harian

CONTENTS

3 February 2011 / Vol 470 / Issue No 7332

THIS WEEK

EDITORIALS

5 ASTRONOMY

Earth 2.0

It's time to decide what a second Earth looks like

5 HISTORY

Preserve the past

German initiative paves way to saving Europe's historical collections

6 POLICY

Tough on truth

The Global Fund's transparent attitude to corruption should be applauded

WORLD VIEW



7 Listen to the lessons of The King's Speech Peter Howell The Oscar-nominated movie gives hope to adult stammer sufferers

RESEARCH HIGHLIGHTS

8 SELECTIONS FROM THE SCIENTIFIC LITERATURE

Enzyme blocker aids radiotherapy / Where the whales are / One species too many / Light touch for drug delivery / Drumming up a role among wasps

SEVEN DAYS

10 THE NEWS IN BRIEF

GM alfalfa gets green light in the US / Europe lags in innovation / US lands low place in life-expectancy league table / Bill Gates boosts bid to eradicate polio / Amgen buys up BioVex while Abbott and Elan cut back

CAREERS

129 CAREER DECISIONS

Taking the plunge

When — and when not — to bail out from a postdoc position

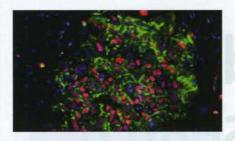
131 TURNING POINT

Tips on how to innovate from scientist-turned-inventor Jonathan Rothberg

NATUREJOBS ADVERTISING FEATURE

Spotlight on postdoctoral positions

NEWS IN FOCUS



13 MEDICINE Doubts raised over embryonic qualities of induced pluripotent stem cells

14 ASTRONOMY

Telescope gift to Taiwan raises US hackles

15 POLICY China lays plans for the next ten years of science and innovation

16 POLICY

European advisers seek overhaul of Framework funding programme

17 SPACE SCIENCE

UK space research still far from achieving lift-off

18 RESEARCH POLICY

Social scientists unite to ask the big questions

FEATURES

ASTRONOMY

Planet hunt

Reaping the rewards from the Kepler telescope's watchful eye PAGE 24



27 ASTRONOMY

Exoplanets on the cheap

Distant planets are becoming more visible thanks to some creative thinking

COMMENT

CONSERVATION

Easy does it

Get conservation sorted before extracting deep-sea minerals, says Cindy Lee Van Dover PAGE 31



BOOKS & ARTS

34 ASTRONOMY

The planet that never was Neil deGrasse Tyson

- 35 BOOKS IN BRIEF
- 36 HISTORY

The plantswoman who dressed as a boy
Sandra Knapp

37 NEUROSCIENCE

Browsing and the brain
Daphne Bavelier & C Shawn Green

38 ART

Abstract relativity Stefan Michalowski,& Georgia Smith

CORRESPONDENCE

39 Negative results count too / Why conservationists must think big / GM maize in Peru / Putting authors in order / Lessons in recycling

OBITUARY

40 Eugene Goldwasser (1922–2010) Don Wojchowski

FUTURES

134 To the stars Ken Liu & Shelly Li

CONTENTS

3 February 2011 / Vol 470 / Issue No 7332

RESEARCH

NEW ONLINE

41 Papers published this week at nature.com

NEWS & VIEWS

42 DRUG DISCOVERY

Forum: A question of library design Two experts discuss the best way to find leads for drug discovery Philip J Hajduk, Warren R J D Galloway & David R Spring

44 PLANT BIOLOGY
Defence at dawn
Temporal tuning of plant immunity
C Robertson McClung SEE LETTER P.110

45 ASTROPHYSICS
Big black hole found in tiny galaxy
Discovery of a massive black hole in a
dwarf star-forming galaxy
Jenny E Greene SEE LETTER P.66

46 MOLECULAR BIOLOGY
DNA fragility put into context
Links between DNA fragility
and replication
Kay Huebner SEE LETTER P.120

47 THEORETICAL ECOLOGY
Waltz of the weevil
Model studies of an invasive
plant in billabongs
Lewi Stone SEE LETTER P.86

49 GLOBAL CHANGE

Methane and monsoons

An explanation for rising atmospheric methane during the mid-Holocene

Eric W Wolff SEE LETTER P.82

50 ARCHAEOLOGY
Trailblazers across Arabia
Evidence of a human presence in Arabia
125,000 years ago
Michael D Petraglia

ARTICLES

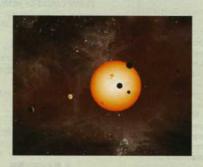
53 ASTRONOMY A closely packed system of low-mass, low-density planets transiting Kepler-11

J J Lissauer et al.

59 GENOMICS Mapping copy number variation by population-scale genome sequencing R E Mills et al.

LETTERS

66 ASTRONOMY An actively accreting



ON THE COVER

Six appeal

An artist's impression of a triple transit observed on 26 August 2010 around the extrasolar planet now named Kepler-11. This newly discovered six-planet system resembles our own Solar System in being close to coplanar, but Kepler-11's planets orbit much closer to their star. PAGES 24&53

massive black hole in the dwarf starburst galaxy Henize 2-10 A E Reines, G R Sivakoff, K E Johnson & C L Brogan SEE N&V P.45

69 PHYSICS Entanglement in a solid-state spin ensemble S Simmons et al.

73 APPLIED PHYSICS Femtosecond X-ray protein nanocrystallography H N Chapman et al.

78 APPLIED PHYSICS Single mimivirus particles intercepted and imaged with an X-ray laser

M M Seibert et al.

82 CLIMATE SCIENCE Late Holocene methane rise caused by orbitally controlled increase in tropical sources J S Singarayer, P J Valdes, P Friedlingstein, S Nelson & D J Beerling SEE N&V P.49

86 ECOLOGY Alternative stable states explain unpredictable biological control of Salvinia molesta in Kakadu SS Schooler, B Salau, M H Julien & A R Ives SEE N&V P.47

90 IMMUNOLOGY A thymus candidate

in lampreys B Bajoghli et al.

95 STEM CELLS Identification of adult nephron progenitors capable of kidney regeneration in zebrafish C Q Diep et al.

101 NEUROSCIENCE Reversing pathologic neural activity using targeted plasticity ND Engineer et al.

105 STEM CELLS Directed differentiation of human pluripotent stem cells int intestinal tissue in vitro JR Spence et al.

110 PLANT SCIENCES Timing of plant immune responses by a central circadian regulator W Wang et al. SEE N&V P.44

115 CANCER Oncogenically active MYD8 mutations in human lymphoma V N Ngo et al.

120 CANCER Cell-type-specific replicatio initiation programs set fragility of the FRA3B fragile site A Letessier et al. SEE N&V P.46

124 CELL BIOLOGY MMSET regulates histone H4K20 methylation and 53BP1 accumulation at DNA damage sites

H Pei et al.

On the hole

A peek at an early phase of black hole and galaxy evolution PAGES 45 & 66

