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New faces at the National Academy

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Emma Hitt
Email: emma@emmasciencewriter.com

The National Academy of Sciences (NAS) announced 72 new members last month, nearly 25 percent of them female, representing the largest proportion of women ever elected. But while the NAS has been criticized in the past for a paucity of women and other underrepresented groups in science among its members, this year's vote doesn't represent an attempt to redress the problem - at least not yet - according to NAS president Bruce Alberts.

The election of a record number of women had nothing to do with any formal efforts on the part of the NAS, said Alberts. Results just seemed to have "boiled up from below, and it really came from the membership, without any particular focus from the organization."

The new members boost the total number of women in the Academy to about 160, or approximately 8% of the 1,922 active members. However, that number still trails the estimated 14 percent of full professors in the natural and social sciences at American universities who are female, according to *The Chronicle of Higher Education*.

"The total of 17 women, including four female foreign associates, are numbers that are pretty remarkable for us," said NAS spokesman William Skane. "For both categories, they are a lot higher than in previous years."

Alberts speculated that recognition of the "problem" itself has simply made people more attentive.

Signed into existence by Abraham Lincoln in 1863, the academy is charged with advising Congress on scientific matters. By limiting its new membership to 72 annually (increased from 60 in 2001), the organization also defines the nation's scientific elite as judged by their peers.

By tradition, the sole qualification for membership in NAS is outstanding career-long scientific achievement, so one of the problems, according to Skane, has been increasing diversity without having some sort of fixed quota system.

Next year however, the NAS will be making a more formal effort to increase diversity - not necessarily among the final 72 new members - but at least among those who are considered during the election process. The attempt to increase diversity will extend not only to women, but also to many other categories traditionally neglected by the NAS election process, including racial and ethnic minorities, scientists under 45, and those working at middle-tier schools.

Skane describes the complicated election process as "democracy *par excellence*," consisting of several stages, "partly to make sure no one gets control of it." Current members must first identify candidates, who then must pass through a series of steps based on the votes of members from 31 scientific sections. These candidates are then judged by a committee of members from each of six classes that oversee the 31 sections. From those results, the academy assembles a final ballot of 72 recommended candidates and 36 alternates, listed by class and in rank order. Ultimately, all NAS members receive the ballot and vote on the candidates by mail.

Next year, a process will come into play that NAS already uses when a new scientific field emerges. By definition, a new discipline will be underrepresented within the current NAS membership, and its practitioners are less likely to be brought into the election process. To counteract this, the academy formulates "temporary nominating groups" to increase the proportion of candidates from the new field.

In its attempt to increase diversity among next year's candidates, NAS has assigned six nominating groups (once for each scientific class) to act as "talent hunters" of people from underrepresented groups. Their charge is to find new people who might not have come into the process through the traditional system of current member nominations. While these will not be formal nominations, the names will be filtered into the regular nomination process, and the number of names that can be suggested is unlimited.

"This is a conscious effort to achieve some of the same results that really just happened as a wellspring from the membership this year, and we are hoping to be able to continue that," Skane said.

Catharine Ross, professor and occupant of Dorothy Foehr Huck Chair in Nutrition at Penn State University, is one of the 17 newly elected female NAS members this year. Her work has centered on retinoic acid metabolism, hepatic retinoid function and gene expression, and the role of vitamin A in immunity.

"I believe the increased number of women elected to NAS this year is a fair reflection of the state of science today in which women are, increasingly, in senior leadership roles," she told us.

When it comes to voting for other women in the future, Ross maintained that she will look for highly qualified women to nominate, but "gender won't be a factor in my voting."

Carol Greider, also newly elected this year, is professor of molecular biology and genetics at the Johns Hopkins University School of Medicine. Her work has focused on understanding the mechanisms of telomerase elongation and the regulation that allows telomere length maintenance in vivo.

Greider said that she certainly will make gender a consideration when voting, but that a number of other issues will also influence her decisions, "such as the extent of a candidate's curiosity-driven basic science and whether they are doing fundamental science."

According to Greider, while the number of women this year represents progress, the current proportion of women in NAS merely reflects the trend of women *not* making it to top positions at universities. She pointed out that this is often attributed to the fact that there hasn't been a pool of women to choose from, "but several recent studies have suggested that it's not a pool issue."

Greider maintains that women have been equally represented at the level of graduate student, postdoc, assistant professor, and associate professor for over 15 years, "so clearly there continues to be an issue of women moving into the highest levels of science," she said.

"I don't think there are any overt plans out there to keep women out of leadership roles," she added. But a problem that needs to be overcome is that women often lack awareness about subtle cultural issues that may keep them out of top positions, she said. For example, "when it comes time to selecting a committee, men may unconsciously choose other men to be on committees. Educating women about these issues will go a long way to overcoming some of the challenges," said Greider.

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