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## THIS WEEK

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#### 465 INFECTIOUS DISEASE

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Slowdown should be put to good use

#### 466 SPACE

##### Moon on a stick

Crowdfunded mission worth a try



### WORLD VIEW

#### 467 Open access is tiring out peer reviewers

Martijn Arns

Scholarly system must adapt to workload

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#### 468 SELECTIONS FROM THE SCIENTIFIC LITERATURE



Termite queen rules roost / North China earthquake history / Old papers back in vogue / Tagged fish predated / Remote control of epilepsy / Greenland on ice

### SEVEN DAYS

#### 470 THE NEWS IN BRIEF

Oil pipeline rejected / Charity sells royalty rights / Holt to head AAAS / LHC data go open access / Wave-power company enters administration / 'Polar code' to regulate ships

## CAREERS

#### 597 DIVERSITY

##### Structural approach

Materials scientists are trying to broaden the range of people the field attracts

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#### 473 EMISSIONS

US-China deal renews hopes for talks

#### 474 MARINE SCIENCE

Data-management issues delay observatory project

#### 476 NEUROSCIENCE

FDA considers how to regulate brain-linked devices

#### 477 MEDICINE

Clampdown on clinical-trial reporting

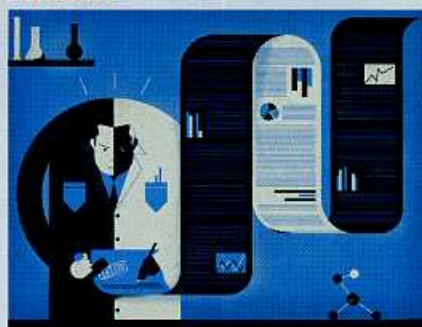
#### 478 PUBLISHING

Open-data dictum not always followed

#### 479 ECOLOGY

Galapagos gift-shop closure shortchanges conservation

## FEATURES



### PUBLISHING

## The peer-review scam

Evidence of self-review exposes weaknesses in system **PAGE 480**

#### 484 NUCLEAR POWER

##### Desperately seeking plutonium

Dwindling stockpile forces US rethink

## COMMENT

#### 487 MICROSCOPY

##### Hasten high resolution

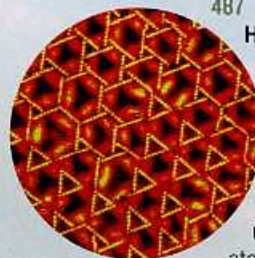
Stephen J

Pennycook &

Sergei V Kalinin

Precision

microscopes are needed to analyse atoms effectively



## BOOKS & ARTS



### MILITARY SCIENCE

## Spoils for science

Ann Finkbeiner reviews two books on the legacies of the cold war **PAGE 489**

#### 490 ORNITHOLOGY

##### Fowl domination

Ewen Callaway

#### 491 CLIMATE SCIENCE

##### A climate trance

Richard Van Noorden



## CORRESPONDENCE

492 Ebola virus control / Brain training in its infancy / China's progress in research / Philae's marathon achievement



### FUTURES

#### 600 Ice and white roses

Rebecca Birch



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## RESEARCH

### NEW ONLINE

493 Papers published this week at nature.com

### NEWS & VIEWS

#### 494 CLIMATE SCIENCE

##### El Niño's variable history

Evolution of the El Niño–Southern Oscillation over the past 21,000 years  
*Josephine R Brown* **SEE LETTER P.550**

#### 495 MAMMALIAN EVOLUTION

##### A beast of the southern wild

A complete skull of a Madagascan gondwanatherian  
*Anne Weil* **SEE ARTICLE P.512**

#### 496 CANCER

##### Antitumour immunity gets a boost

Responses to immune-checkpoint blockade in multiple cancers  
*Jedd D Wolchok & Timothy A Chan*  
**SEE LETTERS PP.558–581**

#### 498 ASTRONOMY

##### Cosmic triangles and black-hole masses

Estimating geometric distances to active galactic nuclei and quasars  
*Martin Elvis* **SEE LETTER P.528**

#### 499 DEVELOPMENTAL BIOLOGY

##### Polarize to elongate

Toll receptors direct cell rearrangement during embryo elongation  
*Ulrich Tepass* **SEE ARTICLE P.523**

#### 501 DIET

##### Food choices for health and planet

Projected diets linked to greenhouse-gas emissions and poor health  
*Elke Stehfest* **SEE ARTICLE P.518**

#### 502 IMMUNOLOGY

##### Tolerance lies in the timing

Lck-bound co-receptor recruitment is rate-limiting for negative selection  
*Nicholas R J Gascoigne*

### REVIEW

#### 505 ECOLOGY Belowground biodiversity and ecosystem functioning

*R D Bardgett & W H van der Putten*

### ARTICLES

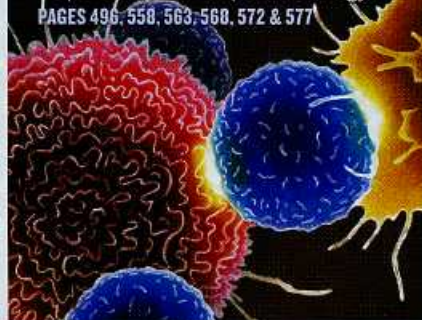
#### 512 EVOLUTION First cranial remains of a gondwanatherian mammal reveal remarkable mosaicism

*D W Krause et al.* **SEE N&V P.495**

### ON THE COVER

## Prime cancer targets

A tumour cell (left) interacts with three T cells and a tumour-infiltrating immune cell. This issue features five papers reflecting intense interest in the targeting of immune checkpoints as cancer therapy, and detailed work on identifying patients likely to respond to this therapeutic strategy.  
**PAGES 496, 558, 563, 568, 572 & 577**



#### 518 NUTRITION Global diets link environmental sustainability and human health

*D Tilman & M Clark* **SEE N&V P.501**

#### 523 DEVELOPMENTAL BIOLOGY A positional Toll receptor code directs convergent extension in *Drosophila*

*A C Paré et al.* **SEE N&V P.499**

### LETTERS

#### 528 ASTRONOMY A dust-parallax distance of 19 megaparsecs to the supermassive black hole in NGC 4151

*S F Hönig, D Watson, M Kishimoto & J Hjorth* **SEE N&V P.498**

#### 531 SPACE PHYSICS An impenetrable barrier to ultrarelativistic electrons in the Van Allen radiation belts

*D N Baker et al.*

#### 535 MATERIALS SCIENCE Metallization of vanadium dioxide driven by large phonon entropy

*J D Budai et al.*

#### 540 OPTICS AND PHOTONICS Passive radiative cooling below ambient air

#### temperature under direct sunlight

*A P Raman, M A Anoma, L Zhu, E Rephaeli & S Fan*

#### 545 MOLECULAR ELECTRONICS Design and fabrication of memory devices based on nanoscale polyoxometalate clusters

*C Busche et al.*

#### 550 PALAEOCLIMATE Evolution and forcing mechanisms of El Niño over the past 21,000 years

*Z Liu et al.* **SEE N&V P.494**

#### 554 BIOPHYSICS Multiplex single-molecule interaction profiling of DNA-barcoded proteins

*L Gu et al.*

#### 558 CANCER MPDL3280A (anti-PD-L1) treatment leads to clinical activity in metastatic bladder cancer

*T Powles et al.* **SEE N&V P.496**

#### 563 CANCER Predictive correlates of response to the anti-PD-L1 antibody MPDL3280A in cancer patients

*R S Herbst et al.* **SEE N&V P.496**

#### 568 CANCER PD-1 blockade induces responses by inhibiting adaptive immune resistance

*P C Tumeh et al.* **SEE N&V P.496**

#### 572 CANCER Predicting immunogenic tumour mutations by combining mass spectrometry and exome sequencing

*M Yadav et al.* **SEE N&V P.496**

#### 577 CANCER Checkpoint blockade cancer immunotherapy targets tumour-specific mutant antigens

*M M Gubin et al.* **SEE N&V P.496**

#### 582 NEUROSCIENCE Histone H2A.Z subunit exchange controls consolidation of recent and remote memory

*I B Zovkic et al.*

#### 587 PLANT SCIENCES Epigenetic reprogramming that prevents transgenerational inheritance of the vernalized state

*P Crevillén et al.*

#### 591 VIROLOGY A structure-based mechanism for tRNA and retroviral RNA remodelling during primer annealing

*S B Miller, F Z Yildiz, J A Lo, B Wang & V M D'Souza*

ALLISON BRUCE