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Researcher reveals how “Computer Geeks” replaced “Computer Girls”

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Asked to picture a computer programmer, most of us describe the archetypal computer geek, a brilliant but socially-awkward male. We imagine him as a largely nocturnal creature, passing sleepless nights writing computer code. According to workplace researchers this stereotype of the lone male computer whiz is self-perpetuating, and it keeps the computer field overwhelming male. Not only do hiring managers tend to favor male applicants, but women are less likely to pursue careers in a field where they feel they won't fit in.

It may be surprising, then, to learn that the earliest computer programmers were women and that the programming field was once stereotyped as female.

The "Computer Girls"

As historian Nathan Ensmenger explained to a Stanford audience, as late as the 1960s many people perceived computer programming as a natural career choice for savvy young women. Even the trend-spotters at *Cosmopolitan Magazine* urged their fashionable female readership to consider careers in programming. In an article titled “The Computer Girls,” the magazine described the field as offering better job opportunities for women than many other professional careers. As computer scientist Dr. Grace Hopper told a reporter, programming was “just like planning a dinner. You have to plan ahead and schedule everything so that it's ready when you need it.... Women are ‘naturals’ at computer programming.” James Adams, the director of education for the **Association for Computing Machinery**, agreed: “I don't know of any other field, outside of teaching, where there's as much opportunity for a woman.”

The world described in the *Cosmopolitan* article seems foreign to us today. In fact, says Ensmenger, change was already in the air at the time of the article's 1967 publication date. It's true, however, that the very first programmers were women and that the field remained open to women for many years thereafter. In the early 1940s, the University of Pennsylvania hired six women to work on its ENIAC machine, which was one of the world's first electronic computers. These six women, known by contemporaries as the “ENIAC girls,” were charged with “setting up” the ENIAC to perform computation tasks. They are widely celebrated as the world's first computer programmers.

However, says Ensmenger, the presence of these women did not indicate that managers of the ENIAC project had modern attitudes toward women in the workforce. Rather, managers hired women because they expected programming to be a low-skill clerical function, akin to filing, typing, or telephone switching. Assuming that the real “brain work” in electronic computing would be limited to the hardware side, managers reserved these tasks for male engineers.

The idea that the development of software was less important (and less masculine), than the development of hardware persisted for many years and women continued to work as computer programmers. Employers, says Ensmenger, were in for a surprise when they discovered a truth that we now take for granted: “Programming,” he says with a smile, “is hard.” The women involved in the ENIAC project distinguished themselves by engaging in complex problem-solving tasks and by advising their male colleagues on hardware improvements. For example, Betty Holbertson convinced skeptical engineers to include a “stop instruction” in order to guard against human error.

As the intellectual challenge of writing efficient code became apparent, employers began to train men as computer programmers. Rather than equating programming with clerical work, employers now compared it to male-stereotyped activities such as chess-playing or mathematics. But even so, hiring managers facing a labor crunch caused by the rapid expansion of computing could not afford to be overly choosy. The quickest way to staff new programming positions was to recruit from both sexes, and employers continued to hire women alongside men.

The masculinization of computer programming

In 1967, despite the optimistic tone of *Cosmopolitan*’s “Computer Girls” article, the programming profession was already becoming masculinized. Male computer programmers sought to increase the prestige of their field, through creating professional associations, through erecting educational requirements for programming careers, and through discouraging the hiring of women. Increasingly, computer industry ad campaigns linked women staffers to human error and inefficiency.



At the same time, new hiring tools—including tools that were seemingly objective—had the unintended result of making the programming profession harder for women to enter. Eager to identify talented individuals to train as computer programmers employers relied on aptitude tests to make hiring decisions. With their focus on mathematical puzzle-solving, the tests may have favored men, who were more likely to take math classes in school. More critically, the tests were widely compromised and their answers were available for study through all-male networks such as college fraternities and Elks lodges.

According to Ensmenger, a second type of test, the personality profile, was even more slanted to male applicants. Based on a series of preference questions, these tests sought to identify job applicants who were the ideal programming “type.” According to test developers, successful programmers had most of the same personality traits as other white-collar professionals. The important distinction, however, was that programmers displayed “disinterest in people” and that they disliked “activities involving close personal interaction.” It is these personality profiles, says Ensmenger, that originated our modern stereotype of the anti-social computer geek.

Computer programming today

Today, we continue to assume that the programmers are largely anti-social and that anti-socialness is a male trait. As long as these assumptions persist, says Ensmenger, the programming workforce will continue to be male-dominated. Although the stereotype of the anti-social programmer was created in the 1960s it is now self-perpetuating. Employers seek to hire new recruits who fit the existing mold. Young people self-select into careers where they believe they will fit—for example, women currently comprise 18% of computer science undergraduate majors, down from 37% in 1985.

By uncovering the history of women programmers, Ensmenger seeks not only to remind us of women’s forgotten contributions to the computing field. More broadly, he is interested in the process of how and why the field became predominantly male. The fact that stereotypes embedded in advertisements and hiring practices had such a profound effect on masculinizing this profession, says Ensmenger, also sheds light on what can be done to reverse the trend, making programming and other computer professions more open to women.

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