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Friending the Past: The Sense of History and Social Computing

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C AN WE BE FRIENDS WITH THE PAST? If so, will the past friend us? What philosophy of history (at root, a "love" in the way we know the past) can make such amity possible in an information age when our craving for instant data binds us to an ever more expansive, yet also vanishingly thin, present—a razor's slice of *now* big enough for each of us to have a thousand Facebook friends or Twitter followers so long as all that friendship fits on a single screen of attention before rolling off into oblivion?

My topic is how the digital present might have a love—and a philosophy—of history. Let me start by giving an account of predecessor epochs of media technology and their senses of history. The account will be partial, simplified, almost a fable. But there is some value in establishing a baseline for our current, hypermediated sense of history.

The Age of Ancestors

We can begin with so-called primary oral cultures, where, whether or not writing is known, speech and gesture dominate the ensemble of media technologies. Consider prehistorical cultures, for instance, in which (simplifying to one Native American paradigm) the sense of history was a matter of a rock and a voice. The voice sang: *Here is Standing Stone, or Split Rock, or Cairn. Here the upper-world spirits came into the world, or the peace of the tribes was made, or Lean Bear had his vision quest.* Anchored by rock, the voice that told the history of the world, tribe, or individual had both strong performative presence and an air of permanence. Voice was intensely of the moment. Yet voice was always also—or, perhaps better, always *is*—the rock of ages, where the copular *is* positing the coincidence of voice and rock spoke the primordial semiotics of presence (*being* the same as unmediated *meaning*) from which—much as physicists say supersymmetry broke down after the Big Bang into separate strong-nuclear, weak-nuclear, gravitational, and electromagnetic forces—all subsequent, specialized modes of representation may be said to derive:

personification, metaphor, allegory, irony, and so on. Following Walter Benjamin, we can call the spirit medium of such presence *aura*. If *aura* is etymologically *air* or *breeze*, then we might hear it as the wind that both whistles around the lonely rock and animates the voice of the speaker of the rock. *Aura* was the original medium—or zero-degree medium—of immediacy. The history it spoke, to use Benjamin's words about auratic cult objects, was "authentically" there in "its presence in time and space, its unique existence at the place where it happens to be."[1]

But, therefore, such history had little mobility. Neither rock nor voice carried far, especially together so as to preserve their semiotic bond. The cost of such immobility was almost the entirety of what we would today call history, since the lack of ready or scalable mobility meant that there could be no widespread reproduction effect transmitting the tale beyond individual or tribal mortality into historical permanence. *This is the meaning of Rock*, a medicine man might say; and legend and ritual would carry on the dictum for generations or leagues. But sooner or later, closer or farther, no one would remember; and the rock—as philosopher Albert Borgmann reflects in his lucid thoughts on the prehistory of information (grounded in part on Native American culture in his state of Montana)—would diminish to just one binary bit of data: "'Yes, there is a message here,' while the bare or natural surroundings seem to say, 'No, there is no message elsewhere.'"[2]

Importantly, however, the curtailment of what I above called "almost the entirety of what we would today call history" does not mean that oral cultures had no sense of history—far from it, since such cultures were profoundly oriented toward what Walter Ong called the "conservative or traditionalist." Ong writes: "Since in a primary oral culture conceptualized knowledge that is not repeated aloud soon vanishes, oral societies must invest great energy in saying over and over again what has been learned arduously over the ages."[3] In other words (generalizing now to other prehistorical paradigms), whatever was sworn on a rock, a sword, a ring, or any of the other oath objects that were the surety of oral history—warranting, for example, the conveyance of spirits, identity, or property from one generation to another—bore repeating. The power of such repetition is something that moderns still feel when in the audience of any oral art of the caliber of myth, rite, or chant. Repetition, after all, is the original, unthrottled reproduction effect. If, in the semiotics of pure presence, the spirit binding rock to voice can know no diminution without immediately ceasing to be (it is all or nothing), then the reproduction of that spirit can only be the repetition of presence in undiminished force across seasonal or generational intervals of space and time. Repetition is a percussive punctuation or spacing

of uncompromised presence: *here*, and *here* again. In short, it is magic; and even today, when the same words are repeated from generation to generation at a birth, wedding, or funeral, we would be lorn without such enchantment.

Moderns *are* distanced, though, from what they often consider the naïveté of oral repetition, which—by comparison with the industrial light and magic of reproduction effects in modern, especially digital, media—seem on a par with nursery rhymes and rote memorization. To overcome this progressivist bias so as to see oral repetition for what it really is—one of the most advanced repertories of media reproduction effects achieved by civilization—requires desynonymizing *technology* from *technique*. I define *technique* as a method or practice that goes beyond being an application to becoming a *play* on technology—as when we say there is play in the action of a machine part, not to mention in a musical instrument. Technique is both bound to and free from its technology. As such, it is generative of culture from nature. In oral culture the available media technologies may thus have been the naked human voice and its chorus of dance, music, costume, decoration, and other arts—all of whose repetitive sounds or visual motifs echo in the last instance the grunted rhythms of love, birth, work, war, and death. But the *technique* of such culture was always also a play on such technologies that chan-neled nature's raw demand for repetition (that is, reproduction) into the demand for culture heard in any measured *song* of love, birth, work, war, and death. Those who have studied oral techniques of repetition point out that they include all the sophisticated additive, aggregative, redundant, agonistic, participatory, and situational modes of discourse that resulted in bardic formulaic poetry (for example, Homeric epic) of the sort once mistakenly identified as high Western literacy.[4]

Now we can come closer to understanding the oral sense of history. Thinking about technique in my *Laws of Cool* with the aid of Pierre Clas-tres's eloquent anthropology of the South American Guayaki people, I put it this way: "There is no such thing as the 'exact' slaving of tech-nique to technology. Rather, technique is always also a way to express the archaic interval, lag, play, or 'slack' between a people and their society."[5] That phrasing of the mission of technique now seems to me even more true. Deep technique, which is comparable to what Clifford Geertz called "deep play," simultaneously satisfies the needs of present nature (or political power) *and* asserts an "archaic interval, lag, play, or 'slack'" in relation to those needs that is constitutive of culture as such. Modern examples of such archaic techniques—akin to skeuomorphs, or retro-relics created with modern tools to negotiate a cultural comfort zone between the present and the past (as recently related to digital

media by Katherine Hayles and Nicholas Gessler)—are many.[6] Consider, for instance, *layer* or *mask* techniques in Photoshop that at once take advantage of digital modularity and recall methods of physical media, thus contributing their minute share to the immense cult (or guild) of *cool* by which designers today assert that they are culturally out of sync with corporatized media. But moderns have nothing over premoderns in this regard. This is because technical archaism was never more important than in so-called archaic or prehistoric cultures themselves, where—if I may ventriloquize—*our bows and baskets, our war cries and funeral cries: these follow the way of our great fathers and mothers.* After all, archaism is not the same as regression, which may be the first response when nature or war beats up a people. Instead, archaism is when people play technically on their most needful technologies—sharp spear or mournful voice—to set a beat and a rhythm to the otherwise senseless beating inflicted by nature or war. *HEA a, HEA a, HEA a; ta DUUM, ta DUUM, ta DUUM*; or any other accentual or numeric rhythm will do. From such meter there ultimately arises the very soul of the archaic sense of history: ancestors. For, what is repetitive meter but the retention at the atomistic level of the past? And what is invoked at the spirit level of such repetition but ancestors, whose presence haunts us with the sense that we ourselves are always only repetition?

The essence of the oral sense of history—the principle that underlies archaic technique and the invoked ancestors themselves—can now be named. That essence, nothing else than the cultural embodiment (which is also to say mediation) of repetition, is sociality. Nothing about the media of oral culture lies outside the relationality of social experience, now and for all time. The living and the dead have a history together because oral media link them in a society whose fellowship of past and present is heard in every beat and rhythm of every technique by which each voice, gesture, dance, and music offered up by each individual in the great chorus makes it meaningful to be *us*, repeated generation by generation. Earlier, I made Benjamin's *aura* the figure for the original medium. Now I can be less metaphorical. The primordial medium, which blew windlike not just between rock and voice but from voice to voice, was sociality itself. *I heard from him or her; I say to you; listen you to me*: these were, and are, the core statements of community that underlie communication media. Jean-François Lyotard imagines it this way in his reflections on the oral culture of a South American indigenous people: "Among the Cashinahua, every interpretation of a *miyoi* (myth, tale, legend or traditional narrative) begins with a fixed formula: 'Here is the story of . . . , as I've always heard it told. I am going to tell it to you in my turn, listen to it!'"[7]

Let there be no mistake: oral culture was the origin of what we today call *network*, complete with a data architecture of node and relay built on the proto-digital-network principle of "store and forward."[8] *Store and forward*, we may say, was the original sense of history, even if such repetition could at first be transmitted only across limited intervals of time and space.

Or, rather, there is one distinguishing feature of oral store-and-forward networks that we should remark before moving on. Adopting the vocabulary of communication studies, we can say that oral cultures integrated one-to-many, many-to-one, and many-to-many communication.[9] What a leader said to all, what all chorused back, and what everyone repeated to each other were a single social action. Thus, if oral social media in principle featured store-and-forward networking, which routes information through intermediate relays, the design of such networking was still that of the original local area network (LAN): a tribe, village, or family. The relays channeling the information flows were in fact less intermediate than immediate: they were someone's grandfather, grandmother, father, or mother. We might honor them with the name, *keepers of the transmission*. It was the keepers of the transmission who embodied the social network for one and all. It was the keepers of the transmission who were ultimately responsible for the oral sense of history in the root sense of responding, for example, when asked, *grandmother, where do the animals come from?* The keepers of the transmission could do so because they once shared a here and now with the ancestors, from whose twilight land of storage they bring the eternal living transmission, just as they now share space and time with us, who in turn will become keepers of the transmission once our original keepers join the ancestral message store.

Such keepers of the transmission will not be there in later media ages, with enormous effect on the sense of history.

The Age of Authors

Next we can consider cultures in which writing became dominant. Of course, there is more complexity, surviving record, and recent research than I can compass here, even before considering remediation effects by which literacy did not so much supplant as coevolve with orality (as in classical rhetoric and drama). I will thus speculate just on the aspect of the history of writing most germane in my context: the relation between writing and the sense of history.

From a modern perspective, of course, history seems by definition an act of writing. The great boundary in the historical record is thus not

between major religions or civilizations but between pre-writing and after-writing—that is, the emergence of the historical record itself. Or, to look for the moment from the origin to the zenith, we can jump *in medias res* to the era roughly from the late eighteenth to late nineteenth centuries when the modern sense of history not only dominated in the West but became philosophically self-aware. I refer to the century of high print culture that witnessed the triple birth of modern historiography, historicism (*Historismus*, the Germans called it), and, among other cultural forms that might be instanced, the mature novel. Critically rigorous in its approach to historical documents, historiography—for example, from Edward Gibbon and Bartold Georg Niebuhr through Jules Michelet and Leopold von Ranke—became writing to the second degree about writings; it did not just *collect* or *anthologize* but submitted documents to selection, analysis, and metacommentary. Correlatively, *Historismus*—for example, from Ranke and Jacob Burckhardt through Wilhelm Dilthey—was historiography to the third degree: the self-aware or philosophical practice of critical historiography. And novels at the time, including historical and realist novels, chimed with *Historismus* in their experiments with psychological characterization, limited omniscience, and (alike in *Historismus* and Leo Tolstoy) the construction of sprawling, complex historical worlds rooted in national sensibilities. ("History is a novel and the People are its author," Alfred de Vigny wrote in the wake of the French Revolution.[10]) A similar historicism characterized other disciplines at the time, for example, philology. As a technology, we might thus say, writing was ultimately a history machine whose highest-level technical effect, just before the advent of newer electromagnetic and other postliterate media, was the manufacture of the sense of history. If the other master effect often accounted to writing was the progress of knowledge (for example, scientific knowledge, one of the proof cases in the history of the book field), that is simply to say that historical knowledge and epistemic knowledge converged in the nineteenth century in what Michel Foucault calls "a profound historicity" penetrating "into the heart of things."[11]

How did the sense of history thus "effected" by writing technologies compare with the oral sense of history? Looked at one way, the sense of history suffered a loss in its technological conditions of possibility (in today's engineering speak: its underlying "constraints" and "affordances"). Written history simply did not have the same range of action. First, it had far less of the performative presence—the intensity of the here and now—that I called the voice of the rock. Consider Ranke's famous motto for history in the preface to his 1824 *History of the Latin and Teutonic Nations from 1494 to 1514*: "*Wie es eigentlich gewesen*" ("as it

really was" or "how it really was").[12] On the one hand, this credo seems to return us to the bedrock of immediate historical experience. It is of a piece with Ranke's "participation and joy in the particular in and for itself,"[13] and his often novelistic, you-are-there history-telling—as in his vivid narratives of events throughout the *History of the Latin and Teutonic Nations* and the limited omniscience of such paragraph openings from his later "The Great Powers" essay of 1833 as follows: "Were we to place ourselves back in that period, in the mind of a contemporary, what an unhappy, oppressed, painful prospect we would see"; "[i]n such manner Louix XIV found himself opposed by a rival which he had hoped through politics or the influence of religion to disarm, a more powerful, imposing, and dangerous rival, than he had ever expected."[14] But, on the other hand, Ranke's immediacy is surely what Friedrich von Schiller would have called "sentimental" rather than "naïve." Inflected "*how* it really was," it distanced presence in objectivity. Inflected instead "*as* it really was," it distanced presence in representation (as in the semifictional effect of the above paragraph openings). Either way, it displaced the here and now.[15]

Secondly, the written sense of history lost what I called the air of permanence of the voice of the rock. The impairment of physical permanence is clear, since few scrolls or codices outlasted rock. Less obvious is the impairment in metaphysical permanence. As I put it previously in an attempt at aorist tense, the voice "was always also—or, perhaps better, always *is*—the rock of ages." Because the airy, dynamic pulsion of voice was always *complementary* to the rock, that is, the question of its transience *in contrast* to the archival permanence of rock never even came up—no more so than mica reflections of sunlight glancing off a granite boulder seem transient rather than an aspect of the boulder. The time of the voice was simply a different order of time. It was legendary time: *so was the world in the beginning; so it is for us now.* How different human memory once committed to writing (as Plato early remarked in his myth of the origin of writing in the *Phaedrus*)![16] Measured against writing, whose storage mechanisms brought archival permanence to the fore as practice or ideal, human memory seems by contrast a waning rather than waxing palimpsest. Nor did the metaphysical rot stop there. Once the issue of archival permanence arises, then writing itself ultimately seems infirm by comparison with the eternal forms on Plato's Divided Line.[17]

But, of course, looked at another way—from the point of view of writing itself—loss was gain. Increased constraints and decreased affordances only meant that the technological range of action *shifted*—opening up more expansive conditions of possibility elsewhere. Indeed, "elsewhereness" is the key. Precisely because writing no longer had to carry the burden of either rock or voice, it could be borne more quickly and distantly

over the horizon. Presence and permanence thus both underwent a sea change. Presence became mobility, which culminated in print as what Elizabeth Eisenstein, writing about the print revolution, calls *diffusion* (that is, circulation). Meanwhile, permanence changed into a new kind of renewable permanence: reproducibility, whose print form Eisenstein calls *standardization*, or the reliable reappearance of the same text in multiple copies. In sum, oral monumentality (rituals at Standing Rock, Cleft Rock, etc.) converted into the new kind of monumentality that Eisenstein—compounding diffusion and standardization—calls *fixity*: truth secured not on the aura of unique markers but through the assurance of multiple copies in space and time.[18] Store-and-forward networking thus grew outwards from its village form to become the predecessor to what we today call a wide area network (WAN).

As a consequence—and this is one of the principle attributes of any WAN—intermediate relays in the network became more autonomous and specialized. No longer could what I called the keepers of the transmission fulfill their function simply by being enmeshed in ordinary life—while grinding corn or keening the death of a child, for example. Networking across wide areas of space or time was a challenging task that required the positioning of the relay at some physical or occupational outpost that was truly intermediary *between*—and thus removed *from*—ordinary life. One had to be a monk, with the specialized technological and technical skills to be a scribe, or, in the print age, to be in the literacy trade with its increasingly specialized roles of author, bookseller, shipper, jobber, etc. (not to mention critic and scholar). The relay positions in the network once held by keepers of the transmission thus thickened functionally while thinning socially. Ultimately, a reification—or, better, a modern cult effect—set in. Responsibility for the transmission seemed to shift from its human keepers to the instruments or products of transmission themselves. Thus arose the cult of the book as a surrogate for social identity. Books became the new keepers of the transmission. Ask a question, and a book responds.

In short, store-and-forward became *media* in the modern sense. Grandmother, grandfather, mother, and father: you were immediate when you communed alongside us. Media society means that we exile you from our immediate lives—if not into an old folks' home, then into a "now-folks'" home of specialized media functions locked (as any journalist of the last century will attest) in the unforgiving and unforgiven contemporaneous instant of the "just dispatched" or "live." Henceforth, the *here and now* can no longer be a communal history because it must be communicated from the *there and then*. *There and then*: what better way to dateline modern media with its principles of asynchrony and telepresence?

The wonder, we can reflect, is that the magic of the original oral sense of history survived. Auratic oral presence and permanence—store-and-forwarded as repetition (*here* and *here* again)—migrated to manuscript and then to print, the mechanical reproduction of repetition. Such, for instance, was the magic of the codex Bible, which, seen one way, was a repetition-engine designed to diffuse, standardize, and fix in canonical bookishness the otherwise unfixed repetition of the *four* Gospels, the multiple types of Christ, and so on. And, jumping forward once more, such was the magic come again of the great tomes of nineteenth-century historicism, which—though they secularized Christ as the Zeitgeist or spirit of history—still believed. They believed they could repeat history in Ranke's fundamentally miraculous "as it really was."[19] Michelet put it this way in 1846: "Be it my share in the future . . . to have named history by a name given by no one before. Thierry calls it *narration* and M. Guizot analysis. I have called it *resurrection.*"[20]

If the highest level technical effect of writing, as I said, was the historicist sense of history, then we are now in position to name the particular manufacturing technique involved. It is not accidental that Michelet subsumed Augustin Thierry's *narration* on the way to his resurrection of history. The highest level technique of history was narration, which—like developmental exposition in essays, treatises, and other forms—transumed repetition in broader patterns of repetition (as in Gustav Freytag's 1863 analysis of the rise-climax-fall pattern of narrative).[21] A synopsis of historicism that underscores its convergence with narrative might thus go as follows. In the beginning, there was an essential human *Geist* (spirit, mind, meaning) making the objective world from the first a subjective, mindful world (Dilthey: *geistige Welt*). Whether expressed as folk, national, or universal spirit, this original mentality had an inner order befitting its birthright as the full, self-consistent identity of man ("unity" *Historismus* called it).[22] But—and this was the basic historicist insight—the human order could only come into being through the apparent disorder of *becoming. Geist* emerged not despite, but through, historical change as the *Bildung* of people, the coming-to-order of the nation-state, and the progress of civilization. History was thus what Ranke—also in the preface to his *History*—called the "development of the unity and the progress of the events."[23] Or, to use the other master term of *Historismus*, history was a cross-temporal design of "connectedness" (Ranke: "inner connection," "relatedness"; Dilthey: "system of connections," "web of connections," "*Zusammenhang*" [interconnectedness]).[24] And, of course, the perfect medium in which to unfold history as connected development was narrative. In sum, where the arche-medium of orality was *aura* and the felt sense of that aura—implemented by techniques of voice—was *immediacy,*

the equivalent ür-medium of writing was *change* and the intuitive sense of such change was *narrative*—also seemingly immediate, only needing to be told to be grasped.

This only leaves the applied technical question: how did technologies of writing actually lead to techniques of narrative capable of "effecting" the historicist sense of history? Rather than being merely technical, this question exposes the profound problem of media determinacy that has so far lain dormant in my discussion, part of the sliding scale of problems we call technological, materialist, and historical determination. Insofar as the determination problem has a general solution, I speculate, it lies in distinguishing between its material and practical—in this case, technological and technical—dimensions as two *different* orders of determination. Technology is causal at the level of the material conditions of possibility: a plane can fly high, but winged flight constrains it from leaving the atmosphere. By contrast, technique consists of the protocols, designs, and practices of technology that are causal at the level of socio- or psychocultural necessity: hence, the low-altitude, all-attitude barrel roll of a fighter plane returning home in the Battle of Britain. The determination problem really comes down to the feedback loop between any era's technological conditions of possibility and its technical improvisations impelled by cultural forces elsewhere than on the plane of technology. And it is the fecundity of the slippage—at once free and reciprocally governed—between these two orders of determination (manifested in what I earlier called technical play) that makes all the difference between barren and culturally productive determination. Thus our richest contemporary explanations of determination are notably slippery—for example, Louis Althusser's thesis of "relative autonomy"; Gilles Deleuze and Félix Guattari's notion of hybrid rates, flows, and spaces (applied to historiography in Manuel de Landa's *A Thousand Years of Nonlinear History*); Bruno Latour's actor-network-theory; emergence theory; and so on.[25]

But, really, the determination problem has no general solution that is not entangled with a specific one, where the resulting "mangle of practice" (to use Andrew Pickering's science-technology-studies term) is indistinguishably theoretical and concrete.[26] Here I must open the scene on what I earlier elided when jumping *in medias res* from the origins of writing to its industrial-age zenith.[27] The specific solution to the problem of how writing, originally a minor technology in oral culture, produced distinctly literate narrative techniques so dominant that they led to what Lyotard calls "metanarratives" or "grand narratives" of historicism must lie in those missing centuries between the origin and zenith.[28] Since mapping this intervening span in the careful manner, for instance, of

M. T. Clanchy's *From Memory to Written Record, England 1066–1307* is beyond my scope, I will instead take the shortcut of representing the span through a simple contrast of one early and one late passage of writing (specifically, of history writing).[29]

The first passage is from the eighth-century Anglo-Saxon *Annals of Saint Gall*, an example of annals history I borrow from Hayden White's "The Value of Narrativity in the Representation of Reality":

709. Hard winter. Duke Gottfried died.
710. Hard year and deficient in crops.
711.
712. Flood everywhere.
713.
714. Pippin, mayor of the palace, died.
715. 716. 717.
718. Charles devastated the Saxon with great destruction.
719.
720. Charles fought against the Saxons.
721. Theudo drove the Saracens out of Aquitaine.
722. Great crops.
723.
724.
725. Saracens came for the first time.
726.
727.
728.
729.
730.
731. Blessed Bede, the presbyter, died.
732. Charles fought against the Saracens at Poitiers on Saturday.
733.
734.[30]

As I have commented elsewhere (following White): chronology here certainly seems to assert linear order, even to the point of recording null years when apparently nothing happened. But what meaningful line of thought is inscribed in such order? Are we reading a dynastic narrative of kings and civilizations ("Charles fought against the Saxons," "Saracens came for the first time")? Are we reading instead a tale of local regimes ("Duke Gottfried died," "Pippen, mayor of the palace, died")? Or, dissolving all political events in a circumambient, agricultural world view, are we instead just witnessing a seasonal tale of crops ("Hard winter . . .

Hard year and deficient in crops . . . Great crops")? The answer, as best as we can tell, is all and none of the above. The lines of thought shoot off in multiple directions and on multiple levels.[31]

The second passage is from the introduction to Ranke's 1824 *History of the Latin and Teutonic Nations from 1494 to 1514*.[32] The introduction, which follows his preface with its *wie es eigentlich gewesen* dictum, is entitled "Outlines of an Essay on the Unity of the Latin and Teutonic Nations, and Their Common Development." It opens:

At the beginning of his success, not long after the migration of nations had commenced, Athaulf, King of the Visigoths, conceived the idea of gothicising the Roman world, and making himself the Caesar of all; he would maintain the Roman laws. If we understand him aright, *he first intended* to combine the Romans of the West (who, though *sprung of many and diverse tribes*, had, after a union that had lasted for centuries, *at length become* one realm and one people) in a new unity with the Teutonic races. *He afterwards* despaired of being able to effect this; but the collective Teutonic nations *at last brought it about*, and in a still wider sense than he had dreamed of. *It was not long before* Lugdunensian Gaul became not, it is true, a Gothland, but a Lugdunensian Germania. *Eventually* the purple of a Caesar passed to the Teutonic races in the person of Charlemagne. *At length* these likewise adopted the Roman law. In this combination six great nations were forned—three in which the Latin element predominated, viz. the French, the Spanish, and the Italian; and three in which the Teutonic element was conspicuous, viz. the German, the English, and the Scandinavian.

Each of these six nationalities was again broken up into separate parts; they never formed one nation, and they were almost always at war among themselves. Wherein, then, is their unity displayed? (*History* 1–2; emphases mine)

This is nineteenth-century historicist narrative at its height. Each of the phrases I highlight is drawn from a replete repertory of techniques for connecting events in temporal, causal, or intentional lines of development—in this case dedicated to the purpose of taming the vexed problem of multiple nations among the supposed cultural unity of the European "people."[33] Just after the above passage, Ranke answers his question about how unity is possible among six nations warring among themselves by asserting that the enterprises of these nations, "arising as they do from the same spirit, form a progressive development of the Latin and Teutonic life from the first beginning until now" (*History* 2).

So how do we get from 709 to 1824 in a technologically determined way? The size of the chasm that must be crossed becomes clear when we realize that, while the particular technique of early writing that dominates the *Annals of Saint Gall* can be said to be determined by the new writing technologies, this technique does not at all lead forward predictably to linear narrative. I refer to the technique of the *list*, whose

bureaucratic and accounting forms, Jack Goody shows in his anthropology of writing, were bound up with the origins of writing.[34] One might thus credibly spin a yarn as follows to tie lists into the overall process by which writing technologies determined writing techniques. Start by recognizing that the signature technologies of writing—inscription, the alphabet, cut-sheet pages, the codex, and print—apply the mechanical principles of *analysis* (they divide into parts) and of *transcoding* (they assemble things back together again, but not necessarily in a fixed order). We might say today (in the manner of Lev Manovich) that writing technologies are discrete, modular, variable, random-access, and remixable (to the point that even the scroll might have been discontinuous in actual use).[35] Lists are thus emblematic of the whole scale of analytical and transcoded writing techniques spanning from the basic allography of script to variable orthography, wordplay, dynamic syntax, permutational arrays (for example, tables), exchangeable topoi, schematic plot structures, and so on.

In one sense, the cumulative effect is narrative, beginning with list-narratives of the sort: "And Irad begat Mehujael: and Mehujael begat Methusael: and Methusael begat Lamech" (Genesis 4:18). But in another sense, list-logic by itself only gets us to writing as a prop for *oral narrative*, a very different creature from linear narrative. After all, much of the missing substance of the *Annals of Saint Gall* must have been supplied by oral narratives flowing all through and around the sparse jottings of the annalist. Oral linearity, as we have known since Milman Parry's work on Homer, was profoundly nonmodern and nonlinear, accommodating as it did the remixing of formulae and episodes as a core principle.[36] *Things can be said in many ways; many are the ways in which things can be said; many are our sayings and our ways*; and so on. The bottom line is that early writing with its lists imitated oral technique, supported oral technique as score to music, or evolved convergently so that two different technologies—voice and writing—developed similar techniques of telling history. In none of these cases is there a predictable path forward to the symphonic narrative of *Zuzammenhang* (linear or multilinear connectedness) characteristic of the great nineteenth-century histories and novels. Rather, as suggested by Paul Zumthor's concept of *mouvance* in early manuscripts or Adrian Johns's thesis of unstable *piracy* in early modern print (an explicit rebuttal of Eisenstein's *fixity*), it may be that writing was essentially a kind of DJ mix that exploited the analytical and transcoding powers of its underlying technology to create works undecidably connected and disconnected.[37]

So, how *did* the transition from 709 to 1824 happen in a technologically determined way? One solution to this cliff-hanger question is to see

it less as a cliff than as a terraced slope with myriad technological steps, each leading to one more level of technique in the accumulating water-shed of literacy. However, it is not clear that the solution by a thousand answers can satisfy, since it tends to dissolve explanation in description or, equally missing the point, to make assumptions about the nature of aggregate determination that merely recast the original problem. Thus I will add another kind of answer that—fair warning—will also not fully satisfy, but has the virtue of keeping in view the big picture.

In current lingo, the solution I propose is to model technological determination as *recursion*. Recursion is a function that delegates the processing of a problem to self-referential, iterative, and diminishing versions of the same function, bounded by an initial value and a termi-nating base case that are essentially the reminders of external determi-nation acting on the system. Thus, in a standard example, the recursive formula for the factorial function is *n! = n(n-1)! for n > 0* (with *n! = 1 for n = 0* as the base case). In a nice, nonmathematical example that I borrow with slight variation from Wikipedia, the following is a recursive definition of *ancestors*:

The parents of one's ancestors are one's ancestors (recursion step).
One's parents are one's ancestors (base case).[38]

The application in the present instance—my answer to the determi-nation problem—is recursive as follows. How is it that technologies of writing "determined" the narrative techniques that at last resulted in nineteenth-century historicism? The answer can only be that determi-nation was recursively defined *as* narrative. In other words, only *after* enough writing devices of a causal-temporal-intentional sort were strung together to reduce the scope of technological action to linear causality (really, just a caricature of the full, freakish possibilities of what Picker-ing calls the "mangle of practice") did there arise what moderns *mean* by historical determination in the first place as opposed, for example, to determination by magic, miracle, or fate. It's like Althusser's paraphrase of Blaise Pascal on religion: "Kneel down, move your lips in prayer, and you will believe."[39] In modern terms: kneel down to technology, move your lips in narrative, and you will believe in a universal god of deter-mination as small as the micro-narratives of electrical engineering (for example, a flow chart of a transistor) and as large as any of modernity's metanarratives (for example, Ranke: "The collective Teutonic nations at last brought it about"). After all, what could determination in human, as opposed to physical, matters *mean* other than that it can be narrated as development? Humanly meaningful determination—at least in a

modern understanding of *human* (that historical creature of paradoxical freedom and determination born in the nineteenth century, Foucault said)—simply *is* narrative.[40] Through emergent or accidental pathways of action that in the final analysis are unknowable, writing technologies working in concert with sociocultural forces "determined" the formation of narrative techniques that recursively formed the modern image of determination itself.

As I warned, solving the problem of how writing technology determined the rise of narrative techniques by saying that narrative itself recursively determined the very meaning of determination cannot be fully satisfying, since we rely on a slippery move by which the message of determination is offset to its medium and form. However, the solution is of a piece with the general contemporary slipperiness of causal explanation according to which the truth of the matter rests less on verification than (as I put it) fecundity. In any case, the recursive approach to the problem of media determinacy can be factored into our final takeaway lesson about writing as follows. Earlier, I concluded that the essence of the oral sense of history was sociality, now and for all time. What about the sociality of *writing*? Just as writing recursed determination in its techniques, I surmise, so—motivated by the same processes of modernization—it recursed sociality in those techniques. The intermediary relays in the networks of writing, as I said, thickened functionally but thinned socially. Thus, the sociality behind media determination increasingly had to be folded recursively into writing technique itself. Some have argued controversially that good writing is thus "context-free" or "autonomous."[41] Grandmother, grandfather, mother, and father were no longer the keepers of the transmission—or, at least, could not officially be recognized as such on the manifests, contracts, court records, wills, and tax bills (not to mention reports, studies, and so on) that were the medium of modern institutions. Where they remained visible at all, the keepers had to be recursed instead as roles or "personae" in the new medium. Narratologically, they became the virtualized roles of the "sender," "receiver," "helper," "opponent," and so on schematized by A. J. Greimas in his communicational theory of narrative.[42] Or, inspired by John Guillory's "The Memo and Modernity," we can easily see how such personae can be routinized in memo form.[43] As it were (somewhat fictionalized):

> To: Son
> From: Dad
> Re: Contributions to college 529 savings plan

cc: Granddaughter
        I am sending a check for Lian's college plan. Please let me
        know when Fidelity confirms the deposit. By the way, what
        dress size is Lian (Grandma wants to know for Christmas)?
                —Love, Baba

The original keepers of the transmission disappeared, and today's gov-
ernments and companies, assisted by all their clerical armies, became
executors of their estate.

Thus writing executed sociality as best it could, even if, by comparison
with orality, it was poorly designed for the purpose. Rather than a com-
munity for now and all time, writing was a contract between now and
then. Put in a paradigmatically modern way, it was not a community but
a *system* of communication. With writing, we move from the age of ances-
tors to that of modern authors, or, equally, of any of the other specialized
roles in the modern writing-media system: editors, publishers, transla-
tors, readers, interpreters, and so on. Each was a specialized relay in the
new system of society. The result was the breakdown of the community
of one-to-many, many-to-one, and many-to-many communications. Pity
the modern author or publisher: they can only speculate whether they
are communicating one-to-many, many-to-one, many-to-many, or at all.
Those communicative acts are no longer conjoined *here and now*. Asyn-
chrony times out communication, while telepresence spaces it out. Only
the market forces of the invisible hand—we might as well say: the deaf
ear and blind eye—are left to coordinate communicative acts, or not.

Who or what will be keepers of the transmission in future media ages?

The Age of Friends

In a fuller study, we would now need to look at the immediately
subsequent media era that overdubbed writing—the age of telegraphy,
telephony, photography, film, phonography, tape recording, radio, and
television from the nineteenth through mid-twentieth century. This is
the (primarily) electro-mechanical and analog heartland of Marshall
McLuhan's media theory and, more recently, of such works of media
archaeology as Friedrich Kittler's *Gramophone, Film, Typewriter*.[44] Media
that broadcast instantly and recorded electromagnetically seemed to
enhance "as it really was" by boosting sensory presence, instant mobility,
and mass reproduction. The conditions for an even fuller sense of history
thus seemed imminent, combining see-and-hear gusto with reproductive
mobility on the scale of McLuhan's "global village." Moreover, narrativity

stood to gain even more continuity and connectivity because the new technologies seemed to be all about flow. They streamed events with no necessary breaks.

Only, we know, the new technologies led to techniques that could just as well be said to be the amnesia of history. The combination of more powerful asynchrony and telepresence (events recorded for broadcast around the world), together with the sheer abundance of information accumulated through stream recording/broadcasting, led antithetically to ever more sophisticated production and reception techniques that fragmented history into montages, newsreels, and sound bites. The result was a capsule history that mobilized across space and time without context in either dimension. It was history without history. In an updating of Ranke's "history as it really was," Edward R. Murrow famously said "*This* is London" at the opening of his radio broadcasts during the Blitz in World War II. Similarly, "You Are There" was one of the programs he later initiated at CBS (with "live" interviews of historical figures played by actors). But Murrow's *this* and *there* were not so much then-and-there as discontinuously *there* and then *here* in the audience's living room—without any more historical context than could be squeezed in before the next commercial. Even the great, symphonic historical epics of the era—for example, NBC's *Victory at Sea* television documentary series of 1952–53 chronicling the U.S. naval war against the Japanese in World War II (set to a literally symphonic score by Richard Rodgers) had a paradoxically decontextualizing effect: twenty-six episodes, each cut up by commercials into modules, every part of which had to be scripted with sufficient stand-alone (and repeated) narrative to withstand the overall punctuated rhythm of the medium.[45] Alluding to a Kodak camera that debuted in 1963, we might say that the logical extreme of such history was instamatic history.

I will cut the tape on the analog electro-mechanical era, however, to advance the story to our present age of digital networked media, which, in a manner symptomatic of advanced instamatic history, we now commonly just abbreviate, "new media." Digital new media pose the enormously important question for which my above reflections on orality and writing merely prepare: how can so much media, impacting the lives of so many people in such crucial ways, have so little apparent sense of history? This question bears on all the major generations of digital technology: scientific and military computers, business mainframes, personal computers and networks, and, most recently, Web 2.0. To bring the question into sharpest contemporary focus, I will consider Web 2.0 in particular.

Though Web 2.0 is many things, it might be defined most generally as a change in the information architecture and communication forms of the Web that resulted in a robust migration of social experience into the network. The early Web, which we can now call Web 1.0, started with an information architecture in which authors uploaded a Web page to a server computer as component files (HTML, image, and other multimedia files). Then, when a user clicked on a link, a Web server program on the server fetched the files from storage and delivered them through the Internet. Finally, the end-user's browser reassembled everything "as is" in a facsimile of the original content and design (modified to fit local hardware and user preferences). In this model, the end user had more "hypertextual" navigational control, but was still mainly an information consumer.

But beginning in the mid 1990s, corporations and institutions moved to the Web, bringing with them their databases. This subtly altered the Web into what might be called Web 1.5 (the half-step indicating that the full potential of the new architecture had yet to be realized). In this model, authors used "Web forms" to write content into an underlying database running on the server (rather than directly onto the server as files). When a user made a request, an intricate suite of mediating files and scripting code pulled content selectively from the database—including mixes of an author's content with other content—and assembled the whole in a "template" or "theme" design (like an empty, precut mold of a Web page). What finally went out over the Internet was thus something like a DJ remix. This gave users more fine-grained control over information consumption, since they could query databases using advanced search features. But just as important, Web 1.5's database-to-web system ran *bidirectionally* to allow users, via their own input Web forms, to write content into the very database they were browsing. After all, companies *wanted* users to write in their names, addresses, credit card numbers, and so on.

Web 2.0 arrived when Internet developers woke up to what they really had with such bidirectionality. Why constrain the database-to-Web architecture asymmetrically so that authors wrote most of the content into the database, they wondered, while users only wrote in names, addresses, credit card numbers, and, at most, product reviews? Why not take the handcuffs off the system so that users could write into the database full-throated content as if they were themselves authors? Following this line of thought, developers designed blog programs, for instance, so that when authors posted to the underlying database, readers could respond by writing "comments" back into the same database for display alongside the author's content. The result was Web 2.0: the Big Bang

explosion of new communication forms centered on the ability of users to participate in the creation, sharing, and linking of content. At the level of genre, these communication forms include blogs, microblogs (Twitter), wikis, social-network sites (which allow "friends" to post on each others' "wall"), shared bookmarking sites, and so on. At the level of topoi and tropes, prominent forms include trackbacks, blogrolls, hash tags, retweets, etc. All are conventions in the root sense. They are where people gather for micromoments of commonplace—more accurately, common-network—community.

And with this mention of community, we come to the true significance of Web 2.0. "Architecture," "form," "genre," "topoi," "trope," and their like may be too stiff a way to describe what Web 2.0 really set loose. Such conventions express, but barely contain, the great phenomenon of Web 2.0: *social computing*, which can be defined most generally as "the use of technology in networked communication systems by communities of people for one or more goals," where the goal may be as basic as just working on one's identity (for example, polishing one's profile page), communing with "friends," or shaping the collective identity or mission of an online group.[46] The signature feature of Web 2.0, in short, is the migration of social experience—whether for reasons of identity, play, or work—into the network. In its now standard slogans, Web 2.0 is "crowdsourcing," "the rule of many," "the wisdom of the crowd," "hive mind," etc. It is the reorganization of one-to-many and many-to-one communications under a new hegemony of many-to-many *collaboration* epitomized in the increasing proportion of daily life spent updating blogs, Facebook pages, and so on. After all, why stand dumbly in line at a bank or a theater when one can pull out a smart phone to tweet from the sidewalk, for example, *I'm standing in line for* Inception—thus converting twentieth-century anomie into twenty-first-century sociality?

So what happens to the sense of history in Web 2.0?

First, we should get the easy answer out of the way. The obvious answer is that Web 2.0 makes history disappear because it takes instamatic to a tweet extreme. When the early Web site called "Paul's Extra Refrigerator" (one of my exhibits in *Laws of Cool*) told us what was on the shelf at any perishing instant in Paul's store-and-forward appliance (an allegory for a server), it merely prophesied the era when daily blog posts and minute-by-minute tweets are the order of the day.[47] *Is the light on in the fridge?* has morphed into *What are you thinking about now?* Even before Twitter, of course, blogs were about daily posts; Wikipedia was about hourly or more frequent edits, reverts, and deletions (especially on controversial pages); and Facebook asked its present-tense status prompt question, "What's on your mind?" (previously, "What are you doing right now?"). Clearly, Web

2.0 is all about the betwixt and between—or betweet—of the moment. *Now* is the order of the day. *Now* is history as it really *is*, with no *was* in view more extensive than—on a typical Web 2.0 screen—just a handful of entries ordered by most-recent at top. Beyond is only the black hole of an archive or history page of interest just to researchers. Of course, all that mighty *now* is superconnected in networked *Zusammenhang*, but without a corresponding sense of history in the old historicist sense. Ultimately, blogs and Twitter return us to something like early literacy, or even orality. Thus, look again at the excerpt I posted above from the *Annals of Saint Gall.* That's blog or Twitter, *annum* 709.

But beneath the facile answer that Web 2.0 knows no history, there is a more profound truth. Return to the passage I earlier quoted from the beginning of Ranke's introduction to his *History* (see p. 12 above). As I suggested, this is *Historismus* at its most paradigmatic. However, looking at the passage from the perspective of Web 2.0 leads to a shock of uncanny recognition. There is a deep family resemblance between historicism and Web 2.0.

Ranke's passage opens: "At the beginning of his success, not long after the migration of nations had commenced, Athaulf, King of the Visigoths, conceived the idea of gothicising the Roman world, and making himself the Caesar of all; he would maintain the Roman laws." But it was instead "the collective Teutonic nations," Ranke continues, that "at last brought it about, and in a still wider sense than he had dreamed of." This opening, which supplies the long view behind the *History's* subsequent focus on the years 1494 to 1514, contains the kernel plot of *Historismus.* Told small or large, *Historismus* from Herder onward was the story of how Europe after the Roman Empire eventually reunified not as a single dominion but as sibling, if rivalrous, "peoples" and "nations" united by *culture.* Gradually and organically—so goes the tale—the European nations created a postimperial empire ruled not by any single Caesar but by a distributed European culture expressed in everything from institutions and language to the post-French-Revolutionary *Geist* (to allude to the nearest historical context of *Historismus*).[48] In short, *Historismus* was a tale of modernization that championed the transition of sociality from one-to-many aristocratic rule to many-to-many sociocultural rule—aka, liberty, or Europe 2.0. Everywhere the historian looked, there appeared the *Zusammenhang* of a common culture peaking in the nineteenth-century version of the "wisdom of the crowd," "rule of many," and "crowdsourcing": the *Volk* or People.

Thus, the shock of family resemblance. *Historismus* was just like Web 2.0. We imagine that if only some Charles Babbage of the time had invented not just an Analytical Engine but a steampunk version of a blog,

Twitter, or wiki, then everyone would have been posting daily updates about the common zeitgeist or adding Wikipedia-style to the original French and British encyclopedias of the era.

"Just like Web 2.0," of course, but not quite. The uncanniness of the resemblance has to do with the fact that *Historismus* was also manifestly different than Web 2.0. What prevented people of the time from using combined human and technological mediators to reach out and instantly join the proto-blogosphere (then called "gossip," "rumor," and "news")? The answer, of course, is of the following sort. For such an intercon-nected "wisdom of the crowd" to be possible, there had to be rights of access allowing mediating humans and technologies to take up stations spanning across local, national, and international spaces—precisely the spaces that native peoples stubbornly called *home*. To push through roads, win easements, claim necessary properties, and so on thus ultimately required an army; and armies in turn were merely the underpinning of all the administrative, political, religious, economic, cultural, and other apparatuses necessary for modern conquest, pacification, and governance. In the last analysis, that is, before the world could switch on instant social communications, it had to reinvent the Roman empire in modern form, first for the age of monarchs and then *again* for the new imperial age of the People, Zeitgeist, and History.

All of that modernization, of course, took time; and it is the calculus of time balanced against space that is the key to the whole puzzle of the relation between historicism then and Web 2.0 now. We might say that the essential hermeneutic—or what we might today call algorithm—of *Historismus* was to interpret all the spatial (and political) barriers that impeded full-on human sociality as *temporal delay*. Civilization was the delayed action of sociality unfolding in historical time. In applied terms, this meant that *Historismus* systematically processed all the micro- and macrogeographical grammars of spatial coordination that described divi-sion (starting, for instance, with prepositions such as "above," "against," or "beside") into grammars of temporal coordination that foreshadowed resolution (as in such phrases in the Ranke passage as "at the beginning of his success," "not long after," "he first intended," "at length become," "at last brought it about," "it was not long before," "eventually," and "at length").[49] The highest-level output of this algorithm, of course, was the discursive mechanism we have already noted: narrative. Simply put, historicism never encountered a spatial, territorial, political, or cultural barrier to sociality that it couldn't transform into a temporal delay, sus-pense, foreshadowing, or prophecy with the makings of a good story. As it were: *Once upon a time, the hero* Geist *could only save the people by sending a message of the enduring human spirit to all the regions of the world. But an evil*

king built a mighty fortress on the road that stood in the way. At last, eventually, at length, after travail, ultimately, and finally, Geist *succeeded in carrying the message of humanity forward. It did so by learning to build good institutions of law, government, economy, religions, culture, and, not least, media so that never again would the communication of the human spirit be thwarted.*

The difference of Web 2.0, of course, is that the whole calculus for converting spatial separation into temporal narration once constitutive of the sense of history has been reconfigured. In the age of digital networks, spatial barriers to sociality seem fewer and less impassable. This is due to technological progress. But it is also due in great part precisely to the fact that the dirtiest work of war, pacification, oppression, and modern empire building has already been done to create a world safe for the transport of both capital and information. Web 2.0, in other words, is a libertarian pygmy standing on the shoulders of a tyrant ogre. As a result, spatial-political barriers that once took muscular civilizations centuries, if not millennia, to traverse by pushing through roads, etc., are now overleaped in milliseconds by a single finger pushing "send." The temporality of shared culture is thus no longer experienced as unfolding narration but instead as "real time" media. Specifically, the old phenomenology of store-and-forward temporality transforms into the new ideal of *instantaneous/simultaneous* temporality—a kind of quantum social wavefront connecting everyone to everyone in a single, shared *now.*

Hence it is that Web 2.0 no longer seems to need the grammar, narrative, and resulting sense of history of *Historismus.* G. W. F. Hegel thought that all history would culminate in the convergence of *Geist* in a world-moment of Absolute Knowledge. Drawing on Hegel, Francis Fukuyama more recently updated the same world-moment in neoliberal (and/or neoconservative) terms as "the end of history."[50] Now Web 2.0 gets all that world-now of Absolute Knowledge and the end of history into 140 characters or less. *Geist* today sounds like Justin Bieber sending a Twitter post to millions: "Boston was LOUD tonight. Thanks to everyone who came out to support. We had some fun."[51] The end of history is instantaneous simultaneity as world-concert.

Of course, the thesis that Web 2.0 unlocks the full sociality pent up in older historical epochs and so no longer needs those epochs' delaying sense of history is open to criticism. Cultural-political theorists of digital-age "empire" (in the tradition of Michael Hardt and Antonio Negri), academic critics of new media, and hactivist or tactical-media theorists (in the tradition of the Critical Art Ensemble) point out in various ways that Web 2.0 is still complicit with the confining structures of history.[52] For example, it is clear that Web 2.0 increasingly subjects the "many" to corporate aggregators as if the corporate form were the

natural evolutionary end, or predator, of the many (a phenomenon Siva Vaidhyanathan calls "the Googlization of Everything").[53] More generally, Web 2.0 participates in a neoliberal empire built on principles of decentralized technomarket control.

These kinds of criticisms can be translated into my terms of analysis here by saying that Web 2.0 represents an *incomplete* transformation of the world-story of *Historismus* (the regime of delayed time) into the world-media of the Internet (the regime of "real time"). Consider, for example, just two major old-world stumbling blocks in Web 2.0's logic of real-time instantaneous simultaneity. One is the still worrying "digital divide." There are significant developmental lapses separating people who have the infrastructures, economies, and institutions that can support always-on blogging or social networking from people, for instance, in rural sub-Sahara Africa or, in times of political turmoil, Egypt (during its revolution of January 2011). As a result, instantaneous "real time" is not actually simultaneous around the world (or anywhere from social top to bottom). This is the digital version of what Marxist critics, in their version of historicism, have long called "uneven development."

The second stumbling block is that Internet "real time" is also not instantaneous. There are multiple, competing understandings of instantaneity in the age of digitally networked time. Some years ago, I wrote about the unstable temporality of Web 1.0.[54] The temporal complexity of Web 2.0 is even greater. The Web 2.0 data architecture I described above, for instance, requires that the querying of databases, the snapping together of page parts (for example, the header, index, sidebar, and other component PHP files in a blog "template"), the application of stylesheets, and so on be coordinated in intricate dances of time in hardware and software structures on the server. And even more unfathomable is the contingent interaction between temporal events on servers and on the Internet at large—the whole revealing the fact that "instantaneity" is not a technological given but instead a ground of social contest. As in the recent regulatory battle in the United States over "net neutrality," for instance, the contest concerns who gets what bandwidth and other resources to make their instantaneous experience of the Web more instantaneous than someone else's. In short, the timing of any apparently instantaneous information event, whether a streaming event (such as video) or a discrete discourse event (for example, who says something first in an online forum), matters. And almost all the inner structure of such timing is hidden from view in the "real time" of Web 2.0. This lacuna of thought, which is too recent to have attracted a tradition of discussion, solicits new kinds of critique focused on the formal and social implications of what might be called technological

microhistory. A possible cultural-critical thesis, for example, is that the idea of instantaneous simultaneity is an ideological construct designed to allow capitalists of instantaneity such as Twitter, Facebook, Google, and so on (each with proprietary algorithms for producing the world *now*) to act as if they own the sociality of simultaneity.

Much more could be said along these lines about why instantaneous simultaneity, in Web 2.0 parlance, is just a "mash-up" or ad hoc coupling of two concepts—the instantaneous and the simultaneous—that are not consistent relationally (or internally) and do not add up to a single, posthistoricist Zeitgeist of the world-now. But it can all be summed up in the most critical judgment one can make about Web 2.0: *there is still history in it.*

My conclusion is that there is a case to be made for preserving the older sense of history (complete with its temporal grammar and narratology) as a critical complement to Web 2.0. The sense of history that *Historismus* experienced as narrative was ultimately all about human sociality. It can thus be "friends" with the real time of today's social media. But the older sense of history is also different enough that it can supplement Web 2.0 where logical stumbling blocks of the sort I instanced above reveal ethical, political, economic, and other lapses in the contemporary desire for world sociality. Perhaps the ancestral keepers of the transmission that historicism once remediated for the high-print era can be remediated yet again for the social-computing era. Historicism can be not just our friend but also—like grandmother, grandfather, mother, and father—our dearest, sternest, critic, even as we now reciprocally criticize historicism's limitations. The function of historicism at the present time is to say: *respect what friendship once was, but also redeem it from what it once was so that it can be what it once hoped.*

As a way to explore this hypothesis, the University of California Transliteracies Project on online reading that I direct has created a prototype social-network system called RoSE (Research-oriented Social Environment).[55] This is not the place to describe the system in detail. It is enough to say that RoSE is a demonstration of social computing with a difference. The difference is the inclusion of a sense of history. While RoSE has the capacity to allow contemporary users to friend each other, its primary goal is to project the model of social networking backwards over historical networks of authors and works. In RoSE, documents, authors, editors, publishers, readers, annotators, and so on across history are interlinked in a combined "social-document graph" whose relations change in both the past and present as each era influences the understanding of the other. Such an environment reveals history to be a continually co-evolving set of clustered relationships between histori-

cal and contemporary people-and-documents, people-and-people, and documents-and-documents.

The critical power of RoSE, in other words, comes from reciprocally projecting the past sense of history over our present sense of sociality, and the reverse. When completed (funding allowing), RoSE will ultimately allow researchers to navigate dense topographies of knowledge backwards and forwards in time to see how a particular research area developed—in other words, to explore with a sense of history. Indeed, a "time-slider" function makes it possible to filter by chronology one's view of networks of people and documents to witness the evolution of knowledge.

Developed with seed-level funding, RoSE is still an early prototype. But already it allows the living to be "friends" with many dead people. Dead people, in fact, are RoSE's point of pride. The more dead "users" with profile pages in the system who are connected "live" (dynamically) to the profiles and works of living users, the better. Thus, for example, I am friends in the system with William Wordsworth (the subject of my first book); and our two profile pages—in their complex, interrelated, and branching relationships to other people and documents—bespeak the living, breathing, animated sociality of knowledge. RoSE explores how the keepers of the transmission—remediated as historical print authors and documents—can be remediated yet again for the age of social computing.

In short, RoSE tries to integrate the sense of history with the digital age. The digital sense of history may not be history as it really was, but it is information as it should really be: an experience of mediated communication that—as a condition of what it means to be social—is historical to the core. Servers, we may say, are today's rocks of social knowledge—each as massive and distinctly named (through IP addresses) as a Standing Stone, Split Rock, or Cairn in earlier ages when such petroglyphs also had unique identity. Then, as now, the identity of those silicon and mineral-trace platforms mean nothing by themselves, other than that *some* meaning important to *someone* is *here*. Only the full experience of sociality expressed in a sense of history unlocks the human meaning.

My argument is that the amplest experience of sociality includes the society that is history, and social media will be more fully human if it remembers that.

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NOTES

1   Walter Benjamin, "The Work of Art in the Age of Mechanical Reproduction," in *Illuminations*, ed. Hannah Arendt, trans. Harry Zohn (New York: Schocken, 1969), 220.
2   Albert Borgmann, *Holding On to Reality: The Nature of Information at the Turn of the Millennium* (Chicago: Univ. of Chicago Press, 1999), 37.
3   Walter J. Ong, *Orality and Literacy: The Technologizing of the Word* (London: Methuen, 1982), 1.
4   See, for example, Ong, *Orality and Literacy*, 36–68.
5   Alan Liu, *The Laws of Cool: Knowledge Work and the Culture of Information* (Chicago: Univ. of Chicago Press, 2004), 294.
6   Clifford Geertz, "Deep Play: Notes on the Balinese Cockfight," in *The Interpretation of Cultures: Selected Essays* (New York: Basic, 1973), 412–53; N. Katherine Hayles, *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics* (Chicago: Univ. of Chicago Press, 1999), 17; Nicholas Gessler, "Skeuomorphs and Cultural Algorithms," *Lecture Notes in Computer Science* 1447 (1998): 229–38, http://www.springerlink.com/content/06254753ul401480/.
7   Jean-François Lyotard, *The Differend: Phrases in Dispute*, trans. Georges Van Den Abbeele (Minneapolis: Univ. of Minnesota Press, 1988), 152. Ellipses are in the original.
8   For a definition of "store and forward," see *A Dictionary of Computing* s.v. by John Daintith, accessed 28 December 2010, http://www.encyclopedia.com/doc/1O11-storeandforward.html.
9   For representative uses of the analytical vocabulary of *one-to-many*, *many-to-one*, and *many-to-many* in the fields of communication studies and computer science, see for example Gustavo Cardoso, "From Mass to Networked Communication: Communicational Models and the Informational Society," *International Journal of Communication* 2 (2008): 587–630, http://ijoc.org/ojs/index.php/ijoc/article/view/19/178; Alexey Lastovetsky and Maureen O'Flynn, "A Performance Model of Many-to-One Collective Communications for Parallel Computing," *Proceedings 21st IEEE International Parallel and Distributed Processing Symposium, IPDPS 2007, 26–30 March 2007, Long Beach, CA* (Piscataway, NJ: IEEE, 2007), 1–8, http://ieeexplore.ieee.org/xpls/abs_all.jsp?arnumber=4228302&tag=1; and Mu Xia et al., "Implicit Many-to-One Communication in Online Communities," in *Communities and Technologies 2007: Proceedings of the Third Communities and Technologies Conference, Michigan State University, 2007*, ed. Charles William Steinfeld, et al. (London: Springer, 2007), 265–274, http://www.iisi.de/fileadmin/IISI/upload/C_T/2007/Xia.pdf.
10   Alfred de Vigny, "Réflexions sur la vérité dans l'art" (appendix to his *Cinq-Mars, ou, Une conjuration sous Louis XIII*, 1826), quoted in Donald R. Kelley, *Historians and the Law in Postrevolutionary France* (Princeton, NJ: Princeton Univ. Press, 1984), 23.
11   Michel Foucault, *The Order of Things: An Archaeology of the Human Sciences* (New York: Vintage, 1973), xxiii. Or as Auguste Comte said in the nineteenth century itself, "the present century is characterized above all by the irrevocable preponderance of history, in philosophy, in politics, and even in poetry" (quoted in Kelley, *Historians,*13).
12   Leopold von Ranke, *Geschichten der romanischen und germanischen Völker von 1494 bis 1514*, in *Sämmtliche Werke*, ed. Alfred Wilhelm Dove and Theodor Wiedmann (Leipzig: Dunker und Humblot, 1874), 33:vii. Ranke's preface is typically omitted in English translations of his book, including the one I use in this essay: *History of the Latin and Teutonic Nations (1494 to 1514)*, trans. G. R. Dennis (London: George Bell & Sons, 1909) (hereafter *History* for the English translation I cite and *Geschichten* for the German). A convenient translation of the preface can be found in Ranke, *The Secret of World History: Selected Writings on the Art and Science of History*, ed. and trans. Roger Wines (New York: Fordham Univ. Press, 1981), 55–59. Wines translates *wie es eigentlich gewesen*: "what actually happened" (58).

13   This quotation is from a fragment of the 1830s reproduced and translated as "History and Philosophy" in Ranke, *The Secret of World History*, 103.

14   Ranke, "The Great Powers," in *The Secret of World History*, 128, 131.

15   Discussion of Ranke's "how/as it really was" dictum has reflected a tension between equating *really* with *objectively* and with *essentially*, where the latter might allow for nonliteral reconstructions of the past. For an influential example of the latter interpretation, see Georg G. Iggers, "Historicism," in *Dictionary of the History of Ideas: Studies of Selected Pivotal Ideas*, ed. Philip P. Wiener (New York: Charles Scribner's Sons, 1973–74), 2:459.

16   Plato, *Phaedrus*, trans. Benjamin Jowett, excerpted in *Critical Theory since Plato*, ed. Hazard Adams and Leroy Searle, 3rd ed. (Boston: Thomson Wadsworth, 2005), 37.

17   Writing becomes (as Jacques Derrida called it) a trace structure, a fading palimpsest itself needing the prop of some firmer substrate higher up the metaphysical scale: the word of god, the book of nature, etc.

18   Elizabeth L. Eisenstein, *The Printing Revolution in Early Modern Europe* (Cambridge: Cambridge Univ. Press, 1983), 51–64, 78–89.

19   Such a notion of preternatural or retro-clairvoyant reconstruction of history was anticipated by Herder's idea of historical *Mitfühlen* (empathy; see Iggers, "Historicism,"459) and later echoed in R. G. Collingwood's idea of history as imaginary "reenactment" (*The Idea of History* [1946; rpt., Oxford: Oxford Univ. Press, 1977], 282–302).

20   Jules Michelet, *Le Peuple*, quoted and translated in Kelley, 13.

21   The so-called Freytag's Pyramid formulated in Gustav Freytag, *Die Technik des Dramas* (Leipzig: S. Hirzel, 1863).

22   For Dilthey on *geistige Welt*, see H. P. Rickman's introduction to Wilhelm Dilthey, *Pattern and Meaning in History: Thoughts on History and Society*, trans. and ed., H. P. Rickman (1961; rpt., New York: Harper and Row, 1962), 22. For "unity," see for example Dilthey, 74: "This is the unity which, through memory, joins together what has been experienced. . . . Its meaning does not lie in something outside the experiences which gives them unity."

23   Ranke, *The Secret of World History*, 58.

24   For Ranke on "inner connection" and "relatedness," see Iggers, "Historicism," 460, 459. For Dilthey on "system of connections" and "web of connections," see (respectively), Dilthey, 74, 79. For Dilthey on *Zusammenhang*, see Rickman's introduction to Dilthey, 24.

25   Louis Althusser, "Ideology and Ideological State Apparatuses (Notes Towards an Investigation)," in *Lenin and Philosophy and Other Essays*, trans. Ben Brewster (London: New Left Books, 1971), 121–73; Gilles Deleuze and Félix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia*, trans. Brian Massumi (Minneapolis: Univ. of Minnesota Press, 1987); Manduel De Landa, *A Thousand Years of Nonlinear History* (New York: Zone, 1997); Bruno Latour, *Reassembling the Social: An Introduction to Actor-Network-Theory* (Oxford: Oxford Univ. Press, 2005). On emergence theory, see Timothy O'Connor and Hong Yu Wong, "Emergent Properties," *Stanford Encyclopedia of Philosophy*, published 23 October 2006, http://plato.stanford.edu/entries/properties-emergent/; see also my discussion in Liu, "Thinking Destruction: Creativity, Rational Choice, and Destruction Theory," *Occasion* 1.1, 15 October 2009, http://arcade.stanford.edu/journals/occasion/articles/thinking-destruction-creativity-rational-choice-emergence-and-destruction-theory-by-alan-li.

26   Andrew Pickering, *The Mangle of Practice: Time, Agency, and Science* (Chicago: Univ. of Chicago Press, 1995).

27   The very notion of *in medias res* as originally applied to oral epic, Ong points out, is a literate person's misunderstanding of oral culture ("Horace's *res* is a construct of literacy"). How could anything in oral narratives be *in the middle of the way*, Ong wonders, when there was no spatial or linear concept of a connected *way* for anything to be in the *middle* of (Ong, *Orality and Literacy*, 142–43)?

28   Lyotard, *The Postmodern Condition: A Report on Knowledge*, trans. Geoff Bennington and Brian Massumi (Minneapolis: Univ. of Minnesota Press, 1984), 31–41.

29   M. T. Clanchy, *From Memory to Written Record, England 1066–1307*, 2nd ed. (Oxford: Blackwell, 1993).

30   Quoted in Hayden White, *The Content of the Form: Narrative Discourse and Historical Representation* (Baltimore: Johns Hopkins Univ. Press, 1987), 6–7.

31   The above six sentences are closely adapted from my "When Was Linearity? What Graphics Mean in the Digital Age," version 1.0, Digital History, Department of History, Univ. of Nebraska-Lincoln, 2008, http://digitalhistory.unl.edu/essays/aliuessay.php.

32   See n. 12 for the English translation and German original that I use. (hereafter, *History* for the English translation I cite and *Geschichten* for the German)

33   For convenience, I base my textual analysis in this essay on the English translation of Ranke's *History*. Corresponding temporal, causal, and other operators of the sort I refer to exist in the original—for example: *im Anfang, nicht lange nach dem Anfang, nicht lange, länger dauerte es, endlich haben,* and so on (*Geschichten* xv). Of course, Ranke's introduction, which provides the millennium-scale backstory for his ensuing narrative of European, and especially Italian, contests of 1494 to 1514, functions at a highly general level. But similar temporal, causal, and intentional operators marshal Ranke's novelistic renderings of specific events—for example, "since then," "but never," "on this occasion," "but now," and so on in his colorful narrative of Maximilian of Austria (*History*, 96). Periodically amid these close renderings, Ranke resumes the *longue durée* perspective of his introduction, using the same kind of temporal-causal-intentional operators (sometimes so heavy-handedly as to be both teleo- and theological)—for example, "But God willed it that this should not happen. The development of the Latin and Teutonic nations that had just begun, would have been interrupted and hindered thereby" (*History*, 228).

34   Jack Goody, *The Domestication of the Savage Mind* (Cambridge: Cambridge Univ. Press, 1977), esp. 74–111.

35   Lev Manovich, *The Language of New Media* (Cambridge, MA: MIT Press, 2001). I borrow partly from Manovich's conceptual vocabulary in his section on "Principles of New Media," 27–48. In regard to the possible nonlinear use of scrolls, I am indebted to Scott B. Noegel of the Near Eastern Languages and Civilization Department at University of Washington, who discussed these and other issues with me after I gave a talk version of my "When Was Linearity?" at the Simpson Center for the Humanities at University of Washington in 2009. In a subsequent email of 23 September 2009, Noegel observed: "we cannot assume linear reading just because a text is on a scroll. One reason I said this is because texts, even very long ones, also were memorized and consulted as reference works or to check a memorized text for accuracy. One might even argue that the move to the codex responded to this need, because it made non-linear consultation easier (and still remained portable). Another reason I say this is because some scrolls, e.g., in Egypt, are pastiches of many different texts that do not belong together. This means that if one wanted to read a text in the center, one could not read it in a linear fashion."

36   On the significance of Parry's work, see Ong, *Orality and Literacy*, 20–27.

37   Paul Zumthor, "The Text and the Voice," *New Literary History* 16, no. 1 (1984): 67–92; Adrian Johns, *The Nature of the Book: Print and Knowledge in the Making* (Chicago: Univ. of Chicago Press, 1998). For Johns on book piracy, see 3–4; for John's dispute with Eisenstein's notion of fixity, see 10–20.

38   Wikipedia, s.v. "Recursion," accessed 30 December 2010, http://en.wikipedia.org/wiki/Recursion. Permanent URL for the time-stamped version of this article that I cite: http://en.wikipedia.org/w/index.php?title=Recursion&oldid=404903667.

39   Althusser, "Ideology and Ideological State Apparatuses," 158.

40 Foucault's ironic comment on humanity in the nineteeth-century age of history: "It is comforting . . . and a source of profound relief to think that man is only a recent invention, a figure not yet two centuries old, a new wrinkle in our knowledge, and that he will disappear again as soon as that knowledge has discovered a new form" (*The Order of Things*, xxiii).

41 E. D. Hirsch, *The Philosophy of Composition* (Chicago: Univ. of Chicago Press, 1977), 21–23, 26; cited in Ong, *Orality and Literacy*, 78. For a critique of this argument, see Patricia Bizzell and Bruce Herzberg, "'Inherent' Ideology, 'Universal' History, 'Empirical' Evidence, and 'Context-Free' Writing: Some Problems in E. D. Hirsch's *The Philosophy of Composition*," *MLN* 95, no. 5 (1980): 1181–1202.

42 A. J. Greimas, *Structural Semantics: An Attempt at a Method*, trans. Daniele McDowell et al. (Lincoln: Univ. of Nebraska Press, 1983), 178, 197–221. For my application of Greimas's scheme to the narratives of literary history, see "Sidney's Technology: A Critique by Technology of Literary History," *Local Transcendence: Essays on Postmodern Historicism and the Database* (Chicago: Univ. of Chicago Press, 2008): 186–206.

43 John Guillory, "The Memo and Modernity," *Critical Inquiry* 31, no. 1 (2004): 108–32.

44 Friedrich A. Kittler, *Gramophone, Film, Typewriter*, trans. Geoffrey Winthrop-Young and Michael Wutz (Stanford, CA: Stanford Univ. Press, 1999).

45 On Murrows see Bob Edwards, *Edward R. Murrow and the Birth of Broadcast Journalism* (Hoboken, NJ: John Wiley and Sons, 2004). On *Victory at Sea* see "Victory at Sea," Internet Movie Database, accessed 2 January 2011, http://www.imdb.com/title/tt0046658/.

46 The definition of social computing that I cite derives from that of the UC–Santa Barbara Social Computing Group in which I participate. See UCSB Social Computing Group, "What is Social Computing?" University of California–Santa Barbara, 8 November 2008, http://socialcomputing.ucsb.edu/?page_id=11. The definition is a simplification of the following formulation initially suggested by Rama Hoetzlein, then a PhD student in the UC–Santa Barbara Media Arts and Technology and a research assistant associated with the Social Computing Group: "Social computing can be defined as the deployment of network communication systems for the purpose of allowing communities of people to interact within particular domains of knowledge for one or more shared goals."

47 Paul Hass, "Paul's (Extra) Refrigerator," 1997–2008, now defunct but available through the Internet Archive, http://classic-web.archive.org/web/*/http://www.hamjudo.com/cgi-bin/refrigerator. On this site, see my *Laws of Cool*, 189.

48 The influence of the French Revolution on Ranke's *History* is clear in the contemporary flavor of such commentary about the far past as the following: "The course of such revolutions often proceeds in the same way; from an ascendancy of the middle classes to the opposite extreme, next to the ascendancy of the proletariat, and, finally, to a monarchy from the artisans" (266).

49 For convenience I quote temporal phrases from the English translation, but—as I instance in n. 33—equivalent phrases occur in the German.

50 Francis Fukuyama, "The End of History?," *The National Interest*, no. 16 (Summer 1989): 3–18.

51 Justin Bieber's Twitter feed, 16 November 2010, http://twitter.com/justinbieber. The concert he refers to occurred in Boston's TD Garden (Fleet Center) on 16 November 2010.

52 Michael Hardt and Antonio Negri, *Empire* (Cambridge, MA: Harvard Univ. Press, 2000). An example of new media critique following (in part) in the tradition of Hardt and Negri is Alexander R. Galloway, *Protocol: How Control Exists after Decentralization* (Cambridge, MA: MIT Press, 2004). Relevant publications from the Critical Art Ensemble include *The Electronic Disturbance* (1994), *Electronic Civil Disobedience and Other Unpopular Ideas* (1996), and *Digital Resistance* (2001), published by Autonomedia (Brooklyn, NY) and available online at http://www.critical-art.net/books.html.

53 Siva Vaidhyanathan, *The Googlization of Everything: How One Company is Transforming Culture, Commerce and Community—and Why We Should Worry* (London: Profile, 2010).

54 See my discussion of an early, experimental scholalry-artistic Web site I created called the *Lyotard Auto-Differend Page: An Experiment in the Freedom and Tyranny of Hypertext*, which used then-state-of-the-art "client-pull" technology (now obsolete) to run automated, timed sequences of quotations from the philosophy of Jean-François Lyotard. I wrote: "Client-pull makes it possible to reflect on the fact that each of our communications is paced by simultaneous demands made on the network by other communications—by the time-sensitive collectivity that constitutes historicity. Beyond the individually totalizing conventions of *my* communication or *your* communication, in other words, lies a surprise that emerges from the inventiveness of the interaction of *our* communications" ("Philosophy of this Page," *Lyotard Auto-Differend Page*, 3 August 1995, http://www.english.ucsb.edu/faculty/ayliu/research/auto/whypage.htm).

55 RoSE (Research-oriented Social Environment), home page, Transliteracies Project, University of California, 10 December 2009, http://transliteracies.english.ucsb.edu/category/research-project/rose. My synopsis of RoSE adapts the description that I wrote for the project's web site.