

SCOTT M. AUERBACH

CHANGING CHEMISTRY'S HIDDEN CURRICULUM

Shifting basic attitudes and providing reasonable benefits will make academia woman-friendly

I WILL NEVER FORGET THE MOMENT I introduced my first female graduate student to my formerly all-male research group. There was a brief, yet tangible silence during which the new student wondered, "Do I really belong here?" The answers that students develop to such questions contribute to their "hidden curriculum," which generally comprises all the lessons they learn over and above what we plan to teach them.

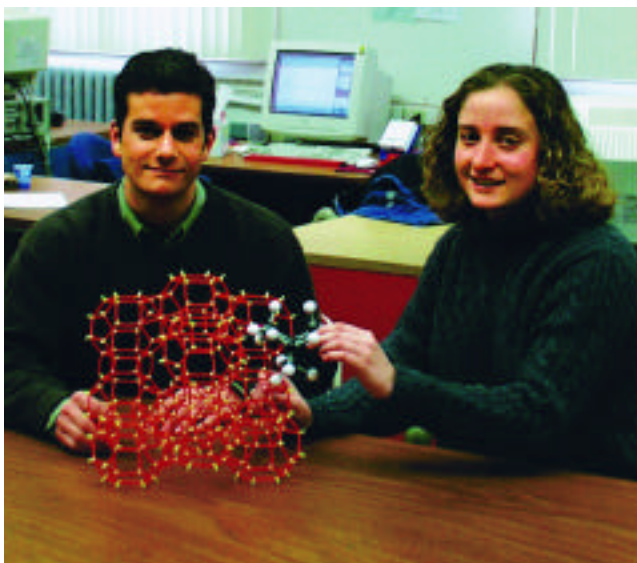
Numbers reveal the power of the hidden curriculum in academia: In 1996, women earned 43% of all bachelor's degrees in chemistry and 30% of all chemistry doctorates. In 1995, women constituted only 15% of the doctoral chemistry workforce; in 2000, women represented only 18% of tenure-track assistant professors at the top 50 chemistry departments. Can there be any doubt that the hidden curriculum has convinced many women that they do not belong in chemistry?

Do we really need more women in chemistry? Two compelling arguments suggest that the answer is yes. First is the "societal impetus": To solve the most challenging scientific problems we face today, we must bring the widest variety of talents and perspectives to bear on the problems at hand. However, with so few women in chemistry, the actual diversity of problem-solving approaches at our disposal is much less than optimum.

Second is the "personal impetus," which hits close to home. At some point, my young daughter might like to pursue a career in chemistry. Pursuing such a career will remain challenging for women and men alike; that issue should not and will not change. However, I hope that by the time my daughter is ready to make career choices, she will enjoy the same likelihood of success as her male peers. In that case, I would modify the question to "Does my

daughter, and all those like her, need more women in chemistry?"

How can we modify the hidden curriculum to teach women that they belong in chemistry? This issue is often labeled as an unsolvable, chicken-or-the-egg problem: Attracting more women to chemistry requires more senior role models, and producing more senior role models requires attracting more women to chemistry.



SLASHING BARRIERS Auerbach and graduate student Melissa Allen are working on developing better quantum rate theories for describing the catalytic activity of acidic zeolites.

Although this quandary seems to defy solution, the following four-point plan actually relies on the catch-22. I believe that making small but durable improvements in the hidden curriculum will eventually produce positive feedback, leading to significant progress toward gender equity in chemistry.

- Train educators to be aware of the hidden curriculum. Even educators who themselves are not overtly sexist can, through their language and actions, "teach" an unintended hidden curriculum. Sensitivity training is well under way in corporate America but seems totally lack-

ing in academics. Such training might foster more sensitivity to gender issues relating to dynamics in the classroom, the research lab, and faculty meetings. The challenge will be to compel tenured faculty to show up.

- Provide trained mentors for all students and faculty. Both statistical and anecdotal data support the notion that mentors can play crucial roles in helping students and faculty weather the vicissitudes of learning and practicing chemistry. Good mentors provide both sound advice and the sense of companionship and community that we all need. The challenge will be to find enough good mentors.

- Provide automatic, paid maternity leaves for all female faculty. The lack of a consistent maternity leave policy in academia provides one of the most profound lessons to women in the hidden curriculum: The miraculous female potential to procreate does not fit within the purview of academic chemistry. Nowadays, women faculty must make deals with department chairs to secure such leaves. Why not make it official? That would send a wonderful message to the next generation of women faculty.

- Offer automatic deferral of the tenure decision by one year per new child for women junior faculty. Is it any wonder that only 18% of assistant professors in chemistry are women? Let's create a world that welcomes women junior faculty and their families.

On the occasion of this special issue of C&EN, saluting the American Chemical Society for 125 years of service to chemistry, I applaud the society for its awareness of gender inequity in

chemistry. I strongly urge the society to take the next crucial step: Help make the future of chemistry I envision a reality. Consider it an ACS membership drive for the next 125 years.

Scott M. Auerbach is an associate professor of chemistry and an adjunct professor of chemical engineering at the University of Massachusetts, Amherst. He earned a B.S. in chemistry from Georgetown University in 1988 and a Ph.D. in physical chemistry from the University of California, Berkeley, in 1993. Auerbach completed a postdoctoral fellowship at the University of California, Santa Barbara.