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Writing for the New Millennium

The Birth of Electronic Literature

by Robert Kendall

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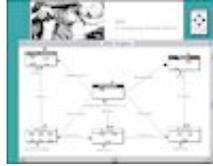
Literature has always been a remarkably adaptable art form. It's at home on the lips of the storyteller or the actor. It happily dons the accoutrements of song. Even the printed page may spawn extraverbal hybrids such as visual poetry, calligraphy, and illustrated books. Now the range extends still further. The computer--that remarkable melting pot of all communication--has become another medium for expressing the incomparable beauty and power of the word.

A growing number of poets and fiction writers are using the personal computer to stretch the boundaries of the written tradition. From the electronic pen come poems and stories that couldn't be represented in print--work that can exist only on the infinitely flexible "cyberpage" offered by the personal computer monitor.

The new electronic literature breaks the bonds of linearity and stasis imposed by paper. In digital form, a story can draw readers into its world by giving them a role in shaping it, letting them choose which narrative thread to follow, which new situation or character to explore. Within a "page" of poetry on screen, words or lines can change continually as the reader watches, making the text resonate with shifting shades of meaning. Written work can "improvise," altering its own content every time it's read. With its power to mix text, graphics, sound, and video, the PC can extend the ancient interdisciplinary traditions of writing.

This emerging genre--often called interactive literature, because the reader can interact with it--has gained an inexorable momentum in the past few years. Such prominent writers as William Dickey, Thomas M. Disch, and Robert Pinsky have tried their hand at interactivity, and the medium has attracted many other talented practitioners in this country and abroad, as well as a number of publishers devoted almost exclusively to it. It has garnered favorable critical attention

from such conservative voices as *The New York Times Book Review* and *The Washington Post Book World* and spawned an eloquent body of critical theory. Interactive literature has found its way into the curricula of English and writing departments at many colleges, including the [New School for Social Research](#) in New York, where I teach interactive poetry and fiction. ([See sidebar.](#))



Woe, by Michael Joyce
[\[click on thumbnail\]](#)

Fueling the new genre is a mushrooming interest in electronic publishing. Books of all types are coming out on computer-readable disks, with the PC screen substituting for the printed page. The new field is seeing activity from many of the nation's largest publishing houses, including Bantam Doubleday Dell, Macmillan, Paramount, Penguin, Putnam, Random House, Simon & Schuster, and Time Warner, as well as university presses such as Oxford, Yale, and Columbia, numerous small presses, software companies large and small, and even self-publishing authors. Publishing on disk not only allows new ways of creating books, but also throws open the doors for entirely new distribution channels that may have far-reaching implications for literature.

For example, one of my [interactive digital poems](#) is afloat on a sea of computer networks, where it has been read by hundreds of people across the country who have downloaded it--that is, transferred it via modem to their own computers. At least 9,000 copies of this poem have been circulated worldwide by distributors of shareware (software that users can try out before they pay for it). My interactive poetry with music has also been exhibited at an assortment of venues, ranging from the [Geraldine R. Dodge Poetry Festival](#) in Waterloo, New Jersey, and a Barnes & Noble bookstore in New Jersey to the Franklin Institute Science Museum in Philadelphia and art galleries in New Jersey and [Philadelphia](#). By means of a PC and audio equipment mounted in an exhibition space, the poetry becomes a literary artwork/performance that attracts people of all stripes who watch, read, listen to, and interact with it. Electronic authors [John Cayley](#), [Judy Malloy](#), and [Jim Rosenberg](#) have given similar exhibitions at such places as the Guggenheim Museum Soho in New York, the Museum of Contemporary Art in Los Angeles, the Philadelphia Museum of Art, the Royal Festival Hall in London, and several university galleries.

I first ventured into electronic poetry in 1990, after publishing poetry in numerous printed magazines and completing a book of poems ([A Wandering City](#), Cleveland State University Poetry Center, 1992). I saw the computer as a potentially valuable accomplice when I took my poems on the road for readings. Displaying the work on the PC monitor seemed a solution to that age-old problem faced by the poet as performer: the ear is not always as adept as the eye at taking in the nuances of the poet's art. Subtle word-play and verbal interrelationships are often lost on the ear, not to mention line layout and quirky spelling or punctuation. The computer screen can preserve all that the printed page has to offer, while imbuing the poem with the dynamism of a live performance.

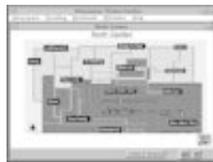
I began fashioning kinetic visual poems for the PC, calling them [SoftPoems](#) to reflect both their software genesis and the malleability of their text. In this work, the words establish their rhythms by appearing and disappearing a few at a time, moving around on the screen and undergoing other visual transformations. I drew on age-old traditions of word as art object, language-painting with different fonts and colors. To enhance the verbal choreography, I synchronized original music to it with the aid of multimedia software--a natural outgrowth of a life-long interest in combining poetry and music. The result was like a song with the words written rather than sung.

My PC began accompanying me to my poetry readings. It started out as an experiment that I feared might elicit only confusion or worse, yet it quickly became one of my most effective and accessible links with an audience. My computer display soon showed up at all manner of places, penetrating well beyond the usual literary circles. I was surprised to find my digital creations appealing to people who previously eyed poetry as if it were some unpleasant-tasting vegetable. This led me to use them as tools when I taught poetry in New Jersey high schools through the Dodge Foundation's Dodge Poets program.

I had begun working in the electronic medium assuming that I was the only writer inspired (or deranged) enough to do so, but I gradually became aware of other kindred spirits, some of whom--like William Dickey, [Michael Joyce](#), and [Judy Malloy](#)--had answered the call of the silicon muse years before I did. I was part of a new literary movement and didn't even realize it.

Most electronic pioneers are exploring the computer as a vehicle for malleable, nonlinear writing unlike anything from the world of print on paper. They use a technique called hypertext, which allows the reader to pursue various diverging and crisscrossing paths through a story or poem. The writer can link any section within a text to many other spots in the same work. A segment of writing can therefore lead to any of several alternative continuations or digressions rather than just the next page.

Here's a typical example: In [Stuart Moulthrop's](#) hypertext novel *Victory Garden* ([Eastgate Systems](#), 1991), the reader encounters Harley and Veronica flirting in a bar. Hitting the "Enter" key continues the story's current thread, resuming the conversation between Harley and a friend as Veronica leaves. Alternatively, the reader can select among words that appear highlighted within the text, each leading onto a different narrative path. For instance, choose "another table" and the story follows Veronica as she goes to wait on another customer. Choose "Veronica" and the narrative digresses to a bedroom scene between her and Harley.



Victory Garden, by Stuart Moulthrop
[\[click on thumbnail\]](#)

By this process of choosing which links to follow, readers determine the order--and therefore

also the contexts--in which episodes of a story or poem appear. They assemble their own versions of a fictional world in much the same way that they piece together unique, personal versions of the real world from the fragments of their own experience. The text becomes a real environment that the reader can interact with and alter rather than just a description of one.

Writers like [Michael Joyce](#) inspired me to embark on my own hypertext expedition. I departed from the usual approach, however, using my background in computer programming to develop a dynamic hypertext technique that allows a reader to change not only the ordering of text sections but also the content of each in response to different situations.

For example, the first few lines of any section may vary to create an appropriate transition from or response to whatever precedes it. Key phrases might be added or removed, depending on whether or not the reader has already seen a related part of the poem. Thus, if the reader encounters a passage that introduces a particular theme, the program may alter passages the reader visits much later on, adding to them a few lines alluding to this new theme. The way sections are linked together also changes in response to the reader's progress.

I put the technique to work in my book-length poem [A Life Set for Two](#) (Eastgate Systems, forthcoming), which uses as its structural model the human mind itself, with its dynamic twistings and turnings. The reader roams through ruminations and memories of failed love, as if following different trains of thought. Like thoughts, these sections interact with one another, creating logical interconnections. The reader can also change the mood of the poem at any time, which affects the content of each section the way different frames of mind can color reminiscences.



A Life Set for Two, by Robert Kendall
[\[click on thumbnail\]](#)

The dynamic structure of *A Life Set for Two* is partly an effort to minimize the discontinuity attendant upon complex hypertext literature that frequently lets the reader jump between distantly related spots in the writing. Disjunction can certainly be an effective device, but I wanted to moderate it with appropriate transitions provided by the program. The dynamic approach also gives new meaning to the process of rereading, since a text section is often different upon two successive perusals.

My approach to interactive literature is just one in a field with nearly as many approaches as practitioners. During the last few years, dozens of writers have published fiction or poetry of this variety, and the offerings are extremely diverse.

Two of the first notable writers to venture into interactive territory were Thomas M. Disch and Robert Pinsky. Both created hybrids that straddle the line between computer game and genre fiction, requiring the player/reader to unfold the text of the story by typing in the actions of the

protagonist. Disch's *Amnesia* (Electronic Arts, 1986, now discontinued) weaves a mystery story with multiple possible outcomes. Pinsky's *Mindwheel* (Synapse Software and Broderbund Software, 1984, now discontinued) is a surreal fantasy holding many puzzles (some in the form of poems) that the reader must solve before progressing further. This type of story/game has become a very popular form of entertainment on the PC.

It was [Michael Joyce](#), however, who really opened up the electronic frontier to serious writing, blazing the hypertrail in literature with *Afternoon, a story*. Completed in 1987, this hypertext novel requires the reader to unravel interwoven strands of narrative to make sense of the story. The reader's efforts parallel the struggle of the story's main character to learn whether his son and estranged wife have been killed in a car accident. The *Washington Post Book World* described this work as "an arresting, intricate, delicately contoured prose sculpture, and a noteworthy piece of recent American fiction, genre considerations aside."

Afternoon was published in 1990 by [Eastgate Systems](#) (Watertown, Massachusetts), an innovative electronic publisher that has become the most important force in fostering and promoting interactive literature. Eastgate currently offers more than a dozen works of hypertext fiction and poetry. ([See sidebar.](#))

Besides *Afternoon*, the most significant product of Eastgate Systems is [Stuart Moulthrop's](#) *Victory Garden*. Notable for its linguistic virtuosity, this work is the most ambitious and sophisticated embodiment yet of the hypertext novel. Hypertext gives an unusual immediacy to this recounting of many events unfolding at once in different parts of the world during the recent Gulf War. It also ideally accommodates the novel's obsession with the blurring of the boundary between reality and TV brought about by the news media's war coverage. Switching among the narrative threads becomes like channel-surfing through people's lives.

Another ground-breaking Eastgate publication is *Uncle Buddy's Phantom Funhouse* (1992) by [John McDaid](#). More a satirical literary potpourri of loosely connected writings than a novel, it invites readers to explore its text in unconventional ways. For example, choosing among various graphic images (such as Tarot cards or the rooms of a house) will take readers to different points in the text. Or they can select alphabetized entries from a dictionary inspired by Pavic's *Dictionary of the Khazars*. Also from Eastgate is [Judy Malloy's](#) *its name was Penelope* (1993), interesting for the way it strings passages together in a different random order every time it's read, emulating the fragmentation that takes place in human memory.

[Deena Larsen's](#) *Marble Springs* (Eastgate Systems, 1994) holds a special attraction for poetry teachers. This collection of hypertext poetry about the inhabitants of a 19th-century community encourages readers to create and add their own poems about some of the characters.



Marble Springs, by Deena Larsen
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To disseminate shorter hypertexts, such as stories and poems, Eastgate has launched a magazine

on disk called the *Eastgate Quarterly*. An early issue contains [Jim Rosenberg's](#) *Intergrams* (1994), poetry that lets the reader uncover different layers of text superimposed on different areas of the screen. Among offerings planned for future issues are the interactive poems of the late William Dickey, well known for his many printed books of poetry. Dickey began experimenting with electronic poetry ten years ago, combining hypertext, graphics, and sound effects into evocative artistic expressions.

Eastgate isn't the only press dealing in interactive literature. [Hyperion SoftWord](#) published [Rod Willmot's](#) long, often haunting hypertext poem *Everglade*, in 1989. [William Gibson's](#) much-publicized *Agrippa: A Book of the Dead* (Kevin Begos Publishing, 1992, now discontinued) is a poem on disk that permanently erases itself as it scrolls across the computer screen, endowing writing with the fragility of memory.

[The Wellsweep Press](#) in England brought out [John Cayley's](#) six-volume *Indra's Net* (1993-1995), which includes poems that generate their own text in a different way every time they're read. It also offers Cayley's translations and electronic renderings of Classical Chinese quatrains. "Traditional Chinese poetry invites non-linear reading," says Cayley, who presents the text in a way that makes this quality more apparent.

The phenomenal growth of the Internet (the much-talked-about global network of computers) has spawned another type of publisher for hypertext literature. The fastest-growing branch of the Internet, called the World Wide Web, is structured as a vast repository of interlinked hypertext documents, which you can browse by connecting your computer to the Web via a modem and an Internet service provider. Many locations on the Web now contain works of hypertext fiction and poetry. If you want to explore some of these, a good place to start is the Web site called "[Hyperizons: The Search for Hypertext Fiction](#)," which contains links to most of the other sites devoted to hypertext literature.

A number of publishers have ventured into multimedia literature, in which visual elements, movement, and usually sound are as important as the text itself. [Diskotech](#) has launched [Holly Franking's](#) *Negative Space*, the first in a line of "computer video novels" that meld text, graphics, and video. [Chatfield Software](#) markets multimedia poems by [Hale Chatfield](#), and [GRIST On-Line](#) publishes the kinetic visual poem *Hiroshima, Hiroshira, Hirosh'ma* (1994) by [John Fowler](#).

Interactive electronic literature is not part of today's mainstream, but this may change as an increasing number of readers become accustomed to books on disk and more and more publishing houses venture into electronic publishing. Reference and children's books have been very popular in electronic versions for five or six years, and there are now more encyclopedias sold on disk than in print. Literature on disk is slowly gaining acceptance.

Hundreds of novels, stories, and poems that were conceived for the printed page are now available in electronic format. The vast majority are reprints of works that have already appeared in print, though some noted authors--including Kathy Acker, Robert Coover, Alice Fulton, David Ignatow, Stephen King, and William T. Vollmann--have published work electronically either instead of or before publishing it on paper.

Publications of this nature are distinct from interactive literature, but some of them do use the resources of the PC to bring something new to the writing. For example, the two-volume anthology *Poetry in Motion* ([Voyager Company](#), 1992 and 1995) supplements printed poems with digital videos of the authors reading the work, and *In My Own Voice* ([Sunburst Communications](#), forthcoming fall 1995) includes audio recordings of contemporary poets. Voyager has released an electronic edition of Michael Crichton's novel *Jurassic Park* (1992), which the author describes in the preface as a "more complete version" than any other, since it contains sounds and images that helped inspire his writing. Another digital adaptation is *The Complete Peter Leroy (So Far)* (Voyager Company, 1995), in which Eric Kraft uses hypertext to link together a series of his novels, allowing the reader to trace different themes and relationships that run through the works. [ClariNet's](#) *Hugo and Nebula Anthology 1993* of award-nominated science fiction augments one of its works with extensive hypertext annotations by the author.

The ClariNet anthology is distributed on CD-ROM--a format similar to the audio CD but accommodating computer-readable data--and exemplifies another advantage of publishing literature electronically. Its vast storage capacity makes the CD-ROM a uniquely inexpensive, compact repository for large collections of writing that can easily be searched electronically for study purposes. ClariNet's publisher believes his sci-fi collection to be the largest anthology of contemporary fiction ever produced (it even includes five complete novels).

The [World Library](#), the [Bureau of Electronic Publishing](#), and other companies offer CD-ROMs containing hundreds of classics at prices ranging from \$50 to \$150 per disk--a fraction of what the works would cost in print (the Bureau edition includes illustrations and recorded readings of some of the works). The \$595 *Columbia Granger's World of Poetry* ([Columbia University Press](#), 1995) packs 10,000 poems onto a CD-ROM. [Chadwyck-Healey](#) offers a CD-ROM edition of the complete works of 1,350 British poets, though only libraries will be able to afford its \$51,000 price tag.

Electronic media are also having an impact on little magazines. They make possible such ventures as *BLAM!*, an aggressively provocative product of New York's East Village, which uses audio and animation to turn text into interactive performance art. Anyone with a PC, a modem, and access to a computer network (such as CompuServe or the Internet) can put together a magazine with negligible production costs and make it available to thousands of network users who can download it to their own computers for free. There are now dozens of such magazines with a literary focus, some predictably bad, others (like [Postmodern Culture](#) and [GRIST On-Line](#)) of very high quality.

The World Wide Web is giving a boost to literature on many fronts. It's providing a home to many new literary magazines and archives, letting authors publish their own work at little or no expense, giving print and electronic publishers alike the opportunity to disseminate free samples of their wares, and letting writing programs put the work of their students before a broad reading public.

The biggest obstacle to the widespread acceptance of electronic books and magazines is currently the primitive state of the technology for reading them. Staring at today's computer

screen just doesn't have the same attraction as curling up with a good book. However, industry experts expect the eventual arrival of an inexpensive paperback-sized computer with a screen that matches the readability of the printed page. Then the electronic publishing boom will begin in earnest.

Although few among the proselytizers of digital publishing predict the disappearance of printed books any time soon, it's hard to imagine that the technology won't have a profound effect on the reading and writing of future generations. It certainly wouldn't be the first time that technology has altered the course of literature. Would the flowering of the novel have been possible without the printing press? Think about literature before the invention of paper or of writing itself.

Interactive literature is likely to flourish because it satisfies some strong artistic needs. It's been hailed as the logical culmination of postmodern tendencies such as making the reader a partner in constructing the meaning of a work, but there are deeper attractions.

From the earliest times, writers have been drawn to alternatives to linear narrative that make storytelling more flexible. Devices such as the story within a story, the flashback, and the subplot are precursors to hypertext. The dynamic, interactive nature of the new genre may also let us recapture something that was lost when oral literature gave way to a written tradition. Poems and stories carried solely on the tongue are constantly reshaped and revitalized by improvisation. Storytelling is partly a skill of spontaneous interaction between teller and audience. In its purest form, as it arises in the bar after work or at the family dinner table, it must respond to the perplexed question, the raised eyebrow, the stifled yawn, and all the other cues that signal the narrator when to elaborate and when to cut to the chase.

Eventually interactive fiction may engender characters that communicate as if they were actual people. A step in that direction has been taken by Jeffrey Morrow and Janet Murray of the Massachusetts Institute of Technology (MIT), developers of a program called *Character Maker*, which uses rudimentary artificial intelligence to unfold a work of fiction by responding to questions and comments that the reader types in. This makes the act of reading much like having a conversation with a character in a story.

Computer technology has other interesting implications for poetry. The malleability of lines on screen opens up possibilities for many new formal alternatives to traditional verse structures. The instructional program *PoetryStar* ([Chatfield Software](#), 1991) demonstrates this with a strict Petrarchan sonnet by [Hale Chatfield](#) in which each line has four alternative versions. Every time the sonnet is displayed, the program randomly chooses a version of each line, with very intriguing results. The 256 million possible combinations all maintain the strict metrical structure and rhyme scheme. A similar feat had previously been accomplished in print by [Raymond Queneau](#) in his *Cent Mille Millions de Poems* (Gallimard, 1961), but only rather awkwardly by means of lines printed on strips of paper that the reader must fold into different combinations.

[Judith Kerman](#)'s *Colloquy: The Interactive Poem Authoring System* (forthcoming from Eastgate) offers another new twist to old forms, letting poets create interactive work within formal constraints that are conceptually similar to those governing the sestina. A *Colloquy* poem appears on screen a few lines at a time, with the reader determining which lines are next added

to the poem by selecting any word from the lines already there. The selected word then begins the next new line.

Electronically endowing poetry with graphical variety, movement, and sound gives it a physicality that immediately engages readers on a sensual level. Like the sensuousness of rhyme and meter, electronic multimedia entices readers in and invites them to discover the poem's less accessible places. This, along with the new distribution avenues the medium opens, may help poetry regain some lost popularity.

Even conventional books of poetry could benefit from hypertext. Rather than confining the individual poems in a collection to a single, sometimes arbitrary order, an author could link them together in different ways, letting the reader explore various alternative orderings or groupings that emphasize different relationships among poems. This approach could also extend to many long lyric poems, since these are often cast in loosely connected sections that don't necessarily demand a single linear reading.

Interactive writing is no longer solely the domain of the technological savant, thanks to rapidly improving software for creating electronic books. Authors can choose from a variety of programs that simplify working in the interactive medium, including Eastgate's Storyspace, which is intended largely for creating hypertext fiction and poetry.

Tackling this new breed of writing is now little more difficult or risky than trying one's hand at any other unfamiliar genre--and it should be regarded as a new genre, not a potential replacement for traditional forms of literature. Like any distinctive medium, it requires first-time practitioners to rethink some elements of their craft to use it effectively. It can also demand some artistic readjustment as the hypertext author learns to relinquish to the reader some control over the final form of the work. This doesn't mean giving up responsibility for the structure of the writing or somehow losing authorial claim to it. If anything, the structural responsibility increases, for the work must maintain coherence in the many possible permutations it can undergo. For a novelist or poet, adapting to interactivity is a little like venturing into theater work, which also requires entrusting part of the creative process to others--in this case, actors and a director.

With its aesthetic kinship to oral tradition and live performance, the new literary technology points toward a deepening rather than (as some fear) a lessening of the human element in writing. It also provides some comfort when one contemplates a coming century that many expect to be dominated by interactive electronic media (we already have interactive television, movies, and record albums in fledgling form). If the genre flourishes, it will mean that no matter what else we encounter in the digital future, there will always be something of spiritual and intellectual value--namely literature--to put up on the screen.

Sidebars

- [Where to Find Literature on Disk](#)
- [Where to Learn the Art of Hypertext](#)



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