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What Hypertext Is Not Bound To Do: Digital Decisions in the Literary Humanities

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Abstract

“What Hypertext is Not Bound To Do” examines some of the prevailing views of information and communication technologies held by instructors in the literary humanities. In the course of discussing the transforming nature of online teaching, the integrity of electronic texts and hypertexts, as well as the process of canonization and canonical subversion in the digital community, this essay exposes an increasingly divergent ethos in the liberal arts arena of academe.

The tendency toward either dystopian or utopian characterizations of certain technologies--and especially Internet technologies--in disciplines such as English is fairly common. An analysis of the issues characteristic in both “camps” (historical erasure, artistic debasement, technological servitude vs. logistical freedoms, extraordinary access, democratic contribution), “What Hypertext Is Not Bound To Do” evaluates some of the motives and concerns of instructors who are deeply skeptical of information technology as well as those who are so genuinely excited that they have adopted many of the new technologies in their teaching.

What Hypertext Is Not Bound To Do: Digital Decisions in the Literary Humanities

When the president of Harvard University announced in a special address (given May 29, 1996) that his institution had “committed itself to spend approximately \$50 million on new administrative data systems in the next five years” and “something in the range of \$75 million to \$100 million on academic-related information technology--above and beyond the substantial investments made since the early 1990s” (Rudenstine p. 4), it was as though higher education had, finally, realized its fate. Neil Rudenstine, Professor of English and American Literature, well-known friend of libraries, respected author and lover of books, had faced the administrative facts of his own presidency:

In our Faculty of Arts and Sciences, as well as nearly all our nine professional schools, teachers and students--including freshmen--are online, with easy access to the network. Email is commonplace....

In 1992, we began a retrospective conversion of Harvard’s entire library catalogue system--the largest university library system in the world--at a projected cost of \$22 million. By next year, full catalogue entries for the approximately 12 million volumes in our 92 libraries will be online and “searchable” in any number of ways....

A year ago, the Arts and Sciences Web site (which includes many subsites) experienced about 150,000 hits in the month of March. This March, just one year later, the number of hits increased to 2.3 million. There is no sign of a slowdown. (p.3-4)

In fact, things, as Rudenstine intimates, are speeding up. As Ethernet connections are replaced by faster Gigabit Ethernet connections or by asynchronous transmission mode (ATM) technology, the usefulness of the Internet, and especially the World Wide Web, will become even more apparent (King, 1997, p. 22).¹ Like business and industry, education--not just its administration, but *instruction itself*--will have to take on the technology of the future--a technology that is already an integral part--a resounding fact--of our present.

One might expect that someone like Rudenstine, who presides over a large private institution known primarily for its libraries and liberal arts programs, would find these facts at least a little disconcerting. What, after all, becomes of a private institution--an institution that people pay a substantial amount of money to keep private--when market forces and technological innovations compel it to operate more publicly? And what becomes of individual libraries and exclusive liberal arts programs in an age of institutional interconnectivity and information science? The tone of Rudenstine’s speech, however, is as far from bleak, self-absorbed speculation as it is from giddy techno-utopianism. “No one,” he remarked candidly, “should believe that electronic communication can be--or should be--a substitute for direct human contact. But the electronic process has some features that do permit an actual extension of the scope, continuity, and even the quality of certain forms of interaction, even though communication over the network lacks other absolutely essential aspects of ‘real’ conversations in the presence of

¹According to Nelson King, Gigabit Ethernet is an evolving technology. It runs at 1,000 Mbps (10-Mbps Ethernet and 100-Mbps Fast Ethernet), which is, at least theoretically, 10 times faster than Fast Ethernet. Asynchronous transmission mode (ATM), ostensibly the real future of the Internet, is a protocol that allows for the fastest transfer of bits over any mechanism. See “Gigabit Ethernet Surges Ahead” (August 1997) in Internet World, p. 22.

'real' people" (p. 7).

This view of the Internet as an "extension" of the real-life, real-time educational process rather than as a surrogate of that process is encouraging. As Rudenstine sees it, educators will be revising and augmenting their instructional repertoire to engage students in a fashion that is at once more timely and convenient as well as more elaborate and content rich. To enable this flurry of revision and augmentation, of course, Harvard has chosen to commit itself seriously to assistance and training. Instead of hiring slick webmasters of the Robert Helmick, Real Education, Inc. ilk² to "convert" a course "from on campus delivery to online delivery" (AAHESGIT Listserv, March 14, 1997), Harvard began its own Instructional Computing Group (ICG), a department of computer-savvy arts and sciences professors devoted to the institution and its quality of instruction, working not only to help professors develop their online materials but to teach them how to do it themselves. The dedication is such that the ICG Director, Paul Bergen, committed his staff, in the academic year 1997-1998, to offering Harvard faculty and fellows at least a class a day, every day, on a variety of online course design techniques and topics (Bergen, 1997).

1. A Real Education?

But such is Harvard: it is an institution with the resources and clout to make a long-term investment in its people while protecting (at least for now) its real-life, real-time educational philosophy and environment. Institutions that cannot afford the substantial, up-front funds for assistance and training but still recognize the advantages of online learning may feel compelled to go the route of Real Education and consider purchasing an online course for what it might cost to have one full-time professor or two adjuncts teach it during a semester. "Our people would convert all of your academic and administrative services to online delivery..." says CEO Helmick. "Your cost to start the [online] campus would be \$100,000 (20 courses times \$5,000). As students enrolled and took courses in September we would charge you \$120 per student per course. We could not raise that price for four years. There would be no charge for the hardware, software, maintenance, tech support or upgrades for that four year period" (AAHESGIT Listserv, March 14, 1997).

Where exactly instructors fit into a scheme like this is unclear; presumably they are at the other end of a phone line or computer, teaching their students via the hardware and software that has been implemented. Whether or not instructors of the future will have real-life, real-time meetings with their students--what two Australian psychology professors have recently called "FTF" or "face-to-face" experiences (Chester and Gwynne, 1997, p. 188)--may be entirely up to the marketplace. How those institutions that do view the Internet as a surrogate for FTF instruction ultimately manage themselves and their student clientele may offer instructors at more traditional colleges and universities some insight. Totally virtual institutions, such as the UK's Open University, Canada's Athabasca University, and the US's Western Governor's University (WGU), have experienced some remarkable successes, if not with students at least with funding.

Of particular note is the WGU, which has received major grants from IBM, Sun Microsystems, AT&T, Simon & Schuster's Educational Management Group, International Thomson Publishing, the Huntsman Corporation, and the Alfred P. Sloan Foundation ("WGU Newsletters," February 1997). In addition to a remarkable

² Robert Helmick is the CEO of Real Education, Inc., a company that purports to "build complete online universities and training centers." In a posting to Steve Gilbert's widely read AAHESGIT Listserv, a listserv supported by the American Association of Higher Education and read primarily by instructors, Helmick advertised for "59 new employees...online course designers, programmers, html writers, compilers, graphic artists, and account representatives" and in the same posting announced to university and college administrators that his company "will charge you \$5,000 per course that we convert from on campus delivery to online delivery and \$120 per student per course." See Steve Gilbert's AAHESGIT Listserv posting of March 14, 1997.

amount of private funding, the WGU has a \$100,000 commitment from each of the governors of the fifteen participating states and the protectorate of Guam, making the entire operation (well before the admission of a single student) extremely successful and investment-worthy.

The Monitor Company, which is developing the WGU business plan, has provided the Board of Trustees with preliminary findings, indicating the WGU will need an estimated \$25 million in funding during its first eight to nine years of operation. After that, it is expected to begin making sufficient revenues to cover expenditures. The low-funding requirement is largely due to WGU's planned emphasis on outsourcing instruction and student services to established providers, thereby minimizing the fixed investment needed to establish the entity. ("WGU Newsletters," April 1997)

While the concept of "outsourcing instruction and student services" might sound somewhat cavalier to anyone who has worked for a college or university for a few years, it is at the heart and soul of this endeavor. Perhaps even more than operating a major university successfully, what is at stake here is the investment these mostly Republican governors have made in the idea that universities can be run as businesses and, therefore, profit as businesses.

The governors are very open about this; in fact, they publicly endorse a set of criteria for the virtual university that is first and foremost "market-oriented," which means that the WGU will not be "controlled by those who represent established interests with regard to either the delivery of education or its certification"; it will focus "on the needs of students and employers rather than instructional providers...not providing instruction directly, but drawing upon needed capacity wherever it exists...." ("WGU Goals and Visions," 1997). Like the Real Education plan, the WGU vision is also rather nebulous on the issue of whose capacity will be needed, when, where, how often, or at what rate of pay. However, virtual institutions like the WGU would be foolish to announce their plans for instructors prematurely, as these institutions may capitalize upon a growing body of educational materials that are or will be made available to the public free of charge.

Through its teaching with technology initiative, for example, the National Endowment for the Humanities (NEH) has already made a good deal of headway in the area of digital education, vowing to "do three things" to help the United States meet its educational goals:

- 1) Preserve and create high-quality educational content.
 - 2) Identify and disseminate high-quality educational content.
 - 3) Empower teachers to take full advantage of new technologies.
- ("NEH's Role in the Digital Age," 1997)

In 1996, the NEH funded twelve software projects which amounted to \$2.2 million, a move that represented a relatively new spending strategy for the agency.³ Many of these projects will disseminate content via the World Wide Web, content (with a good deal of built-in interactivity) that is intended to become a feature of what some instructors in the humanities might cover in their own courses; thus such projects may become a feature of any number of online course offerings at any number of institutions. A Web site called Humanities OnLine (or H-Net), also funded by the NEH, promotes and demonstrates online models of teaching and learning via Internet technologies, both encouraging and enabling scholars, teachers, and students by way of a discussion listserv and a relatively well-screened repository of educational information, such as book and software reviews, bibliographies, online resource guides, museum exhibits, as well as course syllabi, outlines and handouts.

³ The NEH announced the funding of the twelve educational software projects (for a total of \$2.2 million) as part of the first wave of its three-year Teaching with Technology Initiative.

Having high-quality educational content available in cyberspace is absolutely essential to getting a high-quality education in cyberspace. And, until very recently, the paucity of educational content online--especially for students of the arts and humanities--was at least one of the deterrents to online teaching. Why spend all that time on computers or have students spend all that time on computers when the quality materials are in print? And, by the way, just what is so marvelous about another series of technologies born out of scientific and military research that is exploited by business and industry, especially when these technologies constitute a real threat to such fundamentally well-loved traditions as reading books or researching in libraries? This less pragmatic, more ideological resistance--what amounts to an unwillingness on the part of many in higher education to repudiate what is real for what is virtual--is going to be more tenacious, in part because the "high-quality content" argument is, as NEH investments demonstrate, becoming less and less an issue and in part because such resistance is not without genuine merit. One might argue that, in our society, it is the role of educators--and particularly educators in the humanities--to resist, to work hard at slowing down "progress," if only just enough that it might be more thoroughly evaluated.

2. Thoreau's Question

In the same month that Neil Rudenstine made his public address, explaining with a certain exuberance Harvard's decision to invest millions of dollars in academic-related instructional technology, Geoffrey Hartman, Sterling Professor of English and Comparative Literature at Yale, was lamenting the very fate of his profession in a guest column in the Publications of the Modern Language Association (PMLA):

The advent of hypertext and cyberspace will, no doubt, affect the reading page--but perhaps thin it rather and institute a new density.

Past a certain age many in our profession feel abandoned by the direction it has taken. There is considerable alienation, especially in the literary humanities, where it is always difficult to make the case for progress. While it is exhilarating, for example, to travel at great bibliographic speed, to look through *Windows 95* or *2000* at an ever-varying, manipulatable landscape of information, Thoreau's question, from the age of the steam engine, about where we are going or what we are missing in trying to get there sooner, keeps its relevance. (1996, p. 383)

To people in the literary humanities--to English language, composition and literature professionals--digital technology means real change. And real change wouldn't be real change without its most resolute feature: real loss.

Because we are in the midst of an electronic or digital revolution and have been caught up for some time in an age of information, it is difficult to discern what those real losses might be in more precise terms. As is the case with real gains, many just have a feeling about the losses...a sensation, perhaps, that is intensified in the twilight of any century and, perhaps, even more so at a millennium's end. In her novel Orlando, Virginia Woolf uses the presence of a "great cloud" to symbolize the murky pervasiveness of such a feeling. At the "imperceptible, ubiquitous" moment at which one era becomes another, Woolf's cloud looms over everything, making the world look "bruised and sullen" and "less intense." Worst of all, the cloud ushers in "blustering gales" and a melancholy "damp" that "makes its way into every house"; suddenly things feel "chilly," and without really understanding the cause, human beings begin to sense, "the chill in their hearts; the damp in their minds" (p. 148-149).

The feelings of abandonment and alienation to which Hartman alludes are not so new to people or to the profession that the advent of hypertext and cyberspace should be considered a sole contributor. The reality is that Western society, and American society in particular, has been moving away from a book-based concept of literacy for a long time. E.D. Hirsh's Cultural Literacy (1994), rather like Susan Faludi's The Feminist Backlash (1991), acknowledges or takes for granted certain cultural changes in society as so mainstream that full-blown critiques of those changes can be possible. It is during this time--a time of acknowledged change--that the rhetoric of the

reactionary can be most compelling or poignant.

J. Hillis Miller, Professor of English and Comparative Literature at the University of California, a Yale School compatriot of Hartman's and member of the Modern Language Association's Ad Hoc Committee on the Future of the Print Record, is diligently pragmatic in his reactions, hoping very much for gains if only to master his feelings of loss. In "What Is the Future of the Print Record?"--a brief essay in the MLA's annual publication on pedagogy, Profession 95--he writes:

One thing is clear to me. The first obligation of the MLA is to support vigorously those efforts in textual preservation, now funded to a large degree by the NEH, that will at best be able to save only twenty-five or thirty percent of the titles printed on acid paper.

The second obligation: the MLA needs to make every effort to study the effects of the electronic revolution.... To study this revolution means supporting the radically new graduate training that will make our young scholars and teachers appropriately educated for the study of many cultures (as in, for example, global literature in English or United States literature in languages other than English) as well as for the study of those media that mix language with other visual and auditory materials, media such as cinema, television, and video, which have such influence on our lives today. To make sure the electronic revolution proceeds in ways beneficial to our interests means resisting the rapid commercialization of the Internet that is at this moment occurring. It means also doing our best to make sure that electronic storage of printed materials carries as much as possible the history that is embodied in the physical artifacts.... (1995, p. 95)

Miller's recommendations are rich with a touching irony. First and foremost, he wants to save the books, even though he senses (and encourages training for) a coming generation's less bookish future. His argument, though, is not so much an argument for literature as it is for history or archeology, as the book itself is an artifact, a physical object that provides part of the historical context for a work of literature that has been represented in a particular form. When Miller calls upon the MLA to support textual preservation--to save the books from rotting away in America's libraries--his interest is in saving a part of the past that he knows is already being lost.

3. The Ethics of Hypertext

In "The Ethics of Hypertext" Miller makes the point that when books are digitized or converted, as Nicholas Negroponte would say, "from atoms to bits" (1995, p. 4), much of what the book once was is no longer. He insinuates that the risk of loss is especially great if the conversion is done by people who are lacking in a certain appreciation of books. Indeed, when he compares his Oxford University Press paperback copy of Anthony Trollope's Ayala's Angel to the Oxford Text Archive digital copy of Anthony Trollope's Ayala's Angel, he calls into question much of what makes literature literature and, perhaps more importantly, much of what makes reading literature so remarkable a pleasure.

Noting that the print version of Ayala's Angel is part of "the Oxford World's Classics series" and that the "series defined what was a world classic," he recognizes that Oxford, by making the book "widely available and cheap," exercises "a large power of canon formation." That is, as new historians and postcolonial critics have been arguing for some time, publishers can wield a good deal of colonizing power. "The list of cities," he observes, "where the Oxford University Press in 1960 (on the page facing the title page) asserts itself as located reads like a litany of sites associated with British colonialism and imperialism: 'Glasgow, New York, Toronto, Melbourne,

Wellington, Bombay, Calcutta, Madras, Karachi, Kuala Lumpur, Cape Town, Ibadan, Nairobi, Accara.”” Nevertheless, he argues in the same paragraph that Oxford University Press gave Ayala’s Angel “an unmistakable authority as ‘literature,’ as a classic of world literature” (p. 29). That “little book,” says Miller:

feels comfortable in my hands. I could carry it in my pocket and have done so. It not only feels familiar. It also smells familiar. It has that faint smell of paper, printer’s ink, glue, cardboard, and cloth those who belong to the book culture know so well. I know how to read it (word after word in linear sequence from page one to the end), and how to find my way around it. (p. 28-29)

Clearly, part of the joy of reading literature is, for Miller, the joy of the book itself, and as he himself admits, its is a bias he cannot (and apparently does not want to) overcome: “My relation to this object is an example of the way so many readers of my generation and of many generations before mine have participated in the fetishism of the book” (p. 28).

The digital version of Ayala’s Angel is “cut off” from “signs of its historical context.... It exists as a large number of ‘bits’ of information, zeros or ones inscribed as magnetic differences on a hard disk or on magnetic tape or as minute scratches on an optical disk or as electrical pulses on the wires and wireless transmissions of the Internet” (p. 30). When describing the digital text, Miller’s language is polysyndetonic, implying an ever-lengthening catalogue, a kind of “good God, what next?” in an age of endless technological “begetting”; polysyndeton can have the effect of being quite entrancing, but it can be incredibly frustrating just as well. This is often the case with new, “time saving” technology: the effect is such that one can be entranced and frustrated all at once.

And the effect is implicit in Miller’s recounting of his discovery that the “1,321,000 bytes” (p. 30) of Ayala’s Angel is in no way affiliated with Oxford University Press. Like many online books, it is, instead, part of a text archive that “stores whatever texts special interest groups happen to have taken the trouble to turn into machine-readable form” (p. 33). Even while Miller acknowledges that a new, potentially more democratic process of canon formation is taking place in the digital world, he is nevertheless more concerned about a book that “floats in cyberspace” being little more than a text file among so many other files (including image, audio and video files). “As such,” he adds, “it might now be the object of a globalized ‘cultural studies’ by scholars who are themselves more and more cut off, in part by their use of the computer and by their inhabitation of cyberspace, from participation in any local culture of their own” (p. 34).

Even more frightening is what these culturally estranged, cyber-scholars might do with an electronic text. Musing over some of the printer codes he downloads with his digital Trollope, Miller makes the remark that “Ayala’s Angel comes from the Oxford Archive carrying some of the marks of the beast...” (p. 34). It comes to him via his computer via the Internet, quite amazingly, as if from ether (though probably Ethernet), as vulnerable as humanity:

This sense of the fragility of the text’s inscribed embodiment is reinforced by the fact that once I have got the whole file in my computer I can change it in all kinds of ways.... I could...easily deface the text in any way I might want, for example by scrambling the chapters, substituting a new word for every example of a given word, removing all examples of a given word or words, and so on. I could change every example of Ayala to Susan and turn the book into Susan’s Angel. I do not know why I would want to do that, but I could. (p. 35)

It is a well observed fact of human nature that people do things because they can, often without reason, and usually

without much forethought. President Bill Clinton's moratorium on human cloning experiments in the United States attests to this fact (Reuters, June 9, 1997). If someone can clone a sheep, after all, someone will eventually clone a human being. And where would the integrity of the individual be then, especially if the copy were just as "perfect" as the original?

The ethical dilemma of digital media in general is that digital media can be copied perfectly, and with great speed and ease. It is then, as Miller mentions, subject to any kind of manipulation. The integrity of the original work of art--especially if its genesis is digital--is certainly at risk, but so is the integrity of the individual artist. This is particularly apparent in commercial television and film. A famous actor or personality, such as John Wayne, for example, can be cast (years after his own death) into a beer advertisement. Film director Robert Zemeckis was applauded for the innovative technique of digitally enhancing audio and video of John F. Kennedy so that he seemed a part of the cast of the Academy Award-winning movie Forrest Gump (1994). Unlike Kennedy, though, Bill Clinton was alive and well to criticize the unauthorized use and manipulation of his voice and image in another of Zemeckis's films, Contact (1997). White House counsel Charles Ruff's letter to Zemeckis was nothing if not direct: "By appropriating President Clinton's image and words in this manner, you have essentially given him a role in your film without his authorization." Zemeckis's reaction, however, was blithely confident: "No, the president is in the public domain. He works for us. I hear he's a big fan of Jodie's [Contact's lead actor Jodie Foster]." While the White House did make it clear that this particular use of digital technology is unwanted in any future films, it made no mention of a lawsuit (Reuters, July 15, 1997).

As is usually the case, technology moves more quickly than our legal experts do. "In the digital world," says Negroponce, "it is not just a matter of copying being easier and copies more faithful. We will see a new kind of fraud, which may not be fraud at all" (p. 59). When the image, audio or text is a perfect (perhaps even improved) replica of the original image, audio or text, and it is recast, remixed or remastered to achieve some effect that may be quite different, what fraud is and where legal protections apply become extremely unclear. "Copyright law is totally out of date. It is a Gutenberg artifact" (Negroponce, p. 58). The days of moveable metal type on paper have been supplanted by the "etexts" of archive projects, such as Michael Hart's very ambitious and aptly named Project Gutenberg. When the Materials Research Lab at the University of Illinois gave Hart what amounted to a million dollars of computer time in 1971, he promptly decided to use it for storage, retrieval and searching rather than for computing (in the strict programming sense). Hart's decision was to include the public in on his computer time, setting himself a goal of ten thousand "etexts" to share with everyone by the end of the year 2001. Mining the public domain,

Project Gutenberg selects etexts targeted a bit on the "bang for the buck" philosophy...we choose etexts we hope extremely large portions of the audience will want and use frequently....

Project Gutenberg has avoided requests, demands, and pressures to create "authoritative editions." We do not write for the reader who cares whether a certain phrase in Shakespeare has a ":" or a ";" between its clauses. We put our sights on a goal to release etexts that are 99.9% accurate in the eyes of the general reader. Given the preferences your proofreaders have, and the general lack of reading ability the public is currently reported to have, we probably exceed those requirements by a significant amount.

(Hart, "History and Philosophy of Project Gutenberg," 1997)

While Hart's heart may be in the right place, he may not fully understand the ramifications of his own project. What he sees as providing a service to the general public, many others may see as a threat to the integrity of literary work; for once the book has been recast (from text to etext), it is then electronically primed, so to speak, for remixing and/or remastering. While a misplaced colon or semicolon might cause an academic like Miller some minor irritation (though he might be even more irritated to hear the word "phrase" used as a synonym for "clause"), the transforming nature of hypertext is far more confounding.

Unlike linear texts, hypertexts can be read in any number of nonlinear ways, and if the hypertext happens to be linked to the World Wide Web, the nonlinear reading can be as infinite as the Web is infinitely intertextual. An etext that has become a hypertext is something at once the same yet very different. It is a digitally enhanced version of the original--recast, remixed and remastered to facilitate a reading that is, by its very nature, something other than what it once was. Hypertext "turns a linear verbal text into a vast indeterminate assemblage," says Miller, and "[t]he possibility of such hypertext explosions of the linear continuity of older texts is intrinsic to the new electronic media" (p. 35-36). With copyright where it is today, those digital representations in the public domain--Jude the Obscure, Middlemarch, Ayala's Angel--are likely to have any number of new adventures; as hypertexts, they may come to say things they could never say before; they may go places and do things that, at one time, might have filled their papery hearts with a papery terror.

4. Subversion of the Traditional

But, who knows? Some texts may be up to the new freedom of saying (seriously) whatever; they may be exceedingly comfortable outside their bindings, finding cyberspace a kind of afterlife for texts that were in various states of decay, a place where they can "hook up" or mingle quite cozily with any number of their own kind. Back when Miller was less an archivist and more a deconstructionist, he actually seemed to have a little more faith in the power of the word. "Great works of literature are likely to be ahead of their critics," he wrote in "Deconstructing the Deconstructors." "They are there already. They have anticipated explicitly any deconstruction the critic can achieve.... Chaucer, Spenser, Shakespeare, Milton, Wordsworth, George Eliot, or even Williams are...there already, however, necessarily in such a way that their works are open to mystified readings" (1975, p. 31).

A shift in perspective that views hypertext as a means of facilitating mystified readings (rather than as means of altering or defacing canonical writings) may be, in the end, a good way to cope. Having faith that the truly great works of literature are "there already"--beyond criticism and, ostensibly, beyond any critical analysis technology--may seem radically humanist to some, but it may be that it takes a strong believer to venture into the arena of hypertext, where a linear text disappears, its context is diminished, and the intertext becomes a plenary marvel. "Electronic textuality brings with it many changes," says George Landow, Professor of English and Art History at Brown University,

but not all concern loss, as so many critics of culture seem to believe. [Jean-Francois] Lyotard, for instance, claims that the new information technologies produce effects much like the journalist's rewriting, "which consists in erasing all traces left in a text by unexpected and 'fantasy' association" [1991, p. 34], but the evidence of hypertext works thus far created, both instructional and literary, suggests that on the contrary electronic linking graphs idiosyncrasy and personal association and in particularly liberating ways. (1994, p. 32)

While Lyotard is thinking primarily about writing--of the potential of erasing writing via rewriting, Landow is thinking primarily about reading--of the potential of understanding reading better via a method such as hypertext. For Landow moving through a text by way of a series of hyperlinks that may be thematically or linguistically (or in many other ways) interconnected does not constitute a textual loss but a textual gain.

Hypertext enhances a reader's ability to traverse a text, assisting the reader's critical instincts while also informing the reader about those instincts. Thus a reader might follow a certain series of links, both within the text and, perhaps, well beyond it. If some readers are interested in, say, a text's many biblical allusions (some of which might be linked together within the text and/or linked directly to one of the many hypertext Bibles on the Web), they can pursue and peruse, relatively quickly, a good deal of literary information. Using the computer or the computer's Web browser application (*Netscape Navigator* or *Communicator* or *Microsoft Explorer*), readers can also review their own paths of navigation, their own step-by-step progression through a text or any variety of texts.

For example, when I want to read a good hypertext version of a text (and I do this at work where the Internet is fast), I usually start out at a popular Duke University site called "Hyperizons," an excellent little place in a quiet corner of cyberspace mostly run by Michael Shumate, a fiction writer, archivist and manuscripts cataloguer at Duke's Special Collections Library. Shumate is the consummate professional, providing a wealth of information about hypertext and hypermedia, but to keep abreast of what Miller calls those "hypertext explosions" of "linear continuity" I look often at a subsection of "Hyperizons" called "Print Literature Converted to Hypertext." There I find among many other options that vie for my attention some interesting work by Daniel Anderson, an instructor and doctoral student at the University of Texas at Austin, who, like me, started his doctoral work in 1990 and hopes to finish before the end of the millennium. He has been teaching online a good deal, too--American literature mostly. Ten minutes later, when I finally get around to his online version of Herman Melville's "Bartleby the Scrivener: A Story of Wall-Street"--to which he adds another subtitle: "an interactive version"--I have a pretty good sense of the hypertext genesis, why Anderson chose the story and where he got the text (from Columbia University's Text Archive: Project Bartleby--already converted from ASCII to HTML).

When I get back to the hypertext of "Bartleby the Scrivener" at last, I notice that Anderson encourages his students to read five essays (all of which are linked into "Bartleby") before navigating the story itself (Melville would appreciate the metaphor). The interactive version does not begin with the familiar, "I am a rather elderly man" (p. 1091), but with a series of analyses of the word "prefer," the "significance of the Dead Letter Office" and "imagery of walls and the theme of views." Despite the diversions and preludes, the text of "Bartleby" reads pretty much the same; no explosions of linearity here. So far, it looks as though Miller has little to worry about. Of more interest is the path of my own reading (which I discover by clicking on "Go" in the *Netscape Navigator* menu). On this particular day, I have learned that I am more interested in the professional life of Daniel Anderson than in poor Bartleby. I find this stranger and his *curriculum vitae* compelling. I have a question about some of the work he is doing on hypertext, so I e-mail him a quick note.

One of the great promises of digital media is that it will get more and more personal as the technology evolves, connecting people with people rather than cutting them off from one another. When television is digital, for example, the "six o'clock news not only can be delivered when you want it, but it also can be edited for you and randomly accessed by you.... Eventually, when you watch a baseball game, you will be able to do so from any seat in the stadium or, for that matter, from the perspective of the baseball" (Negroponte, p. 49). Reading--and especially scholarly reading--will be about the individual, too. When texts are hypertexts, individuals will be far more inclined to read them in ways that reflect their personal interests; they may want to read only those Browning poems involving Catholic priests or those fourteen-line monologues and soliloquies in Shakespeare's dramas. Some hypertexts will come with features that allow readers to customize the writing itself; one might want to leave out the profanity, perhaps, or see the video dramatization of the text rather than the actual writing. Readers may even become their own writers when participating in the kind of programmed or "scripted" hypertexts that allow readers an interactive role in the creation of the narrative.⁴

Whereas some hypertexts, such as Michael Benadetti's Mercury, use a complex system of links so that readers can make their way through a text that is available as the result of the work of an author or group of authors,

⁴ A "scripted" hypertext is a text that includes a computer program either within the HTML code itself (usually written in Java or JavaScript) or that includes a series of commands that link the hypertext to a computer program (usually written in Perl) well beyond itself. Scripted or programmed hypertexts can produce any number of effects, textual or otherwise, and present an interesting quandary for composition instructors, especially. As writing hypertext emerges as a feature of teaching composition, it is only too clear that composition instructors are going to need to know more about the relationship between language and programming languages, as texts can be inextricably linked to scripts and vice versa.

other texts, such as the Kate Bush-inspired No Dead Trees: The Interactive Novel and (again) Daniel Anderson's Becomings, rely upon various computer applications that allow individuals to add to, delete, and/or revise each others' writing. Thus a "novel" can be ever-evolving, though always on the brink of oblivion (should someone decide to delete too much). A variation on the theme is AMAZON.COM's The Greatest Tale Ever Told, one of the Web's most expansive and lucrative group writing projects to date. Amazon, a successful online bookseller, recognized the commercial potential of hypertext. Luring people to its Web site by way of a novel-writing contest that paid out \$1,000 a day and was open to all⁵, the company hoped to sell printed texts while also creating an experimental online novel ("Enter to Win \$100,000...").

In his essay, "The End of Books," Robert Coover, creative writer and colleague of George Landow's at Brown University, writes of his own attraction to hypertext. While he admits that in his "seventh decade" he is "rather committed, for better or for worse, to the obsolescent print technology," he is nevertheless "interested as ever in the subversion of the traditional bourgeois novel and in fictions that challenge linearity." For Coover, hypertext would become a marvelous tool for teaching creative writing. His Brown University Hypertext Fiction Workshops have been "devoted as much to the changing of reading habits as to the creation of new narratives" (1992, p. 24). And when students work with hypertext, they not only learn how to use computer applications that compel them to read and write in new ways, but they are forced to think more carefully about the nature and expectations of a "linear, bounded, and fixed" (Landow and Delany, 1991, p. 3) mentality that is typical of the book culture.

Perhaps even more significant than getting young writers to adopt new methods of expression (for Coover notes that his students "are notoriously conservative creatures" [p. 24]), is Coover's own adoption (as a professor in his "seventh decade") of more than a few new instructional methods:

At our weekly workshops, selected writers display, on an overhead projector, their developing narrative structures, then face the usual critique of their writing, design, development of character, emotional impact, attention to detail and so on, as appropriate. But they also engage in continuous online dialogue with one another, exchanging criticism, enthusiasm, doubts, speculations, theorizing, wisecracks. So much fun is all of this, so compelling this "downright celebratory" experience as Mr. Landow would have it, that the creative output, so far anyway, has been much greater than that of ordinary undergraduate writing workshops, and certainly of as high a quality. (p. 26)

In addition to his tinkering with computer applications, such as *Storyspace* and *Intermedia* (two hypertext programs developed at Brown), Coover and his students used online communication--notably email--more and more

⁵ Seattle-based Amazon began The Greatest Tale Ever Told (a murder mystery) with a paragraph by John Updike "at 12:01 a.m. (PDT) on July 29, 1997" and ended it with another Updike paragraph "at 5:00 p.m. (PDT) on September 12, 1997" but not without a few clarifications: "All entries and other materials (including all copyright, trademark, and other proprietary rights associated therewith) submitted by you ("Entry Materials") will become the property of Amazon.com upon submission.... PLEASE NOTE: Residents of New York are not eligible to enter the Contest until after August 27, 1997. Residents of Florida are not eligible to enter the Contest until after August 6, 1997." See The Greatest Tale Ever Told Official Rules and Eligibility Requirements page at <http://www.amazon.com/exec/obidos/subst/features/g/greatest-tale/greatest-tale-rules.html>/4148-4959584-171374.

frequently, making a once-a-week class an everyday learning experience that is student-driven rather than instructor-driven. The fluid, contingent, and multivocal nature of hypertext also lends itself to a good deal of collaboration, a situation rather unusual for students of so solitary an art as writing. "In addition to the individual fictions," says Coover,

which are more or less protected from tampering in the old proprietary way, we in the workshop have also played freely and often quite anarchically in a group fiction space called 'Hotel.' Here writers are free to check in, to open up new rooms, new corridors, new intrigues, to unlink text or create new links, to intrude upon or subvert the texts of others, to alter plot trajectories, manipulate time and space, to engage in dialogue through invented characters, then kill off one another's characters or even to sabotage the hotel's plumbing. (p. 26)

With the improvements in sheer computing power, improving computer interface systems and a slew of applications that are directed at instructors and students of the humanities, many more teaching-with-technology success stories are coming to light.

A study coming out of the Penn State Commonwealth Educational System (CES) assesses a system-wide, student-centered experiment in higher education called Project Empower, which is somewhat encouraging. Similar to the Harvard model, the CES model focuses on "empowering its faculty" (Noel and Brannon, 1997, p. 771) first and foremost. Thus in 1995 the CES established The Center for Learning and Academic Technologies (CLAT). However, unlike Harvard's Instructional Computing Group, which is devoted to a single institution, CLAT is a small, centrally located department that serves the needs of eighteen campuses across the state of Pennsylvania. Despite the funding and personnel issues, CLAT and Project Empower were able to demonstrate very clearly that when faculty members are adequately supplied with hardware and software and assisted by instruction-oriented technologists (rather than by computer-oriented programmers), they are quite capable of change as well as open to and energetic about new ways of teaching online.

The Project Empower statistics, which represent 108 fully funded and assisted faculty members, reflect some serious methodological changes on the part of instructors as a direct result of their use of technology. Extended lecturing went down by 19 percent while small group discussion went up by 46 percent. Computer lab activities rose by 54 percent and electronic conferencing skyrocketed by 260 percent. More importantly though, instructors gained a deeper respect for the necessity of collaboration, especially cross-discipline collaboration. Thematic linkages across disciplines increased by 63 percent while team teaching with other faculty rose to 86 percent. The bottom line result of the experiment is that the instructors who participated seemed convinced of the usefulness of certain computer and Internet technologies. "None of the respondents," say Noel and Brannon,

indicated they would go back to teaching as they had before Empower. Ninety-four percent said they intend to develop additional new learning activities for their students. Seventy-five percent indicated a desire to learn more about new teaching techniques. Large numbers also indicated that they would revise their units and try them again, and seek more opportunities to collaborate with their peers. (p. 773)

Such successes can be successes, as Harvard President Rudenstine noted in his special address, because of "a very close fit--a critical interlock--between the structures and process of the Internet, and the main structures and processes of university teaching and learning" (p. 3). Because Internet technologies can emulate electronic versions of well-established features of the educational process--researching in libraries, conferencing with instructors or students, working in laboratories, writing and editing papers, etc...--the Internet seems to be a natural for augmenting or extending the learning environment. Having already made the commitment to invest nearly \$100

million in such technology, Harvard, like so many other institutions and systems that have made sizeable investments, will need to make its technology work.

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