

CURATE, CREATE, AND PLAY:
PATHWAYS INTO HYPERMEDIATED LITERARY SCHOLARSHIP

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To the Faculty of Washington State University:

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Abstract

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In this dissertation I discuss projects and pedagogy grounded in traditional modes of textual analysis and literary criticism, but extended into the digital realm. The three chapters of this dissertation correspond to three general categories of Digital Humanities scholarship: curating digital archives, creating tools to enhance textual analysis, and ludic practices in humanities computing and pedagogy. Case studies within each chapter show issues and offer possible solutions to problems in digital scholarship, such that the actual content of each project can be interchangeable; while I use content from my primary fields of study—nineteenth and early twentieth-century American literature—the frameworks for knowledge creation can be applied to any historical literary period. By presenting concrete problems and paths toward solutions, this dissertation will be useful to scholars lacking the technical expertise to begin envisioning a digital solution to a textual problem. In remaining focused also on the literary content and critical theory underlying each problem, this work remains relevant to those scholars less interested in implementing solutions, who are instead satisfied with the implications this work presents for future theoretical discussions.

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INTRODUCTION

"What's Past is Prologue," or How the History of Humanities Computing Must Necessarily Inform Our Present

Reporting from the 2009 convention of the Modern Language Association, William Pannacker noted in *The Chronicle of Higher Education* that the digital humanities seemed like "the first 'next big thing' in a long time, because the implications of digital technologies affect every field." While true that in this era of ubiquitous computing¹ it would be difficult to find a modern college campus in which its students and faculty are not touched in some way by digital technologies, there still exists a considerable number of students whose digital literacy skills consist solely of sending text messages or e-mail—if that—and faculty members whose research and pedagogy contains no trace of bits or bytes. And, while true that the implications of digital technology have the *potential* to affect every field, the reality is that practitioners of the digital humanities are still considered by many in their own departments to be obsessed hobbyists relegated to "working in academic equivalent of their parents' basements" to produce scholarship merging the humanities and technology (Pannacker). Although the characterization of the digital humanist as a lone wolf is generally true when surveying academia as a whole, and embracing the field may very well be the "next big thing," the concept itself certainly is not new—Father Roberto Busa began the *Index*

¹ While in this instance I do mean "ubiquitous" in its strict definition of omnipresence, I will return to the notion of ubiquitous computing later in this dissertation and discuss it in terms of the human-computer interaction model that provides users with hardware and software carefully constructed to offer unobtrusive assistance to complete tasks in our lives and work.

Thomisticus, the first electronic text project combining technology and the humanities, with a proof-of-concept developed in 1946. The "next big thing"—in the form of humanities computing—arrived on the stage well over *sixty* years ago when Father Busa partnered with IBM to produce his work, not *six* years ago when Web 2.0 activities began actively reshaping online media consumption and participation.

Every scholar who self-selects into this humanities subfield would be wise to understand at least a brief history of the intersections between humanities scholarship and computing; personal computing and programming languages as we know them were fundamentally influenced by Busa's project, just as future interfaces and modes of interaction with electronic texts will be shaped by digital humanities scholars invested in the study of book history and new media combined with database, interface, and user experience design. The intertwined history of the humanities and computing technology often goes unnoticed at both ends of the spectrum—by technologists who may wish to ignore the humanistic elements of computing and by humanities scholars who believe technology has no place in traditional scholarship—but ignoring or denying this shared history hinders the forward progress in both arenas. Hindering forward progress necessarily results in maintaining the status quo, which in this case means adhering to antiquated notions of connectivity and interaction; in digital humanities projects, ignoring developments in computing fields will impede the study of interaction patterns and practices and the development of new methods for studying old texts.

Throughout this dissertation, as I discuss the curation and creation of archives and tools, and the ludic practices that continue to shape my own digital scholarship and

pedagogy, I will also trace the genesis and growth of the processes and systems that have informed my own development of technologies for use in the humanities. In doing so, I will provide the historical foundation and discuss the development processes that have led to the creation of the tools and techniques we have now. It is my desire that this information will be of use to budding digital humanists who have a scholarly vision rooted in the humanities but lack the practice with, and knowledge of, computing technologies.

For instance, traditional textual scholarship has long chronicled the interaction between humans and the written word, and textual scholars themselves have acted as agents of change for those interactions. In the twenty-first century, textual scholars cannot ignore the presence and value of the electronic word in the same interactions, but many lack knowledge of the shared history of the humanities and computing, of existing technical processes and methodology available from fields other than their own, and the critical vocabulary necessary to collaborate with other scholars and technologists who *do* have these skills and are ready and willing to contribute to new scholarly work. The scholar with the vision but limited technical skills will spend time reinventing the wheel, as it were, rather than putting their ideas into action. One of the goals of this dissertation is to provide such scholars with a clear path toward moving their projects forward either individually or through collaboration, after understanding some of the paths scholars and technologists have already tread. While interrogating theory without putting it into practice is valuable in and of itself, a wide swath of humanities computing work *does* put theory into practice to produce models and methodologies necessary for the forward

progress of the field. In this instance, "reinventing the wheel," as it were, has lasting effects; slowing down the production of models slows down the forward progress of a field which is materially tied to an industry and user base that changes rapidly.

Although the increased use of computers in humanities scholarship roughly corresponds with increased access to hardware, software, and eventually the Internet and subsequent protocols and platforms that drive the World Wide Web, Father Busa's project evolved during a time "when the application was out searching for the hardware," a time before the Internet, the personal computer, the mainframe, and even before programming languages themselves (Winter 3). But Busa's project does not come from a time before textual scholarship; his goal was something traditional, or at least not out of ordinary. Busa wanted to determine the metaphysics of *presence* in the works of St. Thomas Aquinas, in part by studying the way function words such as articles, pronouns, and prepositions affect content words such as adjectives and nouns—in this case, the preposition "in" was particularly vexing (Winter 6). Busa's original, hand-made concordance—created following hundreds of years of scholarly tradition—contained more than 10,000 hand-written cards.

But Busa had a vision that would reshape not only humanities scholarship but the future of computing. After studying "presence" in the works of St. Thomas Aquinas, Busa envisioned a concordance of all ten million function and content words and their lemma, something he knew would be impossible using only human intervention. After touring more than twenty American universities in a quest to gather information on mechanized processes and potentially find a research partner, Busa finally gained an

audience with someone outside the academy: Thomas J. Watson, the president of IBM. IBM owned the patents for machine-based manipulations of cards, which was the process necessary for the completion of Busa's grand project (Winter 7). After a successful meeting, and over a period of several years, IBM would go on to develop machines and processes to enhance work in business and military defense system, but also continued to work with Busa on technical projects which produced textual scholarship. For his part, Busa actively attempted to combine the multiple separate processes and machines into a single entity that would enable true rapid production of the *Index Thomisticus*. These separate processes and machines were individual components created by IBM such as the key punch, verifiers, interpreters, reproducers, gangpunches, collators, tabulators, sorters, and calculators (Winter 9). Each of these components had a single job to do, but shortly these individual components doing individual jobs would lead to single machines that would complete many jobs and which could be programmed to complete many more: the IBM 700 series, the vacuum tube machines, the data processing systems, and eventually the personal computer. Busa and his scholarly projects were instrumental in the development of IBM's machines and processes, as he provided not only a significant amount of data in the works of St. Thomas Aquinas but a clear vision of the ultimate product he wanted these machines to produce: a grand concordance based on traditional textual scholarship.

In 1957, his work as IBM liaison on Busa's project led Paul Tasman to argue that using "data-processing tools developed primarily for science and commerce may prove a significant factor in facilitating future literary and scholarly studies" (249). Within eight

years—a period of time that included increased access to computing resources as well as the development of abstract and portable programming languages—the use of computers in humanities scholarship grew beyond the single scholar and his ambitious project. At the American Federation of Information Processing Societies Joint Computer Conference in 1965, Edmund A. Bowles, then employed in IBM's Department of Educational Affairs, presented "The Role of the Computer in Humanistic Scholarship." In this presentation, Bowles detailed over twenty humanities computing projects across such fields as archaeology, history, literary studies, and musicology. The projects themselves, enabled in part by IBM hardware and in part by humanistic inquiry, show the scholarly impact of Busa's project and partnership with IBM. But even more than that, Bowles's documentation of these projects and his mention of a 1964 survey by the American Council of Learned Societies that "reveals well over a hundred individuals involved with the tools of data processing" in humanities fields, is proof positive that humanities computing as we now know it has a rich history full of lessons learned and knowledge created (275). Busa's project and IBM's machines made sure that scholars could "no longer think of concordances, dictionaries, or projects involving masses of statistical data and numerous cross-correlations without bringing into play the tools of data processing," but the next logical step in the use of computers in humanities scholarship was again driven by the humanistic desire for analysis, or "the more creative uses of data processing" (Bowles 270).

In his presentation, Bowles recounts the story of a professor who took a summer course in computing in the early 1960s, which could just as easily be a professor taking a

similar course in 2010, as I hear the same complaints today: the professor declared himself the "least likely to benefit from a computer" given his work in art history and archaeology (275). However, after completing the course, Bowles reports the professor had changed his mind, praising the computer not only for the mechanized processes it could complete faster than human hands, but for the way in which human partnership with the computer had changed the way in which the individual could expand his or her mind and could take thoughts to another level. The professor could thus begin to think about future uses of future tools based on the previously-untapped knowledge of a wide range of humanists who could develop even more uses beyond simple computation—analysis, for example.

As computing projects in the humanities gained a foothold in the academy and development continued toward techniques and languages for programming computers, computer scientists began to investigate human-computer interaction in an attempt to discover specific methods for the efficient and productive use of machines based on the ways in which humans interact both with machines and with each other. In 1960, computer scientist J. C. R. Licklider described a goal of achieving symbiosis between man and machine, in which "men will set the goals, formulate the hypothesis, determine the criteria, and perform the evaluations" while the machines "will do the routinizable work that must be done to prepare the way for insights" (4). In other words, man must architect the system before the system can function; "architect" is used to encompass the multiple tasks of planning, organizing, and (finally) building a machine, system, or process. Licklider's description of the interaction between man and matches the way in

which Father Busa and his project assisted IBM in the creation of the machines and machine-based processes that started the revolution of computer-assisted work in the humanities. As these projects grew both in number and in scope—from concordances to analytical tools for determination of authorship²—it became necessary to use these same tools to archive and maintain these electronic projects so as to avoid duplication of work but also to increase access to the work already done. Once again the humanists and scientists worked collaboratively to move ahead; through the 1970s and 1980s, computer scientists and engineers focused on the mechanisms for storage while humanists worked to develop processes for sharing and sustaining this information. By the time the personal computer entered mainstream use in the late 1980s and especially in the early 1990s, one might imagine that scholarly work blending technology and the humanities naturally blossomed and moved forward exponentially.

However, the opposite occurred, and momentarily impeded the forward progress that had been achieved by humanists and computer scientists working together for decades toward common goals. Susan Hockey describes this boon of access to personal computing as a period in which users "could do whatever they wanted and did not necessarily benefit from expertise that already existed" (10). Although difficult to argue against the premise of independent learning, this period of increased access also "encouraged duplication of effort", which is something we still see to this day in the array of humanities computing projects available online (Hockey 10). But Hockey is also quick to mention that increased access and the power to ignore computing experts also

² In 1964, Mosteller and Wallace used statistical analysis to confirm previous (analog) scholarly work regarding the authorship of the *Federalist Papers*.

"fostered innovation where users were not conditioned by what was already available" (10). Again, much like Busa's project in the 1940s and the number of humanities computing projects in progress in the late 1960s, the late 1980s and early 1990s marked another stage in the development of the "next big thing" combining humanistic inquiry and technology.

The recognized duplication of efforts in humanities computing projects—specifically in the area of document encoding—led to the creation of the Text Encoding Initiative (TEI) and its *Guidelines for Electronic Text Encoding and Interchange*. Since the publication of these guidelines in 1994, TEI encoding has remained the standard markup for representing the structural features and content of texts in humanities disciplines. Based on SGML (Standard Generalized Markup Language), which is essentially a language that allows an author to define another language, the set of over 400 tags in the original TEI specification aimed to categorize and define "all the features within humanities texts that might interest scholars"—bibliographic or otherwise (Hockey 12). For example, once a standard means for marking up texts existed, textual scholars could focus on representing and analyzing texts rather than begin with the additional step of creating a custom markup scheme for their individual projects. As SGML-based languages have at their core the mandate to mark up structure and not presentation, duplication of efforts were again avoided at the individual file level, as one transformative display template could be systematically applied to all TEI-encoded documents in one's archive. With design thusly separated from the data, members of a team could focus their efforts on individual parts of the project best suited to their

skillset: the content expert could define the set of TEI encoding tags most appropriate for the documents they wished to archive, designers (which could also include the content expert) could focus on the transformation of those encoded tags into display for the end-user, and other team members—apprentice content experts and/or designers—could focus on the rote details of applying the markup to the texts.

This process of identifying documents to mark up and reproduce in digital format formed the basis of the electronic archive that we have come to know over the last fifteen years. When users access scholarly digital reproductions of texts via the World Wide Web, the chances are very good that they will encounter materials marked up with TEI encoding and transformed for display by a standard template. But both the digital archive—loosely defined as a collection of encoded material presented for the user through which they will have to choose their own reading and research path—and the digital scholarly edition—an encoded text with "value added" commentary, explanations, and one or more predefined paths of exploration—focused on digital reproduction of the book *alone*, and lacked the rigorous analytical component that early humanities computing projects brought to light. With the advent of the World Wide Web and a quickly growing user base, the rush to preserve and display content online was the point at which many scholars simply ended their work. While digital preservation and increased access to scholarly content is important for current and future readers, the emphasis on tools for analysis went out of favor as the emphasis was placed on technologies of preservation. Unfortunately, this stagnation of digital scholarly work occurred as innovations in user access, experience, contribution and distribution were

going on outside the scholarly world. Although just a few short decades prior humanists and computer scientists worked together for mutual benefit, it seemed that once humanists familiarized themselves with technologies they could control without much input from other groups (TEI, display templates, web publishing), the general collaboration between the humanists and the computer scientists ended—and so did technological innovations from the humanists.

Forty years after Edmund Bowles's description of the professor newly introduced to computer-enhanced scholarship, Father Busa described humanities computing as "the automation of every possible analysis of human expression [...] in the widest sense of the word [...] but whose nucleus remains the discourse of written texts" (xvi). One might imagine that forty years of technological advancements would have had far-reaching effects into scholarly work in the humanities—that we have had more stories like the archaeology professor and his transformative experience with a computer—but that has not been the case. If that statement were true, digital humanities scholars would not be described in a major source of news in higher education as "working in academic equivalent of their parents' basements"...*in 2009* (Pannapacker).

You will note in the paragraph above, and in my previous comments regarding the *current* state of computing and humanities, the use of the term "digital humanities" instead of "humanities computing." In "Humanities Computing as Digital Humanities," Patrik Svensson provides an overview of the discursive shift between the two terms; he argues that the term "*digital humanities* [...]" often serves as an overarching denotation in book and journal titles, etc., while *humanities computing* is often used in the actual

narrative." Svensson provides a compelling argument for the development of the "overarching term" as one that is necessarily "inclusive and open" and which suggests "a particular community, associated history, [and] changing boundaries." This explanation makes sense, given the previous shift away from a general collaboration with computer scientists or other technical experts and toward a more humanities-driven model of digital scholarship—one that I previously noted experienced stagnation rather than innovation—and the some of the current movements toward bringing these groups back into relation with one another. Svensson argues that "the focus of traditional humanities computing is not innovating new tools, but rather using and developing existing ones," but I would argue that this result has more to do with the digitally-inclined scholars of the early 1990s whose work paved the way for what we now see as a relative ease of producing digital scholarship—at least in relation to producing a physical edition of a text with an academic press. The examples of digital scholarship in the early 1990s seemed to fork the field into two general camps: scholars interested in the creation of new tools for analysis and new methods of reading and interface, and those solely interested in archiving and reproducing the text in digital form.

These are generalizations to be sure, and there are instances of crossover between the two camps, but the subset of scholars who have forgotten (or ignore, or never knew) the intertwined history of humanities scholarship and computer science are likely to find their work subsumed by a field reinvigorated by an emphasis on the digital, on the technological, and through interdisciplinary collaboration. This camp consists of the scholars focused purely on reproducing texts in digital forms, rather than those interested

in continuing the investigations of texts (and interfaces to those texts) through collaborative work with scholars outside of the humanities, such as computer scientists, human-computer interaction consultants, and interface designers. As Svensson goes on to outline, practitioners of the Digital Humanities (or Humanities Computing 2.0, if you will) have the opportunity to work not only with text encoding, but also with issues of interface, methodology, tool creation, modeling, and multiple data types—not just text, but images, sound, and other material objects. I argue that scholars intending to wade in these waters must not simply acknowledge the opportunity for this work, but must make consideration of the above a fundamental part of their own scholarship. In other words, any scholar intending to undertake a Digital Humanities project must have some familiarity with the general knowledge categories listed above—otherwise they will not be producing digital humanities scholarship, but rather simply reproducing a text in digital form.

The simple reproductions of text in a digital form—the content that many early-career scholars see online and assume that since it is online it is therefore "digital humanities scholarship"—are in fact "charlatans" to the field. In "What is Humanities Computing and What is Not?", John Unsworth accepts Tito Orlandi's term "charlatan" to refer to

people who present as 'humanities computing' some body of work that is not: it may be computer-based (for example, it may be published on the Web), and it may present very engaging content, but if it doesn't have a way to be wrong, if one can't say whether it does or doesn't work, whether it is or isn't internally

consistent and logically coherent, then it's something other than humanities computing.

Unsworth (and I) recognizes that the term "charlatan" is a difficult and harsh word to apply to what could be some scholar's life's work. But Unsworth also accurately points out the problem with this sort of charlatanism when he says "it undersells the market by providing a quick-and-dirty simulacrum of something that, done right, is expensive, time-consuming, and difficult." In other words, simply encoding a text and putting it online such that the user can navigate from the front cover to the back cover is *digitization* rather than digital scholarship; it is an emphasis on mechanical fact rather than knowledge creation. Unsworth describes this as a means of trading "intellectual self-consistency and internal logical coherence [...] for surface effects, immediate production, and canned conclusions." At the time of Unsworth's lecture in 2000, scholars were six years removed from the publication of the TEI guidelines, and the projects that had made it online were all "involved in some degree of charlatanism, even the best of them." I argue that ten years later scholars are still inundated with these sorts of projects, although the field has begun to move forward again as interdisciplinary skills and collaboration are brought to projects.

Unsworth outlines the general degrees of charlatanism, as even if the "best" digital humanities work is engaged in some degree of charlatanism, "degree matters"; degree can be measured "by the interactivity offered to users who wish to frame their own research questions." This degree of interactivity can range from none—the project is a pure digital representation of the book enabled through a web browser, for instance—

then "the project is pure charlatanism." But as the degrees of interactivity increase, the levels of charlatanism decrease; simple keyword searching reduces charlatanism a bit, structured searching a bit more, combinatorial queries even more, and so on. Unsworth notes changing parameters to produce new models is one more step out of charlatanism, as is the introduction of "new algorithms for calculating the outcomes of changed parameters and values." These are but a few ways in which charlatanism can be reduced, with the overall goal being that users are afforded the opportunity to use functionality built into the project itself to investigate the intellectual and technical infrastructure of the digital project; in short, "the more room a resource offers for the exercise of independent imagination and curiosity, the more substantially well thought-out, well-designed, and well-produced a resource it must be" (Unsworth). To produce digital scholarship of this type, the humanities content expert must necessarily also understand and embrace multiple technologies, including the technology of collaboration with those outside the expert's field of study—ideally once again pairing humanities and computing.

"Technologies" does not necessarily mean markup languages, or server-side programming, or disk arrays that can store terabytes upon terabytes of digital information. "Technologies," as Martha Nell Smith reminds us in "Computing: What's American Literary Scholarship Got to Do with IT?", are simply those means by which we might accomplish various ends (836). In this article from 2002, Smith discusses four

technologies that *should* be driving digital humanities projects, likely influenced by John Unsworth's talk discussed previously³:

- **technology of access**, or making available to all what was once available to experts only; taking the (rare) book out of the physical archive and digitizing it for all the world's scholars to use from their home locations.
- **technology of multimedia study objects or digital surrogates**, or ensuring that the digital representation of the physical object retains the key features of that object, such that it may be manipulated and transformed (displayed, analyzed, etc.) without losing its core qualities.
- **technology of collaboration**, or accomplishing means to various ends in humanities computing projects by including a vast array of colleagues—managers, librarians, programmers, designers, visionaries, and so on.
- **technology of self-consciousness**, or a constant reflection upon how the core objects of study—the ones we are remediating—have been produced both in the first place, and in their new spaces

For the most part, scholars have embraced the technology of access; in fact, I argue it is the only technology that humanities scholars have fully embraced, and even this technology runs aground on institutional policies that at times restrict access outside of a project's home institution. But in general, mastering the technology of access is to

³ Unsworth delivered his talk in October 2000 as part of the Distinguished Speakers Series of the Maryland Institute for Technology in the Humanities at the University of Maryland, which Martha Nell Smith founded in 1999.

make available to all scholars what was once available to experts only—be it a text locked away in a rare book room or a single copy of a text found in a library far from the scholar whose work depends on it (837). Mastering the technology of access can be achieved even when the digital scholarship itself is but the most static digital representation of a text. This static representation of a text—which may or may not achieve the label "digital surrogate," and would find itself referred to as a "charlatan" in most instances—can be a scholar's entire means to a research end, as it provides access that would otherwise not have been available. Although Smith argues that the static representation of texts in *Dickinson Electronic Archives* afford "many more pairs of eyes [...] the opportunity to join in informed debate about Dickinson's manuscripts than has been previously possible," and this is true, the technological intervention that has occurred remains such in only the most minimal way (840). However, the edited exhibits in the *Dickinson Electronic Archives* are situated as examples of the types of scholarship that could be produced given increased access to texts and tools to manipulate them, and do not aspire to more than that; therefore, labeling this type of digital scholarship as a charlatan would be unfair.

But to avoid even the hint of charlatanism would necessitate moving forward with the creation of true multimedia study objects that are instances of digital scholarship. The creation of digital surrogates necessitates increased editorial responsibility and accountability with regards to material selections, encoding practices, and the representation of highly structured information that can expand, be built upon, and eventually grow; digital surrogates allows for the incorporation of "audio, video, and

high-quality images that books simply cannot reproduce" (Smith 843). Through the technology of digital surrogates, bringing other media into relation with the original object under study creates "innovative forms of annotation that can powerfully demonstrate the relevance of scholarly work"—digital or otherwise (Smith 843). But in order to get to that stage, the surrogate itself must have an "algorithmic amenability" for manipulation, combination, and derivation (Mueller).

As Smith argues with regards to the third technology—that of collaboration—"the world of digital surrogates practically demands new models for editorial praxes in which editors and readers work together" because the increased access to digital surrogates can illuminate "myriad perspectives" and "much more sustained reflection" with regards to the analysis of the texts presented (846). Smith notes that access to digital surrogates by users (editors, readers) "make definitive analytical descriptions neither possible nor desirable," which gets at the overall goal Unsworth describes as "the exercise of independent imagination and curiosity," supported by the interface and design of the digital content to which one has access. Although some might argue that embracing collaboration goes against traditional humanities training, the means to accomplish ends in digital humanities projects *must* include a vast array of colleagues—managers, librarians, programmers, designers, visionaries, and so on. To produce digital humanities scholarship of a higher order, the traditional scholar or context expert might find themselves learning about these other areas of expertise as they collaborate—in fact *should* learn something about the skills of their collaborators and how these skills fit into

the overall project. That knowledge leads to the final technology that Smith endorses: the technology of self-consciousness.

While collaborating on projects that will produce digital surrogates of texts, which will in turn increase access to texts, the scholar must maintain a "relentless self-consciousness about how critical 'facts' have been produced, [and] about how items of knowledge are circumstances of their creation" (852). The scholar remediating a text must remain self-conscious of how the fundamental object-becoming-digital-object was originally created, and how it shall be re-created in its new space. Smith uses her experiences with the *Dickinson Electronic Archives* as an example, as she reminds us that "neither the reproductions of texts nor critical interpretations can be innocent of or superior to politics, since both require negotiations among authors, editors, publishers, and readers," and ensuring those negotiations and interventions are reproduced in the digital archive is crucial to the reader's understanding of the entire textual condition of the work (852). In other words, to represent Dickinson's poetry simply as text on a screen, without constant awareness of its production history would be to miss the point—or at least the potential and power—that the digital archives affords us.

With Smith's four technologies in mind, in this dissertation I discuss projects and pedagogy grounded in traditional modes of textual analysis and literary criticism, but extended into the digital realm, so as to offer examples of the ways in which scholars and students can work with digital texts and tools to enhance these critical practices. In each of three chapters in this dissertation, I first discuss the foundational scholarship that informs each project, and then present brief case studies of digital scholarship projects;

these case studies show issues and offer possible solutions to problems in digital scholarship and include the theoretical foundation of both the problem and the solution. I intend each case study to act as a proof-of-concept or framework around a solution, such that the actual content of each project can be interchangeable. By that I mean the technology supporting each project will be filled with content in my primary field of study—nineteenth and early twentieth-century American literature—but the frameworks for knowledge creation can be applied to content from any historical literary period.

The problems for which paths toward solutions will be offered in this dissertation are similar to those faced by current Digital Humanities scholars as they begin to conceptualize their own projects and ask questions such as "Where do I start?" and "What do I need to know?" An important aspect of each case study will be to assuage the fears of traditional scholars that digital scholarship will or should replace traditional print-based scholarship; the answer to "Where do I start?" will often be grounded in the analog, and the answer to "What do I need to know?" will typically leverage the existing analog skills of the content expert. Indeed, for scholars for whom the physical text exists (here I am leaving the scholars of electronic literature to their own devices), the physical text should remain integral to their digital scholarship, as the codex is, and for the foreseeable future will continue to be, the basis for curated archives, created tools, and pedagogical methods for literary study.

Chapter One, "Scholar as Curator, Curator as Scholar," focuses on data curation and the ways in which librarians, archivists, and textual scholars must collaborate in the production of textual archives. Specifically, in the case study portion of this chapter I

highlight ways in which methods of digital preservation and access of written materials are taking the text out of relation to its textual condition rather than providing access to the entirety of it. Although the book itself is neither dead nor dying, our access to technology that can preserve and extend the experience of the book is not being used in this way. Instead, I discuss how the lack of collaborative efforts to preserve texts are effectively reducing the complex external forces and modes of production of that text into something of little consequence.

Chapter Two, "The Future is Now, or Creating the n-Dimensional Archive," thus concerns itself with the extension of the curated static archive toward an always growing, rhizomatic archive that allows for the investigation of texts and textuality in multiple dimensions, while also adding to the socialization of the text itself. As part of a discussion of the production of an n-dimensional archive, I focus on the usefulness of such an archive and interface for a curated digital archive of the work of California naturalist John Muir, as opposed to the digital library that currently exists. As Muir's "work" includes letters, maps, sketches, article drafts, published articles, published articles by other authors printed in relation to Muir's, posthumous editions, and other ephemeral and textual artifacts related to his writing process or the content of his writing, the literary problem in this case is to discover and document the layers of thickness added to Muir's work by the context(s) of its creation.

Chapter Three, "Playing to Learn, or Engaging in Speculative Computing," focuses on ludic interactions with textual simulations leading toward critical analysis. This chapter will focus on cases that enhance students' digital literacies as they "play"

with pre-existing tools to create new knowledge of literary texts. Students' "new knowledge" could, in fact, be grounded in "old" knowledge—that is, traditional textual analysis. I present two possibilities for students to work with scholarly content and digital tools to enhance their own understanding of texts and to provide scholarly output for use by others. First, using the web-based annotation software called CommentPress, students could create a crowdsourced annotation of a text (in this case, Owen Wister's *The Virginian*, the iconic novel of the American West that contains well over a hundred references to British texts). Next, using Google Maps students can map a literary locale (in this case, the West as described in issues of the *Overland Monthly*) and produce a rich visualization of the movements of authors and the production of their texts, in this way creating a visual artifact that itself disputes widely held notions of the means and methods of production of texts in their own time.

Just as user-generated and open-access content began fundamentally reshaping the World Wide Web at the turn of the twenty-first century, so are the scholarly implications of these new technologies reshaping traditional study in the humanities. But to reach this turning point—one which has at the other side new models of the digital archive, new textual analysis and visualization tools, and new pedagogical methodology—scholars must understand some of the history of applied humanities computing, namely its birth and continuation as an interdisciplinary field, in order to exploit the connections to and relationships inherent between our humanities fields and those of computer science, human-computer interaction, and library sciences. This knowledge and integration of past lessons learned should lead to a reduced duplication of

efforts as well as new objects and methods of analysis within the fields for which we are content experts. By presenting case studies—concrete problems and solutions—this dissertation will be useful to scholars lacking the technical expertise to begin envisioning a digital solution to a textual problem. In remaining focused also on the literary content and critical theory underlying each problem, this work remains relevant to those scholars less interested in implementing technological solutions, who are instead satisfied with the implications this work presents for future theoretical discussions in terms of the analog—although perhaps sparking some notion of digitally-oriented scholarly work of their own, in time.

CHAPTER 1

Scholar as Curator, Curator as Scholar

The title of this chapter comes directly from a statement made in the "Digital Humanities Manifesto 2.0," which was collaboratively authored in 2009 by a group of graduate students and faculty participating in a Mellon Seminar called "What is(n't) Digital Humanities?" One of the key statements in the manifesto is that "Digital Humanists recognize curation as a central feature of the future of the Humanities disciplines." Although this statement itself seems to limit the definition of the field, I agree with the sentiment, and its implication that this belief necessarily "recasts the scholar as curator and the curator as scholar." In other words, as it pertains to the content under discussion here, scholarly data curation requires more than the technical knowledge necessary to preserve and maintain digital objects; it also requires a self-conscious selection and collection of objects to reside in the repository. Some of these tasks have historically fallen under the purview of museum directors or libraries, while others have been the responsibility of the humanities scholar. The authors of the "Digital Humanities Manifesto 2.0" would have us believe—and I do—that to curate a useful, sustainable archive requires collaboration between humanities scholars, librarians, and archivists. In all instances, the scholarly and curatorial work of the collaborators will be enriched by the input of the others.

As Jerome McGann recently reminded colleagues at the "Shape of Things to Come" conference on the future of digital scholarship, the interoperation of institutional

agents such as scholars and libraries⁴ has created and sustained humanities scholarship for centuries, and with the advent of digital technology—*information technology*—the engagement by libraries with new technologies has "restored an awareness of their indispensable educational position." If, as McGann argues in his presentation, "when digital scholarship in the humanities thrives at a university these days, the library is almost always a key player, and often the center and driving force," then scholars, librarians, and archivists must collaborate if their work is to survive and provide meaning (or pathways to knowledge) for generations to come. But collaborative work between units (for instance, an English department and a library) really takes place between people; I realize this is an obvious statement to make but it sheds light on one of the greatest barriers to collaboration: recognizing the talents and inherent worth of the other person, and what that person might bring to your project. McGann addresses this issue in his presentation as he notes that as far as the "university's political and social structure is concerned, [librarian, archivist, and other technical collaborators] are employees hired to serve the faculties" and are often considered second-class citizens by faculty despite the fact that "these people are often scholars of distinction in their own right." These sorts of personnel issues are not new, despite the newness of the digital technologies employed in collaborative projects. But in general, the gap between the skill sets of the typical curator and the typical scholar is more difficult to overcome than it has been before, hence the argument for the recognition of curator as a scholar in her own right.

⁴ McGann also discusses publishing entities and the funding agencies that support scholarship. Although admittedly part of a larger argument, I use McGann's comments on the relationship between scholars, libraries, and the production of scholarship to support my argument for collaboration between scholars and data curators.

The role of the curator/scholar aligns with all four of Martha Nell Smith's technologies for working with digital literary archives: providing scholars with access to texts through proven platforms and processes, creating digital surrogates that bring other media into relation with the objects in the archive, collaborating with others to engage with established practices for data custody and sustainability, and the need for self-consciousness so that the archive includes a sustaining narrative but also provokes imagination and analysis while also augmenting teaching and learning. In this chapter, I address the all-too-common refrain that digital surrogates will lead to the death of the book before concentrating on examples which will show the need for curator/scholars to use the technologies of access and collaboration to produce digital surrogates that will keep the book alive. Throughout this work, I do not have a nostalgic interest in the book, but rather an interest in investigating the functional and progressive qualities that digital scholarship can enliven in the text.

Textual scholars discussing the history of the book often begin their argument du jour by discussing Sumerian inscriptions on clay tablets, move on to papyrus and the first codex books, segue to Gutenberg and moveable type, stop briefly to note the effects of the Industrial Revolution on mass-produced texts, and eventually find themselves in the twenty-first century and the notion that a shift to electronic media will somehow sound a death knell for "the book." Just as "the book" has survived through all the aforementioned shifts in media, it will continue to flourish in the twenty-first century and beyond—in part because of the conscious activities of data curators, archivists and scholars dedicated to the preservation of the traditional codex even as it finds itself

represented in digital form, but also because, as Paul Duguid notes, "futurologists do have a habit of announcing both deaths and births prematurely" (494).

In *The Order of Books*, Roger Chartier suggests that what we know to be "a book" is an object that "always aims at instilling an order," which could be the way the work is deciphered, understood, or intended by its author, "even when [this order] is hemmed in by differences in competences and by conventions" (viii). These differences in convention include differences in the medium through which the work is disseminated—predominantly print, in Chartier's initial discussion, but with a nod toward surrounding or extended types of media as he notes that "keen attention should be paid to the technical, visual, and physical devices that organize the reading of writing when writing becomes a book" (ix). Chartier recognizes that *works* "are produced within a specific order that has its own rules, conventions and hierarchies," which includes the dominant forms of media of its time—these could be clay tablets, paper, or pixels (x). The subtle shift from using the word "books" to using "works" presupposes the notion that the term "book" is inadequate to express the embodiment of text with which we interact. For example, Chartier explains when texts pass "from the codex to the monitor screen the 'same' text is no longer truly the same because the new formal devices that offer it to its reader modify the conditions of its reception and its comprehension" (90). This McLuhanesque statement is not offered as proof that the digital age has ruined or will ruin "the book," but rather as reminder that the physical appearance of works—be they in the form of clay tablets, manuscripts, or a mass-produced codex—are media through which the works are connected to the historical period in which they were produced. The original content and

social contexts remain, thus the curator/scholar must focus on capturing both when planning for and producing digital surrogates of a work.

While Chartier notes "the book has been one of the most powerful metaphors for conceiving of the cosmos, nature, history, and the human body," the future (or continuing present) is not one that lacks the metaphor of the book, although one day centuries from now humankind may lack the physical artifact (90-91). Just as *writing* has not disappeared from our convergence culture, neither has reading nor the metaphor of the book for that matter.⁵ Instead, we find ourselves engaged in "a possible revolution in the forms of [the book's] dissemination and appropriation" (Chartier 91). In its early days, proponents of the World Wide Web relied on bookish terminology to explain this exponentially increasing yet intangible knowledge field, and little has changed in its twenty years of existence; the Web itself is a library, individual web sites are books in that library, pages found within a web site are pages bound in a book, a search engine relies on an index, readers use this index to find information within web sites, and so on. In fact, this bookish terminology served as the guiding force in early static archives of digital literary resources, as TEI-encoded documents were placed online such that the raw files became the individual pages in the "book," and the interface to the book allowed reading just as (and only as) one would read the printed book.

⁵ I use "convergence culture" here as a reference to Henry Jenkins's book of the same name. In *Convergence Culture*, Jenkins defines "convergence" as "the flow of content across multiple media platforms, the cooperation between multiple media industries, and the migratory behavior of media audiences who would go almost anywhere in search of the kinds of entertainment experiences they wanted" (2). This type of convergence is not purely technological, although technology certainly plays a primary role in our ability to achieve the "shift in cultural logic," in which we "are encouraged to seek out new information and make connections between dispersed media content" (3). Such actions are not terribly different from making intertextual references between traditional printed literary works; the difference is in the form of the media content and its availability.

Even if printed works do eventually fall by the wayside in favor of the electronic, our culture (or whichever culture reaches that moment) will have returned to that "central thread of Enlightenment thought that had already condemned the book as an archaic and inefficient cultural form" (Hesse 23). Carla Hesse recalls the idea that "fixing knowledge between two covers, and to attribute ownership of that slice to someone was to constrain its circulation," and how dissatisfaction with such limitations on knowledge changed publication techniques in the eighteenth century, specifically in France (24). Hesse notes the similarities between "current descriptions of the new electronic text" and these eighteenth century modes of textuality intent on knowledge dissemination rather than hoarding (24). Put in twenty-first century terms, Enlightenment thinkers were as concerned with unlocking the silos and fulfilling the promise of the technology of access as some of us are today. Régis Debray describes the "primordial book" as one that is "edifying because it is an edifice," with the material text "gilded, carved, locked shut, with its clasp, its hard back, its coppered corners, its intersecting architectonic edges [that] duplicates the closure of the cloister" (143). Setting aside the subset of electronic texts that are specifically placed behind paywalls, open access digital surrogates of printed literary works have the potential to be the antithesis of the edifice not only because they are intangible but because they are unlocked.

In his article on the futurology of the book, Paul Duguid speaks directly to the idea of trapped knowledge superseded by a focus on the liberating aspects of technology; he recounts the words of numerous futurist, literary, and new media theorists who exclaim that "information wants to be free," text must be freed from the "frozen structure

of the page," information "has to move," that only through new technology can the "true structure of interconnectedness of information" emerge, and that "our static media [...] have strongly resisted the evolutionary impulse" (498). Duguid also refers to Richard Lanham's statement in *The Electronic Word* that "[c]odex books limit the wisdom of the Great Books to students who are Great Readers" while "[e]lectronic text blows that limitation wide open" on the way to democratizing the arts (105). None of these statements call for an extermination of print, or a desire to turn away from the written word. Instead, new technologies present to us (readers, scholars, authors, publishers) a *new kind of book* along with new ways of reading and writing. If we view the concept of the book as Duguid and others do—as a machine that acts as a conduit for the information contained within—then we can "bridge the supersessive chasm some have dug between new technology and the book, as if one were a machine and the other not" (501). Thus viewing the book as a machine put together by numerous engineers brings the definition of the book—printed, electronic, born-digital, or otherwise—back into alignment with the most fundamental notion of the communications circuit that leads to the creation of a text; the "book" is still an interactive object that remains a "force in history" both in its content and mode of production (Darnton 9). To fully represent this "force in history" in our future libraries necessitates the creation of digital surrogates and not simply digitized images of text on a page and TEI-encoded documents representing bibliographic codes. While the latter enables the scholar to reproduce an approximation of the appearance and content of the physical book, the enhanced digital surrogate allows the reproduction of the production circuit and textual condition of the artifact. Capturing

and preserving the production circuit and textual condition comes from the curator/scholar's self-conscious decision-making regarding the archiving of elements in relation to the text itself.

In his much celebrated essay "What is the History of Books?", Robert Darnton carefully outlines the responsibilities of the many participants in the communications circuit that has proven so useful for scholars as a model for analyzing the creation and dissemination of texts. The Darntonian communications circuit "runs from the author to the publisher [...], the printer, the shipper, the bookseller, and the reader"; the reader completes this static circuit "because he influences the author both before and after the act of composition" (11). In Darnton's communications circuit, information flows from conductor to conductor but the circuit itself is closed, although additional microcircuits could be added at each conductivity point—such as a circuit of suppliers feeding the printer, or a circuit of editors feeding the master editor, and so on. If we consider the book as a machine, the communications circuit mimics the electrical system of that machine. Imagining the book within a new field of production and mode of reading, such as print/digital hybrid texts accessed by readers accustomed to gathering and responding to information in a convergence culture, also requires rethinking its machinery; a new machine requires a new kind of electrical system, one that can handle these multiple inputs and outputs at various points along the circuit. Darnton's static, closed-circuit model is not equipped for multiple inputs and outputs, thus requiring an open system model to represent the production cycle of print or digital texts in today's marketplace—

which includes archiving old content in new ways, as discussed in the case study found later in this chapter.

An open system circuit model constantly interacts with its environment, and these interactions can simultaneously affect all conductors along the circuit. The open system always stands ready to accept input for processing and sends output to a receiver, which then provides feedback back into the circuit either directly (through an input) or indirectly (through an input filtered through some other part of the surrounding environment). This interaction model would overwhelm the simple Darntonian circuit, and thus seems as if it would be an appropriate extension to the original model when discussing texts and textuality in the twenty-first century. However there is a more appropriate model, one that is not only an extension, but a *natural* extension to Darnton's model: the Deleuze and Guattari rhizome. For Deleuze and Guattari, the rhizome is "a concept that 'maps' a process of networked, relational and transversal thought, and a way of being without 'tracing' the construction of that map as a fixed entity" (127). This model from the natural world is far more accommodating for the multiple and uneven inputs and outputs that cause the circuit of literary production to expand outward and grow upward when applied to an individual text, as even the open system model of the communications circuit is too arborescent. In other words, even the open system model is still too ordered to represent the continued growth and layering of data that can exist in a dynamic archive; this concept will be taken up in the second chapter as part of the discussion of the n-dimensional archive.

Regarding the delineation of a closed, then open, then rhizomatic communications circuit of literary production, one might infer that the closed model is appropriate for the discussion of old texts (and their relatively limited modes of production), the open model appropriate for increasingly modern texts, and the rhizomatic model appropriate for contemporary texts, perhaps electronic literature or other born-digital materials. However, this is not at all the case; analyzing the textual condition of a twenty-first century book-as-machine using a closed circuit model might be as appropriate as analyzing the textual condition of a nineteenth-century book-as-machine with a rhizomatic model—the appropriate model for analysis comes not from the content or the media but the socialization of the text itself.

In "The Socialization of Texts," Jerome McGann asserts "literary work by its very nature sets in motion many kinds of creative intentionalities" that "orbit in the universe of the creative work" but not around an absolute center; instead, texts have "many relative centers which are brought to our attention by our own acts of observation" (69). To that, I would add that our acts of observation are enhanced by the medium through which we access the text—one is not privileged over others, and representations of the book in all media are equally able to produce a solid center at least for one fleeting moment of literary analysis. As McGann notes in a discussion of the serially-produced Dickens novel *Hard Times*, which was subsequently published in volume form, this novel "is not merely *written* differently from one that is written for monthly circulation [...]; it is *produced* differently and comes into the reader's view via differently defined bibliographical structures of meaning" (72). McGann's statement holds true for digital

surrogates of texts, as the curator/scholar may create a digital archive to represent content and narrate their own argument, while also opening new avenues for scholarly interpretation through the technology of access.

In other words, digital remediation alone does not fundamentally alter a work or provide any sort of thickness; in fact, in many instances, such remediation renders a text *less* valuable for deep scholarly work than its original printed version. In the rush to use digital media to provide access to texts (though a laudable goal), considerations of their paratextual elements have been shoved to the side and instead we have digital images of pages without descriptors, text without its attendant illustrations, and other "data" that cannot be processed without human intervention. This type of remediation without self-consciousness has created static archives of digital media that are even further disconnected from the original text.

Take, for instance, *Uncle Tom's Cabin & American Culture: A Multi-Media Archive*.⁶ This archive was created in 1998 and does not appear to have undergone any revision of design in subsequent years; it does, however, reflect a design aesthetic and digitization methodology common to its time of creation. Although the credits page of this Web site lists numerous collaborators from various institutional units—departments of English at the home institution and elsewhere, libraries, and author societies—it is unclear the extent to which the talents of the team members were used, or consideration was taken to collaborate with experts in fields such as usability, user experience, and user interface. As it stands, this archive is little more than a collection of disconnected images

⁶ This site is found at <<http://utc.iath.virginia.edu/>>.

and transcriptions of texts, contemporary reviews, and modern critical analysis. I use the term "archive" here only because the Web site itself uses the term in its title; in this "archive" the texts have been separated from their paratexts and is a poor remediation of the text under study.

The interface recreates a bookshelf; the user is instructed to click on an image of the spine of a book to select

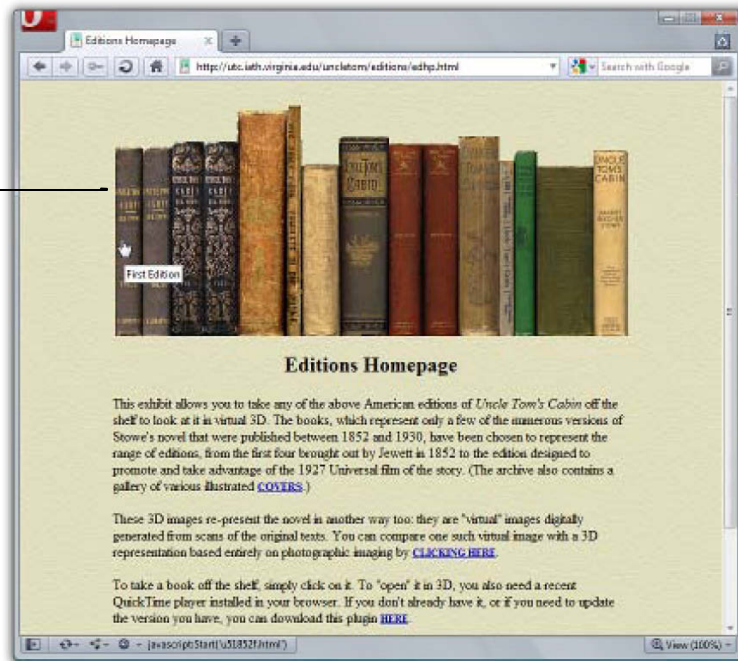
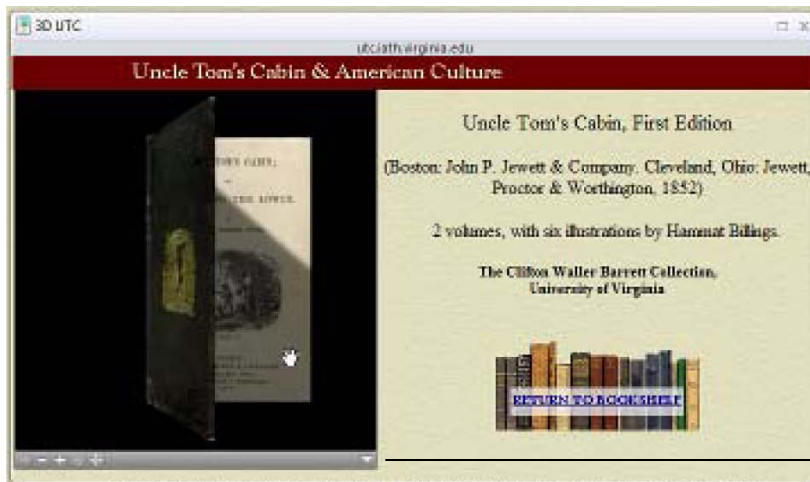


Figure 1: *Uncle Tom's Cabin Multi-Media Archive*: Selecting an Edition.

For example, this Web site takes the metaphor of the library and turns it into literal interface. Once the user steps through multiple directives and finally reaches the "Editions" page, the user is presented with an image of a bookshelf, as shown in Figure 1. After clicking on a slice of the image in order to "retrieve" a book from this digitally-represented bookshelf, images of the front and back cover are displayed and the user "opens" the book by clicking on the front cover, as shown in Figure 2.



Clicking on a book from the bookshelf leads to individual movie clips showing the front cover, back cover, and title page; the user can turn the book around with the mouse, or "open" the book to the first page.

Figure 2: *Uncle Tom's Cabin Multi-Media Archive*: Viewing a Cover.

This interface to a digital reproduction of the book does not produce any text besides what the reader can see (or zoom to see) on the title page; the text shown to the right of the image is not a replication of the title page but instead is an instance of edited (selected) metadata. To read the book itself, the user must exit out of the bookshelf/3D movie interface and use their browser's back button to find yet another edited path through the archive to where the text has been displayed. In Figure 3, you can see how the cover, title page, any inscriptions and dedications, the original table of contents, and all other paratextual elements save intertitles and page numbers have been removed from this remediated text.

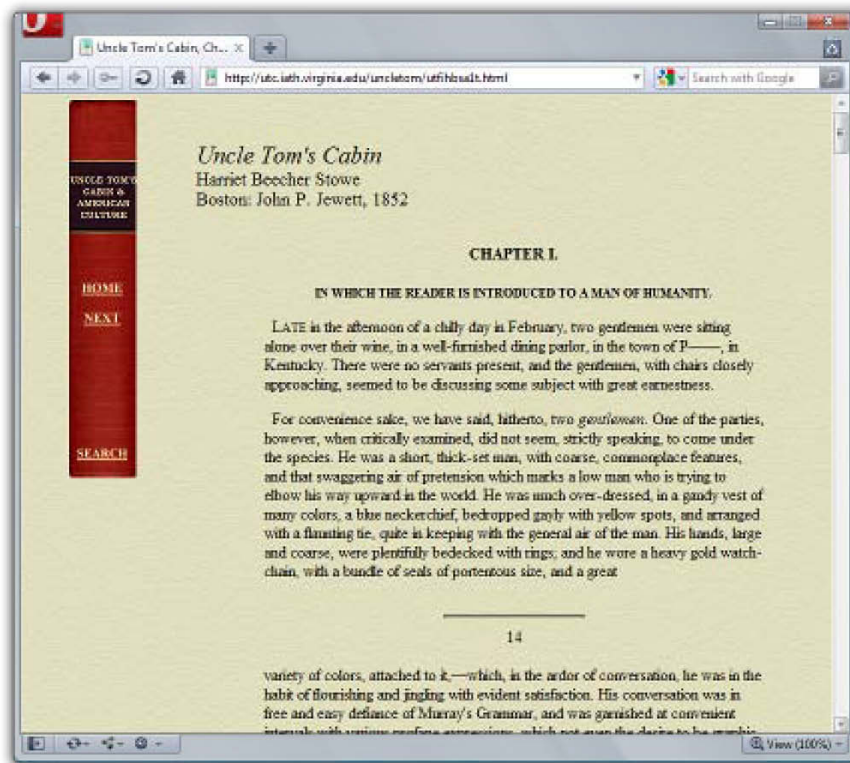


Figure 3: *Uncle Tom's Cabin Multi-Media Archive*: Reading the Text. When the text of an edition is finally displayed, it is removed from the other archived material aspects of the text.

If the editor of this archive had implemented the technology of collaboration and discussed the usability of this site with an expert in that field, he would have quickly learned of the deficiencies that in fact reduce user access within an archive ostensibly produced to increase access. A user of this Web site does have access to the text of the first edition of *Uncle Tom's Cabin*, and can eventually discover at the site some reprints of contemporary reviews, and can experience other multimedia representations of the novel as transformed over time onto stage and screen. However, while the archive is full of content, the site itself is difficult to understand and navigate, and content is disassociated from its paratexts. Given the lack of editorial comment throughout the site,

users may have difficulty evaluating the veracity of the content as selected and placed in context by its creator. Considering the site in terms of Web usability, the archive fails many of the basic tests: how easy is it to find the desired material, how clearly stated is the list of content offered and the actions available to the users, how clear are the navigation paths (if there are any), and so on. If a user cannot accomplish basic tasks within seconds of encountering a site design for the first time, if they cannot quickly perform these same tasks after multiple visits, and if users cannot quickly establish proficiency with a tool, the user will leave. The static set of remediated content in the *Uncle Tom's Cabin* archive, disassociated as it is from its paratexts and without omnipresent pathways into and around the text, does not give the reader that ability to move beyond "structural analysis or thematized reading" toward discovering what literary works "are doing in saying what they say" (McGann SA 128-130).

Case Study: Preservation, Access, and Paratextual Disconnects

The "multi-media archive" of *Uncle Tom's Cabin* is an example of the impulse of scholars to exploit the technology of access, but also exposes the limitations of scholars who work without full cooperation with librarians and archivists—as well as with technical developers skilled in user interaction and design. But even collaborating with librarians and archivists does not guarantee the production of a true digital surrogate of a text or set of texts.

In this section I will discuss the *John Muir Papers* digitization project undertaken by the librarians and archivists of the Holt-Atherton Special Collections Library at the University of the Pacific, which has preserved and provides access to thousands of

photographs, drawings, journal pages, and correspondence by or sent to California naturalist John Muir. Although a significant improvement in terms of access and interface than the curated archive discussed previously, the Muir digital collection still misses the mark regarding the creation of digital surrogates or multimedia study objects. With collaboration between curators and textual scholars, an interface could have been created to expose Muir's texts, paratexts, and production processes to students and other researchers, as the textual condition of Muir's work is particularly rhizomatic. Curating navigational paths while also providing alternate routes and tools for discovery, instead of simply presenting the static interface to raw material, would expose new avenues of scholarship while also showing the paths already discovered, thereby removing duplication of efforts and increasing the possibility of creating new scholarly analyses.

Figure 4 below shows the current interface to the digital version of the John Muir Papers. Although Figure 4 shows the interface to Muir's digitized journals, the structure of the archive is the same for the photographs, drawings, and correspondence. These interfaces are standard, out-of-the-box implementation of the archival software used by the digitization team at the Holt-Atherton Special Collections Library.

Clicking any image opens a larger photograph of the journal, which then leads to the selection of individual pages within the journal.

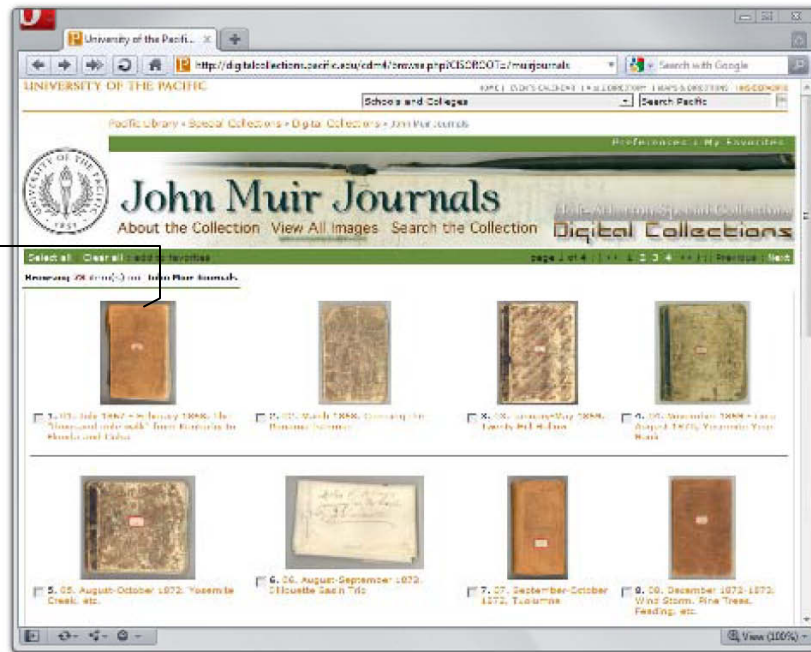


Figure 4: Library Collections interface to the John Muir Journals.

This software allows the archivists to associate metadata to the individual record for each item, which then would allow these items to be shared with other standards-compliant library catalogs. The technology of access is in full force here, but this archive remains at that level: it does not produce a digital surrogate of a text, it does not include the collaborative efforts of textual scholars to enhance the material either in display or organization, and it does not take into consideration the scholarly self-consciousness that would result in reproducing the textual condition of a work, as this archive—complete though it may be—is simply digitization and not digital scholarship. This archive, like the physical archive, can be the starting point for scholarship—digital or otherwise—through the increased access to the artifacts stored within, but itself does not stand as an example of scholarship.

If archivists and textual scholars had collaborated on the creation of this archive, perhaps the need for transcriptions of Muir's journals would have become a priority. In this archival interface, Muir's journals do not have a transcription associated with the digital image; the lack of transcription precludes the ability to search anything besides the title and date of the journal itself. In the explanation of this collection, library staff has provided the following helpful tips for working with these texts. Namely, that the journal "titles convey the general content" but also "a wealth of information beyond the subject indicated in the title" and as such the user should "consult the John Muir chronology for more information on where Muir was during the periods when he was writing various journals." Removing the text from its context, especially when the context is also available in a digital format, unnecessarily splinters the digital representation apart from the textual condition of the artifact.

Figure 5 shows the user interface to the first page in one of Muir's journals. In this case, the journal title is *01. July 1867 - February 1868, The "thousand walk" from Kentucky to Florida and Cuba*. However, without providing editorial context for this work—which could have been as simple as a single text field—the student or researcher has no immediate understanding that this journal was edited by Muir himself over time, and would then eventually be posthumously adapted into the 1916 publication *A Thousand-Mile Walk to the Gulf*. A closer look at the first page of this journal—and in this case "closer" literally means "through the use of the zoom tool to magnify the image"—exposes to the reader two key textual elements that provide clues to the condition of this work and others by Muir.



Figure 5: Opening a Journal in the John Muir Journals collection. Individual pages are listed as "Image n" where n is the number assigned to the scanned image; these are not the same as page numbers.

First, in ink, Muir labels the journal with his name and also lists his address as "Earth Planet Universe," thus proclaiming his relation to the natural world which will be carried throughout this text and others. Next, in pencil at the bottom of the first page, Muir wrote "I accomplished about 29,000 words." Throughout his life, Muir's relationship with writing was fraught with difficulty and anxiety. That he counted the words in his journal and marked it as an achievement provides insight into the production of the document and the author's relationship with it; this would be something that a scholar working in a physical archive would highlight as important—where are the digital tools to do the same?

Figure 6 illuminates additional examples of the way in which this journal was written and then edited by Muir's hand. A few pages into the journal the reader sees a drawing by Muir, captioned "Planning my journey outside of Louisville, Ky."

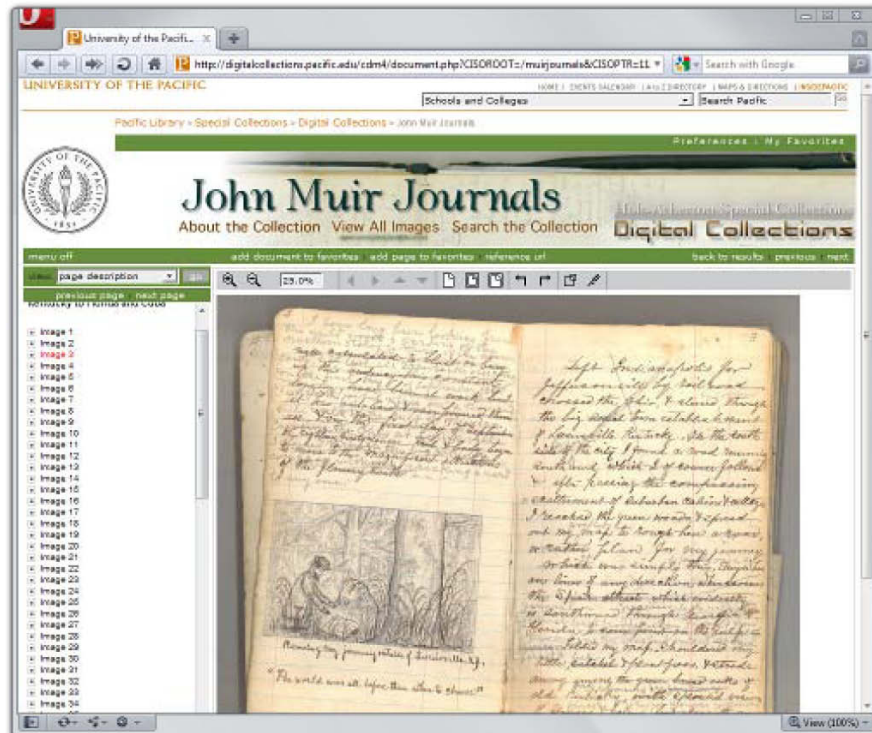


Figure 6: Viewing Muir's July 1867 - February 1868 Journal. The digital representation does not account for editing or inline drawings.

This drawing was not reproduced in the edited version of *A Thousand-Mile Walk to the Gulf*, nor does it appear in the archived collections of Muir's illustrations. In the page image shown, as well as in other page images for this and many other digitized Muir journals, the user can see Muir's edits in pencil; in his introduction to the text, the editor of *A Thousand-Mile Walk to the Gulf* refers to these simply as the "many interlinear revisions and expansions [of Muir's journals], and a considerable number of rough pencil

sketches of plants, trees, scenery, and notable adventures" that he used in the compilation of the posthumously published work (xxv). The removal of paratextual elements from an original document, the edits Muir made in pencil throughout his journals, and numerous other elements that provide insight into the creation of the work⁷ are all part of the textual condition, yet the archival methodology and access interface unnecessarily disassociate these elements from each other. Although significantly more pleasing than the *Uncle Tom's Cabin* "archive" discussed previously in this chapter, the digitized Muir collection does not escape the "charlatan" label of a humanities computing project—but then again it doesn't claim to be one.

My point with regards to the digitized Muir collection is to show how a recent project, benefitting from the technology available for use in 2010 rather than 1995, still creates an unnecessary gap in the usefulness of the archive. While a considerable amount of time and money went into the creation of this particular digital archive, the result was as lacking in its production of a digital surrogate as archives created ten or even fifteen years ago. Without librarians, archivists, and textual scholars collaborating on the production of new environments for cataloging, archiving, reading, and curating pathways through and connections to textual artifacts, resources will continue to be used in one of two ways: digitization, or tool creation. One path recreates the library in digital form but does not progress beyond that point (although, again, access is incredibly important for scholarly work). The second path provides models for praxis but without

⁷ For instance, directly beneath the caption to the illustration shown in Figure 6 is line 646 of John Milton's *Paradise Lost*: "The World was all before them, where to choose" yet no mention or trace of Muir's reading of or influence by *Paradise Lost* can be found in the heavily edited *A Thousand Mile Walk to the Gulf*.

the content to fill them. The ideal situation would be for teams of curator/scholars tasked with maintaining and sustaining "the book" to work together to plan, develop models, and produce evolving digital surrogates to keep the book alive and to reproduce the rhizomatic production process that is part and parcel of the work itself.

CHAPTER 2

The Future is Now, or Creating the n-Dimensional Archive

In "Computing the Human," N. Katherine Hayles asserts the "future echoes through our present so persistently that it is not merely a metaphor to say the future has arrived before it has begun" (570). The context of this statement has little to do with the creation of digital surrogates of texts, but the sentiment can be applied to the future of digital archives and interfaces as easily as she refers to the imagined futures of humanity and cyberculture. The technology exists to create massive linked libraries with shared data collections that are always forming and re-forming, allowing scholars to interpret texts, share those interpretations, reference others, discover new elements of the bibliographic record, add those to the record, and continue to enhance the contemporary and posthumous textual condition of a work. But that is seen as an imagined future, not a reality, despite the fact that we use pieces of that grand puzzle every time we interact online.

The example in the previous chapter of the digitized *John Muir Papers* began to show the need for a collaborative effort between curators and textual scholars to envision and then implement an archive that would expose Muir's texts, paratexts, and production processes to students and other researchers, and provide the analyses of these individual pathways through texts to others as well. This growing (rhizomatic) archive would allow for the investigation of texts and textuality in multiple dimensions, while also adding to the socialization of the text itself. To achieve this creation, scholars must exploit the

technology of self-consciousness to ensure the archive does not maintain a single line of argumentation, but instead opens up the content for other scholars to discover and build on prior knowledge. A classic argument against allowing everything into an archive is that "everything" may not be peer-reviewed, and some content may even be apocryphal. But if an archive is considered a text in itself, I would argue that even the detritus included in it is of scholarly importance—be they "bad" texts, or bad paratexts.

When Jerome McGann wrote in *The Scholar's Art* that "there is no such thing as a 'bad text'," he did so after recounting the textual history—and challenges to that history—of Henry James's 1903 novel *The Ambassadors* (130). While the case of the reversal (or not) of two chapters in *The Ambassadors* is fascinating, McGann's statement and its implications are of greater interest here. McGann notes that texts are only judged "'bad' in relation to other texts," or "in relation to other ways of establishing correspondences," and that in fact—"bad" or not—" [a]ll the texts talk to us in their particular ways"; for instance, the Bad Quartos of Shakespeare are considered "invaluable", leading McGann to state what is perhaps the obvious: any judgment of "bad" or "better" will always be an undecidable point (SA 130). Scholarly investigation into textual history can produce a more complete work—sometimes authoritative, sometimes not—but discovering or developing an authoritative text should not be the only goal. Instead, interacting with all versions of texts and their paratexts allows us to encounter the "dialogue with the past" that texts "maintain and extend," and thus affords us the opportunity to move beyond "structural analysis or thematized reading" toward discovering what literary works "are doing in saying what they say" (SA 128-130). The

case of *The Ambassadors* leads McGann to describe it as a "quantum text," or one that "can't mean or be made to mean everything at any time, [but] might mean or be made to mean anything at every point in time" (SA 126). A physically present quantum text would include all its variations both textual and paratextual, and thus immediately become inordinately useful to literary critics who embrace that "ceaseless dialogue of many agents" that adds thickness to the overall textual condition of the work (SA 129). One can also imagine a physically present quantum text would take up an enormous amount of physical space, and because of the limits of physical space we appease ourselves with edited, scholarly editions of works, those which—to borrow from Melville—give us only a "glancing bird's eye view" of the entire textual condition. This is simply not enough; we need everything, and "everything" includes all paratextual elements along with the purely textual.⁸

Just as "there is no such thing as a 'bad text'" when considering the textual condition of a work, there can be no such thing as a bad paratext—those "verbal or other productions" that adorn, reinforce, and accompany the text and "surround and extend it, precisely in order to present it" (*Paratexts* 1). To encounter fully a text and its history is to encounter all its paratextual elements as well; these "fringe" elements are "always the conveyor[s] of a commentary" that influences the reception of the text (*Paratexts* 2). In other words, whether paratexts appear within the covers of a bound text (peritexts) or exist outside of it, as in the case of reviews, interviews, and other mentions of the text

⁸ And, McGann argues in *The Textual Condition*, all bibliographic codes as well—some specificity as to "ink, typeface, paper, and various other phenomena which are crucial to the understanding of textuality" (13).

both in public and private by the author or agents thereof (epitexts), the presence of these elements affects readers' interpretations of the text. Virtually all written literature is rife with examples of paratexts that carry additional meaning into the text itself and the nineteenth century is no different; scholars can examine frontispieces and title pages, tables of contents, and other structural elements of the text, and *should* if we are to grasp the entire textual condition brought about through bibliographic and linguistic codes. But nineteenth century literature also offers numerous examples of paratextual elements that do *not* fit neatly into Genette's categories, including some paratextual elements which are also inherently literary works. To maintain the textual condition, all of these texts and paratexts must be present in the digital archive when a printed work is remediated; the librarians, archivists, and textual scholars must collaborate to ensure this process occurs, otherwise researchers will be faced with a digital archive such as those described in the previous chapter: accessible, but not scholarship in its own right.

In *Paratexts*, Genette begins his discussion of the "fringe" elements of a printed work from the outside in: first the cover, next the title page, and so forth. The first paratextual element that provides the reader with extended commentary on the text by its author is the preface. Genette discusses prefaces the most by far, from the "situation" of the preface to "themes of the why," "themes of the how," and the nuances between prefaces, postfaces, later and delayed prefaces, and so on. Although the reader may simply encounter an author's preface and use these words as a guide to the experience of the text itself, a textual scholar could continue on and document the entire prefatorial situation of the text and all its editions—type, placement, authorship, variations, spatial

and temporal distance—in an attempt to discern all that the work is doing in addition to all that the work is saying.

In *The Textual Condition*, McGann finds fault with Genette's theories of the paratext because Genette appears wholly concerned with linguistic rather than the bibliographic features (13). For McGann, this renders Genette's theories less useful as they relate to discussions of the thickening of texts or to the presence of quantum or n-dimensional texts. However, Genette's *transtextual framework* supports McGann's notion of thickness even if Genette's paratexts are not concerned with bibliographic codes. "Transtextuality" is Genette's term for "everything that brings [the text] into relation (manifest or hidden) with other texts," including intertextual, paratextual, metatextual, architextual and hypertextual relationships (*Architext* 81-82). Understanding the transtextual framework and its application to texts can assist the curator/scholar in producing the sorts of digital archives that bring forth these hidden relationships rather than simply representing the same static versions of texts disassociated from others.

Following is an example of a literary work that, if remediated with an eye toward exposing the transtextual framework that lies beneath, would be an example of a humanities computing project that could escape the label of "charlatan": the digitization of Ralph Waldo Emerson's poetry and prose and the creation of a interface that would allow for the marking and movement of textual objects in order to visualize connections. In brief, I argue that Ralph Waldo Emerson's poetic theory is embodied by the fact that his "Elements" belong to a genre that is inherently transtextual. Emerson's "Elements" are thirteen instances of poetic text that originally appeared to the reading public as text

intrinsically tied to larger works (as anonymous allographic epigraphs to essays), but were then collected in *May-Day and Other Pieces* before being mishandled by Edward Emerson while editing the 1904 edition of his father's *Complete Works*. One example of an Emersonian "Element" is the poem/epigraph "Culture."

Eleven lines of verse precede Emerson's essay, "Culture," in its original publication in *The Conduct of Life*. These lines of verse register in their entirety in a reader's mind; that is to say, the reader remembers eleven lines of verse preceding "Culture" such that when they read the same verse, given the title "Culture" within the section of "Elements" in *May-Day and Other Pieces*, they are likely to recall its original placement if they are familiar with Emerson's prose works.⁹ If the reader is unfamiliar with the text in its original incarnation, then at the very least the similar titles would provide a touchstone when encountering the prose piece and would elucidate the previously unknown intertextual relationship. But those eleven lines of verse preceding "Culture" are also a paratextual element: an epigraph. In Genette's transtextual framework, it is not contradictory for a piece of verse to be both intertextual and paratextual, thus Emerson's "Elements" née epigraphic verses can exist and have meaning both between the two forms—the presentation with a prose partner or without—while also engendering meaning by their original presence in relation to the prose works.¹⁰

Emerson's "Elements" are part of what Sandra Morris calls Emerson's "poet narrative," or details of Emerson's poet figure that are woven throughout the poetic

⁹ Given the restricted use of the term "intertextual," the reader is as likely to recall eleven lines of verse from directly before the first paragraph of the essay as they would if the verse appeared directly after the first paragraph of the essay, or any other place within the essay.

¹⁰ This result is similar to the way in which Melville's "Extracts" preceding *Moby-Dick* can be both preface and epigraph, alluding to greater meaning within the text by referencing works outside the text.

epigraphs in this collection of essays (Morris 318). In this way, the verse epigraphs are tied to the prose both intertextually and paratextually, but also metatextually. Genette's metatextual relationship, or "commentary" of a transtextual instance "unites a given text to another, of which it speaks without necessarily citing it" (*Palimpsests* 4). Given the common thread of the "poet narrative," the metatextual relationship between a paratextual element and its parent text comes to light. But less easy to show, in theory, is the architextual relationship, as "architextuality is the most abstract and implicit of all" the relationships—it is "completely silent, articulated at most only by a paratextual mention, which can be titular[...] but which remains in any case of a purely taxonomic nature" (*Palimpsests* 4). As I discuss these textual elements, it should become clear that static representations of texts like this limit the ability of scholars to visualize the connections, suggest more or different connections, and reproduce the textual condition—despite the fact that technologies are available to us to engage in just those actions.

Although Genette declares architextual qualities the "most abstract," in this case the architextual quality is perhaps the most prevalent, and the most easily remediated in a digital archive created by a curator/scholar. The architextual relationship between "Culture" (prose) and "Culture" (poetry) is in its designation by Emerson as an "Element," which is only possible because of the works' intertextual, paratextual, and metatextual relationships. But the final piece of the transtextuality puzzle is a hypertextual relationship between two texts. Genette defines the hypertextual relationship as "any relationship uniting text B [...] to an earlier text A [...], upon which it is grafted in a manner that is not of commentary"; he goes on to clarify that

hypertextuality is essentially "text in the second degree [...] i.e. a text derived from another preexistent text" (*Palimpsests* 5). The hypertextual relationship between Emerson's essays and the verse elements that preceded them is difficult to determine precisely in a static archive, but the hypertextual relationship between the presence of the whole (essay plus epigraph) and the publication of the parts ("Elements") would be clear in a digital archive with editorial intervention and guidance: the determination of "Elements" and their subsequent publication in *May-Day* came after the publication of the volumes of essays. The authorial action of selecting and declaring certain texts as "Elements" while eschewing others is a de facto relationship "uniting text B [...] to an earlier text A." Genette's transtextual framework does not create relationships that do not already exist, but remediating texts with this framework in mind provides us with the possibility to bring all these relationships to the forefront, in turn creating an approximation to the quantum or n-dimensional texts that McGann describes in *The Scholar's Art*.

McGann uses the term n-dimensional in a discussion of *IVANHOE: a game of critical interpretation*, which was created to show how digital tools can enhance the exploration of aesthetic works. The game itself is not as germane at this time as is the concept of the n-dimensional text in general; our ability to create, maintain, expand, and explore these texts, which includes interacting with all versions of these texts and their paratexts (good and bad), returns us to McGann's insistence that we move beyond "structural analysis or thematized reading" toward discovering what literary works "are doing in saying what they say" (SA 128-130). If curator/scholars remediate texts along

the lines of Genette's transtextual framework rather than simply digitizing a document, we can get closer to McGann's goal. But to do this well, we have to break down the old media (texts into paratexts) before replacing it with the new (data fields, databases, hypertext transformations). Traditional paratextual elements do not change as we move from the codex to electronic text; instead, they are enhanced—the paratextual elements remain at the threshold of the text, ready to connect through a series of many-to-many relationships with other peritexts and epitexts to create a navigable, yet undetermined and ever-changing path through (and around) the text, which itself is always extending as additional intertextual and metatextual relationships are discovered and codified.

In his contribution to *A Companion to Digital Humanities*, "Marking Text in Many Dimensions," and in fact scattered about *The Scholar's Art*, *Radiant Textuality* and other texts, Jerome McGann's conceptualization of n-dimensional literary texts and the framework for archiving and reading them asserts that all features of the text—perceptual, semantic, syntactic, and rhetorical—signify meaning not only alone but in accord or discordance with each other. The interaction of these features is "recursive," like "a mobile with a shifting set of poles and hinge points carrying a variety of objects" (*RT* 297). Representing all features of a text and our interactions with it is not only possible with current technology and computing practices, but should be the starting point for design work when creating an interactive digital archive of texts. Using the technologies of collaboration and self-consciousness while starting a project with issues of content, database design, interface design, user experience and interaction, scalability,

extensibility, and sharability will allow the realization of what might seem like futuristic scholarly archives.

Without a doubt, the digital scholarly archives we have today are not n-dimensional. Digital scholarly archives today are little more than static digital representations of their paper-based counterparts, disassociated even from the paratexts of the physical work that formed the basis of the digital object. For example, the *Dickinson Electronic Archives* contain several heavily edited collections which do attempt to provide bibliographic as well as linguistic information when available.¹¹ But again, these remediated items are, for lack of a better term, highly mediated. We do not have a full collection of texts and contexts; we do not see digital representations or transcriptions of all fascicles. Instead, the editors of this archive have created small subsets of data within which we can navigate linearly—but these subsets are not also related to anything outside that particular cluster, nor can we really make good sense of the contents outside of the linear narrative created for us. For example, in the "Emily Dickinson Writing a Poem" exhibit, users are given a single editorial narrative through specific elements that they have selected to support their argument—namely, that one can see through Dickinson's manuscripts that the idea she was "a recluse who wrote in complete solitude" are "not true or are, at most, partial truths." While the editors make a compelling argument through the selected items shown in the archive, those items are few in number due to copyright and other access restrictions.

¹¹ For more information, see <<http://www.emilydickinson.org/>>.



Figure 7: From the "Emily Dickinson Writing a Poem" exhibit.

Because the reader cannot navigate through an archive full of texts and view those texts in relation to others, perhaps placed on a timeline of their own creation and implementing textual analysis and visualization tools, this particular instance of Dickinson scholarship does not escape the "charlatan" label. This exhibit does not leave room for "the exercise of independent imagination and curiosity" because there are no additional texts or paratexts to explore other than those particularly placed in front of us (Unsworth). As important as the argument may be in Dickinson scholarship, this exhibit within the archive only hints at the possibilities of a true digital surrogate of a text.

Continuing the Dickinson example, Marta Werner's "Radical Scatters" project, although site-licensed and therefore much less accessible than some other electronic

archives of nineteenth century texts, purports to offer multimedia versions of texts and paratexts such as "files containing various paratexts, including indices to the documents in the archive, a library of text-types and codes, physical descriptions of the fragments, and critical and bibliographical commentaries on the fragments and related texts."¹² But these texts and paratexts still remain disconnected even from other Dickinson archives, and thus do not produce a digital surrogate or interface that allows scholars a comprehensive way to comment on or collect works. In *Dickinson's Misery*, Virginia Jackson notes that "increased access to the visual archives is itself immensely valuable" and rightly asks if that "make[s] each of us an historian or viewer?" and "What kind of readers of those images do we become?" (52). If the user is only able to view static graphical representation of linguistic codes disconnected from bibliographic codes disconnected from paratextual elements and without even transtextual connection to anything besides the binary data sitting next to it on a hard drive—then we are *not* interacting in any meaningful way with the greater textual condition of the work. The work may have been remediated, but the message has not changed (or if it has, the message has been muted).

Similar issues regarding the use of digitized objects in lieu of true digital surrogates arise when discussing *The Walt Whitman Archive*.¹³ The breadth and depth of this archive comes closer than any to providing scholars with the ability to fashion a hypermediated quantum text—but even this archive does not escape moments of

¹² Found at <<http://www.hti.umich.edu/d/dickinson/>> if you have access.

¹³ Found at <<http://www.whitmanarchive.org/>>.

"charlatanism" masquerading as humanities computing that occurs when a text is simply digitized and left to the reader to click through, as shown in Figure 8.



Figure 8: Viewing a Digitized Object in *The Walt Whitman Archive*.

The Walt Whitman Archive does contain digitized versions of *Leaves of Grass* (all editions, including foreign editions), as well as numerous other digital representations of notebooks and poetry revisions. But as Meredith McGill points out in "Remediating Whitman," this archive and many other digital projects like it "are significantly more dependent on print conventions than they need to be" (1592). Instead of providing a space through which rhizomorphous connections can be made, readers still are limited by what has been specifically placed within the archive, in the order in which the editors placed it, by database administrators themselves unlikely to understand the possibilities of the connections the texts and paratexts might contain. McGill mentions one way of

solving this problem is to pay attention to "new ideas about database architecture and new developments in technology" (1595).

However, I challenge that notion only because the "ideas" about database architecture that allow for the organic formations of paths in and around a text are *not* new; relational databases are as old as computational databases themselves, in the same way that paratextual elements are as old as written texts themselves. Keeping Genette's transtextual framework in mind, knowing the types of textual and paratextual elements that will go into an interactive digital archive, and thinking about the interfaces necessary to allow access to the data stored within and also related data stored outside the archive will allow a database architect to design a sustainable structure and an interface architect to create the necessary connections; here, the technology of collaboration will enable scholars to avoid falling into the trap of the static archive with a single guiding narrative that remains a charlatan for a digital surrogate.

But even these late twentieth century/early twenty-first century static digital archives are part of the ever-changing textual condition of a given work, and as such should be part of the digital record so those remediations can be studied in years to come as posthumous paratexts. Going back to the example of the digitized *John Muir Papers* in the previous chapter, the curation of archives that contain digitized textual artifacts is one important first step, and working with librarians and archivists and technologists to produce these archives is a necessity. But when the scholar closely examines texts and the paratexts that are physically present, one can see those tangible elements are already highly relational and overlap and crisscross in ways not easily imagined—multiple ways,

not a single way. By preserving the entire textual condition, which includes digital surrogates of printed primary *and* secondary material as well as connections to born-digital scholarship, scholars may build up from the frameworks available in literary theory and the structures already present in texts to produce a sustainable, rhizomatic digital archive that can represent any point in the history of the text, or the history of the reader's interaction with the text—this is Jerome McGann's idea of the 'Patacritical Demon, or an implementation of the n-dimensional archive.

Briefly, McGann's proposed 'Patacritical Demon is a markup tool that allows a reader to record and observe interpretive moves through a textual field. When reading a text online, the reader could mark what she judges to be meaningfully interesting places or moments in that spacetime field. These marks would be keyed to a set of behavioral dimensions: linguistic, imagistic, documentary, graphical, semiotic, rhetorical, social. By making marks within the text, readers can note how words (or images) relate within the whole field, note issues of transmission and reception, and so on—the idea being to mimic the types of marks one might make with a pencil and a physical text, only within the spatial field of a digitized text. The control dimensions for a user's markings are temporal, resonance, and connection; the user could compare her marks made in the linguistic dimension during one session against those made in another, or reevaluate the resonance of a mark made in some behavioral dimension when revisiting it in another session. A second site of interactivity would be to view the marks made by other readers of the same text, across time as well.

Figures 9 and 10 show mockups of the 'Patacritical Demon created by McGann's team at the University of Virginia in 2004. Although six years old at this point, these interface mockups show a set of elements easily created in a Web-enabled environment of 2010. Focusing on Figure 9, note the four main areas of the interface: top toolbar, right column of tabs, bottom area for commentary, large body section in the middle.

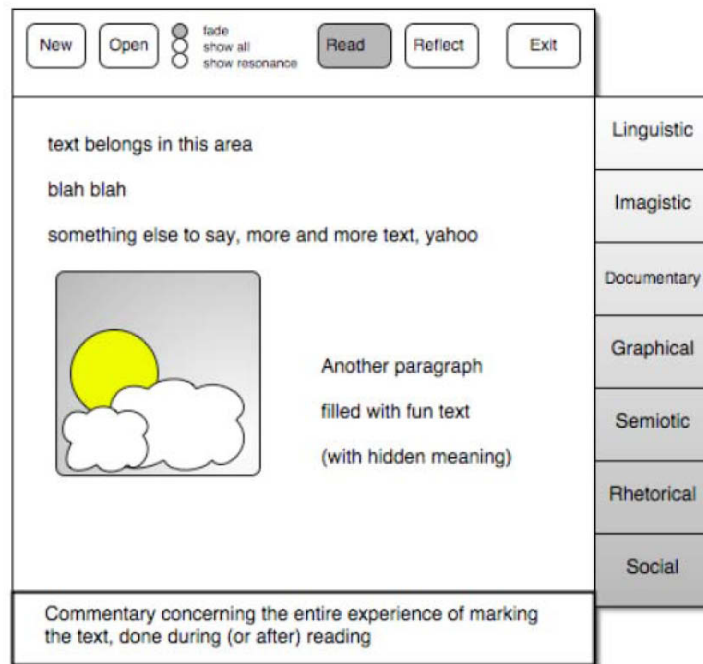


Figure 9: Reading an Archived Text with the 'Patacritical Demon.

When in reading mode, the three radio buttons in the top toolbar would allow the user to turn on all markings in all behavioral dimensions, or fade out the markings in all but the selected dimension, or show only the marks made in the resonance (control) dimension, which is to say marks made without any connection to a behavioral dimension. The tabs

in the right side would allow the user to make marks in whichever selected dimension they desire, and place commentary about those markings in the area at the bottom.

Figure 10 shows the interface in reflection mode, which would allow the user to step through the marks made in any or all dimensions over time.

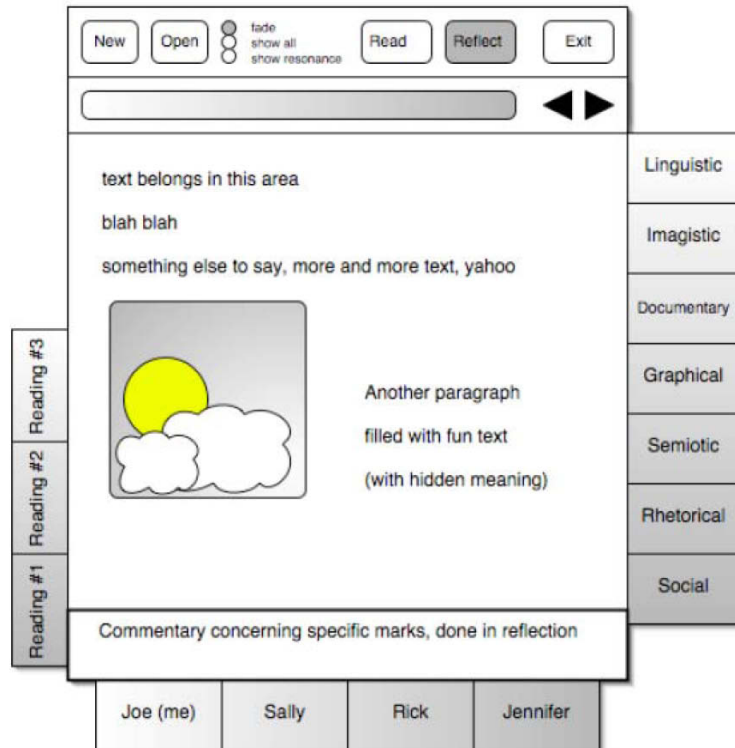


Figure 10: Returning to the 'Patacritical Demon to Reflect on Previous Readings By Yourself or Others.

As you can see in Figure 10, the addition of tabs at the bottom would allow the user to reflect on readings made by others in their social circle, of the same text they read in one or more sessions. The left side tabs represent additional user sessions of one's own, which can be compared to other sessions by the same user or to other sessions by different users. The point of the control dimensions is to enhance the ability to observe

and analyze markings made in one or more dimensions from one or more people over time, thus adding to the thickness of the known reception of the text. It should be noted that the 'Patacritical Demon functionality need not be applied only to modern readers encountering texts long after their creation. This interface could be used to represent an author's revisions of their own work over time—such as the static digital representations of the Muir journal mentioned in the previous chapter—which a current user could then mark in another dimension, in another time, their reactions to the author's revisions. These marks are no different than marks made in the physical text, but the difference lies in the potential for visualizations of these marks over time, as well as the ability to share marks with others (and in turn access the marks they have made).

Six years after the creation of the internal specifications referred to above, a group of scholars at the University of Hamburg created a tool that hints at being able to mark

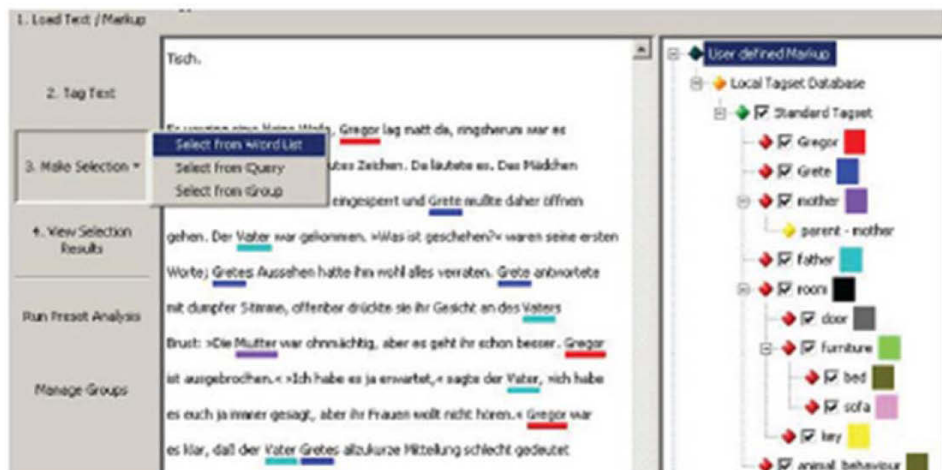


Figure 11: The CATMA Markup Tool in Action.

text in pre-defined categories. However, the CATMA (Computer Aided Textual Markup and Analysis) tool, shown in Figure 11, is a standalone application designed for a single

user to load a TEI-encoded text locally and make marks and perform analyses all the while keeping the information to themselves. In other words, it is not a layer of interactivity that could be added to an existing archive, nor is it a technology that could be integrated directly into an archive such as the ones we have seen in the previous chapter. But a standalone application for marking text is not the only possibility for user interactions, and indeed to move toward the creation of an n-dimensional archive and interactivity tool both the archive and tool must be available to all online.



Figure 12: Using the Diigo Annotation System.

Millions of Web users (scholarly or otherwise) already have experience using online annotation applications such as Diigo, shown in Figure 12, which allows for marks by users to appear within the visual field of the document presented.

In practice, the multidimensional aspects of the Demon could be developed using the HTML 5 <canvas> tag and the z-index property within Cascading Style Sheets; this property allows for stackable elements with varying degrees of transparency—one could

effectively layer a user's marks on top of each other and interact on the client-side to reveal or hide those marks as required, using client-side keypress or mouse actions to swap the visibility properties of the underlying markup elements. This productivity tool could be layered over an existing archive through the use of a custom browser toolbar or extension, or it could be created as a plugin to standard archival software. Obviously there are numerous ways in which this tool or functionality set could be created and implemented within a standards-compliant scholarly archive—the fact is, there is nothing technological standing in the way of its creation.

But more important to the discussion of the 'Patacritical Demon as paradigm for archival interface is the necessity for the archive itself to be multifaceted, multidimensional, and in effect a boundless quantum archive. Returning to Meredith McGill's comments about *The Walt Whitman Archive*, she challenges Ed Folsom's claim that *The Walt Whitman Archive* "permits readers to follow 'the webbed roots' of Whitman's writing as they 'zig and zag with everything'"—for *the archive* doesn't do this (1593). The texts are there, to be sure, but in no form other than a static digital reproduction of the book, important though that may be, with no interface that identifies, highlights, or in any way illuminates or stores these webs and zigs and zags any differently than the physical book, or with any apparatus that allows the user to mark their own paths. Using the technology of collaboration (and to be sure, programming and storage technologies as well) it is possible to curate and then create an archive that is itself rhizomorphous, that also contains and displays the entire textual condition of the work at hand, thus preserving the book, its history, and ultimately its future. Through

editorial (and programmatic) control over application programming interfaces, the scholar using the archive could retrieve and display contextual and paratextual information that could be associated to the core archival texts. This structure is one method of producing an n-dimensional archive; the interface possibilities are yet another means toward a similar end.

Collaborating to create an archive containing an interaction layer for marking text in multiple dimensions, sitting on top of a content layer, will change modes of scholarship. Integrating other tools into that application, such as tools for comparing and collating textual works, collecting and annotating objects, seeing through the texts using textual analysis and visualization tools, is not only technologically possible, it is necessary to capture the generation of students and scholars who have been trained to interact with online content in an organic and generative way. n-dimensional archives need not end with the last digitized image and TEI encoded page pair that has been carefully curated and sits happily on a server; instead, pathways could unfold much like a choose-your-own-adventure novel and could be marked by users and shared with others. Each path through an archive—each set of connections followed—brings about new knowledge, and the ability to mark those paths from session to session and compare not only the paths and the texts that unfold but the impetus behind following those paths, is in fact the creation of a new knowledge environment.

In some ways, this gets at the heart of the Open Annotation Collaboration which recognizes the value of annotation as an aid to memory, an ability to add commentary and

to classify, and as scholarly work in its own right.¹⁴ The goals of the project include the facilitation of a web-based interoperable annotation environment across clients, servers, and collections. One of the Open Annotation Collaboration case studies describes making annotations which capture netchaining practices. In this example, the scholar's research path—and in fact multiple scholars' research paths—link together multiple sources within one environment. Consider a similar application or process within an archive of an author's work. Instead of (or in addition to) netchaining posthumous commentary, use textual analysis tools and literal marks in the behavioral and control dimensions to uncover elements of production. Archiving a text that effectually moves around a core curated data set, but pivots on collaborative connections and interfaces does not kill the book. Instead, it allows the book to grow to be as much of a force in the future as it is a "force in history", invoking a sort of open system circuit model and adding the dimension of time and space into the mix—re-reading as others read, adding posthumous paratexts, and reflecting in a very concrete way, reader reception to the nth degree.

¹⁴ Please see <<http://www.openannotation.org/>> for more information.

Case Study: Archiving *The Yosemite*

The textual example from my own research area that best fits McGann's notion of the socialized text, the rhizomatic rather than closed communications model, and would be a prime candidate for a 'Patacritical Demon-like interface is John Muir's *The Yosemite*. The contents of this text were in flux for 36 years before its publication in 1912 and continue to be remediated and reinterpreted to this day. If *The Yosemite* were placed in a static archive such as the *John Muir Papers* discussed in the previous chapter, its textual condition would be lost. In fact, several pieces of text that eventually made it into *The Yosemite* are present in the Journals and Correspondence sections of the *John Muir Papers* digital collection, but you will not find them labeled as such. But invoking connections within that archived material, plus external hooks to increasingly accessible warehouses of information, plus the ability to mark and share research paths with users would expose the textual and bibliographic record of this particular book, which would in turn lead to new avenues for analysis rather than remaining as something interesting known only to a few scholars in the field.

That content from *The Yosemite* continues to circulate almost one hundred years after its publication in book form would come as a shock to its author. Known as a champion of environmental preservation rather than a wordsmith, John Muir found particularly vexing the task of turning "dead bone heaps" of words into representations of nature fit to move the spirits of his readers (Badè 189). In his letter of December 6, 1889 to *Century* editor Robert Underwood Johnson—who would prove as instrumental in the creation of *The Yosemite* as was its author—Muir laments his inability to produce such

useful text when he says, "[s]ometimes my descriptions are contemptibly mean and lean and scrawny, without any color or atmosphere about them, again they are all fluffy sentimental drifting about unguided and foundationless as mist, too thin for any terrestrial use." Muir's lifelong struggle with the production of useful texts can be traced in part to his thoughts that "[m]ost of the words of the English language are made of mud, for muddy purposes," and thus cannot come close to rendering a true picture or feeling of nature for his audience, whom he described as the "the moiling, squirming, fog-breathing public" (Badè 198). However, Muir had to address this audience if he was to convince them to join him in the fight to preserve Yosemite Valley. It was only through constant encouragement by his closest friends, advisors, and allies in the environmental movement that Muir managed to produce essays regarding his beloved land, and many of these texts began as personal letters that he painstakingly edited into published works.

The Darntonian closed communications circuit, as described in the previous chapter, cannot adequately describe this method of production, as the text that would eventually become *The Yosemite* was produced in fits and starts, manipulated over and again by author and editor, with each incarnation of the text reaching a different number of readers and addressing a different intended audience each time. This production and feedback cycle extended over a number of years is far more akin to the rhizomatic model of growth and extension, including significant nurturing by Robert Underwood Johnson playing the role of the gardener/editor. Were it not for Muir's ongoing relationship with Johnson as editor, advisor, and friend, readers would be without one of Muir's finest and oft-quoted essays, "The Treasures of the Yosemite," his 1912 book, *The Yosemite*, and

perhaps Yosemite National Park itself. Through his *Century* articles, and with the help of Johnson and his political connections, it is safe to say that Muir wrote Yosemite National Park into existence.

As instigator, editor, and manager of the Yosemite project for *Century*, Robert Underwood Johnson played a role some might argue was equal in importance to Muir's task as author of the articles. In fact, theirs was a symbiotic relationship; each man provided what the other could not. Muir lacked political connections in Washington and the temperament for ongoing lobbying within the city, and Johnson had no experience summiting peaks, walking along glaciers, or basking in the Range of Light, let alone writing about it. As such, the author and editor forged an unbreakable bond as part of the literary production circuit (or rhizome, in this case). Johnson regarded his role as something other than one who solicited articles and "shovel[ed them] to the printer's hopper, without authority and responsibility"; with all his work, he took pride in suggesting "lines of treatment that would accomplish" the ultimate purpose of the articles he solicited (*Remembered Yesterdays* 191). Intent on using this reputation of the *Century* and the power of the press to their benefit, Muir and Johnson created an elaborate plan to introduce *Century* readers to the need for federal designation of Yosemite Valley as a national park. Muir's "The Treasures of the Yosemite" and "Features of the Proposed Yosemite National Park" were scheduled to appear in the August and September 1890 issues of the *Century*, respectively. In 1890, circulation of the *Century* was at its highest ever: over 200,000 (Mott III 475). The main elements of the production model were in place—author, editor, publisher, reader—and only the matter of the text remained.

The Correspondence section of the *John Muir Papers* contains all communication between Johnson and Muir, but only as a few of many of the 6581 digitized images in the collection. As you can see in Figure 13, the interface to the Correspondence displays the items in an undetermined order and with no other initial identifying information other than "Letter to [recipient] from [sender], [date]." Clicking any image opens a larger

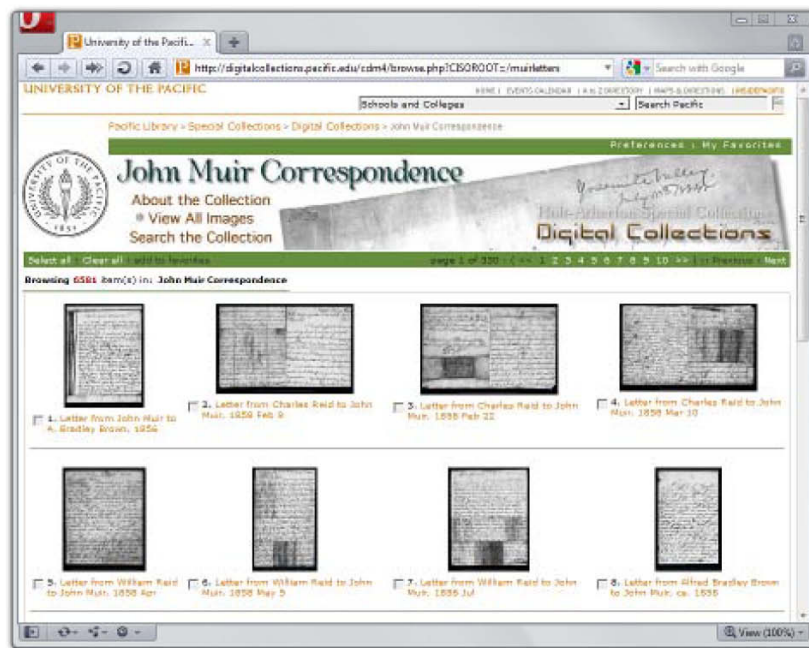


Figure 13: Library Collections interface to the John Muir Correspondence.

digital image of the letter, plus a transcription of its contents. Those transcriptions are searchable, which is one step further toward being able to interact with the archive in a meaningful way. Figure 14 shows the same interface to the content, but with a narrowed result set—in this case 218 results for correspondence *from* anyone named "Johnson."

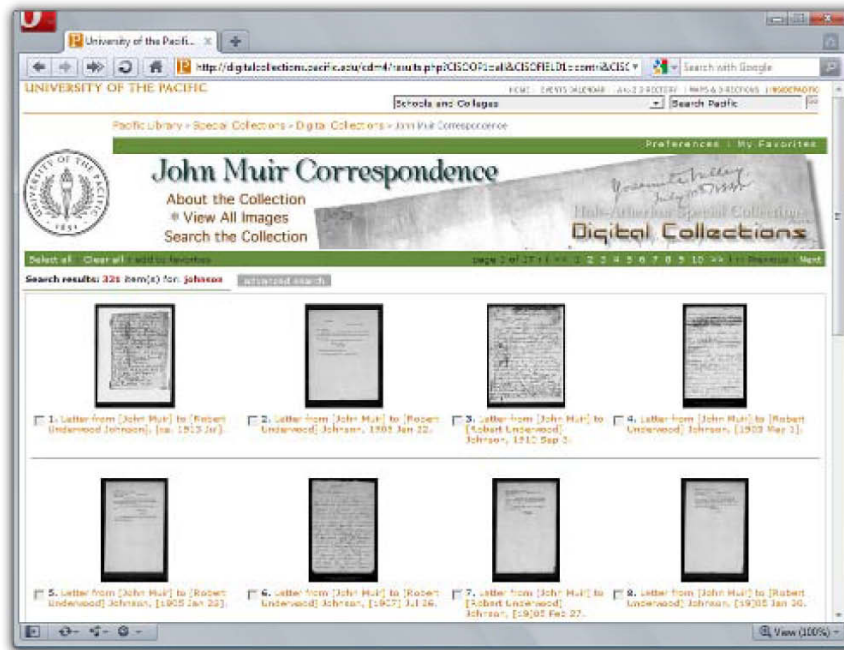


Figure 14: Results of a keyword search in the John Muir Correspondence.

It should be noted that a search of the Correspondence for items sent *to* anyone named "Johnson" produces 331 results, while a general search for transcriptions of correspondence that mention "Johnson" in any way produces 826 results; that leaves 277 letters to or from Muir that mention a "Johnson" who may or may not be Robert Underwood Johnson. The point of this example is to show that while the texts that helped shape "Yosemite"—the essays, the park, or the eventual book—are present in this archive, the researcher must approach the archive already knowing what they are looking for, and no functionality exists in the archive to share the eventual path with anyone who will come later. This remediation of the archive brings along with it the same structures for serendipitous discovery that scholars have adhered to for so long. While these moments of epiphany are incredibly valuable, must each of us cycle through the same

epiphanies that others have had, in order to experience our own? In other words, if the research paths and results discovered by other scholars became more accessible than the ability to read about a small percentage of such findings in scholarly journals (with their interminable time-to-production), how much more quickly could our fields progress? By that I mean how much richer could our interpretations, criticisms, and analyses of literary texts be if we did not have to run the archival gauntlet every time we stepped in it—what if we could easily build on efforts rather than continue to duplicate them? In the example that follows, I describe a set of research signposts one could follow through the digitized Muir correspondence collection to uncover a particular body of knowledge. However, much like following a trail through the forest does not necessarily require the wanderer to stay on the trail, get to the same endpoint, or experience the same feeling (or results) along the way, signposts in the archive could orient the scholar along a pre-determined path; deviating from the path and interrogating other options before choosing to pursue another line of research mimics the creation and development of critical lines of inquiry outside of the archive. Therefore, the digital archive does not do anything *for* the scholar, but the well-curated n-dimensional archive and its interface has the potential to place rich bodies of work in front of the researcher at all times.

For example, through the letters one would find in the digital Muir correspondence archive, the researcher will discover that Robert Underwood Johnson commissioned two essays from Muir. These essays were to be picturesque essays of Yosemite, but containing enough rhetoric invoking beauty, nature, God, and duty that the texts could be used in the "spiritual lobbying" of the public and Congress for the creation

of Yosemite National Park (Johnson 239). For instance, "The Treasures of the Yosemite" begins by advertising the valley as destination for everyone: "a noble mark for the traveler, whether tourist, botanist, geologist, or lover of wilderness pure and simple" (483). After leading the reader into the Sierra and displaying all its glory, Muir then takes aim at the so-called "protection" of this area: "The glory of wildness has already departed from the great central plain. [...] In Yosemite, even under the protection of the Government, all that is perishable is vanishing space" (483). Extending the environment of his text to include reference to another, Muir carefully selected "wildness" rather than "the wilderness," as both homage to Henry David Thoreau and a signal to any like-minded conservationists among his reading audience; Thoreau popularized the term in his essay, "Walking," in which he states, "that in Wildness is the preservation of the World" (*Writings* 5:224). Muir and Johnson intended to protect this wilderness, and readers are reminded of this goal again, several pages into the article; both author and editor consistently add intertextual thickening to the text itself, to ensure the reader is appropriately affected. Glorious descriptions of nature juxtaposed with this language of destruction leads Muir to a place in which he raises reader awareness of the pending Yosemite Park legislation: "Steps are now being taken towards the creation of a national park about the Yosemite, and great is the need, not only for the sake of the forests, but for the valley itself" (487). As the remainder of the article contains few political comments but is rich in detail, the initial message is clear: "come to the mountains and see," but only if you have supported the creation of a national park, because otherwise the land might not exist as described in these articles.

Although the words are wholly Muir's, through his letters Johnson orchestrated the original presentation of material; from the inception of his literary and political relationship with Muir, Johnson was sure to take the steps necessary to achieve their mutual goals. In a letter to Muir, dated August 1, 1889, Johnson outlines the plan for the first batch of material in the *Century*, and thus the first salvo in the battle for Yosemite National Park; in a follow-up letter from Johnson to Muir on August 21, 1889 he continues his thoughts regarding the content of the letters he intended to solicit from the aforementioned well-known parties: "[The letters] will all be particularly addressed to the question of the need in the park of expert guidance on the landscape side. I shall, however, hint at other abuses." Further, on, Johnson orders Muir to "[a]dvocate the extension of the Park if you think best and I will add an editorial word backing it up. [...] There will no difficulty in the East in getting public sentiment on our side. How to make it effective is another thing." Before long, Johnson would express his opinions to Muir on that matter as well. Again, we see how Johnson intervened in Muir's work, but the static archive does not bear this out; it provides the access to see the image, but not to mark the connections for future researchers.

Johnson's answer to the question of "how to make [public sentiment] effective" was first to show the public that Muir was not a lone voice in the wilderness; doing so would gather even more of the public into the fold. Through three "letters from visitors"—Lucius P. Deming, George G. Mackenzie, and Johnson himself—readers got a taste of Yosemite in the April 1890 issue of *Century*. Similarly, in the September 1890 issue in which "Features of the Proposed Yosemite National Park" appeared, readers

learned a bit of history through Lafayette Bunnell's "The Date and Discovery of the Yosemite," and read a concentrated attack on the mismanagement of the Yosemite Valley by Johnson himself in his editorial "Amateur Management of the Yosemite Scenery." Johnson used his power as editor to create a context for Muir's words on behalf of the park. Placing Muir's essay within a greater context can be likened to what Jerome McGann refers to as the "thickening" of a text. When multiple agents edit texts across different audiences and for specific social goals, the cumulative effect is a thickening of the text; McGann indicates "thickness is also built through the textual presence and activities of many non-authorial agents," which include not only editors but also "the artist's contemporaries" (69). Although Johnson constructed a level of thickness around Muir's initial Yosemite articles such that their initial purposes were met, that thickness—and the results of Johnson's own editorial directives—later had to be removed when the text was used later as part of Muir's 1912 book, *The Yosemite*, as the context (and content) would be different.

After publication of the "The Treasures of the Yosemite" and "Features of the Proposed Yosemite National Park," Muir would not return to these texts for nearly twenty years, when he used parts of his articles in several chapters of *The Yosemite*. Published in 1912, *The Yosemite* contained only one "new" text—all other text was culled from previously published pieces, some having gone through the process of editing (by both author and editor), typesetting, reading, and response several times over. Thus, when discussing the relative success or failure of *The Yosemite*—in terms of both sales and reader response to authorial intention, one must also examine the responses to the

individual texts in their original contexts—as short articles in the *San Francisco Daily Bulletin*, as featured articles in the *Century*, and so on. Of the sixteen chapters and three appendices in *The Yosemite*, only "The Trees of the Valley," "Early History of the Valley," and the three appendices outlining legislation, distances to points of interest, and transportation costs for travelers were new texts at the time of publication in 1912. The text of Muir's influential *Century* articles form the basis of the opening chapters of *The Yosemite* ("The Approach to the Valley" and "Winter Storms and Spring Floods") as well as the chapter most appropriate to Muir's intention for the book, "How Best to Spend One's Yosemite Time." The remaining fourteen chapters contained text published either in whole or in part over the course of thirty-seven years.¹⁵

In the recounting of the textual history of *The Yosemite* it is clear that no digital surrogate exists for this text, nor can it exist without collaboration between librarians, archivists, and textual scholars. If an interface to the archive existed, such as the interface created for the 'Patacritical Demon, scholars would have the ability to provide multiple paths through available texts and illuminate this textual history. Following the path taken by text that began as dispatches to the *San Francisco Daily Bulletin*, transformed into articles for the *Century*, was instrumental in the creation of Yosemite National Park, and made it into *The Yosemite* collection in 1912, the astute reader will identify areas of a rhizomatic production model that sprouts new social connections as time passes and the context for reading as well as authoring the text both change.

¹⁵ For detailed information regarding the original appearances of some text found in *The Yosemite*, see entry 308 in *John Muir: A Reading Bibliography*.

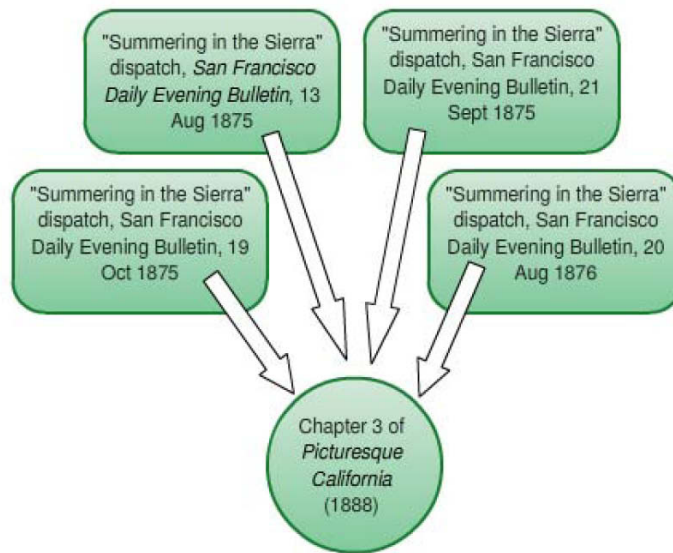


Figure 15: Showing components of *Picturesque California*.

Figure 15 shows the first step in the creation process of Chapter 3 of *Picturesque California*, which would then transform into the two *Century* essays commissioned by Johnson (see Figure 16).

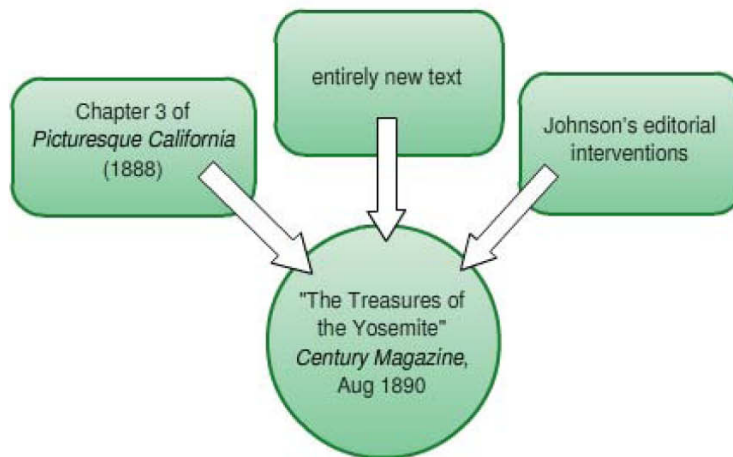


Figure 16: Showing components of the *Century* Yosemite essays.

Figure 17 shows the continued growth of the *Century* essays into several different texts.

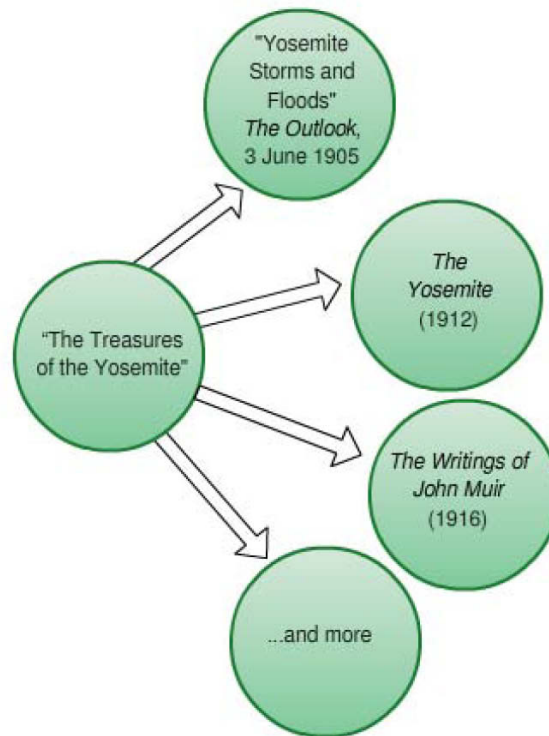


Figure 17: Showing the continued rhizomatic growth of *The Yosemite*.

As a book, *The Yosemite* continues to exist as a "thing-in-itself." New production models of the author-editor-publisher-printer-reader relationship were solidified when blocks of text were buried within a large sheet of newspaper in the 1870s, printed on quality paper in the *Century* in 1890, filled the gilt-laden pages of *The Yosemite* in 1912, accompanied the black and white photographs of Ansel Adams in 1948, were reproduced on high-color glossy pages with photographs by Galen Rowell in 1989, and found their way into Ken Burns's recently released television series *The National Parks*. At every turn, new technologies reshaped and enhanced *The Yosemite*; digitization of the book itself, as well as its constituent parts, allowed me to uncover its formulation in the first

place. Far from the death of this particular book, new technologies allowed it to achieve the "vaunted immortality" that the "continuous socialization of texts" strives toward (McGann "Socialization" 73). Building an extensible archive—one that could contain a tool for marking in many dimensions—would sustain the text and its textual condition while also preserving and extending examples of multimodal scholarship, and working toward a redefinition of intellectual property itself.

The continued socialization of texts, rhizomatic models of literary production, and increasingly transparent modes and media for disseminating and appropriating texts that we encounter in no way discounts the techniques of writing that have come before. Instead, we are simply moving beyond closed-end models and toward hybrid and open models. In *Writing Space*, Jay David Bolter refers to these heterogeneous and hybrid forms of remediated print texts, and notes that all of these "hybrids work against closure, because both in form and function they refer their users to other texts, devices, or media forms" (79). New technologies shape the reception of texts through the readers' interfaces to the original work, and new technologies are being built every day to help readers visualize intratextual and intertextual connections between texts and editions over time.¹⁶ New technologies give rise to new paratexts, not only for born-digital works but for print works subsequently digitized; the editor's hand in restructuring and representing the digitized book raises new questions about the role of the author and role of the editor, as well as the role of the reader and interpreter. As Lisa Gitelman writes in *Always*

¹⁶ See, for instance, Ben Fry's project "On the Origin of Species: The Preservation of Favoured Traces" at <<http://benfry.com/traces/>> and the University of Virginia Scholars' Lab project, Neatline <<http://neatline.org/>>, among others.

Already New, the World Wide Web as an enormous, boundless library "continuously encapsulates the reading practices and interpretive strategies of a continuing present"; she does not argue that new media will (or even should) subsume the old (147). Similarly, in *Radiant Textuality*, Jerome McGann argues that we are "passing through the first stages of a major shift in how we think about and manage texts, images, and their vehicular forms" (168). McGann says *first* stages, not final stages, and this first stage has gone on already for decades; the book is nowhere near dead. Therefore, just because we are not *reliant* on pure print to study texts and their relations does not mean their presence and unique set of bibliographic codes are unnecessary and should be forgotten. Quite the contrary, while innumerable methods of interactivity are possible between scholars to share research, and between libraries to gain access to digital archives of printed material, this adds to the textual condition rather than reducing the intellectual value of a work. New technologies bring frameworks for and models and methods of remediation, but "for whatever happens in the future, whatever new electronic poetry or fiction gets produced, the literature we inherit (to this date) is and always will be *bookish*" (McGann *RT* 168).

CHAPTER 3

Playing to Learn, or Engaging in Speculative Computing

In the previous chapters, I was most concerned with the creations and use of digital archives by the scholar—either established or attempting to gain a foothold as content experts in their fields. While the creation and use of n-dimensional archives and other tools for research and reflection are, to my mind, geared toward these scholars, there also exists a body of work with digital models of learning environments more suitable for students to use—and in some instances, create. In this chapter I shift my focus to the use of digital tools—created by scholars—that have the potential to enhance student engagement with the content they are studying in the classroom. The examples I use in this chapter were informed by the concepts of play and speculative computing, which focuses on the imagination and discovery of what we do not know, instead of the reification of what we *do* know about authors and their texts.

In "Speculative Computing: Aesthetic Provocations in Humanities Computing," Johanna Drucker and Bethany Nowviskie discuss the methodology of speculative approaches in the digital humanities, which "engage subjective and intuitive tools, including visual interfaces, as primary means of interpretation in computational environments" to produce work which is "constituted in an *interpretation* enacted by an *interpreter*" (431). Computing projects and processes that enhance speculative inquiry are "dynamic and constitutive in their operation" and are not "merely procedural and mechanistic"; the static archive founded on simple requests and retrievals is an example

of a procedural and mechanistic practice, while the extensible n-dimensional archive would be "dynamic and constitutive" (Drucker and Nowviskie 431). Drucker further describes speculative computing as a "driven by a commitment to interpretation-as-deformance in tradition that has its roots in parody, play, and critical methods such as those of the Situationist International" among others (25). Invoking the Situationists and their practices of *dérives* and *détournements* as a metaphor for uncovering the ways in which users interact with computers is not a radical move, as the two movements developed at roughly the same time. Similarly, new media and cyberculture scholars identified early on the movements of the Situationists as good analogies for our interactions in virtual worlds. In this chapter, I discuss how Situationist movements intervene in the notion of human-computer interaction and how our understanding of these movements affect the development of speculative computing projects that can be woven into humanities classroom pedagogy.

While early human-computer interaction specialists were searching for ways to manage the interaction between humans and computers, the Situationists—philosophers, artists, and political agitators—argued for the construction of "situations" through which individuals and groups could break out of the capitalist mentality perpetuated by mass media.¹⁷ These situations, be they types of *dérives* (literally translated as "drifts") or *détournements* (remixing to make new art), were meant to subvert the power of the spectacle, into which Guy Debord states "everything that was directly lived has receded into a representation" (*Spectacle* 7). In 2010, considerably more information streams

¹⁷ This statement and my argument in general are each situated within Westernized and developed cultures—those with the economic means to produce, maintain, and interact with multiple media streams.

from capitalist mechanisms than it did in the mid-twentieth century, but re-engaging with the Situationist ideas which arose during that time—specifically the notion of the *dérive*—provides us with language to discuss the ways in which man *now* interacts with the machine. Namely, the "insights" Licklider spoke of in 1960 are often discovered by humans using devices that interact with other machines (and users) across and within a constructed network representing unbounded (cyber)space, often in a manner that mimics the *dérive*, described by Debord as "a technique of transient passage through varied ambiances" ("Theory" 50). "Virtual *dérives*," or *dérives* that take place outside of physical realms but within the abstract realm of cyberspace, affords participants the opportunity to use the master's tools to dismantle the master's house, as it were; users immersed in digital culture, architecting their own "sites" and "spheres" and "worlds" and "spaces," can reclaim "lived experience" from the spectacle that first produced it.

Unlike mid-twentieth century interactions with print or television, in which the user was purely the recipient of information with few (and costly) methods for rebellious production or the creation of "situations," Web technology enables the user to choose numerous paths to and through information, or to choose no path at all and leave the results to chance; although every interface attempts to create a path, web sites that adhere to the principles of usability are those which allow the user to access any point in the site within a few clicks—structured pathways or not. This ability to wander matches one of the hallmarks of the Situationist *dérive*: the freedom to wander from a structured path while still obtaining knowledge of and through new surroundings. Thus, surfing the Web without seeking specific information, but instead experiencing what one finds through

random encounters with the information is entirely in the spirit of the Situationist *dérive*.¹⁸

Of course the original Situationist *dérive* took place in a physical city, but the virtual *dérive* presupposes an already structured technological medium: Internet protocols control the transmission of information, which exists through machines and wired and wireless networks all built by man, using software constructed from code in languages created by man to communicate not with other men but with the machines themselves. But much like the original Situationists used the structure of an already-mediated city as a potential site of the *dérive*, one can *dérive* virtually through the already-mediated space produced by advanced technology. Like Shaleph O'Neill, I agree that the Situationist theses are useful in the critical analyses surrounding our interaction with the advancement of technology within a hyper-capitalist society (164). An original goal of HCI study was to learn better, more efficient ways in which we could make the machines work for us to fulfill our needs, and we have used these same machines to build platforms that allow users to interact with and create new information; this is Web 2.0 in a nutshell.¹⁹ But at

¹⁸ Before the indexing power of Google, Yahoo!, or any of the lesser-known search engines provided pathways into any web site accessible to the public, Web site creators often participated in "Web rings," or chained associations of similar Web sites. If your site were part of a Web ring, you would provide links to the next and previous members of the ring; until the next stage of Web rings generated random links for next and previous sites, these were essentially linear paths through a directory that was inaccessible to the end user. These opportunities to encounter new sites by chance were eventually supplanted by user-generated content aggregators such as StumbleUpon <<http://www.stumbleupon.com>>, which uses a set of algorithms to present its users with links to random sites determined from the each user's past "stumbles" as well as sites the user has submitted to the site for other people to explore.

¹⁹ In his influential article, "What Is Web 2.0? Design Patterns and Business Models for the Next Generation of Software," Tim O'Reilly describes the differences between Web 1.0 and Web 2.0. O'Reilly's article can be found at <<http://www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html>>. The simplest way to summarize the difference is that the impetus behind Web 1.0 was the creation of static information dumps for the recipient, or Debordian spectator, while Web 2.0 is dynamic, boundless, collective, and is, in short, the production of and propagation of a participatory culture. Peter

the conclusion of his essay, O'Neill leaves his readers to answer the difficult question: "how do we maintain our agency within these new spectacularized domains?" (164). Or, in the case of attempting to research texts within a heavily mediated archive that enforces a rigid structure, how does one find, share, and build upon the bibliographic record and textual condition of the object of study?

While simply participating in virtual dérives helps users maintain agency within one of these "spectacularized domains," when working within the types of archives discussed previously the user is locked in to a structure and methodology that does not enable the machine to work for us—we can only follow the path hard-coded into the machine. In "Unfinished Business," Peter Lunenfeld uses the term "digital dérive" to describe the compulsion during the early days of the World Wide Web to explore the seemingly endless array of sites and also to write about them—thus creating new information for future visitors within newly-created web spaces. Lunenfeld uses Justin Hall, creator of an early Web site called "Links from the Underground," as his prime example of this sort of dérive. According to Lunenfeld, and as I recall from my own memory, in early 1994, Hall began exploring the World Wide Web simply by following links as they arose contextually while he was surfing sites already of interest to him. Although he usually began surfing with a fixed starting point, Hall would dérive, or wander, and in doing so he collected, documented, and mapped the places he visited. Hall's Web site, which was "essentially a map of his wanderings and a collection of his intertextualized ruminations," existed as one of the earliest "innovative modes of

Lunenfeld refers to the evolution of Web culture from 1.0 to 2.0 to n.0 in his forthcoming book, *The Secret War Between Downloading and Uploading: How the Computer Became Our Culture Machine*.

exploration" in digital spaces (Lunenfeld 9). Although acknowledging that the cyberspace exists as a construct resulting from a set of physical machines, this fact poses little problem for Lunenfeld (or me) in imagining this space as a potential site of the *dérive* or *détournement*. Not only cyberspace, but the digital *dérive* itself "is ever in a state of unfinish because there will always be more links to create, more sites springing up every day, and even that which has been catalogued will be redesigned by the time you return" (Lunenfeld 10). Simply put, in cyberspace new content always exists for us to find, and space always exists for us to create something new from, about, or in spite of this content. Unless, of course, it has been locked down within institutional silos and digitized into a static, finished state.

The story of Justin Hall exemplifies ways of asserting or reclaiming agency by using freely available technology to produce freely available content. Steven Best and Douglas Kellner call these interactions "cybersituations," in which individuals appropriate, use, and reconstruct "technologies against the spectacle and other forms of domination, alienation, and oppression" (149). The creation of cybersituations in the Best and Kellner model thus "allows individuals to articulate their needs and interests, and to connect with people of similar outlets and desires" (152). But even to create cybersituations requires users to break out of a culturally conditioned model of information downloading rather than information production; scholarly digital archives are built upon the download model, while the futuristic n-dimensional archive would be built on the information production model.

In his forthcoming book, *The Secret War Between Downloading and Uploading: How the Computer Became Our Culture Machine*, Peter Lunenfeld discusses the production of content intended for dissemination by print media or television. The "pyramid of production" for online content shows that less than 1% of a community produces or uploads material, no more than 10% of a community comments on or modifies that content, but upwards of 90% or more "remain content to download without uploading" (13). That 90% of users remain spectators, while somewhere in that 10% we can find users engaging in physical or virtual *dérives* or *détournements*, eventually producing content reflecting their experiences and encounters with new knowledge. Like the Situationists originally, and in the Best and Kellner model of cybersituations, the goal of the open and social content production of Web 2.0 and beyond seeks to transform sites of production within the spectacle; given the tools of our culture, we are afforded agency to interact with (*dérive*) and recreate and remix (*détournement*) the spectacle so as to satisfy our own desires—not solely to feed the ongoing cycle of inaccessible knowledge and scholarship, or mindless consumption of same.

Before discussing the means of production within virtual spaces, it is worth returning to my earlier statement that these spaces exist within an already structured technological environment, if for no other reason than to highlight the omnipresent use of architectural or structural metaphors to describe areas in which we inhabit but cannot locate on a Cartesian plane. Put simply, cyberspace does not exist in any material way—you cannot physically travel through it like you can wander through a city; no building exists to lean against when you need a break from your *dérive*. In the introduction to

Cyberspace: First Steps, Michael Benedikt offers ten different definitions of the term "cyberspace" before simply stating that despite attempts at definition, cyberspace "does not exist" (3). But Benedikt offers a sort of guiding principle for the understanding of cyberspace; he posits that cyberspace is an extension of Karl Popper's *World 3*, "the world of objective, real, and public structures which are the non-necessarily-intentional products of the minds of living creatures, interacting with each other" (Benedikt 3).²⁰ Note that Benedikt does not argue that Popper's *World 3* is cyberspace, but that the abstract nature of some structures in *World 3*, namely informational structures such as social organizations and patterns and methods of communication, and the ways in which interactions with and information from *World 3* feeds back into the creation and maintenance of *World 1* and *World 2* is analogous to the loop of interaction between man and machine we see in cyberspace (4). This brief explanation completely oversimplifies Popperian cosmology, but at least contextualizes an ongoing problem of definition among those who study both the physical and virtual aspects of cyberspace, as we attempt to apply these definitions across multiple disciplines and digitally-enhanced pedagogies.

²⁰ To oversimplify even further, Popper argued the world as a whole consists of three interconnected worlds: *World 1*, the "objective world of natural things and their physical properties," *World 2*, consisting of "the subjective world of consciousness [...] in individual minds," and *World 3* (Benedikt 3).

Cyberspace can exist simply as "a habitat for the imagination" (Novak 225). The opening salvo of Novak's argument follows; I quote here it in its entirety as it articulates our position relative to continual breakthroughs in HCI and movements toward the virtual *dérive*:

Cyberspace involves a reversal of the current move of interaction with computerized information. At present such information is external to us. The idea of cyberspace subverts that relation; we are now within information. In order to do so we ourselves must be reduced to bits, represented in the system, and in the process become information anew. (225)

Obviously, as Novak himself acknowledges and goes on to discuss at length, we have an *architectural* problem in placing humans within the informational or social space afforded by machines (226). But if we acknowledge, as Novak does, that "cyberspace *is* architecture; cyberspace *has* an architecture; and cyberspace *contains* architecture," we can begin to understand how cyberspace, like an extension of Popper's *World 3*, is not only "fluctuating, ethereal, temperamental, [and] transmissible to all parts of the world simultaneously" but is also "indirectly tangible" and thus possibly "the most enduring architecture ever conceived" (Novak 252). Understanding the relationship between humans and "the informational or social space afforded by machines" is crucial to developing archives and interfaces that create and extend new knowledge environments in the humanities.

The concept of cyberspace as architecture, with architecture, and containing architecture can be difficult to grasp, especially if one lacks inclination toward building,

surveying, and participating in these structures on a daily basis and for years on end. However, even if one does not fully support or understand the arguments surrounding the architecture of cyberspace, it is impossible to ignore the vernacular riddled with architectural terms as a means for discussing inhabitable places online (or, virtual *worlds*)—*web sites*, *web space*, the *blogosphere*²¹—as well as those charged with development: network, application, and database *architects*. Architects of these sites, worlds, and spheres are the civil engineers of cyberspace; we construct connections between sites, worry about traffic patterns (and flow, and jams), and obsess over placement of information within color fields (including the colors themselves) all in the name of eliciting positive responses from unknown visitors. Although the concept of the virtual *dérive* is not unlike the Situationist *dérive* which takes place in a physical city, as structural similarities abound, psychological or philosophical barriers to understanding and experience remain. In *Architecture from the Outside*, philosopher Elizabeth Grosz notes a "simultaneous fascination and horror" at the consideration of a technological rather than natural "reality," but concedes that what was seen as a "technological intervention" only a few years ago is now a mode "of everyday operation grounded in the real" (75). Accepting the notion that cyberspace contains structures into which we do not *need* to physically place our bodies in order to participate is the first step toward seeing online interactivity as a possible site for a *dérive*, through which we can reclaim "lived

²¹ "Blogosphere" is a term that began appearing online approximately ten years ago. It refers to all blogs, communities, and connections around authors, their works, readers, readers' works, readers of readers' works, and so on. It is, of course, a play on the Greek term "logosphere." The -sphere suffix is now in use for the "Twittersphere" as well.

experience" from within the site of production of the spectacle. Readers can interact with virtual texts in much the same way.

As Mark Wigley notes in "Network Fever," the process of "attaching oneself to a seemingly marginal thread soon accesses an endlessly dense weave, as if a walk down a quiet country lane would suddenly bring one to the heart of a metropolis of unprecedented dimensions" in which we "recast questions of individual identity in terms of unimaginable levels of connectivity" (375). Although Wigley never refers to the Situationists or the concept of the *dérive* (virtual or otherwise) in his essay, the metaphor used here is remarkably similar—the "marginal thread" representing a random foray into the network, the network (or World Wide Web) itself represented by the "endlessly dense weave," and the culmination of a chance encounter with information resulting in access to exponentially greater levels of new knowledge.²² These progressive levels of connection generate what Tara McPherson refers to as "a circuit of meaning not only from a sense of immediacy but through yoking this presentness to a feeling of choice"; McPherson refers to this sensation of "mobilized liveness" as "volitional mobility" (202). For McPherson, the possibility of volitional mobility feeds our "epistemophilia" and in turn often results in a transformation of what we encounter in the "fly-through infoscape, [the] navigable terrain of spatialized data" that is the World Wide Web (203). Additionally, McPherson notes that volitional mobility and the transformation of encountered knowledge supports the "activation of desire for what's next" that continues

²² However, Wigley is the co-editor of *The Activist Drawing: Retracing Situationist Architectures from Constant's New Babylon to Beyond* and thus would be intimately familiar with the Situationist concepts of the *dérive* and *détournement*.

to fuel our movements—and our students' movements—within textual and cultural artifacts found in the virtual realm (204). The Wigley and McPherson examples of identity creation and content negotiation, synthesis, and production within a rich network echo the Situationist desire for "active, creative, and imaginative practices" which ultimately (hopefully) result in individuality and a new society (Best and Kellner 142).

We possess the technological means and methods of interaction within virtual worlds such that individual needs can be met and desires fulfilled. Writing about virtual reality technology, Ken Hillis argues that "humans invent technologies because they intend them to achieve certain outcomes" (35). While true, I would counter that simple claim with the notion that cyberspace itself—a multi-faceted, architected, and continually transforming landscape of interaction—was not created for any particular outcome besides ensuring that data packet A successfully reached destination B. The nature of the data was, and still is, irrelevant. However, the ability to fashion that data into a site of production that may eventually subvert the spectacle in which we live *outside of* cyberspace *is* relevant.

In order to exercise agency within cyberspace, users—and here I am most concerned with students—can *dérive* to discover a suitable site. This site can be either of their own creation or as a member of an existing (but new to them) online community of people engaged in the continual process of knowledge-making. Without commodification in place, all exchanges between author and reader are informational, and both parties create knowledge without regard for the spectacle tainting the world outside the virtual space. The creation of the n-dimensional archive or interface for

marking texts and sharing those marks is one such possibility for a community, but creating any imaginative playspace for students would serve the same purpose. In the case studies soon to follow, I provide examples of two types of imaginative digital playspaces in which students can move toward a greater understanding of the texts and historical contexts under scrutiny—partially through media consumption, partially through media creation, and wholly through activities in a virtual world.

While the Situationists wanted to reclaim lived experience from the stranglehold of the spectacle, we live in an era in which some find the terms "lived," "real," and "virtual" collapsing into one another. Turning on a device and entering a virtual world in which one can materially participate in the creation of content and knowledge in a manner fundamentally different than the ways in which one creates content and knowledge in meatspace can be as real, if not more real, than the supposed "real" experience outside of cyberspace. In imaginative online playspaces created for students to discuss, annotate, and extend their knowledge of a work, they can participate in the ongoing textual condition of a work in ways that cannot be realized in the physical realm.

From a practical rather than philosophical point of view, ubiquitous computing has placed screens in front of us at all times; we exist within the virtual world either through an active presence or a passive remnant—graphical or textual representations of ourselves that exist for visitors until we return—unless we have consciously chosen to remove ourselves from cyberspace. Thus, when I argue that virtual *dérives* provide users with a means for reclaiming "lived experience" from the spectacle that first produced it, I am also arguing that users can determine for themselves which space—virtual or

concrete—contains the "lived experience" and which space contains the spectacle from which they want to retreat through *dérive* or *détournement*. By re-engaging with the Situationist practice of the *dérive* and placing it in cyberspace, we create a boundless site for rebellion outside of the restricted world in which people have historically attempted to assert their agency but achieved little success. When Debord asserts in *The Society of the Spectacle* that the "spectacle is capital accumulated to the point that it becomes images," he had no way of knowing that individual users would one day have unfettered access to tools that can reduce those images to meaningless bits of data, which can be remixed and posted for other users who happen to wander by, thus perpetuating a cycle not of capitalist consumption but of consumer reaction to the spectacle created by that consumption (17). Participating in a virtual *dérive* is the first step in gaining access to means of production and rebellion that are more difficult to obtain in the physical world; retreating into cyberspace thus becomes a move *forward*, toward the discovery of new spaces and additional ways to produce new knowledge in spite of the spectacle looming beyond us.

The pedagogical implications for digital tools necessitate a focus on ludic interactions—or "play" in layman's terms—with textual simulations leading toward critical analysis. The remainder of this chapter focuses on two particular instances of interacting with texts that will enhance students' digital literacies as they "play" with tools to create new knowledge of literary works. This "new knowledge" is, in these cases, grounded in "old" knowledge—that is, traditional textual analysis.

Case Study: Annotating *The Virginian*

As a scholar interested in the material production of texts, I am also interested in the ways in which the authors of those texts may have surveyed their particular field and responded accordingly through their craft. As a teacher, I am concerned with ensuring students can grasp these authorial movements and reactions as they study the text itself. Leveraging existing digital tools can provide an avenue into students' own imaginative play with the text, as they wander and discover on their own the intertextual and cultural references embedded in a text under study. In this case study, I offer examples of the information that could be found, annotated, shared, and extended by those studying Owen Wister's novel *The Virginian*.

Numerous literary genres and avenues for publication were available to authors in the latter half of the nineteenth century and early twentieth century, and these ever-evolving and overlapping production circuits were increasingly transparent to the budding artist. Prior to the creation of his 1902 novel, *The Virginian*, Owen Wister paid close attention to the distribution methods, structure, and themes of popular fiction so as to ensure his work reached the widest audience and elicited the most positive reaction from its readers and reviewers. *The Virginian* is a Bildungsroman for three distinct characters, contains detailed examples of the landscape and people of the West, includes boundary crossings between classes and genders, and, ultimately, provides a tale of romance between a cowboy and a schoolmarm; Wister negotiated preexisting genres boundaries as he created yet another genre: the epic novel of the America West.

Wister was particularly attuned to the context in which he wrote *The Virginian*; his attention to the needs of his potential audience and also to his own personal literary goals shaped the material production of the text. In the afterword to William Charvat's study, *Literary Publishing in America 1790-1850*, Michael Winship reminds us that "No publication, literary or otherwise, is created in isolation; instead it is the collaborative effort of many people" and it "acts on and is acted upon by the social world and cultural environment of these historical collaborators and forces" (95-96). Writing to his friend Oliver Wendell Holmes in 1902 about the recently published *Virginian*, Wister notes that this "piece of fiction" was "long laid out in mind" and "fragments [...] have from time to time been published" as he "set out to draw a man something like genius [...] and to make the reader feel this by methods other than assuring him of the fact" (*OWOW* 16). As Wister gathered the data necessary for the creation of a new national hero, he also wrote and published some of the same sketches—or at least fiction with the same sentiments—that would appear in *The Virginian*. Wister's journals contain several instances in which he comments on the purposeful construction of his texts and his attempt to gauge audience reaction to his work in different genres approaching the same themes before continuing with his project. Affording students a playspace in which they can tease out these constructions and share them with others is an example of speculative computing, or being "less concerned with making devices to do things [such as analytical tools] than with creating ways to expose any form of expression [...] as an act of interpretation" (Drucker 25-26).

For instance, in a journal entry for December 23, 1893, Wister notes that he purchased the January (1894) *Harper's* while traveling; this issue included his short story "Balaam and Pedro." This particular story included a troubling instance of animal cruelty, and Wister understandably wanted a popular "verdict on this story" because, although a prominent national magazine published it, he was concerned the material was "not the kind of thing the general public likes" and therefore might not be good fodder for his novel (*OWOW* 196). In this way, Wister used the genre form of short realist fiction to gauge reactions to what would become part of his longer work. Wister's concern about audience reception mitigated his true desire to "chronicle and la[y] bare," as he wrote in his journal in 1891, all the "virtues and vices of this extraordinary phase of American social progress" (*OWOW* 112). Although at that time Wister wrote that he wanted to describe the "hysterical unreal prosperity, and its disenchanting downfall," which was something worthy of "Tolstoi, or George Eliot, or Dickens," he is known not for such a tale but for a romance between a cowboy and a schoolmarm—a text that would still become consecrated by the reading public despite not adhering to the same traditions as those authors of Great Books (*OWOW* 112-113).

I use the term "consecrated" here as a specific reference to one of Pierre Bourdieu's three competing principles of legitimacy; namely, I refer to "the principle of legitimacy its advocates call 'popular,' i.e. the consecration bestowed by the choice of ordinary consumers, the 'mass audience'" (105). In that Wister showed concern—not to mention textual changes—toward the reactions or possible reactions by the reading public, clearly he felt the need to cater to a sense of legitimacy decreed by the "ordinary

consumers." Wister occupies an interesting point in Bourdieu's field of cultural production; given Wister's upbringing, education, and literary connections, he occupies a de facto position within the dominant class, yet works to produce art acceptable both to other producers as well as consumers. Wister could simply have traveled through the West, written realistic stories based on events he witnessed, cared not a whit for audience reception and attempted only to hone his literary skills to the point of critical acclaim among his family's friends. Or, he could have written genteel tales of Christian missionaries converting the heathen masses, ignoring any savagery on the part of either Christian or heathen. But instead of limiting himself to the constraints of a single genre, Wister held steady in his position within the field of cultural production which was bestowed upon him by virtue of his birth, and turned his attention to meeting the needs of the audience. Retracing Wister's steps and processes today in a text through digital means would enable students to recapture and expose the connections and intersections between the production field he occupied and those in which he did not participate.

Part of Wister's success among consumers comes from providing something new—"initiating a new epoch" in Bourdieu's terms (108). However, the author must still accept and work within the traditions of the past in order to maintain his position among the producers; Bourdieu refers to the "'post' of poet" as one that "is the crystallized product of the whole previous history" (109). In Wister's case, he distinguished himself both as a poet of old and author of the new through his ability to include in *The Virginian* those uniting elements that consumers of all classes would recognize and use as points of reference in their own interpretation and enjoyment of the text. Specifically, Wister's

inclusion of letters and newspapers as plot devices provides reference points toward realism for the ordinary and bourgeois consumer, just as the significant amount of cultural and literary intertextuality creates touchstone moments for the bourgeois consumer and Wister's contemporaries in the "producer" class. This plan worked, as within a few months of its publication, a hundred thousand copies of *The Virginian* had been printed; the novel was at the top of the national bestseller list in 1902 and in the top five bestsellers for 1903 (Nicholas 29). Within three years it had been translated into German, Spanish and Czech, and spawned a play written by Wister's own hand (*OWOW* 19). The theatre version of *The Virginian* "became a standard in stock companies for twenty years," not to mention the four distinct film version based on the original text and the fact that "as the first and basic Western, it in a sense has been seen and read under hundreds of other titles ever since (*OWOW* 19-20). As Liza Nicholas says in *Becoming Western*, Wister's "representations of the West created acceptable national icons worthy of emulation" (29). These new representations—transformed into multiple genres—were carefully crafted and finely constructed by Wister himself to ensure readership and his own status as an artist. Just as Wister imbued his text with references to popular nineteenth century texts and carefully followed the stylistic and thematic norms of his day, a reader aware of these sorts of genre markers would be able to tease out the differences and see where the boundaries of genres break down and the importance is on kinship rather than duplication. Kinship in this case refers not to "common ancestry" but instead to the "phenomenal field of contextually induced parallels" from which these relationships can lead to new knowledge (Dimock 74). Working directly with the text,

students could use digital tools to mark, discuss, and share their interpretations of Wister's moves as discussed above. The digital playspace allows the students to *dérive* through the text—to wander into it at any point, out of it at any point to follow their research path, and to find their way back inside once more. By using web-based tools such as CommentPress or Digress.it tools would allow students to annotate Wister's text and share those annotations—discovered through their *dérives*—with the greater reading public.

CommentPress²³ is an open source theme and plugin for the WordPress blogging platform, created by the Institute for the Future of the Book and freely available for use by anyone to install. Digress.it²⁴ is a forked version of the CommentPress code that functions in much the same way; one difference between CommentPress and Digress.it is that the latter offers a hosted option—there is no need to download and install the software on your own domain, although you can if you want. The hosted version of Digress.it would allow an instructor without a great deal of technical knowledge get started with the process rather quickly, while the installed codebase would allow an instructor with more technical knowledge to customize the software and extend its functionality. Regardless of the particular version, both CommentPress and Digress.it allow paragraph-by-paragraph comments in the margins of a text, ostensibly creating an ongoing hypertextual posthumous paratext for the original text.

Although the examples in Figures 18 and 19 are not of a classroom project to annotate Owen Wister's *The Virginian*, they do present examples of students annotating a

²³ Please see <<http://www.futureofthebook.org/commentpress/>> for more information.

²⁴ Please see <<http://digress.it/>> for more information.

text in multiple ways and sharing/extending their knowledge. The text used at the site shown in the figures is Cory Doctorow's novel *Little Brother*, and the project was created by Alexander Halavais for his students (and others) to collectively annotate the text and produce a resource for those "interested in uncovering the facts beneath this piece of fiction."²⁵ Figure 18 shows an example of a comment in the margin; this particular comment defines one of the terms used in the text ("transitive trust").

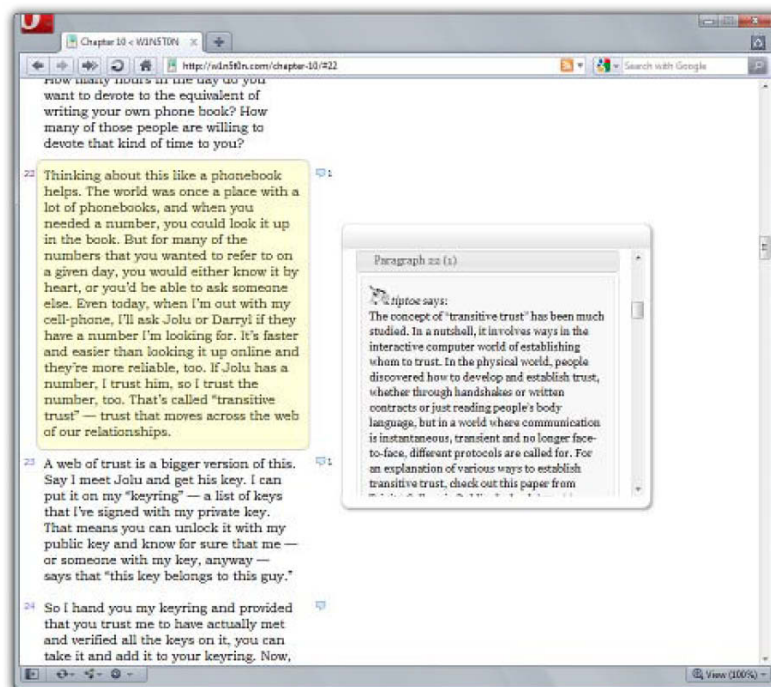


Figure 18: Example of a paragraph-level annotation in CommentPress.

As Halavais explains in the "About" text for the web site, the goal of his classroom project is to "fact check" the text as a piece of speculative fiction that is "built on the idea that the technologies and social events depicted are plausible." To that end, students also ask questions through their annotations, as shown in Figure 19; the first comment asks

²⁵ The site itself can be found at <<http://w1n5t0n.com>>.

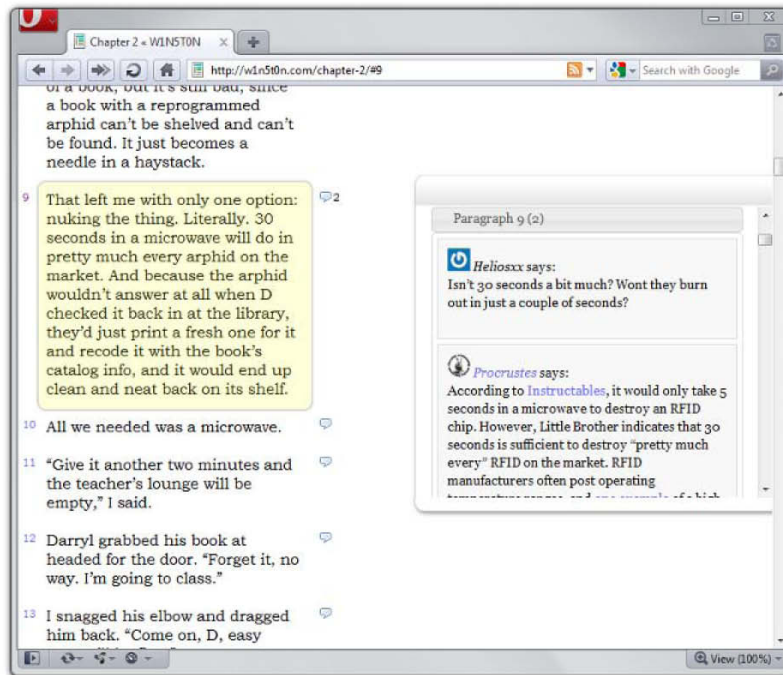


Figure 19: Students ask and answer questions in the margins.

a question, while the second answers it. Both the question and answer are examples of students working through the text in their own ways (one questioning, one answering) and at different times (the second student obviously having read the text at least once before).

Applying this method of annotation and interaction to the text of Wister's *The Virginian* would produce an accessible archive of a text that would necessarily grow through the addition of end-user annotations. The annotations themselves would be produced by students discovering Wister's use of intertextual and cultural references for the first time, or refining observations and asking or answering questions the second,

third, or fourth readings (or beyond). This use advances the notion of speculative computing methodology in the classroom as it "proposes a generative, not merely critical, attitude" toward texts under study (Drucker 21).

Case Study: Recreating the Literary Locales of the *Overland Monthly*

Besides the blog or wiki-like structured collaboration and annotation of texts in the classroom, other technological innovations support the types of speculative computing projects that Drucker discusses; namely, temporal and geographical mapping. For geographic mapping, Google Earth and its open application programming interface allow people to create files that can then be imported into Google Earth to enhance the user experience. Students can create annotations for buildings, parks, roads, paths, landmarks, and so on, and associate those pieces of information with map coordinates. When that file of coordinates and information is imported into Google Earth, it becomes a heavily annotated map. Using Google Earth's own historical images, users could potentially browse visually backwards and forward through time, with the annotations always in the forefront. Imagine a crowdsourced, annotated, historically-layered walk backwards through time and place, wherein readers can see how the landscape changed as the literature changed—in any given place. By recreating the physical landscape found throughout a text in a virtual space, students can recreate an environment suitable for a *dérive*; the Google Earth interface, for example, allows one to "walk" around a landscape. By enabling a visual field through which students can see physical objects operating as they would have on a character in a text, the mapped spaces could affect students' understanding of setting and environment as used by the author.

Figures 20 and 21 show literary mapping at work. This particular exhibit comes from Barbara Hui, who creates "Litmaps" to enhance the spatial reading of literature. Hui argues for the importance of the "consideration of the geospatial shape of the narrative, i.e. the contours that emerge when the place names mentioned in the texts are plotted on geospatial map image." When students begin to plot and annotate maps of the geography of a piece of literature, it illuminates "spatialities at work in each narrative, including the scale of global and local place, and the networks of colonialism, imperialism, migration, language, and media that exist across and between those places" (Hui).

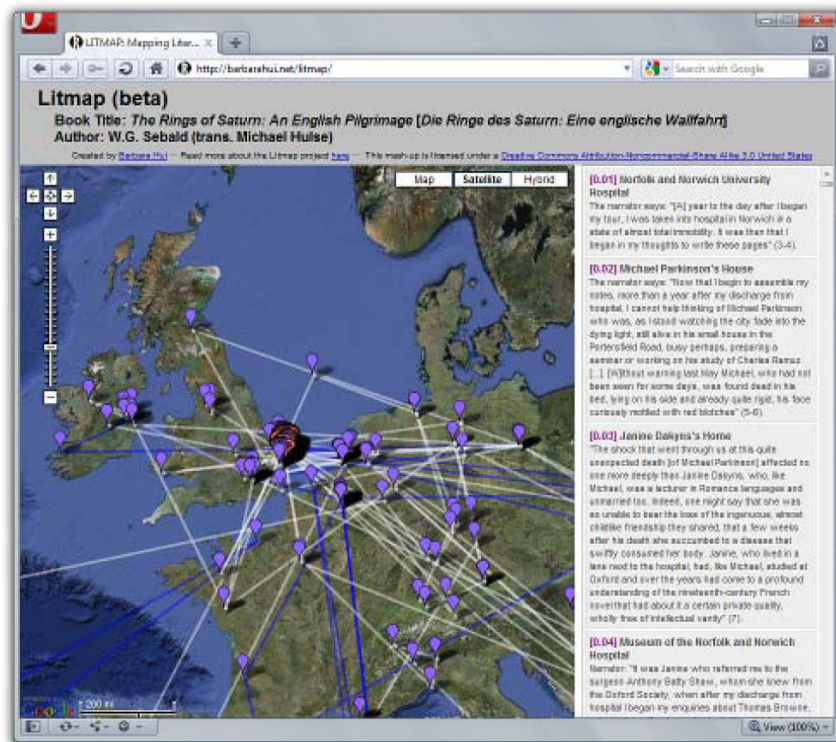


Figure 20: Wide view of Litmap showing networked connections in a text.

In Figure 20, the connections between mapped objects are shown in a wide view. Each of the points on a map represents a place in the specific text being mapped (in Hui's case,

W.G. Sebald's *The Rings of Saturn*, each of the points has descriptive text attached to the point and shown in the margin, and the points are connected in linear fashion as they appear in the narrative.

As shown in Figure 21, the user can zoom to the greatest level of magnification that Google can provide:

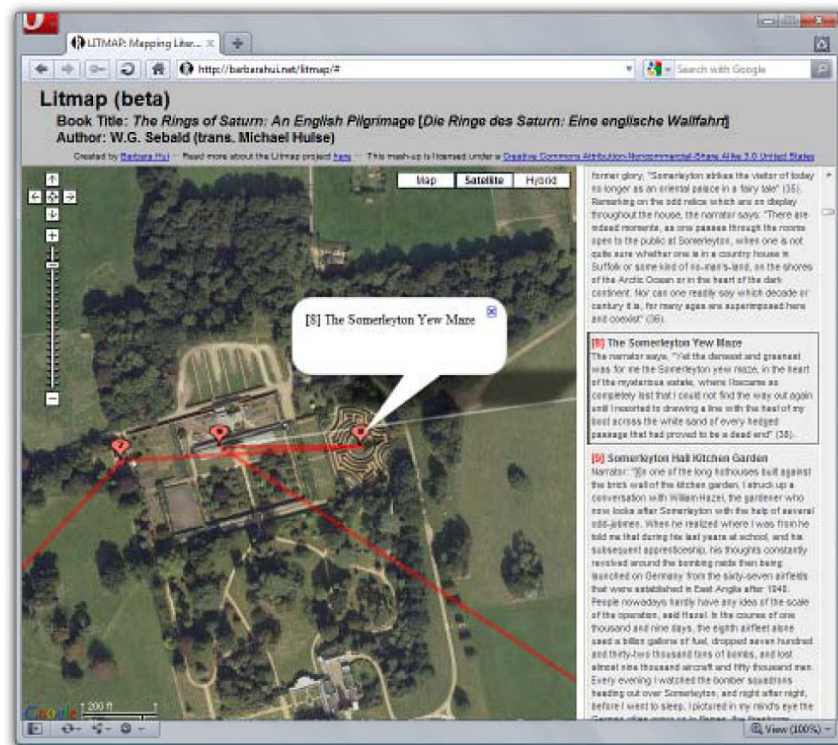


Figure 21: Zooming within the map enhances the connection to the place.

Reflecting for a moment on the ways in which texts themselves (books, letters, newspapers) moved throughout the plot of *The Virginian*, one can imagine the value of providing students with an opportunity to work hands-on with a plot and a physical map in which they could document the movements of texts used by the author as plot devices. Just as Hui describes the spatialities that become visible to students in this imaginative

playspace, the students would also participate in the creation of scholarship itself: showing the patterns of movement and migration of texts (and people) on a local and a national scale. Providing this level of detail to the reader can enhance the reader's connection with the text and reveal aspects of the narrative and context not previously understood until the spatial connections were revealed in this way.

One of the many areas ripe for mapping includes the literary locale of the American West as reflected through the texts published in the *Overland Monthly* circa 1868 to 1875. Understanding a particular historical period provides scholars with a frame of reference for further study when the interplay between texts and contexts seems to show authorial challenges or resistance to genres or cultural expectations in their own time. Mapping projects in the humanities (and specifically in literary studies) must produce an argument, otherwise it is simply geography rendered on-screen. In this example of mapping of a literary locale, the resulting product would provide additional support for my argument that the work of the women authors of the early *Overland Monthly* affected the development of rural and urban local color, realism, and naturalism differently in this Western publication than in its Eastern counterparts.

For instance, while Bret Harte found his niche writing Western tales carefully constructed to give an Eastern audience what they wanted, a cadre of Western women writers supplied the *Overland* with tales of stark realism popular with the Western audience but that barely registered with genteel Eastern readers if they registered at all. The disjunction between Eastern literary consumers and Western authors created a fortuitous freedom of expression and ability to experiment with content; the pages of the

early *Overland* contain stories of adultery, prostitution, race relations, greed, degeneration, and death written by women experiencing these events firsthand as they traveled to, lived, and worked with or without their husbands in the Western mining towns and burgeoning metropolis of San Francisco. Mapping the relations of characters and the land, and the relations of characters and the land in one story to those in another, has the potential to expose the ways in which these authors broke out of the genre constraints of tall tales, local color, and sentimental fiction, and disrupted the chronology that places local color, realism, and naturalism in temporal relation with one another and instead produced texts that contain strains of all three genres occurring simultaneously.

While Richard Brodhead asserts that in "nineteenth-century America regional writing was *not* produced for the cultures it was written about" and offers the example of the success of Harte's work in Eastern publications, the early *Overland* provides examples that *were* for readers in its region—for entertainment as well as documentary and instructive purposes, able to be written because of the freedom gained in the distance from the Eastern literary market (122). Considering the position of the *Overland Monthly* within Western literary culture, and the position of the periodical and its contributors within the greater national literary scene, the freedom afforded to its authors by their disconnection from the Eastern literary marketplace allowed for success on their own terms while meeting the needs of their own distinct audience by producing texts that did not necessarily adhere to the genre conventions in the East at that time.

Although remaining true to standard forms of narrative style, the freedom to develop content expressing the reality of Western life resulted in a mix of urban and local

rural color as well as stories containing elements of naturalism, some twenty-five years before Frank Norris implored (male) authors in "An Opening for Novelists" to write about "the swing and rush and trample of the things that live" (274). The seven-year experiment of the *Overland Monthly* resulted in some starkly realistic representations of women's own lives in the West, fulfilling the desires of an audience who enjoyed the local journalistic treatments of life gracing the pages of the *Overland* more than it did the domestic fiction found in the periodicals of the East. Mapping the connections between texts and their contexts would enable exposure of the various reception histories of the texts as well; putting students in control of the mapping and annotations gives them hands-on experience with geographic and historical content that could produce connections between these texts and their contexts that might not otherwise have occurred simply through reading a static page, listening to a discussion in a classroom environment, or going through the exercise of writing a thousand-word essay that closely reads a single passage excerpted from the text.

In his discussion of literary competence, Jonathan Culler states that reading "a text as literature is not to make one's mind a tabula rasa and approach it without preconceptions; one must bring to it an implicit understanding of the operations of literary discourse which tells one what to look for" (132). In teaching the conventions of structural, historical, and thematic genres in the introductory literature classroom, we are ensuring that students *can* bring to the text an "implicit understanding of the operations of literary discourse." By allowing students to interpret, map, and explain connections between text and context (geographic, cultural, or other), this understanding would be

brought to light. The nuances of the situation within the text can be easily teased out by students who wanders through the text and maps/uncover the context of both the story being told and the actual history that informed it. When students achieve this sort of cultural and literary competence and raise to a level of consciousness a consideration of the texts and genres of those texts that was previously ignored or unquestioned, then they can continue to do the sort of critical analysis that we hope for: seeing how genres help us "learn who we are"—or what the text is telling us—and "encounter the limits of our world"—or the boundaries we wish to transgress (Frow 144).

Whether mapping a wide area (as shown in Figure 20) or a relatively small locale such as Edith Wharton's New York (shown in Figure 21), one of the values of mapping a literary locale is the connection it produces between the reader and the text.

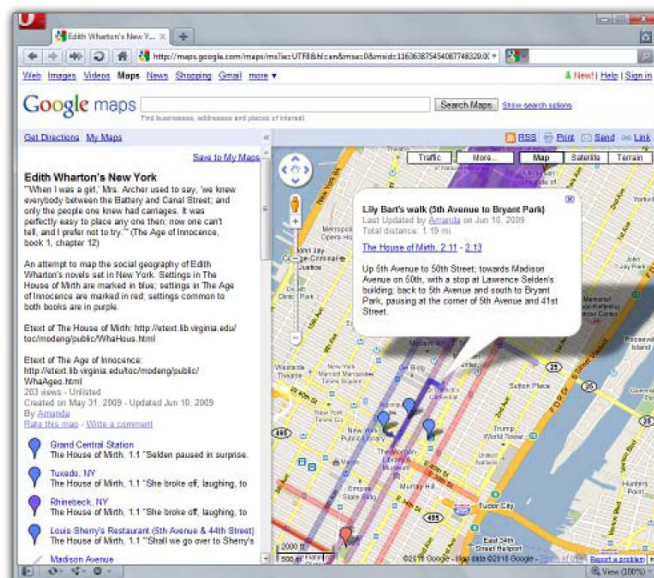


Figure 22: Mapping Edith Wharton's New York²⁶.

²⁶ Access this map at
<http://maps.google.com/maps/ms?ie=UTF8&hl=en&msa=0&msid=116363875454087748329.00046b3a9e3cd28aaeb0a&z=6>

By physically mapping the contexts and connections in which characters operate, the student may interpret motivations of characters and authors differently than before, or may find they have exposed a line of inquiry that calls into question a previously established critical argument. Regardless of the result, student investigation of texts through technological *dérives* and *détournements* necessarily opens the way for new research questions.

EPILOGUE

To create new knowledge environments and sites for interactive discovery both of facts and new lines of inquiry, scholars must maintain the technology of self-consciousness and desire for digital surrogates; scholars must collaborate with librarians, archivists, and those computer scientists and user interaction experts who also have ideas for ways of interacting with text. New models for n-dimensional archives and digital editions must be developed to contain not only a core text but also their paratexts and connections for possible new paratextual encounters, otherwise these "archives" are little more than a web site—difficult to evaluate as scholarship even if they do seem to make an argument. We must provide for students the interactive playspaces to encounter old texts, combine them with new ideas, and produce enhanced modes of experiment and experience. Only then can we begin to move digital humanities praxis forward.

In "New Splashing in the Old Pond," Willard McCarty discusses Jerome McGann's description of modeling in humanities computing as "imagining what we don't know" and points out that McGann says "imagining" and not "discovering." While the eventual outcomes of tool and technique use in humanities computing is some form of discovery, the creation of those tools and techniques comes from imagination and not presumption. McCarty goes on to state that using our imaginative faculties for modeling "opens further doors" and uncovers "other, equally essential kinship" for if "what we don't know becomes ours by imagining the future, then what we once knew but know no longer, or not quite in the same way, we recover by imagining the past." Recently, at

"The Shape of Things to Come" conference for the exploration the development and sustainability of online humanities research and publications, McGann noted that our basic needs as scholars are for a comprehensive cultural record and the ability to "augment that record with our own contributions." But we do not yet have the tools of our imagined future, and only have the "reliabilities of print-based research and traditional publication" despite fundamentally knowing that our future scholarship can no longer remain organized and sustained through print resources.

Therefore, new models of scholarship are required to break out of the institutional and structural bonds that tie our hands and disallow us from moving forward. Gregory Crane understands the "vast amounts of work before us" to digitize and "edit the entire record of humanity." Crane notes the workforce we have at our disposal and suggests crowdsourcing digitization, transcription, and annotation through the work of undergraduate and graduate students as well as established scholars. Crane suggests publishing these works as "components of increasingly sophisticated digital libraries that can parse their structure and mine the machine actionable information within them," and supports moving toward "community-driven models of updating and preserving such editions." This archive model is precisely the application of McGann's theoretical n-dimensional archive interface, as Crane argues for each of the editions preserved over time "can serve as starting points rather than as fixed and obsolescent snapshots." In his discussion of cybertext, Espen Aarseth reminds us that texts are never just words, as there "will always be context, convention, contamination, [and] sociohistorical mediation in

one form or another" and it is the ability to distinguishing between a text and its readings is the ideal (20).

At the same conference, historian Daniel Cohen reminds us of the impetus for the creation of the World Wide Web itself: "Tim Berners-Lee, building on the network, assumed that to encompass a topic completely you would have to rely on the electronic synthesis of hyperlinked resources—decentralization over centralization. Everything is intertwined on the web, and all boundaries are permeable." Cohen suggests scholars find their inspiration in the network-scale systems of the World Wide Web rather than the antiquated editorial processes of print, as the "idea of a strongly bounded editorial series in the digital edge is folly" and instead "we should be pushing toward network-scale scholarship and curation." Here, again, we can see the need to embrace the technology of collaboration and work to combine skillsets, resources, and services across teams and institutions (the network), to produce network-scale scholarship and collaboration.

Fifty years ago, technologically-inclined humanities scholars followed a path that led to the the intersection of the humanities and computing for data mining, data storage, and data (textual) analysis. We are still on a path, one which is quickly leading toward the next turn: the moment at digital humanities becomes, simply, "the humanities." Stephen Ramsay recently asked, have we not already begun calling ourselves "a community of practice," in preference to "a science, a method, a research, a pedagogy?" Technology has given us the means to provide access to texts and the ability to develop new methods of interacting with and producing scholarship from those texts. If we are a scholarly community, then let us move through our archives in ways that illuminate each

path in what Ramsay notes are "important moment[s] in the world's duration," with each of us having the same invitation and ability to experience community, relationship, and play within these texts.

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