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A Chair in Your Future

By Barbara Mathias-Riegel

There are times when numbers and percentages speak volumes. As reported in the just released *Profiles of Engineering and Engineering Technology Colleges* published by the American Society for Engineering Education, the percentage of women who are full professors in engineering stands at just over 5 percent. The highest percentage of female faculty is at the assistant professor level. Assistant professors are typically untenured and have little job security or ability to change the culture of their departments.

So what is stopping women faculty from gaining higher positions, such as tenure, full professor, chair, or even dean? The problem is a complex mix of cultural and organizational barriers that some say will take decades to dissolve. A lack of connections and professional acknowledgment is one thing that can hold a woman back. A common complaint is that when it comes to hiring and promoting, the men on the faculty are the majority and they have their "old-boy network," while the women, whose numbers are considerably smaller, are isolated. As one woman professor put it, "When there are only two of us [women] we don't sit around discussing who should get the promotion."

One influential academic position held by few women is department chair. Debbi Niemeier, professor and chair for the department of civil and environmental engineering at the University of California-Davis, says that—considering the chair's crucial role in making committee, teaching, and space assignments, deciding on salary and budgets, and "setting the climate" within the department—the importance of having women chairs cannot be overemphasized. Niemeier dubs chairs the "guild masters elected by their peers, most of whom are men." According to Niemeier, the latest data from Research 1 universities shows that there are nine women chairs out of 150 engineering departments.

"Women," she says, "will bring new energy and a personal investment in issues of parity to the role of department chair. In addition, they can serve as significant role models to both younger faculty and students aspiring to achieve leadership positions both within and outside the university."

Women faculty members are ready to take an active leadership role in their departments. "Women want to have a positive impact," says

Maria Klawe, dean of Princeton's School of Engineering and Applied Science. "They've been trained to care about their community, to have a broader perspective than just their personal success. Often they spend a lot of time doing this kind of thing without getting the reward. If you spend a lot of time working on departmental problems and wishing you had a higher position to get it taken care of, well that's a clue."

Another thing hindering women's ascent to higher positions is their reluctance to tout their accomplishments. "We are, as young women and as girls, given a strong message that it's not appropriate to promote yourself," Klawe says. "I've seen younger women who have to sit on themselves to avoid antagonizing people because they are so outspoken. By graduate school they have already learned that being outspoken is not going to get you anywhere. This is not a male versus female thing; it's culture."

THINK DIFFERENT

When Tresa Pollock, professor in the materials science and engineering department at the University of Michigan, was asked by her dean to assess the status of women faculty in the college of engineering, she was surprised at the strong message that came from the women who were tenured and were looking forward to what's next. "We heard at the associate, mid-career level that the women were interested in leadership positions, but they felt that nobody was thinking of them in that way.

"We've had a woman provost, and now a president," Pollock continues, "but the reality of the situation is that leadership is not necessarily being developed within."

As a result of the assessment at Michigan, in October 2003 Pollock organized a University of Michigan Women in Science & Engineering Leadership Retreat, in which women deans and chairs from several universities talked about the benefits and barriers of career moves. Since then there have been several smaller workshops that focus on communication skills and negotiating, and different styles of management among people with Ph.D.'s in science.

Even with all that attention, the imbalance between men and women faculty members still holds in many schools. When Pollock headed the last search committee for the chair of her department, she says they were unsuccessful at finding women candidates to even interview. "We tried. But those that we thought would be good at it just weren't movable. That's not completely surprising because it's pretty well known that women are more likely to have 'two-body' problems—family and job."

Indeed, it's commonly said that a woman in leadership, whether she's a dean or a chair, either has to have a husband who's a saint, or a stay-at-home spouse, or she has to be paid well enough to afford good childcare. It's not surprising, then, that a good percentage of the women in leadership positions have children who are older, and/or husbands who are retired. Leadership positions for women not only take a lot of time away from family but from research as well, unless they are highly disciplined. According to Klawe, if a woman moves into a leadership position too early in her career, it's hard to go back to research. She advises women to hang onto their research as long as they can.

In 2000, when Judy Vance, at that time an associate professor in mechanical engineering at Iowa State, participated in a NSF-sponsored Women Engineering Leadership Conference in Winter Park, Colo., it planted the seed to change her career. Three years later, after promotion to full professor, her department announced a chair search; Vance threw her hat in the ring and won, thus becoming the first woman to be named a permanent chair of an engineering department at Iowa State. "I was looking to be full professor, and I never thought of being a chair. I don't know if I would have given it consideration if I hadn't gone to the conference," Vance recalls. "It wasn't reticence, it just hadn't occurred to me, and that's the shocking thing—women don't realize they are ready for it."

Another discouraging factor for women is the pressure of the job, Vance notes. "A chair gets pushed from the bottom from the faculty, and pushed from the top from the dean. So people think, 'Why would I want to do that?' They need to know how being a chair helps the school, other women, and the program or department. You don't have as much opportunity as a full professor." Vance says that women are more likely to jump from full professor to assistant or associate dean, without ever being a chair, thus missing a crucial step and "knocking down" chances for further job opportunities or promotion to dean. "Selection committees, and the power at the university for hiring deans, is still very male dominated, and these committees use their own metrics to select the nominees they want to interview. My experience has shown that having chaired a department is a key piece of background needed for qualifying to be a dean candidate. And if you can't even make the candidate set, you will never be dean."

All this is not to underestimate the importance of women in associate and full professorships. As one recent study conducted by Donna J. Nelson, a chemistry professor at the University of Oklahoma, noted, a cycle is perpetuated when there are not enough women professors to serve as role models. "Female students," Nelson says, "aren't the only ones affected by the lack of female faculty on campus. Male students are also harmed because they are deprived of access to talented faculty who could be their mentors. In addition, the absence of women sends a message to men that women do not belong in these nontraditional environments and it is acceptable for them to be marginalized, denied tenure, and given unequal resources."

Princeton's Klawe fully agrees that when women are leaders in science and engineering, things get better for everyone, including the men. "We want to make sure faculty members get all the information, and everyone is offered the same information." With so many deeply seated problems in our culture and in the way male-dominated faculties operate within, is there any hope for the women who want to move ahead in academia?

Pollock believes it can happen, but insists that in addition to hiring women, the focus has to be on retaining them; otherwise women will never have enough in numbers to be heard. "Until you reach some critical mass, these problems are always going to exist. If 30 percent of your faculty were women, a lot of these things would become less problematic," she says. The future might be looking up. In 2003, the percentage of assistant professors who were female had reached 18 percent. While still low, it does signify that colleges of engineering are moving in the right direction.

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