Roger Howe in Perspective

--- A response to Eileen Pollack

The October 3, 2013 edition of *The New York Times Magazine* featured a thought-provoking article by Eileen Pollack, "Why Are There Still So Few Women in Science?" Pollack, who graduated *summa cum laude* in 1978, was one of the first women to earn a BS in physics at Yale. She subsequently left physics entirely, earned an MFA from the Iowa Writers' Workshop, and now serves as Professor of Creative Writing at the University of Michigan. We find much to agree with in Pollack's viewpoint, and we're glad to see how her article has reinvigorated the public discussion of women in science.

However, we are concerned that the article paints an incomplete and potentially misleading portrait of Roger Howe, Professor of Mathematics at Yale and the supervisor of Pollack's undergraduate thesis. According to Pollack's recollection of their working relationship, Howe neither praised her undergraduate thesis nor encouraged her to pursue a PhD. It was only years after the fact, when Pollack contacted Howe and asked him directly, that she learned that Howe had considered her work "exceptional." The central thesis of Pollack's article seems to be this: "The most powerful determinant of whether a woman goes on in science might be whether anyone encourages her to go on." Read in this context, it's easy for readers to see Howe as one of the villains of Pollack's personal story.

But it's worthwhile to keep things in some historical perspective. Roger Howe earned his PhD in mathematics at age 24, in 1969—the same year in which Yale College first admitted female students. Pollack herself notes that when she first encountered Howe in the mid-1970s, he was the youngest full professor in Yale's mathematics department, not yet 10 years past the PhD. It was very early in Howe's career—and very early in Yale's transition to college-level coeducation.

Pollack's article, naturally enough, leaps over the intervening 35 years of Howe's career. He is celebrated not only for his research (he was elected to the National Academy of Sciences in 1994) but also for his long-term involvement with K–12 education. In 2006, the American Mathematical Society gave him its Award for Distinguished Public Service in recognition of his "multifaceted contributions to mathematics and to mathematics education."

Moreover, our own personal experiences with Howe at Yale stand in sharp contrast to Pollack's. Howe played a positive role in our development as mathematicians, and contributed a great deal to making the Yale Mathematics Department a friendly and welcoming place.

- Two of us (Andrea Nahmod PhD 91 and Sijue Wu PhD 90) first met Howe in the late 1980s. Although we had mathematical interests quite different from Howe's, his classes were so stimulating and so well thought-out—with a view to encouraging the participation of the whole class—that we took several topics courses with him. On a personal level, we found that, despite his natural shyness, Howe made an effort to make us feel welcome and at home. When we were newly-arrived from abroad, Roger Howe invited us to celebrate Thanksgiving with his family; and at departmental picnics, he made enthusiastic attempts to teach us baseball. These

may seem small gestures, but for us they carried a deep and lasting message of inclusiveness and encouragement.

- One of us (Ju-Lee Kim PhD 97) did her doctoral work with Howe. During my graduate studies and throughout my career, Howe provided crucial encouragement whenever my motivation flagged. I can say with confidence that I would not have made it to this place in my career without him. And I have observed that he has provided this same level of support to his other graduate students, irrespective of gender.

We have contacted several other former Yale students and postdocs, male and female, who interacted with Roger Howe at an early stage of their careers. Their experiences seem to echo our own. Here is just a small sampling:

- Gail Ratcliff, Professor of Mathematics at East Carolina University, was Howe's first female PhD student, graduating in 1983. She confirms our sense of Howe's reticence and shyness. While acknowledging that Roger is a man who gives compliments sparingly—"that's just the way he is"—Ratcliff is grateful for his mentorship, and adds, "I think of Roger as a good friend."

- A male mathematician, Hadi Salmasian, now Associate Professor of Mathematics at the University of Ottawa, earned his PhD under Howe in 2005. Salmasian recalls that, while working on his dissertation, Howe "explained to me, with great excitement, the works of two female mathematicians: Ju-Lee Kim and Hee Oh. It was clear that he was impressed by their works." Salmasian adds that he's not sure that he's ever been able to impress Howe with his *own* work to the same extent. It's worth noting, too, that Hee Oh, who earned her PhD at Yale in 1997, has recently joined the Yale faculty as Professor of Mathematics.

- In May of 2013, Miriam Logan, now on the faculty of Bowdoin College, completed her PhD under Howe's supervision. She writes that she spent "seven years [in] graduate school, five of which [were] spent working with him. That entailed meeting with him 4–5 days each week for five years. If that is not dedication to his students and encouragement of the greatest form, I do not know what is."

Throughout his career, Roger Howe has given back continually to science and society. Many of his contributions—particularly his research in representation theory and his involvement in K-12 education—are a matter of public record. We hope that this note helps to provide a more rounded portrait of Roger Howe, by outlining the quiet but decisive role he has played in support of young scientists, especially women, over the course of his long and varied career.

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