

Reviews

Jeffrey R. Yost and Atsushi Akeru, Editors

Tom Green, *Bright Boys*, A K Peters, 2010, 320 pp.

Bright Boys is nominally about the men, led by young engineers Jay Forester and Robert Everett, who created the Whirlwind computer at the Massachusetts Institute of Technology in the mid to late 1940s and the impact they and their work had on the greater world of computing. It is a fascinating and easy read, and the photographs on the dust cover and throughout the book are used with excellent effect and add to the reader's feel for the time and place.

Despite its nominal topic, the book goes well beyond describing the Whirlwind creators. It describes the MIT environment that fostered innovation and the Barta Building at MIT in which Whirlwind was created. It explicitly covers the story from 1938 to 1958 of the computer technology development at MIT and within the US Defense Department (particularly the Air Force) and how the Cold War and other pressures encouraged the development of command and control (rather than strictly numerical calculation) computers. It touches on various of the "accretion of events ... at once political, military, scientific, technological, and socioeconomic, that begat its very own culture ... [and] spawned a revolution in engineering."

However, the book left me a little unfulfilled, mostly due to my mental difficulty in fitting the book into typical forms of technology history. It is not a traditional scholarly history; the authorial voice is too chatty with too many references to nearly unrelated events—I assume for popular effect—and there is little or no historiographical discussion.

It doesn't tell the story of one institution as does Michael Hiltzik's *Dealers of Lightning: XEROX PARC and the Dawn of the Computer Age* (HarperCollins Publishers, 2000). It does not focus in as much detail on one man as do Thierry Bardini's *Bootstrapping: Douglas Engelbart, Coevolution, and the Origins of Personal Computing* (Sanford Univ. Press, 2000) and M. Mitchell Waldrop's *The Dream Machine: J.C.R. Licklider and the Revolution That Made Computers Personal* (Viking Adult, 2001). And it tells a story well beyond one small team working on one focused project, such as in Tracy Kidder's *Soul of a New Machine* (Back Bay Books, 2000).

Tom Green is telling a considerably less manageable story, and he makes some pretty broad (explicit and implicit) assertions about the crucially central place of his "bright boys" in the creation of the computer industry we know today. Indeed, his definition of the bright boys seems quite ambiguous. Early on, the bright boys are Forester, Everett, and the people around them relevant to the Whirlwind project. Later, the bright boys seem to extend to a broad world of people

who made contributions to the world of computing up into the Internet era. Green uses "bright boys" as almost a pronoun standing for any of the numerous people or groups of people he is describing.

Green also seems to be trying to force a cause-and-effect thread of his bright boys onto a long and broad history of computer technology developments, although he even seems a little ambivalent about this himself. For instance, the book has no subtitle on the cover page—just *Bright Boys*. However, on the front flap of the dust cover and the book's website, there is a subtitle: "1938–1958: Two Decades That Changed Everything."

Big changes in technology and its applications are complicated and involve a vast number of not necessarily closely coordinated people over a long time. There is no completely logical thread. Ultimately, this is where I think Green's book makes its greatest contribution. It tells the long, complex story, bringing briefly into view a large number of characters. In so doing, it encourages the reader to seek additional sources of information on this period of history.

Green is not a professional historian. Rather, according to the back flap of the dust cover, he is "an Emmy-nominated award-winning writer, producer and playwright who uses his print and video experience to tell stories about science, technology and engineering." Such "historians" are perhaps a wave of the future as readers' expectations for "exciting" history reading grows; more history is collected for TV shows (necessarily non-academic) and via websites (where large numbers of people can contribute their memories and thoughts); and modern communications make it easier for non-traditional experts to research, write, and promote books. My understanding is that, for a couple of years before publishing *Bright Boys*, Green used his website (www.brightboys.org) to display the interim results of his research and to interact with people who had participated in the story. When I last looked, some of that research had been dropped from the website, which now focuses on marketing the book and providing materials (such as videos and podcasts) to augment it.

I recommend *Bright Boys* to anyone who wants to begin to understand where some of modern computing came from before the Internet era. I also recommend taking a look at the book's website before or while reading the book. Perhaps as it did with me, the book will leave you wanting to know more.

After 35 years doing engineering and management in the computing industry, David Walden retired and now writes, edits, and publishes about computer history. To contact him, go to walden-family.com.

Christophe Lécuyer and David C. Brock, *Makers of the Microchip: A Documentary History of Fairchild Semiconductor*, MIT Press, 2010, 323 pp.

In *Makers of the Microchip*, Christophe Lécuyer and David C. Brock have written a history of the Fairchild Semiconductor Corporation and its work in the field of semiconductors, focusing on 1957 (when the company was founded) to 1961. Fairchild was formed by a group, most of whom had recently left Shockley Semiconductor Laboratory, the pioneering firm founded by William Shockley (co-inventor of the transistor). Fairchild was one of the earliest Silicon Valley, California, electronics firms, and it helped establish the region as a competitor to the electronic systems and components manufacturing centers around Chicago; the greater New York, New Jersey, and Pennsylvania area; and Los Angeles (for the motion picture industry). The company developed transistor design techniques and added many innovations in production technology to establish itself as a leader in the field of “planar” silicon transistors and integrated circuits. However, after a few years, many of its key personnel left to pursue other goals. During those early years, the company became a leader in supplying components for military electronics systems and made inroads into nonmilitary components such as those used in consumer electronics.

The authors have taken a “documentary” history approach, meaning they tell their story in part by presenting documents that are reproduced alongside the book’s text for the reader to examine. Most of the documents come from a single source: the laboratory notebook of one of Fairchild’s founders, Jay Last (who also adds an informative preface to the book). The authors devote a considerable portion of the introduction to justifying this methodology, and while they acknowledge its critics, they draw support from comparable efforts such as the multivolume *The Papers of Thomas A. Edison*.¹

Compared to the Edison Papers books, these facsimiles are not as visually engaging, nor do they add as much to the story through their reproduction here, but as sources for the Fairchild story, they are essential reading. Lécuyer and Brock carefully justify the narrow scope of their study, which covers just a few aspects of the company’s operations that span just a few years, plus their decision not to “translate” the technical details of the story into more accessible language. These latter factors are likely to narrow the book’s appeal, particularly given the authors’ high expectations about the

reader’s technical knowledge of decades-old semiconductor devices and their applications (although they do provide a helpful glossary).

Nonetheless, they do an admirable job of telling a technically involved story, and the evidence they present supports the arguments they make about how the firm and its products developed. These arguments center on the idea that the decisions and actions undertaken by the firm’s employees reflected three main factors: their perceptions of what the silicon transistor and the planar process were capable of doing technically, what their customers probably wanted, and what their competition was doing. They call these three factors silicon, user, and competition “logics”—a nice play on the fact that most of Fairchild’s products became part of computer circuits.

After demonstrating how these three logics played out, the authors revisit them in the concluding chapter, but much of the conclusion is a look forward, outlining the later careers of the departed Fairchild founders, the technology of silicon semiconductor devices, and the subsequent history of the Fairchild company itself.

In many ways, this book exemplifies a first-generation type of work in the history of technology, of the kind that prevailed in the history of computing for many years, and in the *Annals*. The best of these works benefitted from the relative abundance of the kind of primary source data that tends to disappear or get lost after just a few decades. The trade-off in writing such a work is the lack of perspective on past events that the passage of time will provide.

This is not a criticism, however. Lécuyer and Brock are realistic about what they hope to accomplish, and they do a fine job of establishing how their own work fits into the emerging historiography of computing, manufacturing, invention, and other broader historical issues. The book stands on its own as a solidly researched (not to mention beautifully produced) presentation of the most important years in the history of a landmark firm and its products.

Reference and Note

1. *The Papers of Thomas A. Edison* is a projected 20-volume set by multiple authors, published by Johns Hopkins Univ. Press. The first volume was published in 1989.

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