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 successful. 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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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.

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

A female *Anopheles gambiae*.

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