

Florian Brody

# Ars Hypertextualia

## The limits of the Library

“The universe (which others call the Library) is composed of an indefinite and perhaps infinite number of hexagonal galleries, with vast air shafts between, surrounded by very low railings.”

Jorge Luis Borges, “The Library of Babel”<sup>i</sup>

Babel’s library is a metaphor for the limits, or infinities, of the world and the knowledge it encompasses. The computer, however, has occasioned a shift in the world, complicating the relation of text to books on the one hand, and to memory on the other. In pre-literate societies, that which we now refer to as the “text” existed solely within the realm of memory, inside our heads. With the invention of writing, the text moved to the manuscript, but, like the discrete work of art, was a rare and precious object. The technology of printing transformed the text into an exchangeable commodity, ever more plentiful over the centuries. And today, we live in vast libraries yet have almost no access to the text we need.

The computer spawns the electronic text, a volatile form that paradoxically returns the text to our heads while at the same time enmeshing it in an even more sophisticated apparatus. Electronic texts have no body, only mind - they close the circle to the mnemotechné of the Romans.

# Conveyors of Memory

Constat igitur artificiosa memoria ex locis et imaginibus<sup>ii</sup>

In western culture, books contain knowledge that can be shared, sold, or bought. Information becomes a commodity and, as such, independent from man - a radical shift from the antique model that posited memory as the primary container of knowledge, inseparable from the human mind. The ars memorativa were a major part of rhetorical training for any educated Roman, and the rules for the mnemotechne were of such importance that the later textual tradition still bears their imprint. Francis Yates points out the linkages between the two forms: “The art of memory is like an inner writing. Those who know the letters of the alphabet can write down what is indicated to them and read out what they have written.”<sup>iii</sup>

The rules for places and rules for images defined for the art of memory hold for books as well as for new media systems. Users of hypertext systems build imaginary houses in their minds to understand where they are in the story. When they become lost, it is because the system’s designers have violated the traditional structures of the mnemotechne.

## Icons, Companions, and Fetishes

We “know” what books are. We can define them in functional ways: they are novels, collections of poetry and short stories, reference works, the list goes on. A book has a typical topology: a bound set of pages with a cover, rectangular in shape, containing text and images, printed on pages of uniform size. Though we would be hard-pressed to offer an all-inclusive definition of “the book,” we know one when we see one. Books are more than repositories of text; they are icons of knowledge and are therefore praised, ignored, or burned depending on the meaning they have for the user. Books stand in metonymic relation to human archetypes and ideas. This is why a book burning is a terroristic act.

The book has always been used in personal ways, as an extension of memory. Changes in printing affect the availability, portability, and longevity of the book, as well as its position within the reader’s life. Paperback editions are available worldwide at reasonable prices - a dramatic change from the last century when the average household was unlikely to possess any volume other than the Bible, much less the Medieval monastery, with its sacred manuscripts chained to their shelves.

In this age of textual ubiquity, a culture of bibliophilia has flourished. Collectors are happy to buy books without reading them, valuing them as commodities independent of their position within the intellectual culture.<sup>iv</sup> Other bibliomaniacs cannot resist the temptation of a bookstore for different reasons. Their obsessions bind them to printed matter not as a commodity, nor simply because of the information it contains, but because the book has the quality of captured memory. Between the covers lies a promise: the possession of a book will mystically extend the mind of the owner. This accounts for the intellectual and emotional euphoria so many feel when leaving a shop or library overloaded with huge bags of books which may never be read.

## Reading the book

We still read *according to* print technology, and we still direct almost all of what we write toward print modes of publication.”

— George Landow: Hypertext<sup>v</sup>

Text often exists in more than two dimensions. Scribes scratched hieroglyphs into papyrus, stone smiths carved Latin inscriptions into stele, and printers from Gutenberg on pressed type and ink, modifying the very surface of the paper. New printing and reproduction technologies abandon the third dimension. Laser printing lays two-dimensional text on the page, an effect closer to stenciling than engraving. Computer displays eliminate traditional notions of dimensionality entirely – leaving text to float in an electronic matrix.

A linear text, with specified start and end points, is a stable text. The matrix in which electronic text floats is quite different – a flexible environment that allows multiple layers and n-dimensional reading variants. It is this polyvalent ability to enter, amend, and exit the text in a non-linear fashion that defines hypertextuality.<sup>vi</sup>

Just as the technologies of text production have changed, so have the functions of reading. Reading as a mental adventure is a relatively young concept. General access to the written word was until fairly recently restricted to the holy books. The special quality assigned to these books - the word of G'D -not only restricted their usage but also assigned a quality beyond its primary semiotic character as a sign. In western civilization, the written word gained a truth value previously held

by the spoken word. The arrival of electronic text forces a similar re-evaluation of the page-bound text.

Although text in a computer is far less stable than the written or printed word we assign it a very high truth value. Early computer pioneer Joseph Weizenbaum of MIT remarked, "My father used to say, 'It is written in the holy books.' Today we say, 'The computer tells us.'"<sup>vii</sup>

## Designing the Book

The central relationships of book design, those of text as graphic and text versus graphic, are maintained in the era of the electronic book. The computer's screen displays the text as text, which in cybernetic systems can be defined as standardized ASCII characters, machine-readable and searchable.<sup>viii</sup> Yet, computer text is also a scalable, mutable graphic no different from any other visual element on the desktop. But while paper-based text becomes a static graphic, computer-based text stays fluid.

As text becomes more easily manipulable in electronic form, the differences between primary and secondary texts vanish. While handwritten marginalia in printed materials are clearly distinguishable from print, in a handwritten manuscript, they function on the same structural level. Interestingly enough, in the electronic book, these two parts - the original author's text and the marginalia and emendations of the reader - once again are unified.

In terms of narrative, it is important to recognize that while on a representational level static text is conventionally defined in a linear form, on a conceptual level, most authors build their texts in a non-linear fashion. The classical novel, for example, builds a textual web while maintaining the linear surface form.

Fictions developed specifically for computer-based hypertexts generate a surface web that allows for multiple paths through the representational level, without necessarily generating a conceptual web. Michael Joyce created his interactive novel, *Afternoon*, to be read on a screen. He programmed no definitive path through its textual parts. Every reading of the text is a new tour through the maze, and the story is constructed in a way that takes the interdependency of the parts into account.

## The Expanded Book

When converting content from one medium to another, the rules of representation change. They have to be recreated for the new medium. This is a complex process that evolves over time. There are numerous strategies one can follow when writing electronic text. Rather than completely restructuring the notion of text to fit new computer-based forms, authors can draw from pre-technological models of hypertextuality. In transforming a pre-existent static text to electronic form, a writer can simply restructure the surface level of the text, adding hypertextual links within the cybernetic architecture, mimicking the apparatus available in printed matter - chapter listing, index, and glossary, but now in a random access form.

The observations that follow grew out of my experience as technical director of The Voyager Company's Expanded Books project, which was established to produce an interface to read books on the screens of laptop computers, thereby creating a new (electronic) publishing medium.

To render greater readability to text displayed on a screen, we felt that we should draw from the rules long applied to static text. We had noticed that hypertexts that violate these long-standing parameters might be readable on a representational level, but too often, they are difficult to decode on a conceptual level. The screen has to be as clean and empty as possible and invisible when not in use.

We chose to have a cover page, an *ex libris*, and a bookmark to take the readers back to their page. We designed the interface of the Expanded Book with the concept of the book as we know it in mind.<sup>ix</sup> Contrary to many hypertext applications, the interface is extremely simple and in all aspects oriented towards reading as a continuous task rather than as an exploration of a set of text passages.

Beyond reading the text by turning the pages with the arrow keys on the keyboard, the user can make margin notes, mark paragraphs, dog ear pages, search for every occurrence of a word in the text, highlight passages, and even copy these selections to other applications. The Expanded Book functions like a traditional book, not a computer application. This is its biggest asset: An Expanded Book is read, not played.

## The Weight of Text

Materialist histories and theories interest the writer Bohumil Hrabal less than the consumption of books, the way the reader ravenously restructures fact, knowledge, and myth.

*“For thirty-five years now, I’ve been in wastepaper, and it’s my love story. For thirty-five years I’ve been compacting wastepaper and books, smearing myself with letters until I’ve come to look like my encyclopedias - and a good three tons of them I’ve compacted over the years. I am a jug filled with water both magic and plain; I have only to lean over and a stream of beautiful thoughts flows out of me. My education has been so unwittingly I can’t quite tell which of my thoughts come from me and which from my books, but that’s how I stayed tuned to myself and the world around me for the past thirty-five years. Because when I read, I don’t really read; I pop a beautiful sentence in my mouth and suck it like a fruit drop, or I sip it like a liqueur until the thought dissolves in me like alcohol, infusing brain and heart and coursing on through the veins to the root of each blood vessel. In an average month I compact two tons of books.”<sup>x</sup>*

The tons of books Hrabal’s protagonist processes eventually crush him, yet he never gains the knowledge he seeks. He tried to eat the books, to inhale them whole, rather than to analyze their contents. His totemistic approach to the text as book as food stands in contrast to the analytical, even deconstructive spirit of the computer-based hypertext.

## The New Book

To develop the new book, we will have to analyze what it is we want from text, memory, and technologies of knowledge. Our conceptions of text and textuality are so closely linked to the physical object of the book that any paradigmatic change in its form seems to threaten the stability of representations of knowledge. Previously, the fetish character of the bound volume offered the reader a sense that memory was secure between the book's covers. The recent dynamization of text and the book as they move into the electronic matrix unhinges the dependency between reading, the printed word, and truth value.

In the cybernetic age, textual memory representation returns to the mind, where it resided before the technology of the book became ubiquitous. Reading will move away from paper, much as writing started to do ten years ago. This augurs a new era of design, for although machines have long been used for writing, very few have been developed through history for reading. To this point, text processors have been developed as write-only devices, conceptualized as highly sophisticated typewriters rather than as reading machines.

The new book will demand dramatic changes in reading habits, though I am unsure how willingly we will all switch to the new forms. Meanwhile, we will read conventional books on screens, experiment with hypertext applications, and explore the potentials of new media for the author as well as for the reader. Yet eventually, a new memory culture will emerge that will generate its own rules and its own books.

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<sup>viii</sup> ASCII stands for the American Standard Code for Information Interchange and lists as 7-bit codes all the letters in the alphabet, the numerals 0 through 9, and other common symbols such as +,.,and=. For example, the ASCII code for the letter A is 1000001, for Bit is 1000010, etc.

<sup>ix</sup> Illustrations are taken from Martin Gardner, *The Complete Annotated Alice*, and Neil Postman, *Amusing ourselves to Death- Both are Expanded Books*, (Santa Monica: The Voyager Company, 1992). On 1.4 MB diskettes for the Macintosh.

<sup>x</sup> Bohumil Hrabal. *Too Loud A Solitude*, (New York: Harvest/HBJ, 1992), p. 2.

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**a double issue**

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the journal of cultural  
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FRAME  
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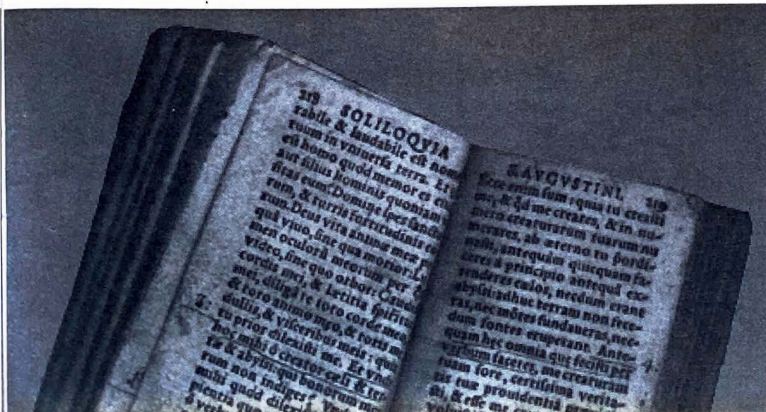
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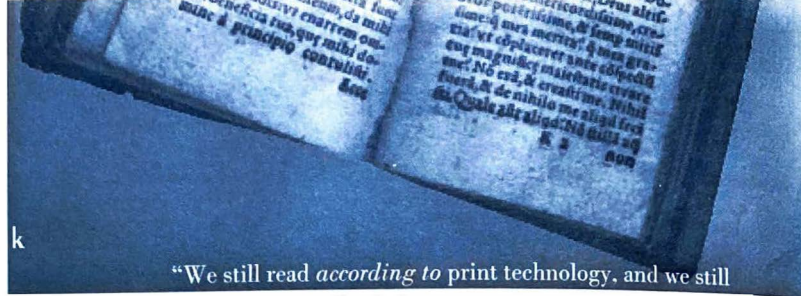
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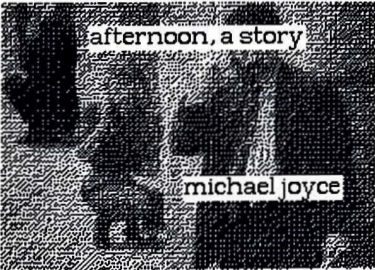
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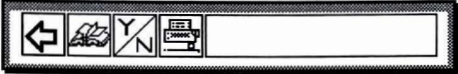
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Reader

start



for directions click yes (y)-- to start press Return  
©1987,92 Michael Joyce  
Eastgate Press 3rd Edition 1992 12345...  
PO Box 130  
Cambridge, MA 02238



## The Expanded Book

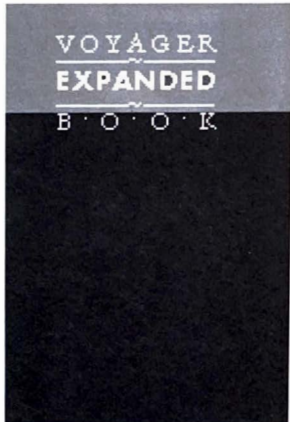
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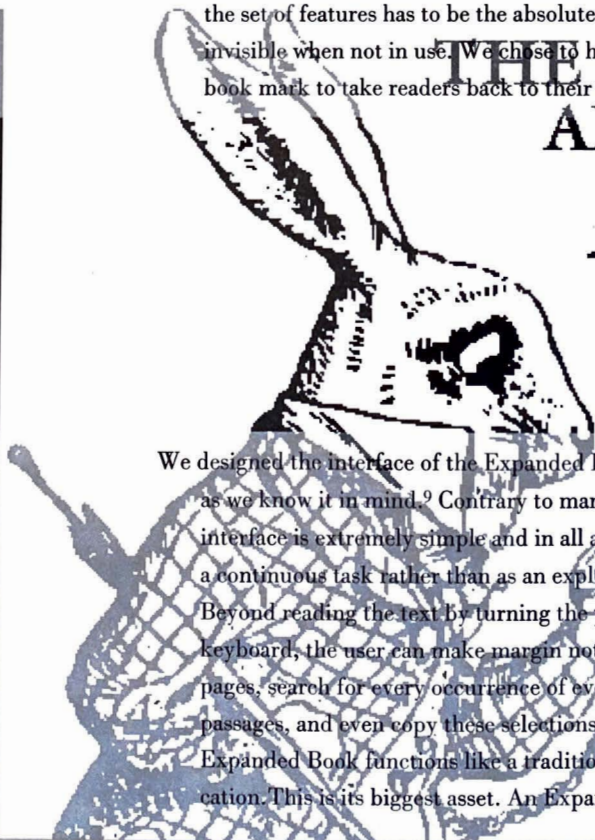
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44+45



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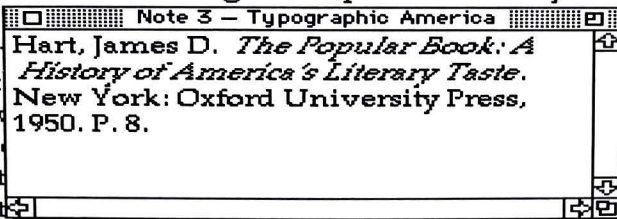
LEWIS CARROLL

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Introduction and Notes by MARTIN GREENER

and Connecticut was somewhere between 89 percent and 95 percent, quite probably the highest concentration of literate males to be found anywhere in the world at that time.<sup>2</sup> (The literacy rate for women in those colonies is estimated to have run as high as 62 percent in the years 1681-1697.)

It is to be  
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Protestants  
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other than the Bible, as for example in the famous *Bay Psalm Book*, printed in 1640 and generally regarded as America's first best seller. But it is not to be assumed that these people confined their reading to religious matters. Probate records indicate that 60 percent of the estates in Middlesex County between the years 1654 and 1699 contained books, all but 8 percent of them including

## The Weight of Text

68

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