

## The pride of physics

When the idea of sending American high-school students to the International Physics Olympiad first came up early last year, there were many doubters. They argued that it would not be worthwhile to field a team of a few stars, probably from a couple of elitist schools in big cities, who would most likely go into physics anyway, without competing in an Olympiad. They also questioned whether the US could put together even a small team of pre-college students who could compete against their counterparts from European and Far Eastern countries. A comment often voiced was that "American high-school students are bound to be behind European young people trained in the rigorous settings of the *Gymnasium* and *Hochschule*." There was a further worry. If the US team performs poorly, some said, participation is likely to be counterproductive, perhaps giving powerful confirmation to the already prevalent opinion that "physics is too hard."

Now we know the skeptics were wrong. Out of the five young men sent to the Physics Olympiad held at Harrow School, north of London, England, last July, three took bronze medals and the other two were just short of honorable mentions. That is an outstanding showing by any standard—and more remarkable because it was the first time an American team took part in such a world meet.

The entire country should be proud of these young students, who, it turns out, despite our original nervousness, were truly representative of a diversity of family backgrounds and geographic regions. They have taken their fine showing in stride, as the news story on page 51 indicates, and they are entering universities this month, most of them planning on becoming physicists. For them, the knowledge that they are every bit as good and perhaps somewhat better than students from other countries is reward enough. But for the rest of us across the nation there are some lessons to be learned from their success and our fears.

The exceptional performance of our team members should not obscure the many formidable obstacles that appear along the way to the Olympiad. One of these is the primary criterion of eligibility: A competitor cannot be enrolled at a college or university. In many countries students

stay in school until age 19, so that they gain an extra year of education beyond their American counterparts before going on to a university. Some of the best US students enroll at universities at age 15 or 16, thereby becoming ineligible for the Olympiad.

More significant, though, is the unacceptable disparity between the experience in physics provided by the typical US school system and that offered in most developed nations. In fact I would characterize the US as an underdeveloped country in terms of the opportunity to study physics that is available to most of our young people. They could be described as disadvantaged when their physics education is compared with the training available to students elsewhere.

What is common to the American team members is their innate intelligence, their strong motivation and their early exposure to science and mathematics. As citizens and physicists we applaud them for their zeal in taking advantage of their education. But their education is not typical, unfortunately. We are troubled that high-grade science and math courses and well-equipped laboratories are not more generally available in the nation's secondary schools. To that end, we can demand of our elected politicians and school boards that science and math be elevated in our school curriculums.

I particularly like the suggestion of Arthur Eisenkraft, the high-school physics teacher who was one of the advisers to the US team. He believes the Olympiad provides a stirring opportunity for our schools, their teachers and students to aspire to something great and glamorous—the idea that young students can achieve world recognition for intellectual achievement in much the same way that outstanding athletes are celebrated for their attainments.

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