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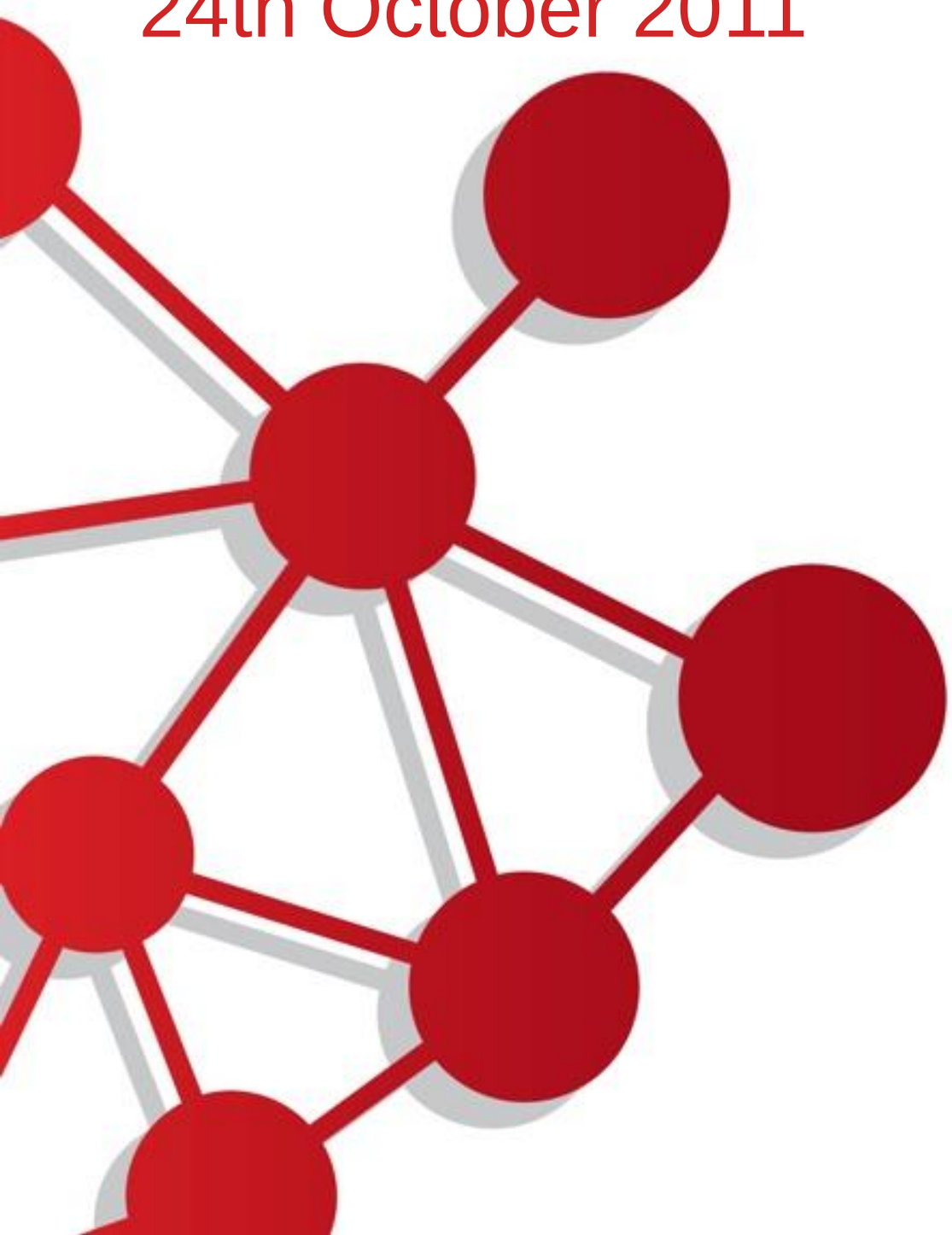

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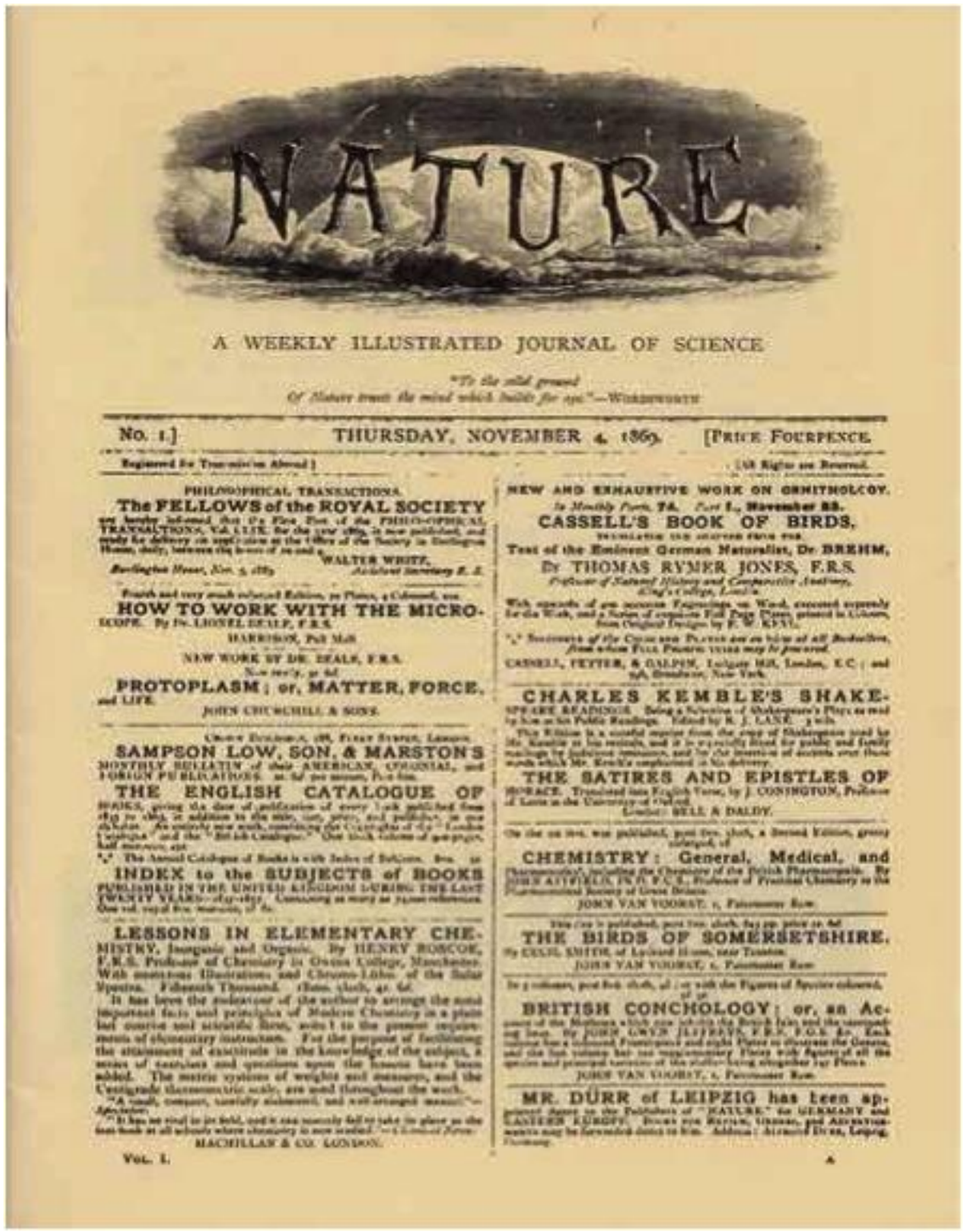

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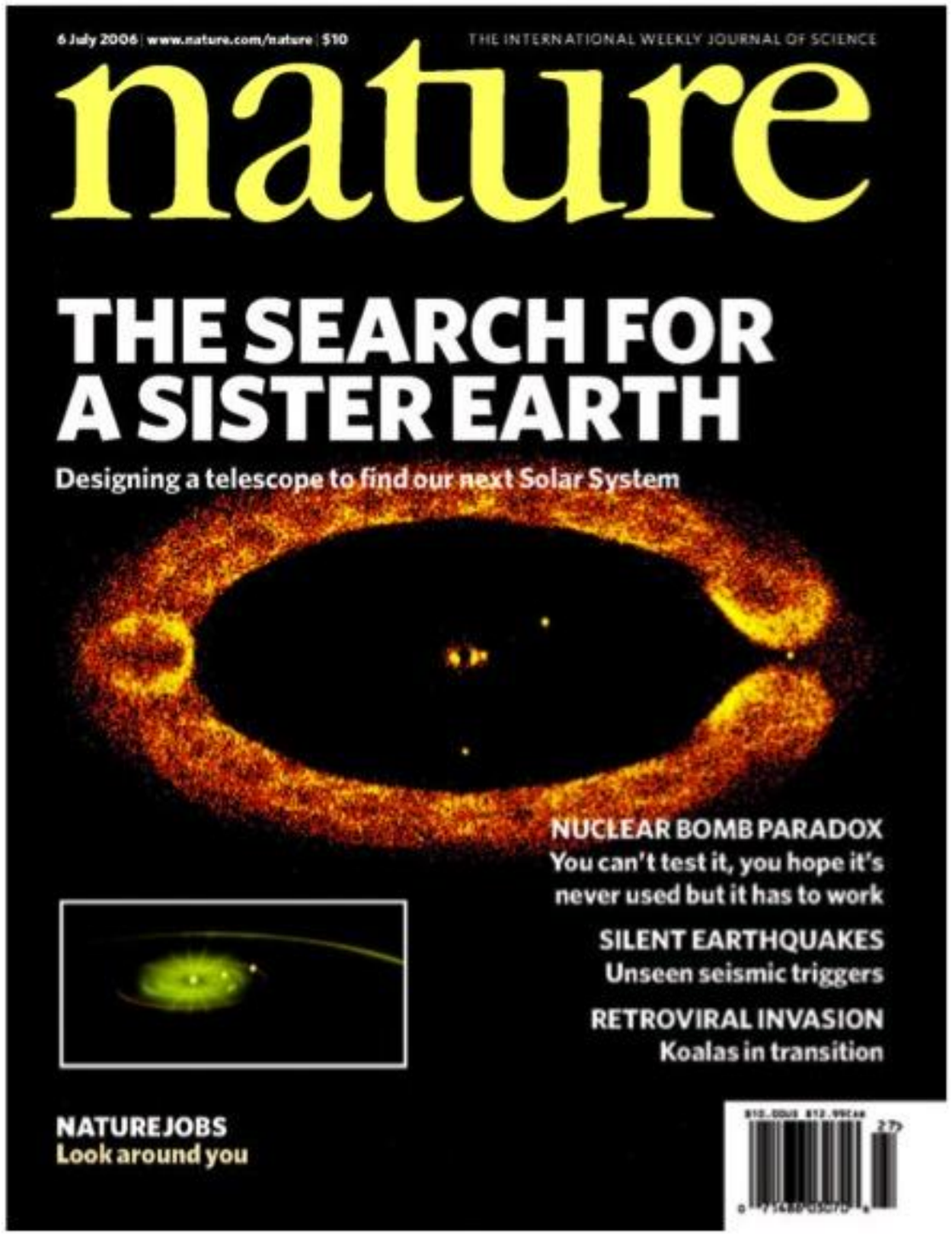


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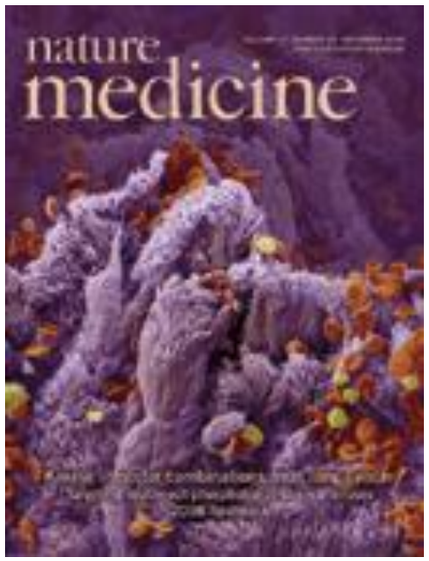
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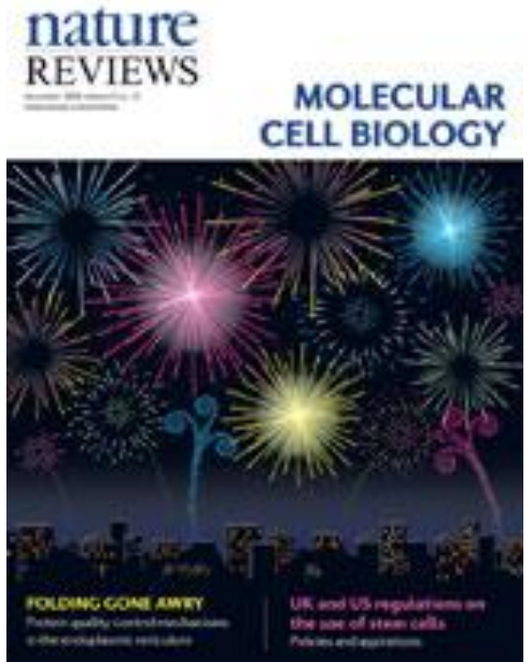
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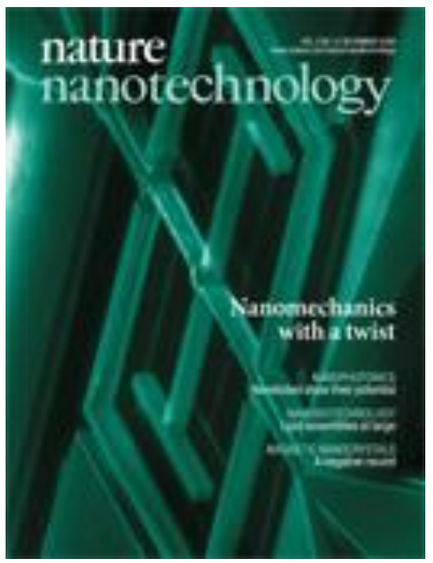
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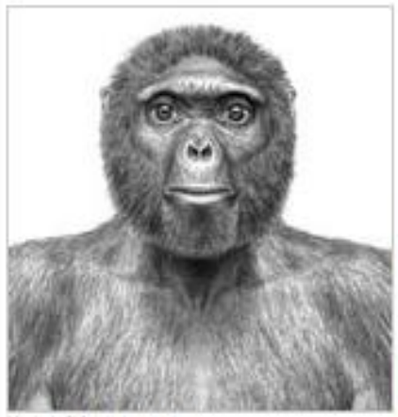

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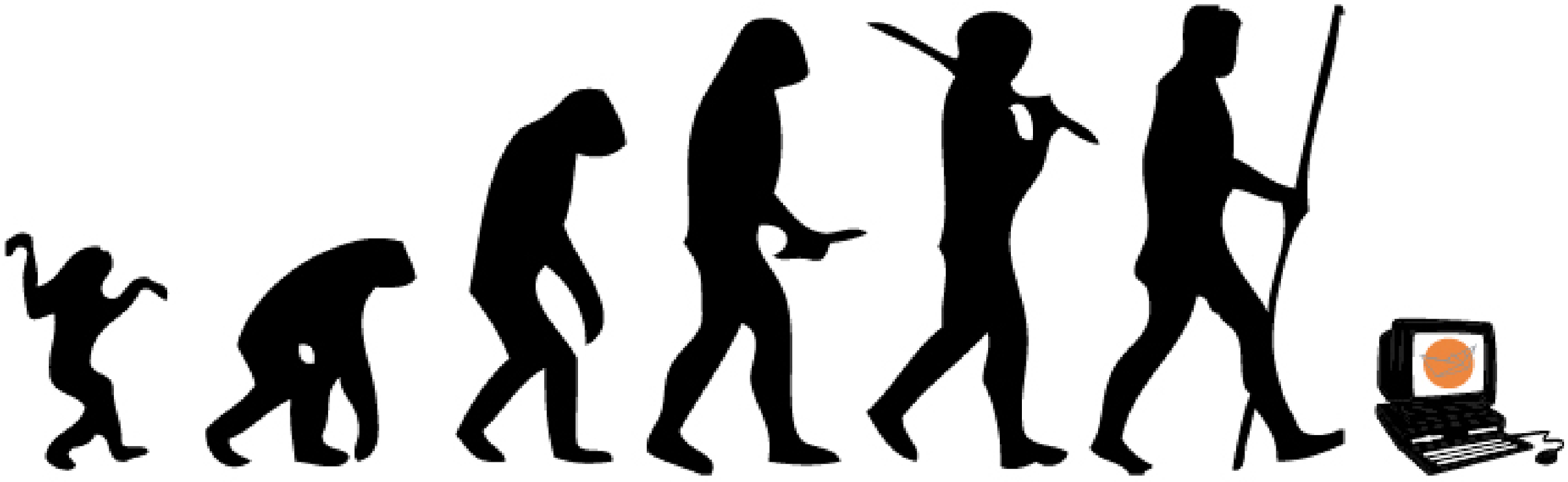

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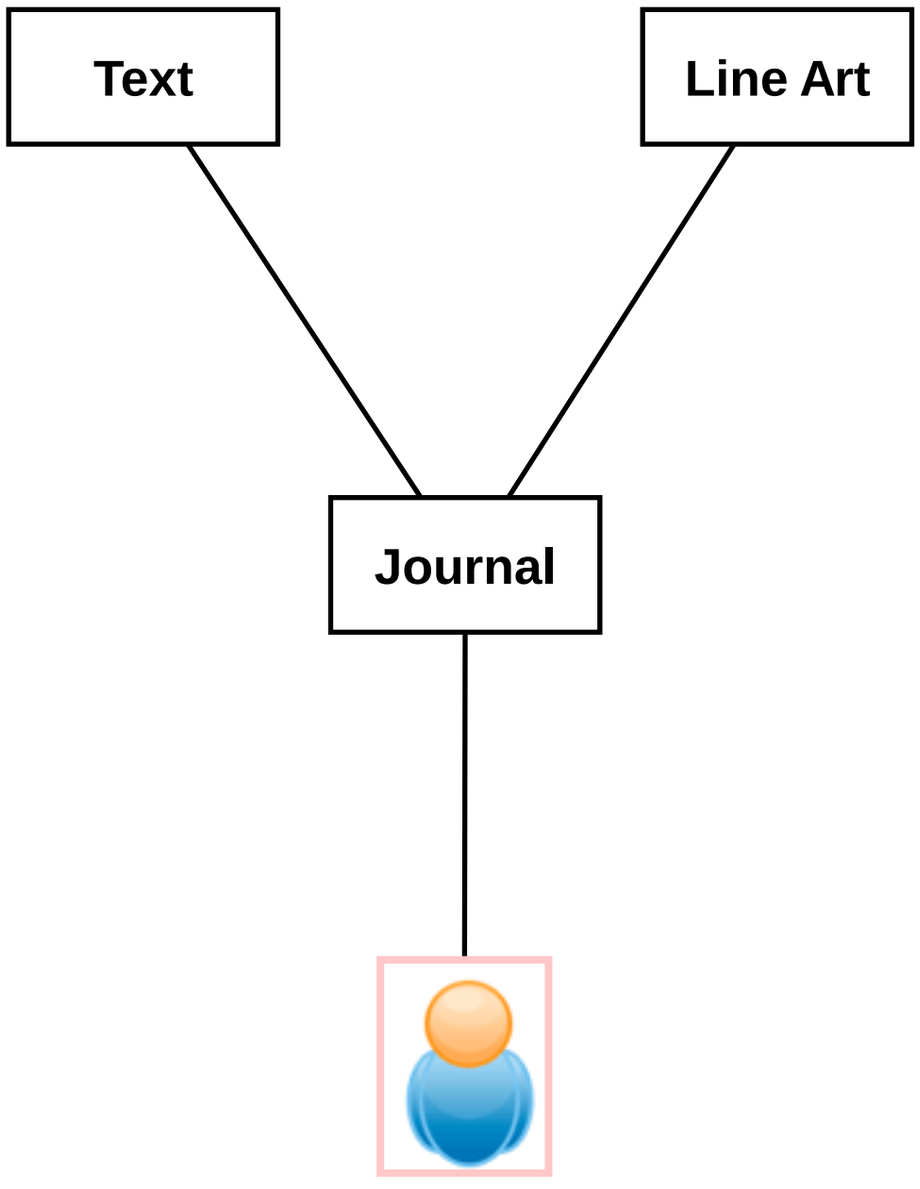

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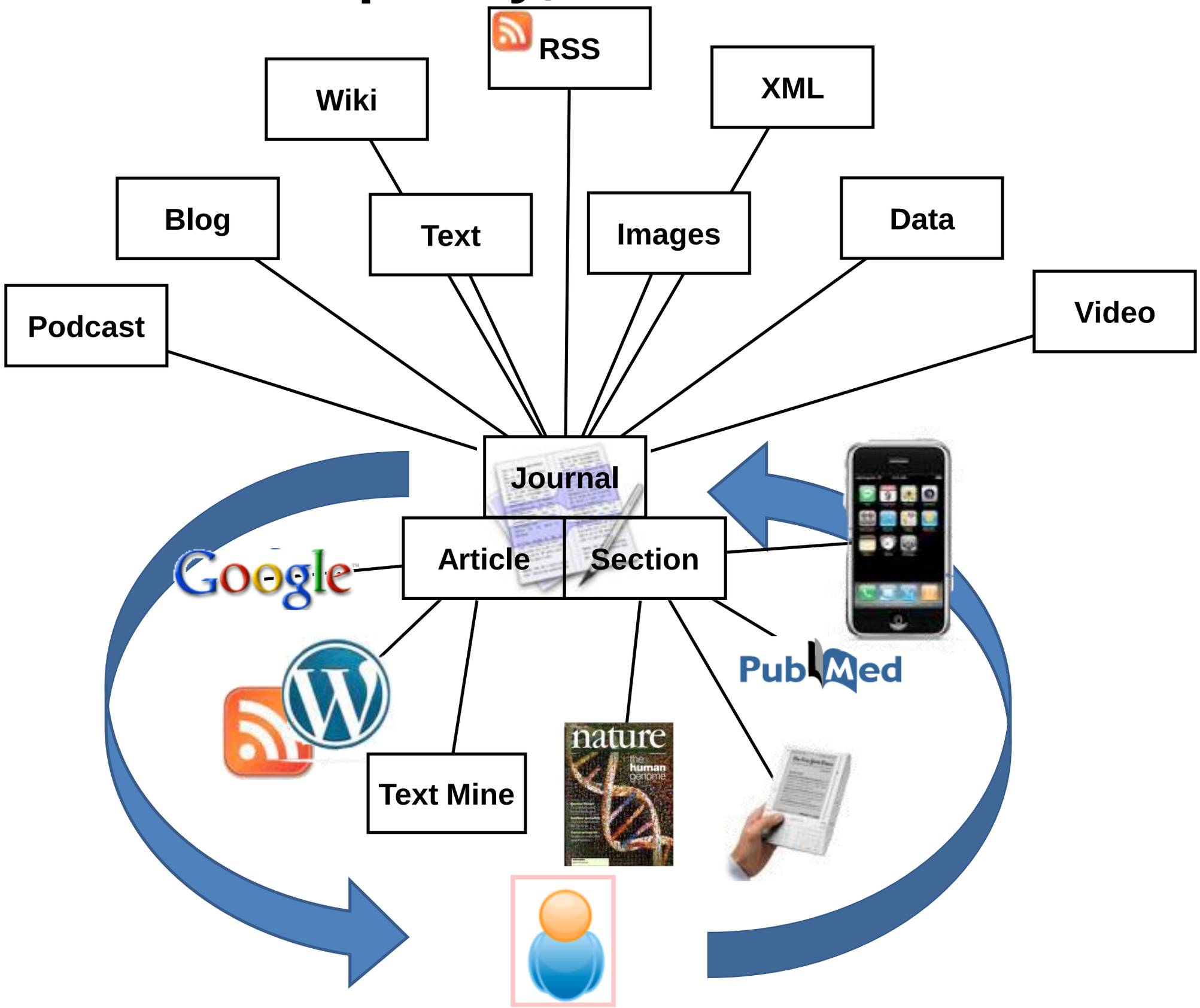

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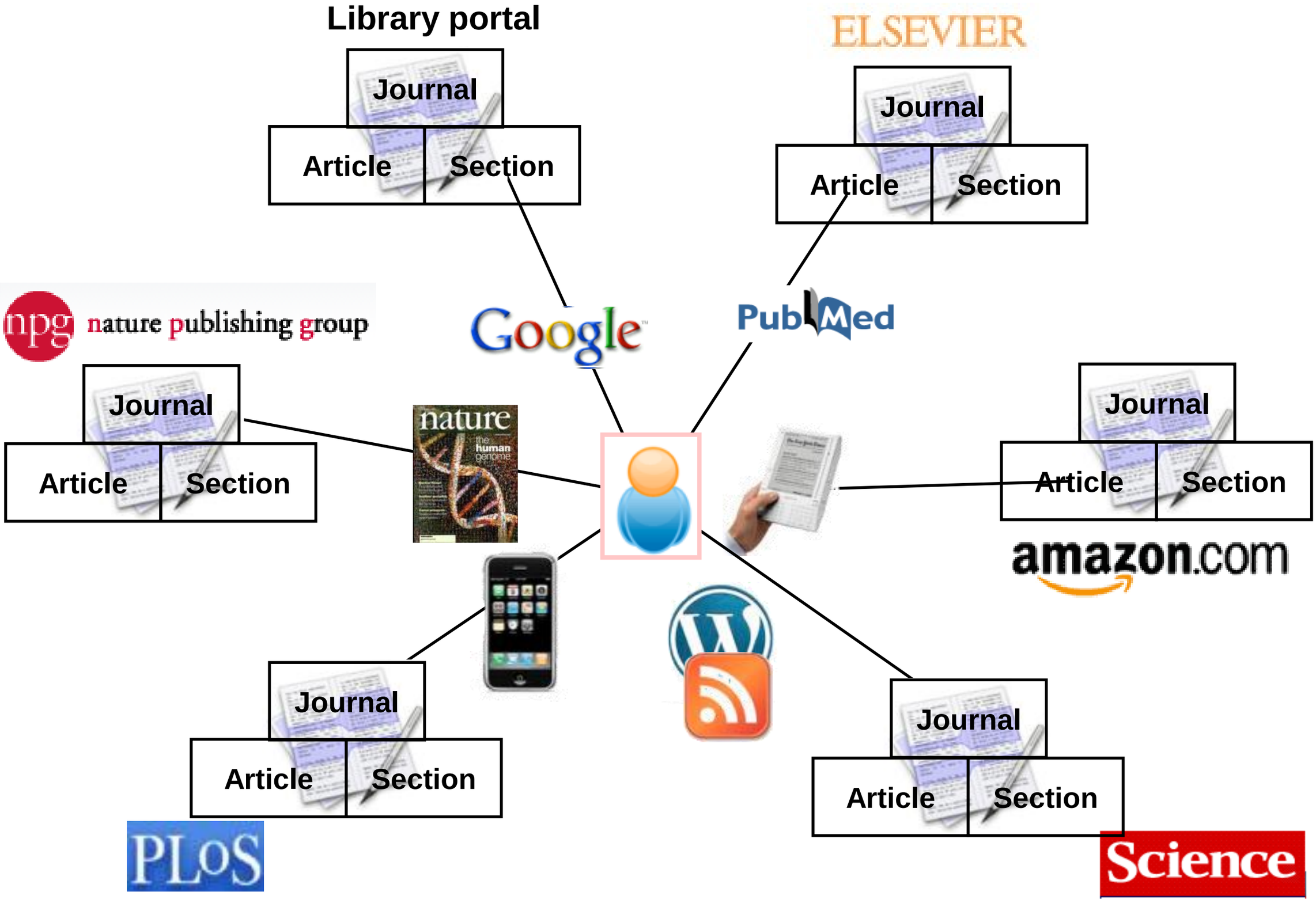

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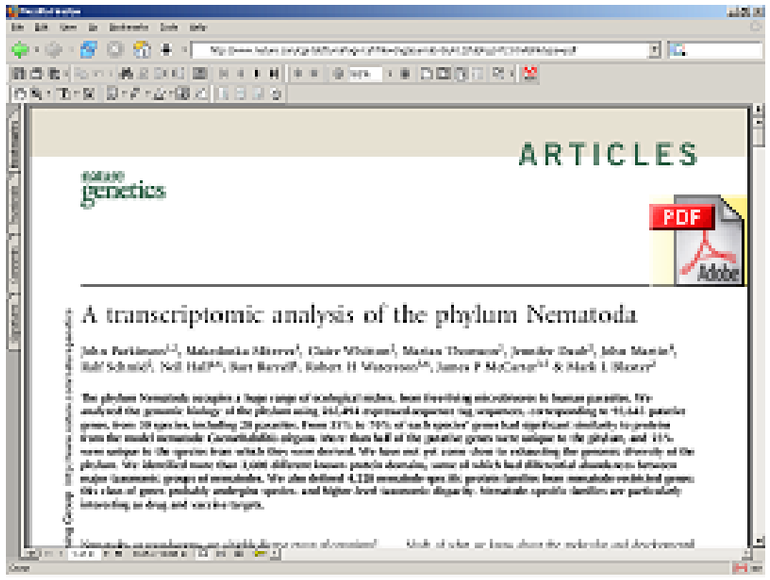

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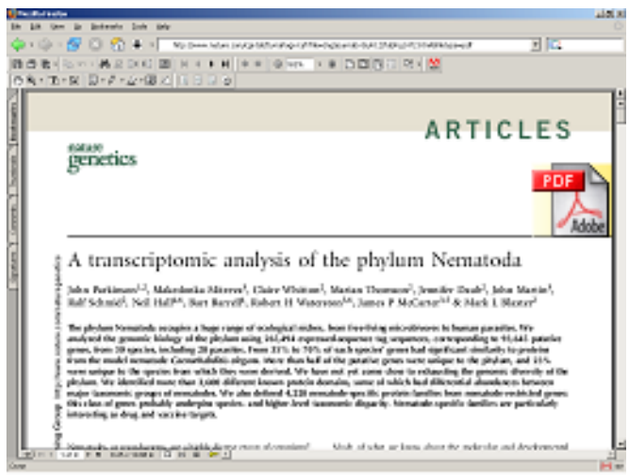

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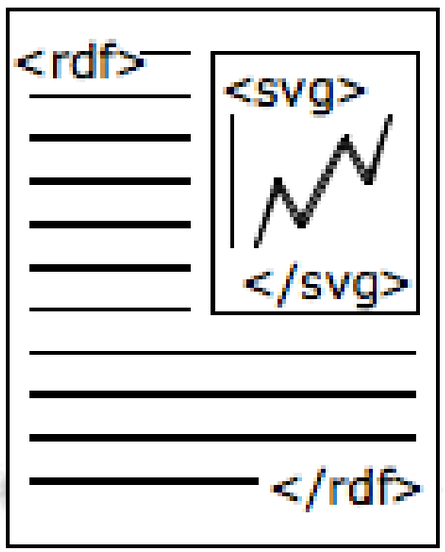

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Nature Chemical Biology **6,** 331–337 (2010) | doi:10.1038/nchembio.342
Received 27 October 2009 | Accepted 14 January 2010 | Published online 04 April 2010

Abstract

Cyclophilin A (CypA) is a ubiquitous *cis–trans* prolyl isomerase with key roles in immunity and viral infection. CypA suppresses T-cell activation through cyclosporine complexation and is required for effective HIV-1 replication in host cells. We show that CypA is acetylated in diverse human cell lines and use a synthetically evolved acetyllysyl-tRNA synthetase/$tRNA_{CUA}$ pair to produce recombinant acetylated CypA in *Escherichia coli*. We determined atomic-resolution structures of acetylated CypA and its complexes with cyclosporine and HIV-1 capsid. Acetylation markedly inhibited CypA catalysis of *cis* to *trans* isomerization and stabilized *cis* rather than *trans* forms of the HIV-1 capsid. Furthermore, CypA acetylation antagonized the immunosuppressive effects of cyclosporine by inhibiting the sequential steps of cyclosporine binding and calcineurin inhibition. Our results reveal that acetylation regulates key functions of CypA in immunity and viral infection and provide a general set of mechanisms by which acetylation modulates interactions to regulate

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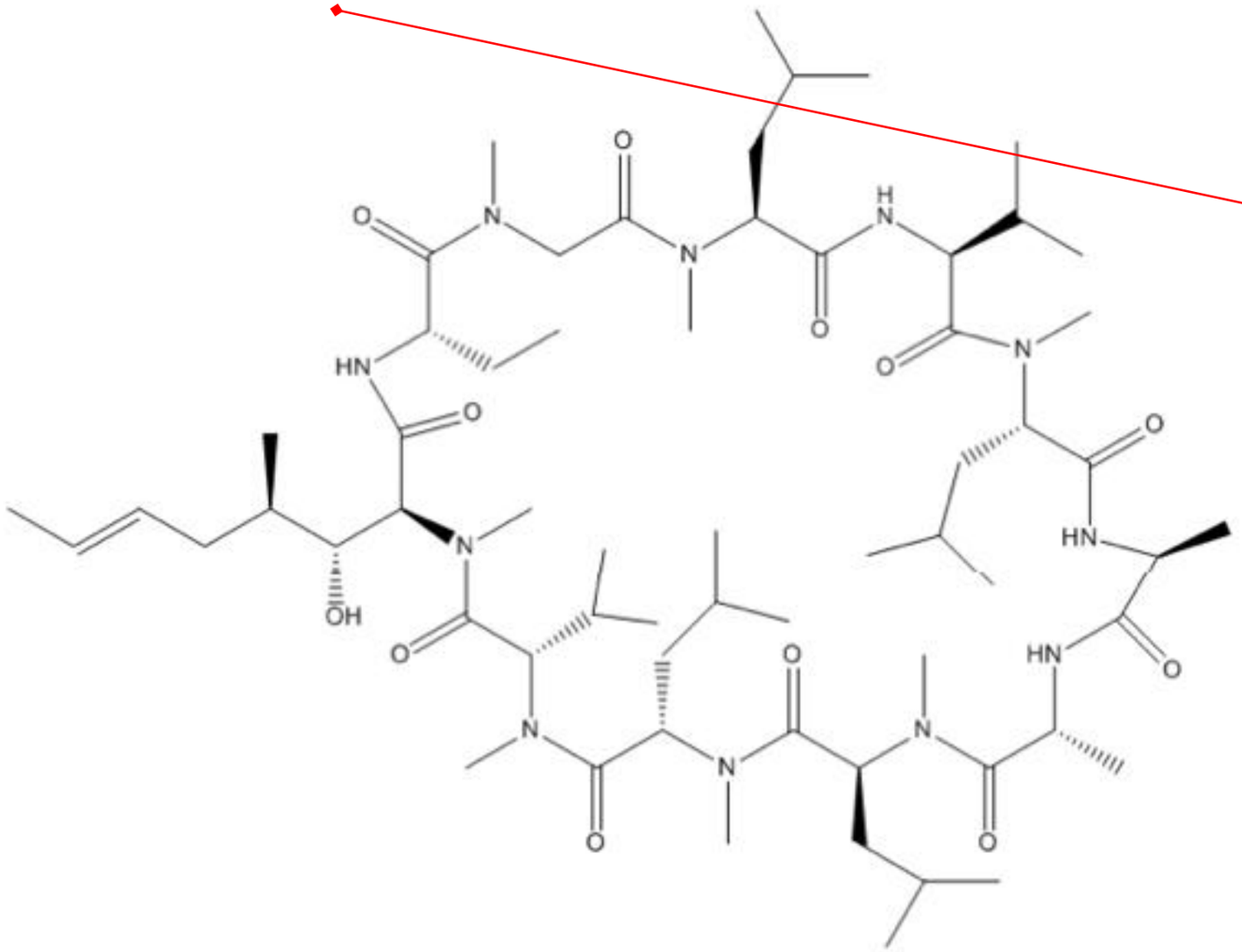

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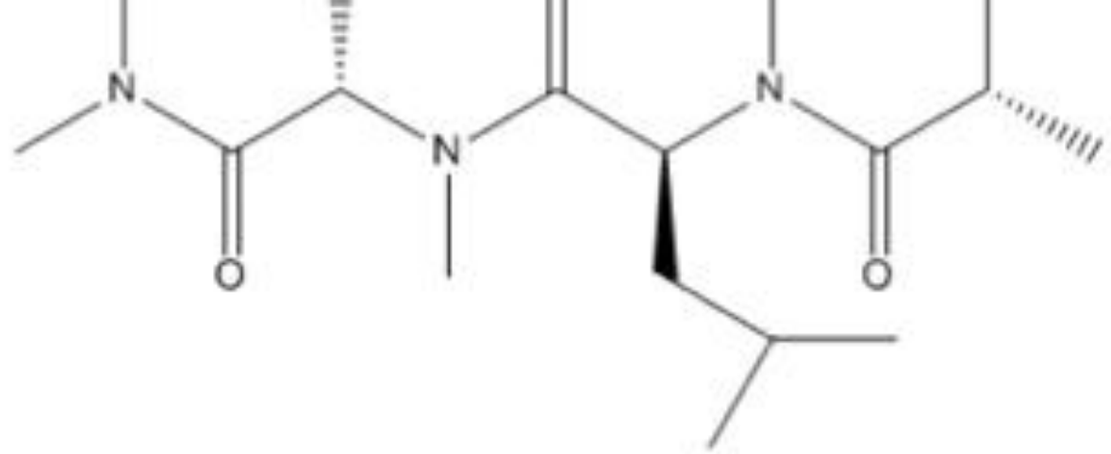

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Synonyms

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Ciclosporin
Neoral
Cyclosporine (USP)
Antibiotic S 7481F1
BMT-ABA-SAR-MLE-VAL-MLE-ALA-ALA-MLE-MLE-MVA
S-Neoral
Cipol N
HSDB 6881
S 7481F1
DRG 0275
Optimmune
(3S,6S,9S,12R,15S,18S,21S,24S,30S,33S)-30-Ethyl-33-[(1R,2R,4E)-1-hydroxy-2-methylhex-4-en-1-yl]-6,9,18,24-tetraisobutyl-3,21-diisopro
1,4,7,10,12,15,19,25,28-nonamethyl-1,4,7,10,13,16,19,22,25,28,31-undecaazacyclotritriacontane-2,5,8,11,14,17,20,23,26,29,32-undecone
1,4,7,10,13,16,19,22,25,28,31-undecaazacyclotritriacontane-2,5,8,11,14,17,20,23,26,29,32-undecone, 30-ethyl-33-[(1R,2R,4E)-1-hydroxy-2
1,4,7,10,12,15,19,25,28-nonamethyl-3,21-bis(1-m
ethylethyl)-6,9,18,24-tetrakis(2-methylpropyl)-, (3S,6S,9S,12R,15S,18S,21S,24S,30S,33S)-

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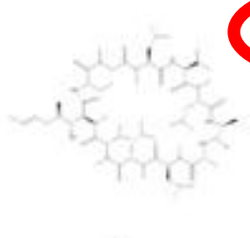

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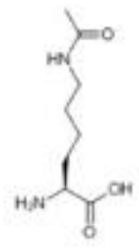

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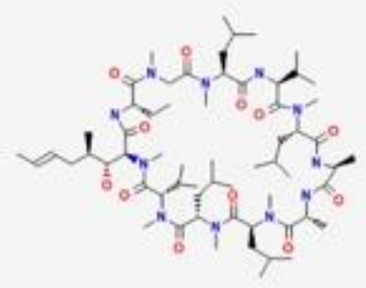

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Same, Isotopes: 220 Links

Synonyms: (Total: 2)

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cyclosporine

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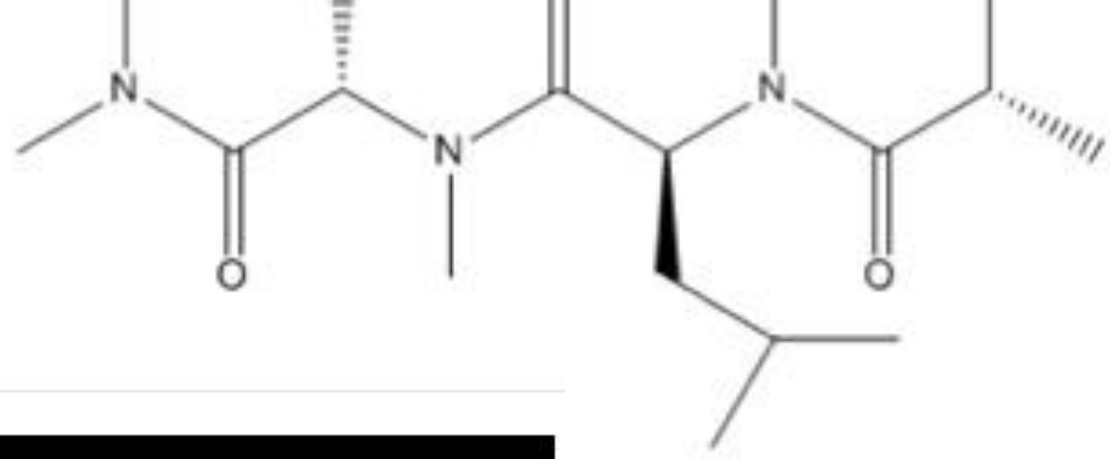

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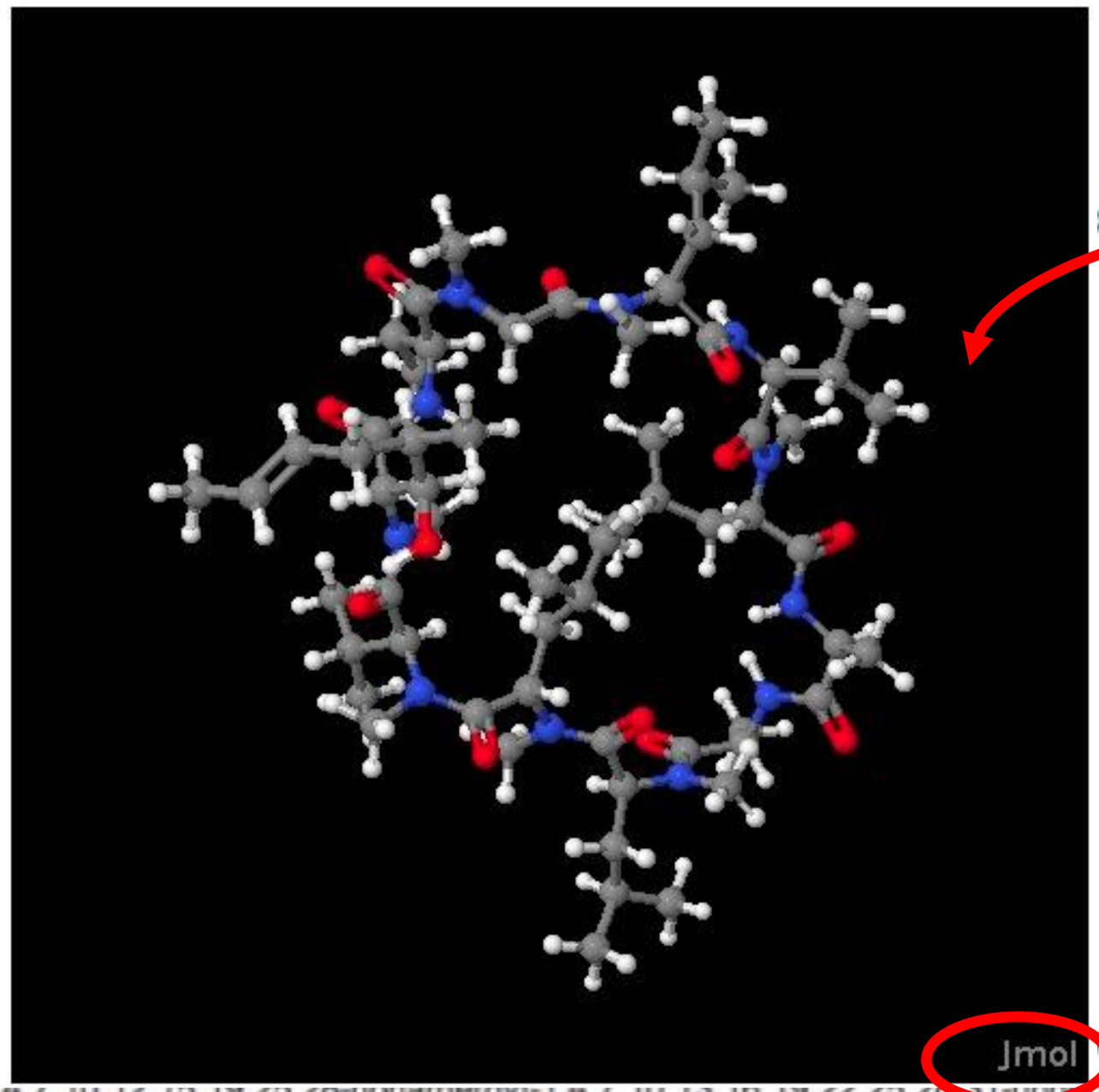

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droxy-2-methylhex-4-en-1-yl]-6,9,18,24-tetraisobutyl-3,21-diisopro

caazacyclotritriacontane-2,5,8,11,14,17,20,23,26,29,32-undecone

1,4,7,10,13,16,19,22,25,28,31-undecaazacyclotritriacontane-2,5,8,11,14,17,20,23,26,29,32-undecone, 30-ethyl-33-[(1R,2R,4E)-1-hydroxy-2

1,4,7,10,12,15,19,25,28-nonamethyl-3,21-bis(1-m

ethylethyl)-6,9,18,24-tetrakis(2-methylpropyl)-, (3S,6S,9S,12R,15S,18S,21S,24S,30S,33S)-

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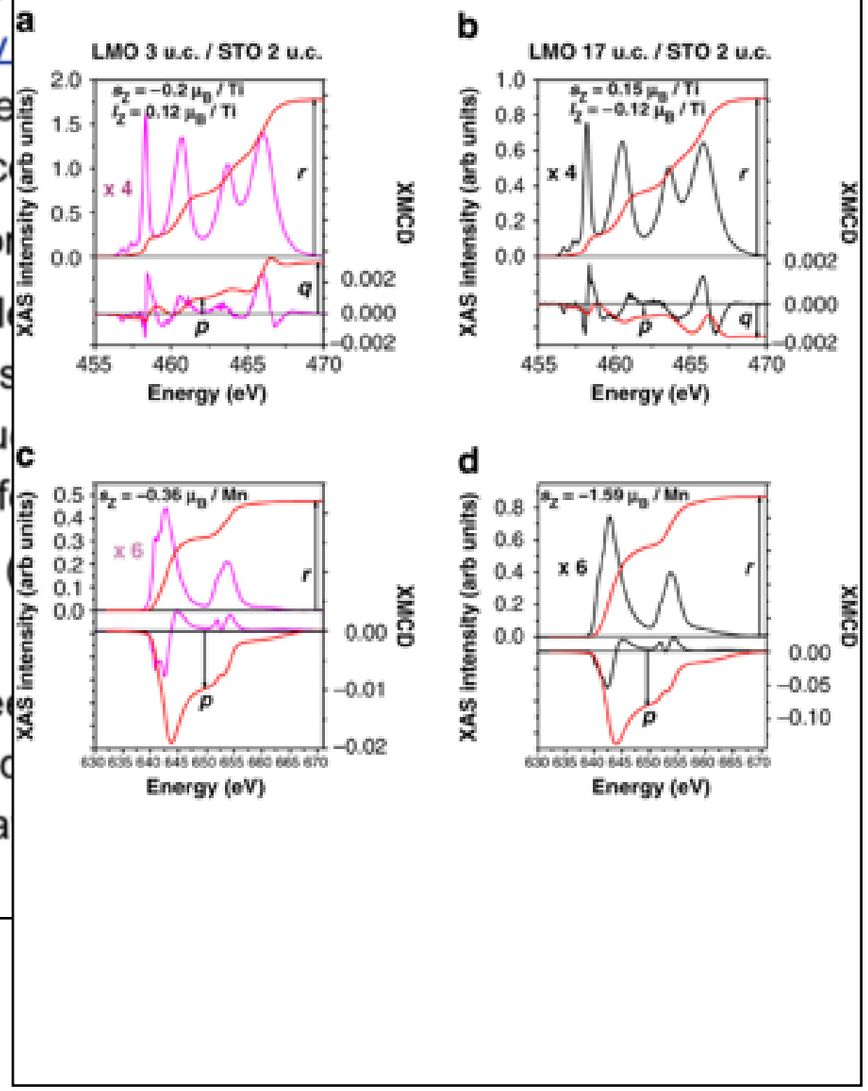
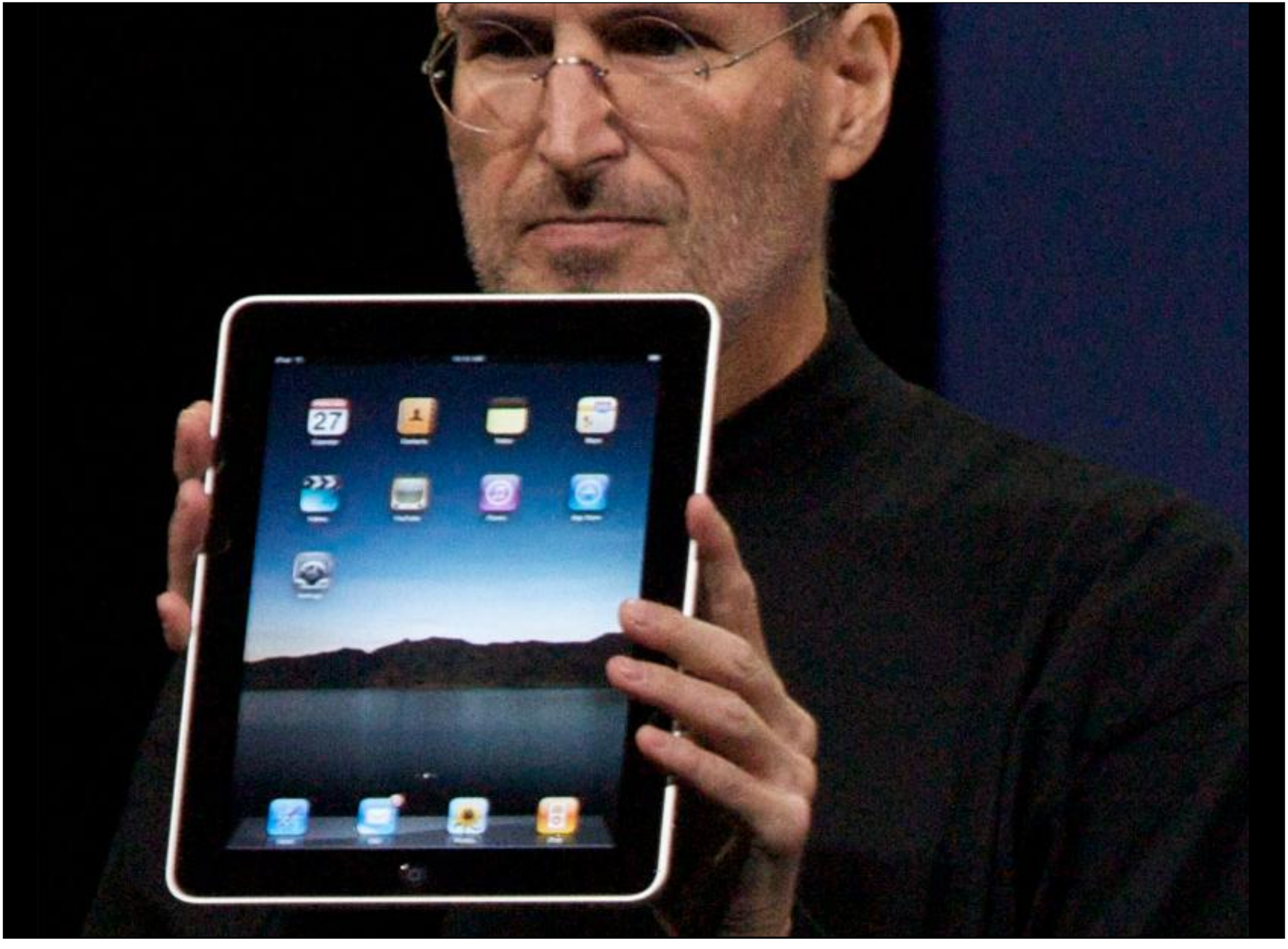
line in the Fig. 4a). The different Ti–Mn interfacial magnetic couplings may be influenced by a different Mn e_g orbital reconstruction promoted by the different strain or thickn patterns. Measurements of the XLD sign Fig. 5a), and a further description in the Methods section and in Supplementary at room temperature evidence a change occupation of Mn orbitals at the interfac Manganese out-of-plane e_g d($3z^2$-r^2) or are occupied in (LMO 17/STO 2) sampl thick LMO layers (see Fig. 3b), whereas (LMO 3/STO 2) superlattices, with a mu thinner manganite layer, promote a pref in-plane e_g d(x^2–y^2) orbital occupation (5c). This pattern of orbital occupation determined by epitaxial strain is in agre with previous reports in ultrathin strained films 2 29 and modifies bonding in a wa may help to understand the sign of the



Ti (a, b) and Mn (c, d) XAS and XMCD spectra of the samples (LMO3/STO 2) (magenta lines) and (LMO 17/STO 2) (black lines). The XA spectra have been corrected by the subtraction of a baseline that takes into account a linear increase of the background inside the L2,3 edges, as well as the background out of the L2,3 edge. The red lines are the integrated area of each signal. The orbital and spin moment of each cation can be consulted at the top of each figure. Arrows indicate the values of p, q and r (see Methods).



tablets ≠ mobiles

LETTER

Holographic three-dimensional telepresence using large-area photorefractive polymer

BY P.-A. BLANCHE, A. BABLUMIAN, R. VOORAKARANAM, C. CHRISTENSON, W. LIN, T. GU, D. FLORES, P. WANG, W.-Y. HSIEH, M. KATHAPERUMAL, B. RACHWAL, O. SIDDIQUI, J. THOMAS, R. A. NORWOOD, M. YAMAMOTO & N. PEYGHAMBARIAN

FIGURES AT A GLANCE

Holography is a technique that is used to display objects or scenes in three dimens
dimensional (3D) images, or holograms, can be seen with the unassisted eye and a
humans see the actual environment surrounding them. The concept of 3D telepres
dynamic hologram depicting a scene occurring in a different location, has attracte
interest since it was depicted in the original *Star Wars* film in 1977. However, the
computational power to produce realistic computer-generated holograms 1 and the
and dynamically updatable holographic recording media 2 have prevented realizat
Here we use a holographic stereographic technique 3 and a photorefractive polym
recording medium 4 to demonstrate a holographic display that can refresh images
50 Hz nanosecond pulsed laser is used to write the holographic pixels 5. Multicolo
images are produced by using angular multiplexing, and the full parallax display
multiplexing. 3D telepresence is demonstrated by taking multiple images from on
transmitting the information via Ethernet to another location where the hologram
quasi-real-time dynamic 3D display. Further improvements could bring applicatio
prototyping, advertising, updatable 3D maps and entertainment.

3D display technology is attracting much public attention; events include the rece
such as *Avatar*, the 2008 US election-night 'hologram' reporter interviews from C
(http://www.cnn.com/2008/TECH/11/06/hologram.yellin/index.html), and the de
televisions by some manufacturers (http://www.3dtvsource.com/). As dramatic as

NEWS

Mayans converted wetlands to farmland

BY AMANDA MASCARELLI

The ancient Maya civilization is widely recognized for its awe-inspiring pyramids, sophisticated mathematics and advanced written language. But research is revealing that the complexity of Maya agricultural systems is likely to have rivalled that of their architecture and intellect.

Maya irrigation canals at "Birds of Paradise" site in northwest Belize.
Credit: S. Luzzadder-Beach

Using new techniques and extensive excavations, researchers have found that the Maya coped with tough environmental conditions by developing ingenious methods to grow crops in wetland areas. "The work shows that this intensive agriculture is more complicated and on a par with these other areas of intellectual development," says Timothy Beach, a physical geographer at Georgetown University in Washington DC, who presented his findings on Wednesday at the Geological Society of America (GSA) meeting in Denver, Colorado.

The Maya civilization, considered one of the most advanced ancient societies, lived in sprawling and

LETTER

Organic-walled microfossils in 3.2-billion-year-old shallow-marine siliciclastic deposits

Emmanuelle J. Javaux, Craig P. Marshall & Andrey Bekker

Although the notion of an early origin and diversification of life on Earth during the Archaean eon has received increasing support in geochemical, sedimentological and palaeontological evidence, ambiguities and controversies persist regarding the biogenicity and syngeneity of the record older than Late Archaean 1 2 3. Non-biological processes are known to produce morphologies similar to some microfossils 4 5, and hydrothermal fluids have the potential to produce abiotic pe values 6, making it difficult to establish unam very of a population of large (up to about 300 μm i ctures in Mesoarchaean shales and siltstones o oldest siliciclastic alluvial to tidal-estuarine depos organic-walled microfossils on the basis of petrogr genicity and syngeneity, their carbonaceous ture, occurrence in populations, taphonomic fea al context plausible for life, as well as a lack of abi ese are the oldest and largest Archaean organ r. Our observations suggest that relatively large benthic microbial mats 8 in the photic zone of r llion years ago.

Until now, Archa described mostly from hydrothermal a tic lithologies have been largely overlooked by micropalaeontologists, although they are routinely examined in Proterozoic successions. Early microfossil reports 9 from acid-macerated shales of the Fig Tree Group (Barberton Greenstone Belt (BGB), South Africa), which is about 3.3 Gyr old, have been deemed to be abiogenic 10. Sedimentary structures interpreted as microbial mats, and also preserved organic matter with negative carbon isotope values, have been described from Archaean unsilicified 11 siliciclastic successions, including the Moodies Group 8 and from cherts 12 of South Africa. Proterozoic shales and siltstones deposited in intertidal to deep-basinal marine

Structured organic remains from the Fig Tree Series (Precambrian) of the Barberton mountain land (South Africa)
Pflug, H. D.
Rev. Palaeobot. Palynol. 5, 9–29 (1967)

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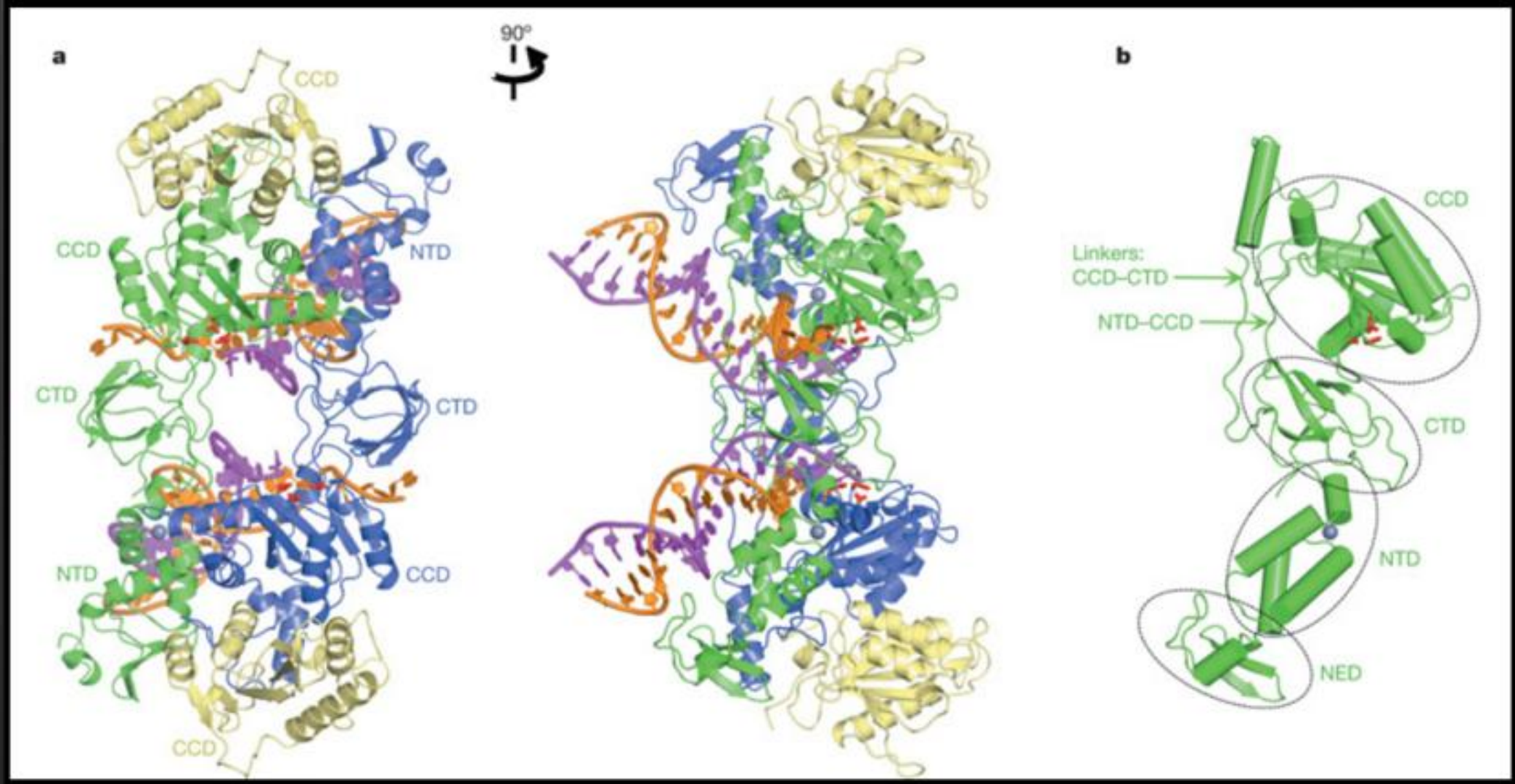

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FEBRUARY 21, 2011

Why scientists should blog about their pets

Our March issue went live today, featuring a Thesis article (sub req'd) from Michelle Francl about blogging - here's a little extra from Michelle that expands on her column.

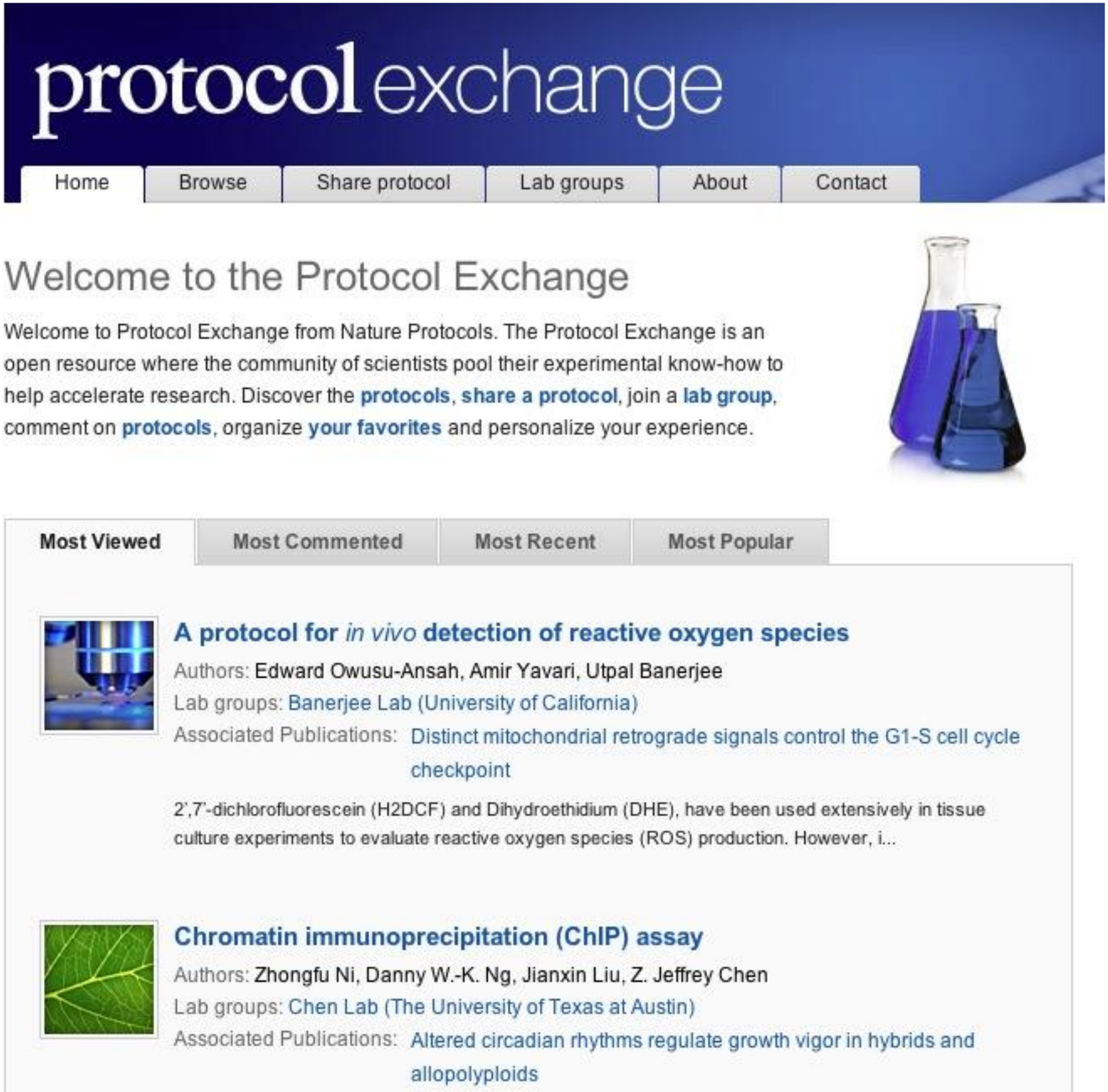
Last fall, Royce Murray stirred up science bloggers by characterizing them as unqualified purveyors of pseudoscience in search of easy money. The response was fast and furious - so robust in fact that performing the Google search that Murray referred to in his argument "qualifications of bloggers" now turns up as many hits to science blogs responding to Murray's editorial as it does adverts and advice for the unqualified seeking to blog (at least in the top twenty!).

I argue in my Thesis column this month that chemistry blogs are a critical part of the communication network which supports good research - and that scientists should read, and if they are so inclined write, blogs of this sort.

What I didn't say is that I would extend this to suggest that scientists should be doing more than utilitarian writing. We should move beyond the writing of journal articles, reviews, abstracts, and even blog posts critically commenting on the literature and write about the quotidian challenges of doing science, extol the beauty of our latest compound, wax philosophical about the reality of molecular orbitals, and dare I say it, blog about our pets.

Simply writing more is a strategy to become a faster, fluent and more efficient writer. Why not write summaries of the latest literature? Why do I think writing about the steamboat buffet my student treated me to in Singapore or my cat's latest predatory exploits is worth my time? Because I can write with the brakes off. I can use language wildly, without worrying about transgressing technical boundaries or overreaching my data.

Learning to deploy rich descriptive language takes practice, and has hidden benefits to the research scientist. Scientists' field notes and lab notebooks would benefit from fluent, descriptive writing - and so, in my experience, would the science that flows from them. The original sceptical chemist, Robert Boyle, held that science wasn't officially science unless you'd



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101 Project Rooms

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New interpretations of the Antikythera Mechanism reveal that it could be used to predict eclipses, and that it had a dial recording the dates of the ancient Olympiads. The 2,000-year-old box of intricate gearwork provides a glimpse of the engineering prowess of the Hellenic world. The team discuss their results here.

... (more info)

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The science of diplomacy

The US government employs researchers to delve into matters of state. What special skills are required for these positions?

Q&A

Turning point: Collins Ouma

Molecular biologist Collins Ouma's efforts to combat paediatric malaria in Kenya are gaining momentum.

Feature

Curation generation

With biological databases growing in size and number, curators are needed to update and correct their contents. For those who prefer computers to pipettes, there are opportunities.

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Will the iPhone revolutionize research?

One of the first scientists to use an iPhone applicat...

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Tips for job hunting in dual-career relationships

Chemists Sarah Tolbert and Benjamin Schwartz shared u...

1 comment

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Irish science funding hangs in electoral balance
Nature News (15 February 2011)

Egyptian science community celebrates a free Egypt
Nature Middle East (12 February 2011)

US science agencies targeted for cuts
Nature News (10 February 2011)

Science JOBS of the week

Chair in Geographical Information Science / Geomatics
University of Leicester
Leicester, UK

Clinical Research Fellow in Surgery (7 posts)
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Glasgow, UK

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Birmingham, AL

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Glasgow, UK

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University of Glasgow
Glasgow, UK

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The University of Texas MD Anderson Cancer Center
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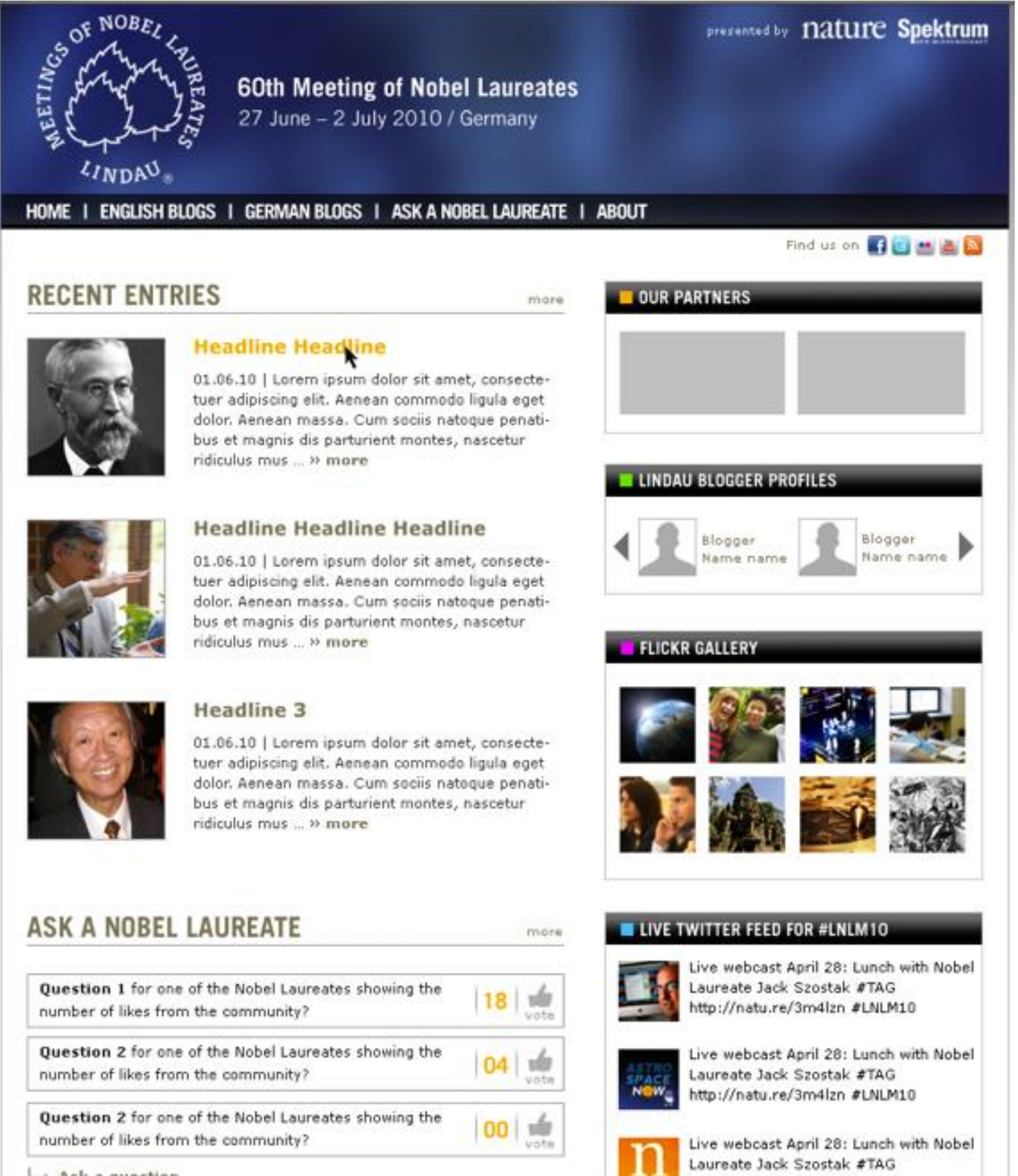


E.g. Lindau Nobel Laureates conference.

Brought together multiple social media elements

Blogs

Q&A

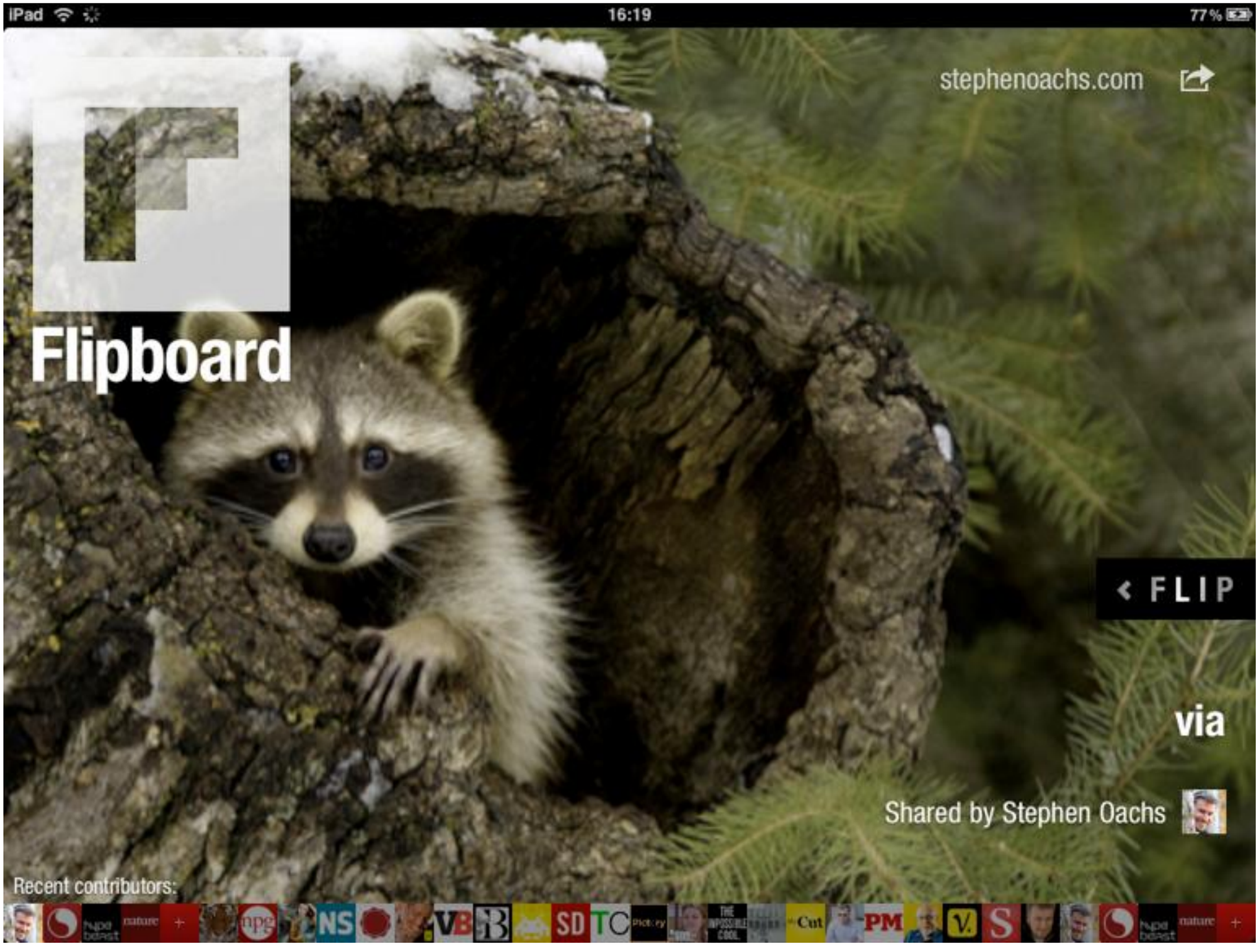
Flicker Photo Gallery

Twitter Feeds

Competitions

Before, during and after the event

Alerting & aggregation in the iPad age

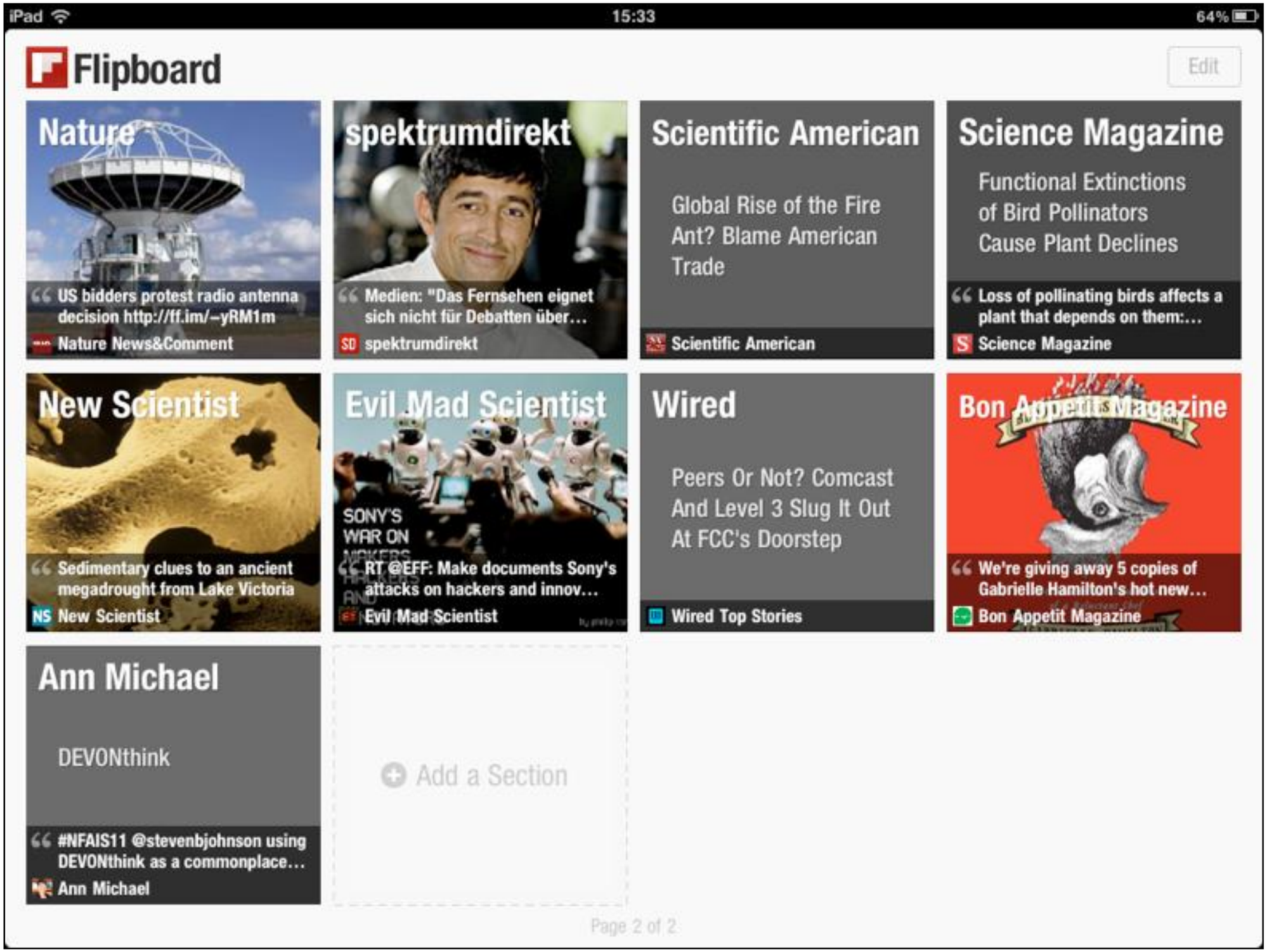


“Flipboard has a core quality that makes it special: it turns noise into signal…

…more than an aggregator, it is an improver of content…

…it turns [a Twitter feed] into a readable, coherent, content spread.”

Connections translate into a social book



User selects Twitter feeds

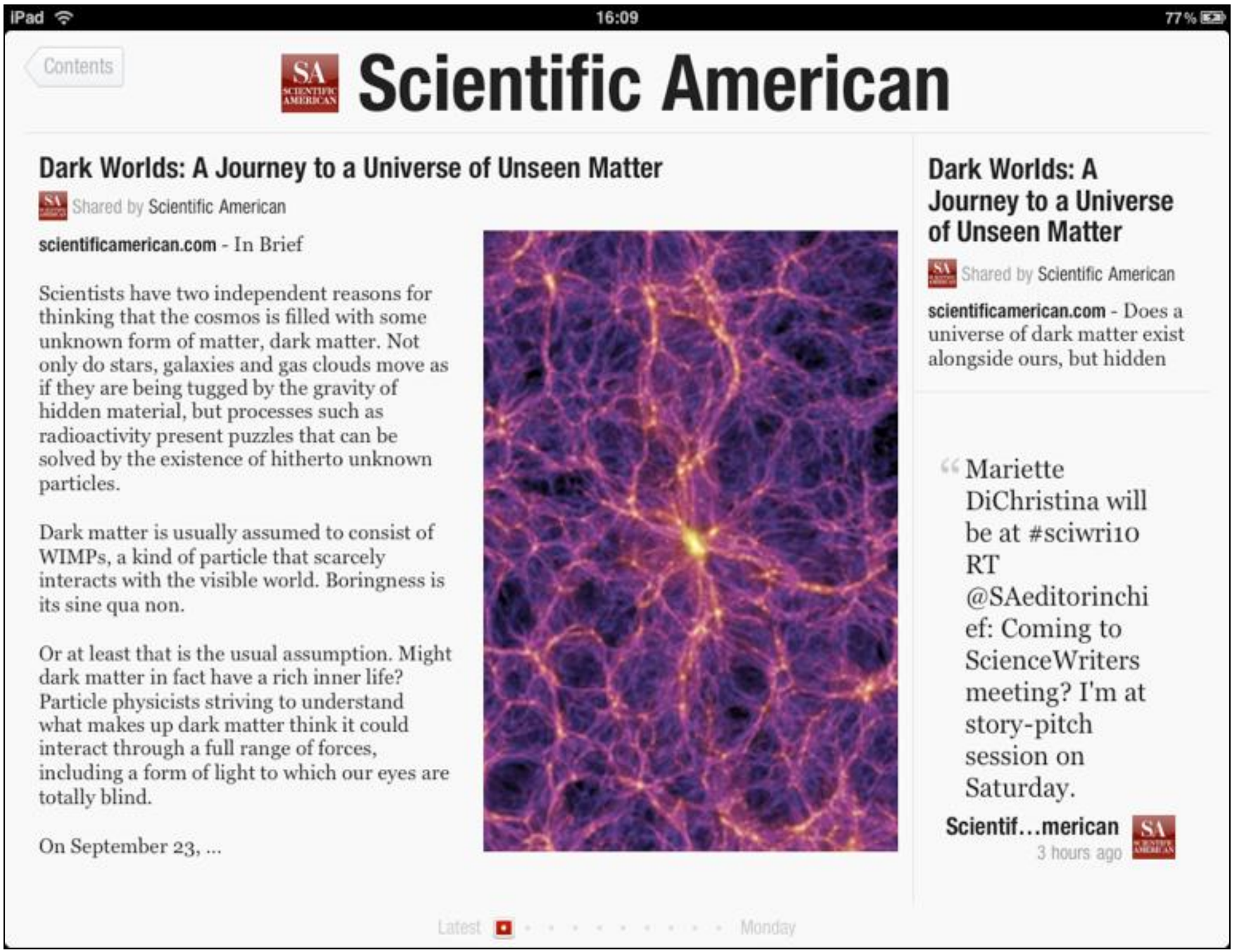
FlipBoard app looks for the content the feeds link to and formats it.

This is all done automatically across two hops:

iPad > Twitter

Twitter > content

The software makes the magazine…



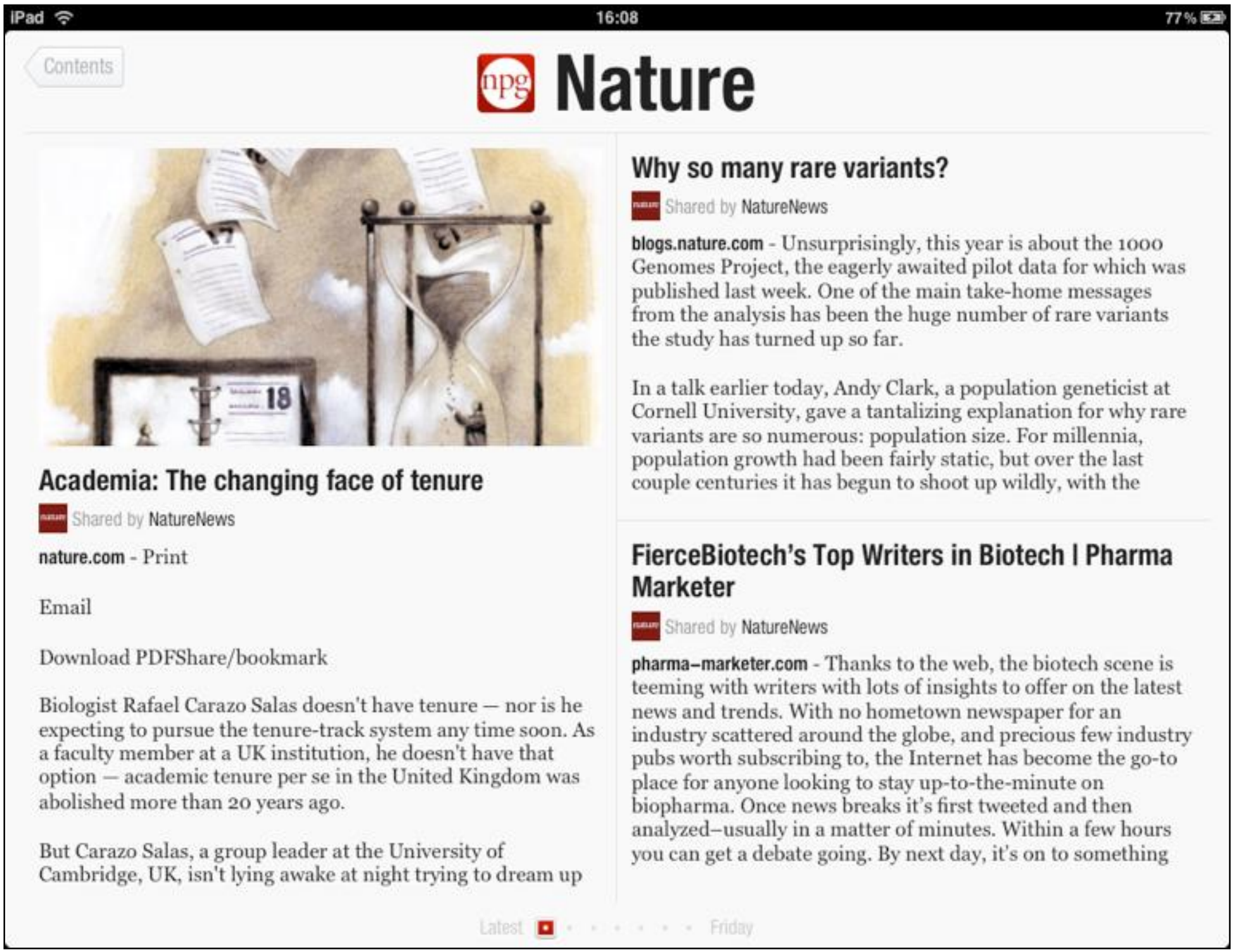
Tap a source to view its virtual publication.

Each source is formed into a newspaper-like layout.

Pictures are pulled in where possible.

The publisher can only control content text, image and badge.

…not the publisher

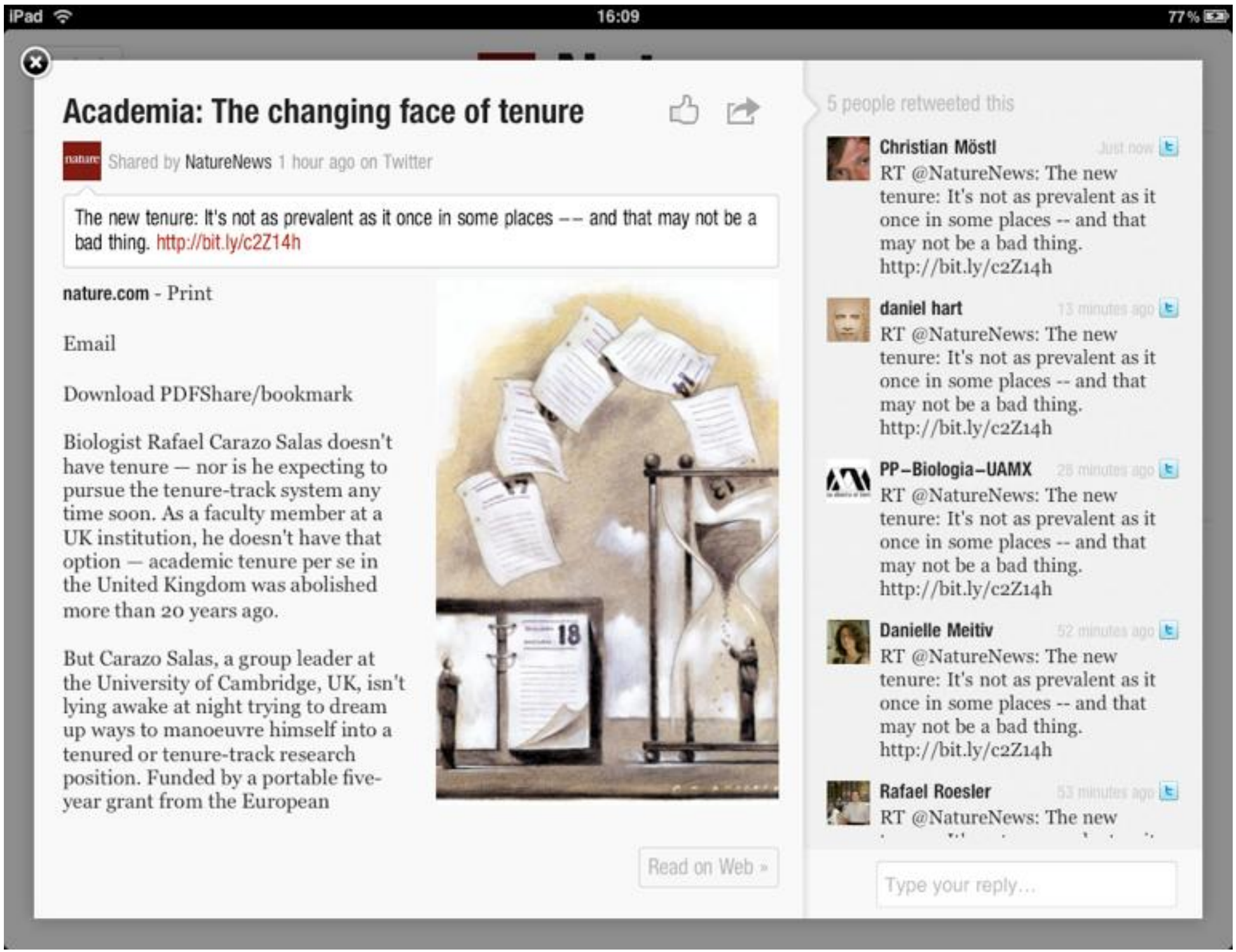


Note the different layout between "publications" and within them.

The application applies random variations to create the illusion of a laid-out newspaper.

Badging and formatting content is critical for a quality experience.

Publisher mash-up with social media



Tap a story to read it in full.

Discussion about it is automatically added.

Users can rate the story and re-tweet it.

“Once journal content is opened up to Google for indexing, Google is then used by large numbers of even the most proficient and informed information seekers.

Just four months after ScienceDirect content in physics was opened up to Google, more than a third of all traffic arrived via this route. This is particularly notable in a field richly endowed with online information resources.

- E-journals: their use, value and impact, RIN, April 2009

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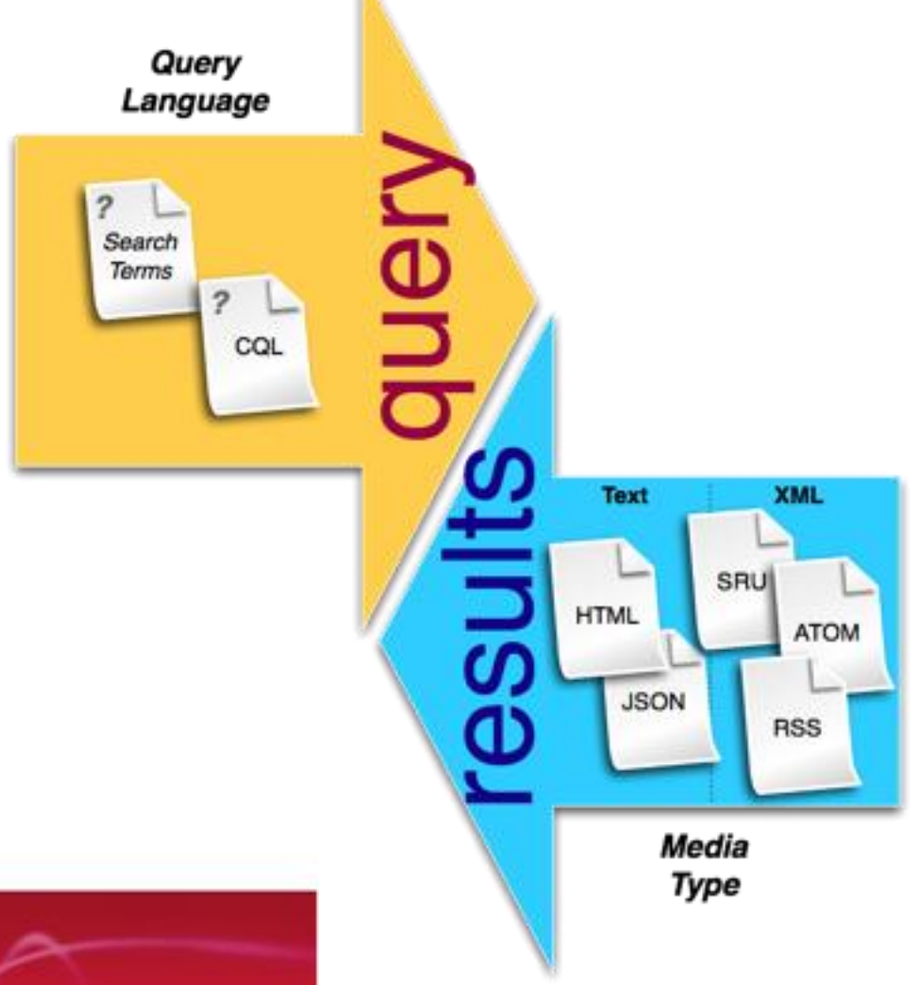

⇐ Documentation ⇑ Documentation Blogs API ⇒

API Reference

We currently make the following APIs available:

- Blogs - provides access to the nature.com blog tracking and indexing service
- OpenSearch - enables remote searching of content hosted on nature.com

version 21 as of 4 days ago **by hilary**

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Protein Measurement with the Folin Phenol Reagent

Lowry, O. H., Rosebrough, N. J., Farr, A. L., and Randall, R. J. (1951) J. Biol. Chem.193, 265–275)

…**a** method **for measuring the amount of protein in solutions. As of January 2004, it was cited**

275,669 times

Question: what's the difference?

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Answer: there is none

They all refer to the *same* article.

The Bioperl Toolkit: Perl Modules for the Life Sciences
Genome Research
Genome Res. 2002. 12:1611-1618

..and even then exclude…

Any proxied links e.g. http://genome.cshlp.org.ezproxy.harvard.edu/content/12/10/1611.full

Representations on any other abstract databases e.g. Scopus

(There is no easy to infer the URLs use to refer to an article.)

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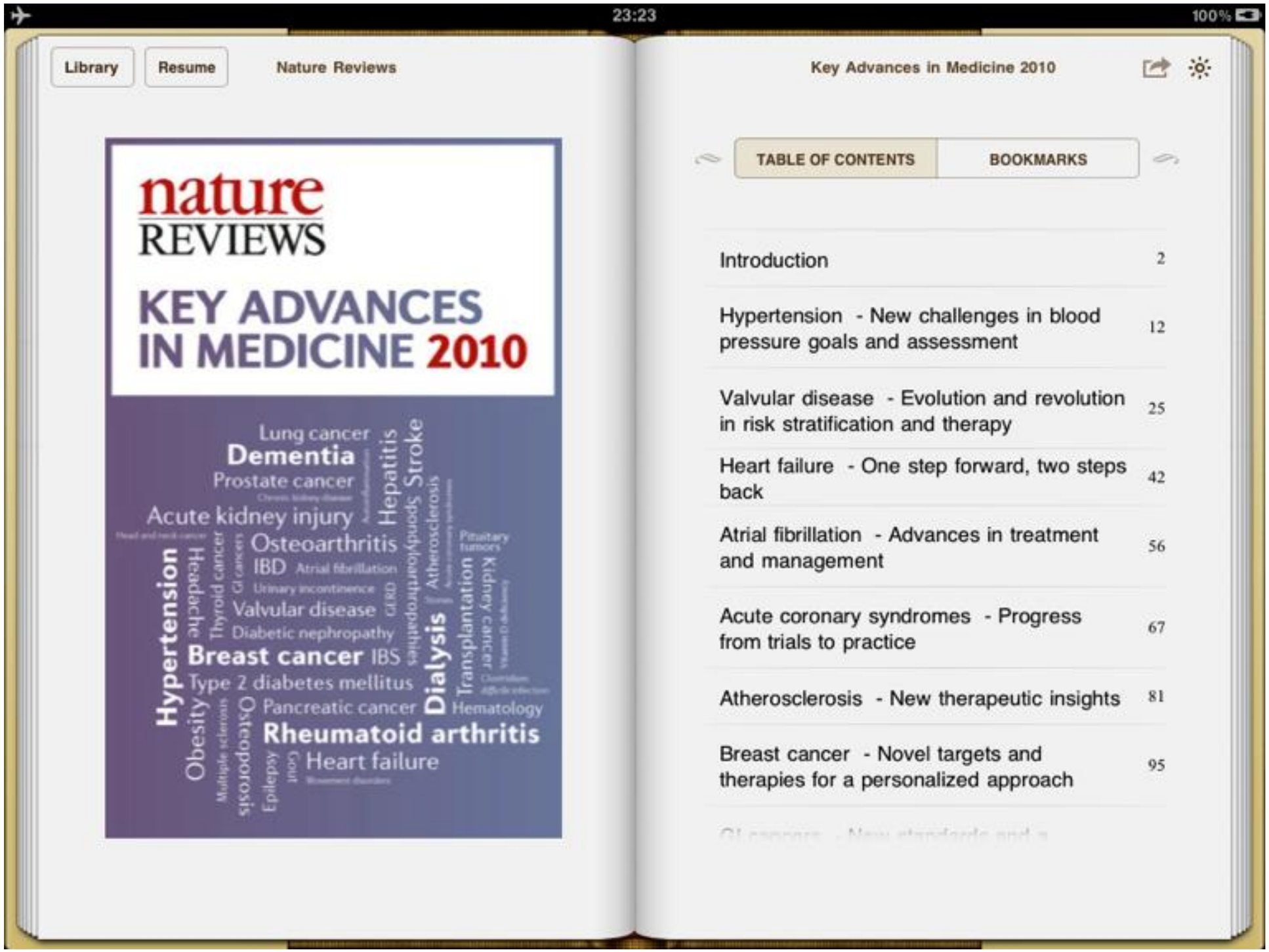
Tumour-infiltrating regulatory T cells stimulate mammary cancer metastasis through RANKL–RANK signalling. Wei Tan, Weizhou Zhang, Amy Strasner, Sergei Grivennikov, Jin Q. Cheng, Robert M. Hoffman & Michael Karin

Nature 470, 548–553 (24 February 2011) doi:10.1038/nature09707

Fat cells reactivate quiescent neuroblasts via TOR and glial insulin relays in Drosophila. Rita Sousa-Nunes, Lih Ling Yee & Alex P. Gould.

Nature (2011) doi:10.1038/nature09867 [Accessed 26 Feb 2011]

But even then...



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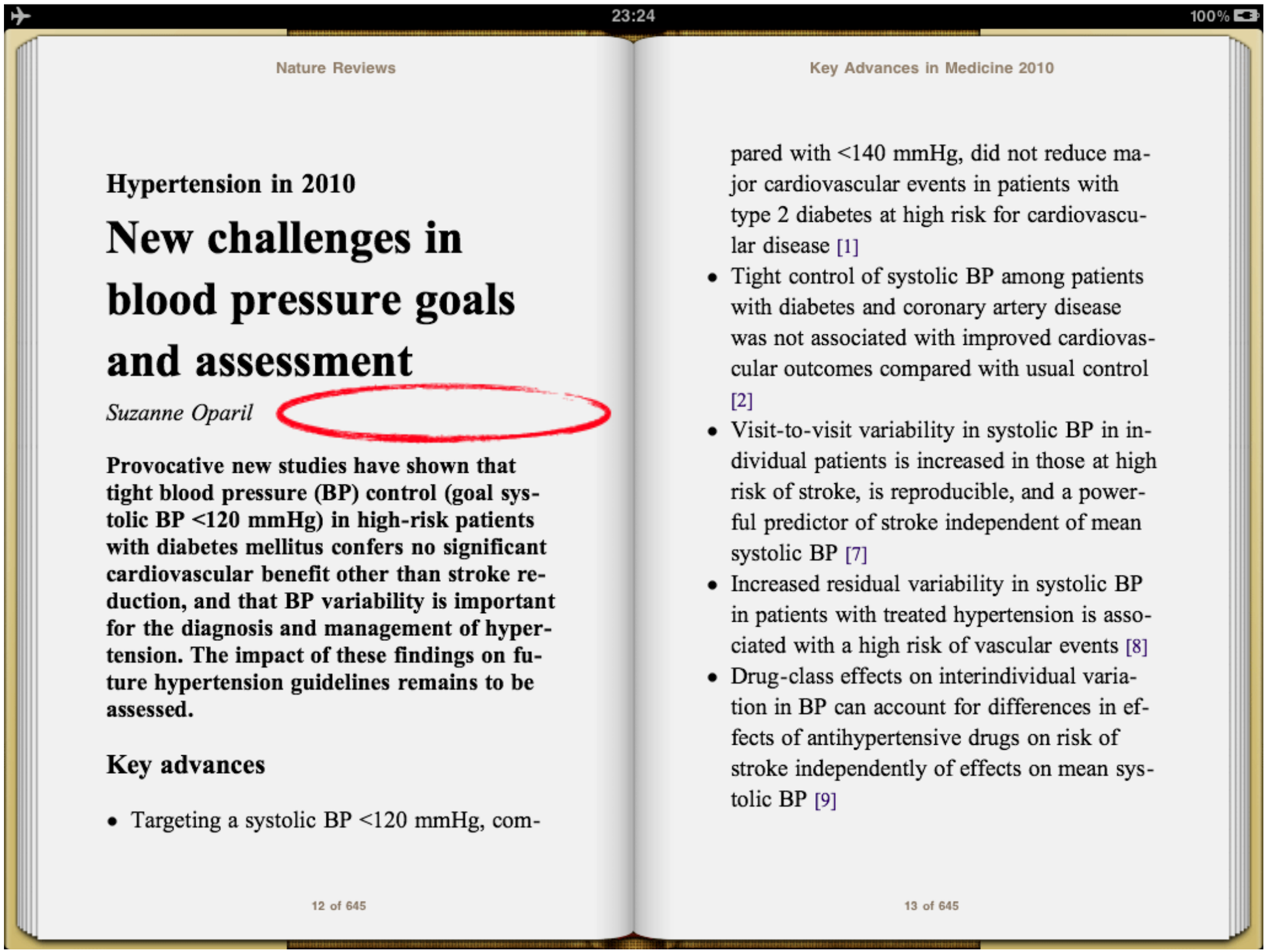

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Nature Reviews Cardiology 8, 73-75 (27 January 2011)

doi:10.1038/nrcardio.2010.20

Hypertension in 2010

New challenges in blood pressure goals and assessment

Suzanne Oparil

Provocative new studies have shown that tight blood pressure (BP) control (goal systolic BP <120 mmHg) in high-risk patients with diabetes mellitus confers no significant cardiovascular benefit other than stroke reduction, and that BP variability is important for the diagnosis and management of hypertension. The impact of these findings on future hypertension guidelines remains to be assessed.

Key advances

- Targeting a systolic BP <120 mmHg, compared with <140 mmHg, did not reduce major cardiovascular events in patients with type 2 diabetes at high risk for cardiovascular disease [1]
- Tight control of systolic BP among patients with diabetes and coronary artery disease was not associated with improved cardiovascular outcomes compared with usual control [2]
- Visit-to-visit variability in systolic BP in individual patients is increased in those at high risk of stroke, is reproducible, and a powerful predictor of stroke independent of mean systolic BP [7]
- Increased residual variability in systolic BP in patients with treated hypertension is associated with a high risk of vascular eve
- Drug-class effects on interindividual v tion in BP can account for differences fects of antihypertensive drugs on risk of stroke independently of effects on mean systolic BP [9]

Hypertension in 2010

New challenges in blood pressure goals and assessment

Suzanne Oparil

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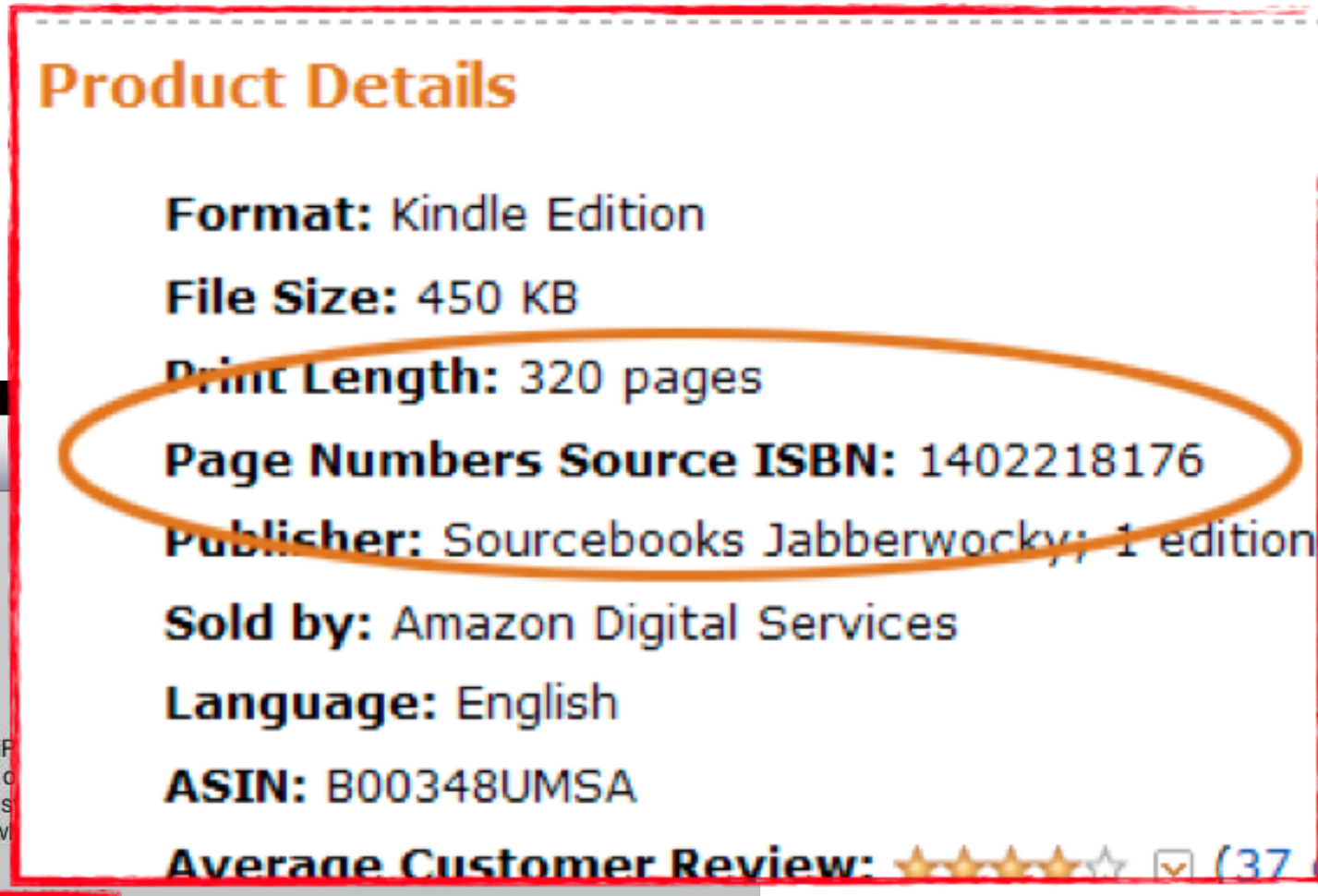
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The single biggest problem in communication is the illusion that it has taken place.

George Bernard Shaw