

# CONTENTS

29 August 2013 / Vol 500 / Issue No 7464

## THIS WEEK

### EDITORIALS

#### 501 CLIMATE SCIENCE

##### Hidden heat

Global warming may have slowed, but that is no cause for complacency

#### 501 COMMUNICATION

##### Beyond compare

Like chemical reagents, metaphors in science require careful handling



### WORLD VIEW

#### 503 A coordinated approach is key for open access

Christoph Kratky  
Europe needs to bite the bullet and invest to make research results freely available

### RESEARCH HIGHLIGHTS

#### 504 SELECTIONS FROM THE SCIENTIFIC LITERATURE

No stomach for surgery / Washable conductors / Chemotherapy boost / Australia in flood / Sonar and whales / Best clock yet? / How prions work



### SEVEN DAYS

#### 506 THE NEWS IN BRIEF

Bats linked to MERS coronavirus / X Prize cancelled / Leak at Fukushima / Wildfires strike western US / ALMA telescope halted by strike / Amgen buys Onyx Pharmaceuticals

## CAREERS

#### 613 COLUMN

##### Biomedical burnout

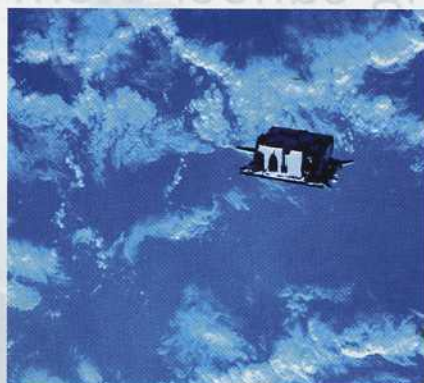
Warren Holleman & Ellen R Gritz  
Medical training can seriously damage your health

#### 615 TURNING POINT

Materials researcher Angela Belcher gets a buzz — and an award — from new battery technologies

#### 615 CAREER BRIEFS

## NEWS IN FOCUS



#### 509 SPACE SCIENCE

Green propellants give satellites a lift

#### 510 PUBLISHING

Brazilian journals suspended from impact factors over citation scheme



#### 512 CLIMATE CHANGE

Summer cyclones help bolster Arctic sea ice

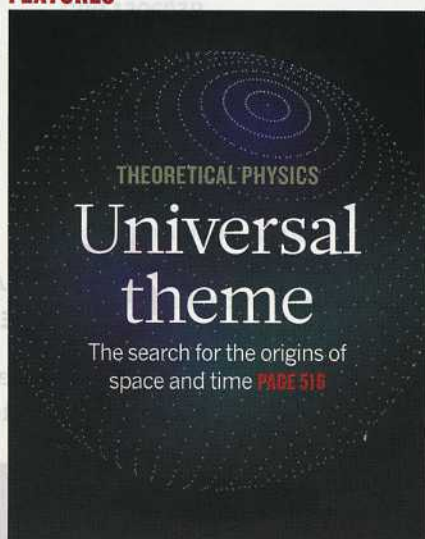
#### 513 BUSINESS

Spat of public offerings boosts biotech industry but sparks fears of a bust

#### 514 GENETICS

Genetic technologies trace human migration back to Africa

## FEATURES



## COMMENT

#### 521 ECONOMICS

##### Value judgements

George Szpiro

Three centuries on, Nikolaus Bernoulli's letter to Pierre Rémond de Montmort is still making waves

#### 523 COMMUNICATION

##### Mind the metaphor

Eleonore Pauwels

The proliferation of engineering talk in biology can bridge conceptual boundaries but can cause trouble

## BOOKS & ARTS



### ACOUSTICS

## Subtleties of the sonic

Douglas Repetto explores the art of noise [PAGE 526](#)

#### 527 BOOKS IN BRIEF

#### 528 Q&A

Jeffrey Nytky's symphony *Formations* celebrates the geology of the Rocky Mountains

## CORRESPONDENCE

529 Turn down the gas in the Arctic / Uneven Arctic warming / Brain stimulation goes back a long way

## OBITUARY

#### 530 Hugh Huxley (1924–2013)

Alan Weeds

## FUTURES

#### 618 The speed of dark energy

Jeff Hecht



# CONTENTS

29 August 2013 / Vol 500 / Issue No 7464

## RESEARCH

### NEW ONLINE

531 Papers published this week at nature.com

### NEWS & VIEWS

#### 532 FORUM: BIOGEOCHEMISTRY

##### Ancient algae crossed a threshold

A proxy for atmospheric CO<sub>2</sub> levels found in coccoliths

Richard D Pancost & Marcus P S Badger; John Reinfelder **SEE LETTER P. 558**

#### 533 NEUROSCIENCE

##### Dopamine ramps up

Dopamine signalling relates to the amount and proximity of a reward

Yael Niv **SEE LETTER P. 575**

#### 535 ASTROPHYSICS

##### Radioactive glow as a smoking gun

Observation of infrared emission following a short  $\gamma$ -ray burst

Stephan Rosswog **SEE LETTER P. 547**

#### 536 GENE REGULATION

##### Long RNAs wire up cancer growth

lncRNAs, androgen-receptor-dependent gene expression and prostate cancer

Adam M Schmitt & Howard Y Chang **SEE LETTER P. 598**

#### 537 ASTROPHYSICS

##### A dark cloud unveils its secrets

The formation of massive stars

Jonathan C Tan

#### 538 MICROBIOLOGY

##### Wealth management in the gut

Obesity linked to low microbial richness and metabolic disease

Sungsoo Fang & Ronald M Evans

**SEE ARTICLE P. 541, LETTER P. 585**

### MATERIALS

## Top spinning

New geometries for spin-ice systems could mean new applications. **PAGE 553**



### ON THE COVER

## Look east

Adelie penguins ride a sculpted iceberg in Adelie Land, East Antarctica. Glaciers in West Antarctica and Greenland are discharging ice in response to warming, and sea levels are rising. Now satellite imagery shows that the larger eastern ice sheet, thought less vulnerable to climate change, is also responding to decadal climate variations. **PAGE 563**

### ARTICLES

#### 541 MICROBIOLOGY Richness of human gut microbiome correlates with metabolic markers

E Le Chatelier et al. **SEE N&V P. 538**

### LETTERS

#### 547 ASTRONOMY A 'kilonova' associated with the short-duration $\gamma$ -ray burst GRB 130603B

N R Tanvir et al. **SEE N&V P. 535**

#### 550 ASTRONOMY A rigid and weathered ice shell on Titan

D Hemingway, F Nimmo, H Zebker & L less

#### 553 MATERIALS Crystallites of magnetic charges in artificial spin ice

S Zhang et al.

#### 558 CLIMATE Late Miocene threshold response of marine algae to carbon dioxide limitation

C T Bolton & H M Stoll et al. **SEE N&V P. 532**

#### 563 CLIMATE Rapid, climate-driven changes in outlet glaciers on the Pacific coast of East Antarctica

B W J Miles, C R Stokes, A Vieli & N J Cox

#### 567 MICROBIOLOGY Anaerobic oxidation of methane coupled to nitrate reduction in a novel archaeal lineage

M F Haroon et al.

#### 571 EVOLUTION Pervasive genetic hitchhiking and clonal interference in forty evolving yeast populations

G I Lang et al.

#### 575 NEUROPHYSIOLOGY Prolonged dopamine signalling in striatum signals proximity and value of distant rewards

M W Howe et al. **SEE N&V P. 533**

#### 580 NEUROSCIENCE A gustatory receptor paralogue controls rapid warmth avoidance in *Drosophila*

L Ni et al.

#### 585 MICROBIOLOGY Dietary intervention impact on gut microbial gene richness

A Cotillard et al. **SEE N&V P. 538**

#### 589 DEVELOPMENT Coordination of heart and lung co-development by a multipotent cardiopulmonary progenitor

T Peng et al.

#### 593 DEVELOPMENT Genetic programs in human and mouse early embryos revealed by single-cell RNA sequencing

Z Xue et al.

#### 598 CANCER lncRNA-dependent mechanisms of androgen-receptor-regulated gene activation programs

L Yang et al. **SEE N&V P. 536**

#### 603 CELL BIOLOGY Mitotic trigger waves and the spatial coordination of the *Xenopus* cell cycle

J B Chang & J E Ferrell Jr

#### 608 MOLECULAR BIOLOGY Avoiding chromosome pathology when replication forks collide

C J Rudolph et al.

#### 612 CORRIGENDUM Inhibition dominates sensory responses in awake cortex

B Haider, M Häusser & M Carandini

#### 612 CORRIGENDUM Sema3A regulates bone-mass accrual through sensory innervations

T Fukuda et al.

#### 612 ERRATUM Masses of exotic calcium isotopes pin down nuclear forces

F Wienholtz et al.