Women Scientists: It's Lonely at the Top

A journalist trying to write about the status of women in Japanese science has a tough assignment: It's hard to find any. According to figures compiled by Yoshiko Yokoo, a researcher at the National Institute of Science and Technology Policy, there were just 40 female full professors in the science faculties of all of Japan's 495 universities in 1991. And when you do track down a woman scientist, chances are she will be reluctant to talk. "It's too sensitive," said one researcher over the phone. "Please don't tell anyone you have called me."

"Compared to the United States, young women scientists are not so free to talk and speak their mind," explains one strong-minded female scientist, Tomoko Ohta, head of the Department of Population Genetics at the National Institute of Genetics in Mishima. Ohta was one of the first women to graduate in science in Japan. "We are trained to be very private and not to speak much," she continues. "Women are much more independent abroad and express their own opinion. You will never find a woman like [outspoken biologist] Lynn Margulis of Boston University here."

The paucity of women in science in Japan is of concern to more than those few women who are trying to make their way in the profession. As a sheaf of recent reports attest, Japanese government and business leaders are worried about a looming shortage of scientists and engineers, due in part to a steady drain of scientifically trained people into higher paying careers in business and finance (*Science*, 7 February, p. 676). Virtually every study has come to the same conclusion: to help fill the gap, more women must be attracted into scientific careers.

Before that can happen, however, some deep-seated attitudes will have to be changed. Those women scientists who are willing to discuss their status in a male-dominated profession nearly all complain that women are actively discouraged from starting a career in science. "People tried to discourage me from going to the University of Tokyo, or for that matter to any university," explains Saeko Hayashi, who at 33 is the first woman ever to obtain a doctorate in astronomy from the University of Tokyo. "Even my high school teachers were opposed," says Hayashi. "They preferred that I stay home and be a good mother."

That experience is not uncommon. "When I wanted to study science at the university my parents and teachers suggested that I do otherwise," explains geophysicist Mizuho Ishida. "They just wanted me to make a family and stay at home." But Ishida ignored their advice. She graduated in physics from the University of Tokyo and then went on to postdoctoral positions at Caltech and the Carnegie Institution before taking up her current job at the National Research Institute for Earth Science and Disaster Prevention in Tsukuba.

For those like Ishida who decline to conform, the next stage of discouragement comes at graduation. Says Ohta, "Professors encourage women students to get a job after graduation, rather than pursuing graduate school." And the negative pressure on the home front can also be severe: "My former husband didn't like me to work," says Ohta, who paid a high personal price for persevering with a career in science—she divorced. But Ohta believes these social attitudes are changing. "These days many of the young women scientists marry," she says. "Young husbands are feeling easier about having a scientist-wife."

Interestingly, many of the women who do become scientists say that once their careers begin they suffer no discrimination regarding their research. They say they are judged solely by the quality of their work, and that makes the laboratory a more attractive workplace than business, where the ability to mix socially in a male-dominated world is all important. But it's a different matter when women try for administrative posts—which may explain why so few of the women who become lecturers ever manage to go on to the professorial level in the universities (see chart).

Masako Osumi, professor of cell biology at Japan's Women's University, says women are better off getting away from that kind of discrimination and instead working at a women's university. At her university, the faculty ratio of males to females is about 50:50. The only problem is that top-quality science teaching is only just arriving at many women's universities, a result of their origin as small colleges offering a limited education to women in the prewar era when only men were permitted entry to the prestigious national universities. Yoshiko Arikawa, a professor of chemistry, also at Japan's Women's University, points out that her university didn't establish a division of natural sciences until last year. Before that, anybody who studied chemistry or physics ended up with a degree in "home economics."

Greater prominence for science on the curricula of women's universities may do more than improve the academic job prospects of women scientists: It may help to change the image of science as a subject suitable for women to study. Such a change is badly needed, for recent surveys have noted a dramatic decline in women's interest in science. The latest such survey conducted by the National Institute of Science and Technology Policy shows that fewer young women today are interested in science than at any time since surveys began in 1976: Just 25% of women in their twenties indicated that they had any curiosity about science at all. The remainder said they had "no interest" or "absolutely no interest" in science. It will clearly be a monumental task to lure more women into scientific professions in Japan.

–Fred Myers

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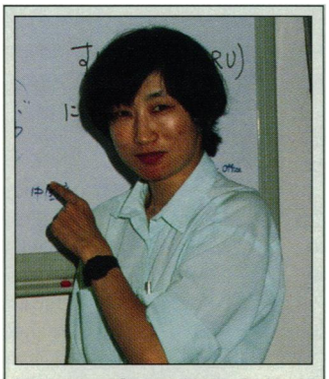
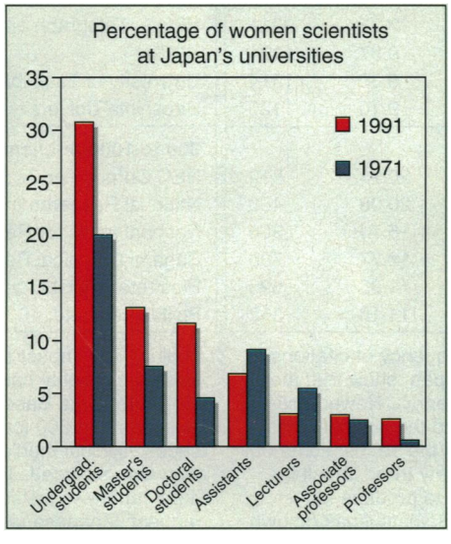


New star. Saeko Hayashi is the first woman to earn a Ph.D. in astronomy at Tokyo.



Vanishing women. 30.8% of the science students at all of Japan's universities, but only 2.6% of the full professors, are women. There are even fewer women at the top in the science faculties of the big prestigious national universities—just 20 out of the total of 1021 professors. And compared to 20 years ago it seems that women are losing some ground; although there are considerably more women students, there are fewer women at three out of the four tenured ranks leading to full professor.