

## Forging partnerships in science education reform

By Danielle Mihram

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### *A report on the annual forum of Sigma Xi*

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**S**cientists, Educators, and National Standards—Action at the Local Level” was this year’s theme for the annual forum of Sigma Xi (the honorary society for research scientists), held April 14–15, 1994, in Atlanta. The forum included talks by Marshall Smith (U.S. under secretary of education) on education reform; Bruce Alberts (president, National Academy of Sciences) on national education standards; William E. Kirwan (president, University of Maryland) on undergraduate education for science teachers; and Luther Williams (assistant director for education and human resources, National Science Foundation) on the cost of alternative changes in science education.

The pertinence of such a forum for both educators and librarians is perhaps best judged in the context of several national initiatives which took place during the years 1989–1991, starting with the 1989 report from the National Center for Educational Statistics which stated that students in the U.S. generally lag behind many of their counterparts from other developed countries in mathematics and science achievement. This report followed hundreds of reports responding to the outcry created by the publication of *A Nation at Risk* (1983), the secretary of education’s report on the decline of America’s schools. In retrospect, these reports had (according to Kirwan) very little impact on educational reform and the number of students demonstrating science literacy has declined during the last few years. Indeed, there appears to be a national consensus that we need standards as well as a system of national assessments to check on both students’ knowledge

of science and how well the schools are teaching them. This “consensus,” recently codified into national legislation, is known as “Goals 2,000,” and the act was signed by the president in early April 1994.

### **Goals 2,000**

Goals 2,000 is designed to stimulate standards-based reform in each of the Union’s 50 states. The hope is to create a long-term productive partnership among local schools, districts, states, and the federal government focused on bringing all students to far higher levels of achievement than in the past.

The act has two parts: 1) it establishes a mechanism for assessing and certifying voluntary national content and performance standards; and 2) it is designed to stimulate reform of the entire education system by providing resources for the development, at the state and local levels, of systemic educational reforms based on challenging state standards.

### **A partnership that includes librarians**

According to Bruce Albert, probably less than one percent of our elementary school students are being exposed to the type of “hands-on” science that they need for the future. Hence, the need for an effective national network of experts: to inform and communicate with local groups; based on a partnership of informed scientists, interested citizens, and outstanding science teachers within districts; and to use the resources of both the National Academy of Sciences and many scientific societies interested in this issue. No mention was made of academic science librarians whose role in this educational enterprise will be quite significant. C. Kumar N. Patel, Sigma Xi’s current president, acknowledged this oversight (during the

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Secretary: **Julie M. Hurd** (229); Mara L. Sprain (110).

### **Slavic and East European Section**

Vice-Chair/Chair-Elect: **Laszlo L. Kovacs** (48); write-in candidate (4).

Member-at-Large: **Bradley L. Schaffner** (50); write-in candidate (2).

### **University Libraries Section**

Vice-Chair/Chair-Elect: **William J. Crowe** (686); David W. Lewis (540).

Member-at-Large (two elected): **Elaine Didier** (465); **Louise Sherby** (274); James Cogswell (263); Tyrone Cannon (159).

### **Western European Specialists Section**

Vice-Chair/Chair-Elect: **Michael P. Olson** (101); Thomas M. Izbicki (57).

Secretary: **Gretchen E. Holten** (95); Reinhart Sonnenburg (57).

Member-at-Large: **Sem C. Sutter** (69); Julie M. Still (50); Peter B. Allison (40).

### **Women's Studies Section**

Vice-Chair/Chair-Elect: **Grace M. Jackson-Brown** (99); Rita M. Pellen (67).

Secretary: **May M. Jafari** (142); write-in candidate (2).

Member-at-Large: **Kristin Ramsdell** (95); Pauline D. Manaka (68). ■

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forum's press conference), but no suggestions were offered as to how it would be remedied in future forums.

Indeed, one component of Goals 2,000 relates to educational technology. Though Albert spoke of the federal government's plans for the development of electronic highways, no mention was made of the Coalition for Networked Information. During the question-and-answer segment of the press conference, he did admit to having not heard about the Coalition or its agenda, then invited informed individuals to communicate such information (or any other relevant information) to the following e-mail addresses: scistnd@nas.bitnet or scistnd@nas.edu. The mailing address is: National Science Education Standards, 2101 Constitution Avenue, NW, HA 486, Washington, DC 20418; phone: (202) 334-1399.

### **The view from the field**

Several members of the audience noted the negative effects on children of television programs and sitcoms, most of which present science either as a subject for nerds or of little value to the individual's well-being or national survival. One suggestion was that Sigma Xi members use their influence in the corporate laboratories to restrict their respective companies' advertising in any television show which does not actively support education and/or science and their positive roles in America's future.

The major concerns expressed by almost all speakers were: much of the current content-based science curriculum is out of date, many

teachers are out of touch with "live science," most have little more than a nodding acquaintance with the practice of the very subject which they teach, and, finally, the median age of the nation's K-12 science and math teachers is in the mid-40s; hence, most have been out of school for more than 20 years.

The proceedings of the forum, due to appear in fall 1994, may provide very interesting and detailed accounts of efforts aimed at counteracting such a situation. Understandably, the role of college librarians in these efforts was not even mentioned, yet the following suggested collaborative actions at the local level could certainly include them: Assist teachers in locating funding sources; provide (on-campus) hosting facilities for science fairs; and volunteer to serve on school committees to provide technical assistance on technology (hardware, software, and electronic and multimedia resources).

### **Next year's theme**

The theme for next year's forum will touch upon an issue with global implications: A 50-year retrospective on Vannevar Bush's book *Science: The Endless Frontier*, which was first published in 1945 and dealt with research and development plans just after World War II. How this frontier will develop in the future, particularly with the close of the cold war, will be the subject of next year's forum to be held in North Carolina at Sigma Xi's headquarters, 99 Alexander Drive, P. O. Box 13975, Research Triangle, NC 27709; phone: (919) 549-4691 or (800) 243-6534. ■