Some people (including Dr. Summers, Prof. Pinker, and the authors of the much-discussed book *The Bell Curve*) say or imply that IQ scores are normally distributed. Inferences about extreme upper tails are sometimes based on that assumption. Actually, the normality holds only approximately. For the WAIS, inferences about extreme upper tails based on normality, as hazarded by Dr. Summers, would be unjustified because the test has an upper ceiling score $3 \frac{2}{3}$ standard deviations above the mean (ceiling = IQ of 155, on the WAIS and WAIS-III; Wechsler tests have a standard deviation of 15 around the mean score of 100). Moreover, Wechsler had long ago cautioned against seeing too close a relation between extremely high IQ score and attainment in science or other intellectual pursuits, as perhaps implied by Dr. Summers. The Matarazzo edition of Wechsler says (op. cit., p. 250):

The lower ceiling of the W-B [Wechsler-Bellevue] and the WAIS is no accident but represents the author's deliberate attempt to eschew measuring abilities beyond points at which he feels they no longer serve as a valid measure of a subject's general intelligence. IQ's of 150 or more may have some discriminative value in certain fields, such as professional aptitude, but only as measures of unusual intellectual capacity. Intellectual ability, however, is only partially related to general intelligence. Exceptional intellectual ability is itself a kind of special ability.

If one does assume that the scores are normally distributed, then in a typical standardizing sample of about 2000 people, the expected number of people with scores above the 155 ceiling would be only about 1/4 of 1 person. The floor for WAIS scores, set at 35 or 45 in earlier versions, is 0 in the WAIS-III, so that some scores can indicate extreme mental retardation (or, anecdotally, failure of the tester to gain any rapport with the testee). Normality appears to fail for such low scores.

In our own field of mathematics, we can see that in a couple of decades, the number of females in the extreme upper tail of the distribution of undergraduates in North America on the Putnam contest has gone from near 0 to an appreciable number. (Some of the students, both male and female, had previously done well on Mathematical Olympiads, representing countries in Europe and Asia.)

### Women at Harvard

*Alice Silverberg, University of California at Irvine*

I’m going to tell you a story. It’s a true story, and it’s entitled *Women at Harvard*. It’s greatly abridged, to fit several centuries of history into a three to five minute statement.

Harvard was founded 370 years ago as an all-male college. When Sarah Pellet sought admission to Harvard in 1849, Harvard President Jared Sparks wrote to her “I should doubt whether a solitary female, mingling as she must do promiscuously with so large a number of the other sex, would find her situation either agreeable or advantageous” [1].

According to Dean of Radcliffe Drew Faust [1], Charles Eliot, who was Harvard’s President for forty years, made his opposition to coeducation clear in his inaugural address of 1869. Eliot’s justifications for opposing coeducation ranged from overcrowding to the violation of moral and religious tenets. And Eliot had doubts about the “natural mental capacities” of the female sex. According to [1], during Eliot’s tenure the *Harvard Crimson* called coeducation “a dangerous tendency in American society,” and the *Harvard Graduates Magazine* was gratified that the University was not being “incautious” by precipitously embracing women’s education.

The Harvard Annex, officially the Society for the Private Collegiate Instruction of Women, was an independent society founded in 1879 so that women could receive instruction from Harvard professors who were willing to earn extra income by teaching their courses twice, once for men and once for women. Its founders viewed it as a temporary measure, and supporters of education for women continued (for what turned out to be more than a century) to work towards the full admission of women to Harvard. The Annex was “located a substantial distance from Harvard

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1 It is interesting to compare Eliot-Thomas in [3] with Summers-Hopkins.
Yard to avoid the appearance of coeducation” [2]. A Harvard faculty member later wrote, “The Annex had nothing to offer Harvard but girls, whom Harvard did not want” [1]. The Annex became Radcliffe College in 1894 and was never to have its own faculty.

Allowing Radcliffe undergraduates into Harvard classrooms was phased in from 1943 until 1950. In the accompanying media commotion, newspapers reported that Harvard was going coed, which Harvard quickly denied [5]. Assigned seating arrangements for men in the lecture rooms led to situations where the women squatted on the floor behind the last row of seats [5].

As stated by Faust in [1], “Harvard remained averse to ‘coeducation,’ ” and “many central aspects of Harvard undergraduate life still remained closed to women … Radcliffe students were not part of the Harvard house system. They lived in dorms, without common rooms, without resident tutors, without faculty regularly present at meals. Unlike Harvard students, they were required to wait tables in the dining halls.” They were not permitted to use Harvard’s undergraduate library until 1967. Faust added that “It was much as Virginia Woolf described Oxbridge of a generation earlier: ‘Partridge for the men; prunes and custard for the women’ ” [1].

Harvard’s Graduate School opened to women in 1963, at which point Radcliffe’s Graduate School closed [17].

Radcliffe undergraduates received Harvard diplomas for the first time in 1963. Harvard first let Radcliffe students live in Harvard Yard in 1972, about which a Harvard alumnus lamented that Harvard had torn “down the scheme set up by the civilized to govern the relations between the sexes…. Civilization is dead” [1].

Harvard limited the number of women to keep it significantly lower than the number of men. I was admitted to Radcliffe’s Class of 1979 under an enforced 2.5 to 1 Harvard/Radcliffe ratio. The gender quota for admissions was fixed at a 4 to 1 male/female ratio as recently as the Classes of 1975, having gradually decreased to that over the years [4]. Incidentally, the gender ratio for high school graduates in the US in the 1890s when Radcliffe was founded was 65 females to 35 males [11].

Harvard and Radcliffe merged in 1999, and Harvard declared itself coeducational.

As to the question of opening faculty positions to women: Harvard President A. Lawrence Lowell, who reportedly said that Radcliffe was one of three kittens he intended to drown [10], is stated to have told the Director of the Harvard College Observatory, concerning the astronomer Cecilia Payne (later Payne-Gaposchkin), that “Miss Payne should never have a position in the University while he was alive” [8]. Lowell’s term as Harvard President ended in 1933, and Lowell died in 1943.

Harvard first appointed a woman as professor in the Faculty of Arts and Sciences in 1948, to a position created for women. She was Helen Maud Cam, an historian from England. The second was anthropologist Cora Du Bois, appointed in 1954 as Cam’s successor in the same chair for women. Payne-Gaposchkin became a professor in 1956.

In 1970 there were no tenured women in the Faculty of Arts and Sciences [1]. Women held 7 percent of tenured positions in 1988 [19]. As of 2005, women made up about 13 percent of the senior faculty [18].

Just before Lawrence Summers’ famous speech, in January 2005, Harvard Magazine reported [19] that some faculty were concerned about the decrease in the hiring of women during Summers’ tenure. There were 14 tenured offers to women in the year shortly before Summers became President, after which the numbers steadily declined, down to 4 offers to women (and 28 to men), yielding a 10-year low of only one acceptance by a woman, versus 20 by men. In June 2004, 26 Harvard professors wrote to President Summers to express their concern and to point out to him the importance of the “‘signaling effect’ of [university] leaders’ expressed priorities.” This was the context in which Summers made his now-famous speech.

Some short responses during the Q & A session:

**Harvard, women, and mathematics:** The January–February 2005 Harvard Magazine [19] stated that Harvard had “women ladder-faculty members … in … mathematics.” When I wrote to Harvard professors quoted in the article and told them that the statement is false (in fact, there have never been regular ladder tenured or tenure-track female mathematicians in the Harvard mathematics department), the ones who replied mostly told me I was wrong … until I convinced them that Dick Gross (Dean of Harvard College and a chaired professor of mathematics) confirmed my statement. Having no women can mean that there is no one to point out that there are no women. Before the panel I
tried to obtain updated hiring figures and was told that they were not yet available.²

Testing: I’m not a statistician, but I’ve read a lot about testing. My take on it is “When men do better, they declare that men are genetically superior. When women do better, they rewrite the test.”

Climate: In my opinion, a major problem in our community is a failure to view female mathematicians as part of our professional lives, rather than our personal lives. This is part of a more general problem (not just about gender issues), to which a reasonable solution is to simply follow the rule “Behave professionally.”

Sexism: It is very hard for good people to live with the idea that someone isomorphic to themselves has done something bad. It’s psychologically necessary to construct an alternative explanation.

The next generation: When I was a student, women in the generation above me told horror stories about discrimination and added, “But everything has changed. That will never happen to you.” I’m told that this was said even by the generations before that, and now my generation is saying similar things to the next one. Of course, a decade or so later we always say “How could we have thought that was equality?” Are we serving the next generation well if we tell them that everything is equal and fair when it’s not?

Progress? History shows that we don’t always make steady progress. Something I was surprised to learn while researching this presentation is that the University of Rochester [7], Duke [14, 15, 16], and Tufts [6] were at least nominally coed a century ago, but later drew back from coeducation and took a long time to return to it.³ (Rochester was coed 1900–1914 and 1955+, Duke 1892–1924 and 1972+, Tufts 1892–1910 and 1980+.)

At the panel, I was asked where one could read more. There are many sources, easily obtainable in libraries and bookstores and easily found through standard literature searches. One way to get started is with the references below. (Note that there are a number of errors of fact in some of the “official” sources. I have used the correct facts when I know about them, and would appreciate being informed of any errors in the exposition above.) There are many other interesting aspects of Harvard’s history not touched on above, including the history of women at Harvard’s professional schools.

I thank Jane Knowles and Andrew Mandel for their help.

References


² After the panel I received word [9] that updated hiring information had recently been announced to the Harvard faculty. In the first half of academic year 2005–2006, 8 senior offers in the Faculty of Arts and Sciences were made to women and 14 to men. In the preceding academic year, 9 senior offers went to women, of whom 3 accepted and 2 declined, while 24 senior offers went to men, of whom 17 accepted, thus far. Faculty hiring is expected to slow considerably in the future.
³ Of course, this depends on the definition of coeducation. However, it seems to be generally accepted that universities with a separate “coordinate” college for women were not fully coeducational. Note also that coordinate women’s colleges were in some cases better for women than the unequal treatment they faced at some nominally coed institutions.

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http://dl.tufts.edu/view_text.jsp?urn=tufts:central:dca:UA069:UA069.005.D0.00003%20&chapter=c6s1
17. “Significant Dates in Radcliffe's History,” Radcliffe Institute for Advanced Study, Harvard University http://www.radcliffe.edu/about/dates.php