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Report on Science Education

Science education and the processes of science themselves would seem to be inextricably intertwined. Yet for 51 weeks out of the year we manage in these pages to focus rather intensely on new developments along the cutting edge of science and on the public issues those developments raise. Now this week, in this, our third annual report on science education, we shift our focus for a moment from advances in science to the teaching of science, from the laboratory to the classroom.

Our range across the spectrum of science education in these six articles is about as wide as you can get: from first graders learning to use electronic hand calculators in the classroom to physicians with M.D. degrees attending a unique series of seminars to learn how to help dying patients during their last months of life. John H. Douglas begins the section with a situation report on science education in the United States. He details the continual shrinkage of Federal funds, the falling market for teachers, the preliminary calls for more interrelationships between industry and the teaching profession, and the seemingly always out-of-phase cycles of student interest in science and engineering careers and professional demand for scientists and engineers. Heavy demand for engineers, chemists and specialists in energy-related fields are foreseen.

The problems of getting bright young women interested in science and engineering careers, and then reinforcing their ambitions throughout their studies, are reported by Deedee Pendleton, who finds that misleading stereotypes about science are partly responsible for the lack of women entering scientific fields. She then turns to the intriguing subject, and mild controversy, of use of electronic hand calculators in science and mathematics classes in secondary and elementary schools. As one teacher says: "Kids normally think about the universe; they love to manipulate large numbers." Many educators are excited about the prospects, saying calculators free students from the tedium of routine calculations, stretch imaginations, allow introduction of more relevant (complex) problems, and heighten motivation. Opponents voice reservations that mastery of basic principles and skills may be bypassed.

Dietrick E. Thomsen examines the excellent performance of American students in the 16th International Mathematical Olympiad in East Germany, but discusses why that kind of success is not easily transferable to math students everywhere in the United States. In the process, the new math comes in for some knocks.

Joan Arehart-Treichel follows with her description of death education —programs that help doctors help dying patients. Along the way, the doctors often learn a lot about themselves and their own fears.

To conclude our section, a contributor from the nonscience academic world, Joan Baum, an associate professor of English, reflects on interdisciplinary programs designed to introduce students to the two cultures of science and the humanities. The goals of cooperation between the cultures at the undergraduate level are admirable—and at least one program seems to be fulfilling them. But she cautions that good intentions do not necessarily produce realistic or desirable results.

We make no claims that this little report on science education in any way comprehensively covers the field. But we do think it provides many a nugget of useful information on the six subjects we have selected for presentation, and we hope you find it interesting.

—Kendrick Frazier

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