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Cultural Heritage, Memory Institutions, and Technology.

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The relationships between technology, culture, and time are complex, difficult, and very important. Technology changes over time. Changes in technology lead to changes in culture. Changes in culture create a need for memory. Memory requires technology, but changing culture makes the use of technology more difficult. How are we to sort out these relationships?

Part 1: Technology and documents

Technology and the rise of “the information society”

We speak of the rise of “the information society”, but this is not correct because *all* societies are “information societies” and always have been. The reason is simple: community (“society”) arises from and depends on collaboration and communication. One cannot have collaboration and communication without information. Prehistoric communities depended on gestures, speech, images, and objects to communicate.

When people speak of “the rise of the information society” what they really mean is the rise of the “*document society*.” It is the development and use of documents (records of every kind) through the techniques of writing, printing, telecommunications, and computing that allows makes modern life and memory systems increasingly different from prehistoric times.

One can think of the rise of these techniques in terms of four lines of development: writing, printing, telecommunications, and copying.

Writing. Speech is transitory and local. Spoken words are audible only where and when they are spoken. Writing mediates speech by making it permanent or by providing an enduring substitute. The permanence of writing resists the effect of time. Writing is ordinarily portable and so can also overcome the distance. The cultural consequences are extensive because written records allow greater continuity, coordination, and control over time and space. Who, now, can imagine life without writing?

Printing. Printing allows the extreme multiplication of writing and, since each printed record is independently portable, printed documents are especially useful in dealing with distance. Much has been written on the effects of the development of moveable type in the fifteenth century in facilitating the Reformation, the rise of modern science, and, generally, the standardization within the modern nation state.

Telecommunications. It used to be that one traveled on foot, horse, or boat to convey good news or bad. The rise of numerous nineteenth and twentieth century technologies – semaphore, telegraph, telephone, radio, fax, television, and the internet – progressively

reduced the time taken by reducing the effect of distance. Like printing, telecommunications coordination and propaganda.

Copying. There has been a lot of research on the history and consequences of writing, printing, and telecommunications, but little attention to the history and impact of copying. Copying documents as is old as writing. Some techniques were used in the eighteenth and nineteenth century but machinery for making facsimile copies is essentially a twentieth century and there were three very important technologies: photostat, microfilm (and its variants), and electrostatic copying (“Xerox”).

Photostat copying is making a photograph directly on to sensitized paper, without the usual glass or celluloid intermediate negative. This process was developed by René Graffin of the Institut Catholique in Paris around 1900 as an aid to preparing new editions of early Christian Syriac texts that would be difficult to copy by hand. Photostat was so rapid, accurate, and economical that it rapidly replaced transcription by hand or by typewriter when photostat equipment became commercially available in 1910. Photostat was the dominant copying technique at least until the late 1930s.

Microfilm and its variants (microfiche, microprint, etc.) became widely used in the late 1930s with the development of standard film speeds, precision 35 mm cameras, and 35mm safety film.

Electrostatic copying (also known as xerography (“dry writing”)) was developed to replace photostat copying and was widely adopted in the 1960s.

Making copies requires analysis of the original and the creation of a visually acceptable version of it. This is an important point because this two stage process allows image enhancement, making strong copies of faint originals and, often, making erased writing visible again. This forensic copying has proved very useful in detecting fraudulently altered documents and the ability to read medieval text on vellum that were erased so that the expensive vellum could be used again for a new text (palimpsest) (Buckland 2012).

Cultural aspects of documents

Documents exist as physical objects. Even digital document in “virtual” environments remain physical as bits recorded somehow somewhere. But a document is something that one can learn from, something that can influence what you know, so documents are cultural objects as well as material objects. To be a document, there must be a phenomenological aspect. Documents are objects perceived as signifying something. The status of being a document is not inherent but attributed to (given to) and object. Meanings are always and only constructed by observers.

Documents are characterized by cultural codes, media type, and physical aspects. All forms of expression depend on some shared understandings (cultural codes) – *language* in a broad sense. Different types of expression (media types) have evolved: Texts, images, numbers, diagrams, art, etc. Also, of course, different physical media: Clay tablet, paper, microfilm, analog magnetic tape, punch cards, and so on. Being digital affects directly only the physical aspect, but the consequences are very extensive. Genres are particular combinations that develop in a particular cultural context.

Documents, meaning and cultural contexts

The importance of cultural contexts is often underestimated. Paul Otlet (1868-1944), a central figure in European documentation, was dissatisfied with the limitations of the traditional book format, the print-on-paper book in codex form. He thought that bound volumes were inefficient, repetitive, obsolescent, and impossible to correct. Otlet wanted to imagine some new kind of medium that would be more efficient and could continuously

revised. In effect, he wanted to extract facts from printed books and periodicals and to organize them into an updateable hypertextual encyclopedia. In effect, he was desiring a well-edited Wikipedia on cards. His principal discussion of this is in his *Traité de documentation* published in 1934.

At the same time, in Poland, Ludwig Fleck (1896-1961) was completing his *Genesis and development of a scientific fact* (1935) which explained why concise encyclopedias of the type Otlet wanted were necessarily inadequate. Factual statements, Fleck explained, are extreme simplifications. Understanding any fact requires three elements: a concept, an individual, and the cultural context (“thinking style”) of the individual. Facts without context lack meaning.

We can illustrate this with Paracelsus (1493-1541), the colorful Renaissance physician, botanist, and metallurgist, who worked in the transition from medieval alchemy to modern science. Paracelsus had important and innovative ideas, but with his background in alchemy he lacked the concepts and language of modern science. As a result, it is almost impossible now for us to understand what he meant. And if he could have seen a modern medical text, he could not have understood it.

What do documents do?

The effects of writing, printing, telecommunications, and copying have resulted in enormous numbers of documents, the “information explosion”. Documents are a necessity of modern life, because societies have become progressively more complex and more efficient through the division of labor. As individuals we do not now grow our own food, build our own houses, or make our own clothes. You and I do not manufacture our own automobile or generate our own electricity. These labors are divided. The division of labor requires coordination, communication, and markets. And coordination, communication, and markets depend on information, on documents. So documents are necessary for modern society. But this is more than a technical matter because individuals, groups, and institutions have agendas and they use documents to advance their objectives in ways that influence our lives, our thinking, and our culture. For example: documents are used by:

- Governments to control us
- Schools to direct what we are taught
- Religions to instill beliefs
- Advertisers to make us buy
- Politicians to induce consent
- Entertainers to amuse us
- Individuals to attract our attention
- and so on.

Anyone can make such a list. The list is long. Documents are everywhere in our lives. Documents are not only for finding facts and solving problems. Documents influence our lives, our beliefs, and our culture.

Part 2: Culture and memory

“Culture” is often used to refer to “high culture”, meaning opera, symphony music, fine art, and other expensive artistic activities. But in academic discussion “culture” has a much broader meaning as a general term for how we live and think (Williams 1986: 87-93). Edward B. Tylor’s classic definition of 1871 is: “*Culture or civilisation, taken in its wide ethnographic sense, is that complex whole which includes knowledge, belief, art, law, custom, and any other capabilities and habits acquired by man as a member of society.*” (Tylor 1871).

How we live and think (i.e. culture) is always changing, which creates both a need for memory and a large difficulty for memory systems. Cultural heritage (or patrimony) and collective memory are of great importance because they have significant effects on our lives in multiple ways:

1. They influence our sense of identity, and, therefore, our self-esteem and our relationships with others.
2. They influence the formation of social groups.
3. They influence the relationships between social groups. *Romeo and Juliet* is a story based on two families seeing each other as different and in conflict.
4. There are very large economic, political, and social interests in how we see ourselves. Merchants want our commercial loyalty, political parties want our votes, churches want us to remain faithful.
5. Large expenditures on marketing, advertising, and the arts of persuasion are used to influence how we live and think, in effect, our culture.

Library and information studies and cultural heritage

Awareness of cultural heritage influences our view of library and information studies in several ways:

1. It is necessary to think more broadly than books in libraries and records in archives because these two categories do not work in isolation. We also need to consider objects in museums, historic sites, data sets, and other media.
2. Because these diverse resources need to be considered as a whole, “bibliographical” description needs to extend beyond the contents of libraries.
3. There is an increased need to consider how meaning and significance are constructed. This moves information systems beyond well-defined objects in formal contexts (e.g. data retrieval systems) and into socially sensitive and politicized areas, notably sex, death, race, patriotism, and war.
4. We cannot think coherently about cultural heritage without some awareness of numerous areas that are often rather isolated: archives, museums, cultural policies, cultural anthropology, rhetoric, education, and more.
5. Students tend to assume that libraries are political neutral but if you engage in the archaeology of subject headings and library classifications and examine the terminology used fifty or a hundred years ago it becomes apparent that indexing has a cultural perspective. One finds language that reflect past not present culturally attitudes both in definitions and in association through cross-referencing of related terms. For example, when the Library of Congress used the subject heading *Indians of North America – Civilization* it did not, as we might expect, mean the cultures of the indians. It meant the progress in destruction of those cultures through assimilation into the dominant culture of the European immigrant community. Similarly, entries of the form “*Sexual perversion* see also *Homosexuality*” were once acceptable, but now no longer.
6. Increased awareness that libraries, museums, and other memory sites are used by multiple different groups whose perspectives, interests, and use of language varies.

Time, the past, history, and cultural

Time is central in the themes of this conference. It can be useful to distinguish between the past, history, and cultural heritage. They are not the same.

The past has passed! You cannot go there! Because the way we live and think is continually changing, every group's culture is always evolving. So, necessarily, each group was culturally a little different each point in the past. In this sense, in David Lowenthal's words, "The past is a foreign country." The difference is that one can visit other countries but one cannot visit the past.

History is not the past, but narrative about the past. "History" and "story" are from the same Greek word. Past lives and thoughts are so complex that extreme incompleteness and simplification are inevitable. Historians, unable to visit the past, must depend on such evidence as they can find, mostly records. "No documents, no history," wrote the French historian N. D. Fustel de Coulanges -- and we can add, "No history, no identity."

Because of the unavoidable incompleteness, we can ask whose history, whose story, is being told and whose narrative and perspective is being used. Hence the familiar complaints that men's history is being told, not women's, imperial history rather colonial, and so on. History is sensitive and history textbooks are often controversial. How accounts of the past are viewed changes over time. This can be seen in the case of war memorials. A memorial that records the death of your husband, brother, son, or fiancé, will be viewed with deep emotion. The next generation will be respectful but less emotionally engaged. For subsequent generations an old war memorial may have little meaning and may seem an anachronism that is interfering with the flow of traffic.

Heritage is what we accept from the past, often unconsciously.

Antiquarianism is an interest in objects simply because they are old, not because they were important. Nostalgia is a selective romanticism, remembering the good, but not the bad.

The challenge for archivists, librarians, museum curators, and other heritage professionals is the preservation and access of resource that will allow historians to create narratives about neglected people.

Memory institutions, memory infrastructure

Libraries are not simply information services. Their purpose is to help develop the communities they serve. Museums are expected to have an educational and interpretive role. Because there are differences of opinion concerning both facts and interpretation there will be controversy. There is an interesting literature on the politics of museums. The Smithsonian Institution is the national museum in the USA and its National Air and Space Museum planned an exhibit to marking the 50th anniversary in 1995 of the end of World War II featuring a restoration of the Enola Gay, the airplane that helped to end the war by dropping the first atomic bomb on Hiroshima. Controversy developed over how this event should be presented. For military veterans it had been a justified act that had achieved decisive victory and finally ended a terrible war in which so many of their comrades had been killed or injured. But others questioned the necessity for using that awful bomb on Hiroshima and Nagasaki when Japan was already nearly defeated. Historians questioned whether the public justification for bombing at the time had been completely honest. Anger over the planned exhibit eventually threatened the funding of the Smithsonian's budget. The exhibit was withdrawn and later replaced by a less controversial one (Gallagher 2004).

Archives, libraries and museums ("ALM") are commonly referred to as "memory institutions", which, of course, they are. However, there is so much more: schools, with curriculum and textbooks; publishers, because what is not published remains inaccessible; language policy, concerned with establishing the national language and, maybe, active support for minority, especially endangered languages; immigration policies, that are commonly racially based; censorship and decency legislation; and much more. It is usually better, therefore, to think of "memory infrastructure" rather than just the three ALM institutions.

Indexing, metadata, time, and culture

Naming and describing, even with using artificial category codes, are language activities, hence cultural. Different groups with their different cultures use language in differing ways and the indexer needs to take this into account. *Cancer* is used by ordinary people, *Neoplasm* is used by medical specialists.

Language, being cultural, changes. Words are unstable in what they name (denotation): A *Printer* used to refer to a skilled person, now it is usually a small machine. Connotations (the ideas or feelings that a word invokes in addition to its literal or primary meaning) can also change, especially where respect (or lack of it) is concerned. Discourse and indexing change over time as the ambient culture does, but an index entry, inscribed at some point in time, remains fixed in the cultural context of that time. Indexing, therefore, is necessarily obsolescent (Berman 1971; Buckland 2011b).

Part 3: Infrastructure: Example of editors' notes

I will briefly describe how a small change in infrastructure can have a significant effect on memory work.

Documentary editions

The publication of historically important texts with scholarly explanations (“documentary editions”) provides an important foundation for understanding our history and heritage. The preparation of the explanatory notes accompanying the historical texts in documentary editions requires a lot of expert research by the editors and their assistants. Unfortunately, the benefit from this editorial research is reduced for three reasons: First, because of the high cost of publication not all of the explanatory notes are included in the published volumes; second, the detailed research by the editors and their assistants is not made available to others; and thirdly the expensive published volumes are usually only available in a few libraries. The unpublished explanations and the research materials developed by the editors are abandoned and discarded when the eventual volumes are finally published. A project entitled “Editorial practices and the Web” is examining how this situation can be improved (Editorial 2013; Buckland, Golden, Pateman, and Shaw, forthcoming).

At Berkeley the papers of Emma Goldman (1869-1940), the famous anarchist, are being edited for publication and, at New York University, the papers of Margaret Sanger (1879-1966), the activist for women’s rights and birth control. Goldman and Sanger knew each other and to some extent were active in the same issues and social circles. It would seem efficient if both projects used the same office and could then collaborate closely and benefit from the other’s work. That is not possible for several reasons, but perhaps some the benefits of a shared office could be achieved by other means.

To understand letters and other historical documents it is necessary to know their context: Who are the people named? Why are they of interest? Why are the activities mentioned significant? and so on. So, for example, an editor of the Goldman papers asks his research assistant to find out whether any of Lenin’s family members, beside his brother, had been imprisoned. The research assistant will investigate, making careful notes of the sources examined, and concludes that none were. In the published edition this is reduced to a single sentence: “When he was a teenager, his brother was executed for his role in plotting to kill Tsar Alexander III.” The research report is never made available so anyone else who wants to will have to repeat the same research, if they can. These research notes exist in the editorial offices in paper files and on diskettes and magnetic tape which, in time, are no longer

readable. When the the documentary editions are published, the project ends, the research reports are not kept.

The Web offers new possibilities. The *Editorial Practices and the Web* project is a collaboration of three documentary editing projects: The Emma Goldman Papers Project, the Margaret Sanger Papers, and, at Rutgers University, a project editing papers relating to two activists for votes for women, Elizabeth Cady Stanton and Susan B. Anthony. We also experimented with notes made by the curator of the Labadie collection of radical literature at the University of Michigan Library. This work is supported by the A. W. Mellon Foundation and by the Coleman Fung Foundation.

In Phase 1 (2010-2013) we encouraged the editors make their notes in digital form as much as possible and then to save them as .html on a shared website editorsnotes.org. In August 2012 this website was quietly made openly accessible by removing password control. Google, Yahoo, and Baidu soon indexed the contents and within a month these research materials were being found and read by scholars all over the world.

In Phase 2 (2013-2015) we are examining how editors research materials could be archived for future scholars. We are also preserving notes made by archivists at the California State Archives and considering whether digital humanities tools for map displays, chronologies, and biographical networks (prosopographies) could be made easy enough for editors and historians to use without special expertise.

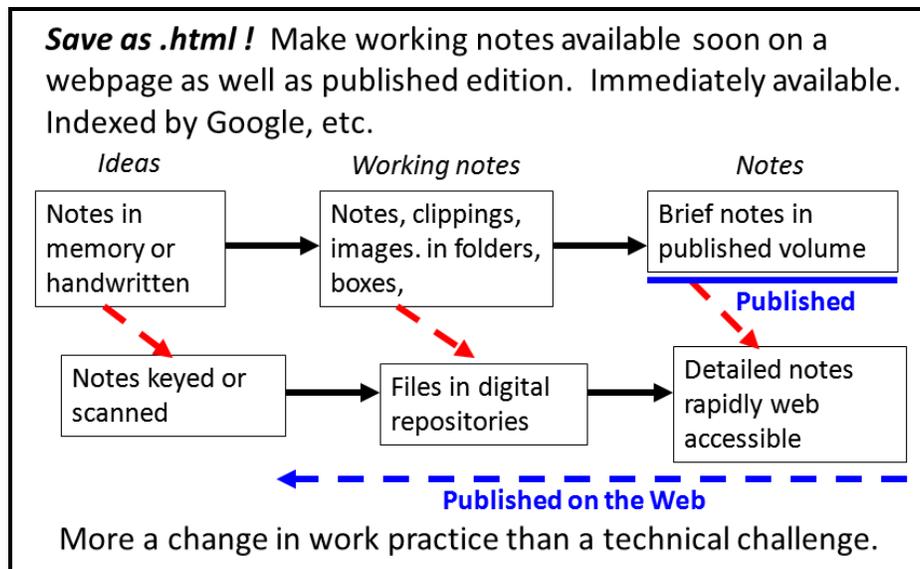
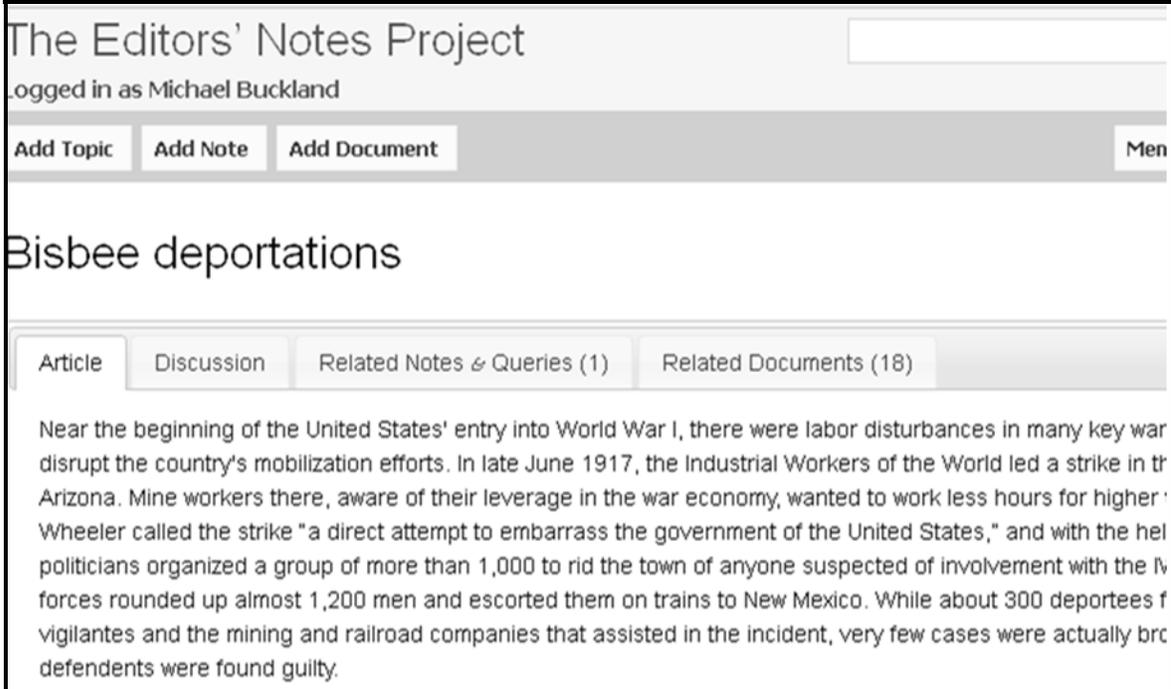


Figure 1. Diagram of Editorial Practices and the Web project.

A sample note is shown in Figure 2.



The Editors' Notes Project

logged in as Michael Buckland

Add Topic Add Note Add Document Men

Bisbee deportations

Article Discussion Related Notes & Queries (1) Related Documents (18)

Near the beginning of the United States' entry into World War I, there were labor disturbances in many key war disrupt the country's mobilization efforts. In late June 1917, the Industrial Workers of the World led a strike in tr Arizona. Mine workers there, aware of their leverage in the war economy, wanted to work less hours for higher Wheeler called the strike "a direct attempt to embarrass the government of the United States," and with the hel politicians organized a group of more than 1,000 to rid the town of anyone suspected of involvement with the IV forces rounded up almost 1,200 men and escorted them on trains to New Mexico. While about 300 deportees f vigilantes and the mining and railroad companies that assisted in the incident, very few cases were actually brc defendants were found guilty.

Figure 2. An example of an editor's note.

In addition to textual notes, editors need to create special files such a chronology of the individual's travels and an authority file of persons' names. Such resources could be attractive displayed. The editors of the Emma Goldman papers made a very detailed record of her movements and lectures. It was a simple, but rigorous WordPerfect text file. As an experiment, the text was made into a small, searchable database, some links to related resources added, and a geotemporal interface added. The result is available in the Web at metadata.berkeley.edu/emma/. See Figure 3.

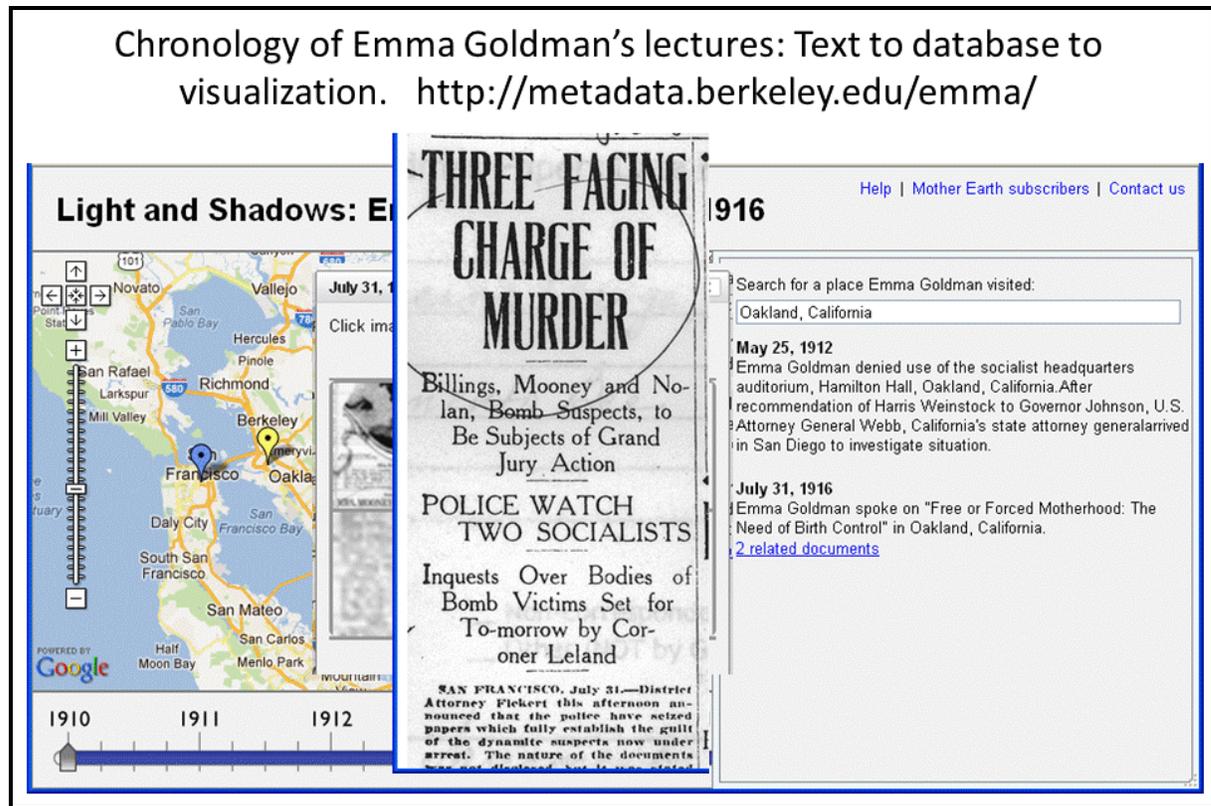


Figure 3. Geotemporal interface to Emma Goldman's lecture tours.

This project is interesting for several reasons. Making these resources openly available requires a change in the work practices of the editors and a willingness to share. It is, if you will, an example of "open notebook science" in the Humanities. Making the research notes openly available greatly increases the return on the large investment made in editorial research and this large benefit is the result of a small and simple technical move: *Save as html*.

Part 4: The future

The future of information technology

We started with the long term history of information technology. What do we find if we project the logic of those developments forwards? I suggest the following:

Writing, originally the recording of speech, becomes the *recording* of everything,
Printing, the multiplication of text, becomes the *representation* of anything,
Telecommunication, the transmission of messages, leads, in effect, to *simultaneous interaction*, and
Copying becomes the *analysis and visualization* of resources.

Changes in the underlying technology enables new genres and new relationships between genres in a new and always changing tapestry.

Oral society, literate society, document society

There has been much discussion of the change from an oral society to a literate society as a result of the introduction of writing. However, oral communication continued, so

it was really the addition of literacy, a change from an oral society to an *oral and literate* society as written documents became available. Now, the documents that affect our lives are increasingly digital and stored digitally. We generally cannot see them and, if we could see them, we cannot read them. We need to adapt to living with digital documents that we cannot read, although we can sometimes make readable versions of them. Instead we “read” and use them through machines. Orality and literacy are no longer enough. We need to acquire a new sense of “documentality”. We are in a in a new *oral and literate and digital* society.

The future of memory technology

Memory depends on the preservation of a record and the ability to find it and to interpret it. Consider what is necessary to do this. Imagine that a data set was created in the past by somebody else for some other purpose, and that that data set could now be useful to you for your work. What are the conditions for successful use?

1. *Discovery*: You have to know that a suitable document or data set exists? If you do not know about it you cannot use it.
2. *Location*: Can you find a copy? If not, then clearly you cannot use it.
3. *Permission*: Do you have permission to use it? This rarely a problem with printed documents but it is a common difficulty with digital resources.
4. *Usable?*: Is the document or data set too deteriorated or obsolete for use? This can be a problem with very fragile paper documents. It is common with older digital records.
5. *Interoperability*: With the constant changes in hardware, operating systems, and application software, lack of interoperability often makes digital data too difficult to use.
6. *Description*: It is really clear what the data represent? Researchers who create a data set typically only provide the minimal description that they, as creators, need. They remember the purpose and the context of the creation of the data. This minimal description may be insufficient for other, different, later researchers who are not familiar with the circumstances of the creation of the data (Bowker 2005).
7. *Trust*: Are the origin, lineage, version, and error rate acceptable? Can you believe what you find?

A problem with any one will prevent use of a data set. Every one must be acceptably resolved before you can decide to make use of a data set. These seven conditions are different from each other and quite different kinds of remedies are needed in each case. Often a remedy is possible but too expensive or too much work.

These problems are not new. They already existed more or less with manuscript and printed documents. In fact, this list originated more than twenty years ago as a list of the requirements for access to printed documents. The traditional resource for discovery is *bibliography*. The standard too for location is a *catalog*. The relative frequency of these difficulties varies with the different media, but archivists, librarians, curators, and scholars already have considerable experience with them. The implication is important: What is needed is not something completely new, but a modernization of established traditions of bibliography and documentation (Buckland 2011a). That is important because it means that we are at least half-way prepared for the complex challenges of technology, culture and memory.

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