Introduction: Digital Humanities and the Networked Citizen

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Abstract

An introduction to a special issue of TEXT Technology *on "Digital Humanities and the Networked Citizen." The first section situates the collection within the context of the SDH/SEMI community, as well as larger questions of the relation of digital humanities research to the idea of citizenship. The second section explores themes such as borders, authentication, and text-processing, with an eye to the historical roots of the digital humanities. The final section introduces each of the articles in the collection, contextualizing them within the theme of networked citizenship.*

KEYWORDS: technology, citizenship, network, humanities, captcha, memex, Vannevar Bush, authentication

Humane Networks

Welcome to a special issue of *TEXT Technology* on "Digital Humanities and the Networked Citizen." This collection represents a moment of change for the journal and for the academic group with which it is affiliated. The papers offered here represent a burgeoning field and arose from conversations, presentations, essays, and research produced by a group of academics from several countries. The dialogue that gave rise to this set of essays also included discussions and research from our colleagues in the Canadian Disabilities Studies Association and the Canadian Women's Studies Association. Our theme—the discussion of networked citizenship—is all the more rich for the inclusion of multiple voices. The results are inspiring. Through meetings, research exchanges, and discussions across a variety of networks our group of authors have helped to redefine collegiality for the twenty-first century. Our work together is based on principles as old as the

university itself and was supported by technology that is only now beginning to fulfill its potential to change our future.

At the start of our work the journal *TEXT Technology* was affiliated with the Consortium for Computing in the Humanities/Consortium pour Ordinateurs en Sciences Humaines (COCH/COSH), now better known as the Society for Digital Humanities/Société pour l'étude des médias interactifs (SDH/SEMI). Such significant changes, both for the society and the journal, mark a milestone in the history of a community that is currently ushering in its fourth generation of scholars working in areas involving humanities research and information technology. In order to mark the special occasion, along with the inaugural SDH/SEMI Award for Outstanding Achievment, we invited contributions from its first two recipients, both of whom have helped make SDH/SEMI what it is today: Jean-Claude Guédon and Willard McCarty. We are fortunate to have these eminent scholars contributing to this issue. During our work on this collection we have had the opportunity to reflect on the work that has been done in Humanities Computing and to look to the future as the field opens up to new horizons.

It seems incumbent upon us to spend a moment or two exploring the meaning of "Digital Humanities and the Networked Citizen." Digital, from *digitalis*, reminds us of the primacy of the human interaction with technology. While *digital* can mean the reduction of information to digits, it originally referred to an engagement with the world through the digits of the hand. This notion—one of digitizing in a manner that unifies—seems more satisfying. In its modern sense, *digital* refers to binaries and calls to mind notions of the digital divide. Placed in context, however, it reminds us of the unifying, humanizing power of its original meaning. Digital Humanities then is the work of human hands, augmented by technology. From a network of fingers to a network of people, any notion of collaborative co-existence must deal with issues of politics. It would be easy to say that we need discussions of healthy political interaction now more than ever, but in truth the world has always needed more work on citizenship. The academy, for better or for worse, has always offered a separate mode of political economy. A system based on simple ethical guidelines and merit-based evaluation lays the foundation for the original goal of the university: to build the body of knowledge. The notion is utopian at heart, but remains realistic by positing progress in one clearly defined area.

If we encounter difficulties within a system it will most often be through human error. At the same time, if we find anything approximating

truth or beauty, it may well come from the same source. The business of humanistic research is messy. Perhaps then it is in the union of technology and humanity that we will find a productive blend of a new kind of citizenship. As any good humanist knows, serendipitous discovery is often one of our greatest allies during research. With pathways towards information-sharing and -exploring, the new digital humanist wanders an infinite number of aisles—some physical, some virtual—in search of discovery. The academic citizen of the emerging age has many challenges to look forward to, but also possesses a number of new tools to help facilitate the journey.

We are put in mind of two examples of the notions of citizenship, one from the Western world and one from the East. The first involves the figure Thrasymachus of Chalcedon, a famous sophist who appears in the works of both Plato and Aristotle during considerations of that most visceral of demonstrations of citizenship: the *agora*. In Book I of *The Republic*, we are shown a Thrasymachus who seems to be the exception to the rule that all should be allowed to speak. It seems the only way to continue is to exclude him from debate—to remove him from the public sphere. The second example comes approximately two hundred years later. In this story the monks in a Buddhist temple are dealing with their own Thrasymachus-like figure. Their solution—like that suggested in *The Republic*—is to drive the offending figure out and resume work. Shortly after they return to work the Buddha arrives and asks them where the missing monk is. They tell the Buddha that the meddlesome figure has been driven out. To their surprise he is angry and instructs them to go to the town, find the man and to apologize to him and offer him gifts to entice him to return. The monks are stunned and asked why should they want to bring him back. The simple response is, "he is our teacher; without him how will we learn patience?" In practice, citizenship is always a complex proposition. With each new age scholars attempt to contribute to the building of civilized discourse. What we hope is that through the proper blend of humanistic study and information technology we can make a contribution.

Citizens of the World Wide Web

"Ideas carry no passports and respect no frontiers": a widely held tenet of scholarship affirmed by John Morrill in an afterword to a recent book on biblical scholarship in the Renaissance (252). True enough for ideas, especially in this networked age, but it is a different story for those who

work with them. As a sobering counterpart to Morrill's idealism regarding passports and frontiers, we should not forget Walter Benjamin's tragic attempt to escape from occupied France to Spain in 1940, when a refused exit visa and closed border drove Benjamin to take his own life.[1] Yet his essay "The Work of Art in the Age of Mechanical Reproduction" went on to become foundational reading in the digital humanities, history of technology, and many other fields—a reminder that intellectual ideals still hold some power to cross borders, even if there is sometimes a price.

What counts as citizenship, whether in a nation, discipline, institution, or any kind of *polis*, helps to shape the daily work and experiences of academics, whether we are conscious of it or not. Like the overlapping hierarchies in the texts we encode and study, there are multiple identities and memberships that lay claim to us, and that we claim for ourselves: whenever we present our credentials to view materials at a research library; whenever we send an email message using an address with our home institution's domain name ("galey@ualberta.ca"; "patrick.finn@stmc.ab.ca"); whenever we cross a border to attend a conference (perhaps, when pressed, awkwardly explaining the topic to the customs official); whenever we read or post something in an online discussion like *Humanist*;[2] whenever we unthinkingly expect English to be the default language (or Latin letters the character set) of scholarly exchange; whenever we construct a lecture as a PowerPoint presentation, assuming all of our audience members have their full vision; whenever we presume to use the pronoun *we* in scholarly discourse. All of these acts signal the richness of academic work in terms of the number of communities with which we may come into contact, sometimes as citizens, sometimes as guests, but sometimes also as strangers, asylum-seekers, or exiles. As Michael Truscello puts it in one of the following articles, "The transformation of everyday life via technology occasions multiple subjectivities in disparate geographies." The networked citizen is one who can no longer take for granted his or her identity and entitlements.

The increasingly user-driven nature of Web 2.0 brings with it numerous daily rituals of authentication. The experience of being one of multiple subjectivities in disparate geographies is driven home in one such ritual, the Completely Automated Public Turing test to tell Computers and Humans Apart (CAPTCHA). For example, a user wishing to purchase concert tickets from a website is first shown a dynamically generated image of a distorted random character string, then asked to retype the string to prove that he or she is not one of the numerous automated bot programs

that spammers have set to crawl the Web in search of vulnerabilities. Once the user establishes his or her humanity in this manner, using cognition and pattern recognition in a way that a computer cannot, the transaction may proceed. Recently, CAPTCHAs have begun to play a direct role in the digital humanities through Carnegie Mellon University's reCAPTCHA Project, which combines this sort of authentication process with the digitization of printed books. This distributed computing project makes available CAPTCHA software that uses not random text strings, but individual words scanned from books that need to be transcribed into electronic text.[3] Thus an act of reading and writing becomes a kind of cognitive passport to validate one's identity at the border between humans and machines.

This particular text technology has deep cultural roots, touching long-running currents of thought on identity and inclusion. In a way, reCAPTCHA represents a return to the idealization of the human aesthetic capacity that Alan Turing hints at in the article that originated the Turing Test, in which the sonnet form comes to symbolize a quintessentially human domain of thought.[4] Turing in turn echoes (and significantly modifies) the Arnoldian strain of humanism that champions the reading of literature as an antidote to the mechanization of culture and thought by the industrial revolution. To Victorians of Matthew Arnold's way of thinking, culture, poetry, and "the best which has been thought and said in the world" (6) was what could save them from the "worship of machinery" (7) and mechanistic forms of social organization. (Although, as Terry Eagleton notes, in Arnold's program, literature was also to promote a safely docile form of citizenship, cultivating an indward-turned individuality against the temptations of collectivism [21-2].)

reCAPTCHA's authentication ritual has yet deeper roots in the humanistic pedagogy of the Renaissance, when textual and social networks were thought to be one and the same in the service of a common good. Intellectual historian Lisa Jardine begins her book on Erasmus with an anecdote about one of her first meetings with her doctoral advisor, during which he put to her the reCAPTCHA-eque test of asking her to sight-translate a Latin passage from Erasmus's letters. Jardine notes this test was not mere academic capricousness, but an example of the traditional use of *epistolae* for "exercises in retrieving the moral sentiments and felicitous expression of an antique past": "Even then, I knew this was a test any aspiring scholar of Renaissance thought had to pass—an initiation test, a rite of passage" (4). The stakes were even higher for scholars and others *in* the Renaissance. In 1598, the obstreperous dramatist and poet Ben Jonson

famously saved himself from execution for manslaughter by invoking the archaic law of "benefit of clergy," under which he was exempt from a captial sentence because he could recite a brief verse in Latin (Brink 96). The simplest acts of text processing enmesh us all in webs of authority and power, whether in the form of e-commerce, the academy, or the state.

If the inescapably political nature of digital tools and scholarship is easier to see now than before, the same might be said for the post-World War II period in America, when the conditions that now sustain the digital humanities were taking shape, materially, conceptually, and institutionally. 1949 is the conventional date of origin for humanities computing as a field, with the Jesuit scholar Roberto Busa's foray into using computing technology for his massive concordance of the works of Thomas Aquinas. The other originary figure that digital humanists often cite from this period is Vannevar Bush, whose proposal for a document-browsing machine called the Memex anticipates hypertext browsing software by several decades.[5] If we can see one figure of the networked citizen in the web surfer presenting human credentials in a CAPTCHA test, we can see another such figure in Bush's imaginary scholar organizing texts on the Memex—one of the digital humanities' primal scenes. Standing behind any image of a scholar in a study, surrounded by books, documents, and other apparatus of intellectual labour, there is a long iconographic tradition that encompasses Augustine, Jerome, Erasmus, More, and many others.[6] However, it is an irony that, given this tradition and the Memex's importance to computing humanists and hypertext theorists, the implicit networked citizen in Bush's vision is not a humanities scholar but an engineer. Bush's biographer G. Pascal Zachary remarks that he "ranked the engineer as first among equals, a sort of super-citizen who could master virtually every activity essential to the smooth functioning of a modern nation" (4). At one time, that description might well have fit the archetypal, Da Vinci-esque humanities scholar, but Bush's smoothly functioning modern nation, like that of his current presidential namesake, does not much value the humanities. Bush's central role in what Eisenhower would later term the military-industrial complex makes him a difficult prototypical figure for modern humanists to embrace—a marked contrast to Busa, whose pioneering work is regarded by the field with something approaching reverence.

The Memex, however, serves to validate its modern-day counterparts in humanities computing only after we do some strategic forgetting. As much as we might celebrate Bush's vision, just as we celebrate the pro-

to-digital visions of Charles Babbage or Agostino Ramelli (who imagined the well-known book wheel, also part of the iconographic tradition mentioned above[7]), the wartime context of Bush's work remains all too easy to overlook. The rhetorical strategies of "As We May Think," published in 1945 issues of *Life* and *Atlantic Monthly*, enact the complex connections between technology and citizenship, between the means of communication and the perceived need for an *us* distinguishable from *them*. As director of the Office of Scientific Research and Development through the war—which also oversaw the Manhattan Project—Bush writes from the position of an established expert on the marshalling of academic labour into a system that serves the state, in the form of the U.S. war effort. The editors of both *Life* and *Atlantic Monthly* who introduce the article present the challenge of organizing an overflowing storehouse of human knowledge as the natural task for peacetime, but imply that the task is only feasible during a period of peace that inherits wartime structures of intellectual centralization.

Despite gestures by Bush and his editors toward a new postwar episteme and technologically enabled republic of scholars, his thinking seems unable to escape the mindset of the cold war. Bush's first example of the Memex in application illustrates the idea of hypertextual "trails" using the example of a researcher on ancient weapons "studying why the short Turkish bow was apparently superior to the English long bow in the skirmishes of the Crusades" (104). As suitable research material for his Memex, Bush thus imagines a kind of arms race between East and West, anticipating the "missile gap" of subsequent cold war hysteria (and its satirical double, the "mineshaft gap" of *Dr. Strangelove*): "And [the researcher's] trails do not fade. Several years later, his talk with a friend turns to the queer ways in which a people resist innovations, even of vital interest. He has an example, in the fact that the outranged Europeans still failed to adopt the Turkish bow. In fact he has a trail on it" (104). As Mark Poster has said of cybernetics, a field with a related history and a similar influence on today's digital humanities, we could regard Bush's model for the Memex as "a theory for an armed camp preparing for a final struggle" (29)—a palliative for "outranged Europeans" and Americans.[8] Reading the latent anxieties in Bush's ideal information-management tool helps us to situate the insight of Lauren Rabinovitz and Abraham Geil, that "Bush's thinking about the [M]emex depends on an analogical relationship between the individual mind and larger structures, which means between organic memory and networked systems" (9). As many of the authors in this col-

lection remind us, "the individual mind" is never just that; individuals are always embedded in multiple contexts: historical, cultural, biological, intertextual, and, especially evident in Bush's case, political.

The idea of the *netizen* is sometimes taken to imply citizenship in a community without a history, but as we can see in the examples of reCAPTCHA and Bush's cold war fantasy of information mastery, the history of the Web and its related technologies can shape our enabling fictions in powerful ways. The idea of the democratizing power of the World Wide Web is by now an old one—an easy truism even ten years ago, when digital culture's sustaining narratives were taking form. That narrative's force continues to drive media events such as the 2007 CNN/YouTube debates among Democratic Party presidential hopefuls in the United States. Although little about these debates may seem very new in the study of new media—their truly consequential antecedent being the 1960 Kennedy-Nixon debates, the first to be televised—the convergence of CNN, YouTube, and national politics signals a basic, almost naturalized conceptual linkage between democracy and technology. Such a link should not be allowed to remain natural or inevitable in a world where the majority of the human population will go their entire lives without using a telephone, let alone one of Nicholas Negroponte's XO-1 laptop computers for populations in developing countries.[9] The problems and paradoxes of citizenship in a digital world have long been matters studied by fields that tend to work alongside traditional humanities computing, many of which are represented in the following articles, but the topic should be a matter of concern for those who work with computer-mediated text technologies as well. As the Text Analysis Developers Alliance motto (and t-shirt) asserts, with admirable bravado, "real humanists make tools"—but that tells only half the story; tools also make humanists, discipline their labour, and quietly shape their epistemologies. Willard McCarty has helpfully reminded us, in *Humanities Computing* and other venues, of the importance of Werner Heisenberg's statement, "every tool carries with it the spirit by which it has been created" (qtd. in McCarty 158). The musician Ani DiFranco gives the same idea teeth: "every tool is a weapon, if you hold it right." As networked citizens of the digital humanities, it matters how we hold those tools—how we build them to be held—because those tools also hold us within their conceptual borders.

Rethinking Identity and Technology in the Digital Humanities

Originally a network of humanities computing practitioners in Canadian colleges and universities, SDH/SEMI had by 2005 established itself as the primary Canadian learned society in its field, and its conference programs were increasing in their diversity of representation of Canadian institutions, of scholars from outside of Canada, and, perhaps most significantly, of research areas beyond those usually associated with humanities computing in its traditional mode, namely literary studies, linguistics, and text analysis. These fields are represented in the collection of articles offered here, as are fields that we can expect to play increasing roles in the digital humanities: media and film studies, critical theory, cyberculture, cultural studies, technofeminist studies of the body, and video game and digital narrative studies. As scholars such as McCarty have reminded us, the *computing* in *humanities computing* does not signify any single tool or device, any more than computer scientists are simply scientists who study computers, or bibliographers are simply scholars who study books;[10] rather, our discipline's objects of study have become all forms of cultural forms and materials that may be mediated, literally and conceptually, by digital technology—including citizenship. In that sense, the operative idea in the space between *humanities computing* and *digital humanities* is found in the word that signals continuity: *humanities*. With that perspective in mind, we might regard the increased visibility of non-traditional fields in the digital humanities not just as an influx of new scholars and approaches, but also as the recognition that the various parts of the humanities have always worked best when networked. The Urdu poem that serves as epigraph to Michael Truscello's article here nicely captures the state of the field as a whole: "We set out alone toward our goal / but others kept joining us / and our caravan kept growing."

Truscello's article, "Free as in Swatantra: Free Software and Nationhood in India," explores the complex relationship between the Indian and American software industries, and prompts us to question the centrality of American technological development in globalized digital culture. Silicon Valley, like Hollywood, may seem to embody the western North American ideal of the self-made success story, springing from empty ground to become the engine of technological progress. But just as Silicon Valley paved over the orchards that preceded it, so does the late-nineties dotcom account of digital culture efface non-American players in that history.[11] Truscello makes a persuasive case for India's unacknowledged

role in a software industry that is only nominally American, and points to an alternative software model that takes its name from a Hindi word for self-determination: "The word *swatantra* embodies a social aggregation … of technology, history, nation, and language." The analysis of India's Swatantra Software movement (like the Free and Open-Source Software movements but whose Hindi name signals major cultural differences) leads to questions about how we perceive the relationships between nation and industry, between culture and technology, and finally between global digital culture and local (Swatantra) digital forms that resist assimilation.

The global scope of questions of citizenship in a networked world is also the subject of Philip Armstrong's article, "From Paradox to *Partage*: On Citizenship and Teletechnologies." The connections between information technology and the politics of globalization are deceptively obvious, such that citizenship debates often treat technology as simply one aspect of the topic among others. Armstrong, however, argues that teletechnologies should not be regarded merely as an influence upon the idea of the citizen, but rather as the conceptual lens through which we understand the very idea: "the central question now is how communication and information technology both informs any attempt to write a genealogy of citizenship while simultaneously transforming and displacing the concept itself." As an answer to the paradoxes that beset the idea of citizenship today, Armstrong offers the concept of *partage* (derived from Jacques Derrida) as a way of understanding the position of the networked citizen. In contrast to a value-laden term such as *virtual community*, with its connotations of inclusiveness and harmony, *partage* deliberately signifies both the commonalities and the divisions that constitute networks of people and information. As Armstrong puts it, "There is no thought of association implied by networked telecommunications without dissociation, no liaison without de-liaison, no proximity without distance, no attachment without detachment." Virtual communities may evoke McLuhan's idealistic picture of a global village, but *partage*—as Armstrong deploys the term in a digital humanities context—may be better suited to the unattractive truth that subdivisions, real and metaphorical, increasingly shape the information landscape.

The fundamental connections between humanity, technology, and community are nowhere more evident than during the first months and years of a person's life. Human infants are unusually dependent on caregivers, and thus on the same kinds of networks of people, cultural bonds, and technologies that constitute the digital humanities' field of study: while

gazelles can walk moments after being born, humans must instead rely on the (often dubious) advantages of a highly developed neocortex. The importance of human infancy as a focal point for questions concerning technology becomes clear in "Glass Wombs, Cyborg Women, and Kangaroo Mothers: How a Third-World Practice May Resolve the Techno/Feminist Debate," in which Sarah Lauro, Tiffany Gilmore, and Jenni Halpin explore the representational consequences of different pre- and neo-natal technologies. Drawing on Donna Haraway's work on technofeminism and the figure of the cyborg, and on Katharine Hayles's work on posthumanism and the materiality of information, Lauro and her co-authors demonstrate that the human condition can never be understood apart from the network of representations and practices that enfolds us in infancy. As they argue, this semiotic network performs certain kinds of cultural work in the construction of the female body, and is open to contestation by technofeminist critique. In ways perhaps surprising to those working in the traditional modes of humanities computing, this article serves to foreground the latent ethical and political concerns of posthumanism's antecedant, cybernetics—as evident, for example, in Norbert Wiener's early venture into cultural critique, *The Human Use of Human Beings: Cybernetics and Society*. As Lauro, Gilmore, and Halpin show, perhaps one of the few points on which Wiener, Hayles, and Haraway might agree is that our networked citizenship begins in the womb.

Andrea Austin's discussion of "The Film/Game: Narrative Form and Network Conditioning" provides another such study of the technologized human body, but here contextualized by the synthesis of sensory immersion, bodily representation, and narrative structure offered by connected films and video games. Although much work has been done on filmic constructions of the female body, especially following Laura Mulvey, there remains a need for new modes of analysis that account for the tendency of *digital* artifacts to migrate and reconfigure. The eyes that watch films are increasingly eyes that also engage in digital narrative through gaming. Women portrayed in video games have grown from stereotypical Bond-girl caricatures to characters with more complexity than action- and fantasy-oriented generic trappings might at first suggest; in addition to Lara Croft from the *Tomb Raider* series and *The Matrix*'s Trinity—both discussed in Austin's article—games with robust, nuanced narratives increasingly have female characters at their centres, notably Alyx Vance (*Half-Life 2*), Cate Archer (the *No One Lives Forever* series), Mona Sax (*Max Payne 2*), and Kate Walker (the *Syberia* series). Austin's article

presents a thoroughly integrative approach to such material. Her analysis suggests that posthuman modes of representation prompt us to recognize that video games are not simply new forms of interactive narrative for analysis, but also reciprocally influence related media such as film in important ways—media interpenetrate each other just as biology and technology become indistinct in the cyborg body. But rather than regarding the cyborg as merely an iconic or stylistic effect, Austin emphasizes narrative as the film/game cyborg's indispensable context. Her identification of the network's persistent role as villain in film/game crossovers echoes the theme of this issue, and should prompt digital humanists to appreciate the importance of video game characters such as *Half-Life 2*'s Gordon Freeman, an MIT-trained physicist who battles the posthuman forces of the resource-extracting Combine, earning himself the Orwellian designation of "Anticitizen One." Indeed, the related game *Portal* brilliantly satirizes the world of government-funded research and usability studies that many of us occupy. The games and films in the genre Austin describes serve to formalize anxieties about the very networks that subtend academic (half-) life.

This collection's final article, Terry Butler's "Monkeying Around with Text," makes a virtue of gaming's structuring tension between randomness and control, understood via "an excursus through the pre-history of a modern commonplace—monkeys at their typewriters, typing the text of Shakespeare." It may be read with the other articles as a playful exploration of the theme of citizenship, with the difference that the identities and borders in play are those of literary texts. In a recent issue of *TEXT Technology* devoted to the *Ivanhoe* game, Geoffrey Rockwell confronts the question of whether gaming (broadly defined, beyond video gaming) is serious research in the humanities, and argues for a "return to play as one of our subjects and methods, play with the defining technology of this age, the computer as a toy at hand" (97). We can appreciate the value of such an approach in Butler's work, which brings text analysis and visualization tools, along with a wide-ranging survey of editorial theory and metaphor, to bear upon the question of when two versions of text may be understood to be—or simply treated as—the same thing. This fundamental question for textual criticism leads to others that are easy to underestimate: "What degree of difference is acceptable, and in what contexts?". As Butler shows in his discussion of his prototype "editorial difference engine," a promising tool for visualization, we can quantify the degree of distance (or *edit distance*) between two text strings such as "glitters"

and "glisters" (respectively, modernized and unmodernized versions of the same word—or is it?—from Shakespeare's *Merchant of Venice*). Gregory Bateson famously simplified the mathematical definition of information as "the difference that makes a difference" (428), and in the editorial difference engine's figures we can see a new field, information theory, and a very old one, textual scholarship, converging on the same intellectual questions. Butler leads an accessible tour of the tradition of textual criticism that stretches from Erasmus, Scaliger, and Bentley to the stemmatics of Lachmann, to the New Bibliography of Greg, Bowers, and Tanselle, to the digitally influenced speculations of McGann, Greetham, and Shillingsburg. But, as Butler also shows, in all questions of textual scholarship, context is king. As imposing as this tradition may seem, even with all its skirmishes and retrenchments, Butler offers as a surprising context the idea of random text generation—the object of a broad cultural anxiety and fascination, taking us from the Cumaean Sibyl to Bob Newhart. The monkey at the typewriter haunts the editorial imagination like a cybernetic ape of nature, working at a monkey-machine interface to draw from chaotic noise a kind of message thought to be exclusively human: fragments of Shakespeare such as *Henry IV, Part Two*'s "RUMOUR. Open your ears; 9r"5j5&?OWTY Z0d" (a random string recorded on the *Monkey Shakespeare Simulator* website).[12] Textual criticism begins to seem like a form of serious play, and is certainly the better for it.

We end the introduction to this special issue on a sad note. Terry Butler passed away in the summer of 2007, while this collection was in its final stages. His colleagues will recognize in his article the blend of erudition, warmth, and humour that characterized his work. This special issue of *TEXT Technology* is dedicated to Terry's memory.

Notes

[1] Hannah Arendt recounts the story in her introduction to Benjamin's *Illuminations* (17-8).
[2] See <http://www.princeton.edu/humanist/>.

[3] See <http://recaptcha.net/>. The project is currently digitizing books from the Internet Archive, <http://archive.org>. Since visual CAPTCHAs obviously exclude blind web surfers, responsible sites often provide audio versions—though any form of this mechanism can still create barriers to accessibility.

[4] See Turing 434, 445-7.

[5] Bush's article about the Memex, titled "As We May Think," was published in slightly different versions, and with different editors' introductions, in *Altantic Monthly* (July, 1945) and *Life* (November, 1945). A reprinting of Bush's article that includes details from the original publications may be found in Nyce and Khan's edition. Bush republished the article in his book *Endless Horizons*, and much later published a follow-up piece, titled "Memex Revisited," as part of his essay collection *Science Is Not Enough*.

[6] For examples of scholarship on this tradition, see Jardine (ch. 1-2), Alexander Nagel and Christopher Wood's reading of Carpaccio's painting *The Vision of Saint Augustine*, and Stephen Greenblatt's reading of the *mise-en-scène* of Holbien's painting *The Ambassadors* (17-21).

[7] Ramelli's book wheel is depicted in numerous discussions of hypertext and the history of reading (for example, see Chartier 222-3). See Works Cited for an English translation of Ramelli's original publication.

[8] See also the articles by Mahoney and Galison.

[9] See <http://laptop.org/>.

[10] For a discussion of this idea with regard to bibliography, see McKenzie 269-74.

[11] On Silicon Valley, see Solnit.

[12] The site is available through the *Internet Archive*'s Wayback Machine: <http://web.archive.org/web/20060207100939/http://user.tninet.se/~ecf599g/aardas-nails/java/Monkey/webpages/index.html>. The Shakespeare fragment is from the induction to *Henry IV, Part Two*: "RUMOUR. Open your ears; for which of you will stop / The vent of hearing when loud Rumour speaks?" (1-2).

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