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The Future of the History of Computing

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The Future of the History of Computing

Abstract

The history of information technology is not the history of how wires got into boxes. Technological developments are intertwined in the social fabric, and their story includes the direct experience of individuals and the impacts felt by communities. Computers were once thought to be relevant only to specialists, but people today are more aware of the reach of computers into their lives. Similarly, the history of computing has traditionally been the focus of specialists in technology, but a greater variety of scholarly researchers is now studying archival collections about computing. The Social Issues in Computing Collection at the University of Minnesota's Charles Babbage Institute seeks to collect a wider array of perspectives on the industry and even to change the way people think about computing and archives.

The Future of the History of Computing

R. Arvid Nelsen

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Abstract: The history of information technology is not the history of how wires got into boxes. Technological developments are intertwined in the social fabric, and their story includes the direct experience of individuals and the impacts felt by communities. Computers were once thought to be relevant only to specialists, but people today are more aware of the reach of computers into their lives. Similarly, the history of computing has traditionally been the focus of specialists in technology, but a greater variety of scholarly researchers is now studying archival collections about computing. The *Social Issues in Computing Collection* at the University of Minnesota's Charles Babbage Institute seeks to collect a wider array of perspectives on the industry and even to change the way people think about computing and archives.

In the years preceding the turn of the millennium people were warned about the Y2K bug. Concern centered on the consequences of computer programs that abbreviated the year in date fields to the last two digits and the potential resulting confusion once those two digits dropped from 99 back to 00. Time-based calculations such as scheduling, payroll, financial transactions, and many more faced the prospect of being thrown into confusion. Such errors could be incredibly problematic but paled in comparison to the implications of failures of other systems, such as traffic lights, manufacturing equipment, electrical and water systems. Anything that contained a computer chip and was not "Y2K-compliant" posed the potential for malfunctioning, and it began to appear that everything people used had been imbedded with chips. Appliances. Automobiles. Airplanes. The general populace became acutely aware of the potential fallout of massive system failures as people realized that computers – those machines that not long ago had been thought of solely as the purview government and scientists, geeks and hackers – were now everywhere, controlling the most mundane functions of daily life. Even if someone never worked with a computer, everyone was somehow affected by them every day.

People today are much more aware of the reach of computers and digital technologies into their lives, for better and for worse. Television went digital a few years ago, requiring everyone to purchase new sets or converter boxes. Social media is used by seemingly everyone – teenagers have fled Facebook as parents and grandparents have begun to "friend" them ... and their peers. National news outlets describe the dangers posed by people leaking confidential information about the government and the dangers posed by the government as leaked by such individuals. Prevalent is the tension between national security and personal privacy in light of internet and cell communications and the capabilities of collecting and analyzing "Big Data." Professionals face the possibility of being displaced from white-collar jobs by ever smarter computers. Nearly everyone carries with them increasingly sophisticated devices enabling them to communicate, retrieve information, navigate and possibly to be located and tracked ... and they are eager for the next upgrade.

Computing can now be seen to have implications for people and communities involving personal decisions and public policy. It is no longer confined to specialists and perhaps never really was. The history of technological developments is intertwined in the social fabric, and includes the direct experience of individuals, the impacts felt by communities, and the public needs and consumer demands that have driven development. It is a history that unfolds quickly. Progress and changes in societal values, state and national law, and international relations may still occur over decades, but technological advancement occurs at such a rate that what was cutting edge five years

ago seems archaic today. In today's environment, academic and beyond, the task of collecting, preserving, and promoting the documentary evidence of these changes, their origins, and their consequences faces many opportunities and challenges. There is a multitude of movements and issues to document and ever-expanding communities of researchers to identify, contact, and serve. This is the mission of the University of Minnesota's Charles Babbage Institute (CBI), a center for the history of information technology and a partnership of the College of Science and Engineering and the University of Minnesota Libraries' Department of Archives and Special Collections.

In an evolution that is, I believe, parallel to that of the general public's awareness of computing and its reach, we are now embarking on a period when the relevance of historical collections about computing will be seen by the great variety of scholarly researchers. Technology collections and the research based on them have historically focused on the machines and the people who built them. The design, manufacture, and implementation of computer technologies are the epicenter of the information revolution and thus the natural starting point for building collections. The long-term base of researchers using these materials has consisted primarily of historians of technology. While scholars in other fields have found cause to plumb the depths of resources held at CBI, they have until recently been mostly occasional. In fact, many people with whom I have spoken who are not historians of computing have had difficulty seeing beyond a specific preconceived notion about what exactly they might even find within our collections. It seems as though they expect to find nothing but schematics, formulae, and manuals. But the history of information technology is *not* the history of how wires got into boxes.

Danger lurks for those who make assumptions about the content of any library or archival collection. This is equally true for specialists and non-specialists in a collection's subject area. I routinely advise students and other visitors not to judge an archive by its cover, if I may take liberties with that expression. Archives and special collections libraries are known for acquiring and preserving materials focused on particular subject areas or types of artifacts. The reputation a collection establishes is important because it can attract the community of potential researchers in a given field to the rich resources that curatorial staffs strive to develop. Yet, it can also be limiting. Even specialized collections contain materials that may appear only tangentially related to the primary subject area. Archival collections, in particular, are likely to contain materials documenting or illustrating a great deal more than the topic found in the name of an archive. The people and organizations whose materials we collect are complex and multifaceted, and the documentary evidence of varied interests and activities are likely to be captured. Such resources may be of central interest to researchers outside of the target audience – researchers who may never think to look into those holdings. And if a researcher doesn't look, they are likely to miss out on research gems.

Conversely, the danger for researchers within an archives' patron base is that they may bring preconceived notions about the meaning of the materials and the nature of the stories they tell. Embarking on research with a *specific* objective or assumption may blind the scholar to the complexity of the stories that the materials tell. I often treat undergraduate students who come to learn about the collections at CBI to the story of Edmund Berkeley, whose papers we hold. Edmund Callis Berkeley is most often remembered for his work popularizing the idea of the computer for general audiences. He wrote a book that explained computers to laypersons, *Giant Brains, or Machines That Think*. He created and sold toys that explained computer programming for children. He was a founder of the Association for Computing Machinery. Yet Berkeley was also a man concerned about war, peace, and civil liberties and one who held deep personal convictions about the responsibility of individuals and industry to work for a better world. The *Edmund C. Berkeley Papers* at CBI contain his personal thoughts on such subjects in memos, drafts of articles and books, and in personal and business-related correspondence. The collection also attests to these interests in the great deal of materials he collected over decades from a multitude of activist organizations. But this is a story that can be – and has been – overlooked. When someone enters the collection expecting to find a computing story, they generally leave with a computing story.

Stories about the creation and creators of technology will always remain important but now I believe it is possible for libraries, archives, and researchers to look outside of the box, so to speak, and examine much more. In 2008 CBI began a new collecting initiative that sought to broaden our focus in a couple of important ways. First, we began collecting more print materials. Second, we began intentionally to seek out materials created by persons and groups *outside* of the computer industry who were interested in or concerned by the developments that they saw.

Prior to this, CBI's collecting efforts had focused on the organizational records of companies and the personal papers of individuals within the computing industry. The available research materials were restricted to voices from within the industry itself. Such voices tend to emphasize the positive developments and impacts of the industry, either because of personal bias or commercial interests. These perspectives are absolutely critical to informing histories of computing, but also require balance and contextualization. Collecting parameters that excluded books also aided in limiting the perspectives acquired. By changing our own conception of CBI from being a *format-specific* collection to being a *subject-specific* collection, we opened the possibility of acquiring individual items rather than just large collections of materials. Individual items carried little cost and took up little space so we could afford to acquire a wider variety of perspectives. We would not have been able to pursue the organizational records of groups whose primary mission greatly exceeded CBI's interest in computers – but we could acquire their books, tracts, and pamphlets. And that's what we did.

The *Social Issues in Computing Collection* continues to grow, preserving a wide array of commercially and independently published print materials - books, magazines, newsletters, flyers, "zines" - that express hopes and concerns about computing and its impact on everyday people and communities, from as wide an array of socio-political perspectives as possible. The ideas found within this growing collection of materials demonstrate perceptions both optimistic and dystopic and represent both liberal and conservative political-social perspectives. Issues addressed include jobs, the economy, warfare, the environment, and privacy and surveillance. Interest in the collection has grown; fall semester 2013 CBI hosted more classes than usual and nearly all asked for presentations on the *Social Issues* collection. We have also seen an increase in requests by individual researchers. Both classes and researchers are still coming out of history departments, but notably they are not necessarily historians of computers or even technology writ large, but rather environmental history and public policy. I remain eager for scholars in fields like Gender and Women's Studies, Rhetoric, Religious Studies, International Relations, and others to see the publications that continue to amaze and provoke me as the collection grows.

But the *Social Issues* collection has done more than simply provide a counterpoint to the industry perspective that we continue to cultivate. First, it has demonstrated that there is, in fact, a spectrum of ideas and resources between the two poles of the industry and its critics. We have acquired and are seeking collections that look at the meaning of computer technology for society at large from the standpoint national interests. The *Brian Kahin Papers* document the broad implications of the Internet and the impact of technology on intellectual property. We have just been promised the papers of Dr. Stephen J. Lukasik. Lukasik was the Director of the Advanced Research Projects Agency (ARPA) from 1971 to 1974, and a leader in private industry and government projects involved in national threat assessment, smart weapons, nuclear test detection, command and control, and cyber conflict. Second, by allowing us to see how developments in computing have excited the imaginations of people, *Social Issues* has enabled us to look at the directions in computing now under development and forthcoming which it will be important for us to collect.

And we need to be constantly looking forward at what is going to be the next big thing: military drones, domestic spying legislation, artificial intelligence, virtual reality, the Singularity. We need to determine what is going to be historically important not in one hundred years but perhaps in ten or twenty, because due to the nature of our collecting arena we find ourselves collecting contemporary history. The challenges of collecting the present are manifold: determining what will be of lasting significance, recognizing that what appears to be minor may have much to do with present assumptions and biases, acknowledging that much more is created than we can realistically collect, and capturing what others may be inclined to toss out as "yesterday's papers." As I said above, the history of information technology is a history that unfolds quickly. The material evidence of that progress does not have the time to develop the patina of age that romanticizes other rare and special collections. People sometimes wonder why we want to collect some of the things we do; they just seem obsolete. That's when I like to point to our collection of Y2K materials. These books and pamphlets, so significant for so much of the world for so long, lost all relevance on January 1, 2000. It would have been easy to toss them out, and many people did. But thanks to some prescient collectors who became donors, CBI can illuminate and illustrate the period of time when the world woke up to reach of computers into our everyday lives. Now, I hope, is the time for people to see this history in a new light and its reach across academic boundaries.