From the Editor

Where Does the Sky End?

When I was a child, I used to lie on the warm grass of summer and gaze into the sky. Inevitably, my thoughts would lead me to wonder about where the sky ended. And if the sky ended, I wondered how thick the "wall" was that set the limits of the sky.

Some recent experiences have resulted in parallel thoughts about technology education. One was the Technology Education Research Conference, hosted by the American Association for the Advancement of Science last December. Fernando Cajas reports on some of the details of this conference in his editorial in this issue. During the conference, one of the moderators asked how many of the attendees considered themselves to be technology educators. All in the audience raised their hands in affirmation. Yet only about half of those present had formal degrees in the field. The others were cognitive scientists, science educators, mathematics educators, engineering educators, and others. All of these people were doing interesting and contributory work in technology education.

In May of this year I had the opportunity to visit Teknikens Hus (House of Technology) in Lulea, Sweden. In this facility, visitors can interact with a whole variety of technological systems. For example, youngsters (and adults!) can control the valves that direct water from a lake (on the second floor) to turbines that generate electricity. A full-size log loader was available (some functions disabled) with which participants could actually load logs onto a stack. A house built within the facility was modified so that all the essential systems could be readily seen. For example, the path of water running out of the kitchen faucet could be easily observed flowing through the transparent drain pipes within the walls and beneath the floor. Appliances were modified with transparent panels so that their operation could be understood. The directors of the facility clearly considered themselves to be technology educators, and rightfully so. A similar technology center is under development in Finland. An integral purpose of the Finnish center will be to serve and support technology education teachers. Though totally coincidental, it is timely that an article on science and technology centers by Richard Walton of the UK appears in this issue.

I recently learned about the implementation of technology education in Chile. Technology education is now required in that country for three hours a week for the first ten years of a child's education. The Ministry of Education is playing a significant role in the change to technology education. Unique, however, are the sponsors. They include an organization for interdisciplinary studies, an organization that provides training for construction workers, and an organization that facilitates the integration of advanced technology in business and industry. Even more remarkable are the expectations of these organizations. Universally, their purpose is to help assure that all their citizens become technologically literate as part of their general education. One Chilean engineer with whom I spoke talked about the importance of technology education with at

least the same fervor that engineers from the US typically speak about the importance of science and mathematics.

Last spring, the *Standards for technological literacy: Content for the study of technology* was published by the International Technology Education Association through the Technology for All Americans Project (available on the Web at http://www.iteawww.org/TAA/STLstds.htm). This document and the work it represents will continue to receive attention as states and local schools use it as a guide in developing curriculum. In fact, the document is cited in three of the articles included in this issue. Like the other efforts mentioned above, this project represents a departure from the insularism that technology educators have tried to escape for years. It was funded by the National Science Foundation and the National Aeronautics and Space Administration. Support for technology education from agencies like these was unheard of just a few years ago (see the article by Custer, Loepp, and Martin herein). Involvement in the development of the standards was also quite broad, going far beyond the usual reaches of technology educators. Perhaps most significant was the involvement of the National Research Council and the National Academy of Engineering. Writing on behalf of those groups, William Wulf pointed out that the Standards are intended to address the needs of all those concerned about technological literacy, not just the "professional interests of technology educators" (Wulf, 2000, p. 12).

The expanding horizon of technology education will present challenges to all involved. In meeting these challenges, each constituent group could stake out their territory and put up their fences, evangelizing that they have the way, the truth, and the light in how to develop technological literacy. Clearly, the more viable approach is to recognize the diversity of all the participants and use it to best advantage in the overall effort. Just as we recognize that there is no single best solution to a technological problem, there is no single best solution to developing the technological literacy of our citizens. All of us concerned about students and technology need to figure out how we can work together for our common purpose. If we can achieve this, it would set a landmark example for the rest of the educational community, tying together formal and informal education across a wide range of academic disciplines.

My experiences over the past year have caused me to realize that technology education is much greater than I ever imagined. The opportunities abound and the sky is the limit. The sky is the limit… Hmm… I feel the warm grass of summer against my back once again…

JEL

References

International Technology Education Association. (2000). *Standards for technological literacy: Content for the study of technology.* Reston, VA: Author.

Wulf, W. A. The standards for technological literacy: A national academies perspective. *The Technology Teacher, 59*(6), 10-12.