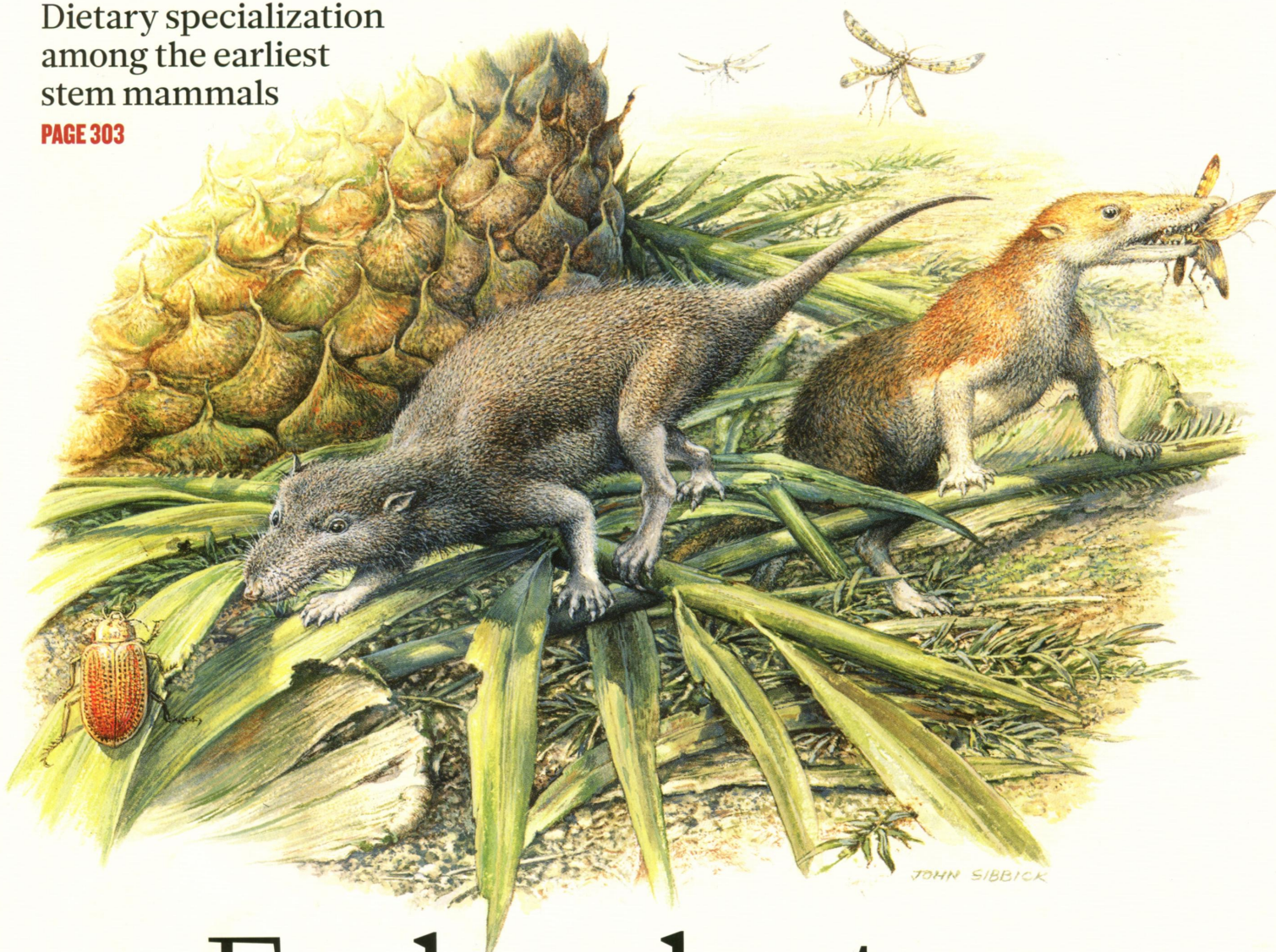


nature

THE INTERNATIONAL WEEKLY JOURNAL OF SCIENCE

Dietary specialization
among the earliest
stem mammals

PAGE 303



Early adapters

ANTARCTICA

LIFE UNDER THE ICE

Subglacial sampling
confirms microbial riches

PAGES 244, 256 & 310

MICROBIOLOGY

MICROBIOME MADNESS

Health message blurred
by over-interpretation

PAGE 247

PALAEoANTHROPOLOGY

NEANDERTHAL NEIGHBOURS

Thousands of years
alongside modern humans

PAGES 260 & 306

NATURE.COM/NATURE

21 August 2014 £10

Vol. 512, No. 7514



CONTENTS

21 August 2014 / Vol 512 / Issue No 7514

THIS WEEK

EDITORIALS

231 RESEARCH

What goes up

US scientists should not allow regulators to ground research drones

231 POLICY

Finding the root

The NIH's bid to gauge prejudice ought to be applauded

WORLD VIEW

233 Scale up supply of experimental

Ebola drugs

Oliver Brady

The size of the Ebola outbreak requires greater stocks of potentially useful treatments

RESEARCH HIGHLIGHTS



234 SELECTIONS FROM THE SCIENTIFIC LITERATURE

HIV suppressed / 3D printing goes soft / Comet chemistry / Farmed salmon on the loose / *Homo floresiensis* dispute renewed / Minirobots get organized / Elephants in decline

SEVEN DAYS

236 THE NEWS IN BRIEF



Maryam Mirzakhani is first woman to win Fields Medal / Cost of scientific misconduct gets quantified / Bleak outlook for Great Barrier Reef / Insomnia drug wins approval

CAREERS

339 BIOMEDICAL SCIENCE

Houston has lift-off

With a vast array of hospitals and clinics and a dash of state funding, the city has become a research powerhouse

NEWS IN FOCUS



239 POLICY

US rules clip the wings of research drones

240 CLIMATE CHANGE

Tibetan Plateau under threat from global warming and human development

242 ARCHAEOLOGY

Improved carbon-dating techniques rewrite Neanderthal history

243 FUNDING

NIH launches bid to root out racial bias in grant assessments

FEATURES



POLAR SCIENCE

Antarctica's secret lakes

Meet the researchers dipping their toes in the South Pole's hidden waters

PAGE 244

COMMENT

247 MICROBIOLOGY

Microbiome science needs a healthy dose of scepticism

William P Hanage

Five questions to bust the hype around research into the body's microbial partners

BOOKS & ARTS

HISTORY OF SCIENCE

The first scientist

Roberto Lo Presti enjoys a reappraisal of Aristotle **PAGE 250**



251 BOOKS IN BRIEF

252 PLANETARY SCIENCE

Second rock from the Sun

Andrew P Ingersoll

CORRESPONDENCE

253 UK infrastructure drive threatens wildlife / Microbial archives neglected / Risk review for invasive toad / Understanding ageing



FUTURES

342 Away

Debbie Urbanski

CONTENTS

21 August 2014 / Vol 512 / Issue No 7514

RESEARCH

NEW ONLINE

- 255 Papers published this week at nature.com

NEWS & VIEWS

256 BIOGEOCHEMISTRY

Microbes eat rock under ice

A description of the microbial inhabitants of subglacial Lake Whillans
Martyn Tranter [SEE LETTER P. 310](#)

257 DEVELOPMENTAL BIOLOGY

It takes muscle to make blood cells

Somites regulate haematopoietic stem cell formation in the embryo
Suphansa Sawamiphak & Didier Y R Stainier
[SEE LETTERS P. 314 & P. 319](#)

258 EARTH SCIENCE

Warning signs of the Iquique earthquake

Months of foreshocks and slow slip preceded a large earthquake
Roland Bürgmann
[SEE LETTERS P. 295 & P. 299](#)

260 PALAEOANTHROPOLOGY

The time of the last Neanderthals

Dated samples from 40 archaeological sites across Europe
William Davies [SEE LETTER P. 306](#)

261 MOLECULAR PHYSICS

Complexity trapped by simplicity

Molecules cooled and captured by a three-dimensional magneto-optical trap
Francesca Ferlaino [SEE LETTER P. 286](#)

262 POPULATION HISTORY

Human melting pots in southeast Asia

Genetic data add to the picture of Austronesian history
Jared Diamond

ARTICLES

265 MOLECULAR BIOLOGY Ribosomal

frameshifting in the *CCR5* mRNA is regulated by miRNAs and the NMD pathway
A T Belew et al.

270 STRUCTURAL BIOLOGY Crystal structure

of a human GABA_A receptor
P S Miller & A R Aricescu

276 STRUCTURAL BIOLOGY X-ray structure of

the mouse serotonin 5-HT₃ receptor
G Hassaine et al.



ON THE COVER

Early adapters

John Sibbick pictures the Early Jurassic mammals, *Morganucodon* and *Kuehneotherium*, hunting their favoured prey in what is now Glamorgan, southern Wales. Analyses of tooth wear and jaw biomechanics show that dietary specialization was already well under way. [PAGE 303](#)

LETTERS

282 ASTROPHYSICS Interacting supernovae from photoionization confined shells around red supergiant stars

J Mackey et al.

286 MOLECULAR PHYSICS Magneto-optical trapping of a diatomic molecule

J F Barry, D J McCarron, E B Norrgard, M H Steinecker & D DeMille
[SEE N&V P. 261](#)

290 CLIMATE SCIENCE Abrupt glacial climate shifts controlled by ice sheet changes

X Zhang, G Lohmann, G Knorr & C Purcell

295 EARTH SCIENCES Continuing megathrust earthquake potential in Chile after the 2014 Iquique earthquake

G P Hayes et al. [SEE N&V P. 258](#)

299 EARTH SCIENCES Gradual unlocking of plate boundary controlled initiation of the 2014 Iquique earthquake

B Schurr et al. [SEE N&V P. 258](#)

303 EVOLUTION Dietary specializations and diversity in feeding ecology of the earliest stem mammals

P G Gill et al.

306 PALAEOANTHROPOLOGY The timing and spatiotemporal patterning of

Neanderthal disappearance

T Higham et al. [SEE N&V P. 260](#)

310 BIOGEOCHEMISTRY A microbial ecosystem beneath the West Antarctic ice sheet

B C Christner et al. [SEE N&V P. 256](#)

314 STEM CELLS Haematopoietic stem cell induction by somite-derived endothelial cells controlled by meox1

P D Nguyen et al. [SEE N&V P. 257](#)

319 STEM CELLS Jam1a–Jam2a interactions regulate haematopoietic stem cell fate through Notch signalling

I Kobayashi et al. [SEE N&V P. 257](#)

324 CANCER A vaccine targeting mutant IDH1 induces antitumour immunity

T Schumacher et al.

328 MOLECULAR BIOLOGY Dynamic pathways of –1 translational frameshifting

J Chen, A Petrov, M Johansson, A Tsai, S E O'Leary & J D Puglisi

333 STRUCTURAL BIOLOGY X-ray structures of GluCl in apo states reveal a gating mechanism of Cys-loop receptors

T Althoff, R E Hibbs, S Banerjee & E Gouaux

337 CORRIGENDUM Palladium-catalysed C–H activation of aliphatic amines to give strained nitrogen heterocycles

A McNally, B Haffemayer, B S L Collins & M J Gaunt

337 RETRACTION Generation of pluripotent stem cells from adult human testis

S Conrad et al.

MOLECULAR BIOLOGY

Shifty RNA

An RNA frameshift as a means of fine-tuning the immune system. [PAGE 265](#)

