CONTENTS

3 July 2014 / Vol 511 / Issue No 7507

THIS WEEK

EDITORIALS

5 EGYPT

Academic freedom under threat Science is set to be the loser under Egypt's new ruler

5 PUBLISHING

STAP retracted

Long-standing issues of trust and sloppiness in research much be addressed

6 FIRST WORLD WAR CENTENARY
Science and war

Nature takes stock of the war to end all wars



WORLD VIEW

7 Academy 'reform' is stifling Russian science Alexey Yablokov Increased bureaucracy and funding problems need to be tackled

RESEARCH HIGHLIGHTS

8 SELECTIONS FROM THE SCIENTIFIC LITERATURE

> Martian water modelled / Neanderthal diet / Indonesian forest loss / Welltravelled rice / Sanger retrospective / Catch a falling asteroid

SEVEN DAYS

IN THE NEWS
IN BRIEF
Exoskeleton
walker / Mars
landing gear
passes test /
Clovis boy
reburied /
Balloon sets
record



CAREERS

113 MEDIA CONSULTING

Entertaining science

Science advisers in movies and television get to keep screenwriters grounded but can also provide plots

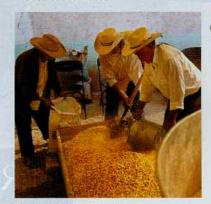
115 CAREER BRIEFS

NEWS IN FOCUS

13 INFECTIOUS DISEASE
University's approach to influenza comes under scrutiny

14 POLICY
Australian scientists launch protests as budget cuts bite

6 AGRICULTURE Row over transgenic crops splits Mexico's researchers



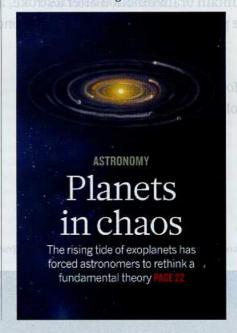
18 TECHNOLOGY
Electrical implants get wired for success

FEATURES

9 STEM CELLS

Hope on the line

The California Institute for Regenerative Medicine is in urgent need of a success



COMMENT



FIRST WORLD WAR CENTENAR'

A fleeting liberation

Patricia Fara reveals how the Great War empowered women scientists temporarily PASE 25



BOOKS & ARTS

28 MILITARY TECHNOLOGY Science in

the trenches
David Edgerton
29 SCIENCE OF

COLOUR Hue and eye Barbara Kiser

CORRESPONDENCE

31 Biofuel takes off / China's support for science / Cleaner biomass burning / Logical choice for 2014 Longitude Prize



3 JULY 2014 | VOL 511 | NATURE | 1

CONTENTS

3 July 2014 / Vol 511 / Issue No 7507

RESEARCH

NEW ONLINE

33 Papers published this week at nature.com

NEWS & VIEWS

- 34 EVOLUTIONARY DEVELOPMENTAL BIOLOGY
 Use it or lose it
 Plasticity in the pathways leading to
 digit loss in tetrapods
 Bau-lin Huang & Susan Mackem
 SEE ARTICLES P.41 & P.46
- A tight duo in a trio of black holes
 An improved method for finding tight
 pairs of supermassive black holes
 Greg Taylor SEE LETTER P.57
- 37 STRUCTURAL BIOLOGY
 Lipopolysaccharide rolls out the barrel
 Crystal structures of the LptD-LptE
 complex from two bacterial species
 Russell E Bishop
 SEE ARTICLE P.52 & LETTER P.108
- 38 CLIMATE SCIENCE Expulsion from history Reassessing climate variability estimates Scott B Power
- 39 IMMUNOLOGY
 Fixing the odds against tuberculosis
 A regulatory immune network that
 influences TB outcomes
 Samuel M Behar & Christopher M Sassetti
 SEE LETTER P.99

EVOLUTION

Digital loss

Mammals have more than one way to evolve limbs with fewer digits. PAGE 41





ARTICLES

- 41 EVOLUTION Patterning and postpatterning modes of evolutionary digit loss in mammals KL Cooper et al. SEE N&V P.34
- 46 EVOLUTION Attenuated sensing of SHH by Ptch1 underlies evolution of bovine limbs J Lopez-Rios et al. SEE N&V P.34
- 52 STRUCTURAL BIOLOGY Structural basis for outer membrane lipopolysaccharide insertion H Dong et al. SEE N&V P.37

LETTERS

- 57 ASTROPHYSICS A close-pair binary in a distant triple supermassive black hole system RP Deane et al. SEE N&V P.35
- 61 SUPERCONDUCTIVITY Normal-state nodal electronic structure in underdoped high-T_ε copper oxides S E Sebastian et al.
- 65 OPTICAL PHYSICS Giant nonlinear response from plasmonic metasurfaces coupled to intersubband transitions

 J Lee et al.
- 70 QUANTUM PHYSICS Quantum control and process tomography of a semiconductor quantum dot hybrid qubit

- D Kim et al.
- 75 PALAEOCEANOGRAPHY Abrupt pre-Bølling-Allerød warming and circulation changes in the deep ocean N Thiagarajan, A V Subhas, J R Southon, J M Eiler & J F Adkins
- 79 EVOLUTION New specimen of Archaeopteryx provides insights into the evolution of pennaceous feathers C Foth, H Tischlinger & O.W.M. Rauhut
- 83 EVOLUTION Genomic divergence in a ring species complex
 M Alcaide, E S C Scordato, T D Price
 & D E Irwin
- 86 DEVELOPMENTAL BIOLOGY RLIM is dispensable for X-chromosome inactivation in the mouse embryonic epiblast JD Shin et al.
- 90 CANCER The sonic hedgehog factor GLI1 imparts drug resistance through inducible glucuronidation H A Zahreddine et al.
- 94 THERAPEUTICS Anti-diabetic activity of insulin-degrading enzyme inhibitors mediated by multiple hormones J P Maianti et al.
- 99 IMMUNOLOGY Host-directed therapy of tuberculosis based on interleukin-1 and type I interferon crosstalk KD Mayer-Barber et al. SEE N&V P.39
- 104 MOLECULAR BIOLOGY Analysis of orthologous groups reveals archease and DDX1 as tRNA splicing factors J Popow, J Jurkin, A Schleiffer & J Martinez
- 108 STRUCTURAL BIOLOGY Structural basis for lipopolysaccharide insertion in the bacterial outer membrane S Qiao, Q Luo, Y Zhao, X C Zhang & Y Huang SEE N&V P.37
- 112 RETRACTION Stimulus-triggered fate conversion of somatic cells into pluripotency
 H Obokata et al.
- 112 RETRACTION Bidirectional developmental potential in reprogrammed cells with acquired pluripotency

 H Obokata et al.