In This Issue:

Director’s Desk

Thomas J. Misa Travel Fund

ACM SIG Heritage Workshop

Aspray and Light Appointments

Cortada’s IBM

Symposium Announcement: Just Code

News from the Archives

Digital Tools and Processes for RRI

Perold Named 2019-2020 Tomash Fellow

2019 Arthur Norberg Award Recipients

Narayan: CBI’s New IDF Awardee

Yost Named Springer Series Co-Editor

Recent Publications

Featured Photograph
In This Issue:

Director’s Desk 3
Thomas J. Misa Travel Fund 6
ACM SIG Heritage Workshop 7
Aspray and Light Appointments 9
Cortada’s IBM 12
Symposium Announcement: Just Code 14
News from the Archives 15
Digital Tools and Processes for RRI 17
Perold Named 2019-2020 Tomash Fellow 19
2019 Norberg Travel Grant Recipients 21
Narayan: CBI’s New IDF Awardee 22
Yost Named Springer Series Editor 24
Recent Publications 25
Featured Photograph 28

CBI Newsletter Editor: Juliet Burba

Charles Babbage Institute
211 Andersen Library
University of Minnesota
222 21st Avenue South
Minneapolis, Minnesota 55455

Email: cbi@umn.edu
Phone: (612) 624-5050
Fax: (612) 625-8054
www.cbi.umn.edu

The Charles Babbage Institute for the History of Information Technology is sponsored by the University of Minnesota and the information technology community. Charles Babbage Institute Newsletter is a publication of the University of Minnesota. The CBI Newsletter reports on Institute activities and other developments in the history of information technology. Permission to copy all or part of this material is granted provided that the source is cited and a copy of the publication containing the copied material is sent to CBI. © Charles Babbage Institute
For CBI’s entire four decade history we have had CBI/Tomash Fellows—from the first two, William Aspray and Paul Ceruzzi, at the end of the 1970s and start of the 1980s, to our current Tomash Fellow, Theodora Dryer, and our just-named (next academic year) fellow, Colette Perold (see related article). In all, we have had 39 Tomash Fellows. This distinguished group includes many of the thought leaders in the history of information technology today. Our Tomash Fellowships have supported dissertation research that often resulted in path-breaking books, including a number of prize winners such as Eden Medina’s *Cybernetic Revolutionaries*, which won both the SHOT Edelstein Prize for best book in the History of Technology as well as the SIGCIS/CHM Prize for best book in IT History. Other Tomash Fellows who have received book awards include Atsushi Akera for *Calculating a Natural World* (SIGCIS/CHM Prize), and Mar Hicks for *Programmed Inequality* (PROSE Award for History of Sci/Tech/Med). While our Tomash Fellows have been a defining element to CBI, the institute has other very important categories of fellows, including Senior Research Fellows, Visiting International Fellows, and most recently, University of Minnesota (UMN) Interdisciplinary Doctoral Fellows (IDFs). In addition to our current Tomash Fellow Theordora Dryer, who is writing a pioneering dissertation on confidence intervals, mathematical decision-making, and the rise of algorithmic computing (and social, political, economic contexts), we have four other current fellows extremely important to our institute.

CBI’s Senior Research Fellow Program includes some of the most distinguished scholars in the history science and technology in the world. They add greatly to our institute both remotely and through periodic visits to CBI. Jim Cortada is our longest serving Senior Research Fellow at over half a decade. Throughout Jim’s prolific career, he has published many dozens of books on IT history and IT management, as well as on Spanish diplomatic history. Over the past decade-and-a-half, he has published large and impressive studies as either longer books or as a book series. His *The Digital Hand* trilogy offers a rich look into computer uses in more than 40 industries and segments of the economy; his *The Digital Flood* examines the diffusion of IT globally; and his *All the Facts* examines the long history of information and the technologies for processing and using information. In early March, Jim published yet another monumental work of IT history scholarship in *IBM: The Rise and Fall and Reinvention of a Global Icon* (see related article).

David Nye is arguably the most prolific and influential cultural historian of technology of the past three decades. He is the winner of SHOT Dexter Prize (now the Edelstein) and a da Vinci Medalist, the highest honor of the Society for the History of Technology, awarded for lifetime achievement. He has written more than a dozen excellent and engaging books (most published by MIT Press) on such topics/themes as electrification, blackouts, image worlds, assembly lines, and America’s technological sublime. He is now researching (at CBI on multiple trips every year) America’s digital sublime. David is also doing important work in the environmental humanities, and in March 2019 gave a major keynote at the University of Minnesota’s Institute for Advanced Study for a daylong symposium on the environmental humanities.

I am thrilled to announce we have just appointed two additional senior research fellows, University of Colorado Professor of Information Science in the College of Media, Communication, and Information William Aspray, and Professor and Director of MIT’s Program
in Science, Technology, and Society Jennifer S. Light. Bill is without equal in the history of information technology, making major historical and historiographical contributions to the field for four decades. Jen is among the most gifted and insightful historians of science and technology globally, with a core portion of her work addressing—and helping to transform—IT history. We are thrilled to have these two extremely distinguished scholars and educators joining us as Senior Research Fellows as both will add so much to CBI and the History of Science, Technology, and Medicine at the University of Minnesota. (See related article.)

CBI has a long string of Visiting International Fellows who spend a semester or a year doing research (usually a sabbatical year) at CBI. This has included researchers from Australia, Japan, Germany, and the Czech Republic. We are now delighted to have hosted a senior scholar from Spain, Andoni Ibarra, who serves as a graduate program director and professor of philosophy in the Department of Logic and Philosophy of Science at the University of the Basque Country (see related article). Andoni is mining my and Tom Misa’s more than 300 in-person NSF FastLane interview transcripts (especially the 200 plus with PIs and 40 or so with NSF program officers) as a part of a larger project on the history and philosophy of responsibility (to wider communities) in scientific research. (See related article.)

The University of Minnesota has a wonderful and highly competitive fellowship program to support dissertations taking an interdisciplinary approach, Interdisciplinary Doctoral Fellowships, or IDFs. These $25,000 one-year fellowships are awarded to doctoral candidates who are hosted at UMN research centers outside of their primary discipline. There often is competition within programs and departments for support to apply, and then less than 25 percent of those excellent students applying receive an IDF. Last year, CBI hosted IDF scholar Paul Nary, who examined contemporary and historical merger and acquisition activity in IT, where a historical case of Control Data (using the Control Data Corporate Records at CBI) was a core part of his research. We are pleased to announce Paul received and accepted a tenure-track offer straight out of his UMN Carlson Management Ph.D. program to join the faculty of Penn at the Wharton School. We are thrilled to announce another IDF success this year, Sociology Department doctoral candidate Devika Narayan received an IDF for “Between a Cloud and a Hard Place: Technological Change, Job Loss and the Restructuring of an Off-Shore Economy.” I am serving as her faculty mentor at CBI on this project that looks at cloud computing, artificial intelligence (AI), and the changing environment for IT jobs in India (see related article). CBI’s resources are allowing her to add important historical context on automation, AI, and IT services and labor.

In the UMN Program in History of Science, Technology and Medicine (HSTM), we have a separate Tomash Fellowship, different from the Erwin and Adelle Tomash Fellowship of CBI, and only eligible to history of technology students within the HSTM program. For this fellowship, preference goes to students focusing on IT history. Standout doctoral candidate Nic Lewis, who did excellent work as a GSRA on CBI’s NSF Computer Security History Project, was awarded this HSTM Tomash (which HSTM and CBI collaborate to award). While Nic received this honor, he declined the funds, as he is supported by CBI’s DOE High Performance Computing History Project (over $200K) to conduct research at Los Alamos National Laboratory (LANL). He has been at LANL several years working on both lab history research and his own dissertation research, and has published two very impactful peer reviewed articles in *IEEE Annals of the History of Computing*. 
As always, we as staff remain very busy on multiple projects and initiatives. We just completed a successful ACM SIG Heritage/History Workshop and an ACM History Committee Annual Meeting at CBI (see related article). Amanda Wick and I put together a program that including archiving, digital archiving, oral history, and other topics (see related article). At our meeting, Amanda was asked to join (and accepted a 3 year appointment) the ACM History Committee, so we both will be serving on it over the next several years.

We also just issued a CFP (see in this newsletter) for a major symposium, “Just Code: Power, Inequality, and the Global Political Economy of IT,” that I will co-lead in May 2020 with former Tomash Fellow and UC-Davis STS faculty member Gerardo Con Diaz.

We continue to receive unparalleled archival collections. I am deep in writing my computer security history book. Outreach Historian Juliet Burba served as a consultant for a Science Museum of Minnesota project on the physical interfacing of humans and IT, and she, Amanda, and I are working on putting together a sponsored project proposal on gender and IT history—a major Web based public history project. I am (as of January 2019) co-Editor of the Springer History of Computing Book Series, etc. As we engage in our work, it is important to reflect on the amazing research of our fellows, on how much they contribute to our programs and the rich intellectual environment at CBI, and on how their work, in concert with ours, contributes to defining our institute as a center of excellence.

Jeffrey R. Yost
I am pleased to announce that CBI is expanding our travel grant program by launching the Thomas J. Misa Fund in honor of CBI’s long-time director and his tremendous contributions to the institute and the University of Minnesota. It will join the Arthur L. Norberg Fund in providing travel support to researchers using the CBI Archives.

Tom, who recently retired from the University of Minnesota and moved with his wife to western Washington State, is busy working on research, writing, and providing leadership for the Society for the History of Technology as the President of SHOT.

During his 11 years at CBI, Tom led many sponsored research projects including projects for the National Science Foundation, the Sloan Foundation, and the Department of Energy. He published a half dozen books, including, Digital State, Fastlane, Communities of Computing, and a second edition of Leonardo to the Internet, as well as numerous articles. He is the co-editor for the computer history series for MIT Press and editor for the Association for Computing Machinery (ACM). For ACM, he served as a past chair of the History Committee.

Tom was highly dedicated to teaching, and taught both undergraduate and graduate courses in the history of technology, including the highly popular undergraduate course he designed, Digital World. This was and remains the largest enrollment course in the History of Science, Technology, and Medicine Program, where Tom served and held the ERA Land Grant Chair. Tom also had an appointment as Professor of Electrical and Computer Engineering.

It was a great pleasure for me to work with and for Tom over the past decade. I urge CBI Newsletter readers to join me in honoring Tom by donating to this important new fund. Your support will help advance the field of IT history through travel grants for early stage scholars to conduct historical research in the CBI Archives.

Jeffrey R. Yost
ACM Activities at CBI

On May 20th and 21st CBI hosted the inaugural Association for Computing Machinery (ACM) Special Interest Group (SIG) Heritage/History Workshop. The ACM has more than 100,000 members, and its 37 SIGs, each focused on different technical and application areas of computer science, are the organization’s lifeline. The SIGs are key to ACM’s critical work—in publications, conferences, and other efforts. The largest ACM SIGs, such as SIGPLAN, SIGHPC, and SIGGRAPH, have many thousands of members and some have more than 10,000 attendees at their conferences. The workshop was followed by the annual meeting of the ACM History Committee on May 22nd. Both events were funded by the ACM History Committee.

The ACM History Committee, chaired by Barbara Owens, is committed to preserving and advancing the history of ACM and sought a specialized workshop to teach leaders in ACM SIGs interested in history about archiving, digital records preservation and management, oral history, and other topics. Jeffrey Yost serves on the committee and offered to have the Charles Babbage Institute host the workshop. The committee developed programmatic sessions and a forum for feedback and invited fourteen representatives from 12 different ACM SIGs. Each had a project that they outlined in response to our call for papers. Day two of the event was devoted to these participants presenting and getting feedback on their heritage/history project.

On the first day, UMN University Libraries Director of Special Collections Kris Kiesling gave an opening welcome. CBI Outreach Historian and Admin Juliet Burba served as MC to orient attendees to the program and introduce speakers. Next, Jeffrey Yost gave a brief overview of CBI programs, collections, and its history prior to the main instructional program. CBI Archivist Amanda Wick followed providing an hour-long crash course on key archival principles and methods. She arranged for three archivist colleagues in University Libraries—Carol Kussman, Valerie Collins, and Kate Dietrich—to speak on digital archiving and institutional matchmaking (between record creators/holders/organizers and archival repositories).

Jeffrey Yost invited University of Wisconsin-Milwaukee Professor of History Thomas Haigh to co-lead a session with him on oral history theory and practice, and the two briefly discussed computer scientists publishing history (outlets, opportunities, mentoring, etc.). ACM History Committee’s own Vicki Almstrum addressed oral history, as well, presenting on the committee’s longstanding oral history effort with SIGCSE. Following each of the presentations there was extensive time for discussion, which proved quite rich. To round out the work of day one, two of the SIG representatives presented. This was followed by a tour of the underground Andersen.
Library climate-controlled Caverns (home to the CBI Archives and other special collections units), a happy hour, and then dinner in the Dale Shepherd Room of The Campus Club.

On May 21, the remaining ten SIG representatives presented, and the workshop concluded with a fruitful discussion and next-steps brainstorming session on future SIG heritage/history/archiving/oral history efforts. The ACM History Committee Members then went to the Bakken Museum for a special tour by Curator Adrian Fischer, arranged by Juliet Burba, the former Director of Collections of the Bakken before joining CBI last year. In the evening, the committee had a special dinner at 112 Eatery in downtown Minneapolis. They were joined by VIP special guest, UMN College of Science and Engineering Associate Dean for Research and standout HCI computer scientist Joseph Konstan.

The ACM History Committee had its annual face-to-face meeting at CBI on May 22nd. Ten of the twelve members of the committee attended in person, with another participating through video conferencing. Eight of the ten members were already in attendance as participants in the SIG Heritage/History Workshop. Members discussed policies and practices with the committee’s fellowship program, the Turing Award Biographies site, the Turing Award Video Oral Histories, and the new project to video interviews with a broader spectrum of ACM awardees. They also focused on follow-on efforts to maintain and extend the momentum built during the highly engaging workshop of the two prior days. Greatly adding to the expertise on the committee, Amanda Wick accepted an invitation to join the History Committee. She will play a critical role with extending the SIG heritage and archiving efforts.

Jeffrey Yost
Aspray and Light Appointed as CBI Senior Research Fellows

I am thrilled to announce the appointment of two new Fellows: University of Colorado Professor of Information Science and longtime leading computer historian William Aspray and Massachusetts Institute of Technology (MIT) Science, Technology, and Society Program Director/Head, Professor Jennifer S. Light. They will join James Cortada and David Nye as Senior Research Fellows at the Charles Babbage Institute. Senior Fellows visit CBI periodically, conduct research, take part in our programs, and add to the institute and the History of Science, Technology, and Medicine (HSTM) Program at the University of Minnesota in a multitude of ways. Only six scholars have held this position and honor, and the four currently serving Senior Research Fellows possess stellar academic credentials along with great generosity as scholars.

Bill Aspray was CBI’s first Tomash Fellow while completing his Ph.D. in the History of Science at the University of Wisconsin. With his doctorate fresh in hand, he joined CBI nearly four decades ago as the institute’s first Associate Director, under founding Director Arthur L. Norberg. He was part of a three-person leadership team that included founding CBI Archivist Bruce Bruemmer. Serving in the Associate Director position for seven years, Bill was instrumental in the early years of the institute, frequently presenting at major conferences, publishing top scholarship, conducting oral histories, scouting out collection development leads, and securing and co-leading/leading major sponsored research projects.

Just after Bill left in 1989 to become Director of the IEEE History Center (then at Rutgers University), he published his highly influential book John von Neumann and the Origins of Modern Computing with MIT Press (1990) in its Computer History Series (a series he would lead later co-lead with I.B. Cohen, and that he now he co-leads with former CBI Director Thomas Misa). Bill’s scholarly achievement in the history of IT is second to none and he has published and edited more than 20 books and over 100 articles in his highly distinguished career to date. Throughout a number of leadership and academic positions, Bill has always published truly path-breaking scholarship on many topics from the history of early academic computer science and the history of the internet and American business to the history of everyday information, gender and racial disparities in IT participation, and diabetes informatics.

Bill served as Executive Director of Computer Research Associates in Washington, D.C., the research organization and chief lobbying organization for the field of computer science, and later in full professor positions in the School for Informatics and at the Information School at Indiana
University and the University of Texas, respectively. Since 2016, Bill has been in his present position of Professor of Information Science in the University of Colorado’s School for Media, Communication, and Information.

On a personal note, I met Bill my second week after becoming CBI’s Associate Director in September 1998 on a retreat and conference of past Tomash Fellows at Seven Pines, Wisconsin. He immediately reached out and offered valuable advice on literature and transitioning to this new area of the history of technology—I had completed a dissertation on application engineering, supply networks, inter-firm standardization, and political economy in the early U.S. automobile industry. Martin Campbell-Kelly and William Aspray’s *Computer: A History of the Information Machine* (Basic Books, 1996) was one of the few books on IT history I had read at that point. Bill, like Princeton’s Mike Mahoney and then CBI Director Arthur Norberg, was a very important early mentor for me. Later in my career, I have been honored to partner with Bill on many endeavors, including co-leading workshops, co-editing special issues, serving together on multiple journal editorial boards, publishing in his edited volumes, and becoming an author, along with Martin and Indiana’s Nathan Ensmenger, on the Third Edition of *Computer: A History of the Information Machine* (Westview, 2014). I, like my all my colleagues at CBI, could not be more pleased that Bill will be rejoining (he has been an important supporter continuously) the Institute as Senior Research Fellow.

Likewise, I am thrilled to welcome Jennifer S. Light as a CBI Senior Research Fellow. Jen’s career has been remarkable from the start. She graduated with high honors from Harvard with a B.A. in History and Literature before completing an M.Phil. in History and Philosophy of Science at University of Cambridge. In 1999 she earned her doctorate from Harvard University in the History of Science. Upon completion of this degree, she was soon hired as Assistant Professor, Department of Communication Studies at Northwestern University. In 2005 she was promoted to Associate Professor with tenure, and later was extended affiliated faculty appointments at Northwestern University’s Department of History and Department of Sociology. In 2014 she became Professor of Urban Studies and Planning at MIT. Two years later, she became Director for MIT’s Science, Technology, and Society Program and now holds the Bern Dibner Endowed Professorship of the History of Science and Technology. Her long list of fellowships, grants, and honors is impressive, and includes serving as a Member of the Institute for Advanced Study at Princeton, an honorary doctorate from Illinois Institute of Technology, receiving multiple research grants for the Andrew W. Mellon Foundation, and winning a major article prize and having multiple books that were finalists for prestigious prizes.

Jen’s scholarship is thoughtful, wide-ranging and impactful. She is both a leading IT historian and leading scholar of urban planning, where her work includes analyzing the deep influence of
information technology in cities, urban planning, and social welfare policy and implementation. The integration of these two research areas is central in her masterwork *From Warfare to Welfare: Defense Intellectuals and Urban Problems in the Cold War* (Johns Hopkins University Press, 2003). In this book, she analyzed the U.S. Cold War defense establishment’s problem-solving technologies, techniques, and institutions—particularly the U.S. Air Force-sponsored RAND Corporation—and the transition to applying defense-minded think tank-based models, modes of analysis, and values to city planning and management, and social welfare. She details how military paradigms, technologies of warfare, and personnel were applied to newly perceived threats of urban blight, chaos, and social unrest. From *Warfare to Welfare* is one of my favorite books in the history of science and technology, and a model for how to look at information technology as part of (and contributing in major ways to) larger political and social phenomenon. What I admire most about Jen’s incredible scholarship is how it has concentrated on larger societal issues of inequality and the mindsets and (often) misappropriated tools that extend from our technologies, particularly information technologies.

Much of Jen’s scholarship focuses directly on IT. This includes her path-breaking *Technology and Culture* article, “When Computers were Women,” in which she provided a rich narrative and analysis of the women programmers of the Electronic Numerical Integrator and Computer (ENIAC), the first major digital computer. Her most recent book, *From Voice to Influence: Understanding Citizenship in a Digital Age* (Chicago University Press, 2015) is a wonderful co-edited volume with Danielle Allen. Light and Allen assembled a talented and varied group of social scientists and social and political theorists to offer essays on what the use of the World Wide Web, social networking, and other digital platforms, have meant for democracy, participation, and political influence. The volume’s thought-provoking essays—looking at topics from Hip Hop culture to the Arab Spring—examine the opportunities for, and sometimes illusions or deceptions, of citizenship and influence with digital technology, focusing on the question of what digital participation is “good participation,” and what is mere “slacktivism.” Two years prior to Zeynep Tufekci’s important, powerful, and attention-grabbing monograph, *Twitter and Tear Gas: The Power and Fragility of Networked Protest*, Light and Allen’s rich and insightful volume examined a number of similar themes critical to our democracy and to global society in the digital age.

I have served with Jen for about 15 years on the editorial board of *IEEE Annals of the History of Computing*, and more recently we both serve on the editorial board of *Information and Culture: A Journal of History*. Her leadership, collegiality, insights, and helpful work and encouragement (when I was leading *IEEE Annals*) have always been terrific. Along with Bill, she will add greatly to the Institute and UMN’s HSTM program.

*Jeffrey R. Yost*
Cortada’s *IBM: The Rise and Fall and Reinvention of a Global Icon*

In March, CBI Senior Research Fellow James W. Cortada published a landmark book surveying the more than a century-long history of International Business Machines (IBM). His book, *IBM: The Rise and Fall and Reinvention of a Global Icon*, was published in William Aspray and Thomas Misa’s *History of Computing Series* with MIT Press. This outstanding book is a major contribution that spans the period from the firm’s prehistory with Herman Hollerith, to its recent forays into cloud and analytics as its fast growth areas.

Jim spent nearly four decades working for this computer industry giant, and though he has published dozens of IT history books, he waited until retirement to write this monumental 722-page study—fittingly big with a blue cover—of the company and its many contexts. It is in part a significant contribution to history of technology, but makes even deeper contributions to business history, as it focuses on themes such as sales practices, corporate culture, strategic shifts, competitive challenges, anti-trust lawsuits, and transitions to new areas and redefined revenue and profit centers. Adding greatly to its importance, Cortada's book does not shortchange IBM World Trade and international operations, as other authors’ surveys generally have done. It provides fresh insights into the pre-1985 era in its first two sections. Then it offers in many cases a first look into and a very cogent analysis of developments and trajectories of the 1986 to 2017 period in the final two sections, comprising roughly one-third of this important volume.

In addition to Cortada’s rich insights from having studied IT history and business history for decades, his book offers many things that set it apart from the other 40-plus books on the company. This includes coverage of the entire span of IBM’s history up to about 2017, access to IBM’s rich Corporate Archives, and the opportunity to observe IBM first-hand through 38 years of fundamental change as he served in a number of different roles within the company (as a salesman, a sales manager, a consultant, and a senior business analyst and executive). Jim’s book also benefits from his half-decade following retirement from IBM, which provided distance to reflect on how being an insider shaped some of his perspectives.

Before Cortada’s unparalleled new book, I tend to think of IBM engineer Emerson Pugh’s *Building IBM* as the strongest survey on the company. Like Cortada, Pugh benefited from the IBM Corporate Archives, which Robert Sobel, who wrote an early survey, in 1981, titled *Colossus*, never had access to use. For Cortada’s recent book, the secondary scholarly literature on IBM’s history is far richer in volume, diversity, and quality than when Sobel and Pugh wrote their surveys.
Much of the strongest scholarship to date on IBM has been articles and book chapters published over the past 20 years by senior IT historians who have written directly on IBM in particular eras and with targeted themes, such as Steve Usselman and Eden Medina, or other senior IT historians who have included IBM as part of a broader-based survey or study, such as in works by William Aspray, Janet Abbate, Martin Campbell-Kelly, Thomas Misa, Paul Ceruzzi, Nathan Ensmenger, Mar Hicks, Pierre Mounier-Kuhn, Lars Heide, Petri Paju, Ross Bassett, JoAnne Yates, and Thomas Haigh. Adding greatly to this is the exceptional work of earlier career standouts such as Corinna Schlombs, and Gerardo Con Diaz. A scholar who will soon extend this further is our just-named Tomash Fellow Colette Perold (see related article). Outside of history, scholars such as anthropologist Peter Little have added meaningfully. The aforementioned scholars (as well as some of my own scholarship) has explored such themes as IBM and the computer industry (Usselman, Aspray, Campbell-Kelly, Ceruzzi, Haigh, Ensmenger, Misa, Yates, Yost), IBM and gender (Abbate, Aspray, Hicks, Schlombs, Misa, Yost), IBM and software (Aspray, Campbell-Kelly, Haigh, Ensmenger), IBM and anti-trust/political economy (Usselman, Campbell-Kelly, Con Diaz, Schlombs, Perold, Yost), IBM and components/semiconductors (Bassett), IBM in Chile (Medina), IBM in Germany (Schlombs), IBM in France (Mounier-Kuhn), IBM in Scandanavia (Paju), IBM in Brazil (Perold), IBM and the environment (Ensmenger, Little), IBM in the punch card tabulation era (Haigh, Heide, Yates, Perold), and IBM and services (Yost).

Collectively this IBM historical scholarship has added much to our understanding and is drawn from and analyzed by the skilled and senior historian Cortada in his new book. This, coupled with his own primary research and his front row seat if not direct involvement in much of the transformative history of IBM in the past four decades, has led to a unique and extremely rich volume. It should be on every historian’s bookshelf (and despite its great length, it is very attractively priced at MIT Press, and especially at Amazon.com). We offer deep congratulations to Jim, our Senior Research Fellow of more than a half decade, for this truly exceptional achievement.

Jeffrey R. Yost
CFP: “Just Code: Power, Inequality, and the Global Political Economy of IT”

*Just Code* is a one-and-a-half-day CBI symposium/workshop (May 8th and 9th, 2020) on how code—construed broadly, from software routines to bodies of law and policy—structures and reinforces power relations. It will explore the often invisible ways that individuals and institutions use software, algorithms, and computerized systems to establish, legitimize, and reinforce widespread social, material, commercial, and cultural inequalities and power imbalances. The event will also examine how individuals, unions, political organizations, and other institutions use code to fight for equality and justice. The papers will draw from across the humanities and qualitative social sciences, including disciplines such as anthropology, sociology, science and technology studies, geography, and communications. We anticipate that, collectively, the papers will examine a wide range of themes in the global business, cultural, social, legal, and environmental history of the political economy of information technology. Papers will be pre-circulated (among presenters) and we plan to publish revised papers, after editorial and peer review, as an edited volume in the Springer History of Computing Book Series.

Proposals should include a two-page CV and a 300 to 450 word abstract (as a single PDF) that highlights the key argument(s), connection of the paper to the symposium's topic/themes, and a description of core methods/sources. This should be sent to cbi@umn.edu. Please have your last name in the file name and the subject line “Just Code Symposium Proposal”.

The **deadline for paper proposals is Oct. 15, 2019**. Notifications will be made within 30 days. For those offered and accepting a place on the program, the **deadline for submission of papers is March 31, 2020**. Papers will be pre-circulated to fellow presenters/panelists on the program only, and not to all registrants.

Two nights lodging at nearby hotel, lunch, and an event dinner will be covered for those presenting papers as part of the program, and we have partial support travel grants available for graduate students and junior faculty presenters on the program. Registration is free and automatic for those offered and accepting a place on the program to give a paper. For more information contact cbi@umn.edu. For those wishing to attend, but not present, the event is open to all UMN faculty, staff, and students and to CBI Friends. If you are not currently a CBI Friend, you can become one and then register. Graduate students can become a CBI Friend at 50% of the designated amount. (Presenters do not need to be CBI Friends). “Just Code” is sponsored in large part by a gift/bequest events endowment to CBI from IT industry veteran Michael J. Samek, and through generous support from co-sponsoring units of the University of Minnesota.

Co-Organizers:
Jeffrey R. Yost, Ph.D., CBI Director & Research Prof. in History of Sci., Tech., & Med., Univ. of Minnesota
Gerardo Con Diaz, Ph.D., Assistant Professor, Science and Technology Studies, Univ. of California-Davis
News from the Archives

New and Notable Collections:
Personal Papers and Medical Computing Library of Dr. Robert Ledley

In April 2019, Dr. Fred Ledley, son of bioinformatics pioneer Dr. Robert Ledley, facilitated the donation of a small collection of his father’s personal papers and medical computing books to the Charles Babbage Institute Archives (CBIA). Robert Ledley is, perhaps, most well-known for his contributions to the development of computerized tomography (or, the full-body CT scan). Working with faculty research colleagues at Georgetown University, Ledley was eventually issued the patent for the Automatic Computerized Transverse Axial scanner (ACTA), which was sold by the Digital Information Science Corporation, Ledley’s company, starting in 1974. Along with his contributions to the development of medical imaging technology, Robert Ledley authored foundational works with research partner Lee. B. Lusted on the integration of digital computers with medical diagnostics. He also founded the National Biomedical Research Foundation and was noted for his computer advocacy work, amongst many other contributions to advance the field of biomedical informatics and scientific computing.

The personal papers donated by Fred Ledley include lecture notes and writings from his father’s graduate work at Columbia, where he took courses from famed physicists Enrico Fermi and Hans Bethe. These provide an intimate view of an IT pioneer’s work from early scholarly studies to his more well-known published articles and innovations. Additionally, the 200 books donated represent a significant contribution to an area where CBIA’s records are relatively incomplete—medical computing. Combined, these materials will be of enormous value to researchers in the medical computing and bioinformatics fields, as well as those interested in cross-disciplinary explorations of physics and computing. The books are currently being trayed by CBIA staff and prepped for the cataloging department to enter them into the University’s integrated catalog, which will allow anyone to search and find the materials. While they will be accessible on site at the Elmer L. Andersen Library’s Reading Room, digitization options will be available for remote researchers.

A donation from Robert Ledley’s foundation, the National Biomedical Research Foundation, will allow the archival staff at CBIA to collaborate with curatorial colleagues at the University of Minnesota’s Owen W. Wangensteen Historical Library of Biology and Medicine in designing an exhibit delving into the evolution of medical technology—from the advent of the bandage and development of techniques like amputation to the invention of the CT scan and medical
diagnostics. We look forward to exploring this opportunity with the curatorial staff of the Wangensteen Library in the coming months. In addition, a portion of the funds will be set aside for targeted digitization of the materials to facilitate use of these rare materials by researchers who are not able to physically visit the Archives.

Look for more information on this new resource in the coming months and exhibit plans to be discussed in future newsletter updates.

Amanda Wick
Transforming Digital Tools and Work Processes in Science and Technology Research

[Editor’s note: The author, Andoni Ibarra, was in residence at the Charles Babbage Institute as a research fellow from January through May, 2019. He is a professor in the Department of Logic and Philosophy of Science and program director for the Miguel Sánchez-Mazas Chair at the University of the Basque Country, San Sebastian, and serves as PI for the PRAXIS Research Group.]

My research at the Charles Babbage Institute was aimed at understanding the extent of the transformations deriving from new forms of human-machine interaction and new work organization patterns in digitization-intensive scenarios. The objective is to help articulate organizational, social, and technological mechanisms oriented towards practices known as responsible research and innovation (RRI).

In order to do so, I intend to broaden knowledge with regard to the processes implemented to digitize work and their impact on work scenarios. Based, in particular, on research conducted by Thomas Misa and Jeffrey Yost into FastLane implementation and the development of management processes at the National Science Foundation, I examine human-machine interaction in these research evaluation contexts, in relation to organizational models in scientific work.

Analyses of these issues and their operationalization in “socio-technical” concepts are still quite rare and/or are dominated by purely technical perspectives. Given the complexity and heterogeneity characterizing contemporary innovation systems and their interrelations with societal actors (including those in sectors involved in scientific research), there is a lack of studies that link the phenomena of innovation with work processes and conditions where such processes take place.

My research aims to help reduce this lack of research. Within the framework of Misa and Yost’s historical analysis of the design, development and application of FastLane in the period 1995-2010, firstly I will try (i) to analyze the basic assumptions underlying the organizational work model identified in FastLane and (ii) to study the FastLane interface’s impact—as the materialization of digital human-machine interaction—on institutions that are both internal and external to science system organizations. Secondly, given the recent inclusion of RRI in the regulatory policies on research work organization (8th European Union’s Framework Programme on Science, Technology and Innovation), organizational patterns of research in science and technology systems are undergoing significant change. These shifts include increased involvement of scientists, technologists and engineers from other areas of society, such as industry, services, third sector organizations, and other societal actors, as well as the expansion of collaboration among all the actors throughout the whole research and innovation process, from establishing research agendas to developing the organizational pattern of collaboration known as “Open Science.”
I aim to analyze, in this new context of organizing research work, the dynamic reconfiguration of roles traditionally assigned to actors involved in organizing research in the scenario of a new “moral division of labor” relating to the production of science and innovation. And in this context, I aim to: (i) analyze how RRI, Open Science, etc. condition and shape the organization and meaning of research work; (ii) study how this affects the way in which digital interfaces should be more suitably designed to facilitate new work processes, and finally; (iii) gauge whether there are significant differences in the way these processes are carried out as a result of implementing different public science, technology and innovation policies (in the EU or the US).

Andoni Ibarra
Perold Named 2019-2020 Tomash Fellow

We are delighted to announce that New York University (NYU) doctoral candidate Colette Perold is the recipient of the Erwin and Adelle Tomash Fellowship for the coming academic year. Her dissertation focuses on the history of IBM in Brazil in the punch card tabulation era—and we are thrilled to support her path-breaking and deeply insightful information technology research on this understudied region (Latin America), country (Brazil), and era (pre-computing). Perold is ABD in NYU’s Department of Media, Culture, and Communication, where she is working under Professors Nicole Starosielski (Dissertation Chair), Mara Mills, and Paula Chakravartty. Prior to pursuing her doctorate, Perold studied at Harvard University, where she completed her BA in Studies of Women, Gender, and Sexuality and Romance Languages and Literature, and spent a semester of study at the University of Havana, Cuba. She then had a series of impressive union organization, associate/managing editorships, and research positions for the National Union of Healthcare Workers, the North American Congress in Latin America, and The Nation Institute and other journalistic outlets, before pursuing her doctorate at NYU.

Perold has been very active in presenting her scholarship at a number of leading conferences. In mid-March Perold gave a paper, “Pan-American Tabulation and Brazilian Foreign Dept,” at the Business History Conference (BHC) in Cartagena, Columbia. In 2018 Perold presented her research at SHOT’s SIGCIS and at the International Communication Association Preconference. Later this year she will present “Americanizing the Global Brand: IBM’s Welfare Capitalism in Authoritarian Brazil” at the Latin American Studies Conference. She has received numerous travel grants to support her research and to present at conferences, including an Alfred D. Chandler Travel Grant from BHC, a Hagley Library Exploration Research Grant, and a Tinker Field Research Grant for Travel in Latin America.

Perold’s dissertation, “The Empire of Informatics: IBM in Brazil Before Computing,” draws from archival research conducted in the U.S. and Brazil to investigate IBM’s pre-computing
market expansion in South America. While underexamined in Anglophone computing history, Brazil was in fact a strategic site for IBM’s global growth prior to the advent of modern computing, as it housed the first major IBM subsidiary outside the United States, and was the largest and most stable market for IBM operations in Latin America for much of the twentieth century. IBM’s precursor company, C-T-R, was first established in 1911 with a vision of South American expansion, later entering Brazilian markets in 1917. Soon after, the company made itself indispensable to a succession of Brazilian governments despite coups d’état and protectionist crack-downs on foreign business, repeatedly emerging as one of the few multinationals in Brazil to survive political turbulence unscathed. With its regional manufacturing and services base in Brazil and a history of measurable influence on Brazilian policy, IBM was able to achieve near-monopoly status in South American markets by the 1960s—until it was dealt a fatal blow by Brazil’s authoritarian regime in the 1970s. In this dissertation, Perold charts IBM’s political engagements alongside its market expansion in Brazil from the early-1900s through the mid-1960s—before IBM operations were first shuttered in Brazil—in order to investigate the role Brazil played in IBM’s global expansion.

In quantifying the impact of early IBM machines’ processing power on a range of state and private-sector projects, and tracing these impacts alongside the political and business coalitions the company fostered to advance its market expansion, Perold analyzes IBM’s impact on projects including the controversial negotiation of Brazil’s external debt in the 1930s, Brazil’s shifting of allegiances toward the Allied powers prior to World War II, and the Latin American Free Trade Association (LAFTA) negotiations of the 1960s. Ultimately, she finds that the company’s ability to transnationalize in the postwar period owes to a largely underexplored source: its embrace of the United States’ long-standing imperial relationship to Latin America. Placing Brazil at the foundations of modern computing and IBM alongside U.S. foreign policy actors, this dissertation reveals how data processing’s pre-computer history became central to the maintenance of U.S. hegemony in the postwar period.

Jeffrey R. Yost
We are pleased to announce the three scholars receiving Arthur L. Norberg Travel Grants in 2019 to facilitate travel to the Charles Babbage Institute for archival research. These awards are made possible through the generous support of our donors in honor of CBI’s founding director, Arthur Norberg. Congratulations to Tasha Schoenstein, doctoral candidate in History of Science at Harvard University; Jacquelyne Thoni Howard, Manager of Technology Initiatives at Newcomb College Institute, Tulane University; and Pierre-Christian Fink, doctoral student in Sociology at Columbia University.

Schoenstein’s dissertation will explore the development and institutionalization of computer science as an academic discipline from the 1960s through the 1980s. She plans to address, in particular, the role of gender in that history, as well as ACM’s work related to computer science education. During her recent research trip, she examined records from the Academic Computing Collection, the Association for Computing Machinery records, the oral history collection, the Alan J. Perlis papers, the Peter Freeman collection of computer science exams, manuals, and other materials, the George Glaser papers, and the Bryan S. Kocher papers. Schoenstein holds a B.S. in Mathematics with Computer Science along with a minor in Chinese from Massachusetts Institute of Technology.

Howard will review materials from the Association for Women in Computing records, as well as records of the Twin Cities Chapter of the AWC. Her project is entitled “Women’s Techno-Activism: Responses of the Association for Women in Computing to the Gender Gap, 1978-1991.” She is planning an article drawing on her research at CBI. This spring, she received her doctorate in U.S. History at Fordham University. Howard also holds an M.A. in History from the University of San Diego.

Fink will focus on the Burroughs Corporation records. He is interested in the decision-making process of the engineers and managers at Burroughs who set up the Clearing House Interbank Payment System (CHIPS) for the New York Clearing House (NYCH). Fink holds an M.A. and M.Phil. in Sociology at Columbia University and expects to complete his Ph.D. in 2020. His dissertation is currently entitled The Rise of the Money Market: The U.S. State, New York City Banks and the Commodification of Money, 1945-1980. In January, 2019, he was a visiting doctoral student at the Max Planck Institute for the Study of Societies.

Juliet Burba
Narayan Awarded IDF at CBI

We are delighted to announce that ABD University of Minnesota Sociology student Devika Narayan has received a 2019 $25,000 Interdisciplinary Doctoral Fellowship (IDF) at the Charles Babbage Institute. This university-wide program funds path-breaking interdisciplinary research through fellowships hosted at a UMN research center with a focus outside of the student’s primary field. Requiring the strongest support from both a home department and a host research center, the program only attracts top applicants, and less than one-quarter of applicants are awarded an IDF. Narayan’s appointment continues CBI’s record of success with attracting top candidates, as Carlson School of Management student Paul Nary (who studied M&A in IT) was an IDF recipient at the institute last year before joining the faculty of the Wharton School of Management at the University of Pennsylvania.

Narayan’s dissertation is examining corporate capitalism and industrial dynamics in an age of disruptive digital technologies. A core concentration of her research focuses on analyzing cloud computing, artificial intelligence, and automation, and evolving dynamics and change in information technology industries and labor in India.

Narayan, who has an M.A. in Sociology from Delhi School of Economics, has continued her focus on economic sociology at the University of Minnesota. She has several articles published or under review, including “Decoding Disruption: Layoffs in the Software Industry,” in Economic and Political Quarterly (2017). She has presented extensively throughout the world at major conferences in sociology, organizational studies, geography, and labor. This includes the leading conference in her field, the American Sociological Association (ASA) Annual Meeting, where just last month she won the best student paper award for a major ASA section—Communication, Information Technologies, and Media Sociology. We congratulate her on this
tremendous honor and it follows local standout achievements including her department’s Graduate Outstanding Research Paper Award in 2018.

Narayan has become a go-to expert on the timely topic of IT labor dynamics in India. Last year she had multiple quotes in an article on India’s changing IT labor situation in MIT’s *Technology Review*. In contrast to the plethora of speculative articles by journalists, Narayan’s is conducting extremely deep qualitative research by interviewing many managers and workers at major Indian IT giants, U.S. multinationals, and those in principle IT-user industries such as finance and big box retailers. She has also conducted exhaustive research in trade and other print literatures.

Having researched and written on the history of the IT services industry in my recent book, *Making IT Work: A History of the Computer Services Industry* (MIT Press, 2017), including the offshoring IT services phenomenon and the global industry, I have found Narayan’s research fascinating. It is a true pleasure to serve as her faculty advisor at CBI as I seek to provide advice on archival sources and longer historical contexts with computer time-sharing and earlier computer automation attempts, developments, and debates, and as I continually learn from her about the economic sociology of IT.

*Jeffrey R. Yost*
Yost Named Co-Editor of Springer Book Series

In January, CBI Director Jeffrey Yost signed on to join University of Amsterdam’s Gerard Alberts to co-lead the Springer History of Computing book series. He is thrilled to be appointed to this position and to be working with Gerard on this impactful endeavor. The book series publishes all types of history of computing—from scientific/technological and business history, to cultural/intellectual and social history. Among the many standout scholars who have published books with the series in recent years are University of Colorado’s William Aspray (two books), Gerard Alberts, Eindhoven University of Technology’s Ruth Oldenziel, and Universite Paris-Sorbonne’s Valerie Schafer and Benjamin Thierry. These books have examined such important topics and themes as the history of racial and gender underrepresentation in computing, the history of computing cultures in Europe, and nineteenth and twentieth century history of women and gender in IT in Europe.

The series has a number of very exciting titles just out or in production, including University of Wisconsin-Milwaukee’s Thomas Haigh’s edited Exploring the Early Digital, and a forthcoming edited volume, Papers from the Flatiron Seminar on Computing, Information, and Society, by William Aspray. Both of these books have a stellar group of authors. Contributors to Aspray’s volume include Cornell’s Ronald Kline, Minnesota’s Thomas Misa, MIT’s Jennifer Light, Northwestern’s Shane Greenstein, University of California-Irvine’s Geoffrey Bowker, MIT’s JoAnne Yates, and Wisconsin-Madison’s Greg Downey. Haigh’s volume includes chapters by William Aspray, Ronald Kline, University of Warwick’s Martin Campbell-Kelly, The Smithsonian’s Paul Ceruzzi, Geneva’s Ksenia Tatarchenko, and other distinguished scholars.

If interested in potentially publishing an authored or edited volume in this series, please contact Jeffrey or Gerard. They are also co-editors of a series of short books, called SpringerBriefs, with the same series title as the main series.
Recent Publications


Krajewski, Markus. The Server: A Media History from the Present to the Baroque (Yale University Press, 2018).


*Compiled by Juliet Burba*
Featured Photo

Elliot Koffman cutting the “Happy 21st Birthday SIGCSE” cake, 1990

This image, from the Association for Computing Machinery Records (CBI 205) was taken at the 21st annual meeting of the ACM’s Special Interest Group for Computer Science Education.