Introduction. Making, Critique: A Media Framework

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As traditional print-based humanities move into the digital era, many strategies are emerging to support and retrofit academic departments. Some universities have established freestanding centers for digital humanities, including the University of Maryland, the University of Virginia, and the University of Nebraska. Others are hiring one or more faculty members in the area of digital humanities and incorporating them into an existing department and curriculum. Some are fiercely resisting change and remaining resolutely in the print era. Whatever the case, few have attempted to rethink categories, courses, and faculty hiring in ways that take more than a superficial account of digital technologies and their implications for disciplines that have been operating on a print-based model of scholarship. This book is intended to promote such rethinking.

The approach we advocate is comparative and media focused. It recognizes that print is itself a medium, an obvious fact that tends to be obscured by its long dominance within Western culture. As the era of print is passing, it is possible once again to see print in a comparative context with other textual media, including the scroll, the manuscript codex, the early print codex, the variations of book forms produced by changes from letterpress to offset to digital publishing machines, and born-digital forms such as electronic literature and computer games. The broad term for this approach is *comparative media studies,* which typically includes not only text but also film, installation art, and other media forms. The focus in this volume is specifically on text;

by analogy, the approach modeled here can be called *comparative textual media* (CTM). Although our argument will proceed with this more specific focus, many aspects of it apply as well to humanities disciplines that analyze media forms other than text.

"Why Compare?" R. Radhakrishnan (2009) asks in his article of that title in a recent issue of *New Literary History* devoted to rethinking comparative literature in a transnational globalized era, noting at the same time that we compare endlessly. The anecdote he tells of conversations with his Indian autorickshaw driver suggests one powerful answer. His driver sings the praises of the Indian traffic system, which he sees as fostering a driver's creativity, aggressiveness, and competence, whereas Radhakrishnan prefers the rationality, order, and safety of the U.S. lane system. One can see how this small debate might open onto a landscape of sweeping differences in cultures, attitudes, and practices. The example illustrates the potential of comparative studies to break the transparency of cultural sets and denaturalize assumptions and presuppositions, bringing into view their ideological underpinnings. This will scarcely be news to comparative disciplines such as cultural anthropology, comparative literature, transatlantic studies, and postcolonial studies. These rich disciplinary traditions serve to highlight by contrast that there has been a relative paucity of work in comparative media studies in the United States, which nevertheless embodies a similar denaturalization of assumptions.

Even though, for the last few hundred years, Western cultures have relied to a greater or lesser extent on print, and notwithstanding the excellent work of scholars such as Elizabeth Eisenstein (1980), Adrian Johns (2000), Mark Rose (1995), and others

to understand the complex ways in which assumptions born of print are entwined with other social, cultural, economic, and (especially!) academic structures, the comparative media project remains as open ended and challenging as ever. Indeed, if anything, it has become more complex in the last couple of decades. In the new millennium, the media landscape is changing far faster than our institutions, so we now find ourselves in situations where print-born assumptions linger and intermingle with practices such as social media networking, tweeting, hacking, and so on, to create highly diverse and heterogeneous social–technical–economic–political amalgams rife with contradictions and internal inconsistencies. A case in point is Rebecca Walkowitz's (2009) category of "comparison literature," texts written with the expectation that they will immediately be translated into multiple languages, a situation that reconceptualizes what *comparative literature* means. Contexts like this, along with the complexly heterogeneous contemporary mediascapes, enable comparative media studies to catalyze new insights, allowing us to understand more deeply the implications of the choices we (and our institutions) are in the process of making. Part of the appeal of comparative media studies is its ability to contextualize complexities in ways that do not take for granted the assumptions and presuppositions of any one media form (or media culture).

The advantages of a comparative approach, then, have never been clearer. But why focus on media, and textual media in particular? As John Cayley (2002) and Jay David Bolter (2001) remind us, writing surfaces have always been complex, reaching beyond the surface deep into the surrounding culture. Yet when writing was accomplished by a quill pen, ink pot, and paper, it was possible to fantasize that writing

was simple and straightforward, a means by which the writer's thoughts could be transferred more or less directly into the reader's mind. With the proliferation of technical media in the latter half of the nineteenth century, that illusion became much more difficult to sustain, for intervening between writer and reader was a proliferating array of technical devices, including telegraphs, phonographs, typewriters, Dictaphones, Teletypes, and wire recorders, on up to digital computing devices that themselves are splitting into an astonishing array of different protocols, functionalities, interfaces, and codes. The deepening complexities of the media landscape have made mediality, in all its forms, a central concern of the twenty-first century. With that changed cultural emphasis comes a reawakening of interest in the complexities of earlier media forms as well.

Textual media constitute a crucial aspect of this media landscape. Arguably even more powerful as historical resources than visual and aural media, they provide primary access to the thoughts, beliefs, discoveries, arguments, developments, and events that have preceded us; they hold the key to understanding the past, analyzing the present, and preparing for the future. It is no accident, then, that textual media are central to many humanities disciplines, including history, philosophy, religion, languages, and literatures, among others. Yet investigations of textual media *from a media standpoint* remain relatively small subfields within humanities disciplines, relegated to specialties such as bibliographic studies and textual studies. A media perspective would move these fields from the margins to the center of contemporary humanistic inquiry. In addition, it would recognize that recursive feedback loops

between form and content are not only characteristic of special cases (which we have elsewhere called technotexts [Hayles 2002]) but are the necessary ground from which inquiry proceeds.

As the centrality of recursivity suggests, CTM pursues media as objects of study and as methods of study, focusing on the specificities of the technologies as well as the cultural ecologies they support, enable, and illuminate. A focus on media promotes awareness that national, linguistic, and genre categories (typical classifications for text-based disciplines) are always already embedded in particular material and technological practices with broad cultural and social implications. National distinctions, for example, may be linked with the invention, dissemination, and adoption of different media technologies, and genre conventions can be reconceptualized so they are approached through the ways in which they presuppose and draw on different media functionalities. Poetry is typically distinguished from prose by the introduction of line breaks, for example, but how line breaks are implemented differs significantly for handwriting, typewriting, and letterpress technologies. Thus CTM offers, we suggest, a way of accounting for existing categories by making them productive within next contexts.

In what ways does CTM alter existing paradigms in the humanities? Potential sites for change can be found in departments of religion, history, and philosophy, among others, which traditionally have focused on conceptual frameworks to delineate subfields, with little or no attention to the material infrastructures undergirding epistemic transformations. Categories such as "Enlightenment thought" or

"Reformation philosophy," for example, track strains of philosophic thought through famous thinkers and writers, with only glancing treatment of medial forms. Even when media are considered—the printing press would be an obvious example—they are often treated as if they were homogeneous across time and space, with little attention to variations within a medium or the effects of overlapping media on one another. Within literature and language departments, a comparable emphasis falls on literary form and content, but without sustained attention to the material instantiations of the words, sentences, and paragraphs. In the last decades, there has been a growing awareness of the importance of the materiality of media for authors such as William Blake, Emily Dickinson, and Walt Whitman, but such materially oriented awareness remains the exception rather than the rule. Programs that take the specificity and materiality of media as a principal focus for curricular development and field conceptualizations are still very much in the minority in the United States.

This lack of programmatic development notwithstanding, the frameworks associated with media-focused inquiry nevertheless open onto a host of issues currently at the forefront of scholarly debates in the humanities. Just as many scholars in the field of comparative literature now find it essential to interrogate the nature of the relation between Self and Other that they see as the heart of their comparative project, so comparative media studies aims to unsettle assumptions about the human and nonhuman actors involved in a medial relation to each other. What (or who) is the "Other" of comparative media studies? One kind of answer might posit "other media," in which case scholarship would turn to tracing genealogical relations between different

media forms, a project already well under way by such scholars as Errki Huhtamo and Jussi Parikka (2011), and others, in the rapidly emerging field of media archeology. Another kind of answer might argue that media begat media, a thread that can be traced from Marshall McLuhan (1964) through Friedrich Kittler (1992, 1999) and Bernhard Siegert (1999). By arguing that the content of one medium is always another medium, McLuhan implies that media studies are always already comparative, an insight that Jay David Bolter and Richard Grusin (2000) further develop in *Remediation: Understanding New Media.*

Still another answer might turn to an interrogation of the role of nonhuman objects as the "Others," a move with strong connections to speculative realism and object-oriented ontology (OOO), as developed by Graham Harman (2011), Ian Bogost (2012), Quentin Meillassoux (2010), Levi Bryant (2011), and others. This focus also opens onto the historical change that occurs when objects move from allopoetic forms (i.e., forms that take their raison d'être from outside themselves) to autopoetic forms capable of defining their own goals, actions, and behaviors through evolutionary algorithms. Pioneering this change in perspective through his actor network theory, Bruno Latour (2007) anticipates the "flat ontology" of OOO by placing human and nonhuman actors on the same plane of action, refusing to privilege human actors a priori as the ones controlling or determining the network's spread and dissemination. Yet another focus seeks to understand technical and human change as coevolutionary processes that were determinative in the physical, psychological, and biological development of *Homo sapiens*; scholars working in this vein include Bernard Stiegler (1998), Mark Hansen

(2006), and N. Katherine Hayles (XXXX [1]). Human cognition in this view is deeply bound up with technics on conscious, unconscious, and nonconscious levels, with media technologies serving to support, scaffold, and extend cognition in ways consequential for social, economic, and political structures.

Many of these research programs are associated with the digital humanities, which we understand inclusively as projects aiming to digitize historical information through virtual and augmented reality; text analytics intended to analyze corpora too vast to be read in their entirety ("big data" projects); and theoretical inquiries into the nature, effects, and specificities of different media. Our purview here, however, is broader than the digital humanities because it advocates *comparative study of all text-based media,* not only the digital. An example of how wide this spectrum can be is Whitney Trettian's dissertation on the "Harmonies," scrapbook-like remixed texts created by cutting and pasting passages from the Scriptures and other religious texts, crafted by the women at the religious community Little Gidding in the seventeenth century. Trettian, a graduate student in the English department at Duke University, also considers as media such handiwork texts as embroidered book covers, samplers, and even pillowcases adorned with embroidered inscriptions. Her work recovers women's expertise in needlework and textual compilations as forms of creative textual media in which inscriptions are enhanced by finely developed craft skills. To indicate the diverse and rapidly changing landscape in which media-based inquiries are proceeding, we use the term *media framework,* denoting a wide spectrum of approaches and chronologies in which the specificities of media are central.

In addition to the research programs it fosters, a media framework also supports work that explores connections between different media forms, including film, installation art, electronic literature, digital art, emergent narratives, and a host of other computational and analogue media forms. In this way, it facilitates collaboration and cooperation between disciplines focusing on visual and aural forms (work often located in art and art history departments) and text-based disciplines such as literature and language departments. Such connections are especially valuable in the contemporary period when boundaries between text, visual, and aural forms (e.g., electronic literature and digital art) are difficult or impossible to draw. Many other kinds of research projects also work well with a media framework, including cultural studies projects that explore the relation between media epochs and social, cultural, and economic institutions as well as historical periodizations that take media transformations into account and national studies that link the transformation of cultural forms with the dissemination or development of media technologies.

A media framework naturally has political implications, including how academic institutions organize themselves and distribute rewards, hiring priorities, and scholarly recognition. Many humanities departments are now facing internal splits that divide along print–digital lines, with some scholars fiercely resisting the digital because of the threat they see it posing to their hard-won print-based skills and scholarly paradigms. This reaction is entirely understandable; it is also unnecessary. A CTM framework does not render print-based skills obsolete; on the contrary, they form an essential component of critical and pedagogical practices. Rather than implicitly assuming that

these print-based practices are transhistorical and universal, however, the CTM approach emphasizes their historical and technological specificity. Furthermore, as some of the writers gathered in this collection show, *print* is not a monolithic or universal term but a word designating many different types of media formats and literary practices. CTM takes as given that relationships between media forms are complex and commingled. Many bibliographic scholars have made this clear by pointing out that manuscript traditions continued long after the advent of print, influencing the development of print, while at the same time being influenced by it.

Similar complex relationships are developing now. Print is no longer the way most people in developed countries scan the news, communicate through letters, or encounter opinion pieces, but print practices remain vitally important in exerting cultural and artistic influence, including in contemporary contexts, where their vibrant and robust interplays with digital media are producing new print forms (e.g., Jonathan Safran Foer's print novel *Tree of Codes,* peppered with die-cut holes and produced by digital machines, and Mark Z. Danielewski's *Only Revolutions,* an experimental print novel that combines database and narrative forms). Hybrid and transmedia narratives, such as Steven Hall's *The Raw Shark Texts,* are also witness to the creative exuberance and innovative forms emerging from the digital–print dialectic. Indeed, so intermixed are digital and print media through modern printing and publishing machines that they must be considered comparatively to make sense of their production at all. Recognizing this situation can (and should) inform critical practices and pursuits. It also has important implications for pedagogical practices and curricular designs.

As many have noted, the culture of critique that has dominated the humanities for the last several decades seems, as Bruno Latour (2004) phrased it, to have "run out of steam." There are many reasons for this, including the culture and science wars, the economic downturn that has resulted in the disestablishment of many interdisciplinary programs, and the low esteem in which the humanities are held by the general public. Another important reason may be that critique has ceased to operate as a fruitful method for many scholars and for most beyond the academy; it often yields results that are apt to seem more formulaic than insightful, and it speaks to an isolated audience. The complexity of these factors notwithstanding, there is also a fundamental problem with the culture of critique: by its nature, it tends to be critical rather than constructive in tone. As someone once said, only partly with tongue in cheek, it amounts to saying to others, "Give me your best ideas and I will show you what's wrong with them," a proposition that has struck many colleagues in the social and natural sciences as a bad bargain indeed. Rita Felski (2008, 5) puts it another way; she chastises literary critics for separating their object of study from the social world in which it lives by highlighting literature's uniqueness in ways that "overlook the equally salient realities of its connectedness . . . the specific ways in which such works infiltrate and inform our lives."

One way to analyze literature that emphasizes its connections to the real world and to other fields of intellectual inquiry is through a focus on media. We suggest that CTM promotes a paradigm shift, a move from a culture in which critique dominates to one in which it is put into productive tension and interplay with what may be called an

ethic of making. Media are necessarily associated with specific technologies and material structures as well as economic, legal, and social institutions. Although these can certainly be described and analyzed discursively, conceptual understandings are deepened and enriched by practices of production, a conjunction that puts critique into dynamic interplay with productive knowledges, as Jay David Bolter (2001) has argued. This is self-evidently true of digital media, where the practices of making digital objects are deeply interwoven with theorizing about them. But it is also true of other media as well. Working with a letterpress printing machine, for example, gives one a richer and more resonant context for understanding print codices than would otherwise be the case, as Johanna Drucker has shown in her introduction of a flat-bed Vandercook printing press to her classroom at the University of California, Los Angeles. The same could be said of all media, from scrolls to manuscripts to print broadsides to digital poetry.

A major development in integrating a media framework into humanities disciplines is the advent of the Humanities Lab. Among the early pioneers was Jeffrey Schnapp. When he was at Stanford University, he envisioned the Humanities Lab as providing space for collaborative work on large projects that he calls the "Big Humanities" (by analogy with "Big Science"). As digital methodologies are adopted for humanities research, many of these projects focus on analyzing large data sets (e.g., several thousand nineteenth-century novels) to gain insight into a wide spectrum of literary questions that hitherto could not be answered satisfactorily (or at all), including issues of production, canon and genre formation, and historical change over time.

Franco Moretti and Matthew Jocker's Stanford Literary Lab illustrates the methodologies and results that analyzing "big data" can yield.

In addition to opening the field to new kinds of questions (as Franco Moretti [2007] argues in his concept of "distant reading"), Humanities Labs also lead the way in offering new models of pedagogy. The typical model of humanities scholarship is that of the single author working more or less alone to produce books and articles. Although the author connects with other scholars in myriad ways, from having colleagues read and comment on work in progress to operating within networks of researchers with similar interests, these interactions tend to be cooperative rather than truly collaborative, to use John Unsworth's (2007) distinction. Thus humanities research has been something of an anomaly in the academic production of knowledge, for virtually all of the science disciplines, and most of the social sciences, use a teamwork model in which researchers at many levels—professors, postdoctoral fellows, graduate students, and undergraduates—work together on large-scale projects that might stretch over many years (and many grant cycles). Indeed, most of the world's work gets done through teams working together. Students majoring in the humanities typically come into this world with little practice in such work environments, a less than optimum situation for their integration into it.

Humanities Labs offer an alternative model for research and pedagogy that emphasizes collaborative team projects, integration across multiple stakeholders in academic research, and individual contributions within larger frameworks of ongoing research. The kind of transformations this model encourages can be illustrated through

the undergraduate course that Caroline Bruzelius, an art historian specializing in medieval architecture at Duke University, offers on Gothic Cathedrals. When Duke introduced software making it easy for faculty to put their lectures online, Bruzelius took advantage of the opportunity to convert her traditional lecture course into a studio environment in which students worked in teams of three, each team having as its project the construction of a fictional cathedral. Team members were assigned the roles of a master builder, responsible for learning the computer design program AutoCad, an iconographer, responsible for designing the decoration (stained glass and portals), and a historian, charged with creating the cathedral's narrative, beginning with the Christianization of the site. The teams had to consider carefully the cathedral's location, including the requirement that the site be close to roads, ports, rivers, and supplies of wood and stone. In addition, the teams had to construct fictional budgets (incomes and expenditures) and outline the organization of the labor force. The teams worked on their projects throughout the term. Because the lecture material giving context and background was available to them outside of class time, Bruzelius was freed to circulate among the teams as they prepared the portfolios describing their cathedrals, including architecture drawings (and, in one case, a virtual fly-through). At the end of the term, the teams made presentations before a panel of judges; the following day, the dean awarded the prizes in a final celebration. One of us (Hayles) was fortunate to attend the session in which presentations were made and came away amazed at the rich detail, imaginative stories, and architectural precision of the projects. Even the budgets, seemingly mundane components, served important pedagogical purposes in

underscoring the importance of finding wealthy patrons and organizing the labor force efficiently so that the most skilled craftsmen were assigned to the most challenging and creative tasks.

The example illustrates the rich insights that our students can gain by being involved in the production processes themselves. Scholars working in the contemporary era and focusing on digital media widely accept that students should know not only how to interpret and critique but also how to make digital objects. Without theorizing, practice can be reduced to technical skills and seamless interpolation into capitalist regimes; without practice, theorizing is deprived of the hands-on experience to guide it and develop robust intuitions about the implications of digital technologies. A generation of scholar–researchers in digital media now also have credentials as programmers, hardware engineers, and software designers, including Ian Bogost, Wendy Chun, Alexander Galloway, Lev Manovich, Jeremy Douglas, and a host of others. The phenomenon of the theorist–practitioner (or, to put it another way, practice-based research), pervasive in the contemporary period, has extended into the study of earlier periods as well. Bridges across the practice–interpretation divide have been built by scholars such as Alan Liu, Jerome McGann, and Peter Stallybrass, to name a few. Many researchers have developed seminars where students go into rare book rooms and do original research with early texts; one could imagine extending such seminars so that they include sessions with letterpress printing, woodblocks, and other technological media.

Another example of CTM at work in the classroom comes from a seminar cotaught by Jessica Pressman and Jessica Brantley at Yale University, "Medieval Manuscripts to New Media: Studies in the History of the Book." Organized around the deceptively simple question "what is a book?" the seminar explored the history of the book medium by examining the intersections of medieval manuscript culture and contemporary digital literary culture. Comparative textual media was the course's subject and method, but it was also its environment, because the course met in the Beinecke Rare Book and Manuscript Library, where, on display for comparative discussion each week, were medieval scrolls and manuscripts, printed books, Kindles, and projections of digital literature. As final projects, students produced their own comparative textual media "essays," which included elaborate digital ink mark-ups of medieval manuscripts, animated video mash-ups of diverse textual media, and a QR-barcode-based locative narrative that sent the professors scrambling around the building and its surrounding courtyard to read an essay that analyzed literary space by mapping it onto specific places in the archive.

Pedagogically, CTM encourages practice-based research as part of the context of understanding, alongside and deeply integrated with theoretical and critical methodologies. This kind of hands-on approach can reveal nuances and contexts that have the capacity to illuminate, in a flash of insight, why a cultural object is formed the way it is and what its formation has to do with its textual and historical significance. Peter Stallybrass's (2002) work on the manuscript codex, Christopher Funkhouser's (2007) study of "archaic" digital poetry, Scott McCloud's (1994) commentary on comics,

and a host of other studies testify to this power of production-informed, materially oriented approaches to yield new and powerful insights. Moreover, an ethic of making shifts the emphasis from deconstructing existing ideologies and practices to constructing new kinds of practices. Both are undoubtedly necessary, but the culture of critique by itself is only half the picture. CTM explores the possibilities for cultural, social, economic, and theoretical transformation not only by tearing down but also by building up, thereby opening new horizons of understanding and alternative practices. Hence our introduction's title, "Making, Critique": read across the comma, it can be understood as the status quo of endorsing critique, but acknowledging the disruptive punctuation introduces another element into the picture: "making." Unconstrained by subordinate clauses or other grammatical indicators, the phrase leaves the relationship between making and critique entirely open, to be configured as necessary or useful in particular contexts.

An advantage of the CTM approach is its ability to function at different scales. One problem with suggesting any kind of framework for humanities departments is their diversity. It is unlikely that a single approach will fit every need and situation, ranging from departments in small liberal arts colleges to regional universities to Research 1 institutions, not to mention disciplinary differences between text-based humanities departments. Departments at different institutions have quite different student populations, they educate their students for different kinds of roles after graduation, and they employ faculty with different research and teaching profiles. Because CTM can be deployed in a variety of ways, it is flexible enough to fit many

different kinds of situations. At the more narrowly focused end, it can provide the framework for an individual class; at a wider scope, it can serve as the theoretical scaffolding for a certificate program in media studies; at the broadest scope, it can provide an approach for rethinking an entire department's mission, curricula, and focus. In addition, the different emphases and methodologies of humanities departments (e.g., philosophy compared to literature or religion compared to history) necessitates that different fields construct different kinds of relations to textual objects. A media framework provides a way to join theory with practice in a wide variety of conceptual contexts, thus lending itself to flexible adaptations.

To see the effects of a media framework that has been fully implemented in an academic program, we can turn to the Media Faculty of the Bauhaus-University in Weimar, Germany, which recently won the highest ranking from the German government for its research activities. The Media Faculty include scholars in the humanities, economics, and technical and artistic- and design-related fields, working together as a unified group. The Media Faculty offer a wide range of degree programs, including media architecture, media art and design, integrated international media art and design studies, media culture, European media culture, media management, and computer science and media. Moreover, the Media Faculty have close associations with a research institute, the Internationales Kolleg für Kulturtechnikforschung und Medienphilosophie (IKKM), which invites for one or two semesters ten fellows working on media projects. IKKM also publishes a journal, *Zietscrift für Medien-und Kulturforschung,* edited by Lorenz Engell and Bernhard Siegert. During a site visit to

Weimar, one of us (Hayles) had an opportunity to talk at length with Lorenz Engell. According to him, media studies in Germany has increased exponentially in the last two decades, for example, going from five professors in the field in 1990 to over one hundred today, with comparable growth in other measures, such as numbers of students, members of the professional Media Studies Association, and the diversity of media studies programs. This growth has not been uncontested; particularly strained have been the relations of media studies programs with communication studies, which argues that the study of (mass) media is its turf. Engell distinguishes media studies from communication studies in its emphasis on media other than mass communications and in its focus on the materiality of media. These tensions notwithstanding, faculty members in the program at Weimar are actively working to make connections with other fields that have traditionally not considered the materiality of media, such as philosophy. Christiane Voss, along with Engell, recently organized a conference, "Was Wär Der Mensch," specifically designed to bring together media archeologists and theorists with philosophers in serious, sustained discussions. The success of the Weimar program, and of media studies generally in Germany, indicates the potential of CTM to catalyze new kinds of research questions, attract students, reconceptualize curricula, and energize faculty.

To our knowledge, the only comparative media studies program now in existence in the United States is at MIT, chaired by William Uricchio. One of us (Hayles) made a site visit to the program in January 2012. The program has impressive physical facilities, with several lab spaces, including the HyperStudio directed by Kurt Fendt, the

GAMBIT Lab, the Center for Civic Media, and the Imagination, Computation, and

Expression Lab. The CMS program fully embraces the integration of theory and

practice, encouraging students both to make media and to reflect on them in a variety of

lab settings under the rubric of "applied humanities." Moreover, it has an expansive

vision of what *comparative* means, including comparisons across media, national

borders, historical periods, disciplines, and making and thinking. In this sense, it fully

implements the comparative media framework advocated earlier. The CMS program

follows the MIT Media Lab model in seeking partnerships with corporate sponsors. At

the time of the visit, it was run largely on soft money, with contracts and grants in the

three to four million dollar range. As Uricchio explained, however, the CMS program

was then in transition and was about to be folded into writing programs. The move was

intended to solve several structural problems, including the program's previous

inability to hire and have its own faculty lines.

The program illustrates both the potential and challenges of using a media

framework as the basis for an academic program. Although the MIT CMS had no

faculty lines of its own at that time (with the exception of Uricchio), it is able to employ

a large professional and technical staff of twenty to thirty programmers, technicians,

and so on, thanks to the steady supply of grants and contracts. One might wonder,

however, if this structure would lead to a split between academic researchers and paid

staff, a model that has proved problematic on several scores within the sciences.

Moreover, there would seem to be a tension between projects undertaken to fulfill grant

"deliverables" and projects that might be less profitable but more conducive to student

education. Finally, the high-end technology necessary for the work of the labs is a large continuing expense, requiring frequent cycles of upgrading and replacement. For institutions such as liberal arts colleges, where a model of corporate sponsorship may be problematic, it is not clear how such a high-tech enterprise would be affordable.

One possibility for smaller or less affluent programs is to broaden the focus beyond digital technologies to include older media that are already obsolete for commercial purposes (though still viable as teaching affordances) and so do not require "replacement" or "upgrading." The English department at the University of Connecticut, under the leadership of Wayne Franklin, for example, is acquiring a letterpress printing press precisely to implement this strategy for its students; the English department at the University of Iowa has long championed this approach in its Center for the Book. As these examples illustrate, none of these difficulties of moving to a media framework is insurmountable, but they indicate that careful thought must be given to the full implications of the shift, including economic, programmatic, and political considerations.

While any single book cannot hope to explore all the possibilities and challenges of CTM, this volume's essays stage encounters with a wide range of different media forms and manifest a similarly diverse spectrum of methodologies and approaches. Rather than aspiring toward definitive status, this book aims to showcase generative approaches that open onto new kinds of questions, pose novel problems for consideration, and demonstrate the range of insights that can come from a CTM orientation. Owing to their diverse subjects and periods, these essays could not usually

share the same audience; it is by virtue of their focus on textual media that they speak to one another and, moreover, illustrate collectively the benefits of studying textual media in a comparative manner. It is, we hope, the beginning of a new era in the humanities, one that relies on the rich traditions of the print era to provide historically specific frameworks for comparative understanding of the mediascapes of the deep as well as the recent past, the future as well as the present.

The essays that follow have been grouped into three general sections. The first section emphasizes why new approaches are needed by exploring instances in which older assumptions are no longer adequate to cope with new kinds of textualities, new archives composed of digital artifacts, and new modes of representing letter forms. Lest this section leave the impression that the advantages of CTM apply only to the new, the second section illustrates how a media framework can help to discover affinities between widely separated chronological periods, for example, between the classical era of the bookroll in ancient Greece and Rome and the contemporary example of a posthuman computer game. The third section focuses on the relation of content to material form, thus illustrating how a media framework can enrich and illuminate traditional modes of close reading.

Beyond these general thematics, the individual essays open onto many fruitful avenues of exploration. Adriana de Souza e Silva's "Mobile Narratives: Reading and Writing Urban Space with Location-Based Technologies" discusses the role of location-aware technologies, such as smart phones and GPS devices, in overwriting urban landscapes, creating dynamic new meanings that people can access by moving to

certain locations. Because the information is linked to a physical site, it participates in creating paths that define a user's movement through the landscape as well as imbuing the landscape with semiotic, emotional, and narrative meanings through messages left there. As de Souza e Silva points out, these technologies differ from earlier locative media art, such as audio walks, because they are not created by artists but by people in the course of their everyday lives. Previously, landscapes acquired meaning through memories, whether inside the head of a person or memorialized through a textual technology such as a plaque, a marker, or a tourist's guidebook. In the latter instances, sites were required to be vetted for significance. Because the information was funneled through a bureaucratic procedure—a town council or a publisher, for instance—it tended to employ formal rhetoric, rational criteria for recognition, and a sense of historical importance. With the new locative technologies, however, messages circulate outside the pale of sanctioned information, pertinent to the moment and available to be changed or erased when circumstances dictate. These virtual markings, differing from texts on other more durable substrates in their audience, intent, and purpose, nevertheless have analogues and precedents in such textual practices as graffiti.

Rita Raley's essay "TXTual Practice" [2] carries the argument further by considering mobile displays that are not only public but live and interactive, as in an LED display on the side of a building that shows text messages sent by people passing. Enacted in different installations with variations such as time delay–no delay and filtered–unfiltered, these public artworks nevertheless share certain features that challenge traditional modes of understanding in the humanities. Part of the point is to

disturb the environment, creating new kinds of relationships between people moving

through ambient space and the landscape through which they move. (We may recall

Rita Felski's [2008] admonition for humanities scholars to connect their objects of study

with the real world; here the objects of study not only connect with, but actually

constitute a part of, the surrounding environment.) Another feature of these textual

landscapes is the ephemeral nature of the messages, constantly changing as one

audience moves on and another comes into the area. Raley contrasts this situation with

durable objects that can be archived, the traditional situation with texts of interest to the

humanities. She suggests that curatorial and interpretive practice would then become

closer to something like performance studies, in which a record exists (artist statements,

archived messages or other materials) but the crucial durational aspect of the event—its

ephemerality and unrepeatability—can be evoked but not stored as such, because the

event itself can only be experienced fully at the time of its unfolding.

Archiving in the digital era is precisely the topic that Matthew G. Kirschenbaum

discusses in "The .txtual Condition." When the Maryland Institute for Technology in

the Humanities received the Deena Larsen Collection, it was presented with a number

of challenges, from the obsolete platforms on which most of the collection was stored

(e.g., floppy disks) to the collection's wildly heterogeneous nature (which includes

Larsen's marked-up shower curtain). Kirschenbaum discusses the ways in which digital

objects challenge standard archival practices and assumptions, starting with the

collapse of the distinction between the object and its access. As he argues, digital objects

are in a literal sense re-created each time they are accessed, a situation that poses unique

problems for keeping detailed records of the data stream flow. He also notes programs that have chosen to archive obsolete machines as well as the objects that play on them, a strategy that places the archivist in the gritty material world of the engineer and circuit designer. The implication is that, at every stage and level, archiving must transform to meet the challenges of born-digital objects, from theory to criteria for best practices to practice itself. This situation, which Kirschenbaum calls the ".txtual condition," illustrates that the materiality of born-digital objects cannot simply be folded into older ideas of archiving that assume the world of print as the norm.

In "From A to Screen," Johanna Drucker asks questions about the migration of letters from print to screen, noting that the status of letters cannot be resolved through technology alone but necessarily involves philosophical and even perceptual questions. In this respect, her essay complements Kirschenbaum's insistence that the ".txtual condition" invites a wholesale reexamination of the assumptions underlying archival theory and practice. Any given letter, she argues, emerges from the interplay between the *concept* of the letter and what it essentially *is.* In digital media, this interplay is doubled by the dynamic between the code specifying the letter (which would seem to be clear-cut and unambiguous, with a specific location within the computer) and distributed contingencies that involve code situated in multiple locations, including in a document file, a printer, a computer operating system, the web, or a cloud computing facility. Given these contingencies, she cautions against constructing a timeline for media epochs based solely on changing technologies. Equally important, she implies,

are the concepts and cultures with which the media technologies are in dynamic interplay.

This lesson resonates differently for different historical epochs, as William A. Johnson's discussion of bookrolls shows for the Greco-Roman period. Although most scholars are aware that bookrolls (a subset of scrolls with a set of specific characteristics and typically employed for literary texts) lacked punctuation, what they may not know is that the omission was not a result of ignorance or lack of imagination but a deliberate choice not to employ reading aids. Johnson beautifully contextualizes this choice in his discussion of how bookrolls were read and what functions they served when the Romans adopted them (in the first century A.D.). The difficulty of reading the continuous script of the bookroll made it an elite practice, a cultural attainment associated with wealth, privilege, and culture; concomitantly, proficiency in deciphering and understanding it could lead to significant rewards in money, prestige, and social status. Like Drucker's essay, this chapter cautions us that technological determinism alone cannot adequately explain cultural developments. Media are always embedded in specific cultural, social, and economic practices, and the interplay between technological possibility and cultural practices is often crucial for understanding why a technology developed as it did.

A similar conclusion emerges from Stephanie Boluk and Patrick LeMieux's "Dwarven Epithets: Procedural Histories in Dwarf Fortress," an analysis of the computer game Dwarf Fortress. This fascinating game, which attracts dedicated players who devote untold hours to it, sacrifices the realistic visuals so dominant in most

computer games in favor of computational intensity. Its procedures put into action

multiple agents and agencies, whose interactions then create the environment and its

inhabitants (human and nonhuman) as emergent results. Players can intervene by

giving the dwarfs commands and making changes in the environment, but their control

is never absolute, as the nonhuman mechanics of the game create unexpected and

unpredictable consequences. That such a difficult and esoteric game would have

generated its own community of expert readers–writers is perhaps not surprising

(providing a striking parallel with Johnson's discussion of the expert communities of

readers–writers of bookrolls in the Greco-Roman period); more startling is the

appearance of premodern literary forms, such as the annal and chronicle. As Boluk and

LeMieux point out, the chronicle differs from a history in its lack of causal explanations.

There is no connective discursive tissue between one event and another, just a

succession of events. With the development of explanatory devices in the modern

period, from measuring devices to statistics to scientific theories, everything is

presumed to happen for a reason. In Dwarf Fortress, the interactions of the procedural

mechanics would constitute that explanatory framework, except that they are not

accessible in their totality to human users. Although some small part of them may be

explained, there is always more going on behind the scenes than the players can either

access or weave into an explanatory account. Hence the impulse to narrativize the game

play in what Boluk and LeMieux call "Dwarven Epithets," to place it within a human-

understandable and human-meaningful context. Noting that the game's creators, Tarn

and Zach Adams, begin with one of Zach's short stories and then translate the story's

dynamics into procedural algorithms within the game, Boluk and LeMieux trace a cycle which begins in narrative and transforms into game mechanics that proceed with nonhuman players and nonanthropomorphic perspectives and then are translated back into narratives by the players. Despite its affinities with premodern literary forms, the interactions between human and nonhuman agents within the game context mark it as very much a postmodern, posthuman construction.

Patricia Crain's "Reading Childishly? A Codicology of the Modern Self" moves the discussion from reading communities to the reading individual, especially the child reader. As books produced specifically for children begin to emerge as the distinct genre of children's literature around 1800, the possession of a book became increasingly identified with the formation and possession of a self. A book, Crain observes, was frequently the first commodity object that a child would own. Regardless of its content, a book was thus a training ground for commodity culture and for the formation of a subject defined by consumption. On occasion, the contents of the books reflected this recursive cycle. Narratives about the production, assemblage, storage, and distribution of books positioned children both as part of the labor force producing them and (on the privileged side) as consumers of books that, in these instances, described how books were made. In addition to this recursive dynamic, books also served as containers for handwritten inscriptions, notations, poems, and other sentiments as well as for physical objects such as amorous notes or pressed flowers. The inclusion of these within the covers of a book indicated their special relation to the book's owner. If the book was identified with the self, especially with the heart, then including objects within the book

was tantamount to indicating that those objects were incorporated within the heart as well. Here, as in other instances discussed earlier, the book's materiality—the properties of the paper, the presence (or lack) of covers, the signs of use, the personal inscriptions—marked it as an individual object (notwithstanding that it had been mass-produced), owned by a specific individual (or individuals) and differentiated by the personal marks with which the owner had invested it.

Whereas the examples discussed previously focus on communities and kinds of readers, Lisa Gitelman's "Print Culture (Other Than Codex): Job Printing and Its Importance" narrows the inquiry to the kinds of practices associated with job printing. Arguing that the multiply ambiguous and ill-defined phrase *print culture* may productively be understood to mean the culture of printers, she shows that job printing—printing of bookkeeping forms, tickets, stock certificates, and the like—was a major economic driver in print shop economies over several centuries. She points out that such products as letterhead were not meant to be read in the usual sense—certainly not subjected to "close reading"—but rather functioned to inscribe a corporate voice into communications between firms and individuals. These forms, she argues, did not have *readers* but rather *users.* Moreover, business forms, although printed, did not go through the normal channels associated with publication, nor were they deemed worthy of copyright protection. This implies that job printing fulfilled very different social and communicative purposes than literary forms such as the novel, intimately associated with the expression and creation of subjectivities. Noting that job printing has received little or no notice in discussions of media history, Gitelman suggests that it

may be more useful to focus on specific practices and structures at precisely defined sites rather than on more general histories focusing on media forms. Expanding on this idea, we note that practices and structures are always entangled with the material objects and media technologies necessary to implement them. Drawing on Andrew Pickering's (1995) idea of the "mangle of practice," we can say that concept, object, and practice coevolve and codetermine one another (as Drucker's discussion of the nature of letters suggests).

Jessica Brantley's "Medieval Remediations" emphatically reminds us that media did not begin with the printing press (a point that William Johnson also makes clear). Moreover, she argues for the particular insights that medieval media can bring to media archeology and media theory. Rather than present us with epochal shifts, she argues, medieval media enable us to see gradations of change in which innovation and tradition interact in ongoing negotiations over meaning. In particular, she highlights three distinct kinds of tension: between oral and aural; between literate and visual; and between Latin and vernacular languages. In a stunning close reading of the Paternoster diagram in the Vernon manuscript (provenance fourteenth-century England), she demonstrates that the form of the diagram both conveys and reflects its meaning. The diagram teaches users how to read it by opening multiple reading paths across and between languages and by creating oscillations between letters as semiotic signifiers and visual forms. As she shows, the word and the word-image go hand in hand and mutually reinforce one another. The richness of her reading and the beautiful

complexity of the object itself strongly witness to the importance of medieval media in developing fully adequate media theories and practices.

Thomas Fulton's "Gilded Monuments: Shakespeare's Sonnets, Donne's Letters, and the Mediated Text" not only reminds us that the "print revolution" stretched over centuries but also that print coexisted with other media practices well into the seventeenth century, including manuscript letters. Indeed, print continued to carry somewhat of a stigma for such authors as Shakespeare, Milton, and Donne; when their works were printed, they were often pirated editions from which the author made no money and over which he had no control (the famous example being the "bad quarto" of *Hamlet*). When manuscript letters survive (the latest being a letter by Donne written on gilt-edged paper, astonishingly found in 1970), they often indicate an expressive range of punctuation, visual emphasis, and markings lost when they were transferred to print. More surprisingly, the Donne letter also shows a complex play between the verbal content and the paper's material qualities, especially the gilt edge. Fulton speculates on the possibility that Shakespeare's sonnets that mention "gilded tombs" (Sonnet 101) and "gilded monuments" (Sonnet 55) may similarly have been written on gilt paper, setting up complex recursions between the content and its material substrate. His argument shows the importance of a medium's materiality as well as the heterogeneous nature of mediascapes in the Renaissance.

John David Zuern's "Reading Screens: Comparative Perspectives on Computational Poetics" picks up on the theme of recursivity in his discussion of Brecht's radio play *Lindbergh's Flight* compared with the digital Flash work by Judd

Morrissey and Lori Talley, *My Name Is Captain, Captain.* He argues for the advantages of a comparative approach, especially for digital literature in comparison to print works and to works in other media, such as Brecht's play. In his reading, the comparison with Brecht serves to highlight the moral and ethical dimensions of the digital work. Just as Brecht removed Lindbergh's name from his work after Lindbergh's Nazi sympathies became apparent (calling it *The Flight over the Ocean*), so in *My Name Is Captain, Captain*, Lindbergh is not only the parent who suffered because Bruno Richard Hauptmann kidnapped and inadvertently killed his child but also the hero–pilot who failed to use his notoriety to move his culture toward a better world. *My Name Is Captain, Captain* is not an easy work to understand (one of us [Hayles] has spent several hours with it without arriving at any clear grasp of its meaning), and Zuern uses an abductive method, drawing on his own experience with the work, to explore its complex interweaving of textual surfaces, animated effects, and multiple signifying codes (including letters, words, sentences, graphical images, animations, and Morse code). He suggests that the work teaches the user to understand it through wrestling with its complexities, an intent made explicit in the section called the "Link Trainer" (a metaphor for the flight simulator developed to train pilots in World War II). His superb reading illustrates the rich rewards that a comparative approach can yield, especially for a field, like digital literature, still struggling for widespread acceptance and understanding.

Mark C. Marino's "Reading *exquisite_code*: Critical Code Studies of Literature" illustrates what it would mean to read a digital literary text not primarily for its content

but rather for traces of its underlying generative code. Taking as his tutor text a collaborative writing project that seven writer–programmers produced "live" for five days in a London gallery, Marion explains the elaborate mix of algorithmic procedures, random functions, and Markov chain generators that subjected what the writers wrote to interventions that both transformed and mixed with their content to become the output text for the project. Each writer submitted a prompt, and the program chose one at random to begin the process. As the writers watched their content (produced in intense six-minute writing intervals) disappear or get "munged" into a mishmash, they became cannier about producing text that was more likely to make it into the output text, in particular by gaming the procedures that the Markov chain generator used to assemble chunks of text. The writers also began producing text that commented recursively on the nonhuman agents acting on it, for example, introducing a character named Markov. As Marino notes, the project self-consciously sought to undermine the idea of a writerly subjectivity expressing itself in crafted prose; instead, it staged encounters between the presumed interiority of the human writers and the nonhuman processes that, like it or not, became their collaborators in producing the "novel" (more accurately, the output text). Marino admits that the "novel," read in the usual way as the expression of a self, does not make much sense, but he argues that the pleasures of this text lie in reverse engineering the processes and understanding the interplays with code and writerly inputs that together created the final text. Processes rather than product, code rather than surface text: with this shift in emphasis, Marino's essay circles back to the first essays, discussed earlier, by Raley and de Souza e Silva, including their

emphasis on ephemerality, participatory authorship, and a decentering of the liberal humanist subject.

We note in concluding that, although all the essays argue in one way or another for the advantages of a comparative media framework, they do so for different reasons, they embody different methodologies for its enactment, and they anticipate different kinds of readings, practices, and conclusions as its result. We see this diversity in approach and perspective as a strength of the volume and as evidence of the capacity of CTM to catalyze a wide spectrum of research questions and procedures. The paradigm shift we are advocating here, if adopted on a large scale, is likely to generate myriad controversies about what it means for scholarship, pedagogy, and the relation of the humanities to other disciplines and to the general public. Indeed, it is precisely the potential of a media framework to energize old questions and raise new ones that is the surest sign of its vitality as an academic paradigm. The precise kinds of questions raised by juxtaposing these chapters is more fully explored in the forewords for each of the three sections on "Theories," "Practices," and "Recursions." In delineating the issues, our goal is not to settle questions but rather to indicate the productive new directions toward which they point.

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