

On Creating a Usable Future

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There is a kind of anarchy that fosters growth and there is a kind of anarchy that prevents growth, because it lays too great a strain upon the individual.

—Van Wyck Brooks, “On Creating a Usable Past”

I

If there is a crisis now in the humanities, as many seem to think, it is only partly about processes of tenure and promotion and ways of evaluating new forms of scholarship. The more central problem is the sustainability of born-digital resources and the work they support: the sustainability of specific undertakings (like *The Grub-Street Project* and *The Electronic Enlightenment*) but also, and perhaps even more important, the imperative to establish online scholarship, both its research and its publication, as a general institutional practice. The National Digital Public Library (NDPL) initiative provides an occasion to consider the situation of the humanities in the digital age.¹

In October 2010 some forty persons from research libraries, universities, and a variety of cultural institutions and foundations met for two days at the Radcliffe Institute in Cambridge to discuss the feasibility of creating a nationwide digital library and educational archive. The meeting

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included six sessions that explored the possible content of such a library, the legal and administrative issues the library would have to address, the financial and technical demands, and the various persons and partnerships that would have to coordinate if it were to be realized. The discussions exposed the formidable obstacles to an ambitious project of this kind, but in the end the group agreed that such a library could and should be created, which it endorsed with a collective agreement to work together toward the creation of a Digital Public Library of America (DPLA)—that is, an open, distributed network of comprehensive online resources that would draw on the nation’s living heritage from libraries, universities, archives, and museums in order to educate, inform, and empower everyone in the current and future generations.² By mid-November a plan was formulated to run a series of focused workshops in early 2011 that would involve a larger community of stakeholders. The workshops would be charged with developing specific institutional and technical mechanisms, funding, and work plans for the staged development of the DPLA.

An endeavor of this kind has been discussed and imagined since at least the early 1990s, and in certain global communities—for instance, China, Australia, France, the Netherlands, Japan, Norway, and Finland—national and even transnational digital archives are already under way.³ An interoperable world network of such libraries, an aggregated archive of archives, would be a formidable educational resource as well as an event of world-historical importance.

Of course different communities—national, international, intranational—will want to exploit and constrain the use of such resources very differently. Who would have access to what, and how could the materials be engaged and perhaps repurposed? Those overriding general questions have to be answered in practical terms that are relevant for specific persons and groups. The educational community is only one group and is itself composed of many subgroups with special interests and needs. As everyone at the Radcliffe meeting understood, the success of the NDPL venture depends on its ability to engage with those various overlapping, and sometimes competing, special populations.⁴

Because the library, particularly the research library, is the center of all our work, we in the humanities have a particularly large stake in the success of the NDPL: success for “our cultural commonwealth” at large and not just for our special interests as postsecondary scholars and teachers.⁵ We have a crucial role to play in helping design the NDPL because of our scholarly vocation and our educational mission in society at large.

But for a scholar like me, it is sobering, sometimes dismaying, to think how much of the fundamental early work establishing the conditions for

online humanities research and publication—*OCLC*, *TEI*, *Project Muse*, *JSTOR*—was done by librarians, systems administrators, and various kinds of computer technologists. Regular faculty members from traditional humanities departments were not players. Indeed, to this day our scholarly community continues largely to hang back, reacting to the rapidly changing scene rather than working to shape policy and exert control over events.⁶ As a consequence, digital and Internet technology developed in their formative years at a strange diagonal to the traditional work of humanities scholarship and education.

But now many more humanities scholars are coming to participate directly, and even collaborate institutionally, in policy-shaping projects. This fact was showcased in the recent Mellon-sponsored Shape of Things to Come conference at the University of Virginia.⁷ Participants held wide-ranging discussions of a diverse set of online humanities projects, looking at the projects' functional designs, histories, and significance for the future.⁸

In the near future, digital technology will supplant print-based technology as the medium of scholarly publication. This is not only a fact, it is a very good thing for scholarship and education, however awkward and painful the transition we are experiencing. Print on demand itself will persist only so long as digital reading devices and, even more important, interpretive software remain as primitive as they are today. For many basic kinds of scholarship, paper, paper journals, and books are still the superior technology, though I would not hazard a guess for how long this will hold. Indeed, the launching of a venture like the NDPL by a group of scholars and their institutional fellow travelers is eloquent testimony that the ground has shifted dramatically. Until recently, such a project could live only as an idea: as the poet mused, "something longed for, never seen" (Wordsworth ["To the Cuckoo"]). The coming of *Google Books* was perhaps the unlooked for signal that the humanities community had a rubicon to cross.

As the crossing happens, it's important to remember that IT has not altered the fundamental mission of the humanities: to preserve, monitor, investigate, and rethink our cultural inheritance, including the various material means by which it has been embodied and transmitted (see McGann, "Our Textual History"). The emphasis necessarily falls on the textual archive—not because libraries are more important than museums but because alphanumeric textuality has supplied most of the analytic mechanisms for organizing and studying all our material culture. That textual condition of scholarship and education will remain indispensable, but we are clearly beginning to see new interpretive possibilities emerge from

computerized information processing on one hand and graphical interface design on the other.

II

Humanities scholarship was—and still precariously is—created and sustained through the interoperation of four institutional agents. Three are structurally foundational: the scholars themselves (working in their educational and professional networks); publishing entities, especially university presses and professionally authorized journals; and libraries and depositories, where this work is collected and made accessible for reflection and repurposing. In addition, scholarship draws crucial financial and resource support from various public entities and private foundations.

Until about thirty years ago, that interlocked network functioned reasonably well. But a number of causes—the emergence of digital technology was one—began to undermine its operation. As everyone is well aware, what we now call the crisis in the humanities is a direct consequence of that systematic institutional disfunction. So in a time like ours the question surfaces: What do scholars want? Whether we work with digital or paper-based resources or both, our basic needs are the same. We all want our cultural record to be comprehensive, stable, and accessible. And we all want to be able to augment that record with our scholarly contributions.

Those desires lead many of us—indeed, most of us—to cherish the reliabilities of print-based research and traditional publication, especially monograph publication, and to resist moves toward digital venues. Alas, one might as well hope for a global economy of sailing ships or the resurrection of the Holy Roman Empire. Book culture will not go extinct: human memory is too closely bound to it. But no one any longer thinks that scholarship, our ongoing research and professional communication, can be organized and sustained through print resources.

This problem has two faces: how to pursue scholarship into a future that will be organized in a digital horizon and how to integrate our paper inheritance in that new framework. Remember, or rather (as another poet suggested) “remember and foresee”: henceforth our cultural inheritance will always be both hard-copy and digital. Even were we to digitize the whole of the world’s cultural records, even were scholars to communicate entirely in digital instead of in paper-based media, the originals would remain as important and interesting—as indispensable—as they ever were.⁹ After we digitize all the books, the books themselves will still be there.

A sharp institutional contradiction ensues, for whereas scholars want to preserve and integrate their print work for digital emergence, they also

see the need to replace print-based forms of scholarly intercourse with born-digital forms. This replacement means migrating the scholarly print archive—journals and publishers’ backlists—and also beginning to shut down the operating system of print-organized scholarly research and communication.

I say “beginning to shut down” because this system is not a machine we can easily turn off. It has such a long e-evolution of its own that it is deeply integrated in every aspect of our scholarly institution. Jobs, promotion, tenure, and the entire infrastructure of the research community remain keyed to it. So we talk about prying ourselves free by shifting criteria for scholarly advancement from monograph to periodical work, or we plead that digital work—some of it, anyhow—be put on an equal footing with print work in considering scholarly merit. But as Our Lady of the Flowers said to her judge, we’re already beyond that—though not, as we all know, at the level of institutional politics.

Certainly Kathleen Fitzpatrick is already beyond that, as I think many if not most younger scholars tend to be. Her book *Planned Obsolescence* grounds its various proposals around a pair of premises: that “scholarship is about participating in an exchange of ideas with one’s peers” and that the traditional “system surrounding [the] production and dissemination” of this exchange “has ceased to function” in reliable ways. She is confident that we have the technical means to reconstruct this “system” in digital forms. But the charged polemic of her book reflects her worry “whether we have the institutional will to commit to the development of the [digital] systems” that will replace the “entrenched systems that no longer serve our needs.”¹⁰

Fitzpatrick is an adventurous and energetic voice, and the practical cast of her mind is refreshing. But plans for institutional changes that can actually be implemented need to rest on a comprehensive view of the scholarly scene. As Fitzpatrick says, “To the degree that scholarship is about participating in an exchange of ideas with one’s peers, new networked publishing structures can facilitate that interaction.” She adds, correctly, that the interaction will work “best . . . if the discussion is ongoing, always in process.”

But implicit in those comments is a presentist view of scholarship that is alien to the humanities, where Plato and Heisenberg, Sappho and Dickinson, Scaliger and McKenzie have all been peer-reviewed. Humanities scholarship is rooted in the past, in our theaters of memory, even as it is executed in the present with a view toward creating a usable future. That is why the crisis in the humanities is only partly about tenure, promotion,

and the obstacles to a current exchange of ideas. It is about sustaining what Raymond Williams, a great scholar as well as a great critic, might have called the long e-evolution if he had approached the study of culture from a scholarly rather than an interpretational vantage and if he had addressed it from our electronic perspective.

A long view is what scholars have traditionally taken and is still what scholars want or what they ought to want now. Reflect on the short view that pervades much of the thinking about (and practice with) Web 2.0, social software, and interactive online environments. Is *Web 2.0* simply “a piece of jargon,” as Tim Berners-Lee has mordantly remarked? Because the roots of social networking are in online practices like *Flickr* and other folksonomies, the considerable scholarly potential of collaborative technology remains a pursuit.

Social software technologies have a wide-spreading but shallow root system whose most impressive result to date, *Wikipedia*, illustrates both its capacities and its limits. The wiki initiative delivers an encyclopedia of information that can rapidly update the range of the site’s entries and their content. How to enlist this technology for more substantial scholarship is often speculated about but not yet realized. That is to say, while we certainly have projects that implement collaborative scholarship—NINES is as good an example as any (Networked Infrastructure for Nineteenth-Century Electronic Scholarship [www.nines.org])—none of these projects is deeply integrated into the scholarly community at large. *The Electronic Enlightenment*, *Hypercities*, *The Homer Multitext Project*—these and initiatives like them, while open and collaborative in various ways, are still fundamentally stand-alone operations. They are crucially limited by their weak relation to scholarship’s institutional ethos—the habitus of our educational lives. Because Internet ecology at present is volatile and promiscuous, it encourages individual initiatives and just-in-time collaborations rather than programmatic strategies. This happens because Internet culture has yet to map itself to the complex social system that powers scholarship and education. So while *Wikipedia*, professional electronic discussion lists, and *Twitter* are pervaded by what Fitzpatrick calls “institutional will,” higher-level online research work—there is now a good deal of it—is not.

Fitzpatrick wants to see an “institutional will” for digital scholarship pervade her profession. This is happening slowly and tentatively, but not, perhaps, because ours is a slacker community. This slow development surely reflects the fundamental humanist commitment to the long view of culture: that a usable future is a function of a usable past. The global

character of online ecologies often casts a false appearance of pedantic narrowness on traditional scholarship. But scholarship's investment in a long view was well established before the emergence of the Internet. The volatile character of digital resources is not just a technical matter, it is a social and ideological condition. So scholars hesitate in taking them up. Their hesitance, like Ahab's precipitance, has its humanities.

A personal anecdote seems to me pertinent here. I spent eighteen years developing *The Rossetti Archive* and its content. This was a collaborative project supported by the University of Virginia's library and the Institute for Advanced Technology in the Humanities (IATH). It involved some forty graduate students plus a dozen or more skilled technical experts, not to speak of the cooperation of funding agencies and scores of persons around the world in many libraries, museums, and other depositories. It now comprises some seventy thousand digital files and forty-two thousand hyperlinks organizing a critical space for the study of Rossetti's complete poetry, prose, pictures, and designs in their immediate historical context. The archive has high-resolution digital images of every known manuscript, proof, and print publication and of every known or accessible painting, drawing, or art object Rossetti designed. It also has a substantial body of important contextual materials. All this is embedded in a robust environment of editorial and critical commentary.¹¹

I undertook the project partly as a laboratory experiment to explore the capabilities of digital technology and partly to create a scholarly edition of Rossetti's work. As a laboratory experiment the project was a remarkable experience—a clear educational success, I should say. I used to measure that success in theoretical and intellectual terms—as indexed in the series of books, lectures, and essays that spun off those eighteen years of the archive's development. I now measure the success by the project's institutional position and relations: where it came from (the various digital initiatives at the University of Virginia) and what it led to (Speculative Computing Laboratory, the software development group Applied Research in Patacriticism, and NINES).¹² Most important are those young men and women, then graduate students, who are now among the generation of scholars shaping the future of humanities research and education.

On the other hand, if the archive is judged strictly as a scholarly edition, the jury is still out, for one simple and deplorable reason: no one knows how it will be or could be or even if it should be sustained. The supreme irony of this adventure: I am now thinking that, to preserve at least the core of its scholarly materials, I shall have to print it out. (It would extend to many volumes.) I have also come to think that the archive's most important content is nothing digital at all.

III

The Rossetti Archive and projects like it are most important because their historical backwardness is beginning to show. Their own process of development has exposed the social and conceptual limits of the digital ecology that spawned them. These limits, which lie concealed by the (often) impressive appearance of such works, were shaped by historical and institutional circumstances. As we try to map our way to the usable future promised by the NDPL and by an even more comprehensive world library, we need to understand those conditions.

The early history of IATH, where *The Rossetti Archive* and similar projects were developed, is exemplary for the issues we now face. For a dozen or so years beginning in 1992, when IATH was founded, the institute was a focus of keen attention for humanists interested in digital technology. Part of the interest was in the institute's groundbreaking projects—*The Valley of the Shadow*, *The Rossetti Archive*—and part was in its strategic commitment to high-end humanities research work.

IATH's founding *modus operandi* was based on a set of four explicit working premises:

- To organize its institutional operation as a freestanding unit accessible to all UVA faculty members but not answerable to departments or deans
- To seek out and exploit the interests and strengths of particular scholars within the university
- To promote intra- and extramural research projects (rather than classroom or pedagogical projects), on the assumption that in postsecondary education important pedagogical work is a function of important research work
- To design all projects for a global Internet environment

IATH's successes were shaped by those directives. With research agendas at the center of the institute's work, IATH began to explore the digital humanities as an autonomous disciplinary practice. Establishing the institute as an independent unit set it outside the direct control of the university's divisional and departmental authorities. It was judged—correctly—that the faculties at large were not ready to promote the institute's work in programmatic ways. At the same time, the institute actively sought out and supported individuals in the faculty who were committed to pursuing digitally based high-end research work. Allegiance was pledged to the belief, long held by the university community, that innovative research would drive effective and innovative pedagogy.

Finally, designing the institute's projects for the emerging Internet set all the work in a global context. That orientation had profound consequences.

We were strongly biased toward free culture and open access, toward non-proprietary software and open-source development, and toward a commitment to distributed networks and generalized standards for metadata and text encoding. So the initial premise for designing the logical structure of *The Rossetti Archive* was that a distributed Internet archive of archives already existed. Given the emergence of such a network in the future, and understanding the uncertain directions that hardware and software developments would be taking, what kind of design would most ensure that *The Rossetti Archive* would get integrated into that foreseen but unrealized situation?

When I posed that question in 1992—even in 2002—I conceived it as a question about the formal design of an information system for scholars. On one hand, we sought to construct a logical ground for the archive’s content that would not be compromised by new software and hardware developments that were certain to come. On the other, we left the sociological face of the question to the global reach of the Internet, which (it seemed) scholars could exploit without having to get involved in its infrastructural design and development. In any case, the latter (it also seemed) was being driven by forces beyond the reach or the resources of the humanities research community.

IATH flourished in the 1990s and early 2000s because its orientation mirrored the general state of play in online humanities scholarship at large. But with the turn into the twenty-first century the limitations of the IATH model began to become clear.

Of first importance here was the burgeoning of various types of interactive social software in the early 2000s.¹³ Mapping digital scholarship to the ontologies, but not the sociologies, of the Internet not only constricts its institutional presence but also obscures the sociohistorical character of traditional philology itself. For all their “material” conditions, their hypertextualities, their Internet connections, and their collaborative features, the IATH projects had a design that was predominantly formal and abstract. In this respect they have been a mirror and model of nearly all content-focused online scholarly projects. Like *The Rossetti Archive*, *The Blake Archive* is without question the most comprehensive and authoritative edition of its subject ever created, as well as the most globally accessible. It is not, however, the edition that scholars work from or cite. Paradoxically, ironically, innovative online scholarship emerged, and for the most part still remains, peripheral to the regular research and publication of the vast majority of working scholars.

NINES was born (in 2004) as a response to that scholarly condition. Unless they are integrated into the sociologies of an online world library,

projects like *The Rossetti Archive* are only minimally useful to scholarship. So NINES was conceived as a small model for exploring the problem of informational design for scholarly work at a global scale. It developed an operational (institutional) response to the following question: assuming a distributed world network of objects like *The Rossetti Archive*, how should the network be organized and its materials integrated? This is very like the question that shaped the initial development of *The Rossetti Archive*. It differs in one crucial respect: it has a social and institutional horizon. The inquiry addresses not the formal design of a complex autopoietic system but the structures needed to promote access and repurposing by a distributed population of research scholars and educators. Most immediately, this meant that working scholars would authorize and develop the NINES content so that the traditional work of scholarship—research and publication—could be pursued in the kind of integrated environment characteristic of our inherited paper-based system. Like the latter, NINES is designed to grow and develop through the use and input of scholars who want reliable sources and trusted materials and who expect their own work to be peer reviewed.

A key initial decision, therefore, was to move against the promiscuous state of information available on the Web. The move operated on two fronts simultaneously. First, NINES established itself as a peer-reviewing agent that would identify and assemble a corpus of authoritative online materials. These would have to include every kind of online resource that a working scholar uses: stand-alone online projects like *The Walt Whitman Archive*; library and museum catalogs and accessible content; proprietary materials (like those developed by Intelix, ProQuest, and the Alexander Street Press); online scholarly journal archives, both free culture and subscribed (for example, *JSTOR*, *RaVon*, *Project Muse*, 19); and university press publications.

Second, NINES sought a technical and disciplinary structure that would permit the range of authoritative resources to be indefinitely expandable. The particular goal here was to develop a comprehensive scholarly environment—an online corpus with, for example, the MLA's disciplinary range. So NINES from the outset was working to promote similar entities for medieval, Renaissance, eighteenth-century, and modernist scholars. The first of these, *18thConnect*, was formally launched in 2010, and the others are now in active development.

IV

Throughout the 1990s, humanists working with IT were tempted to believe that they were pioneering a new disciplinary field called the digital

humanities. The last ten years have largely changed our minds and sent us searching back to our future. Online ecologies are leading us to imagine a new philology, a critical and disciplined study of history and culture whose center could be anywhere and whose circumference nowhere. Indeed, as the global capacities of online networks have grown, so has the need to control and organize them for particular social and institutional needs. So while digital technology is introducing new critical methods and procedures, it does not fundamentally alter the sociologies of scholarship and education or their institutional mechanisms. Studying the history of philology itself is especially pertinent now, as is a broad critical reflection on the current institutional state of humanities education.

In that context, we now have a pressing need to integrate online humanities scholarship into the programmatic heart of the university. Twenty years ago, for various institutional reasons, university degree programs could not support advanced work in the digital humanities. So online scholarship flourished in extraprogrammatic localities: typically, in the orbit of the university library or through special agencies like IATH. The NDPL initiative is the unmistakable sign that we can no longer safely proceed in that way.

NDPL is a project to install a comprehensive online archive of authorized and reliable materials for general public education. Philology is the discipline for realizing—in the words of William Wordsworth (“Lines Composed a Few Miles above Tintern Abbey”)—“what [we] half create, and what perceive” as the order of history and culture. The critical study and augmentation of such an archive is the foundational mission of philology, and university degree programs are a *sine qua non* for executing that mission. To date, however, this cultural archive has been growing with little direct input or oversight by the community—humanities scholars and educators—who have a fundamental interest in its successful realization.

Consider the *Google Books* settlement. Its most disturbing aspect has been that the higher education community was not represented in the negotiations.¹⁴ But the dismal truth is that humanities scholars have been absent for years from many decisive, if less dramatic, events. We have been like marginal, Third World agents who have actually chosen an adjunct and subaltern position. We have been invisible. Because only a small minority of scholars has been active with digital work and the institutional changes it is bringing, they have been functioning on their own or in insulated venues like IATH, removed from the university’s programmatic community. This is a serious institutional fracture in the world of humanities scholarship and a major source of what has come to be called the crisis in the humanities.

The *Google Books* settlement was the historical event that triggered the NDPL initiative. “In what we now call the information society . . . we need a new ecology, one based on the public good instead of private gain” (Darnton). These words show us how the NDPL ought to be an invitation and an opportunity for humanities scholars. Realizing the idea of the NDPL means developing the institutional means for reorganizing and reediting our entire cultural inheritance, traditional as well as digital, for online access, reflection, and repurposing.

A library of this kind is so central to the educational mission of the humanities that we must insist on helping shape its future. As it emerges, humanists will also have to begin promoting the digital transformation of postsecondary humanities programs and curricula. The institutional inertia that has been resisting these changes, while often deplored by digital enthusiasts, can and should be rethought and redirected. Traditional scholarship operates through a complex machinery of paper-based social software about which digital technicians are often deeply ignorant. The ontologies needed to organize an effective online educational system are already operating, largely transparently, within the social network of traditional scholarship and education. The machine of the book, perhaps the greatest social technology ever invented, should be the object of deep study by human-interface designers. But of course that kind of study, the repurposing of the work of the past, is exactly what we mean by scholarship. *The Blake Archive* is a repurposed migration not only of Blake’s original works but of all their subsequent scholarly migrations and transcriptions, and most especially the foundational editions from Ellis and Yeats to Keynes, Erdman, and Bentley.

“We will advance funeral by funeral,” a learned digital scholar once mordantly remarked when I was kvetching with him on these subjects. And while I’m sure he touched an important truth, it isn’t a truth to help us shape reliable policy, which is what we need. Sustaining digital scholarship means sustaining our cultural resources *tout court*, digital and nondigital, and it also means taking a long view. It is a social problem pressing on the entire community entrusted with the care of public education. Advertising, ideology, propaganda, and entertainment are part of our public education, but scholarship is its source and end and test.

NOTES

1. At this writing, the name for this initiative is still being discussed. It began as NDPL but then became DPLA (Digital Public Library of America). It may change once more.

2. From the steering committee’s summary of the sense of the initial meeting, sent as an e-mail message to the participants.

3. See Beagrie; the Web site of the National Library of China (<http://www.nlc.gov.cn/en/index.htm>); Yang and Zhang; and the Web site of *Europeana* (<http://www.europeana.eu/portal/>).

4. A larger community of stakeholders was brought into the organizational meetings, which began in late February 2010.

5. The commission that issued the report *Our Cultural Commonwealth* was chaired by John Unsworth.

6. Individual scholars and small groups have initiated special, self-contained entities (like Stephen Railton's *Uncle Tom's Cabin and American Culture* or Jeffrey Savoye's *The Edgar Allan Poe Society of Baltimore*). The TEI is once again exceptional, since its mission is precisely to establish general text-encoding standards to foster project interoperability in a dispersed network.

7. A print-on-demand collection of the conference papers and responses is available at http://cnx.org/content/col11199/1.1/collection_print_confirmation.

8. When this movement is referred to as the digital humanities, the implication is that it constitutes a disciplinary subfield in the humanities. My own view is that it is not a field like philosophy or English or global studies or even book history or media studies. It is primarily critical-methodological rather than substantive, a set of investigative procedures along with the tools for executing them. In terms of literary and cultural studies, it perhaps most resembles a fundamental subdiscipline like bibliography.

9. In relation to those original objects, digital simulations are epistemological, not ontological, objects. They are acts of interpretation.

10. I quote from the free online (prepublication) text of her book. This paragraph and the next three originally appeared in my essay "Sustainability: The Elephant in the Room." The salience of the issues raised here is slightly but significantly different from the appearance of the issues in "Sustainability" and in the volume of essays that it introduces.

11. The archive is a complete collection of all Rossetti's textual, pictorial, and design works in all his textual works, in all their known material forms and states. There are 845 textual works that exist in some 14,000 distinct documentary states and more than 2,000 pictorial and design works. Each document has an xml transcription as well as a high resolution image, and with a few exceptions each artistic work is represented by a high resolution image of both the original work and, in many cases, various later important reproductions of the original. In addition, the archive has some 5,000 files of extensive scholarly commentaries and notes on its materials.

12. For IATH, see McGann, *Radiant Textuality*; for SpecLab, see Drucker; and for ARP, see McGann, *Applied Research*.

13. Although the history of social software can be tracked to the earliest days of IT, the period 2002–04 is widely recognized as especially significant, because in 2002 Clay Shirkey held his invitation-only "Social Software Summit," and in 2004 Tim O'Reilly convened the first of his annual Web 2.0 conferences.

14. At least not until Pamela Samuelson's critical interventions that culminated in her letter to the court of February 2010. See Samuelson.

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