# Interchange: The Promise of Digital History

This "Interchange" discussion took place online over the course of several months in the winter of 2008. We wanted the "Interchange" to be free flowing; therefore we encouraged participants not only to respond to questions posed by the *JAH* but also to communicate with each other directly. What follows is an edited version of the very lively online conversation that resulted. We hope *JAH* readers find it of interest.

The *JAH* is indebted to all of the participants for their willingness to enter into an online conversation:

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***JAH:*** **For a start, we might define digital history as anything (research method, journal article, monograph, blog, classroom exercise) that uses digital technologies in creating, enhancing, or distributing historical research and scholarship. Do you have other definitions? More important, what is the promise of digital history?**

William G. Thomas III: So far few historians have tried to define "digital history." We were probably the first to use the term when Ed Ayers and I founded and named the Virginia Center for Digital History (vcdh) in 1997–1998. We used the term in essays

and talks to describe *The Valley of the Shadow.* In 1997 we taught an undergraduate seminar, "Digital History of the Civil War." We began calling such courses "digital history seminars" and taught seven of them at the University of Virginia over as many years. Later Steve Mintz started his site (in effect, a digital textbook) using the name *Digital History.*[1]

Here is a step toward a working definition. Digital history is an approach to examining and representing the past that works with the new communication technologies of the computer, the Internet network, and software systems. On one level, digital history is an open arena of scholarly production and communication, encompassing the development of new course materials and scholarly data collections. On another, it is a methodological approach framed by the hypertextual power of these technologies to make, define, query, and annotate associations in the human record of the past. To do digital history, then, is to create a framework, an ontology, through the technology for people to experience, read, and follow an argument about a historical problem.

Digital history scholarship also encourages readers to investigate and form interpretive associations of their own. That might be the defining characteristic of the genre. Readers are not presented with an exhibit, or an article with appendices, or any other **analog** form simply reprocessed into the Web format. (For a glossary of the technical terms that appear in boldface, see appendix.) Instead, they are presented with a suite of interpretive elements, ways to gain leverage on the problem under investigation.

Digital history possesses a crucial set of common components—the capacity for play, manipulation, participation, and investigation by the reader. Dissemination in digital form makes the work of the scholar available for verification and examination; it also offers the reader the opportunity to experiment. He or she can test the interpretations of others, formulate new views, and mine the materials of the past for overlooked items and clues. The reader can immerse him/herself in the past, surrounded with the evidence, and make new associations. The goal of digital history might be to build environments that pull readers in less by the force of a linear argument than by the experience of total immersion and the curiosity to build connections. (Versus the narrative anticipation of what comes next, this is a curiosity about what could be related to what and why.)

William J. Turkel: I'd like to underline something that is implicit in Will Thomas's definition of digital history. *Digital history makes use of sources in digital form.*

Digital sources

- Can be created and altered with relatively little effort or expense
- Can be duplicated with near-zero marginal cost and shared by any number of people
- Can be transmitted near or at the speed of light
- Can be stored in nanoscale volumes
- Can serve as the inputs to any process that can be specified **algorithmically**
- Allow form to be more easily separated from content
- Allow historians to gain the well-known benefits of working in a networked mode

[1] Edward L. Ayers, *The Valley of the Shadow: Two Communities in the American Civil War,* http://valley.vcdh.virginia.edu; Steven Mintz, *Digital History: Using New Technologies to Enhance Teaching and Research,* http://www.digitalhistory.uh.edu. See also the digital history textbook, Steven Mintz, *Hypertextual History: Our Online American History Textbook,* http://www.digitalhistory.uh.edu/database/hyper_titles.cfm.

The use of digital sources, in other words, completely changes the landscape of information and transaction costs that historians have traditionally faced.[2]

Daniel J. Cohen: In his article "Scarcity or Abundance?" Roy Rosenzweig speculated that there were two possible futures for the historical record: scarcity, since digital materials are so fragile and can disappear at the touch of a delete key or magnetic blip, or abundance, since digital storage makes it possible to save and make globally available via the network virtually all human expression.[3]

It is now quite clear that historians will have to grapple with abundance, not scarcity. Several million books have been **digitized** by Google and the **Open Content Alliance** in the last two years, with millions more on the way shortly; the Library of Congress has scanned and made available online millions of images and documents from its collection; ProQuest has digitized millions of pages of newspapers, and nearly every day we are confronted with a new digital historical resource of almost unimaginable size.

At least for research, digital history can be defined as the theory and practice of bringing technology to bear on the abundance we now confront. As Bill Turkel has memorably subtitled his **blog**, we need a "methodology for the infinite archive." Fortunately, the same medium that leads to a daunting (for presidential historians, at least) 40 million e-mails from the Bill Clinton White House gives us tools to conduct historical research better.[4]

First, there are techniques for searching and finding documents. Keyword search is only the beginning, and quite primitive. Despite its simple appearance, Google does not rely merely on keyword search; it combines dozens of complex algorithmic methods. We have barely begun to apply to the historical record those more sophisticated methods, which include **regular-expression** searching, **text mining**, **document and topic clustering**, automatic audio and video transcription, and other techniques based on the machine-readable nature of digital materials. Scholarly projects that once took years or decades are now possible in an instant—concordances, for instance. The team working on Google Book Search has a function that will show every book that quotes any passage from Darwin's *Origin of Species.* (Or any other book.)[5]

Second, once we find documents of interest for our research, we can manipulate them. We can combine information from a set of documents with details from another set. We can extract place names from a text and map them. We can overlay historical photographs on maps of existing neighborhoods to assess change over time. We can do good-enough (and bound-to-get-better) translations for quick skimming if our knowledge of a language is less than perfect.

Finally, and only just coming into view with many so-called **Web 2.0** sites (and with the Center for History and New Media's [CHNM] **Zotero** project), are the network effects of scholars joining together online. Methods like collaborative filtering and **recommen-**

[2] On the benefits of working in a networked mode, see Yochai Benkler, *The Wealth of Networks: How Social Production Transforms Markets and Freedom* (New Haven, 2006).

[3] Roy Rosenzweig, "Scarcity or Abundance? Preserving the Past in a Digital Era," *American Historical Review,* 108 (June 2003), 735–62.

[4] William J. Turkel, *Digital History Hacks: Methodology for the Infinite Archive,* blog, http://digitalhistoryhacks.blogspot.com.

[5] Charles Darwin, *The Origin of Species by Means of Natural Selection; or, The Preservation of Favored Races in the Struggle for Life* (1859; New York, 1999).

**dation systems** will probably be an important part of the research landscape in the next decade.[6]

If you explore the potential of digital history and the problem of abundance, you realize that it presents a very real challenge to analog history and the close reading that has been at the heart of graduate work and the monograph. Digital history and the abundance it tries to address make many historical arguments seem anecdotal rather than comprehensive. Hypotheses based on a limited number of examples, as many dissertations and books still are, seem flimsier when you can scan millions of books at Google to find counterexamples. I believe it will be possible to marry digital techniques with close reading and traditional methods, but very soon it will be perilous to ignore these new techniques.

Steven Mintz: Digital history has evolved through a series of overlapping stages. Stage 1.0 consisted of communication and course-management tools, such as e-mail, online syllabi, Web-CT, and Blackboard, supplemented by content-rich Web sites (like *History Matters, Lincoln/Net,* and my own *Digital History* site) that made a treasure trove of high-quality primary source documents, music, historic images, and film clips available to instructors and students.[7]

Stage 2.0 involved the creation of hands-on inquiry- and problem-based history projects designed to allow students to "do" history. Thus in Richard B. Latner's *Crisis at Fort Sumter,* students read the information available to President Abraham Lincoln from the time of his election on and compare the decisions they make with those that Lincoln made at critical junctures.[8]

We have now entered Stage 3.0, in which the emphasis is on active learning, collaboration, and enhanced interaction. **Wikis**, blogs, **mash-ups**, **podcasts**, **tags**, and **social networking** are the buzz words. These technological innovations offer opportunities to students to share resources and create collaborative projects.

Stage 4.0 lurks just beyond the horizon. It includes three-dimensional virtual reality environments, which allow students to navigate and annotate now-lost historical settings. A stunning example is Lisa M. Snyder's reconstruction of the 1893 World's Columbian Exposition in Chicago.[9]

Stage 4.0 is informed by a "constructivist" understanding of learning, in which students devise their own conceptual models for understanding our collective past. With support from the National Endowment for the Humanities (NEH), a colleague in instructional technology, Sara McNeil, and I, are completing MyHistory, which will allow students to create online history portfolios, in which they can develop multimedia projects, and construct timelines, annotate images, and keep notes.[10]

[6] Center for History and New Media, *Zotero: Leveraging the Long Tail of Scholarship,* http://www.zotero.org.

[7] *History Matters,* http://www.history-matters.com; Abraham Lincoln Historical Digitization Project, Northern Illinois University, *Lincoln/Net Abraham: Lincoln Historical Digitization Project,* http://lincoln.lib.niu.edu; Mintz, *Digital History.*

[8] Richard B. Latner, *Crisis at Fort Sumter,* http://www.tulane.edu/~sumter/. See also Virginia Center for Digital History, *Virginia Runaways,* http://people.uvawise.edu/runaways/. On the *Digital History* Web site, I have developed over seventy "eXplorations," active learning projects involving the analysis of primary sources. Steven Mintz, "eXplorations," *Digital History: Using New Technologies to Enhance Teaching and Research,* http://www.digitalhistory.uh.edu/learning_history/.

[9] Lisa M. Snyder, *Urban Simulation Team, UCLA: World's Columbian Exposition of 1893,* http://www.ust.ucla.edu/ustweb/Projects/columbian_expo.htm.

[10] "MyHistory," *Digital History,* http://www.digitalhistory2.uh.edu/myhistory/myhistory.cfm.

Thomas: One challenge for any scholar producing digital history is the fluidity or impermanence of the medium. I do not mean that what a scholar produces is in danger of disappearing. Instead, scholars working on digital projects often cannot seem to stop editing, adding, annotating, and refining. Digital history scholarship is open to continual intervention. Its texts are fluid, its technologies shift, and its engagement with the wider historiography changes over time.

I think that many scholars who started digital history projects in the 1990s recognized the marked fluidity of their work and set the implications aside for later consideration. Their main concern was audience and access. We heard a great deal about "democratizing history" and opening the archives to wider dissemination. Many historians welcomed the Web largely because of the opportunity to expand the audience for historical scholarship.

Although expanding the audience for historical scholarship continues to be a goal for digital historians, we might ask how and what we are building for these audiences. Early digital history efforts were largely archival, often called "intentional archives" or "thematic research archives." Many projects we ran at the VCDH, for example, sought to allow a user to access, manipulate, compare, assemble, and reassemble evidence. Because these projects centered on a driving historical question, not a type of evidence or source, the digital histories were "intentional" and framed for people to engage with. These projects were not published through a press, and so scholars were free to continue to add materials, edit, change, and adjust them as the technology shifted and as new evidence came in.

Some historians have tried to reconcile the **iterative**, seemingly stable, process of analog historical scholarship with the digital environment. Most of all, we have struggled with the question: Where does interpretation go in these online projects? Ideas about versioning, release dates, update systems, and so forth, bubbled to the surface in technical meetings for many projects. Interpretation, the coin of the realm in professional historical study, seemed cast aside. How could interpretation be assessed if the project was continually in motion? Most digital history projects offered huge audiences, but potentially at the expense of interpretive salience. Was the digital medium the place to do historical scholarship? Or was it suitable only for pedagogical tool building? Or documentary editing?

My view at the moment (subject to change with this forum!) is that the digital medium offers a unique means to create interpretive and evidentiary models under continual change. Digital history should embrace the impermanence of the medium, use it to convey the changing nature of the past and of how we understand it. I consider such digital sites open research platforms where scholars can stage problems and continually modify their work, readers can view the research as it develops, and both can continually assemble new associations as an interpretive model is built.

Kirsten Sword: I group the reasons for my own excitement about things digital under three heads:

> New Archives/New Inquiry: Digital resources are expanding and redefining the archival base for most fields and thereby redefining the fields themselves. (This is driven more by libraries and the tech industry than by historians.) My initial interest in things digital grew from developing a database to piece together fragmentary sources obscure people had left behind in multiple archives; the approach was not new, but the scale of the project I could imagine as an individual graduate student

was. Linda Colley's latest book, *The Ordeal of Elizabeth Marsh*—trumpeted in reviews as a "new" approach to biography—is a recent example. The book is not new in its recovery of an ordinary life as a window on a world. (Laurel Thatcher Ulrich showed us that in 1990.) But its ability to encompass the globe is new; Colley credits its new media resources with making the project possible.[11]

Audience: New bridges between academic and popular/public history.

Collaboration: A source of excitement and perhaps peril. The best digital projects are collaborative, involving multiple scholars and a technical team, and ideally an institution committed to keeping the project alive after its creators move on to other things. This is, I think, a great way to work. It is not, however, one for which history as a discipline has established institutional resources.

A question for my colleagues: What institutional resources should the discipline be seeking to sustain digital history? What are your priorities?

Turkel: When I think of the promise of digital history, I think of how having networked access to online sources and to one another has completely changed the transaction and information costs that historians face.

The field of biology provides an interesting analogy. Twenty or thirty years ago, people began digitizing the "primary sources" in a big way (for example, in the Human Genome Project). Now it is not unusual to find entire departments or university buildings devoted to bioinformatics. This underlines Kirsten's formulation "new archives/new inquiry." More to the point, *digital representations can serve as input to computation*. It now makes sense, as Dan Cohen put it, to think of machines as part of our audience.[12]

Michael Frisch: I'm probably an "outlier" in our group's distribution—I'm in no way a self-identified "digital historian." I'm a working historian with a "tool" orientation: What do these emerging digital tools do to our sense of the work we are and can be doing? What do they do to our sense of history as a mode of interrogation/knowledge-creation/understanding?

I came to all this from a long involvement in oral history, which led to an interest in emerging tools and approaches for working directly with audio and video documentation. These seemed to get to a central and paradoxical point: There's lots of interest in and excitement about oral history, at every level from the vernacular to the professional—but generally nobody has spent much time listening to or watching the recordings, the primary source. Instead, the modal plane of engagement has been textual, probably as a result of a wholly unexamined assumption that you can't do much, directly, to explore, search, work with audio or video, except to run it through a mill and produce documentaries. So working with text transcriptions ended up seeming "natural," even inevitable.

All of which is no longer true, if it ever was, in a world of digital audio and video and tools for engaging it unmediated. This has led to reflection—most of it less about technology and more about things closer to the historian's craft: meaning, content, navigation, and marking, and cross-referencing and connections when there are no words to

[11] Linda Colley, *The Ordeal of Elizabeth Marsh: A Woman in World History* (New York, 2007), xxviii; Laurel Thatcher Ulrich, *A Midwife's Tale: The Life of Martha Ballard, Based on Her Diary, 1785–1812* (New York, 1990).

[12] Dan Cohen, "When Machines Are the Audience," online posting, March 2, 2006, *Dan Cohen,* blog, http//:www.dancohen.org/2006/03/02/when-machines-are-the-audience/.

search at all (performance, say) or when the words spoken are wholly distinct from the categories of meaning those words suggest. I've been fascinated with how little oral historians have thought about such things, in their relentless focus either on a narrow conception of methodology (how to do interviews) or an abstracted, theorized reflection on meaning (memory studies, cultural studies). I've been trying to connect these at the level of practice, working in digital modes with sources whose richness is, arguably, tractable *only* in such modes.

I'm skeptical of the lasting value of "digital history" as a term—it either will end up meaning too much or too little and pretty soon will be so inescapable (in twenty years, will *anyone* do professional work in history without involving what we're talking about?) as to provide little purchase on anything specific enough for a course, workshop, or blog. Quantitative history, for example, has come and gone, as a defining rubric—in part because it has won, and many historians routinely and effectively deal with quantitative data when they want to or need to in a fluid and responsive inquiry-driven way.

So I'm mostly interested in how, why, and especially to what consequential effect it matters that historians are doing history in new ways, that they can begin imagining where those ways lead and how they will transform not only what practitioners do and how—but what they produce and what it means for understanding the past.

***JAH:* How do we teach graduate students about digital history? What are the essential skills in training a generation of digital historians?**

Amy Murrell Taylor: The most important—yet difficult—skill is simply thinking: thinking in bold and creative ways about how this technology can serve the interests of history, thinking about how students can create a truly "new" history as a result.

Students who arrive in my digital history course are often not thinking in these terms. They are ready to learn about HTML, Photoshop, and databases—that is, to do digital history without thinking about digital history. It's understandable; all use this technology daily, so who wouldn't want to take a break from their theses and dissertations and figure out how to create a Web site? It's fun. But the problem is that mastering the technology becomes the end rather than the means to a bigger end of producing innovative history.

Still, I have had some success in pushing students to understand the technology and what it promises. We usually start by reading Vannevar Bush's "As We May Think" (1945), and in this intellectual blueprint for hypertext, the students begin to see exactly why digital technology has a special relevance for historians trying to document the very complicated past. Other readings about the history of the Internet and the Web are likewise useful in getting students thinking on a more theoretical level about this technology.[13]

For some students this has translated into better digital history, into projects in which the technology fits the content, or at least the technology is well chosen to serve the interests of the history. But not for all. Perhaps others of you have faced a similar challenge and have other ideas?

[13] Vannevar Bush, "As We May Think," *Atlantic Monthly*, 176 (July 1945), http://www.theatlantic.com/doc/194507/bush.

Thomas: I agree with Amy Taylor entirely—the most difficult aspect of teaching digital history is getting beyond the technology to a point where students consider what their readers/users will do with the material in the project. Students discover that fitting the technology to the content is not a simple process of digital conversion. I find myself coming back to this question again and again: What will your reader/user do?

In the digital medium users behave differently from traditional print readers. We cannot expect that history as produced in the print medium is simply transferable. But students are often thinking about what interpretation or information they will give the user. This is a fundamental misconception about the nature of the digital medium. And the terms we have don't really help: "interactive" is so generic that it cannot be a defining quality of digital history. Janet H. Murray's notion of "participatory" gets much closer. (I assign her *Hamlet on the Holodeck* because it helps students think about narrative in the digital medium.) Users will make decisions and will be confronted with a series of choices or links, and the choices, their arrangement, their content, their look and feel, should all combine to allow users to engage with the past in a way they could not otherwise. The best analogy may be gaming—users have control over where their characters will go and what they will see and do, but the creator/author controls the parameters of that experience. And history in the digital, it seems to me, is an experience for users—a process, an active, spatial, virtual-reality encounter with the past.[14]

Graduate students, often without realizing it, end up fighting the digital medium. They proceed as if they can assemble documents and write an interpretation linked to them and call it digital history. How many students start their digital history projects with a set of links that includes an "introduction" and a "conclusion"? Is this what users/readers expect in the hypertext or digital medium—to step through an interpretive narrative structure?

When I taught the graduate digital history seminar at the University of Nebraska in 2007, I decided to emphasize the digital environment and what forms history might take in it. We dispensed with the idea of teaching geographic information systems (GIS), or scripting for the Unix operating system, or standard query language (SQL) and relational database design. Asking graduate students to build a digital history in HTML proved quite sufficient to teach them a great deal about the nature of the digital medium. The form of presentation and the argument or intentionality of the work need to work together.

Cohen: I agree wholeheartedly with Amy and Will. In my seminar introducing graduate students to digital history, I do not begin with the acquisition of technical skills, which is often what entering students expect. I prod students to ask questions similar to those one might ask for a book project: What is the overall intent of the project? What is the genre of the digital resource you envision—an archive for other researchers, a learning module, a collaborative space? Who is your audience (K–12, scholars, the general public) and how will you tailor the Web site or digital tool to their needs and expectations? What else has been done (online and off) with respect to your project, and how will your project differ?

[14] Janet H. Murray, *Hamlet on the Holodeck: The Future of Narrative in Cyberspace* (New York, 1997). For the introduction to the book, see Janet H. Murray, "Introduction: A Book Lover Longs for Cyberdrama," *Portal, Amigos Library Services, Inc.,* http://portal.acm.org/citation.cfm?id=572887#. See also Janet H. Murray, *Hamlet on the Holodeck,* http://www.lcc.gatech.edu/~murray/hoh/hoh.html.

As Roy Rosenzweig and I put it in *Digital History,* historians planning a digital project should think like architects, not like plumbers. It is far too easy to obsess about the right database or mapping software or other behind-the-scenes technical details. First, you need a comprehensive vision of what you are trying to accomplish, and from there details about Web design, technologies to use or eschew, and other concerns should follow.[15]

But those who would like to do advanced work in digital history will ultimately have to acquire significant technical skills, not only to execute complex digital projects successfully (or to guide those doing the design and programming in a technically literate way), but also to have a more far-reaching vision of what is possible for historians in this new medium.

Turkel: I'm occasionally dismayed to meet people who describe themselves as digital humanists but don't do any programming. (I can't help but think of Jack Gladney in Don DeLillo's novel *White Noise,* who practically invented the field of Hitler studies but doesn't speak any German.)[16] It's important not to lose sight of the historical or historiographical relevance of our work, but it's also essential to master some of the technologies involved. Architects, to use Roy and Dan's example, have to know a fair amount about plumbing. Unless humanists have a hand in its creation, they are unlikely to be the beneficiaries of software that is sensitive to their needs.

Taylor: I'd like to pick up on two points—first, Dan Cohen's and Bill Turkel's good point about the acquisition of advanced technical skills. I wholeheartedly agree that this is important for understanding the possibilities of digital history.

But I also think that the acquisition of these skills has been a significant barrier to many historians, keeping them from becoming producers of digital history. It may seem intimidating or too time-consuming or too disorienting. Perhaps here the collaborative nature of many digital history projects (which Kirsten Sword raised) is especially important. Each individual involved does not need to acquire the entire range of advanced skills a project might require.

Second, picking up on Will Thomas's interesting discussion, I think the difficulties students have also stem in part from the fact that we are asking them to make a huge conceptual shift in how they think about history. The traditional chronological or thematic narratives of history are so deeply entrenched in their minds—and, frankly, in most of our minds—that it is very difficult to start thinking of creating history that is not so linear and is "participatory" or "interactive" (or akin to "gaming"—an analogy I like). A student who is friendly to digital technology can be quite uncomfortable with thinking about history in new ways. This discomfort may also have to do with being asked to rethink the position of the historian—in ceding some control to the user to define the experience, what control does the historian/creator retain?

Sword: What does it mean to train digital historians, as opposed to integrating the methods and concerns of the new media into established historical practice? At my institution, this question folds into ongoing debates about the difference between a "method"

[15] Dan Cohen and Roy Rosenzweig, *Digital History: A Guide to Gathering, Preserving, and Presenting the Past on the Web* (Philadelphia, 2006), 56, http://chnm.gmu.edu/digitalhistory/.

[16] Don DeLillo, *White Noise* (New York, 1985).

and a "field." These would be friendly intellectual exercises were they not bound up with questions about money. For digital history, the distinction seems especially fraught because costs associated with new media development can seem staggeringly high when compared with those of more conventional humanistic scholarship. Under what circumstances do you find yourselves thinking of digital history as a field and when is it a method accessible to all interested historians?

From the outset my introductory digital history colloquium was a general methods course rather than one aimed at producing digital historians. The class offered the opportunity to reflect not only on the forms history might take in the digital environment but also on the conventions of academic history. My goal had been to offer students from multiple disciplines an introduction to the possibilities of the emerging field and space to begin pursuing projects that made sense for them individually. By space, I mean time and money. Students were expected to spend what would have been "book money" on tech needs. The final assignment in the course was a grant proposal rather than a fully developed project. The course was also a way for me to play catch-up—something that seems a perpetual condition given the incredibly rapid pace of change in all things connected with the new media.

My own technical skills have been largely self-taught on a need-to-know basis, and the most basic motivation for teaching the course was the desire to help others avoid some pitfalls of this approach. Chief among these is the tendency to use technology reactively—to work with the tools most easily at hand and to allow those tools to drive the questions we ask, rather than vice versa.

Digital history methods are being integrated into established graduate training more slowly than I anticipated. Is digital history as a field genuinely growing, or is it consolidating itself at a few institutions—most of which are represented by our panelists? Do we need to take measures—inside and outside the CHNM, Nebraska, VCDH nexus—to avoid yet another form of digital divide? How do we negotiate the line between digital history as a field requiring specific, advanced technical expertise, and a method about which all historians need some knowledge?

COHEN: Every year it becomes easier and easier to do digital history, and so some of the concerns mentioned above will disappear. Even once-complex pieces of digital history are becoming simpler. Five years ago you had to know a programming language to create a unique, history-oriented search engine on the Web. Now services like Google Custom Search, Yahoo Pipes, and Rollyo make it simpler to, say, create a site that scans all resources about the French Revolution, without knowing anything about databases, spiders, or Web applications.

This trend will undoubtedly continue, lowering barriers to those who do not have technical skills. Will the most sophisticated implementations of digital history still require advanced skills, teamwork, and money? Of course. But it would be unfortunate to see such implementations split off or be designated as a distinct field.

TAYLOR: I appreciate Kirsten's categories and see how digital history can be—and should be—both method and field. I hesitate to use the term "field," however, since I am uncomfortable with the insularity it implies. I would rather use "medium" or "genre" to describe

the alternative to digital history as method: that is, digital history as the production of something that can stand alongside a book, something that takes a different form but nonetheless raises questions, offers analysis, and advances our historiographical knowledge about a given subject. Digital history as medium should converse with all fields of history; at this point, it's not really doing that—so this is hard to envision. We need more innovation to realize fully the potential of digital history as a medium of historical scholarship.

Scaling back assumptions about what constitutes the best or the ideal digital history may help eliminate a (perceived or real) digital divide. I also think that Dan Cohen is right that the technical aspects will simply get easier. I'm further encouraged by the start-up grant opportunities offered by the NEH and American Council of Learned Societies (ACLS) for digital humanities projects. I think all of these are signs that digital history can continue to grow and not become restricted to a few institutions and a few practitioners.

THOMAS: Kirsten Sword has brought up one of the important issues digital history faces: Is it a field; is it a method? The temptation is to consider digital history as akin to quantitative methods—it uses computers, right? Quantitative methods and social history seem especially suited to digital technologies. It might appear useful to characterize digital history as a method, but I think we very quickly see how bad the fit is for digital history as a method.

Digital history is about the medium, not the method. I like Amy Murrell Taylor's emphasis on the idea of genre and medium very much. It is especially helpful because the focus on the medium helps us widen our scope and recognize the breadth that digital history can encompass.

At Nebraska we have discussed whether to make digital history a field for Ph.D. study. For some time I resisted the idea of separating digital history because like Kirsten Sword, Dan Cohen, and Bill Turkel, I did not want to see its possibilities foreclosed. Yet, recently I have come to think we need the separation at this stage to build experimentation with the genre and medium.

COHEN: Focusing on the full potential of the medium and being sure that digital history is not simply an echo of quantitative history is extremely important. Although we need to apply what are essentially quantitative processes or algorithms to the abundant digital record in the service of source discovery and analysis, equally important are the networking and collaborative possibilities of the medium—that is, focusing on human rather than machine activities. The long-range goal of our Zotero project is to see what can happen when scholars aggregate their research and qualitative assessments. So in addition to the mathematical work that computers do so well, I would like to see more done in history in new areas of digital research such as social computing.[17]

SWORD: As I've been making haphazard notes on our conversation, my thoughts have cohered around what I think of as life-cycle issues—for tools, projects, and people. I

[17] Daniel J. Cohen, "Zotero: Social and Semantic Computing for Historical Scholarship," *Perspectives Online,* 45 (May 2007), http://www.historians.org/Perspectives/issues/2007/0705/0705tec2.cfm.

want to revisit the digital history as field versus method versus genre question as it pertains to the professional life cycle of graduate students and related questions about the curriculum.

I was initially enthusiastic about Amy Murrell Taylor's reframing of my distinction between method and field to method and genre or medium. I dislike thinking in terms of fields for precisely the reasons she articulates. However, I also find fields (and the turf and resource battles associated with them) difficult to escape at the institutional level. For graduate instruction, these have practical consequences: How does a class in digital history count in the degree program? Is it wise and fair to launch graduate students into their own, largely unsupported, digital projects when the "best" work appears in large-scale, collaborative ventures, and when scholarly articles and monographs remain our common professional currency? As Mike Frisch notes, the term "digital history" itself is overly expansive: it refers neither to a single method nor to a single genre. A few of you have already commented on navigating problems of definition at your own institutions, but I'd welcome more detail.

At Indiana University, my intro to digital history course found a place within an emerging program/minor in "historical teaching and practice." There is student demand and interest, but the course also raises concerns (for me) about what my long-term teaching responsibilities will look like. At this point in my career, program-building work in digital history has to come after more conventional responsibilities within my geo/temporal fields. What has enabled those of you for whom the two areas are more in sync to strike a balance? What advice do you give graduate students about the long-term implications of dual allegiance? Or how do your programs enable students to be digital historians and seamlessly scholars of particular subjects?

Turkel: A number of job postings mentioned digital history this past year, and almost all of them were associated with public history programs. The estimated 1.3 billion people in the world with Internet access form the largest potential public we can imagine.

Taylor: I want to return to Kirsten's questions about training graduate students—especially about "dual allegiance" between traditional (for lack of a better term) and digital history.

Kirsten's question hasn't been a very pressing one for my graduate students—maybe because many are M.A. students who are not seeking careers in academic history. A good number plan to work in public history settings and embrace digital history as a skill they can use as museum curators, historic preservation specialists, and archivists. (These students also tend to take courses our department offers on documentary film and radio production—we are developing a new M.A. program in history and multimedia.) Perhaps the value of digital history has become more obvious and acknowledged in public history than in academic history circles (Bill's post about job listings may help substantiate this).

I do encourage students, public history–oriented or not, to think in terms of a smaller scale: smaller digital archives, smaller online exhibits, more tightly focused teaching-oriented sites. For some subjects and topics smaller-scale work is entirely appropriate. I also think that the need to think in smaller terms could be a spur to developing new, in-

novative forms of digital history. How might the principles of microhistory, for example, be applied to the digital environment? The nonlinear character of the digital medium may fit well with the microhistorian's desire to embrace (and to visualize) the multiple dimensions of a small topic.

One interesting model for integrating digital history into one's more traditional scholarly work comes from historians who have written books and created digital history as complementary pieces of one intellectual enterprise. Edward Ayers's work on the Valley of the Shadow and Laurel Thatcher Ulrich's work with Martha Ballard's diary come to mind. That model certainly does allow one to do it all—and given that I am still quite attached to the monograph, that is appealing—but more significantly, it allows a historian to exploit the strengths of each medium and produce history that is deeper and richer than if presented in only one form.[18]

***JAH:* Kirsten asked: What institutional resources are needed to sustain digital history? What are your priorities?**

Turkel: I think that many tenured and tenure-track academic historians assume that digital history will somehow be taken care of by the next generation, which is, of course, practically cyborg. Unfortunately, this isn't true. Paula Petrik had a great post on this in her blog *HistoryTalk* last May. "The digital generation," she argued, "strikes me as the most unexamined assumption in contemporary business and education culture."[19]

Thomas: Paula Petrik's statement strikes me as exactly right. Just because students have grown up with a technology does not mean that they understand anything about it. Students are users, as a general rule, and not producers, but if our next generation of historians are going to have a voice in this medium, they will need to be producers. Yet as the first lifelong users of the Web, these students also have a perspective that we need to pay attention to. Many are savvy users who through experience with the medium have their own views on what constitutes an important or useful development.

Institutions differ in the commitment they can make, and digital history centers may not be possible every place. However, the right combination of people, resources, space, and energy can be transformational and, compared to large-scale science research centers, not necessarily that expensive. A commitment by research universities to support digital humanities or digital history in particular can take form at the department level, but it seems the most effective organizing structure is a center. Centers can be places for graduate student research, formative graduate student training, and faculty-led large-scale projects. They can quickly ramp up and scale down. They can funnel grants and gifts into the university. They can provide the space for shared research, interaction across fields, and experimentation with digital technology.

[18] Edward L. Ayers, *The Valley of the Shadow: Two Communities in the American Civil War* (New York, 2000); Ayers, *Valley of the Shadow;* Ulrich, *Midwife's Tale;* Film Study Center, Harvard University, *Do History: Martha Ballard's Diary OnLine,* http://dohistory.org.

[19] Paula Petrik, "There Is No Millennium Generation," online posting, May 4, 2007, *HistoryTalk: Not the Same Old Story,* blog, http://historytalk.typepad.com/basic/2007/05/there_is_no_mil.html.

What institutional resources does digital history need? Judging from recent experience, it will need faculty lines in the tenure track in departments and sustained commitment to library, information technology, new media, and academic computing resources for humanities scholars. Some of this cyberinfrastructure can be shared across disciplines. Almost anything here will be a step forward—a center, a common space or lab, a symposium, a shared server system.

All of this is contingent on leadership. Institutions need faculty willing to experiment with the new media; faculty need administrative leaders willing to provide resources and hold faculty accountable. Students, especially graduate students, need both faculty and administrative leaders to have cleared pathways for cutting-edge research so that they too can take advantage of the resources.

Money may not be the critical factor in institutional success with digital history. Instead, it is a curious mixture of collaborative energy and willingness to support and welcome innovation and creativity. Breaking down barriers between units of administration strikes me as especially important, yet often it cannot be mandated.

My priorities would be to secure graduate student funding for digital work first and foremost, and second to establish faculty incentives for experimentation with digital scholarship.

Cohen: It depends what an institution wants to do. Most institutions that want to support individual faculty pursuits in digital history can take advantage of existing resources in the library or instructional or information technology groups for basic implementations such as **static Web sites**, blogs, or wikis. A digital history center, in contrast, is expensive to set up and maintain, requiring full-time programmers, Web designers, and other technical and nontechnical staff. But if an institution wants to do cutting-edge research, staff is critical, since it can leverage skills across a series of major projects while germinating ideas for new projects.

Turkel: My priority is to help train a generation of *programming* historians. I acknowledge the wonderful work that my colleagues are doing by presenting history on the Web and by building digital tools for people who can't build their own. I know that the investment of time and energy that programming requires will make sense only for one historian in a hundred. But when those few sit down at their computers, I want them to know that they're not alone and to have access to the community, tools, and information needed to succeed in their research or teaching. Only one "institution" can make this happen: the kind of commons-based peer production that can form around open-source / open-access / open-content projects. So my syllabus is freely available online and makes use entirely of open-access sources. I give away code and instructions on my blog and Web sites, and I make a commitment to openness in the grants that I write.

Thomas: As someone who has benefited from Bill Turkel's syllabus and approach to training "programming historians," I appreciate what he is doing. Everything that we developed at VCDH was **open source** and given freely to the community on the Web—syllabi, code, data, documents, collections. What Bill brings up here is the question: What do we mean by "institution"? He refers to the open-source community as essen-

tially the institution to sustain—and he has shown how to build the capacity for this institution. The institutions in which all of us teach and conduct research have a role as well in sustaining the next generation of scholars and scholarship.

Mintz: For historians, the dot-com bust had an unexpected, and highly beneficial, side effect: It slowed the commercialization of online history Web sites (especially by publishers) and allowed individual historians—with technical support from their institutions and financial support from the NEH, the National Science Foundation, the U.S. Department of Education, and other public and private sources—to experiment with digital history.

Many of our projects are less polished than those commercial publishers would have produced. But I would submit that these sites are more inventive, content rich, and accessible than those that were developed commercially. For example, Douglas O. Linder's *Famous Trials* Web site contains a wealth of resources and commentary that is useful not only for students but for scholars as well.[20] Precisely because such sites were not developed for commercial reasons, they embody the elements that characterize the best historical scholarship: extraordinary (almost obsessive) depth, idiosyncrasy, and an infectious passion for the past.

***JAH:*** **I am intrigued with Will's notion of "history in the digital" as an "experience for users—a process, an active, spatial, virtual reality encounter with the past." The term "experience" also arises in reference to museum exhibitions. Do digital history and museum exhibitions have something in common? Does a digital history or a museum visit—both "immersion" engagements—take one into the past or into carefully chosen, clean, digestible representations of the past? Is there something contained about encountering lynching photographs or Holocaust images through a small screen on a monitor? Does digital presentation lend a depth that does something text and photographs in a book can't do?**

Thomas: The digital medium has prompted us to adopt metaphors and analogies for the experience of being online and encountering a "work." We call places on the Internet "sites" and that gives the Web spatiality and evokes the exhibit idea: here at this site you will see things and you can wander around "in" this virtual space. We also talk about Web "pages," evoking the book and the idea that you can leaf or click through a set of pages.

But, these terms hide more than they reveal about the digital medium. They are comforting as transitional or translational terms but inadequate to express the activities we do in the digital space. As producers and creators of sites or pages, digital historians need to think clearly about these terms and what the medium allows that print does not.

Spatiality, it seems to me, is the sense we have of moving through a series or sequence of materials in a bounded area. A digital history site allows people to experience the past in the digital space, but to be effective, to create the sense of spatiality important to the medium, a digital history needs to break with the linear narrative mode of presentation that has dominated historical thinking and scholarship for generations.

[20] Douglas O. Linder, *Famous Trials,* http://www.law.umkc.edu/faculty/projects/ftrials/ftrials.htm.

Every presentation of the past is "chosen" and a representation; indeed, narrative history is the most selective and digested. Digital history probably must be more "open" to be effective. Of course, open narratives can take form in print, Hans Ulrich Gumbrecht's *In 1926: Living at the Edge of Time,* for example.[21]

But the digital medium has different qualities of experience: according to Janet Murray, participatory, spatial, procedural, and encyclopedic. So, digital history shares some qualities with the museum exhibit—its constituent parts are arranged, text is often minimal or "chunked," visitors can walk through the space, visitors have some choice over where to go and what to see. In this sense the experience is participatory and spatial.

The experience of a museum can hardly be procedural or encyclopedic. Procedure relies on the processing power of the computer and its reduction of everything to zeroes and ones. This processing capability does play a role in the virtual space of the digital medium that digital history needs to consider. If a project does not use the processing capability of the machinery, is it really digital history? If it is a glorified fax machine for users, is that digital history? What does it mean to use the processing power of the machine?

The vast hard disk storage capacity of the computer allows a seemingly endless set of data—the encyclopedic—to be assembled in any given project. The huge volume of data seems a requirement in the digital medium. Scale becomes useful in a way that in print, or in the museum space, it does not. But the encyclopedic challenges the craft nature of our work as historians where quality of argument, selectivity of evidence, and stylistic polish are highly valued. And if digital history is de facto encyclopedic, then historians will think twice about building projects that take fifteen years.

It may take decades to sort through the qualities of digital history and the forms and metaphors we use to describe this space. If there is anything that I am concerned about, it is that we will give up experimenting or too quickly settle on professionally accepted forms of digital scholarship.

***JAH:*** **In adopting the oft-used term "experience" in the world of digital history and museum exhibitions, are we saying that other senses are engaged, rather than just the eyes? Does reading, in contrast, allow the development of imagination because of the lack of stimulation of other senses? If we provide "experiences," for example, of "what the Holocaust was like" (whatever that means), how do we know that visitors to sites or exhibitions take away a deeper, richer understanding of history, rather than a voyeuristic hunger for even more realistic representations of violence?**

Frisch: Let me address the question of what might be shared by digital history and public history, what it means to "do" and "receive" and even "experience" history in the public history space, including museums.

If one thing has become clear in all the attention to public history in recent years, it's that it does not automatically produce history that is better, or even all that different. The dilemmas that perplex historians, especially about the relationship between historical scholarship and public discourse, do not disappear, and are usually heightened, for those working in public history. And unfortunately more often than not, the resolution of these inherent tensions has produced exhibits and presentations that are more conven-

[21] Hans Ulrich Gumbrecht, *In 1926: Living at the Edge of Time* (Cambridge, Mass., 1997).

tional rather than less—and rarely very imaginatively exciting in ways made possible by the shift of medium itself, for all the razzle-dazzle of presentation, multimedia, embedded interactivity modules, and the like.

You can make a good case that the much-ballyhooed combination of (relatively) recent academic fascinations with social history, race-class-gender, and cultural studies, has tended to produce museum exhibits that are surprisingly didactic rather than imaginatively open-ended. The tension between displays and objects, on the one hand, and explanatory framing texts and structures on the other, has too often been resolved in favor of the latter. Academic advisers, mandated by NEH funding and frequently overrelied on by those needing and soliciting such support, have reinforced these tendencies.

The result—in many exhibits, documentary film projects, and yes, even Web presentations—has seemed to me often a public history that is controlled, controlling, linear, and didactic, however progressive and historically appropriate the intent and content. Underrepresented is the dialogic encounter, the provocative and unresolved problematizing, and the unmediated experience in an evocative but less controlled and even unpredictable imaginative space. I'm always reminded of the claim that the definitive interactive exhibit in recent years may have been the National Air and Space Museum's presentation of moon rocks, which people stood on line for hours to file past and even touch—an intimate, charged encounter with another world, although the objects looked and felt like just about any other rocks. But stand on line they did, by the many thousands.

In museums and other public history settings and in digital history environments as well, there is a sense that we have not quite caught up with the implications of a different medium—and it may be a more general phenomenon, not restricted to or defined by the nature of digital media and the way historians engage them. One interesting observation about public history has been the need to rescue it from some of its own evangelists, by retrieving the too easily devalued displaced sensibilities of those who have more grounding in and respect for the power of things, of experiences—and finding better ways of combining those sensibilities with the powerful questions, themes, and insights that newer historians, academic and/or activist, have brought in to ventilate the indeed stuffy confines of traditional museum exhibits.

I suspect there may be a similar dialectic need and opportunity in digital history, where the McLuhanesque evangelism of a transformative new medium is only beginning to connect to the practice of history (whether in production, training, or consumption/distribution). For instance—as Bill and others have commented—it has proved hard for Web presentations to offer a truly different experiential mode of presenting and encountering history.

A fundamental, defining promise of digital modes is their capacity for nonlinear movement, navigation, exploration. There's great power in the "web" metaphor—spiders don't think much about paths. Yet I'd say a predominance of historical Web sites are imprisoned by the linear medium-metaphors (books, pages, two-dimensional grids of tabs and sidebars) they ought to be exploding. Not enough of them encourage and support within the site the energy and randomness of discovery-driven and curiosity-propelled Web surfing that we experience in cyberspace more generally. There are intriguing parallels here to what happens in so many history museums—open by definition to nonlinear, random exploration and discovery, yet surprisingly (and arguably unnecessarily) bound in by exhibit scripts, labels, and paths that are if anything more linear and controlling than the

most conventional of museums with rooms of glass cases and sleepy guards—which are occasionally, for that very quality, open to the excitement of unmediated exploration and discovery.

Patrick Gallagher: I am intrigued by the discussions about the online or digital environments because my world is defined by creating real environments that tell stories, display artifacts, create emotion, and most particularly offer learning experiences. Immersion is based on placing an individual in a very particular time and place. We understand from market research that visitors to museums comprehend a concept in more depth when the spaces they are in emulate the reality of the situation.

We work to create places or settings that bring visitors into the story, and as we lead them into a moment, we use artifacts to give the story reality. This is very important to a younger audience, which asks: How do I know it is real? The sense that this event involved real people in real places is what gives resonance to the use of artifacts. That does not mean you cannot tell a story without artifacts. Then re-creation of spaces and things creates the emotional context.

Museums today encouraged social interaction. One of my primary focuses in developing story-based experiences in history museums is to encourage our visitors to engage in dialogue with each other, make this a social, not an isolated, experience. Nothing is more enriching to visitors than to discover something and share the discovery with the person they are with. It is the social interaction that encourages many visitors to attend museums versus sitting at home in a virtual environment. Not to denigrate the virtual environment. That is a logical step in the process for some visitors, pre- and post-visit to the museum. Often it is the virtual environment that encourages the visitor to go to a museum, and following the visit the Web is a logical place to discover more content and dig deeper.

A finer-grained perspective and new technology have pushed the idea of artifact to a new plateau. Oral and video histories, understood as artifacts, have become very important for bringing visitors closer to the reality of a story. I can now have them hear from the person who was directly involved in an event, and that reality generates the highest degree of engagement. If I can see participants' faces, hear their voices, and understand with their exact words the impact of this event or time and place, I have heard the story in its purest sense. This approach has pushed us to re-create voices by playing recordings of someone reading a letter or an excerpt from a diary.

Can you have the same type of personal experience with history online? I believe the principles in a virtual environment are very similar to those involved in telling a story in a physical space. Being able to have more depth or layers is an opportunity, and you can re-create spaces with more reality, but the sense of scale is totally lost. But young people may not have a concern about scale. Often they are very satisfied with the virtual world if that is the only thing available to them.

I do know that generation or age plays a big role in how visitors use both the virtual and physical environments. The virtual world has a very different meaning for a younger audience raised with technology as a given. We grew into this reality; they were born into it. Our research shows that when people of an older generation interact with technology, they always harbor a bit of fear. A younger audience has no fear and in fact feels much more in control.

Taylor: There's one aspect of this topic—the display and representation of artifacts—that I want to explore further.

We still hear people wonder whether digital technology, and the Web in particular, threaten traditional forms of historical documentation: Will books become obsolete? Will museum Web sites undermine actual attendance at the institutions? But I think points raised in the above postings remind us exactly how that is not and will not be the case. A lot of it boils down to the sensory, or physical, experiences with objects from the past that are lost in digital reproductions—experiences that, I think we've seen, few people want to sacrifice.

Patrick talked about the scale that is lost in digital reproductions, and I agree. We may talk about how wonderful it is to see the Emancipation Proclamation via the National Archives Web site, but it's not the same as seeing it in person; pulling up a resized version that is obviously cropped (and maybe color adjusted?) only makes that point more forcefully. I'm sure I'm not alone when I say that such reproductions often make me want to see the real thing in person—to see it as Abraham Lincoln saw it in 1863.

Likewise, digital technology can never emulate the experience of being physically present with an object from the past. Here I speak as a museum visitor—a museum professional probably has a more sophisticated way of describing what I mean—but I think many people find it meaningful simply to be in the same room with an artifact or object (such as those moon rocks that Michael Frisch discussed). The glass case that it sits behind is limiting, to be sure, taking away the ability to touch the object. But it is certainly less limiting than seeing the object virtually on a computer screen. Even the musty smell of some museums, which may be wholly unrelated to the artifacts, lends an authenticity to the artifacts that cannot be replicated online.

Mintz: Efforts to make museums more interactive and hands-on often involve an impoverished definition of interactivity that equates it with entertainment. To me, interactivity entails intellectual interchange. This generally occurs with a companion, but if one is fortunate, it also occurs with a knowledgeable docent or curator who can answer questions on the spot or discuss an artifact in depth.

If the museum experience is to become something more than awe and spectacle, we need to promote enhanced real-time learning that goes beyond what one can read on an exhibition label or timeline.

Ironically, virtual museums may be more capable of this than their physical counterparts. Virtual exhibitions can allow users to magnify objects for closer scrutiny. These exhibits can offer expert commentary and links to glossaries and other reference material. In addition, there is no issue of "flow"; one can spend as much time as one wishes with an object.

Most important, unlike physical exhibitions—which are generally transitory—virtual exhibitions can remain available. Indeed, it is now possible to reconstruct past exhibitions virtually, as in Lisa M. Snyder's extraordinary three-dimensional reconstruction of the 1893 World's Columbian Exposition.[22] What a brave new world we live in, where the virtual can be more alive than the real.

[22] Snyder, *World's Columbian Exposition of 1893.*

Gallagher: I could not agree more that for interactivity, there needs to be an intellectual interchange. In a museum environment we use interactives to encourage visitors' interaction by challenging what they know and understand. It becomes a pursuit of content versus a delivery of content. If an interactive in a museum environment is nothing more than a deep-dive database, why have it? Visitors can go online and find that for themselves. Interactivity in a museum environment also allows us to gather information from our visitors about their beliefs and opinions, information that can be shared with others.

Many museums today try to connect the physical environment with real-time content to keep content up-to-date and fresh. I would not say that is the norm but things are changing.

I am a firm believer from our visitor surveys that a younger generation is looking for the real thing. They distrust many things. They want to see the evidence, to see and touch. While they love their virtual worlds, those worlds are more common for them than physical interaction with collections, spaces, and experiences.

I think there will always be a need for both, and each will push the other to deliver a better-quality interaction.

Thomas: In a 1998 national survey by Roy Rosenzweig and David Thelen, respondents indicated a preference for unmediated history. Although they trusted college professors as experts, Americans expressed a strong preference for the direct experience that museums seemed to offer. Roy Rosenzweig noted that people "preferred to make their own histories." Certainly, the Web and virtual environments have allowed unprecedented access to the materials of the past and reinvigorated history on any number of levels.[23]

The survey also indicated that people were hungry for a more balanced and shared role in constructing the past. One of Rosenzweig and Thelen's conclusions suggested that academic historians take a less top-down approach in the creation of history. The Web's growth has made such collaboration more possible and inviting. There are groups of amateur historians working in specialized areas who are compiling data, arranging and publishing original sources, and contributing to scholarly communication in ways we in the profession seldom appreciate. African American history, Civil War history, and railroad history have active groups building Web sites. One on Confederate railroads, for example, includes thousands of transcribed original documents from the National Archives, newspapers, state archives, and local archives.[24]

Although historians in academe have largely continued to produce scholarship without engaging these groups, we are already seeing whole subdomains of specialized knowledge and original sources take shape on the Web and become the de facto source archives for historians to consult. At the very least academic historians will soon be referring to this scholarship in their notes or citations.

We might imagine a more proximate collaboration in which historians team up with these groups. The Web 2.0 movement might allow historians and the public to make history together rather than separately. The professional barriers are significant, but our professional relevance is also at stake in the digital age.

[23] Roy Rosenzweig and David Thelen, *The Presence of the Past: Popular Uses of History in American Life* (New York, 1998), 178.

[24] *Ibid.*, 188–89; David L. Bright, *Confederate Railroads,* http://www.csa-railroads.com.

Turkel: To what extent should historical scholarship be free? How hard should we lobby for **open access** to primary sources? Should we choose our tools based on the ability, as Dan put it in one of his posts, to "look under the hood"?

Cohen: The debate about openness on the Internet has generally focused on ethical values such as sharing and liberty—openness as "the right thing to do" or appropriate to the nature of education and academia. These are worthy and important values, and ones I believe in. With the exception of one of my books, I have given away everything I've written. And for nearly fifteen years at chnm, it has been a core value that we provide open and free access to all of our archives, publications, Web sites, and software.

But now that we have seen the true nature and impact of the Web, the debate over openness can also be framed in pragmatic terms; often to the surprise of the provider of the open scholarship or primary resource, openness benefits the *provider* as much as the reader or user of a resource.

Let's begin with secondary sources, historical scholarship. In a world where we have instantaneous access to billions of documents online, why would you want the precious article or book you spent so much time on to exist only on paper, or behind a pay wall? This is a sure path to invisibility in the digital age.

There has been a great deal of hand-wringing about what will happen to our time-honored traditions of peer review, vetted publishing, promotion, and tenure. But upon reflection the situation is not that complicated. Writing is writing, and reading is reading. Here's the Web, publish to it, find your audience, critique and debate, build your reputation for being an expert in your area of study.

If this sounds naïve, look at what disciplines other than history have done. For a decade now scientists and mathematicians have been posting open-access articles to arXiv.org—almost a half-million articles at last count. And they are not articles that have been rejected by journals. ArXiv.org contains countless articles that went on to be published in premier journals. Tellingly, when Grigori Perelman solved the Poincaré conjecture in one of the greatest proofs in modern mathematics, he didn't look around for a publisher. He simply posted it to arXiv.org. Law school professors have blogs with thousands of subscribers, and some put substantial interpretive work there rather than in journals, for immediate and widespread influence. Economics professors have substantially reduced their submissions to the top journals because of the delay in publication and the growing recognition that they can have as large an impact (and receive as much credit) from alternative venues.[25]

It is time we historians recognize that we are far behind the curve on open access to our scholarship, as we dutifully continue to write articles and monographs that take years to publish and that few will see in their paper incarnations. I have received orders of magnitude more criticism—peer review—on my blog than I have on paper publications. And while I'm delighted that thousands of people have read *Digital History* in print, *143,000* people read it online last year alone.[26]

On open access to primary sources, many of the same arguments hold true. Also important is what Clifford Lynch of the Coalition for Networked Information has called

[25] Glenn Ellison, "Is Peer Review in Decline?," National Bureau of Economic Research, nber Working Paper No. 13272 (July 2007), http://www.nber.org/papers/w13272.

[26] Cohen and Rosenzweig, *Digital History.*

"computational access."[27] Open access to historical scholarship is about human audiences; open access to primary sources is about machine audiences. Unless we can have machines scan, sort, and apply digital techniques to the full texts of documents, we can't do sophisticated digital scholarship. This is why truly free and open projects such as the Open Content Alliance are more important than Google Books, and why we should lobby hard for this more expansive kind of access to digital resources.

Thomas: Chief among the issues related to open access and open source is the question of promotion and tenure and how historians' scholarship is validated in the academy.

There are different forms of digital scholarship, and it would be useful to outline them and their relative weight for promotion and tenure in the profession (as it stands now). There are:

- course Web sites common, low significance
- Weblogs, wikis increasing, low significance (possibly increasing)
- databases common, significance varies
- editing projects common, significance varies
- "thematic research archives" uncommon, significance varies
- "new model scholarship" uncommon, significance unclear

Our goal at Virginia had been to develop the last two types of scholarly communication so that peer review, publication models, and promotion and tenure cases might proceed with them. But there are institutional disciplinary questions that are not easy to resolve.

The first is the barriers-to-entry problem. Digital scholarship has been perceived as large-scale, grant-funded research, requiring access to technical services and equipment. It has required intense collaboration among librarians, technology professionals, programmers, information designers, and historians. Because the profession of history has instituted few mechanisms for evaluating digital scholarship for tenure and promotion, perhaps the biggest barrier to entry is the risk associated with producing a digital work. Collaboration remains one of the most difficult areas in the humanities to assess for advancement and, unlike in the sciences, there are almost no standards for accepting the wide variety of roles and contributions that collaborating scholars make to a work in history.

The second problem for digital history is embedded in the medium and how it performs. Hypertext theorists have articulated a range of criteria for their work: It is, according to Janet Murray, procedural, spatial, encyclopedic, and participatory. Jerome McGann suggests that the future of literary criticism will be a set of associations we cannot now make or see embedded in text. If these possibilities inhere in the digital medium, then the art of the historian will be to create natively digital ("born digital") works of scholarship.

The profession has rewarded sole-authored narrative works, and the prospect of a medium in which narrative might be multidimensional arouses consternation in some quarters. A story about the complications in this social and cultural problem might be useful.

When Ed Ayers and I published "An Overview: The Differences Slavery Made" as an electronic scholarly article in the *American Historical Review* (*AHR*), the process included peer review by seven scholars on two versions of the article. Most of the reviewers wanted to see "the argument," and they were largely unconcerned with the technical infrastructure or its implications as a system of scholarly expression. They were also deeply

[27] Clifford Lynch, "Overview of the 2006–2007 CNI Program Plan," address at the fall 2006 task force meeting of the Coalition for Networked Information, Washington, D.C., December 2006 (in Clifford Lynch's possession).

concerned with whether digital presentation was "better" or even "necessary." These are fair questions and should be asked. The single largest question, however, was whether we had abdicated our responsibilities to the reader—to guide, inform, interpret, and tell the reader the story, the meaning of the past. After the finished article was released in a form that satisfied the readers, our fellow digital historian Roy Rosenzweig deemed it "hypertraditional."[28]

Some of the most remarkably successful digital history works have not adhered to traditional journal or print models. They have stood largely outside of the review process—Steven Mintz's electronic textbook, for example, or John Lutz's *Who Killed William Robinson?*[29]

I appreciate Dan Cohen's suggestion that we look at other disciplines and see just how much scientists have begun shifting to different publication models. Yet there are real differences. In some disciplines there is a premium on time to discovery and publication that simply does not exist for historians—or not yet. In these areas, and economics is increasingly among them but the sciences lead, the model of digital dissemination and staged data and analysis releases makes sense.

But neither law schools nor colleges of arts and sciences nor history departments have placed blogging high in the list of tenure and promotion activities. The problem is that there are few venues for peer review in the digital medium or venues that offer the imprimatur that the presses provide.

Cohen: This month's *First Monday* has one of the most pragmatic, sensible articles I've read about the promise and perils of open-access books. In "Open Access Book Publishing in Writing Studies: A Case Study," Charles Bazerman, David Blakesley, Mike Palmquist, and David Russell describe their experience in eschewing a traditional publication arrangement with an academic press (what supposedly gives our monographs the sheen of value and gets us tenure). Instead they publish an edited volume straight to the Web.[30]

Along the way the authors discover that many of the concerns that humanities scholars have about publishing in a free and open way are either overblown or simply unfounded. Only one junior scholar (out of the twenty scholars asked to contribute) worries about promotion and tenure. All of the scholars who contribute to the edited volume receive credit for their chapters. More important, the book makes its way rapidly and powerfully into the consciousness of their field.

Surely such success will not happen for every open-access book, and undoubtedly for every *Writing Selves/Writing Societies* there are dozens of unworthy online-only works that are the modern equivalents of vanity press publications. But this case study does show

[28] William G. Thomas III and Edward L. Ayers, "An Overview: The Differences Slavery Made; A Close Analysis of Two American Communities," *American Historical Review,* 108 (Dec. 2003), 1299–1307; William G. Thomas III, "Writing a Digital History Journal Article from Scratch: An Account," *Digital History* (Aug. 2007), http://digitalhistory.unl.edu/essays/thomasessay.html; Roy Rosenzweig made his statement about "An Overview: The Differences Slavery Made" at the annual meeting of the Organization of American Historians, San Jose, California, April 2005.

[29] John Lutz, *Great Unsolved Mysteries in Canadian History: Who Killed William Robinson?,* http://www.canadianmysteries.ca/sites/robinson/home/indexen.html.

[30] Charles Bazerman et al., "Open Access Book Publishing in Writing Studies: A Case Study," *First Monday,* 13 (Jan. 2008), http://www.uic.edu/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/2088/1920; Charles Bazerman and David R. Russell, eds., *Writing Selves/Writing Societies: Research from Activity Perspectives* (Fort Collins, 2002), http://wac.colostate.edu/books/selves_societies/.

that quality writing can find a home—and a large and receptive audience—in an open, online system.

Beyond the questions of business models, scholarly influence, and promotion and tenure, there is also the nagging question Roy Rosenzweig posed in "Should Historical Scholarship Be Free?" At the time Roy was the vice president for research at the American Historical Association and was pushing for open access to the *AHR.* (He got the powers that be to agree to put *AHR* articles online for free, although the book reviews remain behind gates.)[31]

Roy noted that the work of most scholars is funded, directly or indirectly, by the public. Citing the National Institutes of Health's (NIH) recent mandate that grantees share their work openly with the public, Roy wrote:

> historical research also benefits directly . . . through grants from federal agencies like the National Endowment for the Humanities; even more of us are on the payroll of state universities, where research support makes it possible for us to write . . . If we extend the notion of "public funding" to private universities and foundations (. . . major beneficiaries of the federal tax codes), it can be argued that public support underwrites almost all historical scholarship.
>
> Do the fruits of this publicly supported scholarship belong to the public? Should the public have free access to it?[32]

Roy thought this meant that like NIH grantees we should provide open access to our articles. More controversially, the same argument might hold true for books.

I agree with Will that monographs will continue to be important to history and will not be replaced by blogs or other new media forms (at least for a long time). But I think we could discuss the merits of the centrality of monographs to the historical profession. When I was in graduate school, a professor advised me: "Your dissertation and then book will be the one thing for which you will be known for a decade." For most historians, I suppose that's correct, especially with respect to hiring and promotion: your reputation and career in the field will depend on a single text, and so you devote all of your efforts to it. But it would be good to see monographs challenged by other forms of scholarly communication, such as blogs, and to diversify the historian's portfolio in a digital age.

The Modern Language Association began to push in this direction in a recent task force report on evaluating scholarship for tenure and promotion. The task force recommended that "departments and institutions should recognize the legitimacy of scholarship produced in new media, whether by individuals or in collaboration, and create procedures for evaluating these forms of scholarship."[33]

Here, when I speak of blogs, I mean a scholarly version of the genre that emphasizes long-form original research, writing, and criticism, not the stereotypical blog with rapid-fire posts on navel-gazing topics. To me blogs are simply open-access sites that can contain all kinds of scholarship.[34]

[31] Roy Rosenzweig, "Should Historical Scholarship Be Free?," *Perspectives Online,* 43 (April 2005), http://www.historians.org/Perspectives/issues/2005/0504/0504vic1.cfm.

[32] *Ibid.*

[33] Modern Language Association, *MLA,* "Report of the MLA Task Force on Evaluating Scholarship for Tenure and Promotion," 2007, http://www.mla.org/tenure_promotion/, esp. "Executive Summary," 3, http://www.mla.org/pdf/tenure_summary.pdf.

[34] Dan Cohen, "Professors, Start Your Blogs," online posting, Aug. 21, 2006, *Dan Cohen,* blog, http://www.dancohen.org/2006/08/21/professors-start-your-blogs.

Turkel: For the past three years, I've been working with colleagues to create a network of researchers interested in environmental history (NiCHE: Network in Canadian History and Environment). We recently received a multimillion-dollar grant from the Social Sciences and Humanities Research Council of Canada to develop NiCHE into a "strategic knowledge cluster." A key component is the development of a digital infrastructure to support collaborative work. We argued that the best way to serve the interests of all Canadians is with a firm commitment to open access and open source. Since the NiCHE community includes many of the most prominent environmental historians in the country, we are able to provide rigorous peer review for open projects.

This funding both allows and requires us to challenge traditional modes of scholarly production. I've recently begun writing a book called *The Programming Historian* with my colleague Alan MacEachern, the director of NiCHE. Our goal is to teach practicing historians how to use programming to augment their ability to do digital research. The book is being written online using wiki software and is open to the public. Colleagues have already begun to send us comments, questions, corrections, and suggestions for improvement. By the time this journal goes to press, the site will be open to the public.[35]

We feel the book addresses concerns that historians will have as they begin to do digital research:

> 1. You should be able to put what you learn to work in your research immediately. We think many beginning programmers lose patience because they can't see why they're learning what they're learning.
>
> 2. Digital history requires working with sources on the Web. This means that you're going to be spending most of your research time working in a browser, so you should be able to put your programming skills to work there.
>
> 3. You will have to be somewhat polyglot. Individual programming languages can be beautiful objects in their own right, and each embodies a different way of looking at the world. When you're first getting started, however, you need something more like a pidgin.[36]
>
> 4. Open source and open access are good things. We're providing open access to this book. As we develop it, we'll be searching for ways to incorporate the peer review and continual improvement that characterize open-source projects. We also build our work on top of other open-source projects, particularly Python, Firefox, Zotero, and the simile tools.

Thomas: Producing "scholarship that matters" will be the driving criterion in judging digital history. My view of the tenure and promotion considerations here comes from watching the process unfold in a range of places where the production of scholarship that matters is the key criterion. The fights have not centered on a divide between traditional and progressive scholars but instead on how to assess the digital scholarship. Numbers of hits have only a partial bearing as an indicator. Other measures have been considered as well, borrowed from the sciences—number, size, and quality of grants secured. Open access has not done anything to clarify this for departments and colleagues.

[35] William J. Turkel and Alan MacEachern, *The Programming Historian* (Network in Canadian History and Environment, 2007–2008), http://niche.uwo.ca/programming-historian.

[36] Manan Ahmed, "The Polyglot Manifesto," online posting, May 22, 2006, hnn (History News Network) discussion list, http://hnn.us/articles/25354.html.

There have been almost no venues for digital scholarship to be assessed, validated, and disseminated other than through open access and Web site development. But I believe that there will be, and that university presses can and should play a role. And I think it will be essential for digital history scholars to consider not only how to produce scholarship that matters in this medium but also how to enable it to be understood, assessed, and validated within the discipline.

The monographic system has been criticized for not producing scholarship that matters, but it provided credentials and disseminated scholarship. The Web has changed the dynamic of scholarly dissemination, but the effect on credentials seems less clear to me.

In the context now of the Kindle (a book-sized reading device linked to Amazon's supply of online books) and other new technologies that make print on screens truly readable, we may be on the brink of a much fuller integration of analog/print and digital media technologies.

Turkel: Is it even possible to do scholarship that doesn't become digital? Say you consult physical sources in a library, archive, or museum, write your notes on three-by-five cards, and type drafts on a typewriter. You still have to use networked computers to access finding aids. You have to prepare an electronic copy of your work so that it can be published in paper. Everything is at least partly digital. The idea that digital history can be marginalized depends on the perception that the Internet is somehow external to our real business. But seriously, how much research can we get done during a power outage?

Yochai Benkler argues that relevance filtering and accreditation can be produced on a peer-production model and gives many examples. There's really nothing stopping us from implementing these same mechanisms in the academy.[37]

Anyone who types "digital history," "digital humanities," or "history and computing" into a search engine like Google will immediately find the work of the people in this conversation and their colleagues, and the databases, Web sites, and blogs they've created. We're already providing a kind of accreditation for one another that the Google algorithms recognize, one that is based on scholarly citation.

Mintz: New digital technologies have encouraged particular kinds of scholarship—and of reading—and as with virtually all forms of historical change, the impact is mixed.

It has become a commonplace that the electronic screen encourages panning and scanning rather than the intensive analysis that was long considered the very essence of serious reading. It also seems fairly clear that people are most likely to read shorter rather than longer texts on the screen.

While it is possible to print out electronic articles (or even books), there are impediments, not least the cost and wear and tear on printers. The printed sheets are much more difficult to file or review than published journals or books.

I favor open access, but for the reasons I have mentioned, I don't think that this will lead to the demise of traditionally published journal articles and books.

Cohen: Although in the interest of progress I like to make the strongest possible stand for open-access digital publication, the problem of abundance haunts us here as well.

[37] Benkler, *Wealth of Networks,* esp. 59–90.

Print and publishers, by virtue of limited pages and book lists—and thus the necessity of the editorial and review process—reduced output in a generally helpful way. Since the Web is limitless and easy to publish to, there are a lot of poorly written and thought-out materials online. So the key for academia is how to reestablish filters and validation.

I appreciate Bill's point about the Web having its own methods for raising the best and lowering the worst. And I like the way the Web puts all scholars on the same footing, with equal access to an audience no matter their institution or location. One of the things I like most about Google Reader is that everyone's writing is reformatted into exactly the same design and font, so only the quality of the ideas and writing matters.

I agree with Will that we also need to focus on more traditional ways of separating the wheat from the chaff. We absolutely need to find ways to explain why a digital project advances a field (or not), how it relates to other works in the field (including monographs), and yes, why it is (or is not) worthy of tenure and promotion. As digital historians, we need to produce a more sophisticated criticism of our own work.

***JAH:* How has technology changed your research methods? How could it? What is on your wish list (if you only had the time or if someone else would create it)? What would you like to see technology do in your own research?**

Frisch: Let me open with an example from my own practice and interests. We're historians—not librarians or archivists thrilled and propelled by making things available, but researchers/scholars/activists whose concerns are instrumental: What can I *do* with it and to what end? How do I do it? And what happens—what changes in practice, concretely—when I do?

As I noted earlier, a central paradox of work in oral history is that it is defined by the generation and collecting of recordings, which are then generally ignored in favor of text transcriptions, on the assumption that recorded media are so cumbersome as to be unworkable. And hence transcription is necessary despite the widely acknowledged limits of the process—at the level of language, not to mention the lost dimension of affect, expression, gesture, body, space, context, whatever is recorded but nonlexical. The limits of transcription and text have been a price willingly paid for ease of access, research, shareability, and so on.

Hence the point for this discussion: technological tools that make it possible to work with audio and video directly, whether in modes related to text transcription or apart from it, have enormous implications for basic historical work—by making accessible dimensions of meaning and expression, many quite germane to historical inquiry, that are literally invisible or inaudible in conventional research with the texts. Technology changes research—changes "doing history."

An illustration: One of my doctoral students, Betsy Plumb, has extensive experience interviewing World War II vets for a national museum. For her dissertation, she has developed access to remarkable collections of well-indexed digital video of interviews of such veterans—indexed *as* video and audio, not text. She is interested in the return/adjustment experience often discussed in these interviews. What is intriguing for her is how working directly with the video and audio dimension will matter analytically in how she explores those sources, what she is able to find in them, and how it may resonate with what she

knows, from her own interviewing experience, to be present, sensed, and potentially revealed in the charged space of interview-generated dialogue. In other words, the capacity to work directly with the fuller dimensionality of the evidence will meet the fuller sensibility of the research experience and research questions dependent on that fuller dimensionality. The result, I hope, will at once be better history and open a parallel inquiry into how video and audio evidence matters and can more normatively be made requisite in similar historical research. Doing history with digital tools working on digital evidence may change the research, the production process, and ultimately our understanding of the history itself.

Is that necessarily the case? How can we begin to map the terrain of the intersection defined by the question, from points of enormous consequentiality to tracts of "just more, not different"?

Cohen: We can identify three main areas that might be improved through the Web and computational methods:

1. Discovery of sources a scholar may wish to examine more closely
2. Analysis of an assembled research collection, that is, investigative processes on ad hoc corpora
3. Writing or other forms of authorship, that is, the communication and sharing of the products of research

Digital work is going on in all areas, and historians should join in the conversation so they can be sure that the resulting landscape of research is favorable to their needs.

Fifteen years into the age of the Web, we take the paradigm of the "single-box search," made famous by Google's spartan home page and its uncanny ability to find relevant documents in a sea of billions of Web pages, for granted. But because of Google our expectations for research tools and finding aids have changed radically while most of the raw materials for historical research remain partially obscured behind technologically unsophisticated online catalogs and digital finding aids. New digital technology can vastly improve the odds that scholars find sources that are relevant to their current projects or that may spark new ideas.

Skeptics might say that digital search is no substitute for old-fashioned legwork. Although almost every historian has probably benefited from browsing the stacks and bumping into helpful sources, books can only be arranged on a physical shelf in one way, resources are often distributed across multiple archives, and physical layout and distribution can hide interesting and relevant materials from even the most dedicated researcher.

The situation cries out for better research tools. David Mimno, for instance, has shown the power of "virtual shelves," or the simulated browsing of stacks that cluster books differently depending on a particular researcher's choices while also allowing for surprising and welcome finds. He creates these virtual shelves by scanning the full texts of books and applying document-classification algorithms to them. Search tools that look inside books rather than just at the spines or the subject headings are already available, such as Google Book Search. New online library catalogs are coming that move beyond the undifferenti-

ated match lists of a pre-Google era, and I suspect historians will warmly welcome these interfaces.[38]

Another model for this phase of research is bringing sources to scholars rather than waiting for them to surf over to a library or archives Web site. In a recent study by the University of Minnesota library, 77 percent of scholars said they would like to get content updates via e-mail or RSS—to receive notification when the library acquired a book or document relevant to their research. Some libraries are experimenting with feeds and blogs of new accessions.[39]

Once scholars find materials, they begin sorting, note-taking, annotation, and thinking and interpreting. In the past this involved paper: books with marginalia, photocopies, folders, Post-Its, three-by-five cards. But paper is no longer adequate to corral the abundant digital record as well as citations, PDFs, notes, etc. The Zotero project originated from the simple observation that we historians are doing more and more of our research in the Web browser, yet the products of that research were being filed into a variety of unconnected and unsearchable silos online and off.

Machine-readable texts and metadata present interesting new possibilities for research since the computer can easily scan the entirety of a personal research collection for patterns, words, and other entities. I fully understand the critique of these new computational methods given their checkered past and similarity to some of the least nuanced methods of quantitative history. Does it really tell us anything new about the Bible to discover that Jesus is the most frequently mentioned proper name?

But just because some computational researchers have done silly things with digital texts and images is no reason to doubt the potential for helpful new digital tools and methods at this stage of research. In an examination of the *September 11 Digital Archive,* for example, one can almost precisely map the religiosity of different regions of the United States by geolocating stories involving prayer from the archive's massive database of personal recollections.[40] Perhaps the evangelical exurbs are obvious to us today, but this is the kind of prospecting and analysis that a future historian will be able to do with digital archives—and what we might be able to do once more of the past is digitized.

Within the next decade we will be able to generate a very accurate and complete database of every single use of the Bible in the Victorian era. Scholars will be able to take a comprehensive look at the use of the Book of Job or of the Old versus the New Testament across the entirety of Victorian publications. Will this affect our understanding of Victorian religion and culture?

I suspect that such "distant reading" (as the literary critic Franco Moretti has called it) will complement, rather than replace, our traditional close reading, helping scholars navigate the thicket of their digital research to find materials to focus on, relate, and combine into a thesis.[41]

The third and final stage of the research process is the creation of works based upon or referencing the materials examined. I've already commented on the possibilities for digital

[38] David Mimno and Andrew McCallum, "Organizing the OCA: Learning Faceted Subjects from a Library of Digital Books," paper delivered at the Joint Conference on Digital Libraries, Vancouver, BC, Canada, 2007, p. 2, http://www.cs.umass.edu/~mimno/papers/f129-mimno.pdf.

[39] Wendy Pradt Lougee, "Promoting Digital Scholarship: What Do Scholars Do? What Do Scholars Need?," Nov. 2007, p. 27, http://www.clir.org/activities/digitalscholar/.

[40] Center for History and New Media and American Social History Project/Center for Media and Learning, *September 11 Digital Archive: Saving the Histories of September 11, 2001,* http://911digitalarchive.org.

[41] Franco Moretti, *Graphs, Maps, Trees: Abstract Models for a Literary History* (London, 2005).

publication. Digital technology also has the potential to make more from and distribute the secondary products of scholarship: the bibliographies, notes, personal finding aids, and assessments by scholars of which items are important and unimportant in an archive. Scholars have these files stuffed into their offices and their laptops, and we have done remarkably little to share this "hidden archive."

Finally, digital media can help researchers with common interests find each other. We historians tend to equate research with the *solitary* pursuit of the past and the truth. Given how well the Internet enables communication, perhaps greater collaboration can arise in the digital age.

Turkel: Digital technologies allow a more fluid research strategy where you can be doing everything at once, all the time.

Until your interpretation stabilizes (or you lose interest in a project):

- You can keep refining your ensemble of research questions.
- You can use tools like spiders and RSS feeds to provide a constant stream of potential sources.
- Unsupervised learning methods reveal clusters that help direct your attention.
- Adaptive filters track your interests as they fluctuate.
- You create or contribute to open-source software as needed.
- You write/publish incrementally in an open-access venue like a blog or Web site.
- You participate in a community of peers and your research process is subject to continual peer review.
- Your reputation develops.

Sword: I second Dan's comments about change as the only constant in new media development and the need to be open to trying new tools. Yet the tension between the rapid life cycle of new media development and that of more conventional modes of scholarship is also a source of trepidation for those asking, "Where should I start?" Steve Mintz helped kick off our conversation by giving us "overlapping stages" in the evolution of digital history as a field. Overlap seems to me the key point—and the key challenge—for historians who are not sure they want to commit to staying ahead of the development curve.

As a graduate student, jumping on the new media train seemed easy and exciting because everything I was doing was new. I would—and do—tell technically savvy graduate students to take their cues from Dan's list of digital tools and to check out the resources Bill has generously offered "programming historians." I'd say that the latter count for slightly more than Bill's estimated one in a hundred would-be historians. However, those most interested in this track usually have prior experience as programmers. But for those without a dual professional background, learning to "do everything at once, all the time" is a daunting prospect.

My interest in digital history as a medium grew out of my work on the "hidden archive" at the heart of my current project. The apparatus I developed to collect information took on a life of its own. It has required a great deal of care and feeding to keep it going, and its ultimate fate remains to be determined. Keeping it alive (technically viable) will require renewed investment in software and skills that I'm not sure is the best use of

my time and resources. But if I let my database sit unused for five or ten years, odds are it (unlike a box of note cards) will be unusable.

The development of tools for sharing hidden archives, perhaps resting on common professional tools and development standards, is at the top of my digital wish list. Zotero is a very promising start but only now has it reached the point where it makes sense for me to think about using it instead of Endnote. Zotero is conceptually superior, but it conflicts with the proxy server at my host institution, and problems converting my Endnote libraries have meant that I'm using it alongside my older programs. This kind of overlap makes "tool kit" too tidy a metaphor for the resources I use; my hard-drive is starting to feel like a magically expanding junk closet.

As I wrestle with halfway measures that can cause as many problems as they solve, I've become unsure about what to advise colleagues who are trying to integrate technology into an existing research agenda but are not committed to becoming digital/programming historians. Most of us already make extensive use of tools chosen because they are (or were) the easy, institutionally supported default. And many of us continue to need to organize materials that are not already digital—and which are not going to be, unless we make it happen. Assessing the transition costs can be a time-consuming venture in itself. I find myself wishing for historically minded tech support. I also want more programming historians, but the generosity of this small group is already overtaxed. There has been some discussion at the *JAH* about whether the *Journal* might have an institutional role to play.

Mintz: How has digital technology altered my research? In four ways:

> 1. It has greatly expanded the range of sources—primary and secondary—that I use. It has introduced me to unfamiliar archives and collections and scholarship within and outside the discipline of history.
>
> 2. It has significantly improved my ability to retrieve the sources that I have read. Keyword searches allow me to recover, annotate, and cite sources in ways that were extremely difficult in the past.
>
> 3. It has broadened my imagination. I have embraced audio and visual sources because they are much more accessible than in the past. I have created interactive, inquiry- and problem-based teaching and learning activities on the *Digital History* Web site because new technologies encouraged me to rethink the very nature of history teaching and to reimagine it as active engagement.
>
> 4. It has enlarged the way I disseminate my scholarship and interact with other scholars. I engage in ongoing conversations with specialists on slavery and on childhood every day, through listservs like H-Slavery and H-Childhood. I read blogs and Web sites—like History News Network (HNN)—that familiarize me with scholarship in areas outside my specialties. I "publish" not only in journals and books, but in online venues that reach nonspecialists. At a time when fewer newspapers publish book reviews, the online world has given me a way to try to keep up with the profusion of scholarship outside my areas of expertise.

The expansion in our access to sources and bibliography, our ability to retrieve and process information, our conception of scholarship, and our publication venues is astound-

ing and worth pondering. In short, new digital technologies have been utterly transformative in the way I (and I suspect most of us) do scholarship.

Taylor: I'd like to pull together some of our thoughts in order to emphasize what is for me one of the most significant impacts of technology on research: visualization.

The digital medium is a visual one and has already helped us see the past in ways that were difficult to do before. This has happened on several levels. There's the ability to access images and video with new efficiency and therefore to make these forms a more central part of historical analysis. There are the possibilities for mapping: the plotting of data though GIS maps to see the spatial dimensions of people's lives or capturing movement through animated maps. Even databases have helped us to see social networks, such as families and communities, with new clarity. I am currently exploring how to visualize family networks in ways that also capture the migrations so often a part of their lives (enabling me to get beyond the static and one-dimensional family tree, organized by generation, that we often see in a preface or appendix to a book).

For me this has been a striking aspect of digital technology—the opening up of ways to visualize the past and to make the visual integral to historical analysis. For this reason, getting back to Michael Frisch's point about consequence versus more of the same, I think this technology does indeed carry with it enormous potential to invigorate historical research.

Frisch: On research, I was struck by Dan's use of "distant reading" to describe the new capacities digital history makes possible: how a new digital History Making (the helpful term from David Thelen and Roy Rosenzweig) flows from the incredible digital history—small h—in the form of vast collections of easily accessible and explorable sources.[42] This complements, he suggests, the venerated "close reading" that until recently has been about all we could usually do with sources.

But we should not take the contrast between distant and close reading to define digital history, a temptation invited by our fascination with new powers of reach and access. This is because while digital "H"istory (research) and digital "h"istory (sources) are clearly connected in practice, meeting in most cases at right angles on the Plains of Vast Scale, they are nevertheless separable notions.

As Amy suggests, digital capacities enhance research with all kinds of sources and scales. GIS and various forms of visualizations and other analytic representations or manipulations can be, and have been, as liberatingly innovative in dealing with bounded, proximate data as they are with unbounded and globally distributed datasets. New tools for engaging oral history sources in their primary media illustrate the point: some of the smaller-scale engagements unfolding new capacities for dealing seriously as historians with the orality, performance, and embodiment in these documents have been more productive, instructive, and exciting than the imperfect uses to which very large collections of digital audio and video interviews have been put.

So I suggest that focusing on the research uses of digital history may help broaden the range of practice and application (and historian participants) for which the digital history discussion is relevant and inviting—generating new dimensions of descriptive, ana-

[42] Rosenzweig and Thelen, *Presence of the Past,* esp. v–x, 1–13, and 15–36.

lytic, representational, and even narrative power and transforming research across a much broader and more inclusive spectrum of historical practice. It is this impact, more than just the dazzling new collections of reachable sources, that is evident in our discussions of training, pedagogy, publication, peer review, and public engagement.

***JAH:* What is the role of journals (or academic publishing more broadly) in these new projects? How might journals embrace such projects? How might digital history change the publication and dissemination of scholarship (beyond the current model of putting the print online with a search engine)?**

Thomas: At the very least the journals could review more digital works, as the the *Journal of American History* is currently doing. Journals could also shape how we use and understand these works through special issues or regular sections devoted to the latest works in digital scholarship. But journals will have to adjust or they may find that they are no longer keeping up with what many scholars are using in their teaching or research. New knowledge, new interpretations, are being produced as digital history in formats and using hardware/software systems that journals may not run. Yet these works may also be shaping the profession, disseminating scholarship, and influencing teaching.

Frisch: Here we have the *JAH,* a traditional publishing medium, opening itself to an innovative interchange about the medium of digital history—and yet the question at the bottom of the list in number of responses is the one about traditional publishing and digital history. How might we close read this? Is it a source evidencing something, and if so, what?

This curiosity may be related to the point a number of us have made—that digital history discourse has generally been elaborated more in terms of broad capacities, expanding sources, resources and accessibility, and the tools/technologies making them possible and less in terms of what historians are doing, or could do, with all this. Which is to say, digital history's consequentiality in research and interpretation, in the presentation of scholarship that is the central function of a journal, whether the formats are traditional or not so traditional.

Sooner or later, doing history involves telling a story, making an argument, identifying a theme or concern, coming to a conclusion. It's not enough to endlessly celebrate the open-endedness of process, the multiplicity of sources, and the unlimited questions and answers these can support.

In oral history something similar has been gathering momentum: For too long the "raw" and the "cooked" of archives and documentary have controlled the imagination of the field—vastly underutilized, inaccessible primary sources in the archives and highly controlled representations made by those privileged to blaze a path through the forests of data only they have been able to enter and report on to the rest of us. Much more exciting is the prospect, especially supported by new digital tools, of opening up that data, that exploration, that path making to anyone who wants to try it, subverting the privilege of the documentarian and the control of the archivist. A constellation very, very resonant

with the way the digital historians in our "Interchange" have described what is happening to the traditional circuitry of scholarship.

The goal is not to displace argument, synthesis, interpretation, and understanding in favor of a celebration of infinite possibility, but to broaden the participation in a dialogic process of engagement, questioning, and reflection on answers. Paths through the woods still matter, and some will be better than others. But there are lots of different ways of being better, and reasons for going through the forest, and valid destinations for which paths are sought.

The *JAH* will always want to present examples of well-made paths that matter: excellent history, however defined. For traditional publishing what's exciting about digital history—from research capacity to modes of presentation—is the potential to expand what this means, who is able to do it, who is able to receive it, and how we can build communities of discourse around shared concerns and inquiries of consequence.

***JAH:* Our special issue on Hurricane Katrina offers enhanced, open-access versions of the articles, along with other resources. We hoped to give the public access to, and chances to engage with, the issue's scholarly arguments. Is that a direction journals should pursue? We are thinking about starting a digital history section here at the *JAH* and are wondering what that could be—something like the Katrina issue or something else entirely?**

Cohen: Concerns about peer review, promotion, and tenure have arisen with respect to digital scholarship. It seems to me that the *JAH* is one of a handful of institutions that is in a good position to allay such concerns by supporting, reviewing, and publishing the best in online historical work.

I would encourage the *Journal* to take the most expansive view possible. In addition to enhanced, open-access articles such as those in the Katrina issue, the *JAH* could republish the best blog posts from the past quarter (perhaps following a process similar to the current article review system and asking for further edits from the authors); ask creators of new digital resources and tools to explain the intellectual (rather than technical) work behind them, to ratify such work as worthy of credit; add "trackbacks" to regular articles so that online references to, or reviews of, *JAH* materials can be aggregated on the *JAH* site (thus providing another layer of peer review and community around the *Journal*); have live and open Interchanges like this one (essentially group blogging) on a variety of topics.

Ideally this more expansive view would blur the distinction between print and digital. It would begin to demythologize print.

***JAH:* We have talked about Digital History 3.0+. Given such developments, looking forward five or ten years, how will the profession be different? How will the discipline be different? What changes will institutions have to make to be ready for Digital History N?**

Mintz: One shift involves student expectations. Already, our undergraduate students ex-

pect a much higher level of classroom engagement than in the past. Our students take it for granted that our lectures will include multimedia and that our upper division courses will incorporate hands-on, problem- or inquiry-based projects that allow them to do history. We need to ensure that instructors will be prepared to meet these expectations.

This will require changes in graduate training. We do a highly effective job training graduate students to be researchers and writers (although many grad students learn almost nothing about quantitative methods or social science theory). We do a less effective job preparing them for other aspects of their professional lives, including teaching, grant writing, and even publishing.

Many search committees are favorably impressed by graduate students who have developed online resources or an electronic portfolio. We have a responsibility to give our grad students the training and support they need to meet these rising expectations.

Apart from shifts in training, there are possible changes in the way scholarship is published and disseminated. It seems likely that open access to scholarship will become much more common (perhaps encouraged by requirements that publicly funded research be openly published online). Key scholarly debates might be played out online as well as in printed venues. Another possible development is increased collaboration. History, unlike most disciplines in the social sciences, has been characterized by individual researchers toiling in archives and publishing by themselves. I think that new technologies have already begun to encourage more collaborative approaches to scholarship, as scholars work together to create databases (like *The Trans-Atlantic Slave Trade* database) and to grapple with shared issues.[43]

Many issues facing our society have a fundamental, if largely unrecognized, historical dimension. These include such topics as the U.S. record of democratizing foreign nations or the role of emotions in politics and foreign policy or the place of moral panics in shaping domestic policy. New technologies have given historians new ways of disseminating our knowledge. But the future will tell whether we successfully seized on this remarkable opportunity to combat historical illiteracy.

Cohen: Steven's summary is an excellent one. I agree that there will be much more online dissemination of history, including new forms that may not be peer reviewed in a traditional fashion (but might be peer reviewed through new mechanisms) and forms that are of different shapes and sizes than traditional monographs and articles. Revolutionary online collections, such as the Open Content Alliance and Google Books, will significantly alter the research process. For these reasons and others, some institutions are putting a greater emphasis on new media training. (George Mason University made it a core part of graduate education eight years ago.)

The larger question about the future is whether historians are going to be active in shaping it or reactive. We can let the technology develop in other fields and then adopt it in whatever shape it happens to take, or we can try to tailor the technology to our particular needs over the next decade. Scholars in most other disciplines are currently far more active than we are in exploring, testing, and creating new methods of scholarly communication, research, and collaboration in the digital realm. It would be a shame if we ceded the possibility of shaping the future to others.

[43] David Eltis et al., *The Trans-Atlantic Slave Trade* (CD-ROM, Cambridge University Press, Cambridge, Eng., 1999).

Frisch: The larger issue is professional culture and how it does (and doesn't) change. I've worked on the calcified formats of academic meetings. Virtually *everything* about historical scholarship has changed profoundly—not just now, via technology, but in every other way and for over a century. And yet there we are, at each year's annual meetings, enacting modes of interchange that have not changed very much: Three or four papers read aloud, some often-formal and read comments, and a couple of questions and answers for which there is, regrettably, no time.

So while I do not count myself a digital history insider or evangelist, I share the sense that the new digital dimensions have a much-needed capacity to shake things up, requiring as they do some pretty fundamental rethinking of the basic structures of professional (and not-so-professional) history. The challenge has got to be healthy.

Sword: To reiterate some of the excellent points made here: The new media are profoundly changing the ways most historians work, whether or not we are self-conscious about how we are becoming digital. As Dan has noted, it is in the discipline's interest to be proactive, rather than reactive, in response to these changes. Institutions and individuals who have steered clear of the cutting edge have an important role to play here. Even those who do not envision themselves shaping new tools or expressive forms can—and should—work to make sure that the rising generation of scholars has the opportunity and the institutional space to experiment with digital media. In addition to funding and professionally sanctioned forums for expression, there needs be space for this in the graduate curriculum. The digital pioneers present in this conversation—and the much-missed Roy Rosenzweig—have made it very easy for others to introduce themselves and their students to the field. Check out their online syllabi; you might well be able to add an "Introduction to History and the New Media" to your institution's roster of methods courses.

## Appendix

**algorithm** An algorithm is a list of well-defined instructions for completing a task. In digital technology it is usually a set of mathematical or computational instructions for processing. Algorithms are often compared to recipes.

**analog (compared with digital)** In its informal usage here, analog is the opposite of digital. The physical hard copy of an article is its analog version; its online hypertext markup language (HTML) form is its digital version.

**application program interface (API)** An API is a set of tools, specifications, and resources used by programmers to create computer programs within a particular environment, such as an operating system (for example, Windows, Mac OS, or Linux); many Web applications (for example, Google Maps) also have APIs. APIs allow sophisticated programs to be constructed easily from smaller pieces that have already been written and debugged.

**beta** A beta is a version of an application used for testing. Developers use alpha and beta versions of an application to identify and fix problems in it. An alpha release is the first stage of testing, an early version that is incomplete, unstable, and likely to shut down unexpectedly. Alpha releases are tested by a small set of users, often limited to those within an organization. A beta version is used for the next round of testing; it still has bugs and uncompleted features, but it is closer to the final version of the application. Developers often make beta versions available to the public for testing in order to attract a wide variety of users and computer setups, which provide more comprehensive testing.

**blog** A blog (short for Weblog) is a Web site that can be easily updated by one or more users. "Posting" to a blog can typically be done by someone without any knowledge of programming, and the resulting posts usually appear with a time stamp and in reverse chronological order. Adding content to a blog is known as "blogging."

**digitization** Digitization is the act of making a digital copy of a nondigital artifact. Scanning the pages of Martha Ballard's diary and creating digital images of them is an example of digitization.

**document and topic clustering** Clustering is an algorithm-driven technique for identifying relationships among words, phrases, and documents. In text, that might involve grouping particular keywords together. For example, Franklin D. Roosevelt, New Deal, and Great Depression might be clustered together. By keeping track of how frequently terms appear in proximity to one another, clustering can be done automatically.

**iterative** Iterative refers to design through repetition. Iteration is the method by which designers of computer applications continually develop and refine an idea. For an example of iteration, see "beta" above.

**mash-up** A mash-up (or Web application hybrid) is a Web application that combines two or more tools or sources of data, for example, combining census data with a Google map that indicates geographic location.

**open access** Open access means that the content is freely available to anyone who wishes to access it. Open source refers to open access to the code of an application. (See "open source" definition below.)

**Open Content Alliance (OCA)** The Open Content Alliance, launched in 2005, puts works already in the public domain online. It scans books, which are then available to participating search engines. The goal, according to the OCA Web site, is open access to "a permanent archive of multilingual digitized text and multimedia content." (See http://www.opencontentalliance.org/faq.html.)

**open source** Open source refers to the practice of making the source code of a program or application freely available. Source code is the original set of instructions in a program that tells a computer what to do. In the creation of most programs, the source code is compiled into a computer-executable form, which cannot be read by humans. By making the original code freely available (open source code), the program's creators allow other programmers to see how a program works and make changes to it.

**podcast** A podcast is a series of audio or video files distributed online. The files may be downloaded to a computer or portable digital media player, such as an iPod. The term combines the words "broadcast" and "iPod."

**recommendation systems** Recommendation systems are a type of information filtering. They attempt to present artifacts (movies, music, books, news reports, images, Web pages) that are likely to interest the user. Typically, a recommendation system compares the user's profile to reference characteristics, whether ones related to the work being presented (the content-based approach) or to the user's social environment (the collaborative filtering approach). An example of a recommendation system is Amazon's "Customers who bought this item also bought" feature. (Definition adapted from *Wikipedia* entry. See http://en.wikipedia.org/wiki/Recommendation_system.)

**regular expressions** Programmers and other computer users can use regular expressions to describe, and to locate during searches, patterns of letters or words within texts. For example, the regular expression "gr[ae]y" matches "gray" or "grey." More complex regular expressions can find two words near each other or decipher abbreviations. The term is commonly abbreviated as regex or regexp. (For a tutorial, see *Regular-Expressions.info,* http://www.regular-expressions.info/tutorial.html.)

**RSS (really simple syndication or rich site summary)** RSS is an easy way for Web sites to alert other Web sites to new content on their sites and to pass along that content without someone actually visiting the site. Blogs and podcasts rely on RSS to send their text and audio to subscribers.

**social networking** A social network is an online community of people who share similar interests, hobbies, and/or values. Social networking is taking part in that community.

**tag, tagging** A tag is a user-generated, freely chosen, publicly accessible label for something. Individuals and groups can use tags to create ad hoc taxonomies for their own purposes. Since tagging is a bottom-up enterprise and since many Web sites allow users to search through all users' tags, a fluid, collective, and messy categorization emerges. Thomas Vander Wal coined the term "folksonomy" to refer to the outcome of collaborative tagging.

**text mining** Text mining refers to the deriving of high-quality information from text. "High-quality" in text mining usually refers to some combination of relevance, novelty, and interest. Typical text-mining tasks may include text categorization, text clustering, and document summarizing. (Definition adapted from *Wikipedia* entry. See http://en.wikipedia.org/wiki/Text_mining.)

**Web site (static or dynamic)** A static Web site is one on which content does not change through user input. Static Web content is written in advance and "published" online in a more or less invariant form. By contrast, on a dynamic page, the information is selected from one or more databases by a computer program and assembled on the fly. For example, the *JAH* home page is static, whereas a search-results page in *Recent Scholarship Online* is dynamic.

**Web 2.0** Web 2.0 refers to the evolution of the Internet from a place where Web sites disseminated information to users, to a platform (a place to run computer applications) that enables and encourages collaboration among and participation by its users. The rise of blogs, wikis, and user tagging is the mark of this second phase of development of Web technologies. Many, however, decry the phrase as marketing hype. (The classic source is Tim O'Reilly, "What Is Web 2.0," 2005, http://www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html.)

**wiki** A wiki is a Web site that allows collaborative editing of its content and structure by its users. The programmer Ward Cunningham (1949–) coined the term from Hawaiian *wiki-wiki* (quick-quick). (Definition from *The New Oxford American Dictionary.*)

**Zotero** Zotero is a tool that helps users collect, manage, and cite their research sources within the Firefox Web browser, extending the functionality of the browser. (See Center for History and New Media, *Zotero: Leveraging the Long Tail of Scholarship,* http://www.zotero.org.)