

**Echo 2: Exploring and Collecting the History of Science,
Technology, and Industry in a Digital Era
Center for History & New Media, George Mason University**

**Final Report
November 7, 2008**

In the four years since the Center for History & New Media (CHNM) at George Mason University was awarded funding for *Echo 2: Exploring and Collecting the History of Science, Technology, and Industry in a Digital Era*, the project has accomplished, indeed exceeded, its goals in both research areas set out in the initial grant proposal: 1) extending and enabling digital histories of science, technology, and industry by providing workshops, consultancies, tools and resources, and 2) experimenting with new models for doing and writing online history.

1) Extending and Enabling Digital Histories of Science, Technology, and Industry

Under this first category of activity we originally proposed five activities, each designed to impart knowledge obtained in previous phases of our collecting work to new audiences. These were:

A. Workshops

Our original plan called for three extended summer workshops for historians of science and technology at CHNM, and three, shorter workshops for public historians working in New York, Chicago, and Washington. We accomplished the first goal, hosting workshops for between 13 and 15 historians of science, technology, and industry in June 2005, June 2006, and July 2007 in Fairfax. In response to the devastation along the Gulf Coast in 2006, moreover, we decided to make additional workshop spots available specifically to six scholars from the affected areas developing online collecting projects related to hurricanes Katrina and Rita. (This activity dovetailed nicely with a separate grant from the Sloan Foundation to produce our Hurricane Digital Memory Bank, <http://www.hurricanearchive.org>.) We exceeded the second goal, running three multi-day workshops and one special half-day workshop for between 25 and 50 public historians in October 2005 (Washington, DC); October 2006 (Chicago); January 2008 (New York); and September 2008 (Philadelphia).

B. Consultancies

In addition to workshops, we expanded the consulting services we initiated in the first phase of the Echo project. In that earlier work, we found that offering direct assistance to aspiring digital historians allowed them to move from the planning stages to an online presence without stumbling over technical issues. This held true in Echo 2, which provided one-on-one advice from Echo staff and (in some cases) \$500 of start up money to historians of science and technology interested in online collecting. During the four years of the project we exceeded our goal of 25 consultations, providing services to more than 30

individual scholars and institutions. Prominent consultees under Echo 2 included: the American Association for the Advancement of Science, Boston Consulting Group, Chemical Heritage Foundation, Chicago Public Schools, Fulbright Academy, National Library of Medicine, Museum of Television and Radio, Texas State History Museum, Yale Library of Medicine, Jewish Women's Archives, Cornell University Science and Technology Studies, Virginia Historical Society Business History Center, Hennepin County Medical Center History Museum, Cold Spring Harbor Labs, Surgeon General's History Office, Australian Asbestos Stories Project, Electronic Text Research at the University of Saskatchewan (ETRUS), Indian Institutes of Technology, Ramapo College of New Jersey, School of Visual Arts, Newberry Library, Adler Planetarium, and the Cincinnati Museum Center. We remain in contact with many of these groups and continue to track their progress.

C. Tools and Resources

One of the primary findings of the first phase of Echo was that scholars need more than guidance, they need tools. To this end, we developed three prototype tools during the Echo 1 grant period. Our original intent for Echo 2 was to expand these tools. Yet by the time we embarked on this second phase, new technology presented us opportunities we hadn't anticipated while writing our proposal. In addition, as our experience in this area grew, it became apparent that the kinds of tools required by aspiring digital historians really fell into two categories: tools for organizing and analyzing research materials and tools for disseminating and publishing research results, connecting with audiences, and collecting additional materials from them. Thus we re-imagined our tool building work under Echo as two open source software development projects.

The first, addressing the needs of organization and analysis, became Zotero <<http://zotero.org>>. Zotero is an easy-to-use yet powerful research tool that helps scholars gather, organize, and analyze sources (citations, full texts, web pages, images, and other objects). An extension to the popular open-source web browser Firefox--the success and increasing adoption of which made Zotero possible and led us to alter our original plans for the Echo tools--Zotero includes the best parts of older reference manager software and the best parts of modern software and web applications, such as the ability to interact, tag, and search in advanced ways. Zotero integrates tightly with online resources; it can sense when users are viewing a book, article, or other object on the web, and—on many major research and library sites—find and automatically save the full reference information for the item in the correct fields.

Zotero has subsequently found additional funding from several non-Sloan sources, including two large grants from the Mellon Foundation. It has been downloaded more than 1,000,000 times and has attracted a global open source developer community, which has translated the software into nearly 40 languages. Zotero has won *PC Magazine's* "best free software" award two years running and is already widely considered among the top tier of scholarly software applications.

The second, addressing the needs of dissemination and online collecting, is Omeka <<http://omeka.org>>. Omeka is a free and open source collections based web-based publishing platform for scholars, librarians, archivists, museum professionals, educators, and cultural enthusiasts. As stressed in the Echo 2 proposal, Omeka is designed with non-IT specialists in mind, allowing users to focus on content and interpretation rather than programming. Its "five-minute setup" makes launching an online exhibition as easy as launching a blog. Omeka brings Web 2.0 technologies and approaches to academic and cultural

websites to foster user interaction and participation, including a contribution plugin developed specifically for online collecting.

In October 2007, Omeka received dedicated development funding from the IMLS. More recently, it has attracted additional funding from the Kress Foundation. Since its first public beta was launched in late-February 2008, Omeka has been downloaded nearly 3000 times, a very large number for this kind of software. It has attracted a broad and active open source developer community and is currently in use and under active development at such institutions as the New York Public Library, the Berkeley School of Information, the University of Arizona Libraries, Virginia Tech, and Missouri School of Journalism.

D. Outreach to Scholars and Public Historians

In addition to more formal workshops and consultancies, our project plan proposed a set of more informal outreach efforts designed to publicize and promote online collecting as a practice, especially among historians of business and industry. The original plan called for ten newsletter articles, four conference presentations, and a thousand personal letters and emails. In the four years of Echo, we exceeded these aims substantially. Short articles discussing online collecting appeared in a dozen publications, Echo staff discussed online collecting at more than 35 conferences (See Appendix A for complete list), and emails reached thousands of scholars through departmental mailings and mailing lists.

In addition to these efforts, to better centralize the history of science, technology, and industry resources developed by Echo over the years, CHNM relaunched the Echo website in January 2008 as a clearinghouse offering "one-stop shopping" for those interested in the history of science, technology, and industry and digital tools. The site now incorporates links to more than 5,000 websites, more than 2,800 of them annotated, up from 700 in 2005. The new site now also provides users the opportunity to stay informed of the latest HSTM activity in the blogosphere with a blog aggregator <<http://echo.gmu.edu/aggregator>>. It also includes an Echo Tools Center <<http://echo.gmu.edu/toolcenter-wiki>>, a wiki-style clearinghouse for scholarly software projects that emerged from the future of digital scholarship workshopping we outlined in our original proposal (this occurred at the 2005 Digital Tools conference in Charlottesville, VA). Finally, the site was migrated to a more secure and robust Drupal platform to provide for easier long term maintenance after grant funding is exhausted. Echo remains among the top results of Google searches on "History of Science and Technology" and site traffic remains strong, reaching a high of over 1.6 million page views for 2007.

E. Practical Guide

The final component of our proposal to enable digital history was publication of a "practical guide." Authored by Roy Rosenzweig and Dan Cohen based on experience gained in the first phase of Echo, *Digital History: A Guide to Gathering, Preserving, and Presenting the Past on the Web* was published in print by the University of Pennsylvania Press in 2006. The full text of the book is also openly available online at <<http://chnm.gmu.edu/digitalhistory>>. Digital History provides overview of the history web, practical guidance on how to get started in online history, case studies in online collecting, and advice on such important issues as digitization and copyright. In the first year of its printed publication, over 1500 copies of the guide were sold, and the online version has seen more than 1 million page views.

2) Experimenting with New Models for Doing and Writing Online History

In our original proposal, we outlined the importance of extending the methods for online collecting we developed in earlier phases of our work with Sloan in order to accommodate more recent changes in technology and Internet culture. We identified open source software as a particularly attractive candidate for this new phase of collecting research for at least three reasons: 1) being decentralized by nature, it naturally lacked the institutional records common to most science and engineering pursuits; 2) though increasingly important in the history of information technology and especially the Internet, to date it had been largely neglected by historians of technology; and 3) intimately familiar with distributed production methods and electronic communication technologies in their own work, open source developers seemed especially ripe for the kind of online collecting methods Echo had pioneered. Thus, open source software seemed an excellent opportunity to pilot new approaches to online collecting, such as using instant messaging, Skype audio and video chat, and IRC in addition to our time-tested method of collecting textual personal narratives. Yet during the course of our initial research and preparation, we quickly learned that studying open source in all its diversity would be biting off more than we could chew. Instead, we decided to focus on two projects in particular, Mozilla and Wikipedia. As two of the most successful and most end-user-friendly open source and open knowledge projects, we believed Mozilla (creator of the open source web browser, Firefox) and Wikipedia would both provide excellent opportunities to connect with the tremendous range of people contributing to open source.

We began our first, smaller pilot project on Wikipedia in late 2004. With assistance from two graduate students, Roy Rosenzweig performed the bulk of this research, including several lengthy IM conversations with Wikipedia contributors and extensive email correspondence with both "Wikipedians" and users of Wikipedia. This research resulted in the publication in June 2006 of "Can History Be Open Source? Wikipedia and the Future of the Past" in the *Journal of American History*, an article which has widely informed debates over the role of social knowledge production in scholarly, educational, popular, and even technical communities.

The Mozilla Digital Memory Bank was launched in early-2005 with an extensive electronic outreach campaign. Announcements were posted on several Mozilla listservs and blogs, and personal emails were sent to core members of the Mozilla community. In mid-2005 these efforts were enhanced by a small additional grant from the Mozilla Foundation to support approximately 25 traditional oral history interviews. These interviews turned out to be a very good source of "magnet content," luring new contributors to our online collecting activities. To make them even more effective in this regard, we edited the lengthy interviews to half hour podcasts and distributed them as an audio series through iTunes. In the end, our electronic and in-person efforts resulted in a collection of more than 1000 digital objects, including nearly 500 images, more than 50 press releases and other official documents, and more than 100 interviews of developers, designers, programmers, and users of Mozilla products that were recorded in various formats including IM chat and Skype audio and video. One measure of our success came just last month when the Mozilla Corporation (independently of the Mozilla Foundation) offered to provide continued outreach and technical assistance on the project as part of their upcoming 10th anniversary celebration. We are hopeful that direct involvement by community leaders will result in additional growth of the Memory Bank, helping us accumulate enough valuable research material to author an article on the Mozilla open source community.

In addition to our proposed work on open source, we should mention briefly the work done by the Echo project staff on the Hurricane Digital Memory Bank project, which was concurrently funded by Sloan during the course of the four years of Echo grant and which greatly advanced many of the core aims of the Echo project. Launched in November 2005, the Hurricane Digital Memory Bank collected more than 25,000 digital objects, including items submitted by individuals and special collections from 19 partner institutions, including the Smithsonian Institution's National Museum of American History and the Louisiana State Museum. A full report on the Hurricane Digital Memory Bank was submitted to Sloan in May 2008 and an article based on our experience "Why Collecting History Online is Web 1.5" is being submitted for publication.

Conclusion

The activities outlined in the Echo 2 proposal represented a tremendously rich and varied research program, and we are proud to have met most of the ambitious deliverables outlined in 2004. We are equally proud of the unanticipated successes and breakthroughs (on Omeka and Zotero, for example, or in attracting dozens more consultees than we originally planned) that Sloan support made possible. When we first undertook the Echo project in early 2001, it was highly unusual for websites to ask users to contribute content, to record their personal narratives, and to upload digital materials. In the years since, with the rise of the "social web," the "read/write web" or "Web 2.0," this websites composed primarily of user created content have become commonplace. Blogs, Facebook, YouTube, Wikipedia, and other "online collecting" sites are now among the most prominent web properties. And though we obviously can't take credit for the tremendous growth of this participatory web, we do take some modest pride in being ahead of our time. We were especially heartened, for example, when just days after the recent election, President-Elect Barack Obama posted a "Tell Your Story" link at change.gov. We are very grateful for the opportunity Sloan has given us to experiment at this bleeding edge of digital history and to solidify CHNM as a key location for digital historical innovation.

Appendix A:

Echo Staff presentations

Grad Student Conference at University of Maryland (Roy Rosenzweig, 2006)

Marymount University (Roy Rosenzweig, September 2006)

CNI, Concordia University (Roy Rosenzweig, October 2006)

Oregon conference on Managing Digital Resources (Dan Cohen, August 2006)

University of Chicago conference on digital humanities and CS (Dan Cohen, November 2006,)

NASA Goddard (Dan Cohen, March 2007)

Naval History Workshop (Sheila Brennan, June 2007)

National Library of Medicine (Tom Scheinfeldt and Sharon Leon, 2007)

SHAEFR (Tom Scheinfeldt and Sharon Leon, 2007)

Museum Computer Network (Tom Scheinfeldt and Sharon Leon, November 2007)

Laurel Grove Historic School Association (Sheila Brennan, November 2007)

Ohio Humanities Council (Tom Scheinfeldt and Sharon Leon, 2008)

Virginia Foundation for the Humanities (Tom Scheinfeldt and Sharon Leon, 2008)

Open Knowledge and the Public Interest Project at University of California at Berkeley (Tom Scheinfeldt and Sharon Leon, 2008)

Maryland Institute for Technology in the Humanities (Tom Scheinfeldt and Sharon Leon, 2008)

American Historical Association annual meeting (Tom Scheinfeldt, January 2008)

Thomas Jefferson Library at Monticello (Tom Scheinfeldt, February 2008)

Code4Lib annual conference (Jeremy Boggs, Kris Kelly, and Dave Lester, February 2008)

National Council on Public History conference (Tom Scheinfeldt, March 2008)

Webwise (Tom Scheinfeldt and Sharon Leon, March 2008)

Fairfax County, Virginia History working group (Sheila Brennan, April 2008)

Newberry Library (Tom Scheinfeldt, June 2008)

Adler Planetarium (Tom Scheinfeldt, June 2008)

Association of College and Research Libraries, Division of Rare Books
and Manuscripts, Meeting Keynote at Getty Museum (Tom Scheinfeldt, July 2008)

Virginia Foundation for the Humanities (Tom Scheinfeldt, July 2008)

Cincinnati Museum Center (Tom Scheinfeldt, August 2008)

Maryland Institute for Technology in the Humanities (Tom Scheinfeldt, September 2008)

Omeka booth host at AASLH (Tom Scheinfeldt, September 2008]

Maryland Institute for Technology in the Humanities (Dave Lester, September 2008),

American Association for State and Local History (Dave Lester, September 2008)

American Association for the History of Nursing Pre-Conference Workshop on Digital History (Sheila Brennan, September 2008)

Oral History Association (Sheila Brennan, October 2008)

American Studies Association Conference (Jeremy Boggs, October 2008)

Minnesota Historical Society and Laurel Grove School Association (Sheila Brennan, ongoing)