Sources for ACM History: What, Where, Why

ACM has developed a rich and varied history over its first six decades. Preserving that history in an open and plentiful archive is key to helping future historians tell the ACM story.

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The history of ACM cannot be separated from historical investigation of broader topics, such as computer science, scientific computing, the use of computers in business, and the development of information technology occupations. The history of computing—an interdisciplinary field including all these areas—has been studied by scholars since the 1970s and has now accumulated a rich and diverse literature. Historians of computing are represented by the Special Interest Group on Computers, Information and Society of the Society for the History of Technology (SHOT SIGCIS). Research in the field is published in *IEEE Annals of the History of Computing* and in journals devoted to the history of science, technology, and business.

Several comprehensive introductions to the history of computing for a

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general audience have been published [5]. An introduction to the academic study of the history of computing intended for the computer scientist is given in Thomas Haigh's 2004 article and annotated survey of key print and online resources in the history of computing [9]. A number of surveys of source material for different aspects of the field are available, including archival resources by Cortada, scientific computing by Yost, and online resources for software history by Burba [5].

No comprehensive history of the ACM has ever been written. The association itself has published short articles outlining its various milestones on the occasion of its 25th anniversary [12], 40th anniversary [7], and the 50th anniversary of the *Journal of the ACM* [10]. Aspects of the association's history have found their way into larger works, as part of recent doctoral dissertations. Atsushi Akera has explored the association's founding and its relations with the burgeoning Los Angeles aerospace industry of the 1950s [1]. Nathan Ensmenger and Haigh discussed ACM's relationship to broader questions of identity for computer people during the 1960s and 1970s [8].

AS SUCCESSIVE COHORTS OF PIONEERS AND PARTICIPANTS EXIT THE STAGE, responsibility for recounting and interpreting the work of their generation inevitably falls to trained historians, diligent amateurs, and interested journalists.

Archives and Primary Sources—Why Do They Matter?

Memoirs and histories produced by participants of specific events have contributed much to our understanding of the history of computing. The best of these provide broad and painstakingly reconstructed accounts of important topics [3]. Yet, as successive cohorts of pioneers and participants exit the stage, responsibility for recounting and interpreting the work of their generation inevitably falls to trained historians, diligent amateurs, and interested journalists. Accurate history requires primary sources: original documents from the time of the events concerned, and so historians are drawn toward topics for which they can obtain such sources. When studying the history of an organization these sources include unpublished letters, minutes of meetings, reports and drafts as well as published sources such as newsletters, annual reports, conference proceedings, and journals. Unlike participants they cannot pull these materials from their personal files or the attics of their friends. Historians therefore seek unpublished and hard-to-find published sources in archival collections and specialist libraries. Archivists identify, select, organize, and describe collections of papers donated by individuals and organizations. Academic archives are generally free and open to all researchers, though some corporations maintain closed archives only for internal use. Historians usually travel in person to examine archival collections, since very little material is available online.

The objective of preserving sources on ACM history is not merely the creation of "The History of ACM" to be published as a single, elegant book and placed in libraries for the benefit of future generations. Rather, an ACM archive would provide material to historians working on many different topics. The Association may be the main focus of their work, for example, in a history of its founding or of one of its SIGs. But, more often it would appear as one of several institutions, for example, in a history of the role of professional associations in the development of computer science, or a history of computer graphics. It may also feature in just one chapter of a larger work, perhaps as a case study in a book on the role of scientific groups in public policy during the late 20th century, or as part of a biography of an eminent computer scientist who once served on its council.

In this sense, an organization's ongoing presence in written history has as much to do with its archives as its accomplishments. Many organizations lack archives. Archival services are expensive and resource intensive, and most organizations and businesses must focus their resources on current business goals. So book after book, covering diverse topics, is written with material from a handful of organizations with exemplary public archives, such as MIT, the Rockefeller Foundation, Metropolitan Life, and the Royal Society of London. Much less is written about the history of comparable universities, foundations, firms, and scientific groups for which records are dis-

persed, fragmentary, closed, disorganized, or long-since destroyed.

ACM Does Not Have An Archive...Yet

ACM itself has never established an archive, but has recently made important steps toward recognizing the historical value of its documentary heritage. This is important: unless an institution can be persuaded to care about its own history, very little can be done to uncover—let alone preserve—institutional memory. Evidence exists of various initiatives over the years, including a 1962 effort to create an "ACM Repository"(described by J.G. Brainerd in the April 1963 issue *Communications of the ACM)*, though this targeted the computing literature rather than ACM's own operations.

In February 2004 the newly created ACM History Committee reported to the Executive Committee that "its central conclusion was that ACM...has an imperative to maintain a physical Archive of its material and to make this Archive accessible to historians."[1] The History Committee sponsored an initial investigation of the Association's records conducted during December 2005. ACM maintains a high volume of records in offsite storage with more spread through file cabinets and boxes in its headquarters.

Significant quantities of valuable historical documentation were destroyed in response to a 1991 ACM initiative to move to a paperless environment. In an effort to preserve what remained, archivists were called to analyze manifests and listings, interview key ACM staff members, and physically survey 286 cubic feet of records from offsite storage and ACM's office. The effort resulted in 86 cubic feet worth of material identified as "archivally valuable," including materials from all four of the organization's core areas: administration, publications, membership, and SIG services. Examples included a full run of council minutes, executive committee minutes, and annual reports, as well as subject files such as a set of 1996 records on a proposed name change. A report submitted to the ACM History Committee in January 2006 concluded that a tremendous amount of important historical documentation survives and should be professionally managed and available at an archival institution.

Existing Sources for ACM History

The ACM's official records and papers have been out of reach, and it is unlikely a historian will undertake a general history of the Association until they become accessible. Fortunately, archival institutions have already taken independent action to begin to preserve its heritage. The history of any volunteer organization is, in a sense, a history of the people who created it; and who contributed time, expertise, and leadership, who staffed committees and chaired task forces, who supported, challenged, and enlivened it. Among the most important ACM resources are personal and professional papers in the archives of corporations and universities with which these individuals are affiliated, and in institutions with collecting strengths in history of computing, primarily the Charles Babbage Institute (CBI) at the University of Minnesota, the Computer History Museum (CHM) in Mountain View, CA, and the Smithsonian National Museum of American History (NMAH), in Washington, D.C. During the 1980s, CBI made a concerted effort to locate and acquire collections related to ACM history [2].

Space does not permit a comprehensive discussion of relevant collections here, so we will give examples of different approaches to interpreting ACM history together with a selection of the most important sources for each.

The early days of ACM are the most difficult to document, since the Association was rather small for years after its founding in 1947 and did not introduce its *Journal of the ACM* until 1954. The *Edmund Berkeley Papers* (CBI 150) at the CBI is one of the most valuable resources for ACM history. Berkeley was a founder of ACM, serving as its first secretary and its driving force for several years (see Akera's article in this section). These sources have already been drawn upon by several historians, including JoAnne Yates and Bernadette Longo [11]. Minutes of ACM's first meetings and abstracts of early conference papers were collected by the National Bureau of Standards and are available in the NMAH's *National Bureau of Standards Computer Literature Collection*, 1945–1961.

The minutes and working papers of ACM committees and council meetings are another vital historical source, together with private correspondence between ACM's officers. Thanks to the generosity of individual donors and the efforts of a few proactive and tenacious archivists (most notably Bruce Bruemmer, CBI's first professional archivist), a significant fraction of this has been preserved and is available to researchers. A number of CBI collections include these materials for the 1960s and 1970s, including the *Herbert S. Bright Papers* (CBI 42: secretary, vice president and longtime council member), the *Bruce*

[1] *Presidential Ad Hoc Committee on ACM History Initiative* (Feb. 13, 2004). Personal collection of author.

Gilchrist Papers (CBI 76: secretary, vice president), the *Daniel D. McCracken Papers* (CBI 42: president), and the *George Glaser Papers* (CBI 23: treasurer). Similar material from other ACM presidents can be found in the *George and Alexandra Forsythe Papers* at Stanford University Archives, and the *Bernie A. Galler Papers* at the University of Michigan's Bentley Historical Library. CBI's *Bryan S. Kocher Papers* (CBI 103) includes council and executive committee papers from the 1980s.

CBI and NMAH house well-developed collections of oral history interview transcripts.[2] Many of these are with pioneers who played important roles in the early ACM, such as Richard Hamming, Franz Alt, Paul Armer, Bernie Galler, Donn B. Parker, and Willis Ware. Although not all these interviews discuss ACM per se, they do serve to shed light on the experiences and backgrounds of its early leaders. The ACM History Committee assisted NMAH in digitizing some of its existing transcripts for online dissemination, and has funded new interviews with former ACM presidents, including Galler, Alt, Walter Carlson, Harry Huskey, Anthony Ralston, and Anthony Oettinger. Galler, who was also the first editor-in-chief of *Annals of the History of Computing*, was interviewed just months before he died suddenly last year.

The collection of ACM publications stored in its digital library is an important historical resource, as it includes the full run of *Journal of the ACM* and *Communications of the ACM*. Its value is about to increase further. On the advice of historians and archivists, ACM has begun to digitize the editorial and "non-article"parts of the publications. This will greatly enhance the DL's value for historical researchers, who often look to announcements, organizational business reports, news notes, and reviews. Editorials, election statements from candidates for national office, and the "President's Letters" are a particularly valuable source of information on how people perceived ACM's strengths, weaknesses, purpose, and priorities at different times in its history.

ACM's contributions to the development of computer science have come primarily through the efforts of its SIGs, active since the 1960s. The availability of material here is patchy and, again, has relied on acquisition of materials from individual donors. SIG collections held at CBI include the *SIGGRAPH Conference Publications* (CBI 85), and the *History of Programming Languages Conference Records* (CBI 19), and papers related to SIGIR in the *Calvin N. Mooers Papers* (CBI 81). Many personal collections also include material on SIGS. For example, the early years of SIGBDP (later SIGMIS) are covered in the George Glaser papers and in published articles by some of the participants [6].

Many of the personal collections described here also contain material from local ACM chapters. The Los Angeles chapter was very active from the 1950s onward, and played an important role in ACM's evolution. Material from its founding is preserved in the *Paul Armer Papers* (NMAH 323). The Washington D.C. chapter is documented in the *Herbert S. Bright Papers* (CBI 42) and in NMAH's collection: *ACM Washington D.C. chapter*, 1958–1978.

ACM has itself been a member of several organizations. Along with the American Institute of Electrical Engineers and the Institute of Radio Engineers, ACM founded the American Federation of Information Processing Societies (AFIPS) in 1961 to run a joint series of national computer conferences and to represent member societies on an international level in the newly formed International Federation for Information Processing (IFIP). AFIPS was intended, by some at least, to represent and unite the "computing profession" a whole, and the records provide a unique window into the concerns of its members. CBI holds several personal collections related to AFIPS, including the correspondence of Bruce Gilchrist, its president and executive director from 1966 to 1973. A separate collection, American Federation of Information Processing Societies Records (CBI 44), includes official material donated by AFIPS and by several individuals. During the 1970s, ACM also became a key sponsor of the newly created Institute for the Certification of Computing Professionals (ICCP), which has labored without great success for several decades to certify IT workers. Material on ICCP can be found at CBI in the *John K. Swearingen Papers* (CBI 46) and the *Institute for Certification of Computer Professionals Records* (CBI 116) donated by ICCP in 1992.

Conclusion

Over the past half-century ACM has played an important role in shaping the evolution of the technologies, professions, disciplines, and applications of computing. But future historians cannot weave ACM into their stories and document its accomplishments unless the source documents required are properly archived. We hope that individuals active

[2]Oral history transcripts record conversations between interviewers and historical subjects. Some take place over many hours or days and cover the whole of a subject's career, while others are shorter and more narrowly focused. Even the best interviews are heavily colored by hindsight and forgetfulness. They can give insights into character and personal motivations, but are often unreliable guides to dates, details, and causes. Oral histories and other memoirs work best as an addition to primary sources, rather than as a replacement.

within ACM will continue to donate their papers to archival repositories; thanks to their efforts, many fragments of the Association's history have been preserved. But if the ACM hopes future historians to piece together its rich history and full story, it must act soon to safeguard its heritage. C

References

1. Akera, A. Calculating a natural world: Scientists, engineers, and computers in the United States, 1937–1968. *History and Sociology of Science*, University of Pennsylvania, Philadelphia, PA, 1998.
2. Bruemmer, B. CBI seeks early ACM records. *CBI Newsletter 10*, 2 (Winter 1988).
3. Bashe, C.J., Johnson, L.R., Palmer, J.H. and Pugh, E.W. *IBM's Early Computers*. MIT Press, Cambridge, MA, 1986. *History of Programming Languages*. R.L. Wexelblat, Ed. Academic Press, New York, 1981.
4. Burba, J. and Frana, P.L. Researching the history of software: Mining Internet resources in the "Old World," "New World,"and the "Wild West." *Iterations: An Interdisciplinary Journal of Software History 1* (Sept. 2003). Cortada, J.W. *Archives of Data-Processing History: A Guide to Major U.S. Collections.* Greenwood Press, New York, 1990. Yost, J.R. *A Bibliographic Guide to Resources in Scientific Computing*, 1945–1975. Greenwood Press, Westport, CT, 2002.
5. Campbell-Kelly, M. and Aspray, W. *Computer: A History of the Information Machine*. Basic Books, New York, 1996. Ceruzzi, P.E. *A History of Modern Computing.* MIT Press, Cambridge, MA, 1998. Williams, M.R. *A History of Computing Technology*. Prentice-Hall, Englewood Cliffs, NJ, 1985.
6. Canning, R.G. Twenty five years ago... DATA BASE's 25th birthday. *Data Base 25*, 2 (May 1994), 5–6. Carlson, W. ACM and Special Interest Groups. *Data Base 25*, 2 (1994), 9–12.
7. Cochran, A. ACM: The past 15 years, 1972–1987. *Commun. ACM 30*, 10 (Oct. 1987), 866–872; doi.acm.org/10.1145/30408.30419.
8. Ensmenger, N. From black art to industrial discipline: The software crisis and the management of programmers. *History and Sociology of Science*, University of Pennsylvania, Philadelphia, PA, 2001. Ensmenger, N. The 'question of professionalism' in the computer fields. *IEEE Annals of the History of Computing 23*, 4 (Oct.–Dec. 2001), 56–74; doi.ieeecomputersociety.org/10.1109/85.969964. Haigh, T. Technology, information and power: Managerial technicians in corporate america. *History and Sociology of Science*, University of Pennsylvania, Philadelphia, PA, 2003.
9. Haigh, T. The history of computing: An introduction for the computer scientist. Haigh, T. Key resources in the history of computing. In *Using History to Teach Computer Science and Related Disciplines*. W. Aspray and A. Akera, Eds. Computing Research Association, Washington, DC, 2004.
10. Halpern, J.Y. JACM's 50th anniversary. *JACM 50*, 1 (Jan. 2003), 3–7; doi.acm.org/10.1145/602382.602383.
11. Longo, B. Edmund Berkeley, computers, and modern methods of thinking. *IEEE Annals of the History of Computing 26*, 4 (Oct.–Dec. 2004), 4–18; doi.ieeecomputersociety.org/10.1109/MAHC.2004.28. Yates, J. Early interactions between the life insurance and computer industries: The Prudential's Edmund C. Berkeley. *IEEE Annals of the History of Computing 19,* 3 (July–Sept. 1997); doi.ieeecomputersociety.org/10.1109/85.601736.
12. Revens, L. The first 25 years: ACM 1947–1962 (sic.). *Commun. ACM 30*, 10 (Oct. 1987), 860-865; doi.acm.org/10.1145/30408.30418.

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