

## The Competition for Talent

**ECONOMIST PAUL ROMER'S IDEA OF HOW TO** increase the number of science and engineering graduates is to intervene in the market by financially rewarding universities that do so (News Focus, "Can universities be bribed to train more scientists?," by J. Mervis, 21 Dec., p. 2466). Romer is being hailed for his "fresh insights," yet has the federal government not been intervening—through fellowships, traineeships, and research assistantships tied to federal grants—in the production of scientists and engineers for more than 40 years (i.e., since Sputnik)? Given that there is still a

problem in attracting U.S. students to science- and math-based disciplines and that programs such as Pell Grants and student loans have provided inadequate incentives to students to enroll and stay in these fields, it seems unlikely that the solution is simply more money.

Some pieces of the puzzle are mentioned by analysts cited in the article—poor K-12 preparation and rising costs, for example—but there are other pieces. Science and engineering (S&E) has always craved the best and brightest. The issue for these disciplines is "talent share" (1). The college-age population is projected to approach 80% women and minorities, combined, in the next 15 years (2), groups that are presently educationally underserved and historically neither recruited nor supported in S&E. They will represent the pool of talent for which all professions will compete. In addition, compared with areas such as medicine and law, science currently fares poorly in student retention, career prospects, lifetime earnings, and quality of student and professional life (3).

If we wish to increase the number of U.S. students trained in science- and math-based disciplines, then this changing demographic needs to be taken into consideration. More needs to be done than just funding an approach that has not been sufficiently success-

ful. Particularly when federal funds are used, we should expect that students are prepared, enrolled, and supported through degree completion (4). University departments should be held accountable for increasing the S&E workforce. And universities should show how they add value in converting raw SAT-certified talent, as well as those with 2-year-college experience, into skilled, science-based professionals (5). No one would deny that the federal (and state) government should continue to play a large role in solving this problem, but it is time to dismiss the myth of free-market solutions.

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### References and Notes

1. *The American Freshman* (Higher Education Research Institute, Univ. of California, Los Angeles, annually).
2. *Land of Plenty* (Congressional Commission on the Advancement of Women and Minorities in Science, Engineering, and Technology Development, Washington, DC, 2000).
3. M. Teitelbaum, in *Scientists and Engineers for the New Millennium: Renewing the Human Resource* D. E. Chubin, W. Pearson Jr., Eds. (Commission on Professionals in Science and Technology, Washington, DC, 2001), pp. 71–79; E. Seymour, N. M. Hewitt, *Talking About Leaving: Why Undergraduates Leave the Sciences* (Westview, Boulder, CO, 1997).
4. R. A. Ibarra, *Beyond Affirmative Action: Reframing the*

## Letters to the Editor

Letters (around 300 words) discuss material published in *Science* or issues of general interest. They can be submitted by e-mail (science\_letters@aaas.org), the Web (www.letter2science.org), or mail (1200 New York Ave., NW, Washington, DC 20005, USA). Letters are not acknowledged upon receipt, nor are authors generally consulted before publication. Whether published in full or in part, letters are subject to editing for clarity and space.

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## The 4<sup>th</sup> World Congress on Tuberculosis

will be held at the Marriott Wardman Park Hotel in Washington, DC, USA on June 3–5, 2002. This meeting will evaluate the state of the global TB epidemic since the last Tuberculosis World Congress in 1992, review the status of TB research and identify research gaps. Topics covered will include fundamental, translational and operational research. This meeting is for global TB control officials, TB researchers, health systems services researchers, policymakers and funders, as well as infectious disease and pulmonary physicians.

Abstracts for poster presentation due:

**March 1, 2002**

Hotel, abstract and meeting details:

**[www.niaid.nih.gov/dmid/tuberculosis/tbcongress](http://www.niaid.nih.gov/dmid/tuberculosis/tbcongress)**

Meeting Organizers, Co-Sponsors and Supporters include: American Lung Association, American Thoracic Society, Global Alliance for TB Drug Development, Infectious Disease Society of America, KNCV, Open Society Institute, Pittsfield Anti-TB Association, Sequella Global TB Foundation, STOP TB, The Rockefeller Foundation, The Wellcome Trust, US Agency for International Development, US Centers for Disease Control and Prevention, US National Institutes of Health: Fogarty International Center and National Institute of Allergy and Infectious Diseases, and the World Health Organization/TDR.

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Context of Higher Education (Univ. of Wisconsin Press, Madison, WI, 2001).

5. R. H. Hersh, R. Benjamin, "Assessing the quality of student learning in undergraduate education: an imperative for state policy and practice" (CAE Policy Papers, Council for Aid to Education, New York, 2001).

## Bloodthirsty Hitchhikers?

NEARLY 100 YEARS AGO, FAHRENHOLZ claimed that parasite phylogeny mirrors host phylogeny (1). The report "Resolution of the early placental mammal radiation using Bayesian phylogenetics" by William J. Murphy and colleagues (14 Dec., p. 2348) brought to our minds Fahrenholz's idea, which, although in many cases not true in the strict sense, served as a hypothesis in numerous studies of coevolution. There are some striking parallels between the proposed placental mammal phylogeny and the proposed phylogeny of the mosquito genus *Anopheles* (2).

Anophelines are mammalian ectoparasites whose life cycles depend on a protein-



A female *Anopheles gambiae*.

rich blood meal required by females for egg production. Similar to placental mammals, anophelines likely originated on the ancient supercontinent Gondwana, and their basal lineages experienced rapid diversification that might have coincided with the separation of South America and Africa.

Because no sufficiently old mosquito fossil records are available, our understanding of anopheline evolutionary history depends largely on a careful analysis of their geographical distribution. Of the six *Anopheles* subgenera, *Stethomyia*, *Lophopodomyia*, *Kerteszia*, and *Nyssorhynchus* inhabit South America, *Cellia* is found in the Old World, and *Anopheles* is cosmopolitan. Remarkably, like the placental mammal clade Boreoeutheria, subgenera *Anopheles* and *Cellia* not only appear to occupy a derived (as opposed to basal) position in the anopheline phylogeny, but also are the most diverse. Phylogenetic evidence suggests that the subgenus *Anopheles*, after origination in South America and rapid dispersal throughout Laurasia, reentered the Neotropics from the north. Presumably, then, the early radia-

tion of mammals was closely followed by radiation of anophelines, which thrived on the blood of newly emerging taxa. If this was the case, further studies of *Anopheles* phylogeny might shed new light on such issues in mammalian evolution as timing of divergences and routes of dispersal.

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### References and Notes

1. H. Fahrenholz, *Zool. Anzeig.* **41**, 371 (1913).
2. J. Krzywinski et al., *Syst. Biol.* **50**, 540 (2001).

## Neuroscience of Stuttering

WE DISAGREE WITH WILLIAM H. PERKINS' comments (Letters, "Stuttering: a matter of bad timing," 26 Oct., p. 786) pertaining to the Random Samples item "The stammering brain" (3 Aug., p. 795). Perkins takes issue with the discovery by Anne Foundas at Tulane University and her colleagues that anatomical differences between stutterers and nonstutterers in the two brain regions

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## NHLBI Mammalian Genotyping Service



The Mammalian Genotyping Service is funded by the National Heart, Lung, and Blood Institute to assist in linkage mapping of genes which cause or influence disease and other research purposes. Genotyping is carried out using whole genome polymorphism scans at Marshfield, Wisconsin under the direction of Dr. James Weber. Capacity of the Service is currently about 7,000,000 genotypes (DNA samples times polymorphic markers) per year and growing. Although the Service was initially established for genetic projects dealing with heart, lung, and blood diseases, the Mammalian Genotyping Service will now consider all meritorious applications. Genome scans for humans, mice, rats, dogs and zebrafish are available.

To ensure the most promising projects are undertaken, investigators must submit a brief application which will be evaluated by a scientific advisory panel. At this time, only projects with at least 10,000 genotypes will be considered. DNA samples must be in hand at the time of application. Most genotyping within the Service is currently done with multiallelic STRPs (microsatellites). However, genotyping with human diallelic polymorphisms has been initiated and will likely expand. **There are no genotyping fees for approved projects.** The Service is funded through September, 2006. Application deadlines are every six months.

### Upcoming Deadlines:

March 31

September 30

Visit our website for application information:

<http://research.marshfieldclinic.org/genetics>

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