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Career Options in Science

Floyd E. Bloom's editorial "Future imperfect and tense" (14 Feb., p. 907) notes that something is amiss in the job market for new Ph.D. scientists and engineers seeking to launch their careers. He refers to the report of the AAAS Task Force on Careers for Young Scientists and particularly to one of its recommendations—increased investment in "Science's Next Wave," the World Wide Web site that has given wide exposure to career issues and also could be used as a resource for faculty.

The Task Force report (*1*) also indicated new areas for AAAS action, including the nomination of young scientists to the AAAS Board; creation of a new AAAS section to address the concerns of those in transition to the workplace; and improved collection, analysis, and sharing of timely data on employment trends through greater support for the Commission on Professionals in Science and Technology (CPST). A participating organization of AAAS, CPST plays a pivotal role in promoting professional society and other surveys and in disseminating job information (*2*). The AAAS Board of Directors charged the Task Force with evaluating data and AAAS activities that address the concerns of young doctoral scientists preparing for careers. The Task Force affirmed that federal agencies, professional societies, and universities seldom include the voices of young professionals in policymaking and priority-setting. Career options for doctoral scientists seeking to contribute in settings other than research-intensive institutions must be cultivated (*3*). Until the major decisions shaping our nation's science and technology enterprise are reconsidered in this light, we continue to risk those human resources who represent the future.

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References and Notes

1. *Report of the AAAS Task Force on Careers for Young Scientists* (American Association for the Advancement of Science, Washington, DC, 1996). Copies available from the Directorate for Science and Policy Programs, AAAS, or by e-mail to rrich@aaas.org.
2. A recent CPST workshop on postdocs and career prospects, for example, showed that data on postdoctoral appointments are uneven at best. Many institutions have no designated unit responsible for collecting and reporting information on their own postdocs and have no mechanism for even identifying them.
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*Daryl E. Chubin (Chair), Finley Austin, Kevin Aylesworth, Roman Czujko, Maryrose Franko, Catherine Gaddy, Freeman Hrabowski, Catharine Johnson, Jules LaPidus, Jane Lubchenco, Robert Siegel, and Robert Rich (staff liaison).

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Birthrates: Russians Not Alone

Low birthrates are hardly unique to Russia ("Tumbledown pyramid," Random Samples, 14 Feb., p. 933). Recent estimates (see "Social indicators" at http://www.un.org/depts/unsd) show equally low total fertility rates of 1.2 births per woman in Hong Kong and Spain and rates nearly as low in Germany and Italy (1.3), Greece (1.4), and Austria, Bulgaria, Slovenia, and Romania (1.5). A "gloomy" assessment of the future may be one explanation, as the Population Reference Bureau hypothesizes, but it appears that other factors must certainly be at work.

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Evidence for Linkage Disequilibrium Between *HLA-DRB1* Gene and Multiple Sclerosis

In their Perspective "The future of genetic studies of complex human diseases (13 Sept., p. 1516), Neil Risch and Kathleen Merikangas emphasize that such studies might benefit greatly from approaches based on gametic disequilibrium. Recent genome scans (*1*) and our own data on human leukocyte antigen (*HLA*)-*DRB1* gene in patients with multiple sclerosis (MS) illustrate the issue well.

Despite the large number of affected sib-pair families investigated, the HLA region that is suspect from association stud-

ies has not reached the standard criteria (2) of confirmed linkage. With the use of the transmission/disequilibrium test (TDT) (3), we focused on the well-known MS-associated allele *DRB1*1501* to test for linkage within 157 French nuclear families (99 simplex, and 58 multiplex) with definite MS where the four parental haplotypes were unambiguously defined. The *DRBA*1501* transmission from heterozygous parents to MS offspring deviated strongly from random segregation (110/146 = 75.3% observed versus 50% expected, $P < 10^{-9}$) and also from that observed for unaffected offspring (110/146 versus 42/91, $P < 10^{-3}$), which excluded a meiotic segregation distortion. Thus, the highly significant evidence obtained within our families, and the supporting evidence found in three independent studies (4) where the TDT was also applied, confirm HLA linkage with MS. The excess of the *DRB1*1501* allele transmitted to MS patients was similar in our simplex and multiplex families (51/66 versus 59/80, NS).

This result may well indicate an homogeneous contribution of the HLA component to isolated and familial cases of MS and makes genetic heterogeneity unlikely as a cause of the common lack of HLA haplotype sharing in MS sib-pairs. Moreover, in our 58 multiplex families, TDT more firmly established linkage ($P < 10^{-4}$) than the identical by descent haplotype sharing test in the MS sib-pairs ($P < 0.03$). Altogether, the data confirm the particular power of TDT over traditional linkage studies in detecting genes in gametic disequilibrium that have small effects in one's overall susceptibility to the disease (5).

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Corrections and Clarifications

The caption for the illustration accompanying the Research News article "Synergy paper questioned at toxicology meeting" by Jocelyn Kaiser (28 Mar., p. 1879) should have read, "In a controversial study, combinations of two chemicals—here, PCBs—were far more potent at triggering an estrogen-like response in cells (mammalian in the experiment above) than was either chemical alone."

In the Research News piece "Robotic subs for rapid-response science" by Steve Nadis (28 Mar., p. 1881), the "$16,000 per vehicle" figure quoted was based on an estimate of mass-production costs. Each vehicle currently costs about $100,000 to build.

In the Introduction to the Letters section of 14 February (p. 909), the next to last sentence should have read, "Research on diffraction lenses for x-rays and neutrons is described."

Letters to the Editor

Letters may be submitted by e-mail (at science_letters@aaas.org), fax (202-789-4669), or regular mail (*Science*, 1200 New York Avenue, NW, Washington, DC 20005, USA). Letters are not routinely acknowledged. Full addresses, signatures, and daytime phone numbers should be included. Letters should be brief (300 words or less) and may be edited for reasons of clarity or space. They may appear in print and/or on the World Wide Web. Letter writers are not consulted before publication.