pollard

04 Mar 2026

Precancerous niche remodelling dictates nascent tumour progression

A study investigating the emergence of squamous tumours in the upper gastrointestinal tract of the mouse shows that an initial tumour stress response triggers fibroblast factors the underlying lineage, creating a fibronectin-rich precancerous niche that supports tumour survival.

G. Skrepnikyte, J. E. Roper Ailes ... M. P. Atkinson

22 Apr 2026

Early fibrotic niches establish tumour-permissive microenvironments

Pathologic transformation in *Kras*^{G12P}-mutant alveolar type II cells initiates a tumour-permissive niche by orchestrating epithelial, stromal and immune reprogramming through amphiregulin-EGFR signalling, creating a self-sustaining circuit critical for lung tumour initiation and progression.

Erik C. Cardoso, Hyeonyoung Lee ... Jooh-Hyeon Lee

25 Feb 2026

A disease model resource reveals core principles of tissue-specific cancer evolution

The Mouse