

# Reviews

Jeffrey R. Yost and Atsushi Akeru, Editors

---

**Nathan Ensmenger, *The Computer Boys Take Over: Computers, Programmers, and the Politics of Technical Expertise*, MIT Press, 2010, 336 pp.**

At present, the growing body of scholarship on the history of computing has generated far more discussion about the machines involved in the “computer revolution” than it has about the people who made that revolution happen. Compared to the professional histories of other world-changing transformations—be they political, intellectual, or technological—the story of the rise of electronic digital computing has been one relatively devoid of human agency.

In *The Computer Boys Take Over*, Nathan Ensmenger has made great strides toward showing how people, namely computer programmers and their managers, propelled the computer to such great importance in our society. Broadly, his book traces how computer workers rose from glorified clerks in the 1940s to a novel class of highly valued creative technicians by the late 1960s. Along the way, Ensmenger makes it clear that the ascent of the “computer boys” was by no means a smooth or inevitable progression; it was a rocky process, fraught with uncertainty and deeply shaped by the ambitions and anxieties of the organizations that hired computer experts. By exploring the tensions generated by the increasingly acute question of how to manage computer workers, Ensmenger gives his readers a good understanding of how and why this new type of worker came to be valued, yet also often disdained or even feared.

It is the author’s credit that he has crafted an account that is at once engaging to professional historians of computing and accessible to a wider audience. By liberally injecting colorful anecdotes and pithy quotes into a highly polished analytical narrative, Ensmenger has written one of those rare books that is both scholarly and a pleasure to read. On the one hand, he employs straightforward language and simple examples to demystify the process of conveying ideas via computer code. Even a reader with no programming experience should come away understanding the major differences between Fortran and Cobol and why those differences mattered in a variety of contexts. On the other hand, Ensmenger does not shy away from investigating complex issues such as the basis of aptitude testing for programmers and how the content of those tests related to the realities of early programming. This he makes accessible by presenting readers with an actual Honeywell recruitment test and showing how personnel hired via such tests fared in the workplace.

The newest and most important material this book has to offer historians of computing is its investigation

of how the workforce of computer programmers was built and how the various organizations that had invested in building this force then grappled with the problem of harnessing the new type of worker they had created. We learn here that corporate and government recruiters purposefully cultivated the nerdish stereotypical qualities of programmers as unkempt, puzzle-loving, and introverted. The bearded, sandaled misfits who could “build castles in the air, from air, creating by exertion of the imagination” also posed an unprecedented management challenge, which Ensmenger captures by drawing readers into Fred Brooks’ analysis of IBM’s disastrous OS/360 project and into reports from consulting firms such as Price Waterhouse and McKinsey. This discussion culminates in a careful dissection of late 1960s attempts, as manifest in Brooks’ *The Mythical Man Month* and the 1968 NATO Conference on Software Engineering, to devise systems to rationally manage programmers.

Another area where this book is particularly strong is the way it addresses the issue of gender and computing. The “computer boys,” it turns out, were for the most part initially women. Ensmenger demonstrates that computer programming gained prestige through a process of masculinization. He shows that the gender imbalance among programmers that had become cemented by the 1960s was far less a reflection of innate ability than the product of a professionalization process in a male-dominated work environment.

Although this solid and novel book should be regarded as essential reading for anyone interested in the history of computing, it is also not without some shortcomings. Its discussion on the emergence of computer science as an academic discipline comes across as overly general and lacks the grounding in examples and the sense of agency that so bolster the other sections. Although the broad agendas of early computer scientists are eloquently articulated, little attention is given to the specific activities and circumstances of important departments. This book is also a victim of its own good writing in that its ability to retain the reader’s attention makes the repetition of several particularly memorable quotes noticeable. Finally, the “computer boys” themselves only seldom speak for themselves in this account. Instead, we mostly hear about them—though what we hear is insightful—from their managers and management consultants. On this last issue, many *Annals* readers have a workaround; they can draw from their own experience as programmers, whether in the period the book covers or more recently, to give the “computer boys” a louder voice.

Looking past the book's scholarly nature, one is struck by its sense of humor, a hallmark of even the weightiest discourses of computer workers. Readers seeking more of the humorous advertisements and cartoons that make *The Computer Boys* so easy to digest are advised to visit Ensmenger's blog (<http://thecomputerboys.com>). Whether comic or—as in the vast majority of cases—serious, many of the sources on which this book is grounded are strikingly products of the 1950s and 1960s. Yet the jokes as well as the sincere cries of “Crisis!” still have relevance today. Even decades later, the problems associated with managing programmers and other types of technical knowledge workers still loom large.

Joseph November  
*Assistant Professor*  
*University of South Carolina*  
*november@sc.edu.*

**Thomas J. Misa, *Gender Codes: Why Women Are Leaving Computing*, Wiley-IEEE CS Press, 2010, 306 pp.**

At last, we have a book in which scholars offer explanations for computing's unprecedented decline in women's participation. Data on degrees awarded by discipline and gender have long begged the question of what happened to the women in computing beginning in the mid-1980s. Graphs show a marked change from the dramatically increasing and then decreasing representation of women among undergraduate computer science degree recipients. This change in direction is unique among other science, technology, engineering, and mathematics (STEM) fields, which leads one to ask, “Why?” Why has computing undergone what Linda Shaffer, in the book's foreword, calls this “strange and unsettling phenomenon”? Finally, there is more than speculation in answer to that question.

The book is written for computing educators, administrators, managers, and scholars with the purpose of bringing gender analysis into the mainstream of computing history. The historians of technology and society who contributed include Misa, Caroline Hayes, Thomas Haigh, Corinna Scholombs, Marie Hicks, Nathan Ensmenger, Greg Downey, Hilde Corneliusen, Aristotle Tympas, Janet Abbate, and Jeffrey Yost. The book is a product of a 2008 Charles Babbage Institute for the History of Information Processing workshop on women and computing in which all these contributors participated.

---

**Data on degrees awarded by discipline and gender have long begged the question of what happened to the women in computing beginning in the mid-1980s.**

---

Editor Misa organized the book into four parts: tools for understanding, institutional life, media and culture, and women in computing. The problem of women's underrepresentation, according to the first chapter, stems from “mass media's amplified masculine image of computing” (p. 9). This theme threads throughout the book and is emphasized in the conclusion, although several other interesting themes emerge. The additional themes include a strong challenge to the pipeline metaphor for understanding the size and gender composition of the computing workforce, distinct histories of the gender relations among the various occupations that comprise computing, evidence that employer beliefs and preferences influence the gender composition of computing occupations, the active alignment of computing and masculinity as part of professionalization efforts, and the maintenance of that alignment through computing's structures and culture.

Each chapter tells a different part of the story of women's participation in computing, with chapters on women entrepreneurs, the differential impact computer automation had on men and women's office and library work, and the early feminization and then deliberate masculinization of computer work in the British civil service. The influence of national culture is also highlighted with views from Norway and Greece. Interviews with women computer scientists describe in their own words the great pleasure they took from computing. Their oral histories recount the excitement, pride, comfort, satisfaction, and pleasure they experienced in their careers. These stories conflict with

the field's popular image, which Anita Borg dismissed in her interview as "just a stereotype, it's not reality" (p. 224).

This engaging and readable book still only begins the conversation about historical trends in the gender composition of computing. The evidence presented is informative, but there is much more to learn, as the authors acknowledge. I look forward to future publications that include, for example, investigations into any influence exerted by the rise of the PC and its mostly male hobbyist and tinkerer communities. It will also be interesting to read an analysis of changes that might have been spurred by the transition from the early faculties comprised of disciplinary immigrants to those consisting of computer science PhDs. Finally, scholars might reflect on what appears to be a poor temporal alignment between historical masculinization processes and women's actual representation.

In the end, the book might place too much blame for women's departure on computing's geek image and too little on the many other factors identified by the contributing authors. Furthermore, the assertion that women are "just as likely to advance to faculty ranks in CS as in other STEM fields" (p. 268) ignores

other research findings that computing stands out as having an unexplained mismatch between women PhDs produced and their entry into faculty ranks.<sup>1</sup> The history of women in computing is not a simple tale. This book is an excellent introduction to some of the main themes, and there are many more chapters waiting to be written.

**Reference**

1. S. Kulis, D. Sicotte, and S. Collins, "More Than a Pipeline Problem: Labor Supply Constraints and Gender Stratification Across Academic Science Disciplines," *Research in Higher Education*, vol. 43, no. 6, 2002, pp. 657–691.

J. McGrath Cohoon  
 Senior Research Scientist, NCWIT  
 University of Virginia  
 jmcohoon@virginia.edu

Contact the Reviews department editors at [annals-reviews@computer.org](mailto:annals-reviews@computer.org).

**cn** Selected CS articles and columns are also available for free at <http://ComputingNow.computer.org>.

Innovation doesn't just happen. Read first-person accounts of IEEE members who were there.

**IEEE Global History Network**  
[www.ieeeghn.org](http://www.ieeeghn.org)

**IEEE**

Photo: NASA