

OLD STORIES AND NEW VISUALIZATIONS:
DIGITAL TIMELINES AS PUBLIC
HISTORY PROJECTS

A Thesis
Submitted to
the Temple University Graduate Board

In Partial Fulfillment
of the Requirements for the Degree
MASTER OF ARTS

by
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May 2015

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ABSTRACT

This thesis explores the use and potential of digital timelines in public history projects. Digital timelines have become a popular and accessible ways for institutions and individuals to write history. The history of timelines indicates that people understand timelines as authoritative information visualizations because they represent concrete events in absolute time. The goals of public history often conflict with the linear, progressive nature of most timelines. This thesis reviews various digital timeline tools and uses The Print Center's *Centennial Timeline* as an in-depth case study that takes into account the multifaceted factors involved in creating a digital timeline. Digital history advocates support digital scholarship as an alternative to traditional narrative writing. This thesis illustrates that digital timelines can enable people to visualize history in unexpected ways, fostering new arguments and creative storytelling. Despite their potential, digital timelines often replicate the conventions of their paper counterparts because of the authoritative nature of the timeline form.

ACKNOWLEDGMENTS

This project has been a journey and many people have helped me along the way. I am indebted to my advisor Seth Bruggeman, who has offered more encouragement than I sometimes realize. I would like to thank Elizabeth Spungen, Director of The Print Center, for hosting my internship and welcoming me into the organization over the summer. Along with Liz, The Print Center staff, Steven Alvarez, Jacqui Evans, and John Caperton, were a pleasure to work along and provided needed guidance. Hilary Iris Lowe, Deborah Boyer, and Margery Sly, along with my other professors at Temple have been wonderful to work with and have taught me a great deal. My fellow graduate students have been wonderful compatriots over the past two years. Lastly, my parents, family, and friends have provided support and love throughout my schooling for which I am very grateful.

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INTRODUCTION

Timelines are a standard part of how people teach, learn, and conceptualize history. With a timeline, it is easy to project the history that the timeline author desires leading to a teleological visualization of an imagined past. These selective linear narratives are well suited to tell institutional histories. Digital timelines are increasingly accessible, for institutions and individuals. Timeline tools enable people to actively participate in the fabrication of history, yet the effects of digital timeline tools becoming an ever more accessible technology is largely unexplored. The Print Center, a small contemporary art gallery in Philadelphia, is celebrating its centennial in 2015 and among its commemorative activities the organization is creating a digital timeline to tell its history. For The Print Center the features of the digital timeline foster an interactive, dynamic history that is different from organization's earlier anniversary timelines.

Do digital timelines, in all their forms, offer anything new? Can digital technology make timelines that are effective visualizations, tools that scholars and the public can use to explore history rather than a means to recount a teleological narrative? Can they be powerful public history projects and contribute to historiography as a part of the discourse rather than something that public historians simply discuss? This paper explores the use and potential of digital timelines in public history projects. The first part of this paper seeks to locate digital timelines within a historical context. I discuss what timelines are, as narratives and as visualizations. I study the history of timelines and their development to help me speculate about the impact of digital timelines. I then assess the range and development of digital timelines and timeline tools on the web, giving particular attention to how they can be of use to cultural institutions. After fitting digital timelines into historical context, I discuss The Print Center's *Centennial Timeline*.

This discussion takes into account multiple factors including the technology, the timeline's development, its current use, and its potential.

In *Computers, Visualization, and History* David Staley states, "The time line is elementary in that it underlies many of our fundamental assumptions about the nature of time and our understanding of the past."¹ Timelines are particularly authoritative because they represent concrete events in absolute time. Public historians often want multiplicity in their pasts. Public historians envision an inclusive past: a past that weaves together nonlinear narratives and undermines accepted grand narratives. As research tools, digital timelines can enable people to visualize history in ways that would be difficult without a computer, resulting in the ability to create new arguments and historical discussions. As narratives, digital timelines have the potential to tell creative, unexpected stories. Despite their potential, digital timelines often replicate the conventions of their paper counterparts because of the authoritative nature of the timeline form.

¹ David J. Staley, *Computers, Visualization, and History: How New Technology Will Transform our Understanding of the Past* (ME Sharpe, 2002), 81.

CHAPTER 1

TIMELINES

History of Timelines

Understanding what timelines are and how we use them entails an intersection of disciplines ranging from history, philosophy, information design and visualization, new media studies, and education. Scholars who have contemplated timelines typically include the timeline within broader studies covering the philosophy of time or from the perspectives of information design and visualization. Daniel Rosenberg and Anthony Grafton's *Cartographies of Time* is a comprehensive survey of the history of timelines and is the only book devoted to the subject. Rosenberg and Grafton distinguish the timeline as consisting in the placement of historical events on a straight line with a single axis, a form that developed in the late eighteenth century.² Rosenberg and Grafton state, "In the modern historical imagination, the timeline plays a special role: it appears as a graphic instantiation of history itself."³ Rosenberg and Grafton argue that the timeline developed along a complex trajectory, along which the most important factors were the ideas, concepts, and philosophical developments that urged people to visualize the past in the ways that they did.

Joseph Priestley's *A Chart of Biography* (1765) and *A New Chart of History* (1769) are often given the credit for pioneering what would become the timeline form we know today.⁴ Priestley's *A Chart of Biography*, displays time as horizontal. The lives of

² In this paper I assume that my audience has a clear idea of what a timeline is, an idea correlating with Rosenberg and Grafton's definition.

³ Daniel Rosenberg and Anthony Grafton, *Cartographies of Time: A History of the Timeline* (Princeton Architectural Press, 2013), 244.

⁴ Rosenberg and Grafton, 118-119.

famous individuals appear as lines along the horizontal. The length of a person's life determines the length of their line and no line is bolder than another. The vertical axis displayed categories in bands, with individuals placed in the appropriate category (*fig. 1*).^{*} Rosenberg and Grafton claim, "After Priestley, most readers simply assumed the analogy between historical time and measured graphic space, so the nature of the arguments around chronographic representation shifted dramatically."⁵ Before Priestly chronological and genealogical charts were the primary means through which people visualized the past.⁶ Priestley's charts promoted the idea that the massive, messy, and often overwhelming amount of information from the past could turn into something useful if organized the right way. Priestley's contemporary views of knowledge and the increasingly popular conception of absolute time helped formulate the way that he structured history in his visualizations.

By the late seventeenth century, empiricism required the use of time as a variable in a variety of experiments. While natural philosophers were spending more time measuring the sun, stars, and planetary bodies with increasing exactitude, other scholarly pursuits felt the effects. Isaac Newton's theories of absolute time separated the way that people experience time with the idea of time as a mathematical constant:

Absolute, true, and mathematical time, of itself, and from its own nature, flows equably without relation to anything external, and by another name

^{*} Figures are listed in Appendix A.

⁵ *Ibid.*, 126.

⁶ Chronicles and annals were popular means of organizing the past before timelines, with chronology being a field of study in its own right. An important aspect of chronicles was the ability to synchronize multiple histories. For example, the fourth century *Chronicle* of Eusebius traced the histories of multiple ancient cultures with the aim of placing these histories within the context of the rise of Christianity. For Eusebius the calculation of time for chronologies served the purpose of being able to put events within relation to one another. See: Brian Croke, "The Originality of Eusebius' Chronicle," *American Journal of Philology* 103, no. 2 (1982): 195; and Rosenberg and Grafton, 26.

is called duration: relative, apparent and common time, is some sensible and external (whether accurate or unequal) measure of duration by the means of motion, which is commonly used instead of true time; such as an hour, a day, a month, a year.⁷

This concept of time supports a linear model within which time moves forward evenly. When Newton's theories gained popularity so did his use of absolute time. In his book *Temporalities*, Russell West-Pavlov describes the benefits of Newtonian time, stating, "Homogeneity permits a plethora of different events of differing durations, scales, speeds, to be evenly reified within an abstract framework of time."⁸ People began to understand histories along linear lines equivalent to how they understood linear, absolute time. This concept of time permeated the way that people understood how to conduct inquiries into the past.⁹ The past visualized as events taking place on an abstract timeline promotes a sense of objectivity and a scientific basis for historical work.

The use of absolute time in graphic representations of history gained popularity in the early nineteenth century as emerging nationalism encouraged people to develop a sense of historicism about the growth of their countries.¹⁰ The combination of absolute

⁷ Isaac Newton, *Mathematical Principles of Natural Philosophy*, in *Newton/Huygens*, vol. 34 of *Great Books of the Western World* ed. Robert Maynard Hutchins (University of Chicago, 1952), 8.

⁸ Russell West-Pavlov, *Temporalities* (New York: Routledge, 2013), 36-37.

⁹ During the Middle Ages the line between studying the past and time was cloudy. Monks often studied timekeeping in efforts to standardize calendars and time measurements such as hours. Their contemporary framework of time was directly connected to nature and the natural cycles that they experienced in their daily lives. Events such as the introduction of mechanical clocks as opposed to sundials or water clocks began to separate time from everyday life. Cyclical representations of time remained relevant in the use of calendars and timekeeping, but scholars with a holistic sense of natural philosophy, aligned absolute time with the study of the past. See: Arno Borst, *The Ordering of Time: From the Ancient Computus to the Modern Computer* (University of Chicago Press, 1993); and West-Pavlov, 13-17.

¹⁰ For the relationship between absolute time and a scientific view of history see, West-Pavlov, 58-59; and Borst, 119. Also see Susan Schulten, "Emma Willard and the Graphic Foundations of American History," *Journal of Historical Geography* 33, no. 3 (2007): 558; and Stefan Tanaka, "Pasts in a Digital Age," in *Writing History in the Digital Age*, ed. Jack Dougherty and Kristen Nawrotzki (University of Michigan Press, 2013), accessed March 2, 2015, DOI: <http://dx.doi.org/10.3998/dh.12230987.0001.001>.

time and historicism affected the ways that timelines developed throughout the nineteenth centuries. Susan Schulten's study of Emma Willard shows how history educators adopted timelines as a way to tell nationalistic histories. Willard created visualizations for her students in which she used a combination of geographical structures like maps with representations of time. Willard's *Temple of Time* (1846) is one such visualization. *Temple of Time* displays categories and prominent individuals like *A Chart of Biography*, and countries like Priestley's *A New Chart of History*. Instead of an even line, the information in *Temple of Time* is projected onto a temple form with older history barely visible in the back and more recent history front and center. This depth perspective literally makes recent history larger, and by association more important, while past individuals and nations fade in to the background (*fig. 2*).

Willard's visualizations show a progression of time culminating with the present. Schulten writes that Willard's graphs "became a cumulative statement of nationhood, as each moment of the past was chosen for its place in an evolving story of territorial fulfillment."¹¹ These graphs emphasize the directionality of time in order to support a national perspective. The alignment of absolute time with historicism did not defeat the tradition, common in chronicles and in genealogical visualizations, of using history as a means to claim power.¹²

The timeline that supports a history of a single entity, nation, individual, or organization, along a progressive linear trajectory is a standard that has become common in history texts, whether in the classroom or on museum walls. These timelines

¹¹ Schulten, 551.

¹² To illustrate the relationship between representations of time and power, Rosenberg and Grafton give the example of a genealogy shaped like a triumphal arch that Albrecht Durer sketched for Maximilian I, which linked the Hapsburgs to biblical patriarchs. See Rosenberg and Grafton, 46.

are the product of a particular concept of time and history. This form of the timeline is also the object of criticism from historians.

Historians' main objection with timelines is rooted in the alignment of timelines with absolute time. This is because the association of timelines with a scientific representation of events can have the effect of taking the timeline outside the realm of historiography. The result is that timelines seem to present an objective reality, not an argument. West-Pavlov tied linear historicism to the history wars stating, "The history wars drew upon the self-evidence of a version of history understood as a sequence of empirically verifiable facts to vilify those who questioned national myths so as to lay bare a history of genocide."¹³ Studying how Aboriginal history is depicted at public sites in Australia, Elizabeth Furniss refers to narratives of discovery, firsts, and pioneers as "timeline history," within which, "The past is made comprehensible by events being ordered sequentially in a linear pattern along a line of development and progress."¹⁴ Public historians often criticize history that avoids controversy, struggles, and complications. Handler and Gable's popular public history text, *The New History in an Old Museum*, advocates for a constructivist history that embraces multiplicity rather than the celebratory and overly simplified version of history that museums often present.

Regardless of the criticism they receive timelines are a culturally relevant way to represent history. Can the growing variety and functionality of digital timelines defeat some of this criticism and make a place for timelines within scholarship? There is potential to build a scholarly discourse around the timeline's evolving form.

¹³ West-Pavlov, 59. This quote refers to the Australian history wars, but a similar sentiment abounded in the American spells of the same name; see Edward T. Linenthal and Tom Engelhardt, eds. *History Wars: The Enola Gay and Other Battles for the American Past* (New York: Henry Holt and Company, 1996).

¹⁴ Elizabeth Furniss, "Timeline history and the Anzac myth: Settler Narratives of Local History in a North Australian Town," *Oceania* 71, no. 4, (2001): 284.

Timelines as Digital History: Visualizations and Narratives

Many historians and scholars of visualizations and digital media are optimistic about the potential of digital history projects. In *Digital History* Daniel Cohen and Roy Rosenzweig state the advantages of digital media to be “capacity, accessibility, flexibility, diversity, manipulability, interactivity, and hypertextuality,” while simultaneously listing the potential drawbacks: “quality, durability, readability, passivity, and inaccessibility.”¹⁵ The advantages that Cohen and Rosenzweig list could greatly expand the potential of timelines as historical visualizations. A printed timeline is static and generally urges viewers to move in one direction. A digital timeline could have multiple starting points and links between events. Optimistically, digital timelines can facilitate multiple perspectives and interpretations.

Scholars who study visualizations are generally open about the types of representations that should be engaged as arguments. In "Digital Visualization as a Scholarly Activity," Martyn Jessop asserts, “Every representation, visual, or otherwise, is an effort to structure an argument and as such it is a rhetorical device.”¹⁶ Jessop equates visualizations with text. For digital timelines, the challenge is whether historians can learn to read timelines as a distinct type of visualization different to, but no less meaningful than, text.

There are many reasons to be skeptical of visualizations. Johanna Drucker warns about the dangers of embracing visualizations, stating:

The persuasive and seductive rhetorical force of visualization performs such a powerful reification of information that graphics such as Google

¹⁵ Daniel Cohen and Roy Rosenzweig, “Introduction,” in *Digital History: A Guide to Gathering, Preserving and Presenting the Past on the Web* (Philadelphia: University of Pennsylvania Press, 2006), accessed March 2, 2015, <http://chnm.gmu.edu/digitalhistory>.

¹⁶ Martyn Jessop, "Digital Visualization as a Scholarly Activity," *Literary and Linguistic Computing* 23, no. 3 (2008): 292.

Maps are taken to be simply a presentation of “what is,” as if all critical thought had been precipitously and completely jettisoned.¹⁷

The sentiment in Drucker’s statement is that digital visualizations can prevent others from opposing or conversing with their content because of their presentation as facts. This critique is aligned with historians’ critiques of timelines. Drucker’s skepticism of visualizations highlights that the authors of any visualization need to balance their priorities against how people, unfamiliar with the nitty-gritty details of the research, will interpret the visualization. Because reading visualizations critically is not intrinsic for everyone studies from scholars such as Staley and Jessop, along with classic visualization studies from Edward Tufte, have advocated that visualizations need a set of best practices and guidelines similar to those that scholars have adopted for books and articles. Among the suggestions are that makers of visualizations be aware of their audience, be mindful of the ways that the visualization distorts data, and embrace open debate about the methodologies and technologies they used to create the visualization. For these scholars guidelines can help bring the visualizations to a critical discourse in which they have traditionally not played a large part.¹⁸

One reason that scholars feel a set of best practices is needed for visualizations is because reading a historical narrative in an article or book is different from reading visualizations. Reading visualizations usually involves observing the whole, then letting the information guide where and how the viewers’ eyes travel, affecting the way that they interpret the visualization. Staley differentiates visualizations from prose because

¹⁷ Johanna Drucker, “Humanistic Theory and Digital Scholarship,” in *Debates in the Digital Humanities*, ed. Matthew K. Gold (Minneapolis: University of Minnesota Press, 2012), accessed March 5, 2015, <http://dhdebates.gc.cuny.edu/debates>.

¹⁸ For an overview of information visualization see Edward R. Tufte, *Envisioning Information*. (Cheshire, Connecticut: Graphics Press, 1990); for visualization guidelines see Staley, 86-87. Staley argues that visualizations are just as much secondary sources as books and should be treated as such in historiographies, see Staley, 41.

visualizations can be multidimensional and multidirectional while prose is based one on dimension and read on one direction. Because of their one-way directionality, Staley suggests that timelines remind historians of sentences and are therefore one of the most common forms of historical visualization.¹⁹ As a visualization that is more linear and closer to text than others, timelines can easily obscure their visual components. With timelines it is important to remember that the deciding factor determining the arrangement of chronological information is an imaginary line of time.

Most historical arguments take the form of narratives, yet because timelines are generally excluded from historiography, they are rarely analyzed as narrative forms. Historian Hayden White's studies of narratives are an example of how historians theorize about textual history and chronology. White states, "Unless at least two versions of the same set of events can be imagined, there is no reason for the historian to take upon himself the authority of giving the true account of what really happened."²⁰ For White, events in a narrative contribute to a plot that makes sense of the world in a manner in line with the moral standards of the society that created the narrative.²¹ Timelines are not typically presented in multiple versions and by White's definition are not narratives.

Resulting from this denial of narrative status there is little theoretical framework from which historians can study timelines. The view that lists of events are not narratives fits in with the perception that they tell a scientific history in absolute time. Timelines have more potential to contribute to scholarly discourse as visualizations that contain

¹⁹ Staley, 47, 81.

²⁰ Hayden White, *The Content of the Form: Narrative Discourse and Historical Representation*, (The John Hopkins University Press, 1987), 20.

²¹ For White's analysis of narratives see "The Value of Narrativity in the Representation of Reality," in *The Content of the Form*, 1-25; and "The Question of Narrative in Contemporary Historical Theory," *Ibid*, 26-57, particularly 50-51.

narrative elements. Thinking about a timeline first in terms of its visual elements enables historians to see how the timeline is composed of decisions that they can engage, such as the choice to display certain date formats, the implications of using or not using measured time, and how the timeline compares with others. With digital timelines these decisions are often limited and many of the tools available do not offer the types of customizations that one would be able to execute by hand.

Rosenberg and Grafton end their book with ambivalence towards digital timelines. They state, "From the beginning the biggest challenge of the time chart was not to include more data, but to clarify a historical picture – to offer a form that was intuitive and mnemonic, and that functioned well as a tool of reference."²² Timelines of the past, like those of Joseph Priestley and Emma Willard, relied heavily on printmaking techniques and the artistic talents of the engravers. Highly individualized, artistic visualizations are difficult to recreate in computer software.²³ Digital timelines can be individualized, but most use, or are based on, a limited number of timeline tools that structure events into a visual order. Over the past ten years a number of these tools have developed a range of functions: from increasing the amount of data that timeline authors can employ to integrating multimedia content and social media. The following section evaluates digital timeline tools available online and begins to discuss the impact of this popular form of historical representation.

Timeline Tools

Most advocates for digital history and visualizations introduce timelines as a standard historical visualization technique and quickly move on to more complex and

²² Rosenberg and Grafton, 245.

²³ For a discussion of the limitations of computer generated visual forms see Jessop, 285.

technologically advanced visualizations such as network mapping, virtual realities, 3D modeling, 3D scanning and printing, and mapping projects. In eagerness to move on to flashier technology the meaning of the digital timeline is largely unexplored.²⁴

Timelines are common on the Internet; they appear on websites ranging from museums and course syllabi, to blogs and social media outlets. Rosenberg and Grafton state, “Along with the list and the link, the timeline is one of the central organizing structures of the contemporary user interface.”²⁵ Digital timelines exhibit a range of functions with varying complexity. Understanding digital timelines involves analyzing the relationships between software creators and developers, timeline authors, and the users who interact with the final product.²⁶ The most basic digital timeline does not require a special tool or advanced coding. A simple digital timeline could be a list of dates with some accompanying text. There are dozens of digital timeline tools available online that will format content in more complex visual ways.²⁷

²⁴ For examples see Staley; and John Theibault, “Visualizations and Historical Arguments,” in *Writing History in the Digital Age*.

²⁵ Rosenberg and Grafton, 245.

²⁶ I have tried to keep these terms consistent for clarity about the roles of my actors. I also use the term “contributors” to refer to people who suggest timeline content, but do not necessarily author it. Occasionally these terms can cross over, as in timeline authors being software users. While I have tried to keep the authorship of timelines clear, it is important to note that timeline authors must work within the bounds of what the developers created. When authors wish the timeline to be an exploratory research tool then the authors are also timeline users.

²⁷ For this section I chose a selection of timeline tools to analyze. One main criteria in my selection process was that the timelines could be embedded on the users’ website. I left out timeline tools that its creators intended primarily for personal use, such as Aeon Timeline, and did not discuss non-historical timelines. I have tried to be aware of the cost of the tools that I discuss, but one cost that underlies all of these is the cost of web hosting, Internet service, and computers. I have largely assumed that most organizations have a website, yet I am aware that individual historians and some smaller organizations do not, or rely on free services such as WordPress.com for their hosting. The ability to embed a timeline on a free hosting service can vary from embedding on a website where the site’s administrator has access to the site’s files. Because many small cultural institutions do not have a large, or any, technical staff, I have tried to discuss tools that require a minimal amount of coding. There are many customized timelines on the web, but I have mainly stayed away from these because they are not practical for most cultural institutions. (For an example of one of these customized timelines see *The Evolution of*

Wikipedia's *Timeline of art* is an example of a simple digital timeline. Wikipedia user Astarte created *Timeline of art* on August 11, 2003. At its inception the timeline consisted in sections listing decades beginning with the most recent decade at the top. Under the section heading for each decade were lists of years and links to the Wikipedia's "year in art" pages. The early version of *Timeline of art* contained the entire twentieth century and sporadic decades from the nineteenth century and earlier with nothing before 1370.²⁸ The source content for this timeline was not a grand narrative of art history, but the "year in art" pages. The years absent from the timeline at its early stages had not been created yet (*figs. 3-4*).

A select number of individuals have authored the vast majority of *Timeline of art's* edits. These edits are concentrated in the nineteenth and twentieth centuries. After Astarte created the structure of the timeline, other Wikipedia users began to put text and links next to the years, primarily consisting in the births and deaths of prominent artists. It was not until September 2014 that an anonymous Wikipedia user completely filled out the decades from year 1000 AD and added sections for earlier dates through prehistoric art. Scrolling through the timeline, as it exists concurrent with this thesis, creates a sense that art today is more plentiful than ever before. The entries for the 2000s are full of text and links. Scrolling down this text becomes scarcer. At the end of the timeline there is a slight increase in text accompanying prehistoric entries.

the Web, <http://www.evolutionoftheweb.com>, collaboration between Google Chrome, Hyperakt, and Vizzuality, accessed March 21, 2015.)

²⁸ "*Timeline of art*," Wikipedia, accessed March 2, 2015, http://en.wikipedia.org/wiki/Timeline_of_art; for the history of the *Timeline of art* see "Timeline of art: revision history," Wikipedia, accessed March 2, 2015, http://en.wikipedia.org/w/index.php?title=Timeline_of_art&dir=prev&action=history. For a discussion of Wikipedia as a vehicle for public memory see Robert S. Wolff, "The Historian's Craft, Popular Memory, and Wikipedia," in *Writing History in the Digital Age*.

On *Timeline of art*, the chosen organizational scheme has consequences for the content. Pages related to art history organized by medium, periods, or by geographic regions, for example “Chinese art” or “Cave painting,” did not make the cut though they existed at the time of *Timeline of art*’s creation.²⁹ Because *Timeline of art* uses Wikipedia content as the data source it would make sense that some material is left out. Simultaneously, using a data source that is not an art history textbook would have the potential to provide an alternative point of view. However, Wikipedia pages devoted to art tend to reflect standard art history divisions and the timeline reflects these tendencies. Like in a standard text non-Western art typically appears on pages that cover a specific culture or geography, while the larger art narrative is primarily Western. On *Timeline of art* the prehistoric section mentions Africa and Australia and a few years from 1000 to 1300 list Chinese and Japanese artists. From 1300 onward Western art dominates. The text “The Aztec calendar stone is discovered” is listed next to the entry “1790 in Art.” The perspective of this entry highlights the stone’s discovery, hundreds of years after its creation. This example illustrates biases that are difficult to escape, even when the organization and selection of content is not based on any established text.

Many digital timelines are formatted as a simple list, like *Timeline of art*. These timelines are easy to make and involve curatorial and narrative decisions, even if they do not involve extensive decisions about their visual design. In 2006, the SIMILE project from MIT created Timeline. David François Huynh, Timeline’s creator, describes it as, “the equivalence of Google Maps but for temporal data—the first Web API for rendering

²⁹ “Chinese art: revision history,” Wikipedia, accessed March 2, 2015, http://en.wikipedia.org/w/index.php?title=Chinese_art&dir=prev&action=history; “Cave painting: revision history,” Wikipedia, accessed March 2, 2015, http://en.wikipedia.org/w/index.php?title=Cave_painting&dir=prev&action=history.

interactive timelines in web pages.”³⁰ SIMILE was a grant-funded project run out of MIT that developed a variety of open source tools to “empower users to access, manage, visualize and reuse digital assets.”³¹ Timeline was under active development between 2006 and 2009.³² SIMILE is no longer attached to an institution or funded. The tools that the project developed are currently hosted on Google Code and maintained by the open-source community. The technology used to create Timeline has been incorporated into the Neatline exhibits on Omeka and the Zotero Timeline project, both hosted out of the Roy Rosenzweig Center for History and New Media at George Mason University.³³ SIMILE’s Timeline was a tool designed with the idea of creating an interactive timeline that could organize large amounts of data instantly.

Timeline is a widget that uses a combination of HTML, XML, and JavaScript. The timeline is created using HTML *div* functions to make bands that create the illusion of infinite scrolling. The result is a horizontal timeline that authors can customize and that users can manipulate on the published timeline. With multiple bands synchronized together, the timeline enables users to perceive events at two different points of view, for example as years on one band and months on another. Entries can either appear as points, represented by small dots with an adjacent title, or as durations, represented by

³⁰ For quote see: David François Huynh, “Project Highlights,” accessed March 2, 2015, <http://davidhuynh.net/>. For SIMILE Timeline see: “Timeline,” accessed March 2, 2015, <http://www.simile-widgets.org/timeline/>; and the project’s source code at Google Code, accessed March 2, 2015, <https://code.google.com/p/simile-widgets/source/browse/#svn%2Ftimeline>.

³¹ See SIMILE’s former homepage at <http://simile.mit.edu/>, accessed March 2, 2015. The current SIMILE project is hosted at “SIMILE Widgets,” accessed March 2, 2015, <http://simile-widgets.org>.

³² See dates active on Google Code at <https://code.google.com/p/simile-widgets/source/browse/timeline/tags/#tags>, accessed March 2, 2015.

³³ For using SIMILE Timeline with Zotero see, “Timelines,” Roy Rosenzweig Center for History and New Media, accessed March 2, 2015, <https://www.zotero.org/support/timelines>; For using SIMILE Timeline with Omeka see, “NeatlineSimile by Scholars’ Lab,” Roy Rosenzweig Center for History and New Media, accessed March 2, 2015, <http://omeka.org/add-ons/plugins/neatlinesimile>.

lines that span the duration based on the timescale of the band in which it appears. Entries can be divided into categories. Hovering over entries will show details that can include brief text, links, and images. Vertical columns of varying widths can be inserted into the band to distinguish important events and time spans.³⁴

The Milestones Project by Michael Friendly of York University and Daniel Denis contains a SIMILE Timeline (*figs. 5-6*). The *Milestones Timeline* aims to “span the entire development of visual thinking and the visual representation of data,” and includes entries, which Friendly and Denis call milestones, relevant to the development of visualization technologies.³⁵ The *Milestones Timeline* is centered at 1990. Above the timeline is a key displaying different colored categories and below are a series of epochs in which the authors divided the milestones. The epochs enable users to navigate long periods without excessive scrolling, and also represent separate pages that users can reach by clicking “Milestones Detail” on individual entries. These pages collect the entries from the epoch into one list with additional information, images, and relevant links.

The authors of the *Milestones Timeline* selected entries based on secondary sources, cited within the entries’ detail page, as well as the authors’ own research. The way that SIMILE Timeline formats the data displays patterns of activity. The period between 1960 and 2000 is an active wave, peaking in the 1980s and trailing off into the 2000s. Between 1600 and 1700 entries appear at a steady pace. The multitude of entries, especially when they appear within a few years of one another, makes the

³⁴ “Timeline Basics,” SIMILE Widgets, accessed March 2, 2015, http://simile-widgets.org/wiki/Timeline_Basics.

³⁵ For the Milestones project see Michael Friendly and Daniel Denis, *Milestones in the history of thematic cartography, statistical graphics, and data visualization*, accessed February 23, 2015, <http://www.datavis.ca/milestones>. For quote see Friendly and Denis, “Milestones Project,” accessed March 2, 2015, <http://www.datavis.ca/milestones/index.php?page=milestones+project>.

timeline difficult to read as a linear narrative. As a user it is easier to jump around from entry to entry. The colored categories become focal points that lump entries together. While the Milestones Project contains interpretive elements in the form of the epochs that the authors created to organize the entries, the SIMILE Timeline on which the data appears can also be a research tool in and of itself. Users could look for connections between technological developments, in green, and graphics, in blue, or they could track particular technologies.

The *Milestones Timeline* focuses on technological developments. The authors lump everything before 1600 into one epoch and list few entries after 2000. The authors cite the primary audience for this timeline as visualization specialists who are often not taught the history of the field in their academic and professional training.³⁶ In this sense, the timeline is not giving a concise history of any one field, but showing people how their specialty relates to other specialties. This specialist audience may not have much interest in entries before 1600 that do not include familiar forms of technology. Likewise, the dearth of contemporary entries could reflect the authors' desire for the timeline to be relevant to a wide variety of specialists, as well as the authors' unwillingness to overpopulate the timeline with entries that have not yet had an impact on a variety of visualization specialties. It would be difficult to combine the information on *Milestones Timeline*, which seeks a multi-specialist audience, into a more traditional narrative history.

SIMILE's Timeline provides a means for people to visualize large amounts of information. The tool is free, highly customizable, can handle more data than other more proprietary tools, and includes detailed documentation that explains both the concept

³⁶ Ibid., "Milestones Project."

behind the timeline and how to implement many of its features.³⁷ However, the technology does require that timeline authors play with code. For professional data visualization specialists this may not be a problem, but it could be a hindrance for small institutions low on skills, money, and time. As a visualization tool, Timeline formats and organizes historical data into a visual scheme that would be difficult to do without a computer, and in doing so, enables users to see the data in a new light. The horizontal design and concept of SIMILE's Timeline formed the basis for multiple timeline tools that came after.

Among the timeline tools that followed SIMILE's Timeline are Dipity, Timeglider, TimeRime, Timetoast and WhenInTime.³⁸ (See *figs 7-10* for images of a few of these tools.) These timelines share the horizontal format of SIMILE's Timeline and incorporate features such as zooming that enables users to change the timeline's scale of time, as well as multimedia and social media features. These tools do not require authors to do any coding, however authors cannot customize these timelines and the free versions are limited. With the exception of WhenInTime these tools cost money for timeline authors who want to work with their more advanced features.³⁹ For historians and institutions interested in creating timelines these tools can save time, if the timeline author is willing

³⁷ "Timeline Getting Started," SIMILE Widgets, accessed March 2, 2015, http://simile-widgets.org/wiki/Timeline_GettingStarted.

³⁸ Software homepages: Dipity, <http://www.dipity.com>; Timeglider, <https://timeglider.com>; TimeRime, <http://timerime.com>; Timetoast, <http://www.timetoast.com>; and WhenInTime, <http://whenintime.com>. Homepages last accessed March 2, 2015.

³⁹ The expense of these tools varies. Monthly plans start at around \$5 a month, and max with Dipity's \$100 a month professional plan. TimeRime offers users one-time purchase plans that start at €199 and can rise higher than €1999. Without purchasing a plan the tools will have restrictions such as a limit number of entries and not allowing users to embed their timelines on other websites. For payment plans see: "Professional Solutions," TimeRime, http://timerime.com/en/page/our_products/360302; "Dipity Premium Plans," Dipity, <http://www.dipity.com/premium/plans>; "Plans & Pricing," Timeglider, <https://timeglider.com/signup>; "Plans," Timetoast, <http://www.timetoast.com/plans>. Plans last accessed March 2, 2015.

to keep the tool as it comes and spare the cash. The overall effect of these tools is similar, though each offers slight variations in features and design.

With these tools authors have some control over how people will read the chronology that the timeline presents, but like with SIMILE's Timeline, the users can decide how to read the timeline independent of the author's intentions. For example, Timeglider enables authors to create categories and to label events in importance. The result, in conjunction with the tool's zooming feature, is that users can zoom out to an empty timeline and zoom in with the entries labeled as more important appearing first and the others slowly populating the timeline around it (*figs. 7-8*).⁴⁰ For authors utilizing this feature means making a judgment about the relative importance of events and highlighting plot points like a more traditional narrative. With these timeline tools the technology determines the organization of the points in space. Users could try to read the events chronologically if they zoomed in close enough for all entries to be visible. If they were zoomed out they would only see major plot points and would have to excavate the entries. A user could potentially do neither of these things and begin with the images that Timeglider places at the top of the timeline. There are multiple ways to read these timelines and as a result, multiple narratives based on the user's navigation choices.

Social media integration is a main feature of these timelines. The creators of Dipity, Derek Dukes and BJ Heinley state, "Dipity allows users to gather real-time sources from social media, traditional search services and RSS to aggregate them in a single, easy to use, fun to navigate interface." WhenInTime similarly enables users to grab data from Wikipedia, Twitter, and Facebook feeds. Traditionally historians sift through sources and select the content that will become history. The ability to grab and

⁴⁰ "How Timeglider Works," Timeglider, accessed March 2, 2015, https://timeglider.com/how_it_works.

present information in a public forum without intervention from historians or archivists enables people to create history that bypasses institutional standards. In relation to these timelines historians can become moderators, but are not necessarily authors.

These timeline tools are primarily intended to for public consumption. They are about the exhibition of content and largely not used as research tools. Other digital timeline tools, such as Preceden, focus on information organization and emphasize exhibition in a more limited capacity, like for a small class (*fig. 11-12*). Developer Matt Mazur created Preceden in 2009.⁴¹ Preceden still presents a horizontal chronology, but it diverges from the other timeline tools in the way that it organizes data. Preceden's structure is similar to the Priestley timelines. It is formed like a graph, with dates at the top of the timeline and layers that display categories listed down. Preceden will change its height to accommodate layers and events. Dates can be color coded to show additional categorization and can be either specific points or time spans. Authors can set milestones, which will strike a vertical bar through the whole timeline. Preceden's focus on structuring data in a clear, readable way, highlighted by features such as ability to add layers and expand the height of the timeline, eliminates some of the clutter that other tools can attain when too many entries populate an area. Preceden works well as a study aide for students and has potential to visualize dates in ways that the other tools cannot.

The dating options in Preceden are highly customizable; the software enables authors to lists entries in a multiple formats, for example using a year for one entry and

⁴¹ Preceden costs a one-time \$29 payment that enables users to make as many timelines as they want and to embed the timelines on their own website. Teachers' accounts allow students to create timelines from within the teacher's account that are not made public or visible to other students, but which the teacher can edit. For Preceden homepage see <http://www.preceden.com>; Preceden allows users a free timeline, but limits it to 5 events only. See "Sign Up," Preceden, <https://www.preceden.com/signup>; for teacher accounts see "Preceden for Teachers," <http://www.preceden.com/teachers>. Preceden website last accessed March 2, 2015.

the month and day for another. Authors can choose whether to display the horizontal bars representing time spans as solid or as fading in and out on the edges. This effect becomes the visualization equivalent to a “circa” date. Another unique dating feature is the ability to set “dependencies.” This feature enables users to set an entry to begin when another ends, essentially connecting entries together. On most of the timeline tools the author making the timeline must input a date for all entries. For historians trying to establish chronologies that may include events for which dates are unknown this feature enables approximations. Without this feature, authors must either leave out material with unknown dates or claim authority and choose a date. The ability to visualize unknowns gives users the chance to guess dates on their own and makes the research process collaborative.

Preceden moves digital timelines in a direction focusing on data organization. Similarly, tools such as Chronos Timeline in development at MIT’s Hyperstudio embrace the visualization of temporal data over social media and multimedia features.⁴² On the other end of the spectrum tools such as TimelineJS and Tiki-Toki embrace the linearity of the timeline and highlight narrative, multi-media storytelling. Instead of using the timeline itself as the main visual focus, these storytelling tools highlight entry content.

Tiki-Toki launched in March of 2011. Tiki-Toki’s default view is a horizontal layout with a small timeline band on the bottom and a larger band that displays entry content (*fig. 13-14*).⁴³ Tiki-Toki includes an alternative 3d view that is unique among timeline

⁴² “Chronos Timeline,” Hyperstudio, Digital Humanities at MIT, accessed March 2, 2015, <http://hyperstudio.mit.edu/software/chronos-timeline>. Chronos timeline is currently in development, but sample timelines are viewable from the website.

⁴³ Like the SIMILE-inspired timeline tools, Tiki-Toki offers a limited free version and has pricing plans ranging from \$7.50 to \$25.00 a month. For Tiki-Toki homepage and plans see <http://www.tiki-toki.com>; a history of the product’s development can be found on the timeline connected to the homepage: “Beautiful Web-based Timeline Software,” Tiki-Toki, <http://www.tiki->

tools. In the 3d view the user moves forward on a flat plane with future events visible on the horizon. Rather than looking at history from a birds-eye view, the 3d perspective limits the user's visibility and obscures past events once they go out of view. In one sense the 3d perspective makes entries more immediate for users. This view creates a similar effect as the Emma Willard graphics that embraced timelines as a nationalistic, progressive way to visualize history.⁴⁴ Tiki-Toki can present a similar type of linear, progressive narrative. Unlike Willard's timelines that reflect the will of one person, Tiki-Toki has a group edit feature. Multiple authors can contribute content directly. This feature encourages collaborative storytelling that could potentially integrate multiple points of view. The final product is still a linear story, but the ability to have multiple authors removes the authority of the narrative from any one person.⁴⁵

TimelineJS has a similar storytelling function. TimelineJS is an open-source timeline tool created by Northwestern University's Knight Lab. Knight Lab is primarily focused on journalism and creating tools to advance web-based new media. The intended audiences for TimelineJS are journalists and media outlets. TimelineJS encourages timeline authors to choose stories with a "strong chronological narrative," and the software is optimized as a storytelling tool.⁴⁶ A TimelineJS timeline consists in a slider that displays content from an entry with a horizontal timeline underneath the slider.

www.tiki-toki.com/timeline/entry/43/Beautiful-web-based-timeline-software; website last accessed March 2, 2015.

⁴⁴ Schulten, 559; Schulten describes the movement of time in Willard's timelines, stating, "Time flows forward and widens toward the viewer, as opposed to the timeline's trajectory across the page in fixed increments."

⁴⁵ Group editing is only available with the paid version of Tiki-Toki. For an example see, "*Group Edit Demo*," Alex Kearns, Tiki-Toki, accessed March 21, 2015, http://www.tiki-toki.com/timeline/entry/2300/Group-Edit-Demo/#vars!date=2011-05-03_14:01:22!.

⁴⁶ For TimelineJS homepage and quote see: <http://timeline.knightlab.com/>; for information about Knight Lab see "About us," <http://knightlab.northwestern.edu/about/>; websites last accessed March 2, 2015.

If the user employs the timeline to skip entries, the slider will quickly animate through the skipped entries, a similar experience to skimming text. The slider is an easier navigation option and presents users with a linear chronological narrative.

Using TimelineJS does not require coding. Authors can arrange their content on Google spreadsheets with a template that Knight Lab provides, which they can then upload and publish as a timeline through the TimelineJS website. It is possible for authors to create their own JSON files and customize the content and code if they wish and have the skills to do so. Though authors can customize TimelineJS, the abilities of the software are limited. The developers do not recommend more than 30 entries, lest the author risk slow load times. The amount of recommended timeline content requires a similar time commitment as reading a newspaper article, further encouraging users to read the TimelineJS timelines like stories. Reading a larger number of entries would require more time than the casual user has and would be better represented by a timeline with less of a focus on storytelling.

Knight Lab created the timeline *Revolutionary User Interfaces* to exemplify the functionality of TimelineJS (figs. 15-16).⁴⁷ This timeline tracks the development of computing devices that have altered the way humans and machines interact. This timeline makes users think about the interfaces that they use everyday, and to consider the software that is presenting the timeline as a part of that history. As a promotional tool, *Revolutionary User Interfaces* serves as a type of institutional history that places Knight Lab at the forefront of current user interface design.

Like all TimelineJS timelines *Revolutionary User Interfaces* begins with an introduction at the earliest dated entry and moves the users forward. The timeline's first

⁴⁷ "Revolutionary User Interfaces," Knight Lab, accessed March 2, 2015, <http://timeline.knightlab.com/examples/user-interface>.

entry is at 1600 with a machine called the Antikythera Mechanism and travels through a select number of innovations leading to a dramatic increase in the development of innovative user interface technologies in contemporary times with entries such as voice recognition. The timeline does not include failed technology or that which does not have a direct connection to the user interfaces of today. Unlike the *Milestones Timeline*, which includes a wide range of data that requires the user to sift through entries and seek out connections, *Revolutionary User Interfaces* makes the connections for the user. Because of TimelineJS's emphasis on storytelling, *Revolutionary User Interfaces* entails more curatorial decision making than other tools.

The tools and timelines discussed thus far require that timeline authors work with and around the technology in different ways. Rosenberg and Grafton termed digital timelines "grassroots timelines" implying that these timelines are taking the timeline outside of a professional realm and enabling people who otherwise would not have the resources to make timelines to become history producers.⁴⁸ These timeline tools do offer options for people to create timelines without any professional historical training or technical expertise. However, the pool of individuals and organizations making these tools represent a much smaller group with their own motives regarding the function of the technology. Stephen Ramsay and Geoffrey Rockwell question whether digital tools contain arguments in and of themselves or whether they just relay information. They conclude, "Where there is argument, the artifact has ceased to be a tool and has become something else."⁴⁹ In many ways these timeline tools all impose a structure on

⁴⁸ Rosenberg and Grafton, 245.

⁴⁹ Stephen Ramsay and Geoffrey Rockwell "Developing Things: Notes toward an Epistemology of Building in the Digital Humanities" in *Debates in the Digital Humanities*.

timeline authors that affects the way users ultimately read the history that the finished timeline presents.

MIT's SIMILE Timeline, along with their upcoming Chronos software, and Northwestern University's TimelineJS represent divergent paths for digital timeline technology. The former is data driven and encourages users to explore history with the visualization that the timeline provides. The latter is narrative driven and promotes the timeline as a means through which users can take part in a multimedia storytelling experience.

The following section is an in-depth case study of one digital timeline, The Print Center's *Centennial Timeline*. This section analyses the context behind The Print Center's commemorations, discusses the organization's past timelines, considers the practical limitations of creating a digital timeline from within an institution, and explores the merits of the final product as a public, digital history project.

CHAPTER 2

THE CENTENNIAL TIMELINE: A CASE STUDY

Introduction: Commemorative Practices and Institutional History

This section is a case study in timeline production focusing on The Print Center's past and current commemorative activity. The previous section discussed the promise of digital timeline tools and addressed the potential of digital timelines to defeat the notion that timelines can only tell flat, linear histories. In practice, the circumstances under which organizations choose to make timelines can obscure the more idealistic potential of the form. The timeline's context greatly affects its purpose and content. This case study aims to reveal the combination of factors that affect the way organizations present history.

The Print Center, a small nonprofit arts organization, is celebrating its centennial in 2015 and is using the occasion to undertake a digital timeline project. In the summer of 2014 I commenced an internship at The Print Center. During this internship I researched in The Print Center's archives, participated in the planning of the centennial, and observed the daily operations of the organization. My time at The Print Center enabled me to reflect upon how the context of institutional history and commemoration affects public historical representations such as timelines. I have not created content for the *Centennial Timeline*, but while working on the centennial website that houses the timeline I became familiar with the how the timeline could evolve and began developing a plan that could potentially guide the timeline through the centennial and beyond.

This centennial is one of many anniversaries The Print Center will have celebrated over its history and the *Centennial Timeline* is one of many timelines that these anniversaries have brought to life. This timeline blurs the lines between

commemoration, memory, and history. Because it involves The Print Center's community of supporters, the timeline is as much a tool that looks to the future, speculating about the organization's next hundred years, as it is one that reflects upon its history. The timeline uses The Print Center's current institutional identity as a springboard from which to find points in the past that reveal how the organization became what its community know it as today.

Public historians have grappled with commemoration and institutional histories in a struggle to understand why people remember institutions in the ways that they do. Historian Richard White frames the processes of history and commemoration as "forms of mediation between past and present."⁵⁰ A timeline of institutional history typically leads directly to the present, and the individuals who author these timelines need to be acutely aware of the repercussions of the past that they assign to an institution. Public commemorations often use history in ways that can highlight present issues, conform to or challenge accepted narratives, and can be celebratory for those involved. Unlike academic pursuits, public commemorations are often personal for participating individuals and groups.

Where a commemoration takes place, who runs the show, and what their motives are can greatly affect the nature of commemorative activity. The book *History Wars: The Enola Gay and Other Battles for the American Past* illustrates the controversies that arise when a professional historical retelling focuses on changing a national narrative from within a national institution. The Print Center is not contending with a national audience like the Smithsonian, but its community does accept a narrative

⁵⁰ Richard White, "A Commemoration and a Historical Mediation." *The Journal of American History* 94, no. 4 (2008): 1073.

of the organization's identity. Within this narrative, The Print Center is an inclusive organization that supports artists and artistic innovations.

This narrative drives The Print Center's identity and image. The "About Us" page on the organization's website demonstrates how identity and history converge at The Print Center. The page states, "In 1996, The Print Club changed its name to The Print Center to mark its commitment to serve both its members and its community." In a *Courier-Post* article from February 27, 2015, Fred Adelson reports, "In 1996, The Print Club changed its name to reflect more accurately that it serves a broader public audience."⁵¹ These statements imply that the name The Print Club isolated the organization's community. The shift in perception that center is better than club likely resulted from a combination of external forces and internal developments that created a distance between the old use of club and the new center. Regardless, The Print Center now commemorates itself as a center; club rarely appears on anniversary publications. Altering the history that accompanies The Print Center's identity as a center affects the way that the organization encourages people to give them support, particularly financial support. This example illuminates the political dimension to commemorations that can be difficult to reconcile with history.⁵²

⁵¹ Fred Adelson, "100 years of printmaking is worth celebrating," *Courier-Post*, February 27, 2015, accessed March 8, 2015, http://www.courierpostonline.com/story/entertainment/2015/02/27/years-printmaking-worth-celebrating/24152495/?utm_campaign=%5B%27The+Print+Center+at+100%3A+%22Vibrant+and+Relevant%22%27%5D&utm_source=%5B%27Copy+of+PABF+%2B+Exhibitions%27%5D&utm_medium=%5B%27email%27%5D.

⁵² Among the works that illustrate controversies that commemorations can bring about, in addition to *History Wars*, are David Thelen, "Memory and American History," *The Journal of American History* 75, no. 4 (1989): 1117-1129; Sarah J. Purcell, "Commemoration, Public Art, and the Changing Meaning of the Bunker Hill Monument," *The Public Historian* 25, no. 2 (2003): 55-71; and Veronica Strong-Boag, "Experts on Our Own Lives: Commemorating Canada at the Beginning of the 21st Century," *The Public Historian* 31, no. 1 (2009): 46-68. For The Print Center, I have tried use the name of the organization relevant to the date of my sources; therefore I use both The Print Center and Print Club based on context.

For an organization with an upcoming anniversary the decision to write an institutional history is strategic. Institutional histories can take a variety of forms. Institutional histories can range in content and form from the paragraph about a company on the back of a granola bar to coffee table books filled with photographs from factory floors. The majority of institutional histories tell stories of success, progress, and power. An institution that publishes its history on its product wants to connect with its customers, appealing to their sentiments.⁵³

The Print Center has a genuine concern for history, but the motivations for turning the magnifying glass upon the organization itself has more to do with The Print Center's present struggle to stay relevant amidst the city's large number of arts organizations. The Print Center in the past was one of a select number of Philadelphia art institutions. The travel brochure "Philadelphia in the Spring" from the 1950s only advertises two organizations specializing in contemporary art: the Print Club and the Philadelphia Art Alliance.⁵⁴ The current agency that markets Philadelphia tourism, Visit Philadelphia, does not list The Print Center among the dozens of contemporary art

⁵³ Institutional histories often struggle between how to portray the institution, the institution's need to staying in business, and how to portray more delicate, potentially controversial histories. Works that cover issues of institutional histories include scholarly monographs such as Richard Handler and Eric Gable, *The New History in an Old Museum: Creating the Past in Colonial Williamsburg* (Durham: Duke University Press, 1997); and Tony Bennett *The Birth of the Museum: History, Theory, Politics* (New York: Routledge, 1995); articles from historians include Eric L. McKittrick and Stanley Elkins, "Institutions in Motion," *American Quarterly* 12, no. 2 (1960): 188-197; Sally Gregory Kohlstedt, "Institutional History," *Osiris* 1 (1985): 17-36; and Abir-Am, Pnina G. "Introduction." *Osiris* 2nd Series, Vol. 14, "Commemorative Practices in Science: Historical Perspectives on the Politics of Collective Memory," (1999): 1-33; from the perspective of corporate history literature includes W. Richard Scott, "Reflections: The Past and Future of Research on Institutions and Institutional Change," *Journal of Change Management* 10, no. 1 (2010): 5-21; and Agnès Delahaye, et al., "The Genre of Corporate History," *Journal of Organizational Change Management* 22, no. 1(2009): 27-48.

⁵⁴ "Philadelphia in the Spring," Brochure, box 25, folder 9, collection 2065, Print Club archives, Historical Society of Pennsylvania. (Hereafter: Print Club archives, HSP.)

galleries on its “All Art Museums and Galleries” page.⁵⁵ For The Print Center the centennial serves as the organization’s bid to publicize and reclaim its former status.

The Print Center’s History in Commemorations Past

With its relevance and finances at stake, how The Print Center approaches telling its history in the centennial could take different forms. The Print Center has celebrated multiple anniversaries in the past with a range of programs, exhibits, and publications. The timelines that the organization created for these anniversaries present the history in a way that reflected the state of the organization at the time of the commemoration.

Most of The Print Center’s commemorative activity occurs through exhibits. The exhibits at The Print Center’s fiftieth and sixtieth anniversaries commemorate the institution through artwork chosen to represent history.⁵⁶ In this way the institution is directly linked to developments in art and is able to portray itself as promoting and encouraging artistic developments. As commemorative events, these exhibits promoted a sense of reverence for the past and pride in the present. As historical narratives,

⁵⁵ “All Art Museums & Galleries,” Visit Philadelphia, accessed March 2, 2015, <http://www.visitphilly.com/music-art/art-museums-galleries/view-all>.

⁵⁶ For example, during the fiftieth anniversary, The Print Club organized an exhibit in which prints from 1914 and 1915 were juxtaposed with prints from 1965. This exhibit displayed a stark comparison between the types of prints popular at the founding of the club and contemporary prints. This selection of a group of prints from the founding year could be an immersive experience and give viewers a feel for what the club was like at its inception. The sixtieth anniversary in 1975 featured an exhibit called “60 Prints from 60 Years.” In this exhibit one print was chosen for every year from 1915 to 1975 from artists who had previously exhibited at the Print Club. Viewers could draw a line from the organization’s founding to themselves. The systematic presentation of art encouraged viewers to feel detached from the history and potentially more reflexive about change than the fiftieth anniversary exhibit. Simultaneously, because only one print represented a single year the overall historical narrative of the exhibit is a continuous linear progression over which change occurs at equal rates. See: “Fiftieth Anniversary Exhibition,” box 25, loose paper, Print Club archives, HSP; and “60 Prints from Sixty Years,” box 17, folder 13, Print Club archives, HSP.

conflict was absent and plot development was relatively flat. The Print Center intended these exhibits to encourage viewers to look forward and speculate about what type of art will be next. In the range of anniversaries that The Print Center has celebrated, a few turned the spotlight on the organization itself and told an institutional history as a part of the commemorative celebrations. Publications from the fortieth and ninetieth anniversaries contain timelines that include this type of institutional history.

The brochure “Fortieth Anniversary: The Print Club” is a horizontally formatted booklet containing short essays about the organization and two separate timelines, one titled *Print Club Milestones* and another titled *Exhibition Highlights*.⁵⁷ Each timeline consists of a vertical list of years, with accompanying descriptions. The section *Print Club Milestones* is brief and relays the movement of the club leading to its permanent home at 1614 Latimer Street, staff increases, staff changes, and a few notable programs such as the Artists’ Assistance Fund and the printmakers’ workshop. *Exhibition Highlights* lists the first dates of the Print Club’s various annual competitions and names of prominent artists who exhibited at the club in a given year, for example, “1934 – Audubon.” In the exhibition timeline some years are listed twice and some skipped entirely. The separation of institutional history from exhibit history in the fortieth anniversary timelines creates a more layered depiction of the organization’s history than an exhibit alone.

From *Exhibition Highlights* readers sense that the Print Club expanded its infrastructure in the 1920s, establishing a series of competitions still in effect when the booklet was published. Through the 1930s and early 1940s the entries display how the club integrated shows illustrating the history of printmaking with contemporary art. In the

⁵⁷ “Fortieth Anniversary: The Print Club,” box 17, folder 13, Print Club archives, HSP.

late 1940s and 1950s the entries become almost entirely contemporary. The last three entries highlight the club's efforts to reach an international community, both in showing international artists and in sending American prints abroad.

Print Club Milestones has a cluster of entries between 1914 and 1927 that takes up more than half of the timeline. This section tells the early foundation of the club, primarily concerned with the establishment of a permanent headquarters. One entry indicates conflict stating, "1918 – Headquarters relinquished because of war." Unlike exhibition histories and statements of growth in which the organization has agency, this entry indicates that the club does not have full control over its history or destiny. The entries from the 1920s highlight the club's incorporation and staff development. The remaining entries from the 1930s to 1950s shift to program development and staff expansion. Together, these two timelines paint a picture of a small organization that established itself in the 1920s, grew steadily through the 1930s and 1940s, and had established itself as a prominent arts organization by 1955.⁵⁸

The ninetieth anniversary publication from 2005, "90 Years: Nurturing the New," contains another timeline.⁵⁹ This publication is a tri-fold brochure with a timeline across the lower half. This timeline is split into nine decade long sections beginning at 1915. Events that took place in the decade timeframe are stacked vertically over the decade. Visually, the vertical events create an oscillating wave-like effect, steadily growing from the first decade, 1915-1924, to the last, 1995-2005. This timeline primarily focuses on the expansion and development of The Print Center with entries highlighting prominent individuals whose art The Print Center displayed or published, the establishing of

⁵⁸ See newspaper clipping, "She Has Spurred Print Club to New Heights of Prestige," box 65, scrapbook 1954-1955, Print Club archives, HSP.

⁵⁹ "90 Years: Nurturing the New," (The Print Center, 2005). The Director of The Print Center gave this brochure to me.

programs, and notable firsts. A few undated entries tell general developments. This timeline integrates The Print Center's exhibition history, program history, and internal history resulting in a timeline that has an official, authoritative feel.

Compared to the fortieth timelines less space is devoted to operations. The first entry about the building is 1927, covering the purchase of 1614 Latimer Street. The ninetieth timeline skips the organization's earlier struggle to find a space in which to operate. Instead of internal developments, names are important on the ninetieth timeline. Most of the names the ninetieth timeline relays are notable individuals. For example, "1954-1965 / Purchased complex experimental prints by Jasper Johns and Robert Rauschenberg shortly after their creation." This entry suggests that the club investing in these two recognizable artists early on is a feat in itself. The timeline does not give the reader any idea as to the other purchases the club made during that ten-year period nor does the timeline indicate how prominent Jasper Johns and Robert Rauschenberg were at the time when the club purchased their work. This timeline also puts additional emphasis on naming funders such as the Ford Foundation and The Pew Charitable Trusts. The emphasis on name recognition in the ninetieth timeline indicates that the purpose of the timeline is to be a physical manifestation of The Print Center's prominence.

The differences between the fortieth timeline and the ninetieth timeline denote that the situation of the club in its respective present greatly affects the way it portrays its history. One of the critiques of timelines compared to more traditional historical narratives is that they offer little interpretive history. Though both timelines portray linear, progressive, and relatively one-sided narratives, the differences between the two indicate that timelines are interpretive and that the historical quality of their content depends as much on its authors as it does on the timeline's linear form. These timelines

highlighted events that the authors felt were most instrumental in creating The Print Center that they knew. In 1955 the Print Club was experiencing growth. The clubs' early troubles to find a headquarters were struggles that the club survived and prospered through. In 2005 The Print Center was trying to re-imagine itself in a competitive nonprofit landscape and needed the history to emphasize impressive professional achievements. For its centennial in 2015 The Print Center is again rewriting its history.

The Print Center's *Centennial Timeline*

The Print Center's *Centennial Timeline* is the means through which the organization is currently publishing its institutional history. As a whole the Print Center's centennial, "The Print Center: 100 Years in 2015," will incorporate fundraising events, a gala, a collaborative art exhibit, and a website within which the timeline is only a small part. This section analyzes the development of this timeline, taking into consideration timeline's digital format, its content, and its overall potential as a means through which The Print Center can share its institutional history.⁶⁰ (See *figs. 17-22* for images of the *Centennial Timeline*.) The Print Center intends the design of the timeline to be the foundation from which to build an interactive institutional history that eventually will be integrated into the main website and actively updated with current events and historical findings from the archives. The *Centennial Timeline* will likely undergo various alterations over the course of the centennial. In addition to populating the timeline with

⁶⁰ The information in this section about the Print Center's centennial activity and website is current as of March 3, 2015. The timeline can be viewed at "Timeline," The Print Center, <http://printcenter.org/100/timeline-2>. On the webpage the timeline is titled *Timeline*. Because I am writing about multiple timelines I chose to name it the *Centennial Timeline* for clarity. In addition to the website, some of the information in this section, especially concerning the internal structure of The Print Center is from my internship at the organization between May and July of 2014.

information from the archives, The Print Center is soliciting its community to submit stories. Ideally the timeline will enable individuals with different interests and perspectives to become contributors. It is The Print Center's hope that the timeline will become a collaborative, dynamic digital project that never reaches a state of completion. With goals emphasizing collaboration, shared knowledge creation, and interactivity, the spirit of the *Centennial Timeline* aligns with that of many other digital history projects.

The Print Center established the basic concept and design of the timeline in the fall of 2013. For the *Centennial Timeline* The Print Center chose a simple design matching the organization's aesthetic. The design has a vertical orientation in which older events are positioned at the top. A single line centered on the page represents the timeline. Small circles along the line represent entries, with entries alternating between left and right alignments. Larger bold text displays the year of the entry and a title, below which is smaller text with a brief excerpt from the entry's page. Some entries have thumbnail images below the year and title. All entries link to an individual page with expanded content. The development of the timeline involved creatively using and manipulating the technology until the result resembled The Print Center's initial vision.

Developing the Timeline

The *Centennial Timeline* is a part of The Print Center's centennial website. The centennial website is built with WordPress. The Print Center chose a plugin that uses a custom post layout to generate the timeline. Like with other digital timeline tools the *Centennial Timeline's* unique interface compels authors to add, edit, and narrate the history in particular ways. Each timeline entry is an individual post that the author must assign the category "Timeline" in order for the post to appear on the timeline. The only content on the editor of the "Timeline" page from the back end is the shortcode that

activates the plugin. Contributing to the timeline requires understanding the relationship between WordPress posts, the plugin's code that structures them, and the page on which they end up. The possibilities and potential of the timeline becomes more clear and realistic once the project's authors make themselves aware of the limitations of the technology.⁶¹

The Print Center is a small nonprofit and has neither the funds to hire a developer nor any dedicated IT staff to create the centennial website. Thus, The Print Center is heavily reliant on plugins and other free tools to produce web content that the organization would not otherwise have the resources and time to create. Additionally, the democratic rhetoric of the organization makes open source software a good fit. The plugin that creates the centennial timeline is called "WordPress Posts Timeline." This plugin is available for free through WordPress.org. The author of the plugin is Wylie Hobbs. Hobbs released the first version of the plugin on May 8, 2012. At its inception the plugin created a static timeline without the ability to link to the posts, a function that Hobbs added on July 31, 2012. The plugin's last update, which took care of a few CSS issues and ensured compatibility with the most recent update to the WordPress software, was on February 11, 2013. Since that time WordPress has undergone multiple updates, while the plugin's development has remained stagnant.⁶²

⁶¹ Historian Shawn Graham emphasizes that digital technology, in its limitations, causes its users to think in specific ways. Graham stated, "In digital work, these models are explicitly written in computer code. Understanding how the code forces a particular worldview on the user is a key portion of becoming a "digital historian."" See: Shawn Graham, "The Wikiblit: A Wikipedia Editing Assignment in a First-Year Undergraduate Class," in *Writing History in the Digital Age*.

⁶² "WordPress Posts Timeline," WordPress.org, Plugin Directory, accessed March 3, 2015, <https://wordpress.org/plugins/wordpress-posts-timeline>; The plugin's development log is found here: <https://plugins.trac.wordpress.org/log/wordpress-posts-timeline>. For a summary of the plugin's development see: [wordpress-posts-timeline/tags/1.6.1@666507/Readme.txt](https://plugins.trac.wordpress.org/browser/wordpress-posts-timeline/tags/1.6.1@666507/Readme.txt), <https://plugins.trac.wordpress.org/browser/wordpress-posts-timeline/tags/1.6.1?rev=666507>.

For Hobbs, the financial gain from developing this plugin comes solely through voluntary donations. For the developer the total time involved in constantly upgrading the code, fixing bugs, and replying to user questions adds up to a cost that can exceed the benefits. Though “WordPress Posts Timeline” has had over 9,000 downloads during its three year existence, this user-base has not been enough to build a community who will contribute to the plugin’s development, either financially or by improving and updating the code themselves. The Print Center cannot assume that Hobbs will expand the timeline’s functionality and customization settings in the future. The dynamic environment revolving around free software means that organizations like The Print Center need to be flexible and adaptable when the tools it uses are no longer supported.⁶³

For now, The Print Center is using the plugin as is. The basic function of the plugin is to format the timeline author’s posts into a vertical timeline. Hobbs did not publicize the plugin as a tool intended to handle complex historical timelines. The plugin pulls from the author’s WordPress theme for font and style, resulting in a simple timeline that is not as visually distinct as tools such as Simile or Tiki-Toki. This absence of bells and whistles enables The Print Center to author a more individualized timeline than it would be able to create using a tool that more strictly controls the timeline content. However, the simplicity of the timeline also means that the *Centennial Timeline* will not have some of the features that are standard on other tools such as zooming and categorizing entries. The plugin does include an options page that allows authors to make some customizations without coding. The decisions that The Print Center makes

⁶³ For more see, Cohen and Rosenzweig, “Preserving Digital History – The Fragility of Digital Materials” in *Digital History*. Cohen and Rosenzweig discuss the fragility of digital history projects extensively.

regarding these options affects how users interact with the timeline and the history it portrays.

Customizations for the timeline include basic formatting such as the choice to have a thumbnail appear with entries, the date format visible on the timeline, and whether the author wants posts in ascending or descending order. These options appear as simple forms limited to a small range of choices, but are user-friendly for timeline authors who do not know how to code. The plugin will only allow one category of posts in the timeline and will not support multiple timelines without timeline's authors customizing the code themselves. As a result, The Print Center's *Centennial Timeline* exists on one linear path with no visual distinction between exhibits, programs, or operations. The ability for the timeline to link out to posts can break some of the linearity for users and has the potential to create historical depth out of what previously would have been a simpler list of chronological events. The available options apply to the timeline universally. All dates are displayed in the same format. All excerpts are the same number of words. All images are the same size. As a gallery devoted to contemporary art, The Print Center's aesthetic is in line with this simple, elegant design. For the purpose of telling a complex history, this elegance could be misleading.

The Print Center could add minor customizations to the timeline by accessing the plugin's code. However, it is unlikely that interns, historians, or staff at The Print Center working on the timeline will have experience or training in web development. It is equally unlikely that anyone working on The Print Center's timeline will write any code from scratch to add functionality to the timeline. Nevertheless, understanding the plugin's files can give authors a clearer idea of the plugin's functionality and potential, essential for

understanding the difference between the functionality of timeline entries as they appear on the timeline and the same entries as they appear as posts on their own pages.⁶⁴

From the back end the entries that make up the timeline content are blog posts. The Print Center's centennial website uses posts for multiple purposes in addition to the timeline. Unlike some timeline builders like Tiki-Toki, which has an interface that mirrors the final design of the timeline, The Print Center's *Centennial Timeline* can be cumbersome to edit from the back end. WordPress organizes posts in the back end by the date authors add them, not the historical date they represent. As a content management system for blogging, the WordPress interface works well. For the purpose of managing a historical timeline, the content can get jumbled amidst a variety of posts, especially when authors add entries out of order.

From the front end, the entries' titles navigate users out of the timeline and onto the individual post pages that WordPress automatically generates for all posts. The entries, as WordPress posts, have the capacity to utilize all of the functions available for any other Wordpress posts. In addition to text, posts can support a variety of media including images, galleries, slideshows, and video. A major difference between the way The Print Center's timeline functions and the way other timeline builders function is that the entry content is independent of the timeline software. For the *Centennial Timeline*, the Print Center chose the ability to generate customized content on entry pages in exchange for the ability to structure its data into a cohesive visual space.

The flexibility of WordPress posts does put limits on the *Centennial Timeline*, notably in how the timeline portrays dates. WordPress post dating options determine the timeline entries' dates. To accommodate this date structure The Print Center's

⁶⁴ For a more detailed explanation of the plugin see Appendix B.

Centennial Timeline only shows years for items and does not show any months or days. When authors add an entry they must backdate posts to the year that the entry will appear on the timeline. Publishing the year alone ensures that the author adding entries to the timeline will not have to publish incorrect dates on entries which occurred over a long period or for which dates are unknown.

The way dates appear on the timeline can affect how users perceive past events. Some events in The Print Center's history took place on specific, known days. Usually these are events such as exhibit openings, lectures, and programs. Other events took place in longer timeframes. The Print Center's copper drive, wherein the organization collected metal plates from artists and donated them for repurposing during World War II, took place over a few months. Ideally the timeline would be able to indicate the specific day on which a lecture took place and the time period during which the copper drive happened, but that is not how WordPress works. Technological limitations largely guided the *Centennial Timeline's* date format. Consequently, dates on the *Centennial Timeline* are similar to those in previous anniversaries. From the front end all entries appear as a point, taking place in a single year.⁶⁵

To users, the *Centennial Timeline* appears simple and elegant. The interface that authors navigate to create content was not developed for the purpose of writing historical content and can be cumbersome. Regardless, using WordPress is relatively easy and is a good option for cash-poor organizations that already have web hosting like The Print Center. The software requires little coding and contains a range of free resources to do different tasks, qualities that can help small nonprofits. This discussion of the back end

⁶⁵ Similarly, WordPress does not give users the option to leave out days and months on posts. To prevent erroneous dates appearing within the entries' pages the metadata has been removed through custom CSS for all posts. If known, the authors can specify dates and general time periods from within the text of the entry's post. The result of removing post metadata is that each post page looks more like a standard webpage and not a blog post.

focused on the basic form of the timeline and the technology that creates it. Designing content for the *Centennial Timeline* requires that the authors be aware of the limitations of the technology in addition to being conscious of how the timeline's user audience interacts with the history on the published timeline.

Forming Entry Content

There is a multitude of ways to format content on the timeline. The timeline could have a select number of entries with longer, more researched posts, or it could have a large number of posts with shorter, one to two paragraph descriptions. Most of the decisions about content seem relatively mundane compared to the overarching historical narrative of The Print Center's history. Nevertheless, deciding how to title entries, how to format images within the entries, and what types of captions to use saves time for the authors and makes the timeline more cohesive.⁶⁶ For authors in charge of writing content, having an estimation of the required type and length of content provides a framework around which to focus. With a clear direction, authors can be more productive in their research and writing. Keeping entries consistent is beneficial for users looking at multiple entries because consistency prevents users from readjusting their expectations with every entry and instead enables them to focus on the history and ideas.

In The Print Center's earlier timelines paper space was a huge factor in determining the length of the timeline and entries. The Print Center believes that the

⁶⁶ For example, the *Centennial Timeline* displays a five-word excerpt with entries and links to the entries' post page. It is possible to display the entries' full text. A benefit of putting all the content on the timeline is that it prevents users from constantly clicking out of the timeline then back in: an action that could become tiring and turn off users. With this format it would be beneficial to have short entries to ensure users would not get lost within a sea of text separating one entry from another. However, if the timeline displayed full entries the scrolling length of the timeline would increase significantly. What this speculation displays is that the decisions The Print Center makes regarding simple formatting have consequences that affect the way they narrate their history.

Centennial Timeline will be different because of its digital form. In little ways the digital timeline is different. The ability to devote more time to an entry than simple descriptive text adds an interpretive dimension to the digital timeline absent in the organization's previous institutional histories. The ways that users can scroll around the timeline, the ways that users can link out of the timeline and back in again, change the how people interact with the timeline.

The Print Center describes the primary characteristic of the timeline as interactive. Calling a digital project interactive could mean different things.⁶⁷ For the *Centennial Timeline*, The Print Center interprets interactive as a multimedia project with entries that promote the connections The Print Center has with other organizations and artists through linking outside of The Print Center's website and which includes contributors from its community. Ideally these elements create a different, more democratic, type of history than the previous timelines.

One way to accomplish a cohesive and still engaging timeline would be to create a few standard entry types under which most timeline entries will fall. For the *Centennial Timeline*, text-based, media-based, and research-based entries could together fulfill the organization's goals for the timeline. Keeping most entries short would require the author to pinpoint potential entries relevant to the history and speculate about what users would be interested in. Eliminating entries because they will not generate user interest could potentially skew the history and downplay important issues. However, institutional histories struggle with relevance. Controlling the entries based on potential interest could make the timeline relevant to its audience. For The Print Center staff with little time to

⁶⁷ For Cohen and Rosenzweig, interactive means, "a two-way medium, in which every point of consumption can also be a point of production." With this definition, interactivity means enabling a dialogue in which the historian is not the only contributor. See Cohen and Rosenzweig, "Exhibits, Films, Scholarship, and Essays" in *Digital History*.

work on the project, the small doses of research and writing could be encouragement to add entries because it will take up less of their time.⁶⁸

Having a select number of longer entries featuring research from the organization's archives would be useful to put the shorter entries into a wider historical context. Longer entries would also serve a large portion of The Print Center's audience: students, their professors, artists, and art collectors. The Print Center has close relationships with universities and art schools around Philadelphia and commonly invites classes in art history, printmaking, and photography to the gallery. Well-researched entries dealing with the arts community could appeal to this group. In addition to serving an academic community, a few longer entries would be a valuable tool for The Print Center to keep track of the research that has been done in its archives.⁶⁹

The main goals of creating a variety of standardized entries are to present users with choices, provide a variety of media to hold their attention, and keep the timeline as cohesive as possible. The options for formatting images, slideshows, and text on WordPress are plentiful and could become distracting if the timeline embraces too many different visual elements.⁷⁰ The challenge with making decisions about content is in balancing The Print Center's needs and resources with the users' interests. The *Centennial Timeline* has the potential to form a network within entries wherein the

⁶⁸ See Appendix B for expanded suggestions relating to content guidelines.

⁶⁹ During my internship I stumbled across notes saved to The Print Center's server from ten years prior that covered boxes from the archives that I had recently gone through on my own. Ansley T. Erickson cited have similar problem of keeping track of her notes and sources that she accumulated in digital formats. See Ansley T. Erickson, "Historical Research and the Problem of Categories: Reflections on 10,000 Digital Note Cards" in *Writing History in the Digital Age*. Using the timeline a type of research aid would enable The Print Center to identify underrepresented areas to direct future researchers.

⁷⁰ For more see Cohen and Rosenzweig, "Designing History for the Web," in *Digital History*. Cohen and Rosenzweig warn about how available formatting options for digital history projects can become a burden and distracting for the project's authors and users.

accumulation of information encourages users to view the entries in conversation with one another and piece together a multifaceted story.

Ultimately, how users experience the timeline will determine its development moving forward. Given the dynamic, collaborative nature of the timeline, its advantages could turn to disadvantages if the content becomes too dispersed and unfocused. Users could perceive the timeline to be clean and simple, appreciating the linear format and the entry layout. Users could also perceive the layout as tedious. Many online timelines have sliders that give users a reference point from which they can easily jump around time periods. The Print Center's *Centennial Timeline* does not have this. On the *Centennial Timeline* points between entries are not based on measured time, but equidistantly placed along a line. There is little reference for users as to the total size of the timeline or how to find a particular time period. If users want to find the 1970s they will have to scroll until they get there. Consequently, the middle of the timeline easily feels like a cartoon ladder that has no beginning or end (*figs. 17-18*). Currently, the small number of posts prevents the visual monotony from being detrimental. However, if more posts are added in the future the timeline could get so long that visitors will not have the time or patience to sort through it. At this future junction The Print Center would have figure out a solution, and possibly transfer the timeline to another interface.

Categorization is one organizational feature of most digital timelines that is absent from the *Centennial Timeline*. With categories users can quickly identify and sort entries without reading them. There are ways in WordPress to manage posts. Tagging and tag clouds would be the easiest and most efficient way to categorize timeline entries. With tags, such as "publications," "exhibits," and "education," the *Centennial Timeline* could isolated histories and draw lines between non-consecutive points in The

Print Center's history. As an idea, tag clouds have the potential to add historical depth to the timeline, but actually making the idea work involves a few practical hurdles.⁷¹

The Print Center's *Centennial Timeline* is in an early stage of development. Thus far this section has contemplated how the organization could creatively collaborate with the technology to bring its vision to life. These contemplations are suggestions for how a historian would like to develop the timeline and do not represent the timeline as it is. To understand the historical message that the timeline relays to users requires analyzing the timeline as The Print Center has published it thus far.

The Published Timeline

The timeline currently exists as a page on The Print Center's centennial website. At the top of the page is a brief introduction to the timeline accompanied by a photograph of The Print Center as it stands today. The text states, "The Print Center's first 100 years have been marked by an abundance of important milestones, both for the organization and for the fields that we serve: printmaking and photography."⁷² Emphasizing that the history extends beyond the organization into the fields of printmaking and photography implies the organization's relevance. This statement of relevance justifies the timeline's existence to potential audiences who are involved with photography and printmaking, but may not necessarily be familiar with The Print Center.

⁷¹ Karen Louise Smith discusses the advantages of tag clouds, stating, "They do not exist solely to categorize data or content. They signal to others on the web, that there is a potential interest in collaboration and participation." See Karen Louise Smith, "From Talk Back to Tag Cloud: Social Media, Information Visualization and Design." *Science and Technology for Humanity (TIC-STH)*, 2009 IEEE Toronto International Conference. (Conference dates, September 26-27, 2009): 907. For the *Centennial Timeline* the downside to tag clouds is that tagging is a WordPress feature, not a feature of the timeline plugin. As a result posts on archive pages are not displayed as a timeline. Making the tag clouds work requires customizing the website theme's code.

⁷² "Timeline," The Print Center, accessed February 14, 2015, <http://printcenter.org/100/timeline-2>.

The introduction uses collaborative, inclusive language. The text indicates that the source material for the timeline is both the organization's archives as well as "the memories of the artists, members, staff and many others that have shared our history," and provides users with a link where they can suggest posts.⁷³ The timeline does not distinguish between memory and history. Instead, the *Centennial Timeline* introduces The Print Center's past as a shared history that ultimately produced The Print Center standing today. The rhetoric of the introduction portrays The Print Center as a community rather than an institution.

Describing the project, the introduction states, "The Timeline, launched to celebrate our Centennial, will be an ongoing effort – designed to grow and deepen over time."⁷⁴ As of February 14, 2015, The Print Center's *Centennial Timeline* had thirty-one entries. The majority of the entries cover leadership, exhibits, and program development. With The Print Center's intended updates and user contributions, the timeline could eventually portray a narrative that reflects the community-oriented history advocated for in the timeline's introduction. Presently, the thirty-one entries reflect a traditional selection of institutional events typically found in institutional histories. Despite the organization's hopes that the *Centennial Timeline* will represent a turn in the way the organization tells its history, the current entries form a narrative of The Print Center's history that is similar in feel to the fortieth and ninetieth timelines.⁷⁵

The *Centennial Timeline* as a whole tells a narrative of The Print Center's history with three main three main plot points, roughly coinciding with different time periods. The

⁷³ Ibid.

⁷⁴ Ibid.

⁷⁵ The *Centennial Timeline* underwent changes during the writing of this paper. See Appendix A, *figs. 21-22* for a discussion of how the timeline has evolved over the course of this thesis.

timeline relays major firsts for The Print Center, followed by programmatic growth, and leads into major exhibits and publications that had significant financial support.

The first entry is “1915 – The Print Center Was Founded.” This entry is identical to the same entry on the ninetieth timeline. Like on the ninetieth timeline, this entry contains no background information on the group that founded the club or the club’s transitory period leading to its move to 1614 Latimer Street. The following entries display growth and major firsts. Beginning with the entry “1941 – Drive to Collect Copper Plates for the War Effort,” the entries focus more on program development, such as the educational program Prints in Progress and Director Berthe von Moschzisker’s support of modern art, as well as institutional growth, such as and the building expansion. Beginning with the entry “1981 – The Philadelphia Portfolio,” most of the entries shift to being more about publications and exhibits that The Print Center commissioned. Like the later entries from the ninetieth timeline, these entries highlight professional accomplishments and major gifts from large foundations. The only entries that appear throughout the whole timeline are entries about changes in leadership.

The overall narrative is celebratory and positive. At face value, the entries as a whole reveal how the timeline is a reflection of the way that The Print Center imagines its own identity. For a user, scanning on the surface of the timeline results in no significant differences from The Print Center’s earlier histories. The entries’ content supports the celebratory feel of the timeline. The entries primarily contain text that ranges from 40 to 200 words with general statements and no citations. This content has the most potential to challenge the previous timelines, but could simultaneously portray a history that is out of alignment with the image of The Print Center today.

The entry “1942 – The Print Center Permanent Collection at the Philadelphia Museum of Art” could potentially challenge The Print Center’s identity (*fig. 20*).⁷⁶ The entry contains a paragraph about the Print Club Permanent Collection, the collection that founded the print collection at the Philadelphia Museum of Art. It includes links to biographical articles on Carl Zigrosser and Lessing Rosenwald, and an image of a print of Carl Zigrosser. Different accounts of the Permanent Collection appeared in the fortieth and ninetieth timeline. The fortieth timeline describes the Print Club Permanent Collection as a committee that ran an annual fundraising campaign to purchase prints that would be given to the Philadelphia Museum of Art. By the ninetieth anniversary the original relationship between the two institutions became muddled. The ninetieth timeline introduces The Print Center Permanent Collection as a collection that The Print Center had been accumulating independently since its inception and that the organization gave to the Philadelphia Museum of Art in 1942 at the instigation of Zigrosser and Rosenwald. Both versions emphasize that the Philadelphia Museum of Art did not collect prints before the intervention of The Print Club.⁷⁷

The difference lies in where The Print Center fits in the story. That a collection from a small organization founded the print collection of the Philadelphia Museum of Art is something that elicits a sense of pride from the organization. Research in the archives has brought to light that The Print Club Permanent Collection never existed as a collection at the Print Club.⁷⁸ The Print Club hosted the committee, which in turn raised

⁷⁶ “The Print Center Permanent Collection at the Philadelphia Museum of Art,” The Print Center, accessed March 3, 2015, <http://printcenter.org/100/1942/10/19/inauguration-of-the-print-center-permanent-collection-at-the-philadelphia-museum-of-art>.

⁷⁷ “Fortieth Anniversary: The Print Club,” box 17, folder 13, Print Club archives, HSP; and “90 Years: Nurturing the New,” (The Print Center, 2005).

⁷⁸ For documents relating to the Print Club Permanent Collection see: box 5, book 1, Print Club archives, HSP.

funds to purchase art. The Print Club was integral in founding the Philadelphia Museum of Art's print collection, but not in the way that has become a crucial aspect of The Print Center's institutional identity.

Currently, the entry about the Permanent Collection on the *Centennial Timeline* does not specify the nature of the arrangement that the Print Club had with the Philadelphia Museum of Art. Writing and publishing an accurate description of the Permanent Collection would not just affect the timeline. The "History" section of The Print Center's "About Us" page on its main website claims, "In 1942, The Print Club donated its collection of prints to the Philadelphia Museum of Art forming the core of their fledging print department."⁷⁹ The Print Center advertises its relationship with the Philadelphia Museum of Art to its community and revising this relationship could be a challenge.

In addition to challenging the accepted institutional narrative, entries could provoke conversation. The entry, "1929 – Alan Freelon, First African American Exhibiting Member" has the potential to encourage users to contemplate history. This entry begins, "Founded on democratic principles, women and people of color were included in the membership from our earliest days."⁸⁰ Without directly stating the reality of racial prejudice in the twentieth century, this statement implies that the Print Club's activity went against the current and that the founding ideology of the organization is relevant today.

⁷⁹ "About Us," The Print Center, accessed March 3, 2015, http://www.printcenter.org/pc_about.html.

⁸⁰ "Alan Freelon, First African American Exhibiting Member," The Print Center, accessed March 3, 2015, <http://printcenter.org/100/1929/01/19/allan-freelon-first-african-american-exhibiting-member>.

The text subsequently gives a brief biography of Alan Freelon, including his becoming a member of Print Club in 1921. The text also relays that before Freelon became a member of The Print Center he attended the Pennsylvania Museum School of Industrial Art on a full scholarship and received degrees from the University of Pennsylvania and Tyler School of Art at Temple University. The year that he became a member he had a solo exhibit at the 135th Street Branch of the New York Public Library. Freelon's biographical background information implies that multiple institutions supported him and his work before he became a Print Club member. According to the entry, it was not for another eight years after becoming a member did Freelon exhibit at the Print Club. Knowing that Alan Freelon was an established artist by the time he became an exhibiting Print Club member takes some of the impact away from the organization's assertion of its democratic foundations. If the prerequisite for black artists gaining membership was acceptance in the arts community, then this particular entry is not evidence that The Print Center was more or less democratic than any of its contemporaries.

Instead of interpreting Freelon's acceptance in the Print Club as being a result of the democratic tradition of the organization, the timeline could use this event to provoke a discussion about the acceptance of black artists in Philadelphia's elite art community. In this scenario, the subject of the entry is no longer praise for an accomplishment, but a more reflective historical conversation. This type of entry content would shift the focus of the timeline away from The Print Center.

The current focus on projecting a particular image of The Print Center works against many of the organization's hopes for the timeline. As an interactive project, The Print Center wants to include its community, but the content on the timeline suggests that only certain types of contributions belong on the timeline. The possibility that The

Print Center's community can submit stories is appealing, especially for public historians who want to share authority.⁸¹ Crowdsourced content has the potential to create alternative chronologies that challenge accepted narratives. "The HeritageCrowd Project: A Case Study in Crowdsourcing Public History" by Shawn Graham, Guy Massie, and Nadine Feuerherm, illuminates the challenges involved in crowdsourcing projects. Among the difficulties that the HeritageCrowd Project faced included people being unclear about the way that the group was collecting content and people feeling their knowledge to be unprofessional. The authors noted, "The terminology and structure of the platform as it currently stands give more authority to the data displayed than might be warranted."⁸² The authority that the *Centennial Timeline* currently embodies is one of the institution and not a wider community.

Fortunately for The Print Center the *Centennial Timeline* is under active development and exists in a form that the organization can easily revise. Unlike the printed timelines that came before it, the digital iteration of The Print Center's institutional history is not limited to the text that can fit in a small, defined space.

The timeline fits well among the commemorative anniversary activities that The Print Center has undergone. The goals of the project put it in conversation with contemporary digital history projects, but the practical realities that the organization faces, in time, resources, technology, and the organization's need to control its image all limit the potential of the timeline. As it stands the *Centennial Timeline* serves the same function as the paper timelines that came before it. The timeline is an authoritative

⁸¹ For the field of public history, Michael Frisch is largely to credit for popularizing the concept of shared authority, see Michael Frisch, *A Shared Authority: Essays on the Craft and Meaning of Oral and Public History*, (Suny Press, 1990).

⁸² Shawn Graham, Guy Massie, and Nadine Feuerherm, "The HeritageCrowd Project: A Case Study in Crowdsourcing Public History" in *Writing History in the Digital Age*.

conceptualization of the past. Public history projects that seek to challenge the past are risky. For The Print Center, there is little gain in contesting its image and creating a controversial history in an authoritative venue such as a timeline.

CHAPTER 3

CONCLUSIONS: DEVELOPING TIMELINES AS DIGITAL HISTORY

Timelines as History at The Print Center

The *Centennial Timeline* case study in the previous section explored the challenges of creating a digital timeline within the context of a commemorative institutional anniversary. The Print Center wants to publish its history in a wider context while still protecting its image. Connecting an institutional history to people and events beyond the institution will put the history in conversation with a discourse that the institution has little control over. Timelines are one of the most common and accessible ways to publish histories. Because of their ubiquity and authority, timelines can often reflect the desire for self-preservation that underscores many teleological narratives. Could an organization like The Print Center integrate a timeline with its centennial that investigates history without putting themselves at risk?

The tools available to create timelines and the literature covering digital history and visualizations attest to the potential of the timeline as a tool for research and learning. In a best-case scenario, if the organization had the time and resources, The Print Center would be well situated to use a timeline to investigate the history of printmaking and photography. This hypothetical timeline could investigate the lines between art images and visual forms that do not typically fall under the umbrella of traditional art history studies. One of The Print Center's early goals was to promote printmaking as art, but the organization did not shy away from printmaking that did not fit within the fine art umbrella. Exhibitions at Print Club from the 1920s and 1930s often included shows dedicated to subjects such as illustration, cartoons, and even

mapmaking, along with fine art printmaking.⁸³ It was not until the 1940s and 1950s that the club began to reject its earlier, broader, exhibitions in favor of a narrower lineup of Modern art.⁸⁴

Standard art history textbooks quickly move through art movements to set up a sense of continuity in art for students.⁸⁵ One advantage of a digital art history timeline is that it could shift the perspective of a traditional art history text. This perspective is difficult to gain when the timeline contains objects traditionally included within art history study, such as in Wikipedia's *Timeline of art* discussed earlier. A timeline of printmaking and photography could enable discussions of technology and techniques, in addition to the social impact of various forms.

Printmaking and photography are responsible for a wide array of popular and technical imagery. Art historian James Elkins studied the difference between traditional art images and non-art images. Non-art images include a range of material from scientific illustrations to graphics. Elkins characterizes these visual forms, stating:

They are sequestered for their apparent failure to achieve historical significance, their ostensive lack of expressive power, the technical demands they make on viewers, and the absence of visual theories and critical apparatus that might link them to fine art or argue for their importance.⁸⁶

⁸³ For a sampling of the Print Club's early exhibitions see: scrapbooks 1920s-1930s, box 64, Print Club archives, HSP.

⁸⁴ For the Print Club's shift to modern, see: scrapbooks 1926-1955, box 65, Print Club archives, HSP. Notable examples can be found in the newspaper clippings scattered throughout the scrapbooks, for example see Walter Baum, "Print Club Lithography Show Stresses Modernistic Themes," volume 7, scrapbook 1952-1953, box 65, Print Club archives, HSP.

⁸⁵ Art history textbooks often receive criticism from teachers who cite their content in addition to their cost, and size. For an example see, Michelle Millar Fisher, "Bye, Bye Survey Textbook," *Art History Teaching Resources*, March 15, 2013, accessed March 6, 2015, <http://arthistoryteachingresources.org/2013/03/15/bye-bye-survey-textbook>.

⁸⁶ James Elkins, *The Domain of Images* (Cornell University Press, 1999), ix.

Non-art printmaking and photography share these characteristics with timelines and other information visualizations. Most art history timelines follow textbook norms, but notable exceptions exist. Rosenberg and Grafton discuss several art history timelines that became popular in the 1930s, as art movements came and went with growing rapidity. These timelines challenged the division between art and non-art images, mostly by making the chronological graphic a work of art in itself.⁸⁷ Though they questioned what it meant to label something art, these timelines typically only included material commonly considered fine art. The inquisitive nature of a timeline that includes non-art content as a means to study mediums that have fine art counterparts could encourage The Print Center's community to reflect on the organization's contemporary art exhibits. This timeline would also situate digital timelines as a contemporary iteration of the types of visualizations that printmaking and photography produced before the advent of digital technology.

For The Print Center, a timeline covering the history of the fields that the organization promotes could be a valuable educational resource. The Print Center has a history of supporting educational programming, yet with staff, time, and funding resources all unpredictable, it has been difficult to keep these programs afloat.⁸⁸ Online educational resources could enable the organization to expand its outreach without exhausting its current program resources.

⁸⁷ Rosenberg and Grafton, 219-227.

⁸⁸ The Print Center's Artists-In-Schools Program is the organization's most current educational program. This program connects schools with artists and provides Philadelphia high school students with printmaking and photography classes. For more about The Print Center's Artists-In-Schools Program, see "About AISP," The Print Center, accessed March 6, 2015, <http://printcenter.org/aisp/about-aisp>. In the 1940s the Print Club began organizing children's shows and programs, see "Art is Art, but Ice Cream – Ah, that's Something Good to Eat," volume 4, scrapbook 1947-1948, box 65, Print Club archives, HSP.

Timelines have long been in use as educational tools.⁸⁹ In their book *Doing History*, Linda Levskit and Keith Barton criticized the timelines common in schools because they often highlight dates and politics, two things that children have little reference for understanding. Understanding everyday things that have some type of imagery attached, like visual culture, is easier for children than understanding politics and government. With this in mind, Levskit and Barton note that children have a good visual sense of history and can usually sequence historical images. Levskit and Barton advocate for timelines that can serve as visual reference tools. As a reference tool, the timeline still presents an authoritative version of history and can obscure the decision making process that went into its creation.⁹⁰

As an art gallery, The Print Center has a different relationship with images and history than a standard classroom. The Print Center's audience expects art, and with this expectation comes an array of assumptions about the meaning and content of the material that the gallery exhibits and produces. Because of its audience's knowledge of art, The Print Center can more easily produce content that would be controversial in a history museum. Likewise, visualizations in history museums often have an authoritarian air, rather than being presented as things that should be read critically. The Print Center is in a position to create a visualization that interrogates the history of art because its audience assumes that one purpose of the visual objects in art galleries is critical inquiry.

⁸⁹ For a history of timelines as educational tools see, Rosenberg and Grafton, 155, 192-207; For criticism of timelines from teachers' perspectives see, Michael Kramer, "There Is a Timeline, Turn, Turn, Turn," *HASTAC*, November 10, 2012, accessed March 6, 2015, <http://www.hastac.org/blogs/michael-j-kramer/2012/11/10/there-timeline-turn-turn-turn>; and Christina Davidson, "Digital Timelines," *HASTAC*, October 27, 2012, accessed March 6, 2015, <http://www.hastac.org/blogs/tinadavidson/2012/10/27/digital-timelines-0>.

⁹⁰ Linda S. Levstik and Keith C. Barton, *Doing History: Investigating with Children in Elementary and Middle Schools* (Mahwah, NJ: Lawrence Erlbaum, 2005), 5, 12, and 87.

This proposal could bring the digital timeline into a critical discourse absent from most timelines. It could also challenge art history historiography. Through this musing I have tried to suggest that timelines could be a component of scholarly discourse. A question that this hypothetical timeline does not answer is whether creating a scholarly discussion with a digital timeline could represent a shift in how people understand and interact with the past.

Reflections

The utility of digital tools for the purpose of historical scholarship is debated among historians and digital history proponents. Some scholars argue that digital tools can shift the way that historians execute and present research. Sherman Dorn advocates that although traditional historical research is presented as an argument, digital scholarship can turn into something else.⁹¹ Fred Gibbs and Trevor Owens similarly encourage historians to use digital tools to alter the way they approach their work. For Gibbs and Owens this possibility of digital history means “de-emphasizing narrative in favor of illustrating the rich complexities between an argument and the data that supports it.”⁹² Timelines can present users with massive amounts of information that calls into question causality and narrative structures, but they can just as easily support linear, progressive, selective narratives.

Whether digital timelines have more in common with their paper counterparts or whether they can fit within a model of digital scholarship that advocates for nonlinear narratives is a complicated question. The concept of hypertext forms the core of the

⁹¹ Sherman Dorn, “Is (Digital) History More than an Argument about the Past?” in *Writing History in the Digital Age*.

⁹² Fred Gibbs and Trevor Owens “The Hermeneutics of Data and Historical Writing” in *Writing History in the Digital Age*.

sentiment that digital culture can promote nonlinear narratives. Daniel Rosenberg evaluates Ted Nelson's affinity for hypertext as a way to defeat what Nelson termed "the school problem," that is, when subjects and ideas turn into timeslots and set on a linear schedule that eliminates the potential interconnections between ideas.⁹³ Educators looking toward digital technology are interested in the ability of digital tools to enable students to understand multiple perspectives and question historical reality.⁹⁴ Timelines on paper generally do not do this. For Nelson the possibility of hypertext was to "encourage the reader to make explicit or implicit comparisons, mental leaps, and intellectual choices."⁹⁵ Hypertext allows ideas to become a network and presents an unfinished, uncertain narrative.⁹⁶ Digital timelines are typically not as simple as a line that measures time containing events listed when they happened. Digital timelines can employ content to move users through time and they can manipulate the scale of time. Even The Print Center's *Centennial Timeline*, though it appears to be a rather standard timeline at face value, enables users to maneuver out of the timeline to read content, travel to related website through links, and gives users an option to become contributors, to write the history themselves.

These features are unique to digital timelines and digital timeline tools. They make the timeline a more complex, layered visualization than most static images. In a small way, digital timelines are removed from a strictly linear reading. If visualizations

⁹³ Daniel Rosenberg, "Electronic Memory," in *Histories of the Future*, ed. Daniel Rosenberg and Susan Harding (Durham: Duke University Press, 2009), 136.

⁹⁴ John Allison, "History Educators and the Challenge of Immersive Pasts: A Critical Review of Virtual Reality 'Tools' and History Pedagogy," *Learning, Media and Technology* 33, no. 4 (2008): 349.

⁹⁵ Rosenberg, "Electronic Memory," 128-129.

⁹⁶ *Ibid.*, 148.

can defeat linear narratives, this does not mean that they will necessarily produce the types of history that public historians would be content with.

The dominant paradigm among public historians is that cultural institutions should share their authority, embrace a constructivist history, tell multiple stories, and not get bogged down by linear, authoritative narratives. Even when digital projects accomplish some of these goals, the technologies that digital projects use contain limitations that affect the history. Along with nonlinearity, Staley lists characteristics of digital scholarship including analogy, synthesis, networks, and structure.⁹⁷ For public historians, working with technology that imposes strict hierarchies can be a challenge because the rhetoric of the discipline has a strong foundation in the assumption that a purpose of the field is to defeat hierarchies.⁹⁸

Timelines challenge historians because they represent a logical structure of time relative to Western culture. West-Pavlov claims, “The timeline is one of the most vivid exemplifications of our linear concept of time.”⁹⁹ West-Pavlov concludes that the timeline has become a “hegemonic temporal metaphor” in Western, capitalist societies.¹⁰⁰ The timeline is a relevant form of visual representation for cultures that understand time linearly. History, the academic discipline, has little control over how people conceptualize time. In this sense, the timeline is a check against historians to ensure that academic

⁹⁷ Staley, 55.

⁹⁸ Staley clarifies that humanities tend to deal with “high-context communication,” that is, the work of humanists is highly interpretive. Technology is “low-context,” that is, with little room for error. The low-context nature of technology indicates that digital scholarship is not an anything-goes realm, even though the technology offers different, potentially new, directions for scholarship to turn. See Staley, 24.

⁹⁹ West-Pavlov, 66

¹⁰⁰ *Ibid.*, 68.

representations of the past do not contradict conceptions of time from the wider culture out of which historians derive.

In *The Ordering of Time*, historian Arno Borst states, “Time can be aligned with perceptible experiences, in which case it will not be consistent, or else incorporated into a logical system of thought, in which case it will not be accurate.”¹⁰¹ For public historians, it can be difficult to reconcile the ways that humans and cultures experience time, which we readily admit is messy, with then arranging that mess into an argument, which the tenets of our discipline decree must involve some type of logic.

Public historians need a foundational philosophy that could guide the way they make and read timelines. The development of timelines as a popular form of visualizing history correlated to an understanding of absolute time as a universal constant measure, encouraging a sense of historicism in which people strove to document their world along a line of time culminating in the present. Challenges to linear notions of time are abundant. Philosophers such as Edmund Husserl established and advocated for phenomenology, wherein time is related to subjective, human experiences. Einstein’s relativity undermines the notion of a universal temporal clock in physics.¹⁰² More recently, the humanities have been contesting linear notions of time. West Pavlov looked at postcolonial theory and ideas of temporality, stating, that postcolonial theories “lay bare the apparent tangles of plural, non-sequential historical processes which cannot be

¹⁰¹ Borst, 6.

¹⁰² For an introduction to the affects of relativity on the philosophy of time see West-Pavlov, 25, 40; and Bradley Dowden, “What Science Requires of Time,” in *The Internet Encyclopedia of Philosophy*, accessed March 6, 2015, <http://www.iep.utm.edu/requires>.

abstracted from the regenerative process of nature itself.”¹⁰³ The way that people interact with the Internet could involve a similar temporal shift.

Despite the challenges to absolute time and the optimism of advocates for digital history, there has yet to be an accompanying historical worldview that aligns with relativity as well as historicism aligns with absolute time. Visualizations without a conceptual framework to aid interpretation easily drop out of use.¹⁰⁴ Public historians speaking about nonlinear time and multiple histories can only have a limited effect on the way that people visualize history, especially on popular forums like The Print Center’s *Centennial Timeline*. In their conclusion to *Writing History in the Digital Age*, the authors are unsure whether digital history will actually be revolutionary, citing that the best digital scholarship encompass qualities that historians cherish.¹⁰⁵

This does not mean that digital timelines are incapable of being both good digital history and thoughtful public history. But it may imply that public historians let go of some of their ideological hopes regarding the potential of digital projects and instead focus on how to make these projects the best that they can be with the resources at hand.

¹⁰³ West-Pavlov, 169. Tanaka similarly advocates that digital media has the potential to escape the idea of universal time and illuminate the various time scales that different cultures use. See Tanaka, “Pasts in a Digital Age.”

¹⁰⁴ Nomograms are a good example of a visualization that is no longer in popular use because, while useful, people generally do not intrinsically understand them. See Thomas L. Hankins, “Blood, Dirt, and Nomograms: A Particular History of Graphs,” *Isis* 90, no. 1 (1999): 50-80.

¹⁰⁵ Jack Dougherty, Kristen Nawrotzki, Charlotte D. Rochez, and Timothy Burke, “Conclusions: What We Learned from Writing History in the Digital Age,” in *Writing History in the Digital Age*.

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Timeline Resources

Digital Timeline Tools

- Chronos Timeline: (Hyperstudio, MIT) <http://hyperstudio.mit.edu/software/chronos-timeline>
- Dipity: <http://www.dipity.com>
- Preceden: <http://www.preceden.com>
- Tiki-Toki: <http://www.tiki-toki.com>
- Timeglider: <http://timeglider.com>
- Timeline (SIMILE, MIT): <http://www.simile-widgets.org/timeline>
- Timeline JS (Knight Lab, Northwestern University): <http://timeline.knightlab.com>
- Timerime: <http://timerime.com>
- Timetoast: <http://www.timetoast.com>
- When In Time: <http://whenintime.com>

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APPENDIX A

Figures

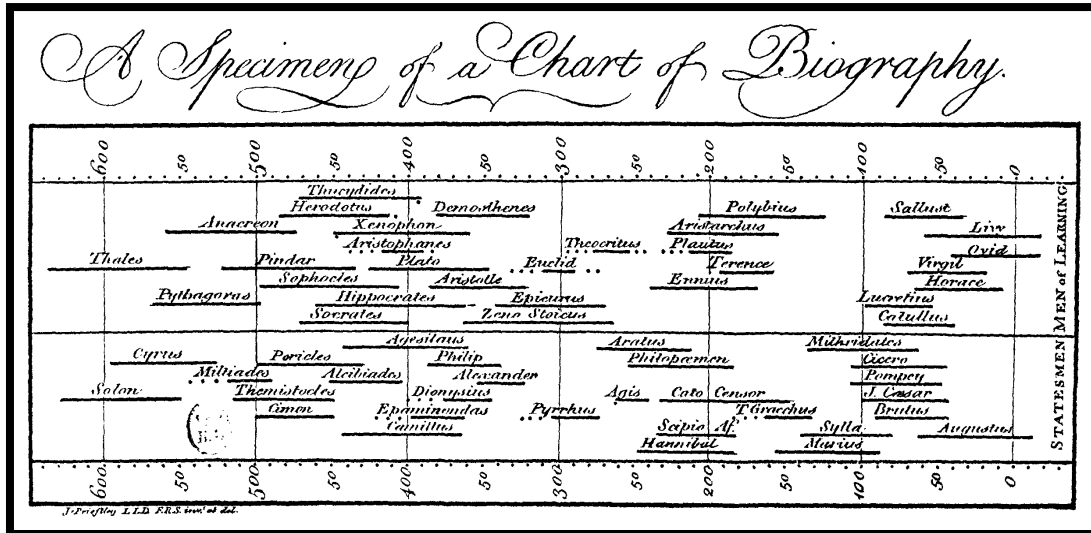


Figure 1. A small portion of Joseph Priestley's *A Chart of Biography*. The original from 1765 contained six horizontal bands with dates along the horizontal axis from 1000 BC to 1700 AD. Source: Wikimedia Commons, <http://commons.wikimedia.org/wiki/File: PriestleyChart.gif>.

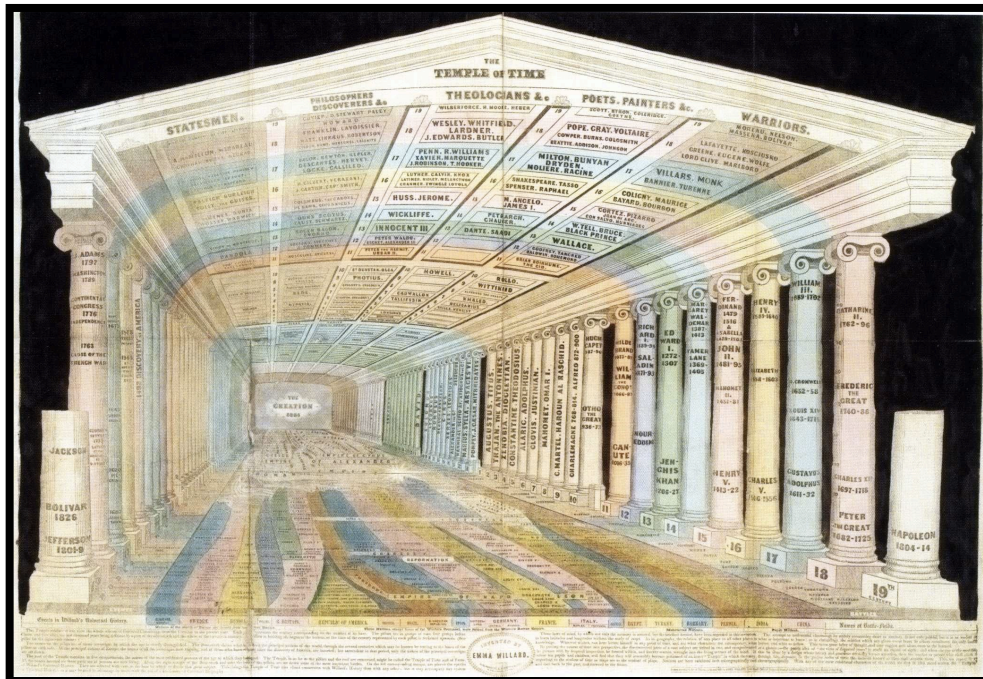


Figure 2. Emma Willard, *Temple of Time*, 1846. Image courtesy of the American Antiquarian Society.

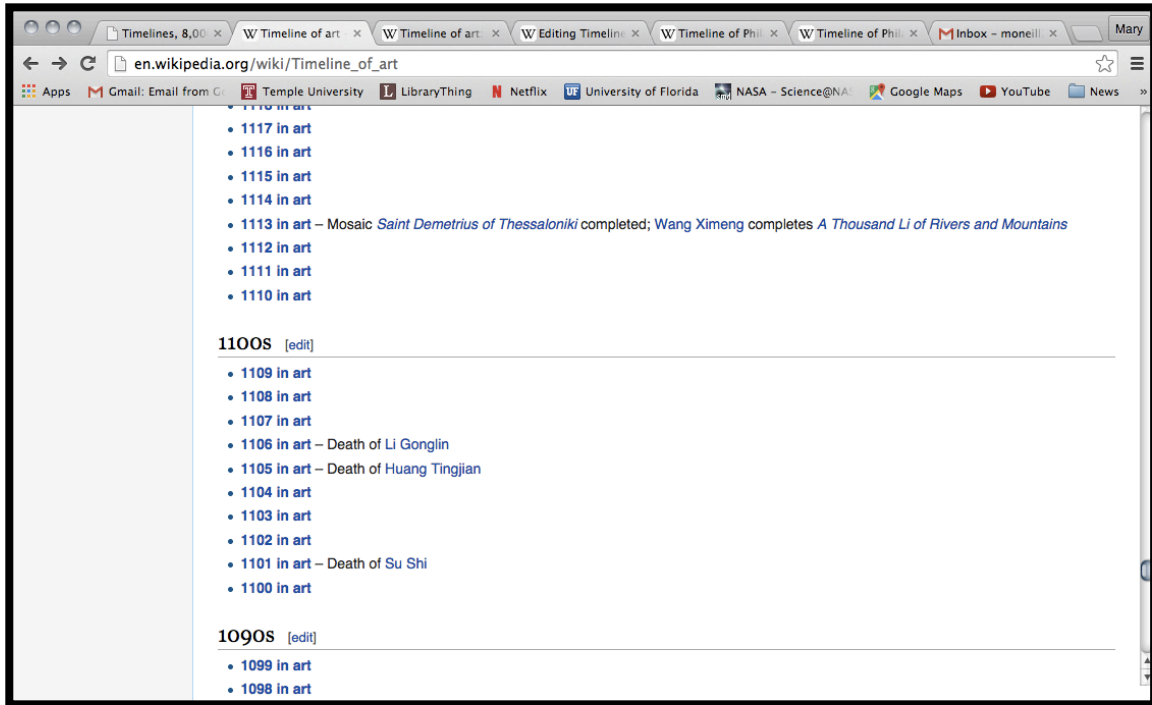
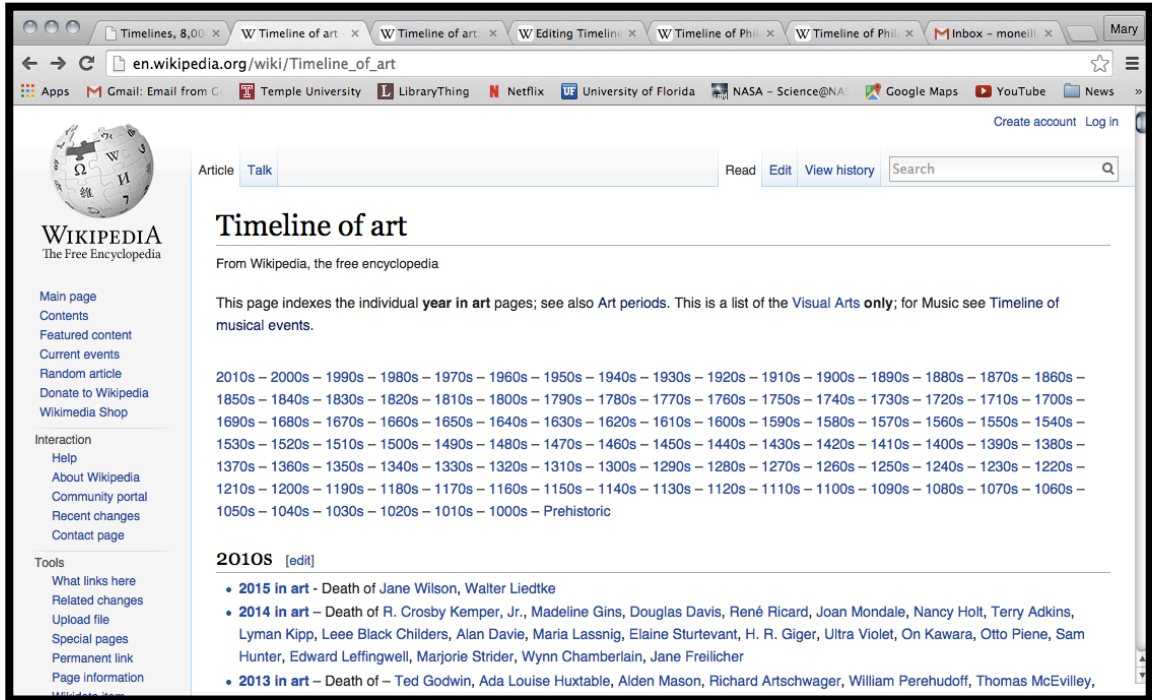


Figure 3 (above), Figure 4 (below). Wikipedia's *Timeline of art*, 2003-present. Source: http://en.wikipedia.org/wiki/Timeline_of_art.

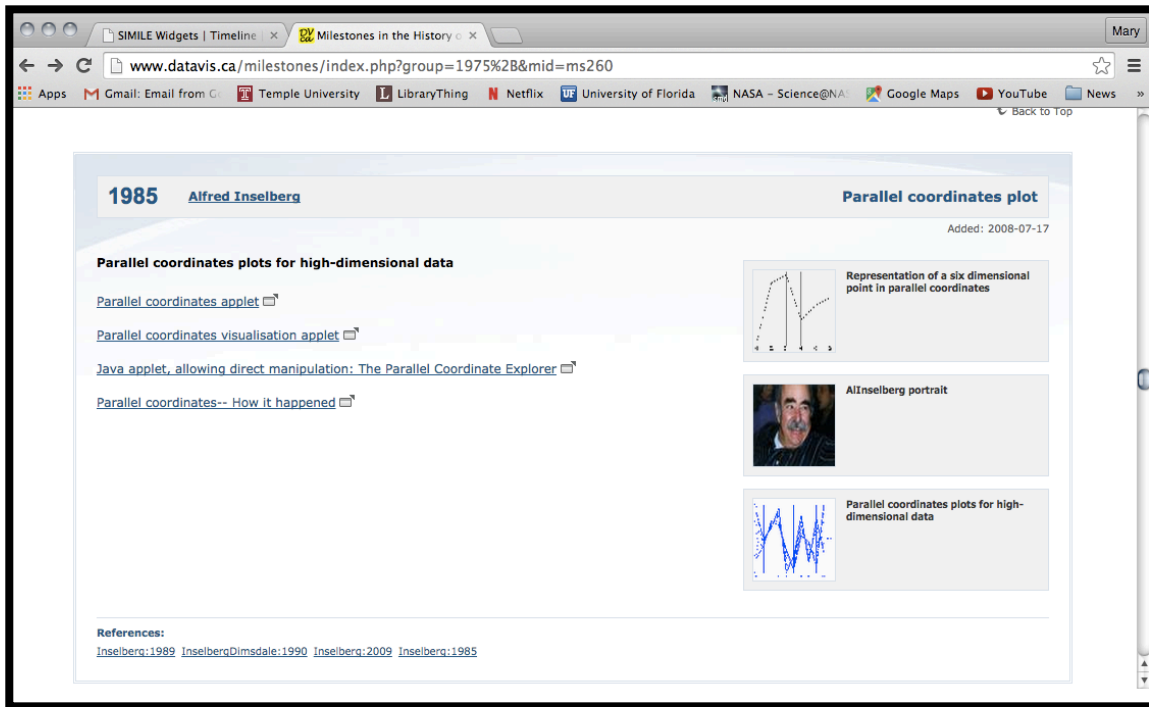
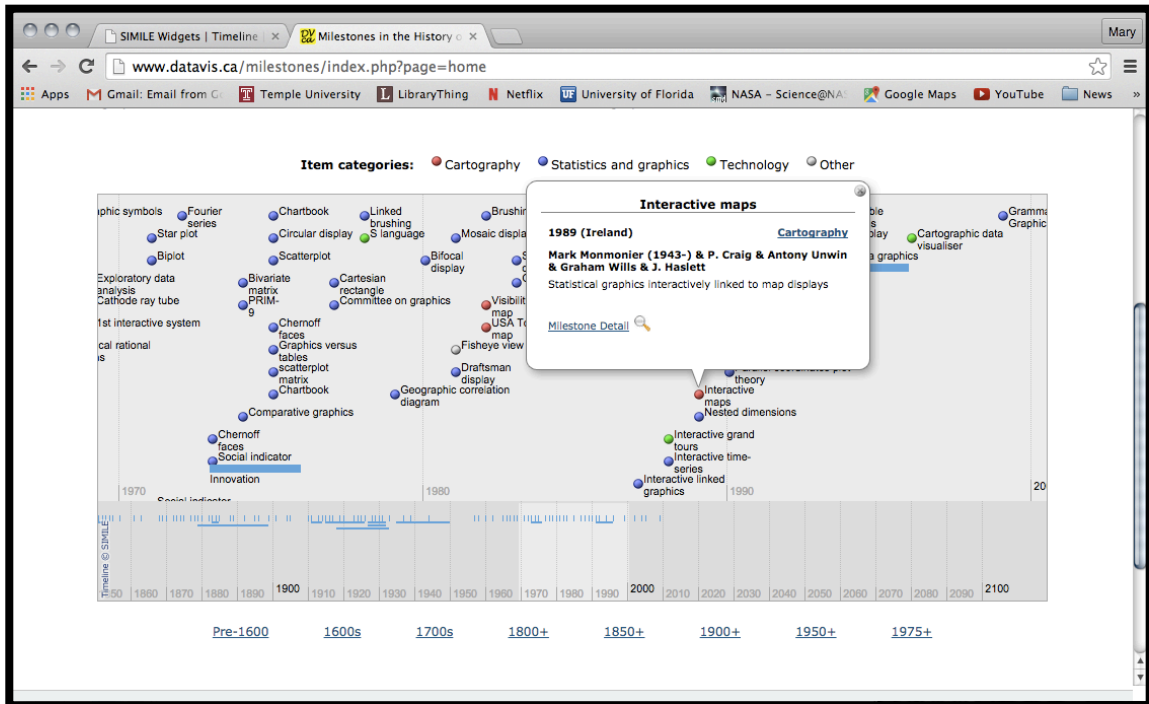


Figure 5 (above), Figure 6 (below). Michael Friendly and Daniel Denis, *Milestones in the history of thematic cartography, statistical graphics, and data visualization*, 2001-2009. The Milestones Project. Source: <http://www.datavis.ca/milestones>. Figure 6 is the screen that the timeline will navigate to when the user clicks "Milestone Detail" on the timeline.

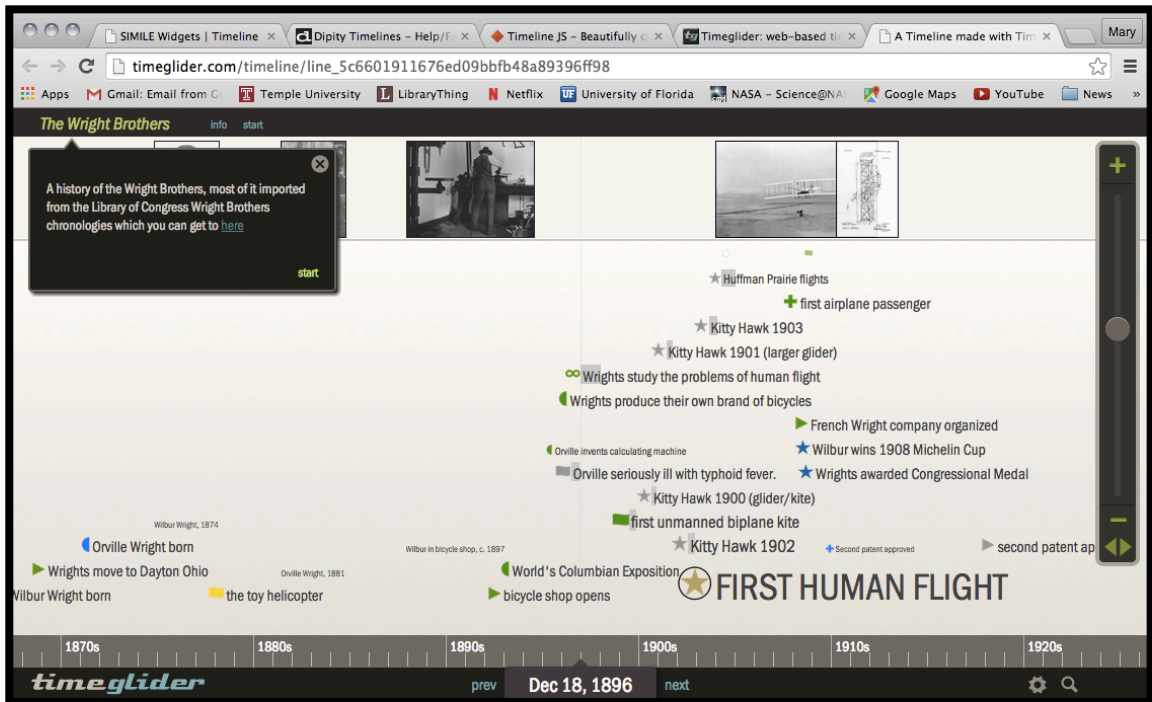
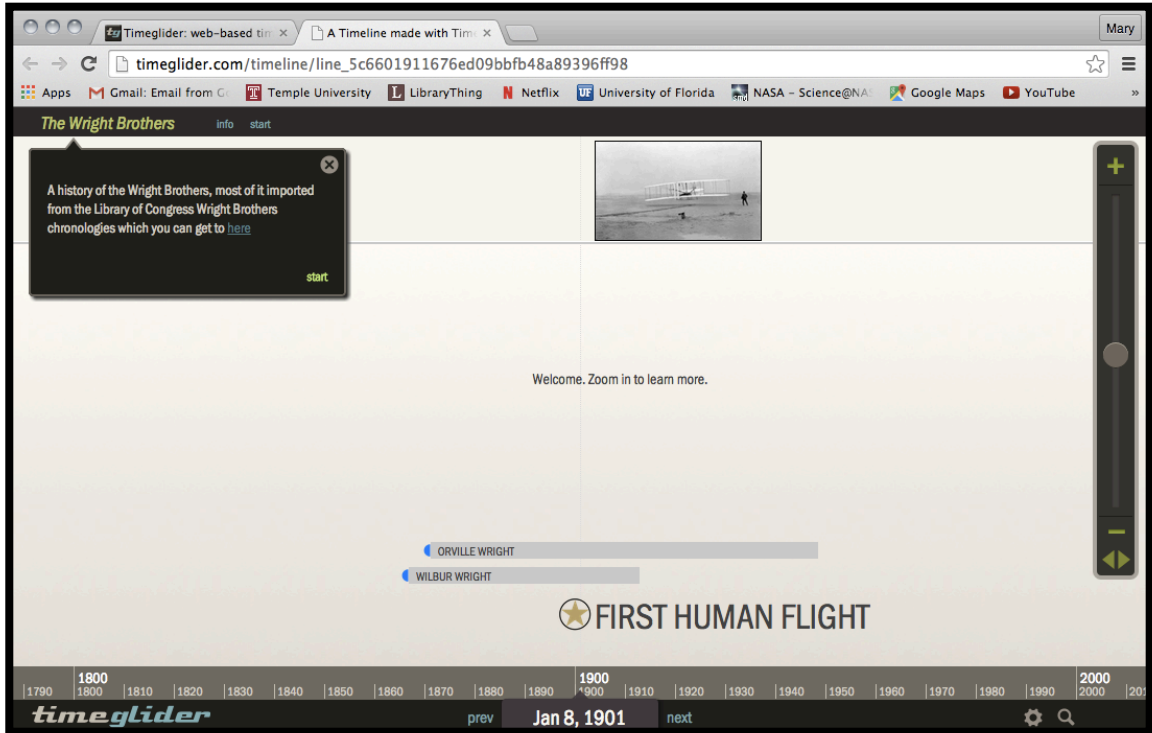


Figure 7 (above), Figure 8 (below). *The Wright Brothers*, Timeglider timeline. These images show how the timeline begins at a zoomed out level and populates as users zoom in. Source: http://timeglider.com/timeline/line_5c6601911676ed09bbfb48a89396ff98.

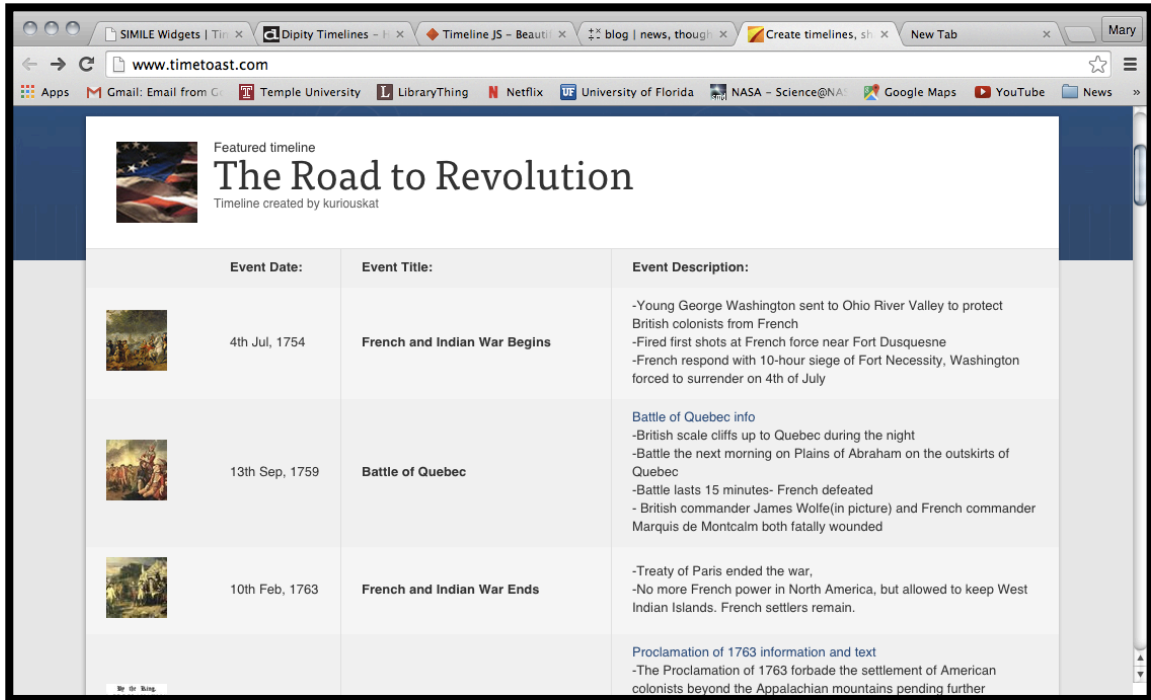
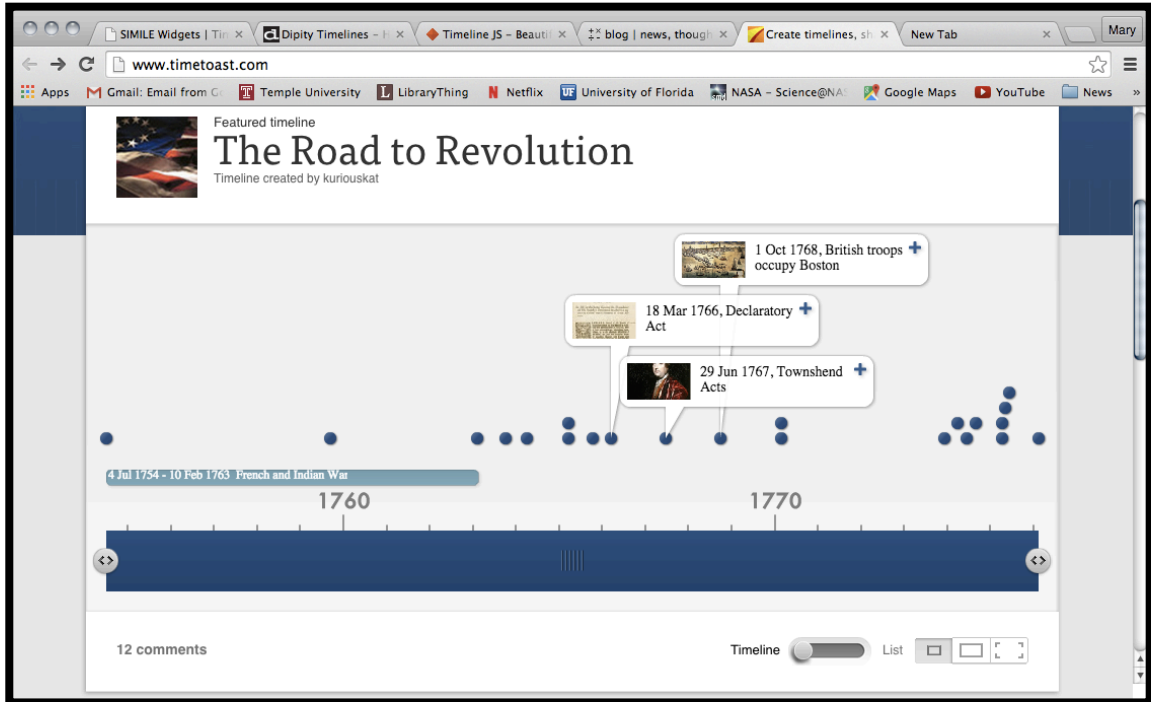


Figure 9 (above), Figure 10 (below). *The Road to Revolution*, Timetoast timeline. These images are set to different views, one as a timeline, one as a list. Source: <https://www.timetoast.com/timelines/road-to-revolution-timeline>.

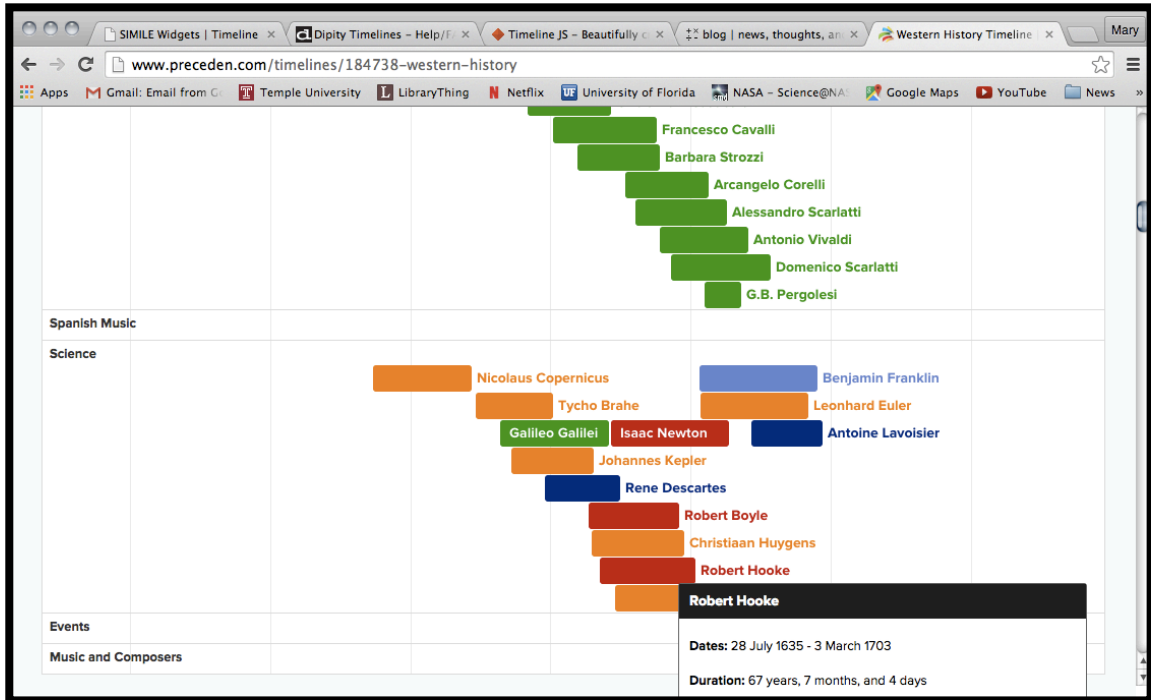
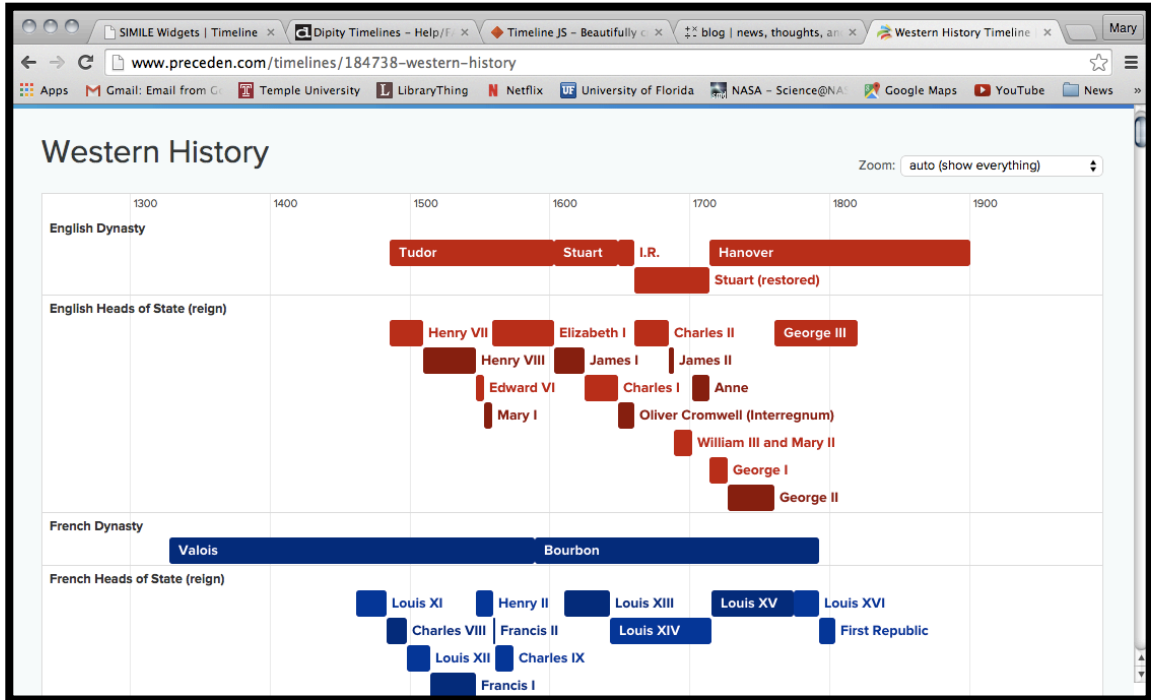


Figure 11 (above), Figure 12 (below). Western History, Preceden timeline. Source: <http://www.preceden.com/timelines/184738-western-history>.

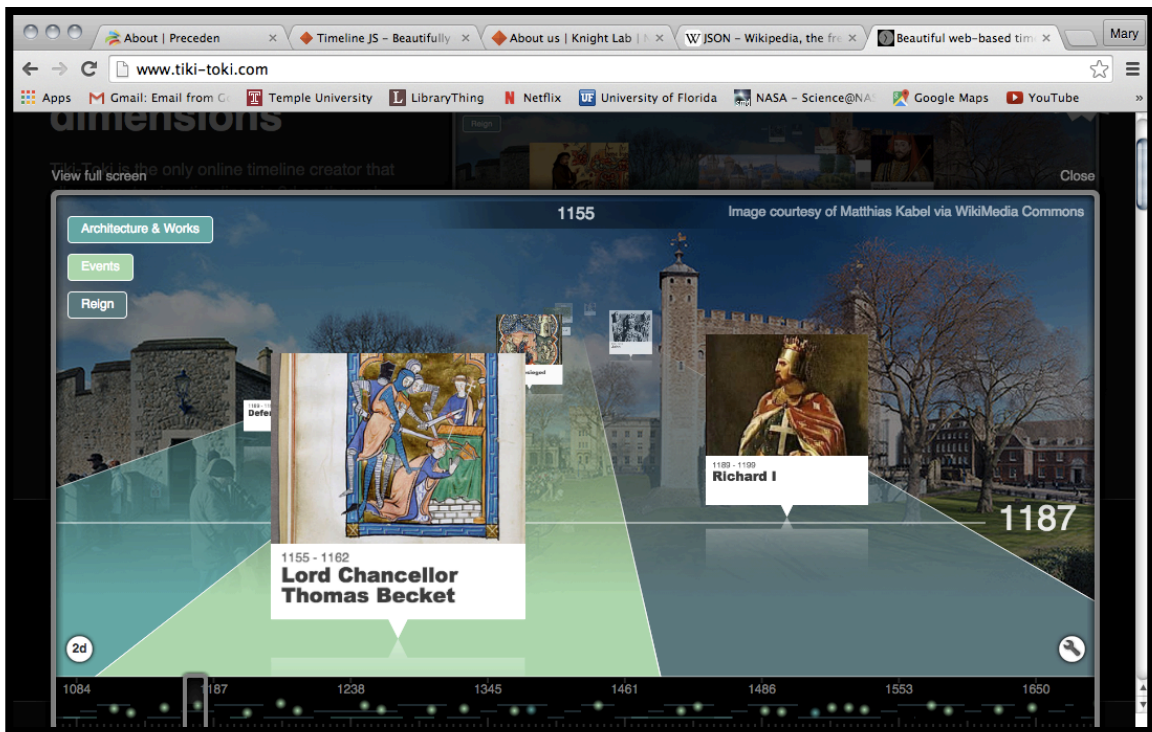
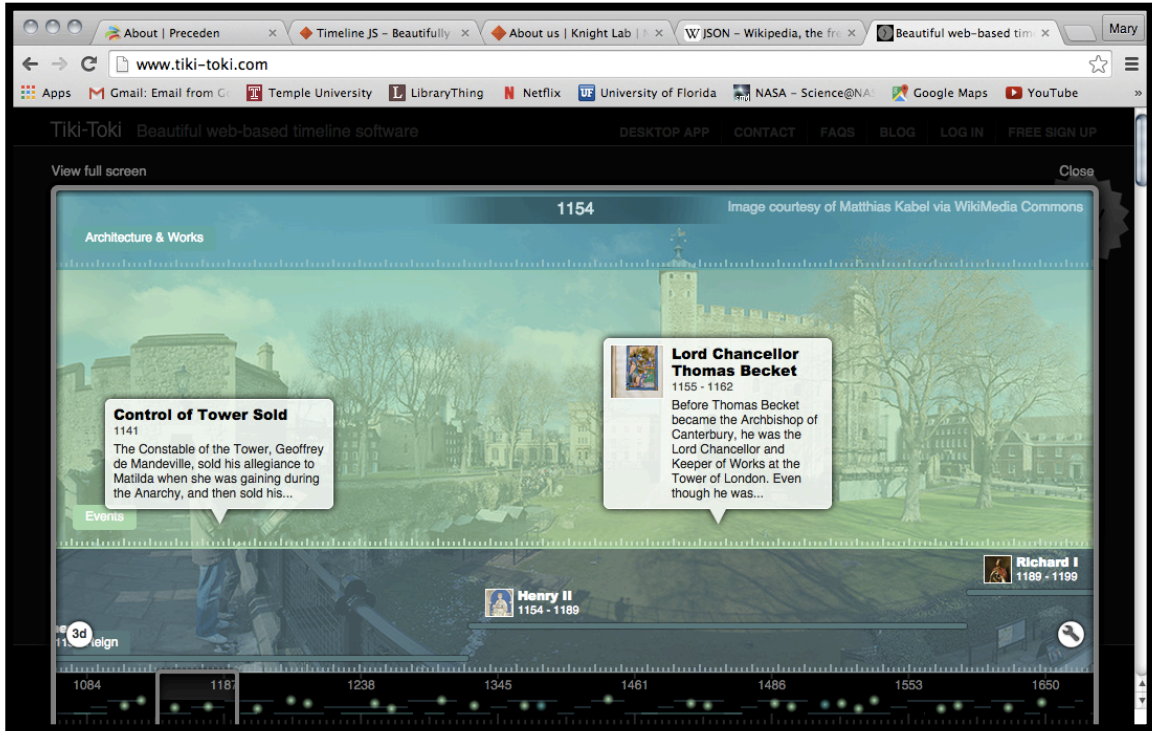


Figure 13 (above), Figure 14 (below). Tower of London, Tiki-Toki timeline. Source: http://www.tiki-toki.com/timeline/entry/137152/Tower-of-London-3D/#vars!date=1003-05-29_00:59:23!

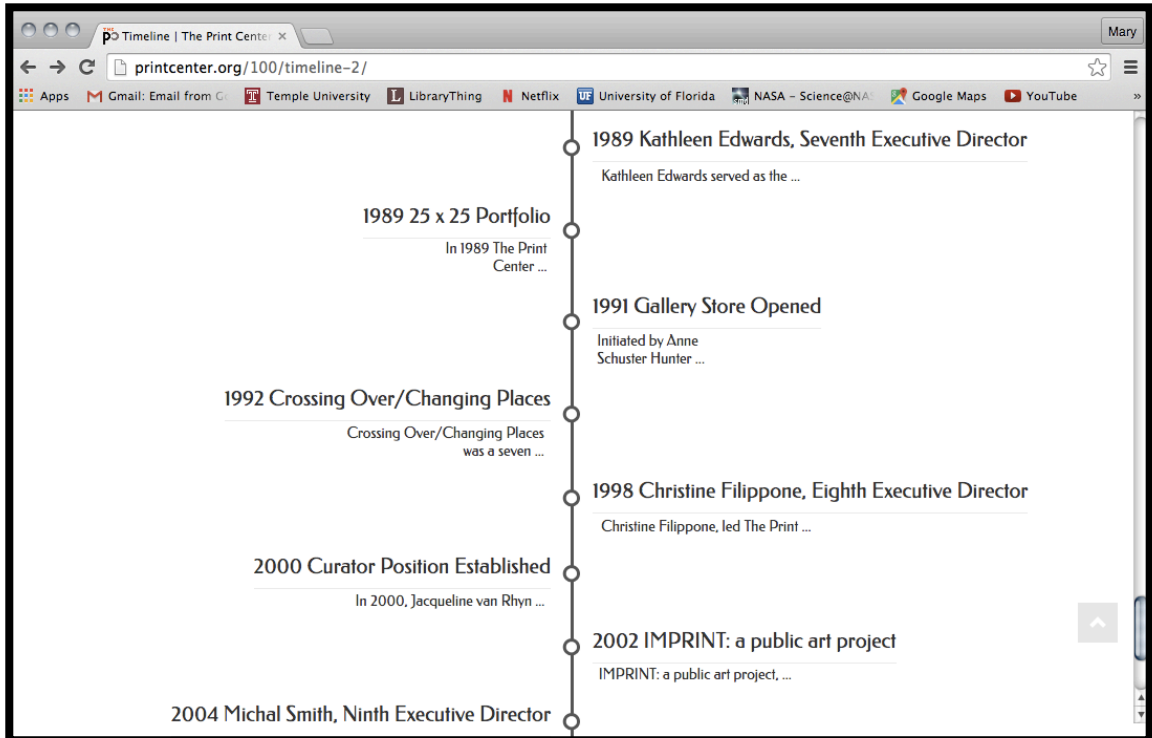
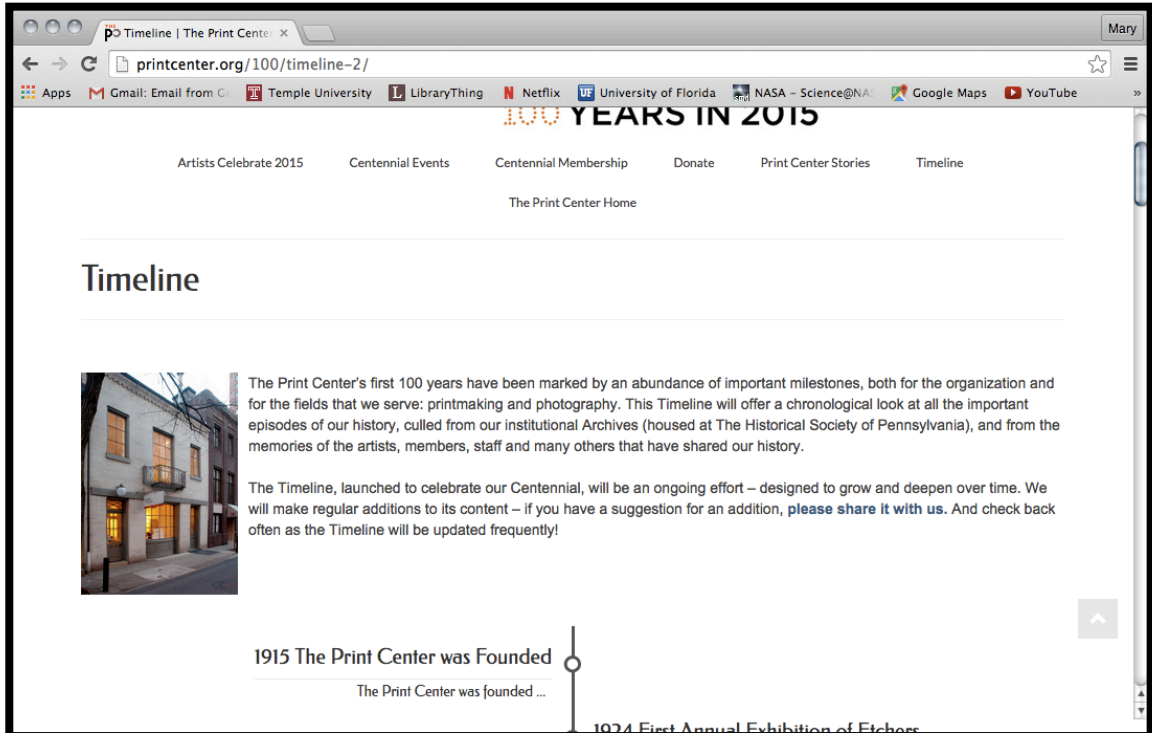


Figure 17 (above), Figure 18 (below). The Print Center, *Centennial Timeline*, 2015. Source: <http://printcenter.org/100/timeline-2>.

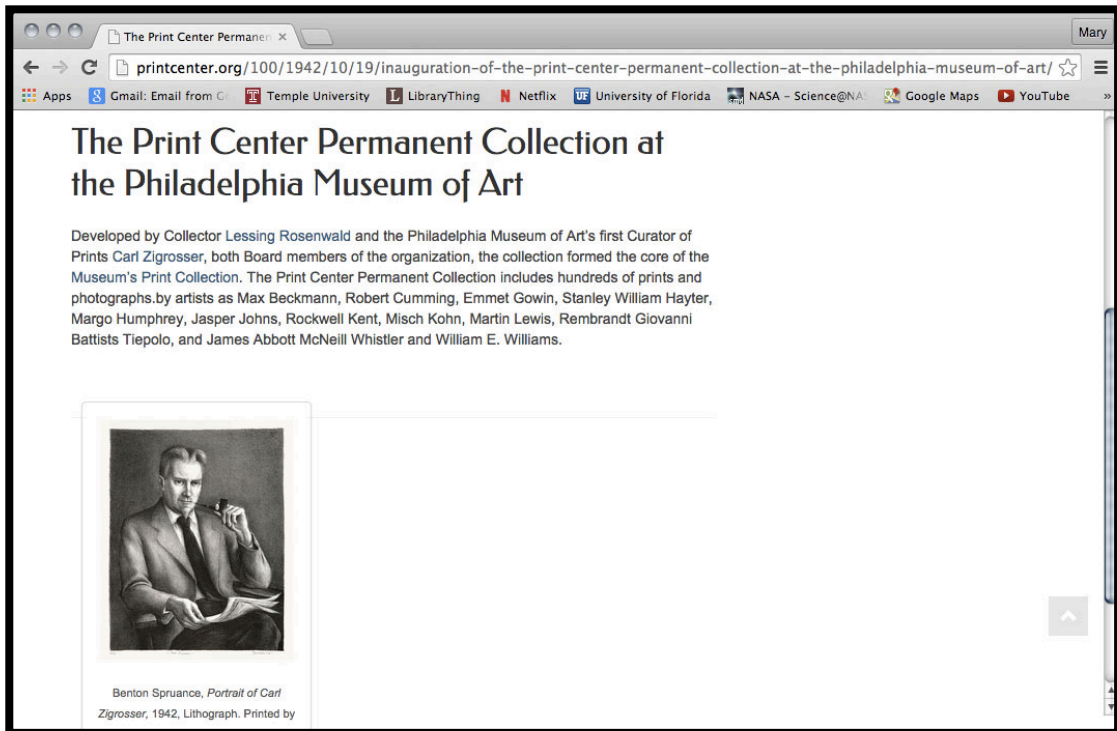
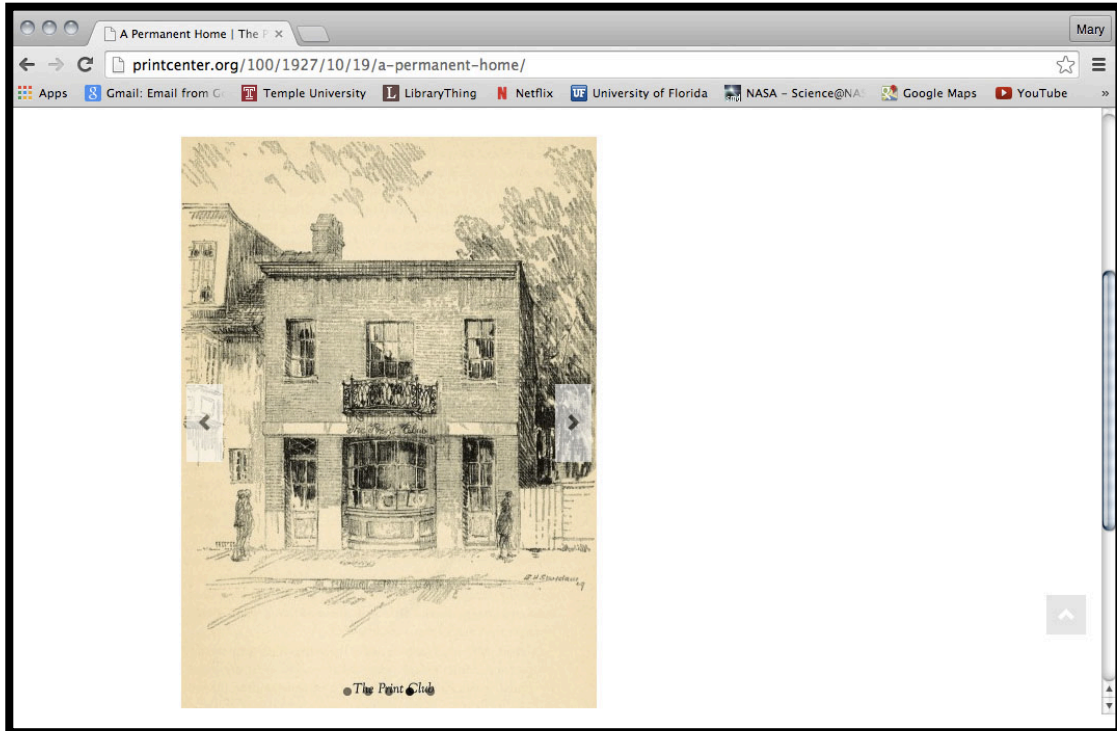


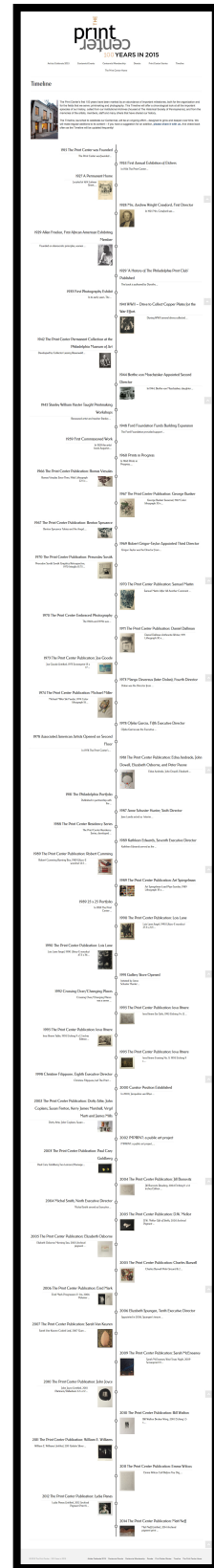
Figure 19 (above), Figure 20 (below). Centennial Timeline entries. Figure 19: "A Permanent Home." Source: <http://printcenter.org/100/1927/10/19/a-permanent-home>. Figure 20: "The Print Center Permanent Collection at the Philadelphia Museum of Art," Source: <http://printcenter.org/100/1942/10/19/inauguration-of-the-print-center-permanent-collection-at-the-philadelphia-museum-of-art/>



Figure 21 (left) and Figure 22 (right). These images show the whole *Centennial Timeline* at different points in its development. Figure 21 shows the timeline as it was during my research, as of March 3, 2015. Figure 22 shows the timeline as it was on March 17, 2015.

The most striking difference between these two images is how much the timeline has grown, particularly with images. The added entries and images are almost exclusively publications, beginning with “1966 The Print Center Publication: Romas Viesulas” and ending at “2014 The Print Center Publication: Matt Neff.” These publications mean that my analysis of time periods of the timeline should be revised slightly. While doing my research the publications began at 1981. The additions imply that The Print Center began creating exhibit publications in the late 1960s, rather than the 1980s.

Besides the slight shift in the time that The Print Center is emphasizing its professional accomplishments, the content otherwise is the same. One thing starting to happen as The Print Center populates the *Centennial Timeline* with publications is that it takes longer to scroll through the timeline. Where, with the smaller timeline, the lack of navigational tools was manageable, scrolling through an ever-increasing number of entries will get more difficult and tedious with time.



APPENDIX B

User's Guide: The Print Center's *Centennial Timeline*

This User's Guide provides a basic introduction to editing The Print Center's "Centennial Timeline." It is primarily intended as a reference tool for individuals working on the "Centennial Timeline" who do not have technical backgrounds.

General Information

- The Print Center *Centennial Timeline* exists on The Print Center's centennial website and is found here: <http://printcenter.org/100/timeline-2/>.
- The plugin "WordPress Posts Timeline" formats posts categorized "Timeline" into the format that the website shows as the timeline with a shortcode on the timeline page. The timeline page is the page that the menu on the homepage links to and displays the timeline.
- The easiest way to work on the timeline is to keep a separate tab or window open to the front end, with the admin screen open in another.
- Through the Dashboard, the timeline page is accessed by going to 'Pages' > 'Timeline.' The shortcode, [wp-timeline], is the only timeline content on the timeline page.
- To access the timeline's options through the Dashboard go to 'Settings' > 'Timeline Settings.'

Wordpress Posts Timeline Plugin Information

- The plugin "Wordpress Posts Timeline" can be found here: <https://wordpress.org/plugins/wordpress-posts-timeline>.
- To access the plugin files go to 'Plugins' > 'Wordpress Posts Timeline' > 'Edit.'
- The file "wordpress-posts-timeline/readme.txt" contains background information about the plugin. This file contains a description, installation instructions, and a changelog that documents the plugin's updates till the time The Print Center downloaded it. The file "wordpress-posts-timeline/license.txt" is the GNU General Public License specifying that the plugin is free software and relays the conditions that this freedom implies. There is no reason to edit these two files.
- The remaining three of the plugin's five files are the actual code. The file "timeline_options.php" determines the options on the options page. The file "wordpress-posts-timeline.php" is the file that controls the timeline's functionality and instructs the timeline to use the options that the user chose from the options page. The file "timeline.css" determines how those elements will look on the page. These files work together to create the timeline. For example, The Print Center uses thumbnails on posts in its timeline. The file "timeline_options.php" instructs the options page to ask the user whether or not to include a thumbnail. If answered yes, the file "wordpress-posts-timeline.php" instructs the server to grab the image from its respective post. The file "timeline.css" then determines the behavior of the image on the page displaying the timeline, for example, the image's size and alignment on the post. The shortcode on the page that The Print Center wants to place the timeline directs the website to these files.

Adding Content

- Timeline content is added through posts. The Print Center's centennial website uses posts in different categories for multiple purposes. The post's title is the title that appears in bold as the item's title. The date is the last attribute that needs to be set before working on the item's content.
- To add a post go to 'Posts' > 'Add New.' On the options panel to the right make sure that the category is set to "Timeline."
- The timeline automatically grabs uncategorized posts, so it is important to be on the lookout for stray posts intended for other parts of the website that may end up on the timeline if its author forgot to give them a category.
- To display an image for the item on the timeline add the image as a 'Featured Image' on the right panel.
- The year that the timeline shows is taken from the post date. Since WordPress automatically dates posts as the day they are made, this must be changed to the past date of whatever item is being added.
- To date entries go to the top portion of the right panel and click 'edit' listed after 'Publish immediately.' The year can be backdated to the year of the event.
- To get rid of the dates within the posts, I removed the posts metadata through the centennial website theme's 'Custom CSS' form. To access this code from the dashboard go to the left side panel to 'Appearance' > 'Theme Options.' On the panel within the options go to 'Advanced Settings,' and scroll down to 'Custom CSS.'

Proposed Content Guidelines

- Text-based entries
 - Text entries could be 50 to 100 words and could include an image if applicable.
 - These entries would require the author to be concise and add a little historical background without doing an overwhelming amount of research.
 - Being short, the author of text-based entries has to think carefully about the story they want to tell and quickly structure a narrative. Entries about individuals, who worked at or with The Print Center, such as the directors, could be text-based entries with a photograph.
 - Images in this context are illustrating the text and are not telling the history. Besides ensuring that authors do not spend too much time on individual entries, keeping the text brief will help keep users attention.
- Media-based entries
 - Would use multi-media element such as photographs, images of art, sound clips, and video clips as the primary means through which users will interact with the historical content.
 - These entries would have shorter text, 50 words or less, that serve to caption the media and provide any necessary background.
 - For images, The Print Center would have to think about placement and how a series of images creates a story. In this sense image entries involve similar curatorial and narrative decisions as text-based entries.

- Since WordPress supports a wide variety of sliders, light boxes, and gallery options for publishing images the timeline would work best if The Print Center decided on a select number of presentation formats that repeat throughout the timeline. For example a slideshow would work well with The Print Center's exhibits and publications, while events and more narrative entries would work well in an article format with full-width images placed in the post so that the user would scroll down to read the story. Similarly, video and sound entries would be consistently formatted.
- Research-based entries
 - Research entries would provide historical context to the text and media-based entries.
 - These posts would typically focus on a topic, contain citations, include relevant historical images and photos from the archives, and aim to be around 750 to 1000 words.
 - These entries will contain more in depth research from the archives.
 - There would be far more text and media-based entries than research entries, but the research entries would function to contextualize the often-unrelated smaller entries together through different histories.
 - After the research content, each of these longer entries could contain a list of the timeline entries that are connected to the topic, essentially nesting a smaller, themed timeline within the main centennial timeline. For example, an entry about the history of The Print Center's educational programming would list the entries that deal with educational programs.
 - Taking place over a range instead of on a specific date, the research-based entries would not fit easily onto the centennial timeline. One way to integrate them on to the timeline, and add historical depth to the timeline would be to place links to the research-based entries at the top of the timeline in the form of a tag cloud. (This could be an alternative to tagging all the entries.)