

CONTENTS

20 June 2019 / Vol 570 / Issue No 7761

THIS WEEK

EDITORIAL

275 FOOD PRODUCTION

A fresh chance to feed the world
Why the next FAO director-general must have global interests at heart

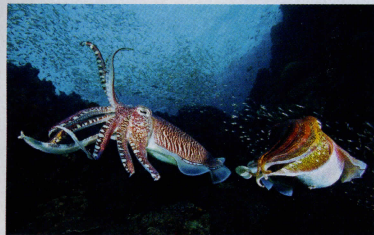
WORLD VIEW

277 Unintended consequences of gender-equality plans

Charikleia Tzanakou
Academia's initiatives to advance women should not become another way to game the research system

RESEARCH HIGHLIGHTS

278 SELECTIONS FROM THE SCIENTIFIC LITERATURE



Master genes for legs and tentacles / How diet affects gut microbes / Saturn's mini moons sculpt its rings / Ancient engineered islands / Microplastics on the menu

SEVEN DAYS

280 THE NEWS IN BRIEF

Protests in Hong Kong / Ebola spreads to Uganda / US president cuts advisory panels / China chooses projects for next space station



CAREERS

405 PARENTING

The family way

Taking your children on field trips can break down barriers and bring insights

NEWS IN FOCUS



283 PUBLIC HEALTH

WHO resists declaring Ebola emergency even as virus spreads to Uganda

284 ETHICS

African science academy leads push for ethical data use

285 TECHNOLOGY

Speedy whole-body scanner marks a leap in medical imaging

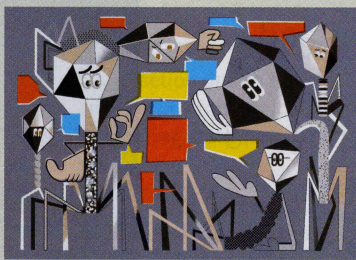
286 AGRICULTURE

Scientists seek ways to halt march of fall armyworm across China

287 RESEARCH MISCONDUCT

Analysis of epic case of research fraud suggests university probes are lacking

FEATURES



VIROLOGY

Social lives of viruses

Decoding molecular messaging could be key to fighting infections **PAGE 290**

293 CRISPR BABIES

When will the world be ready?

The hurdles to making heritable genome edits both acceptable and safe

COMMENT

297 EDUCATION

Build science in Africa

Anagaw Atickem, Nils Chr. Stenseth et al.
Why the continent needs more home-grown researchers



SUSTAINABILITY

River rescue

New models help manage waterways in a changing climate, say Jonathan D Tonkin, N LeRoy Poff et al. **PAGE 301**

BOOKS & ARTS

304 GEOSCIENCE

Radiocarbon revolution

Chris Turney

305 BOOKS IN BRIEF

CORRESPONDENCE

307 What next for biological psychiatry? / Two responses to university racism report / The perks of plantations in forest restoration

OBITUARY

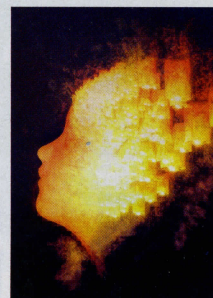
308 Murray Gell-Mann (1929–2019)

Robert P Crease

FUTURES

410 The memory lanterns of Loi Krathong

Preston Grassmann



CONTENTS

20 June 2019 / Vol 570 / Issue No 7761

RESEARCH

NEW ONLINE

309 Papers published this week at nature.com

NEWS & VIEWS

310 MATERIALS SCIENCE

Sunlight harvested by nanotubes

The demonstration of an unconventional solar cell
Ming-Min Yang & Marin Alexe
[SEE LETTER P.349](#)

311 EVOLUTION

Sex chromosomes manipulate mate choice

A model suggests how mating preferences evolve for traits that harm males
Mark Kirkpatrick [SEE LETTER P.376](#)

312 MATERIALS SCIENCE

Crazy colour

Controlled crazing of polymer films produces structural coloration
Seung Hwan Ko [SEE LETTER P.363](#)

315 BIOCHEMISTRY

Enzymes that detoxify marine toxins

The biosynthesis of paralytic shellfish toxins
Monica E McCallum & Emily P Balskus

316 IMMUNOLOGY

A licence to kill during inflammation

Structural analysis sheds light on how the inflammasome complex forms
Kengo Nozaki & Edward A Miao
[SEE ARTICLE P.338](#)

ARTICLES

319 CLIMATE SCIENCE

Antarctic offshore polynyas linked to Southern Hemisphere climate anomalies

E C Campbell et al.

326 NEUROSCIENCE

Atypical behaviour and connectivity in SHANK3-mutant macaques

Y Zhou et al.

332 NEUROSCIENCE

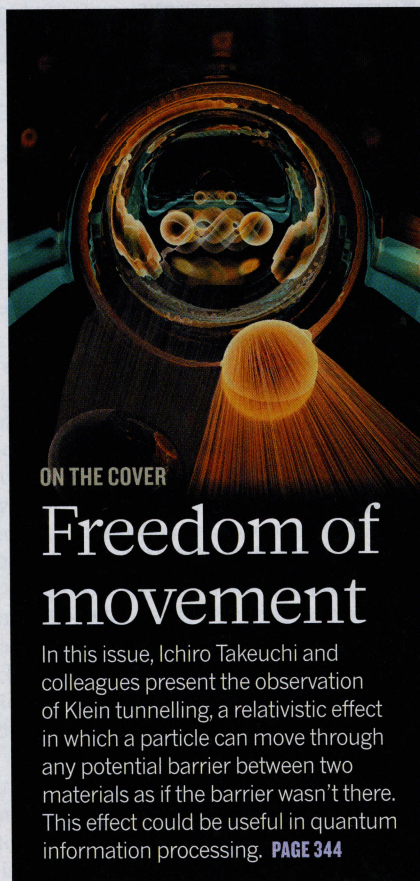
Single-cell transcriptomic analysis of Alzheimer's disease

H Mathys et al.

338 IMMUNOLOGY

Structural mechanism for NEK7-licensed activation of NLRP3 inflammasome

H Sharif et al. [SEE N&V P.316](#)



LETTERS

344 CONDENSED-MATTER PHYSICS

Perfect Andreev reflection due to the Klein paradox in a topological superconducting state

S Lee et al.

349 MATERIALS SCIENCE

Enhanced intrinsic photovoltaic effect in tungsten disulfide nanotubes

Y J Zhang et al.

[SEE N&V P.310](#)

354 NANOSCALE MATERIALS

Chiral twisted van der Waals nanowires

P Sutter, S Wimer & E Sutter

358 NANOSCALE MATERIALS

Helical van der Waals crystals with discretized Eshelby twist

Y Liu et al.

363 MATERIALS SCIENCE

Structural colour using organized microfibrillation in glassy polymer films

M M Ito et al. [SEE N&V P.312](#)

368 FLUID DYNAMICS

Turbulent convective length scale in planetary cores

C Guervilly, P Cardin

& N Schaeffer

372 CLIMATE-CHANGE ECOLOGY

Global change drives modern plankton communities away from the pre-industrial state

L Jonkers, H Hillebrand & M Kucera

376 EVOLUTION

Mating preferences of selfish sex chromosomes

P Muralidhar [SEE N&V P.311](#)

380 CELL BIOLOGY

Mitochondrial fragmentation drives selective removal of deleterious mtDNA in the germline

T Lieber, S P Jeedigunta, J M Palozzi,

R Lehmann & TR Hurd

385 CANCER GENOMICS

Genome-wide cell-free DNA fragmentation in patients with cancer

S Cristiano et al.

390 STRUCTURAL BIOLOGY

De novo protein design by citizen scientists

B Koepnick et al.

395 MOLECULAR BIOLOGY

Heterochromatin drives compartmentalization of inverted and conventional nuclei

M Falk et al.

400 STRUCTURAL BIOLOGY

Late steps in bacterial translation initiation visualized using time-resolved cryo-EM

S Kaledhonkar et al.

CLIMATE-CHANGE ECOLOGY

Sea change

Sedimentary plankton record reflects human influence. [PAGE 372](#)

