

[This article in Volume 1 Issue 3 of EJournal (November, 1991) is (c) copyright EJournal. Permission is hereby granted to give it away. EJournal hereby assigns any and all financial interest to Doug Brent. This note must accompany all copies of this text.]

This electronic publication and its contents are (c) copyright 1991 by EJournal. Permission is hereby granted to give away the journal and its contents, but no one may "own" it. Any and all financial interest is hereby assigned to the acknowledged authors of individual texts. This notification must accompany all distribution of EJournal.

An Electronic Journal concerned with the implications of electronic networks and texts.
University at Albany, State University of New York ejournal@albnyvms.bitnet

Oral Knowledge, Typographic Knowledge, Electronic Knowledge: Speculations on the History of Ownership

Doug Brent

Faculty of General Studies; University of Calgary; DABrent@UNCAMULT Faculty of
General Studies University of Calgary Calgary, Alta, Canada T2N-1N4

1. Using Transformation Theory

It has frequently been observed that computers are revolutionizing the concept of knowledge ownership. Old standards of copyright and the ownership of intellectual property simply do not apply to the universe of knowledge in cyberspace. In this article I wish to examine more closely the ways in which concepts of intellectual property are changing as the computer changes our relationship to knowledge.

The main tool I wish to use in this investigation is the cluster of theories that Michael Heim has dubbed "transformation theory" (Electric Language 1987). Marshall McLuhan first called attention to the transforming powers of media in his insightful and infuriating books, particularly his masterpiece *Understanding Media* (1964). In that book, he claims that we cannot learn anything of importance about a medium by looking only at its content:

Our conventional response to all media, namely that it is how they are used that counts, is the numb stance of the technological idiot. For the "content" of a medium is like the juicy piece of meat carried by the burglar to distract the watchdog of the mind. (p. 18)

To avoid that numbness, we must refocus our attention on the ways in which the technological characteristics of the medium itself reshape our lives not just by giving us new tools to play with but by reshaping our consciousness on a fundamental and subliminal level.

In *Orality and Literacy* (1982), Walter Ong builds on McLuhan's general philosophy, plus anthropological research on the development of oral societies, in order to explain the dramatic changes in society that came about with the advent of literacy. Ong argues that the shift from oral to literate culture in about the fifth century B.C. did more than change patterns of art, politics and commerce. It enabled a profound shift in human consciousness, bringing about the linear, abstract forms of Western logic that we take for granted today but which were simply unthinkable without literacy as a means of preserving complicated original thought. [line 42]

What makes transformation theory a particularly powerful tool for speculating on the impact of computers is that the information revolution intuitively feels like a third stage in this process, a revolution as great as the shift from orality to literacy. Admittedly, Heim warns

severely against extending the transformation theory developed to deal with the first revolution and facilely using it to predict the outcome of the second:

Because it is anchored in the difference between orality and literacy, the transformation theory is unsuited for an investigation of word processing. Constant reference to the emergence of literacy distorts the phenomenon by reducing the emergence of word processing to a new kind of literacy. The use of the metaphor from print culture is understandable when we are confronted by the profound novelty of digital writing. But if we lose sight of the weakness of the metaphor, we shall pass right by the phenomenon in our anxiety to treat it easily in a familiar, conventionally manageable way. (p. 113)

Heim's warning is well taken; the second shift is neither simply an extension, nor simply a reversal (despite what I am about to argue) of the first. Yet if historical study is to be justified on any grounds other than idle curiosity, it surely must be on the grounds that we can learn something about the present and future by extrapolating from the past. The important caveat is that we must not depend only on a metaphor. To the extent that we see echoes of the first communications revolution in the second, we must be careful to use the metaphor of the first transformation only as a means of generating suggestive possibilities. Before we can rely on these suggestions even provisionally, we must corroborate them by close examination of changes in personal and social behaviour that are already sufficiently far along to be susceptible of examination.

2. Ownership of Knowledge in Oral Societies

Ong claims that in a primary oral culture - that is, a culture that has never known literacy - knowledge is not owned; rather it is performed. Without print, knowledge must be stored not as a set of abstract ideas or isolated bits of information, but as a set of concepts embedded deeply in the language and culture of the people. Strictly procedural knowledge - how to build a boat, how to fight a war - is passed on directly from craftsman to craftsman through the process of apprenticeship. However, the more abstract knowledge of the tribe - not just their history but also their values, their concepts of justice and social order - is contained in the epic formulae, recurrent themes, and mythic patterns, plots and stereotypes out of which the storytellers of the tribe weave their narratives. This knowledge exists as a pre-existing network of knowledge, interconnected in extraordinarily complex and non-linear ways and all known in at least its broad outlines to the storyteller's audience before he begins (see Bolter, *Writing Space*, 1991). [line 91]

Lord's work with modern illiterate poets underlines the implications of this means of transmitting knowledge (*The Singer of Tales*, 1960). Although the storytellers usually insist that they tell their stories exactly the same way each time, transcriptions of stories told by modern oral storytellers reveal significant variation. Rather than memorizing a verbatim "text," as literate observers assumed, the storytellers fit stock elements to a rhythmic pattern and a well-known plot to re-produce the story anew each time it is told. There simply is no "text" apart from each individual incarnation of each tale.

This has implications for how the creative act is seen. If oral performers were simply memorizing and reciting a work that had at one time been "composed" by a single individual, the process would be no more than an oral version of literate composition, in which a text is composed once and reproduced mechanically many times. But Lord's work reveals that the performer of a tale is combining an act of creation with an act of transmission. His primary work is to transmit the culture of the tribe, and in this act of transmission he must be conservative. Changes in oral knowledge cannot be undone, for there are no old copies to go back to. The tellers must therefore be able to reproduce the forms and plots in which their tribe's knowledge is contained as faithfully as possible. Yet there is also a gradual drift in the stories. In a process that Ong calls "homeostasis," the stories change imperceptibly over time

to suit the needs and values of the culture as that culture changes. If the values that are held in high regard by the culture shift to suit changing circumstances, the heroes in the tales will acquire new characteristics, or even cease to be heroes. Individual creativity is profoundly rhetorical, for it is the subtle interplay between teller and audience that shapes the tales to match the values of that audience; yet it is also largely invisible (Ong 1982).

[line 120] This inseparability of creativity and performance meant that there was no such thing as ownership of knowledge - or, more aptly, there was no such thing as private ownership of knowledge. Knowledge was held in common, entrusted to the tellers of tales who were maintained by the tribe, not for their individual contributions to the growth of ideas, but for their ongoing duty to keep knowledge alive by performing it.

3. Ownership of Knowledge in Literate Societies

With the introduction of writing, all of this changed. According to Ong and his anthropological school of communications history, writing had a number of profound effects, including the development of the self-conscious, rational self, of the power of abstraction, and consequently of the entire Western system of logic. For my purposes here, however, the most important result of the invention of writing was a separation of text and performance, of knowledge and knower. As Havelock puts it in *Origins of Western Literacy* (1976), writing separates "the knower from the known" by creating a fossilized text that can achieve a continued existence apart from any knower. The knowledge represented by an oral tale is so embedded in mind and action that it cannot be contemplated as a separate entity; such knowledge travels as an almost subliminal partner of a performance, as transmission that the performer does not even think of as "knowledge" but rather as simply a set of actions. A manuscript, however, can be handled, stored, retrieved from a vault and re-performed a millennium after all previous readers have died. Therefore, with writing knowledge comes to be seen as something reified, as existing outside the self.

If knowledge can be separated from the knower, it can be owned by separate individuals. In an oral culture, plagiarism is unthinkable, simply because the survival of the culture depends on plagiarism - that is, on each performer learning what has gone before and making it his own. As the manuscript society came into existence, it became more common to attribute written tales to their sources in prior texts. Yet, as any student of early written poetry will know (Chaucer is a well-known example), prior texts were often so inseparably mingled with new material that generations of scholars have been kept happily employed in sorting them out. During the manuscript age, the painstaking copying and illustrating of a manuscript was in some respects a personal performance of knowledge analogous to the performance of an epic poem or folk tale.

[line 160] It was the printing press that made private ownership of knowledge a necessity, for it was the printing press that finally severed the connection between the creation and the transmission of knowledge. For transmission was now a mechanical act, performable by a machine. Originality, once a deadly danger to a society that had to struggle to maintain its equilibrium, could now be seen as more valuable than performance. To claim originality for what was only a re-performance became a serious breach of the values of the society. Appropriating another's ideas, once an essential means of keeping them alive, became the act of a plagiarist, a torturer, plunderer, oppressor:

Typography had made the word a commodity. The old communal oral world had split up into privately claimed freeholdings. The drift toward greater individualism had been served well by print. (Ong 1982, p. 131)

Copyright laws were soon created as a means of preserving this intellectual property. As Patterson points out (*Copyright in Historical Perspective* 1968), copyright was originally

created more as a means of breaking the stationers' monopoly on texts than as a means of protecting authors' rights. Yet the commonsense notion that an author's words were things of countable value pressed the law of copyright further and further in the direction of articulating those rights against those of the stationers who simply reproduced the physical text. By the eighteenth century, copyright was firmly established not only as a means to ensure that an author will be paid for his ideas, but also to ensure that he will be able to protect their integrity by granting him the sole authority to correct, amend or retract them. In the *Miller vs. Taylor* decision of 1767, a decision vital to the shaping of English copyright law into its final modern form, Mr. Justice Aston commented, "I do not know, nor can I comprehend any property more emphatically a man's own, nay, more incapable of being mistaken, than his literary works" (Patterson p. 170).

The modern abhorrence of plagiarism, of course, has never meant that one should not use another's ideas. The practice of bringing ideas forward and integrating them into later works is fundamental to the modern belief that knowledge is cumulative and improvable. But a crucial difference between oral and literate diffusion of knowledge is that as knowledge diffuses through knowledge networks of modern research disciplines, it leaves behind the tracks of its passage in the form of earlier texts linked by webs of citations. Among other functions, these citations ensure that the producer of a particularly fertile idea is given due credit for her work, even as that work is being corrected, amended, extended, and ultimately submerged into the new knowledge that is being built upon it. Whereas the oral bard could demonstrate that he was earning his keep simply by continually re-performing the knowledge of which he was guardian, the modern researcher must demonstrate that she is worthy of being maintained by her tribe by creating work worthy of being explicitly cited by others. Thus she retains ownership of the ideas at the same time as she releases them into the world to perform their work - in a sense leasing rather than transferring them to others. [line 209]

Thus the effects of printed texts are somewhat paradoxical. On the one hand, the explicit pointers to earlier texts reinforce the fact that knowledge is built communally, through the interactions of thousands of individuals. On the other hand, the fact that each idea can be labelled with the name of its maker has created the romantic myth of the individual creative genius. This myth manifests itself in the arts as the figure of the brooding artist creating in solitude, and in the sciences as the individual inventor, the Nobel prize winner who sees what no-one has seen before.

4. Ownership of Knowledge in Cyberspace

In this context, then, what might the second shift, from print to the electronic space afforded by word processing, computer conferencing, and hypertext, do to our sense of the ownership of knowledge?

One of the most important features of typography, if we believe McLuhan and his followers, is metaphorical. Here we are not talking about the investigator's use of metaphor to extend the past into the future, the metaphor that Heim is so reluctant to pursue. We are talking about an entire culture's metaphorical transfer of characteristics of its communications medium to other aspects of the culture. McLuhan suggests, for instance, that the reproduction of texts from straight rows of exactly repeatable, individually meaningless units of type is an amazingly close analogue of, and perhaps the model for, the specialized industrial society in which an entire economy is assembled out of small bits of individually owned private property - including intellectual property. These sorts of speculation can be taken to the giddy heights of unprovable assertion that McLuhan is justly derided for. Yet if we accept provisionally that the medium can sometimes be the metaphor, we can perhaps learn something about the effects of the second transformation by looking at the metaphorical ways in which it allows us to conceptualize knowledge.

[line 241] One of the most important ways in which the electronic metaphor operates is not so much to change what writers do when they build knowledge, but rather to make this process more immediately and more obviously visible through the types of operations which it allows and the physical steps which the writer goes through. It has, after all, been observed for some time that the myth of the individual discoverer of knowledge is exactly that - a myth. Perhaps the best summary of this literature is Karen Burke LeFevre's *Invention as a Social Act* (1987), a work that brings together accounts of collaborative invention from post-modern literary theory, language philosophy and social psychology to argue for a new emphasis on collaboration by writing teachers. One of the most important of these sources is Michel Foucault:

[Foucault] describes the beginning of a discourse as a re-emergence into an ongoing, never-ending process: "At the moment of speaking, I would like to have perceived a nameless voice, long preceding me, leaving me merely to enmesh myself in it. . . . There would have been no beginnings: instead, speech would proceed from me, while I stood in its path - a slender gap - the point of its possible disappearance." Elaborating on this perspective, one may come to regard discourse not as an isolated event, but rather a constant potentiality that is occasionally evidenced in speech or writing. . . . Such perspectives suggest that traditional views of an event or act have been misleading when they have presumed that the individual unit - a speech or a written text, an individual hero, a particular battle or discovery - is clearly separable from a larger, continuing force or stream of events in which it participates. For similar reasons Jacques Derrida has criticized literary theories that attempt to explain the meaning of a text apart from other texts that precede and follow it. (p. 41-42)

Sociologists of science support this conception of knowledge as communal rather than individual. Diana Crane's seminal study *Invisible Colleges* (1972), for instance, documents the extent to which ideas are nourished and developed through networks of interaction among scientists who may come from many different "official" disciplines but who form a powerful social group around a common problem. Yet the print technology through which this communally-developed knowledge is typically delivered - distanced, fossilized, abstracted from the network of interconnected minds that formed it - continually enforces the opposite message. The metaphorical meaning of print technology is isolation, not communality. In particular, the ability to claim one's particular share of the intertextual web and stamp it with one's own name - an ability made possible by the same printing press that made widespread cumulation of knowledge possible as well - suggests that knowledge is individually owned. [line 290]

I believe that computer mediated communication provides a totally different metaphorical message, one that can take theories of collaborative knowledge out of the realm of language philosophy and stamp them indelibly in the consciousness of the entire society. Let us begin by looking at what is now the most mundane aspect of computer-mediated communication, word processing. Remember that one of the most important psychological effects of writing in general and the printing press in particular is the fossilization of text as an exteriorized object. However, composing on a word processor divides the production of the text into two distinct stages. Ultimately the text issues in a final stage of more or less complete closure, once a "final" draft is published in a hard codex. But the word processor greatly extends the fluid stage of text, abolishing the sense of discrete drafts and smaller divisible units (pages) and turning the text into a long continuous document, a scroll examined through a twenty-five line sliding window. Although this small window can be a problem for students who cannot always visualize the entire text as a unit (see for instance Richard Collier, "*The Word Processor and Revision Strategies*," 1983), expert writers generally lose their dependence on what they can see on the screen and internalize the sense of a text that exists in an infinitely

mutable state. Even the printout, apparently hard and immutable, comes to be seen as purely provisional, for a new one incorporating changes can be produced at whim.

A key aspect of this form of text is that it can easily be recombined with other texts. Skilled writers who use word processors are well aware of how often they cannibalize their own older texts for quotations, well-turned paragraphs, ideas cut out of drafts and saved for future works in which they might be more appropriate. But this effect does not become truly significant until the writer's own text begins to interact with other sources of text available on-line. The word processor is often seen as a preliminary stage of conferencing, for posted text is often prepared initially on some kind of word processor (whether PC or mainframe editor). However, this metaphor can be reversed: the word processor is coming to be fed by on-line information as much as the reverse. As other sources of text become available in machine-readable format - texts received through electronic conferences and on-line publications, texts downloaded from databases, et cetera - the awareness of intertextuality that LeFevre speaks of becomes increasingly objectified, its implications increasingly unmistakable. [line 328]

As I prepare this article I am conscious of two kinds of sources. Some of the sources came to me in hard copy; the labour of typing quotations in by hand, of leafing through separate texts to identify key passages, for me emphasises their separateness, the claim of the original author over the knowledge. Other sources came to me electronically; these I can cut and paste into my document much more freely, integrating not just another's words but ultimately his very keystrokes into my own construct. A well-trained scholar, I am always careful to acknowledge, always careful not to place my own stamp of ownership on the words of another. But the sliding together of texts in the electronic writing space, texts no longer available as discrete units but as continuous fields of ideas and information, is so much easier in electronic space - not just physically easier but psychologically more natural - that it is significantly more effort to keep the ownership of the ideas separate. Intertextuality, once a philosophical concept, is becoming a way of life.

When information becomes disseminated electronically, not only pretexts but also posttexts begin to slide more and more fluidly into the text as the author integrates the comments of others into the evolving document. As Hiltz and Turoff put it in *The Network Nation* (1978),

The distinction between a draft, preprint, publication or reprint now turns into the same "paper" or set of information, merely modified by the author as he or she builds on the comments from the readership. (p. 276)

Ultimately the distinctions between authors and documents may break down completely. Hiltz and Turoff separate sections of their book *The Network Nation* with fanciful excerpts from a future "Boshwash Times"; one of these (from the July 14, 1995 issue) predicts just such a breakdown of individual authorship under the pressure of computer mediated collaboration:

A group of 57 social and information scientists today shared the Nobel Prize in economics, while 43 physicists and scholars in other disciplines captured the prize in physics. . . . When the first such collective prize was announced eight years ago, the committee tried to convince the group involved to name the two or three of its members who were the most responsible for the theory developed. However, the group insisted that this was impossible. Dr. Andrea Turoff, spokesperson for the collective, explained "We were engaged in what we call a `synologue' - a process in which the synthesis of the dialogue stimulated by the group process creates something that would not be possible otherwise." (pp. 464-65) [line 374]

In short, with electronic communication the notion of the static and individually owned text dissolves back into the communally performed fluidity of the oral culture. When the materials of which they are constructed are available in machine-readable form, document assembly - a very telling neologism - becomes analogous to the oral poet boilerplating stock phrases and epithets into familiar plots, reaching into the previously existing network of epic knowledge to create a new instantiation of knowledge that has been in the public domain from before his birth (see Bolter, *Writing Space*, 1991). In the electronic world as in the oral, the latent intertextuality of print is raised to consciousness: it becomes more obvious that originality lies not so much in the individual creation of elements as in the performance of the whole composition.

There is boilerplating and boilerplating, of course. As he weaves his stories, the oral storyteller is deeply embedded in a rhetorical and cultural context. His audience is physically before him, and he assembles his stories in a close engagement with both that audience and his characters, the tribal ground out of which his figure arises. "The individual's reaction is not expressed as simply individual or 'subjective' but rather as encased in the communal reaction, the communal 'soul'" (Ong, 1982, p. 46). On the other hand, certain kinds of machine boilerplating, augmented by such mnemonic aids as CD-Rom's containing thousands of form letters and mail-merge programs with which to distribute them blindly, can become so totally divorced from rhetorical occasion that they cease to have any connection with human knowledge whatsoever (Cragg, "*The Technologizing of Rhetoric*," 1991). But a process is best defined not by its pathological extremes but by the central uses to which a society puts it. When used by skilled writers who are writing in a rhetorical context, not just recopying formulae in a vacuum, the relatively easy cut-and-paste embedding of chunks of prose from various sources can become an important operational metaphor of intertextual connections. Language theorists have always assured us that these connections exist, but we used not to see them so objectively demonstrated. [line 407]

5. Living Mythically in Cyberspace

McLuhan's term for the effects of electronic communication is "retribalization." Under the effects of participatory electronic media, he claims, linear typographic man again learns to "live mythically." McLuhan of course never explains precisely what he means by these or any other of his terms - to do so would spoil the fun of making the reader write her own meanings into McLuhan's text. But the concept of living "mythically" suggests far more than simply being more interconnected, of being able to send messages to each other more quickly and easily than we could last year. It means living in a form of consciousness in which knowledge does not exist outside the knower, embodied in a physical text, but instead is lived dramatically, communally performed as the myths of oral man were performed. This, I argue, will be - to some extent already is - one of the effects of internalizing the electronic writing space.

These effects are at their peak in hypertext, undoubtedly the most extreme example of text that is both nonlinear and participatory. The constructive processes performed by any reader of any text find a very physical analogue in hypertext as each reader takes a different physical path from node to node and thus metaphorically "rewrites" the text in the process of reading it. Hypertext documents can be constructed as even more open systems, in which each reader is invited to become co-author by adding new nodes or new information within nodes (Slatin 1990). As Moulthrop puts it,

At the kernel of the hypertext concept lie ideas of affiliation, correspondence, and resonance. In this, . . . hypertext is nothing more than an extension of what literature has always been (at least since "*Tradition and the Individual Talent*") - a temporally extended network of relations which successive generations of readers and writers perpetually make and unmake. (1991, par. 19) [line 438]

Hypertext is still too new and relatively rare to be the object of much close study, although it has created a great deal of interesting informed speculation (see in particular Bolter 1991). It can be seen, as Slatin does, as a very different form of text, the only form of computer mediated communication that is entirely unique to the computer and has no analogue in hard-copy communication whatever. For my purposes, however, I do not think that we need to separate hypertext from other forms of computer mediated communication. Rather, I see it as simply the most extreme extension of a change in communications media that permeates all aspects of the electronic writing space.

6. Copyright in the Cybernetic Tribe

One of the most visible signs of the first transformation of consciousness was, as I have noted, the development of copyright laws to safeguard intellectual property. It is not difficult to speculate on what could happen to these laws if the computer really does change our attitude to knowledge. We can understand this change not by postulating a simple reversal, but by invoking a more complex concept: McLuhan's "break boundary," the point at which anything, pushed to its limit, breaks into a new form that is in many respects its opposite. Mechanical duplication, once so easy that it separated performance from creation and brought about copyright to protect the latter, has now become so very easy that copyright, in the sense of a prohibition on unauthorized copying, is virtually meaningless. Small software companies distribute their products as shareware; large ones have given up on copy-protection schemes and are hoping to make enough money on site licences to corporations to make up for the rampant piracy of individuals. The sense of a single original - an author's draft, a frame of set type, a master copy - becomes increasingly difficult to sustain in an environment in which every copy can spawn another copy at a keystroke, without loss of physical quality. "In magnetic code," Michael Heim points out, "there are no originals" (1987, p. 162). In the intellectual marketplace in particular, copyright in the sense of preventing unauthorized copying is becoming vacuous - hence the bold statement in the EJournal masthead that "permission is hereby granted to give it away."

Even the sense of owning a document to protect its integrity is becoming difficult to maintain as documents lose the physical markers that hitherto anchored their boundaries in time and space. In order to own a document, Hiltz and Turoff (1978) note, [line 478]

An author has to be able to own one item, which may appear in many different places which may change dramatically over time, and the author might alter his item after it is already in the system. Delivering copies of the item to the copyright office whenever it is changed, or a copy of each and every "publication" of it, is going to lead to chaos. (p. 456)

Thus copyright in the sense of securing the rights to a fixed entity is likely doomed. The only sense in which copyright can continue to have meaning in electronic space is the sense of acknowledging an original creator of an idea. Electronic documents have not done away with the citation network, and even in an evolving hypertext, newly created nodes are typically stamped with date and author (Slatin, "*Reading Hypertext*," 1991). But these familiar gestures are beginning to mean something different in electronic space. To acknowledge parentage is not the same as to maintain a claim of ownership. Without the sense of master-and-duplicate that the printing press imposed, there is no intellectual ground for present attempts to toughen copyright laws in order to protect "intellectual property." They are like holding a sieve under a breaking dam.

We can see signs of this shift in a number of subtle and not-so-subtle ways. In a previous issue of this journal, for instance, Robert K. Lindsay (1991) proposes an electronic journal of proposed research in which research proposals would be openly critiqued by any readers of the journal who felt qualified to do so, in the hope of improving them through the process of

open debate ("*Electronic Journals of Proposed Research*," 1991). In a sense this is no more than an extension and formalization of the oral stage of collaboration, a stage that now occurs in a less formal way in the halls and coffee rooms of research and educational institutions, and late at night in the overpriced hotel rooms of rumpled researchers at conferences. But Lindsay does not suggest simply that proposals should be publicly posted for critiquing. He also proposes that "These proposals would then be in the public domain: they could be carried out by anyone with the means and skill, or they could be referred to in applications to funding agencies." For the proposer, this means not simply putting an idea out into the world for a time to see what improvements could be made to it. It means surrendering ownership of the idea forever, possibly letting another person develop and reap the academic rewards for it. This is an idea that could just as easily have been proposed in the context of a print journal of proposals - but I have never seen it done. When knowledge inhabits a print space, it seems natural to want to own it. When it enters electronic space, it seems equally natural to surrender it. [line 521]

7. Caveats and Conclusions

Before announcing a complete reversal of typographically- dominated consciousness, I want to make explicit a few notes of caution hinted at earlier. First, one must realize that analogy is a particularly slippery form of reasoning. Seeing history as merely circular without recognizing key differences is as reductive as it is tempting. By electronic media, McLuhan meant electronic mass media such as film, radio and most importantly television, media largely free of alphabetic text. It is not at all clear that computer mediated communication will have the effects that McLuhan claims for other forms of electronic media. The electronic revolution, despite its often-cited links with orality, may be returning us not to a secondary form of orality so much as to a secondary form of literacy from which earlier forms of audio-visual media had begun to alienate us. Stuart Moulthrop points out that, however much an electronic text may be freed by its electronic form from many of the constraints of print text, it is still text, still visual, still segmented and sequential in its smaller units if not in its larger structure ("*You Say You Want a Revolution? Hypertext and the Laws of Media*," 1991). That secondary literacy is different from primary literacy does not make it equatable to primary orality. As Ong points out, primary orality is characterised not by a different concept of text but by an absence of the very concept of text itself.

In particular, structures of thought in primary orality are pressured by the relentless need to preserve knowledge against the threat of annihilation by the ever-decaying properties of sound. The textual recombinations performed by the oral bard were subtle, driven by the needs of the audience but minute enough to preserve the illusion that each retelling of the story was the same. As electronic text breaks up the fixity of print, knowledge will not return to this endless reperformance of the same patterned phrases, for the elements of the text are preserved in a form that, while infinitely malleable, need never be changed. Unoppressed by the forces of decay that drove tribal symbolizers, the electronic symbolizer is free to remake texts as creatively as desired.

Elements in the electronic writing space are not simply chaotic; they are instead in a perpetual state of reorganization. They perform patterns, constellations, which are in constant danger of breaking down and combining into new patterns. (Bolter, 1991, p. 9)
[line 561]

Here we may recognise the communality of oral knowledge, the close union of the knower and the known, but for all that we cannot recognize primary orality. We can never get all the way back there again.

Moreover, given the economic structure that we have painstakingly built on the back of print-induced linearity and specialization, it will take more than a new attitude toward texts to

make us stop wanting to charge for knowledge. In fact, the very technology that has made certain aspects of replication so easy as to make old-fashioned copyright unenforceable has simultaneously brought into existence new possibilities of charging by the byte for using information - a process that Moulthrop calls "information capitalism" (1991, par. 16). For every move in the economic game there is a countermove, and knowledge has been so closely tied to economics for so long that it may never be dislodged. Rather, the relationship between economics and knowledge will be rearranged into new formations, some perhaps more sinister than my rather optimistic portrait of communal knowing has suggested.

Finally, I do not want to exaggerate the degree or speed with which changes such as I have outlined are likely to penetrate the society as a whole. Eisenstein is careful to point out that the effects of the printing press not only took a long time to diffuse through Europe, but initially only affected a relatively small elite that she dubbed the new "reading public" (*The Printing Press as an Agent of Change*, 1979). The effects on the larger public were more on the order of secondary effects, though none the less profound for that. We in the academic community tend at times to forget that there actually are people in the world who do not have a desk covered with books, papers, half-done projects, computer disks and banana peels. Computers have penetrated everyone's world to the extent that almost every Western household has dozens of appliances that contain a silicon chip, and nearly every business transaction is in some way or another involved with a computer. But this is not the same as saying that everyone is likely has experienced or is soon likely to experience first-hand the new consciousness of text that I have been describing. As with the printing press, so with the computer, the effects that diffuse beyond the realm of the knowledge workers themselves may be of a highly secondary nature. But again, their secondariness will not mean triviality.

[line 598] I want to be careful, then, to define the limits of the claim I am making here. I am not claiming that electronic text will unilaterally undo almost three millennia of exposure to literacy. I am suggesting, however, that some of its psychological effects can be understood in part by referring to the state of consciousness that existed before writing in general and the printing press in particular made it possible to separate the knower from the known, to see knowledge as a commodity that can be owned, traded, rented, and accumulated. The new awareness of the "polylogic" nature of our knowledge (to borrow Michael Joyce's term), an awareness that has percolated through such diverse disciplines as literary criticism, rhetoric, language philosophy and cognitive science, may well have a technological basis. The sort of surrender of ownership suggested by Lindsay's proposal may be more thinkable in an electronic form than in a printed form, not just because electronic media speed up the dialogue, but because electronic media make the dialogic aspect of language overt and inescapable. The long standing process of trading texts back and forth becomes transformed into a process of merging texts into new wholes which are inseparable from their makers. The modern researcher will never be metaphorphosed into Homeric bard, but perhaps at least some of her activities can be seen as more bardic now than they could under the linear metaphors imposed by print.

References

- Bolter, J. (1991). *Writing Space: The Computer, Hypertext, and the History of Writing*. Fairlawn, N.J.: Erlbaum.
- Collier, R. M. (1983). The word processor and revision strategies. *College Composition and Communication*, 34, 134-35.
- Cragg, G. (1991). The technologizing of rhetoric. Paper delivered at the Canadian Communications Association Convention, Kingston, Ontario, May 30, 1991.
- Crane, Diana. (1972). *Invisible colleges: The diffusion of knowledge in scientific communities*. Chicago: University of Chicago Press.
- Eisenstein, E. (1979). *The printing press as an agent of [line 639] change*:

Communications and cultural transformation in early modern Europe. Cambridge: Cambridge University Press.

- Havelock, E. (1976). *Origins of western literacy*. Toronto: Ontario Institute for Studies in Education.
- Heim, M. (1987). *Electric language: A philosophical study of word processing*. Yale: Yale University Press.
- Hiltz, S. R., and Turoff, T. (1978). *The network nation*. Reading, Mass: Addison-Wesley.
- LeFevre, K. B. (1987). *Invention as a social act* Carbondale: Southern Illinois University Press.
- Lindsay, Robert K. (1991). Electronic journals of proposed research. *EJournal* 1.1. (EJournal@ALBNYVMS).
- Lord, A. (1960). *The singer of tales*. Harvard Studies in Comparative Literature, 24. Cambridge, Mass.: Harvard University Press.
- McLuhan, M. (1964). *Understanding media: The extensions of man*. New York: McGraw-Hill.
- Moulthrop, S. (1991). "You say you want a revolution? Hypertext and the laws of media." *Postmodern Culture*, 1, no. 3. (Moulthrop 591; Listserv@NCSUVM.BITNET).
- Ong, W. (1982). *Orality and literacy: The technologizing of the word*. New York: Methuen.
- Patterson, L. R. (1968). *Copyright in historical perspective*. Nashville: Vanderbilt University Press.
- Slatin, J. M. (1990). "Reading Hypertext: Order and coherence in a new medium." *College English*, 52, 870-883.

About letters:

EJournal is willing publish letters to the editor. But at this point we make no promises about how many, which ones, or what format. Because the "Letters" column of a periodical is a habit of the paper environment, we can't predict exactly what will happen in pixel space. For instance, EJournal readers can send outraged objections to our essays directly to the authors. Also, we can publish substantial counterstatements as articles in their own right, or as "Supplements." Even so, there will probably be some brief, thoughtful statements that appear to be of interest to many subscribers. When there are, they will appear as "Letters."

About reviews:

EJournal is willing to publish reviews of almost anything that seems to fit under our broad umbrella: the implications of electronic networks and texts. At this point we are still hoping to review a hypertext novel, and have no other works-- electronic or printed --under consideration. We do not solicit and cannot provide review copies of fiction, prophecy, critiques, other texts, programs, hardware, lists or bulletin boards. But if you would like to bring any publicly available information to our readers' attention, send your review (any length) to us, or ask if writing one sounds to us like a good idea.

About "supplements":

EJournal plans to experiment with ways of revising, responding to, reworking, or even retracting the texts we publish. Authors who want to address a subject already broached --by others or by themselves-- may send texts, preferably brief, that we will consider publishing under the "Supplements" heading. Proposed "supplements" will not go through full, formal editorial review. Whether this "Department" will operate like a delayed-reaction bulletin board or like an expanded letters-to-the-editor space, or whether it will be withdrawn in favor of a system of appending supplemental material to archived texts, or will take on an electronic identity with no direct printoriented analogue, will depend on what readers/writers make of the opportunity.

Information about EJournal:

Users on both Bitnet and the Internet may subscribe to EJournal by sending an e-mail message to this address:

listserv@albnyvm1.bitnet

The following should be the only line in the message:
SUB EJRNL Subscriber's Name

Please send all other messages and inquiries to the EJournal editors at the following address:

ejournal@albnyvms.bitnet EJournal is an all-electronic, Bitnet/Internet distributed, peer-reviewed, academic periodical. We are particularly interested in theory and practice surrounding the creation, transmission, storage, interpretation, alteration and replication of electronic text. We are also interested in the broader social, psychological, literary, economic and pedagogical implications of computer-mediated networks.

The journal's essays will be available free to Bitnet/Internet addresses. Recipients may make paper copies; EJournal will provide authenticated paper copy from our read-only archive for use by academic deans or others. Individual essays, reviews, stories-- texts --sent to us will be disseminated to subscribers as soon as they have been through the editorial process, which will also be "paperless." We expect to offer access through libraries to our electronic Contents, Abstracts, and Keywords, and to be indexed and abstracted in appropriate places.

Writers who think their texts might be appreciated by EJournal's audience are invited to forward files to EJOURNAL@ALBANYVMS.BITNET . If you are wondering about starting to write a piece for to us, feel free to ask if it sounds appropriate. There are no "styling" guidelines; we would like to be a little more direct and lively than many paper publications, and less hasty and ephemeral than most postings to unreviewed electronic spaces.

This issue's "feature article," and those from other issues of EJournal, are now available from a Fileserv at Albany. We plan to distribute a "table of contents" to a broad population occasionally, along with instructions for downloading. A list of available files from the EJournal Fileserv may be obtained by sending the message INDEX EJRNL to this address: LISTSERV@ALBANYVMS.BITNET .

To "get" one of the files in the EJRNL Listserv, send GET <filename> (where <filename> is the name of the file that you wish to have sent to you) to LISTSERV@ALBANYVM1.BITNET .

About back issues:

They are available from Albany's bitnet Fileserver. The message INDEX EJRNL sent to LISTSERV@ALBANYVM1.BITNET will trigger an up-to-date readout of what is available -- including the file EJRNL INDEX. Addresses: Please note the difference between the IBM ("VM1"), where Bitnet server functions occur, and the Digital Equipment VAX ("VMS"), where our "office" resides.

To accomplish (for example): Send to: Message: Getting the back-issue index
LISTSERV@ALBANYVM1 INDEX EJRNL Getting Vol 1 Number 1
LISTSERV@ALBANYVM1 GET EJRNL V1N1 Subscribing to EJournal_
LISTSERV@ALBANYVM1 SUB EJRNL Your Name Mailing a message
EJOURNAL@ALBANYVMS Your message.... Suggestions about smoothing the relationships among readers, the journal, the medium (and libraries) are always welcome. So are texts for consideration by the editors.