TURKEY

A Prominent Role on a Stage Set by History

Contrary to Western stereotypes, a surprising proportion of scientists in Turkey are women

Turkey is famous for its fables, but this story is true. There is a university, one of the country's best, where one-third of the physicists and mathematicians are women. So are two-thirds of the chemists, one-fifth of the engineers and two out of six deans—numbers hard to match at any European or U.S. school. A dynamic young economist who left the faculty 3 years ago is now the country's first female prime minister.

Welcome to Bosporus University (BU). From a perch high in the hills above Istanbul, it overlooks the Strait that both gives the university its name and separates Europe from Asia. Here at the crossroads of Western and Islamic cultures, Prime Minister Tansu Çiller and the women at BU exemplify a side of Turkey radically removed from Western stereotypes of Muslim women walking five paces behind the men. Overall, Turkey's professional workforce has a higher proportion of women—especially in science and medicine—than most Western countries. Almost one-third—32%—of Turkey's scientists are female (see table this page), compared to just 20% in the United States, according to 1989 U.S. National Research Council figures.

In many ways, it's an exciting time in Turkish science. The country's scientific base is growing and forging closer ties to European research via formal exchange programs with several countries and participation in international efforts like the CERN high-energy physics lab in Geneva. There's an increase in fellowship and research grant money from the Turkish government, the European Science Foundation, the North Atlantic Treaty Organization, and others. And thanks to strong support from the universities, an education system that keeps girls on track in science, and easy access to child care and household help, women are part of all these developments. Says Didem Vardar, a third-year physics student at Ankara's Bilkent University: "I was always brought up...to believe I can do it."

But there's also a dark side to this progressive, female-friendly picture. For one thing, these rosy conditions exist only for a tiny, privileged minority since very few Turks (1% of women, 2% of men) attend a university. Women outside this elite group face tremendous obstacles, such as Turkey's huge gender gap in literacy: Twenty percent more females than males are illiterate, and many have no choice beyond a life of menial labor.

And even within the privileged enclave of academia, life for women scientists still isn't paradise. Academic salaries are low and, as in other countries, it's harder for women to reach the top ranks. The main obstacle isn't discrimination by the scientific institutions but forces that pervade society—especially the strong tradition that defines home and family as a woman's domain, placing a double burden on working women that grows heavier as hours and responsibilities attendant to more senior positions increase.

An equal footing. Despite these obstacles, Turkish women have made real inroads in science, and one reason for their present success lies in the past. Shortly after the Turkish Republic was founded in 1923, it began vigorously promoting equal educational and professional opportunities for women as part of its drive to modernize and Westernize. The universities were a lynchpin of the plan—as public institutions, the government could ensure that they opened up to women, both as students and faculty. It was an unusual step for a developing country with a patriarchal, Islamic culture, and reflected both the strong influence of Turkey's European neighbors and the enlightened ideas of the Republic's founder, Kemal Ataturk, says sociologist Feride Acar from Ankara's Middle East Technical University, an expert on women's issues in Turkey.

There was a pragmatic reason as well: Turkey desperately needed more educated people to help build up the country, Acar says, and the strong class biases of the time led its leaders to seek recruits among upper- and middle-class women rather than among poor men—a class bias which largely persists today. And in keeping with the government's push for people with technical and hard scientific expertise, many of these women went into natural science, medicine, or engineering.

As a result, women have been important players in Turkish science for the past half-century. Take Nuran Gökhan, founding director of the University of Istanbul's new brain research center. When she started medical school in 1943, her class was nearly one-third female and there were already "equal job opportunities for women and plenty of women in the labs, in powerful positions," she says. Over time, Gökhan became one of them, first when she and another woman, Meliha Terzioglu, founded Turkey's first two biophysics departments at the University of Istanbul, and later as chairwoman of the physiology department.

With this tradition of female researchers, science in Turkey never acquired the image of a male domain inappropriate for women. "This is definitely not the case in Turkey," says Zehra Sayers, a Turkish physicist now at the Geesthacht Research Center in Germany. "There's no subtle brainwashing in school that girls do this and boys do that." One result is the near absence of horizontal segregation: In Turkey, there are as many women in fields like math and physics—which have particularly strong male images in the West—as there are in social sciences.

Turkey's education system has also played a strong role in keeping out gender labels and preparing women to succeed in science. The key is that science and math are essential parts of the competition for Turkey's few university places. All students are required to take intensive math and science courses throughout high school. At the end, a grueling 2-day exam provides the sole criterion for deciding not only what university a

WOMEN IN TURKEY'S UNIVERSITIES

Field	% female faculty	% female students
Biology	31	63
Chemistry	38	54
Technical sciences	17	23
Math	21	42
Physics	18	31
Social sciences	18	37
Art and music	44	55
All fields	32	38

SOURCE: THE STUDENT SELECTION AND PLACEMENT CENTER, ANKARA

Making an impact. The percentage of women in biology and chemistry in Turkey's universities is fairly high.

student can attend, but what field he or she can study—which in turn determines future job prospects.

Competition for some departments at top universities is so intense that ambitious high school students take years of evening and weekend classes to prepare for the exam. "We were treated like advanced calculators," says one math Ph.D. student, remembering her school days. But in the end, girls emerge from Turkey's high schools as well-prepared in math and science as the boys.

Competing with tradition. But it isn't only the relative gender equality of the educational system that opens up science to women. Another, less positive factor is the low pay in academia—salaries that make men think twice about careers in research. Men's role as family provider is deeply ingrained in Turkish society, so top male students usually choose fields like engineering or medicine, where graduates from the best universities can earn several times a full professor's salary.

And even if the male students aren't lured by high salaries, their parents—who may rely on them later for financial help—often put them under strong pressure. "All my male graduate students have problems with their families," says one physics professor, who asked for anonymity so these graduate students could not be identified. "They're clobbered for not going out and earning lots of money. Girls don't have this pressure. They're not expected to be the only breadwinner." However, it isn't true that women succeed only where men have ceded the field—for example, 30% of the country's physicians are female.

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Yet whatever the factors that open academic science to women, advancing through the ranks once they're in the door is harder. For example, although women are 39% of the research assistants and 31% of the assistant professors in natural sciences, they're only 24% of the full professors in the field and 10% of all top university administrators, according to statistics from the Student Selection and Placement Center in Ankara, an arm of the education ministry.

A few women attributed this leak in the pipeline to lingering sexist attitudes among male colleagues. One scientist described the discussions at her university over picking a successor to a female dean who had made some unpopular decisions during her term. A frequent comment, she says, was "Not another woman!" Feride Severcan, a biophysicist at the Middle East Technical University, agrees that "women in top positions are under pressure. If you make a mistake in a high position, people associate it with your being a woman."

But most felt that the biggest obstacle women face in moving up the ladder comes from the culture at large, not from science itself. Regardless of professional achievement, society strongly expects women to fulfill the traditional homemaker role, according to Ferhunde Özbay, a BU sociologist. In practice, she says, this means that "it's fine to be professional as long as dinner is on the table." Says one female biologist, bitter about her long years of double duty: "Home is very different from work. Laws about equality don't mean anything at home....This is where change is needed."

Early in a woman's career, this conflict usually isn't so severe. In fact, many women interviewed by *Science* mentioned ease of combining work and family life as an important reason for the high proportion of women professionals. Household help is inexpensive and universities and larger companies usually have on-site day care. The strong family ties that are common in Turkey also play a big role. Not only are there relatives to help with child-minding, but "you always have the feeling that someone is supporting you," says biophysicist Severcan—whose sabbatical in Italy was possible only because her mother-in-law came along to care for the children.

HAYRETTIN KARATEBE/AGENCE FRANCE PRESSE

Role models. Nuran Gökhan *(right)*, director of the University of Istanbul's brain research center, and her colleague Meliha Terzioglu are prominent members of Turkey's scientific establishment.

But as female scientists move through the ranks, facing greater job demands and longer working hours, the effort of organizing household and family can become overwhelming. And when faced with a choice, Turkish women are often more prepared than men to give up a promotion for the family's sake. "Men tend to be very ruthless about their careers," says Emi Koen, a Turkish-born oncologist working in Germany, "while many women say that a high-flying career isn't so important to them. This creates a discrimination which is very subtle but very strong."

Values and choices. For both women and men, the notion of home as women's responsibility is deeply internalized, and it's hard to break the mold. Says physicist Sayers: "Women can still get help from men, but they have to ask for it. It's still expected that you do your family duties. You feel guilty asking for help." Physicist Gülen Aktaş from BU agrees. "Even those women who say they're getting help from their husbands—their expectations are so low that when I really see what they get, it's very little," she says.

But change is slowly coming, at least for young people. It's increasingly common for young men who attend university to live on their own before marrying and have to cook and clean for themselves, says physicist Ayşe Erzan from the Istanbul Technical University—something that was rare in previous generations. "This should make them much more understanding partners. They don't think it's an affront to their pride to go into the kitchen." Another shift is that more and more women scientists are remaining single, especially at the top ranks, where women are five times more likely than men to be unmarried. It's a trend that reflects Turkey's two sides: a progressive land where women feel a growing sense of freedom, and a traditional country where the tiny number of women who enjoy this freedom may feel forced to choose between career and family.

–Patricia Kahn