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## *Preface to the Second Edition*

As I was completing the manuscript for the first edition of *A History of Modern Computing*, I found myself anxiously looking over my shoulder, worrying that some new development in computing would render what I had just written obsolete. My concern was well grounded: as I was writing the final chapter, at least one event occurred that threatened to upset the narrative structure I had erected. That was the fanfare that surrounded Microsoft's introduction, in the fall of 1997, of version 4.0 of its Internet Explorer—an introduction that led the U.S. Justice Department to file an antitrust suit against the company. I had not been paying much attention to Microsoft's Web strategy at the time, but I was confronted with the excitement surrounding Internet Explorer literally on the day I put my completed manuscript of *A History of Modern Computing* into a FedEx package for shipment to the publisher. The antitrust suit did in fact turn out to be one of the biggest developments in computing since 1995, and this edition will examine it at length. Are other developments now lurking in the background, which, when they surface, will render any attempt to write a history of computing impossible?

With the rise of the World Wide Web came the notion of “Internet Time.” Netscape's founder Jim Clark called it “Netscape Time” in his 1999 book by that title: he defined it as a telescoping of the time for a technology to proceed from invention to prototype, production, commercial success, maturity, and senescence.<sup>1</sup> The historian faces a modern version of Zeno's paradox. In the classical story, a fast runner never reached the finish line in a race, because he first had to traverse one-half the distance to the end, which took a finite time, and then one-half the remaining distance, which again took a smaller but still finite time, and so on. There is a finite time between sending a completed

manuscript to the typesetter and the delivery of a book or journal article to the reader. When the subject is computing, Zeno's paradox takes control: enough happens in that brief interval to render what was just written obsolete. Many recognize this and embrace the solution of publishing electronically, thus telescoping that time down to zero. There are indeed many Web sites devoted to the history of computing, some of excellent quality. Still, embracing Web publishing is a false hope, because it does nothing to compress the time spent organizing historical material into a coherent narrative. History is a chronology of facts, but the word *history* contains the word *story* in it, and telling stories is not rendered obsolete by technology. The storyteller neither can, nor should, speed that activity up.

In looking over the first edition, I feel that it has managed to avoid Zeno's trap. A number of significant events have developed after 1995, and in a new chapter I examine three at length. These are the Microsoft trial, mentioned above; the explosion and equally stunning implosion of the "dot.com" companies; and the rise of the "open source" software movement and especially the adoption of the Linux operating system. These are three of at least a dozen topics that I could have chosen, but to examine more would not serve the reader.

Zeno may get his revenge yet. The above plan for bringing the history of computing up to date seems rational, but it may have a fatal flaw. The history of computing, as a separate subject, may itself become irrelevant. There is no shortage of evidence to suggest this. For example, when the financial press refers to "technology" stocks, it no longer means the computer industry represented by companies like IBM or even Intel, but increasingly Internet and telecommunications firms. In my work as a museum curator, I have had to grapple with issues of how to present the story of computing, using artifacts, to a public. It was hard enough when the problem was that computers were rectangular "black boxes" that revealed little of their function; now the story seems to be all about "cyberspace," which by definition has no tangible nature to it.

Perhaps the invention of the computer is like Nicholas Otto's invention of the four-cycle gasoline engine in 1876. However significant that was, if Otto is remembered at all it is because the Otto Cycle became the preferred way to power the automobile. And the automobile in turn is a topic worthy of study not so much for its intrinsic qualities as a machine, but for helping shape a society that has grown around personal transportation. In the preface to the first edition I suggested that this book's emphasis on the transition from batch-oriented to interactive

computing might some day seem to be a minor part of computing history. Has that day come already? What now seems to have been critical was the transformation of the computer from a stand-alone to a networked device. That, however, could not have happened were it not for the earlier transition from batch to interactive use. Although the hardware roots of cyberspace are found in chip manufacturers including Intel, and in personal computer companies like Apple, the spiritual roots of cyberspace are found in time-sharing experiments like Project MAC.

I do not feel that the history of computing will vanish into a subfield of the history of cyberspace. The recent implosion of the dot.com companies (the second topic covered in the new chapter) suggests that a study of hardware and software (including Linux, the third topic) will remain at the core of any history. The study of cyberspace is merging with social, cultural, military, and political history, as digital technologies increasingly mediate among human interactions. That is the origin of the term *media*. I hope this book will continue to serve those who wish to know how the increasingly mediated world we now live in arose.