Where to find and how to train better math and science teachers for U.S. classrooms is discussed: "After all, teachers can exponentially improve the nation's research efforts by training thousands of prospective scientists." "It seems all but improbable that the only martian meteorites to reach Earth came from a single small region on the surface of Mars. Thus, where are the 'missing' martian meteorites that must have also reached Earth...?" And theories of how anterioposterior patterning develops in the limb are compared.

Math and Science Education: Training the Teachers

The growing need for science and math teachers might be met in part by employing recent science Ph.D.s, as Jeffrey Mervis discusses in his News Focus article "How to produce better science and math teachers" (1 Sept., p. 1454). This idea is being tested in Montgomery County, Maryland, public schools in partnership with the National Institutes of Health (NIH). The partnership program has been structured to respond to key recommendations of the National Research Council, which include providing a compressed certification process and the ability of the Ph.D. participants to retain ties to research.

The program was launched at the beginning of this school year. Two postdocs are first-year science teachers while involved in an intense in-service training program that not only provides teacher certification, but also support and mentorship. NIH will provide summer employment so they can keep their research skills current. Also during this academic year, other postdocs who are interested in teaching science or math will be given time away from their NIH duties to shadow teachers and visit classrooms. Thus far, response to the program from recent Ph.D.s, the students, other teachers, and the school administrators has been positive. The number of post-docs inquiring about the program is increasing (*1*), and the program will be expanding.

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References and Notes

1. Inquiries about the program may be faxed to Sandra Shmookler at (301)517-8182.

Mervis presents a well-balanced view of the strengths and weaknesses of recruiting Ph.D.s to teach kindergarten through 12th grade (K–12) math and science in U.S. classrooms. I've been working with K–12 teachers for nearly 20 years in programs supported by the National Science Foundation (NSF) and other agencies, and there is one principle I have learned: Placing math or science specialists into the classroom without appropriate content level for the class or successful teaching and motivational strategies is a recipe for disaster.

What could the federal government do to make such a program to recruit Ph.D.-level scientists for teaching a success? Set up teacher training institutes at a national level, where those selected to train the prospective teachers would be drawn from the nation's best K–12 mentor teachers and award-winning science professors. National fellowships could be offered for postdocs, recent Ph.D.s, or any math/science specialists to learn how to teach, at what level to teach, and how to motivate students to learn science and math. Such fellowships should carry the full prestige of NSF or NIH (like postdoctoral fellowships or R01 research grants) and provide substantial stipends to show prospective teachers that the United States considers K–12 teaching as important as, if not more so than, research. After all, teachers can exponentially improve the nation's research efforts by training thousands of prospective scientists.

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I am a secondary school chemistry and physics teacher with a graduate degree in physical chemistry, and Mervis's article appealed to me in a personal way. He reports that the National Research Council is suggesting a shift in the burden of continuing teacher education from the local school districts to university faculty, but the responsibility does not lie with either of these—it lies with the individual. All professionals, in this case teachers, have the personal responsibility to keep current in their disciplines by reading relevant journals, attending conferences or seminars each year, and networking with colleagues. The only assistance that a teacher really needs is the time and money to pursue the endeavors, and here the employer—not the local school district or university—should be the primary facilitator.

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Missing Martian Meteorites

In his Perspective entitled "The latest news from Mars" (*Science*'s Compass, 3 Mar., p. 1601), David W. Mittlefehldt discusses the data on the global surface composition of Mars obtained by the Mars Global Surveyor Spacecraft, which was reported by Bandfield *et al.* in the same issue (Reports, "A global view of martian surface composition from MGS-TES," p. 1626). Mittlefehldt notes that, on the basis of mineral composition, the most promising impact crater launch sites for the SNC meteorites (a group of stony meteorites devoid of chondrules) are in the Tharsis Montes–Olympus Mons region, located in the northern hemisphere.

It seems an unlikely scenario that the Tharsis Montes and Olympus Mons region shown here is the only launch site of martian meteorites.

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This raises an interesting puzzle. The region including Tharsis Montes and Olympus Mons (TMOM) covers about 10% of the surface area of Mars. Yet 12 of the 13 SNC meteorites appear likely to have mineralogies associated with this small region of Mars's surface. It seems all but improbable that the only martian meteorites to reach Earth came from a single small region on the surface of Mars. Thus, where are the "missing" martian meteorites that must have also reached Earth but which so far have not been identified?

In addition to the TMOM region, the surface of Mars has two other basic regions: the ancient basaltic highlands, which account for ~60% of the surface area, and the northern andesitic plains, which account for ~30%. Therefore, assuming that all meteorites launched from the surface of Mars have about the same chance of reaching Earth, we should expect that if we have found ~12 SNC meteorites, we also should have found ~36 meteorites of northern plains composition and 72 representatives of the ancient highlands crust.