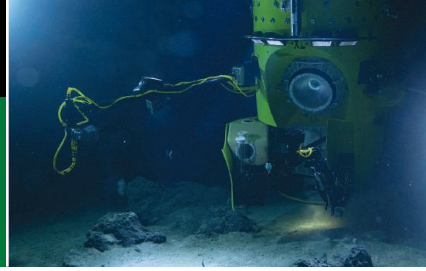
Complexities of genetic testing 297



Exploring the Mariana trench 301

LETTERS

edited by Jennifer Sills

Environment-Friendly Reform in Myanmar

DECADES OF ECONOMIC AND POLITICAL ISOLATION HAVE TRANSFORMED MYANMAR. ONCE A regional leader [and the world's largest exporter of rice through the 1950s (*1*)], Myanmar now has some of the lowest human development and governance indicators in the world (*2*, *3*). Environmental governance has also suffered: Mineral and timber resources have been unsustainably exploited (*4*), wildlife populations have declined (*5*), environmental safeguards are negligible (*6*), and the protected-areas network is under-resourced and poorly enforced (*7*). Yet, Myanmar remains a global biodiversity hotspot and conservation priority. It hosts one of the largest contiguous forest blocks in Southeast Asia and sustains many endangered and endemic species, including the newly described Burmese snub-nosed monkey (*8*). New, rapid economic transformation has the potential to compound the challenges of safeguarding sensitive ecosystems.

Democracy advocate Aung San Suu Kyi. Recent elections bring Myanmar one step closer to reform.

The 2011 establishment of a quasi-democratic government and the subsequent release of hundreds of political prisoners prompted high-profile visits by representatives from numerous donor countries (*9*). With openly contested by-elections on 1 April, Myanmar has taken another step toward increased development assistance, reduced sanctions, and improved trade, in hopes of renewed economic opportunity. Myanmar's business environment is already changing, spurred by regional investment, the China-ASEAN Free Trade Agreement, and plans for large-scale industrial and agricultural development and currency stabilization.

Although potentially transformative, massive and rapid investment into Myanmar should prompt some concern. Myanmar's neighbors may view liberalization as an opportunity to export polluting industries, extract raw materials, and supply agricultural exports; domestic environmental groups are already sounding the alarm (*6*, *10*). Encouragingly, the new government has recently made several bold, high-profile steps toward environmental protection, including the suspension of the Chinese-supported Myitsone Dam and Thai-financed Dawei coal-fired power plant (*11*, *12*).

Much depends on the reform of Myanmar's environmental regulatory framework. Although Myanmar is already a signatory to international environmental agreements such as the Convention on Biological Diversity (in 1994) and the Ramsar Convention (in 2005), there is clear need for internal review, as well as capacity-building and financial support to promote best practices. During this period of re-engagement among government, donors (including nontraditional donors), and foreign investors, there is also a need for renewed dialogue about how to establish sustainable development and environmental agendas for Myanmar. In the face of rapid economic liberalization, it will be a major challenge to ensure sustainability and to conserve Myanmar's imperiled biodiversity.

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India's Science: Elitism Prevails

AFTER READING THE NEWS FOCUS STORY "INDIA rising" (R. Stone, 24 February, p. 904) and the related Editorial, "India's 'science for all' academy" (R. Mashelkar, 24 February, p. 891), I can't escape asking: Why doesn't such a competent and highly educated scientific workforce produce? It seems that in

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India, scientists who become successful or achieve some modicum of notoriety eventually become science administrators and preside over decades of myopic science policies and self-preservation, including handpicking those who are "respectful and compliant," ensuring vertical transmission of mediocrity and incompetence. This continuum of elitism, contaminated with favoritism, leaves Indian science bereft of new ideas and energies. The only time that this practice was defied was when Nehru (India's first prime minister) appointed a young, energetic visionary physicist named Homi Bhabha, much to the chagrin of the late Sir C.V. Raman (the Nobel laureate). It was Bhabha who ushered the Indian Atomic Energy program to its current stature and competence. In a nation of more than a billion people, there shouldn't be a dearth of energy or ideas. It is sad that Stone did not find any young Indian scientists to write about.

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India's Science: Excellence Unrecognized

NEITHER R. MASHELKAR'S EDITORIAL ("INDIA'S 'science for all' academy," 24 February, p. 891) nor the News Focus story by R. Stone ("India rising," 24 February, p. 904) touched upon the biggest shortcoming of Indian science: its inability to reward, and hence inspire, excellence.

Among the multitudes who brave the largely patronizing and unimaginative education system in India, many researchers do emerge who are capable of emulating the best in the world. However, no mechanism exists to encourage demonstrated potential or to reward those who achieve better-than-average output. A university faculty member receives the same annual salary raise whether she or he has published 10 papers, one paper, or no papers in high–impact-factor journals in the preceding year. Not only is the system unable to provide personal benefits to achievers of excellence, it does not even facilitate their work with better research grants. An assistant professor must spend at least 11 years and must achieve a certain minimum research output in that time to be given associate professorship. But if someone achieves double, triple, or quadruple the stipulated minimum in less than 11 years, there is no provision for that person to move up faster than the lesser achievers. Apart from enduring the disinterest of the establishment, these scientists also have to contend with the hurdles placed in their path by envious colleagues.

Once in a while, policy-makers make noises about providing a faster track to those who put in exceptional effort, but the idea is quickly abandoned out of fear of displeasing the fence-sitting majority. Given this backdrop, those who pursue excellence in Indian universities and research institutions invoke a mixture of hostility and embarrassment. The treatment they receive becomes a demotivating example for others. The Indian scientific establishment keeps expressing the desire to promote excellence, but on the ground, it does everything to discourage it.

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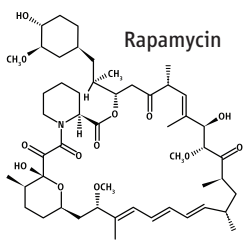
Letters to the Editor

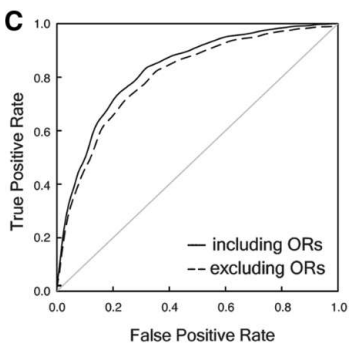
Letters (~300 words) discuss material published in *Science* in the past 3 months or matters of general interest. Letters are not acknowledged upon receipt. Whether published in full or in part, Letters are subject to editing for clarity and space. Letters submitted, published, or posted elsewhere, in print or online, will be disqualified. To submit a Letter, go to www.submit2science.org.

CORRECTIONS AND CLARIFICATIONS

Perspectives: "Rapamycin paradox resolved" by K. J. Hughes and B. K. Kennedy (30 March, p. 1578). In the print and online HTML version of the figure, some of the chemical structures of rapamycin were mistakenly omitted. The correct figure is shown here (right). The online HTML version has now been corrected. The online PDF was corrected shortly after publication.



Research Articles: "A systematic survey of loss-of-function variants in human protein-coding genes" by D. G. MacArthur *et al*. (17 February, p. 823). In Fig. 3C, the axis labels "False Positive Rate" and "True Positive Rate" should have been swapped. The corrected figure is shown here (below). The figure has been corrected in the HTML version online.



Research Articles: "The technology path to deep greenhouse gas emissions cuts by 2050: The pivotal role of electricity" by J. H. Williams *et al*. (6 January, p. 53). One of the affiliations of the corresponding author, Margaret S. Torn, was inadvertently omitted: Earth Sciences Division, 90R111, Lawrence Berkeley National Laboratory, Berkeley, CA 94720, USA.

Reports: "Effects of genetic perturbation on seasonal life history plasticity " by A. M. Wilczek *et al*. (13 February 2009, p. 930). A minor coding error was detected that affects the sunrise and sunset times used in the authors' photothermal model of *Arabidopsis* development. The computed photoperiods are correct, but the error had small effects on daytime degree-hour accumulations because temperatures are cooler near dawn than dusk. Correcting this error resulted in minor changes to estimated model parameters and modified photothermal unit values (tables S2 and S3) and insignificant changes in Figs. 2 to 4. There were no R^2 changes (Figs. 3 and 4B), and the conclusions of the paper are completely unaffected. The online supplement has been corrected. The authors thank Alex Cobb for detecting the error.

TECHNICAL COMMENT ABSTRACTS

Comment on "Detection of Emerging Sunspot Regions in the Solar Interior"

Douglas C. Braun

Ilonidis *et al*. (Reports, 19 August 2011, p. 993) report acoustic travel-time decreases associated with emerging sunspot regions before their appearance on the solar surface. An independent analysis using helioseismic holography does not confirm these travel-time anomalies for the four regions illustrated by Ilonidis *et al*. This negative finding is consistent with expectations based on current emerging flux models.

Full text at www.sciencemag.org/cgi/content/full/336/6079/296-c

Response to Comment on "Detection of Emerging Sunspot Regions in the Solar Interior"

Stathis Ilonidis, Junwei Zhao, Alexander Kosovichev

Braun claims that his analysis using helioseismic holography does not confirm the detection of emerging sunspot regions. We examine his measurement procedure and explain why his method has different sensitivity than our method. We also discuss possible physical processes that may cause the detected phase travel-time shifts.

Full text at www.sciencemag.org/cgi/content/full/336/6079/296-d

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