

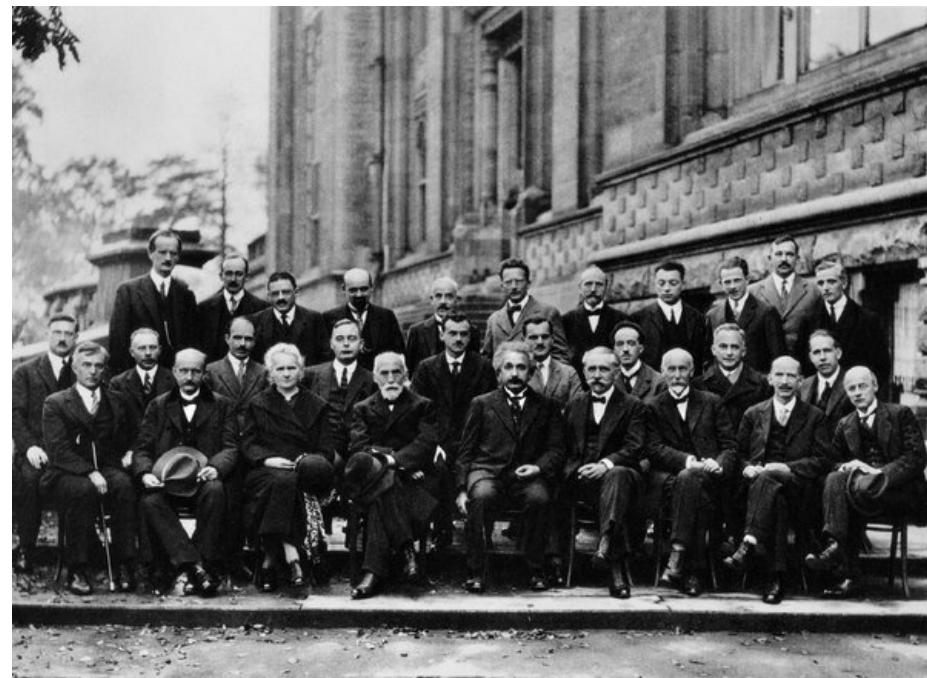
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Why Are There Still So Few Women in Science?



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At the Solvay Conference on Physics in 1927, the only woman in attendance was Marie Curie (bottom row, third from left).

By EILEEN POLLACK
Published: October 3, 2013 | 1006 Comments

Last summer, researchers at Yale published a study proving that physicists, chemists and biologists are likely to view a young male scientist more favorably than a woman with the same qualifications. Presented with identical summaries of the accomplishments of two imaginary applicants, professors at six major research institutions were significantly more willing to offer the man a job. If they did hire the woman, they set her salary, on average, nearly \$4,000 lower than the man's. Surprisingly, female scientists were as biased as their male counterparts.

The new study goes a long way toward providing hard evidence of a continuing bias against women in the sciences. Only one-fifth of physics Ph.D.'s in this country are awarded to women, and only about half of those women are American; of all the physics professors in the United States, only 14 percent are women. The numbers of



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Joseph Owi for The New York Times
Meg Urry, professor of physics and astronomy at Yale.

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black and Hispanic scientists are even lower; in a typical year, 13 African-Americans and 20 Latinos of either sex receive Ph.D.'s in physics. The reasons for those shortages are hardly mysterious — many minority students attend secondary schools that leave them too far behind to catch up in science, and the effects of prejudice at every stage of their education are well documented. But what could still be keeping women out of the STEM fields ("STEM" being the current shorthand for "science, technology, engineering and mathematics"), which offer so much in the way of job prospects, prestige, intellectual stimulation and income?

As one of the first two women to earn a bachelor of science degree in physics from Yale — I graduated in 1978 — this question concerns me deeply. I attended a rural public school whose few accelerated courses in physics and calculus I wasn't allowed to take because, as my principal put it, "girls never go on in science and math." Angry and bored, I began reading about space and time and teaching myself calculus from a book. When I arrived at Yale, I was woefully unprepared. The boys in my introductory physics class, who had taken far more rigorous math and science classes in high school, yawned as our professor sped through the material, while I grew panicked at how little I understood. The only woman in the room, I debated whether to raise my hand and expose myself to ridicule, thereby losing track of the lecture and falling further behind.

In the end, I graduated summa cum laude, Phi Beta Kappa, with honors in the major, having excelled in the department's three-term sequence in quantum mechanics and a graduate course in gravitational physics, all while teaching myself to program Yale's mainframe computer.

But I didn't go into physics as a career. At the end of four years, I was exhausted by all the lonely hours I spent catching up to my classmates, hiding my insecurities, struggling to do my problem sets while the boys worked in teams to finish theirs. I was tired of dressing one way to be taken seriously as a scientist while dressing another to feel feminine. And while some of the men I wanted to date weren't put off by my major, many of them were.

Mostly, though, I didn't go on in physics because not a single professor — not even the adviser who supervised my senior thesis — encouraged me to go to graduate school. Certain this meant I wasn't talented enough to succeed in physics, I left the rough draft of my senior thesis outside my adviser's door and slunk away in shame. Pained by the dream I had failed to achieve, I locked my textbooks, lab reports and problem sets in my father's army footlocker and turned my back on physics and math forever.

Not until 2005, when Lawrence Summers, then president of Harvard, wondered aloud at a lunchtime talk why more women don't end up holding tenured positions in the hard sciences, did I feel compelled to reopen that footlocker. I have known Summers since my teens, when he judged my high-school debate team, and he has always struck me as an admirer of smart women. When he suggested — among several other pertinent reasons — that innate disparities in scientific and mathematical aptitude at the very highest end of the spectrum might account for the paucity of tenured female faculty, I got the sense that he had asked the question because he genuinely cared about the answer. I was taken aback by his suggestion that the problem might have something to do with biological inequalities between the sexes, but as I read the heated responses to his comments, I realized that even I wasn't sure why so many women were still giving up on physics and math before completing advanced degrees. I decided to look up my former classmates and professors, review the research on women's performance in STEM fields and return to Yale to see what, if anything, had changed since I studied there. I wanted to understand why I had walked away from my dream, and why so many other women still walk away from theirs.

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Eileen Pollack is a professor of creative writing at the University of Michigan and author of “Breaking and Entering” and “In the Mouth.” She is at work on a book about women in the sciences.

Editor: [Joel Lovell](#)

This article has been revised to reflect the following correction:

Correction: October 20, 2013

An article on Oct. 6 about the status of women in the fields of science and mathematics misstated a statistic regarding girls who are taking high-school physics. It was the percentage of girls among all high-school physics students of both sexes that rose to 47 percent in 1997 from 39 percent in 1987 — not the percentage of girls taking high-school physics among all high-school girls. The article also misstated the status of a woman hired by the mathematics department at Yale University for a tenure-track position in 2010. She is yet to come up for tenure. She was not denied it.


A version of this article appears in print on October 6, 2013, on page MVB1 of the Sunday Magazine with the headline: Can You Spot The Real Outlier?.

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