Susan L.S. Stipp

Fairness in Evaluation
Mirror, Mirror on the Wall

This is my first editorial for *Elements*. When pondering over my own list of interesting topics, I was surprised that several people insisted I should write on their idea, "Women in Science." Learning my place as a girl has been an issue from my earliest memory, but it is not something I think about every day. One assumes we live in a more equal world now. However, the mere fact that people think I should write about it makes it clear that it still is an issue and maybe deserves more thought. But can I say anything new? I wonder…

One could hope it was otherwise by now. Feminism and I grew up in the same years. When I was in Grade 5, women were beginning to demand a place in the work force. Even if I could skate better than any of the boys, the teacher responsible for the school ice hockey team taught me my place was not there. When I was in high school, women protestors burned their bras. My career goal was to make maps, but I was not allowed to trade my class in cooking and sewing for one in drafting. While Danish women wore red socks and demanded equality, Canadian science and engineering courses were dominated by men. Geology boomed, but fears of job market flooding and a shortage of physics and chemistry students forced quotas. In explaining how hard it would be as the 260 entering geology students were cut to 15 by mid-second year, the professor boomed at us, three girls, sitting together in the front row, "If you are here for your "MRS." degree, THERE'S the door!" A geology-related summer job was essential, but laws forbidding discrimination had not yet been written. Responses to my applications were, "Dear Mr. Stipp, we have no position for a young man with your qualifications…" Did they really believe in boys named Susan? Others wrote, "Dear Miss Stipp, we do not hire young women…" Some explained, "There are no toilet facilities," or "The backpack would be too heavy for you," and once, "My wife would not accept another female on the crew." Even by the end of the 1980s, I was only the second woman to receive a PhD from the Water Quality Department of the Stanford Engineering School. When I asked a favorite professor for advice, he recommended applying to small teaching colleges. I was shocked! Was my research career over already? High-profile research universities simply did not have (m)any women in faculty positions.

Some aspects are better now. Heavy backpacks and primitive field conditions are no longer a hindrance to hiring women for field crews. Girls comprise about half of the students in my department, both at undergraduate and at PhD levels. Women are getting good positions in the commercial sector. We see a few women rising to high-profile positions as department heads, deans, rectors, leaders of research centres, in government advisory panels, and in industry. The two women guest editors for this issue are good examples. Sue Brantley and Vala Ragnarsdottir are strong women; they have seemingly boundless energy and determination, and they have worked very hard. But there are far fewer examples than there should be. In industry, we hear often of the glass ceiling. Wages for women are consistently lower than for men in equal positions. In academia, by the postdoctoral level, women have dropped out and faculty balance is not improving. On the contrary, women hired in the 1970s are now retiring. In the institute I just left, 5 women out of 40 in 1995 have dwindled to 2 out of 28. We who grew up beside feminism have tried to be patient, waiting for those "in the pipeline" to provide balance, but it is not happening.

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Why? "Like likes like"? Those in the positions of power maintain the status quo? Perhaps. Rather, I think social attitudes prevent seeing women as qualified as men. Linn writes: "Whether the task is to admit someone to a graduate program, to select someone for tenure, or to assign a grade to an essay, the studies demonstrate that documents associated with a male name consistently get a higher rating than the same documents associated with a female name."[1] A Swedish study demonstrated that being male was the most important criterion for a funded postdoctoral position – far more important than scientific production. Who you know was also important. The researchers compared "competence" points, given by evaluators, with "impact" points, derived from traditional indicators such as number of papers, journal impact factors, citations, etc. For a woman to be awarded the same competence score by the evaluation committee, she had to have 2.5 times more impact points than the men. Wennerås and Wold write, "The most productive group of female applicants, containing those with 100 total impact points or more, was the only group of women judged to be as competent as men, although only as competent as the least productive group of male applicants (the one whose members had fewer than 20 total impact points)."[2] Sweden's laws ensure

Cont'd on page 300

[1] Linn MC (2007) Women in science: Can evidence inform the debate? Science 317: 199-200

[2] Wennerås C, Wold A (1997) Nepotism and sexism in peer-review. Nature 387: 341-344

EDITORIAL *(cont'd from page 299)*

public availability of applications and evaluations, which made this study possible, and Sweden is among the most progressive nations in terms of women's place in society. If gender bias and nepotism dominate in open Sweden, why should it be different in countries where confidentiality is the rule? An American study examined the effect of a male or female name on tenure applications. When the name was male, 70% were recommended for tenure; when *identical applications* carried a female name, only 45% were recommended.[3]

What can we do? Open and transparent evaluation and use of initials instead of first names are steps already taken in some institutions and in some countries; the proportion of women in those places has increased. Nepotism is unlikely to die out tomorrow, even with transparent evaluation, but broad academic networks render it less potent. However, for real change, we need to examine our own attitudes – and I don't think men need to carry all the blame. A surprising factor in studies of gender bias is that women are often as hard on women as men are – or harder. Many women deny the existence of gender bias[4] and, in not so few cases, *"kvinde er kvinde værst"* – women are worst to women. Those "who manage to make it to the top may pull up the ladder behind them, perversely believing that if other women are less successful, then one's own success seems even greater."[5]

I challenge you – women and men – to try some experiments. Have you ever graded a set of exams, evaluated job applications, or reviewed manuscripts without looking at the names? Do you feel like changing your opinion after you know the author? What about our perception of behavior? How often have you heard a certain character trait defined one way for a man and another for a woman? A man is respected when he presents logical arguments, is assertive, and stands firm on a principle. Have you ever witnessed that a woman behaving the same way is labelled as cold and calculating, or a troublemaker, or "a bitch"? How about team spirit? Strength lies in numbers. We cannot, and should not, achieve gender balance through hiring quotas, but rather with fair evaluation and through peer support and mentoring. We can help young scientists and our female and male colleagues, by encouraging self-confidence, building networks, and having respect for the work of others, regardless of gender. For fairness in evaluation, we must turn the mirror on ourselves.

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3 Spelke E, Grace A (2006) Sex, math, and science, Chapter 4. In: Ceci SJ, Williams WM (eds) Why Aren't More Women in Science? American Psychological Association, Washington, 274 pp

4 Rhode DL (1997) Speaking of Sex: The Denial of Gender Inequality. Harvard University Press, Cambridge, 352 pp

5 Barres BA (2006) Does gender matter? Nature 442: 133-136