

**Florian Brody**

## **Books the Next Generation Reading on the Electronic Frontier**

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By this art you may contemplate the variation of the 23 letters ...

— *The Anatomy of Melancholy* part 2, sect. II, mem IV #1

Today reading has successfully made the transition from paper to the dynamic medium of the computer screen and is becoming a common experience in the world of electronic media. And while the computer industry does everything to convince us that “multi”media will be the glorious future of electronic communication we convey most of our concepts by writing and reading, be it on the computer, be it on paper. The electronic book as a platform to read on a dynamic medium is still in a very early stage both in software and hardware and may look dramatically different from what we expect it to be at this stage. Still the book is the primary source for text and thus a container of memory.

This paper looks into the quality of private memory and its impact on our dealing with electronic media.

## **THE BOOK**

The fact that we see the book as a monolithic form tells us a lot about its qualities as a container of text. The written word guarantees continuity and truth. The latter is derived from the holy books and extend against better knowledge to much that we read.

Books have changed over the centuries and as we complain about today's screen resolution and the quality of text on the monitor we should compare this to any 16 c. book that was equally hard to read. The quality of printed books showed a drastic decline in design and representational quality from the handmade manuscripts and it took a long time to get the technology and the design concepts of print under control. Books had different positions in society over the centuries and shared the fate of their owners in many ways. Books of Hours served in many ways as companions much like today the PowerBook and were highly personalized in its content, the 19. c. saw a strong impact on personal libraries and books were sold without binding to allow the owner to have it bound to match the other volumes in his possession.

Our interest in books goes far beyond their actual value as containers of text. Books have a high value as fetish objects as much as extensions of our brain. By owning a book we extend our memory even without ever reading the book. The object of the book itself has an aesthetic quality not found in most computers and an electronic book will have to satisfy this need. Personal electronic devices such as electronic diaries and portable CD player have shown that this is possible. The separation of the container of the text and the book will lead to a total redefinition of the book but not to its extinction. We will get to a state when the

concept of one book that holds any given information becomes acceptable. The information will be on a disc or online and probably more readily available than a book on paper one cannot find at a given moment.

Every electronic book concept will have to guarantee the stability of text as this is one of the main features of books vs. other media that we need not worry about the availability of text. Text on online systems is outside our control and by the time we revisit a given passage, it may have changed or disappeared. This makes us extremely insecure and the system hard to use. Text has to hold its promise as being uneraseable in order to convey the concept of a book.

## THE TEXT

Was man schwarz auf weiss besitzt, kann man getrost nach  
Hause tragen.

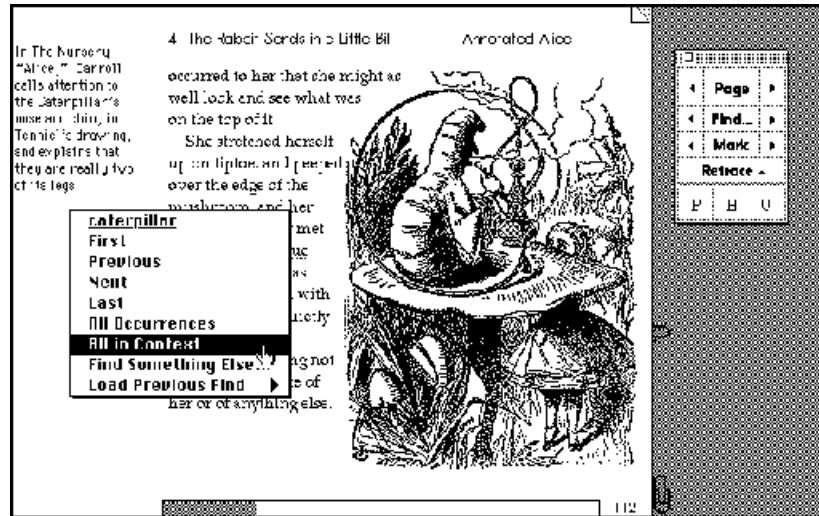
— GOETHE: *Faust I.*

In pre-literate societies, that which we now refer to as the “text” existed solely within the realm of the memory inside our heads. With the invention of writing, the text moved to the manu scriptum, the page written by hand, which like precious work of art, was a rare object and the act of copying manuscripts was a religious act. The technology of printing transformed the text into an exchangeable commodity, ever more plentiful over the centuries. The libraries have grown and are no longer working memories but became almost infinite storage spaces for printed paper.

When considering text we normally think about the written word printed with black ink on white paper. With the computer as a text processing machine the direct connection of text and its physical representation is broken up and text returns to its immaterial status it had in the age before printing. Electronic texts have no body, only mind - they close the circle to the *mnemotechné* of the classical ages.

The computer is less of a calculation machine (a computer) than a memory machine with a major disability compared to our memories, it cannot forget. We take advantage of this fact by using it as storage device for our texts and our thoughts. Many systems of artificial memory have been invented to store ideas and concepts that constitute our history.

In the 1980s the computer became a writing machine that memorized the text without an adequate capability of representation. The Expanded Books project at Voyager looked into the task of a booklike representation of text on a screen in 1991 and with the arrival of the PowerBooks for the first time text could be made available for comfortable reading on a screen. The Expanded Books take the interface metaphor from the book as much as the book borrowed it from the manuscript. Although markup and search facilities are available, the interface is kept free from buttons and anything that distracts the eye from reading.



Voyager Expanded Book: The Complete Annotated Alice

As much as the impact of the printing press is not in the fact that the lead is pressed onto the paper, the calculations of the computer secondary to the representational qualities of text. The design of the hardware as well as the interface on the screen contribute to the readability of the text.

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. Through its digitalization it no longer rests in the universe of original and reproduction but transcends to a state where every reproduction is an original. Thus the user of the word processor becomes the third in the row of operators described by Benjamin (Benjamin 1973), the film camera operator and the operating surgeon. Both enter deep into the tissue of reality when doing the work, while the magical healer on one side and the painter on the other both keep a distance to their objects.

The image created by the camera operator is a virtual much in the sense the text created on the computer is virtual and needs to be projected onto a screen to be perceivable. And as we still have no screens that satisfy our reading needs we print (sic!) most of the texts onto paper, which remaps the dynamic and digital text back into the world of print. (ibid.)

## 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”*

The library as a container of books and thus container of knowledge generates in itself a strange quality of being alive. And this holds true for the big old libraries like the Bodleyan or the British Library as much as for the private library at home. It is a metaphor for the limits, or infinities, of the world and the knowledge it encompasses. As much as the map is not the territory the library to a certain extent is the knowledge, as it defines knowledge to the extent the recursive memory of the book is in itself the source of this knowledge. With the computer as a container of text, the situation has changed dramatically. Text is no longer directly related to the page in a book but exists - somewhat "again" - independently for a physical representation as a memory unit. This puts libraries in a difficult situation. As much as all libraries in the world suffer from a never ending search for new shelf space which will be solved by electronic representation, the risk to become invisible as the text need no longer be represented in a direct physical form.

While library catalogues in electronic form have fast become a desirable tool among librarians, electronic texts as primary texts and parts of a library collection are still rarely understood as books. Everything not printed and bound is considered "non-book material" and this negative definition makes it hard to overcome preoccupations. Due to the dichotomy of text on a storage medium and the need of a reading machine the collection process is unclear. Libraries may end up very soon with data they cannot access and museums with machines without proper data to run them. The disappearing knowledge about outdated machines, their configuration and the interdependency of hardware and software will make data faster obsolete than disintegration data storage.



Early reading machine

The library as a refugium for text faces a conceptual crisis. The dream of total availability of text within the machine comes true and in the same time the text is no longer graspeable. Therefore the concept of the library as a memory place will have to adapt.

## READING

Reading has been for centuries and still is the prevalent activity that creates and defines the way we store and communicate abstract ideas. As much as the activity of reading has changed over the centuries, it constitutes one of the pillars western culture is based on. While writing and printing materials and technologies have changed, the printed word had always the of permanence and

stability. Looking at dynamic media one of the major questions is its transient quality which leads to the central question if the written word loses its primary quality by being transferred to this medium.

Today we use word processors and text processors and perceive them much in the way we got used to food processors. But while processing food is intended to make it more digestible (the first food processor was the open fire) word processors are memory generators. Winograd sees the word processor as a “medium for the creation and modification of linguistic structures that play a role in human communication”(Winograd 1986, p5). His concern of the word processing computer is closely related to the visual representation of text and writing as a means of communication in a social network. The real virtues of the word processor, and in this way it relates to his relative, the food processor, are within its capability to build an artificial memory.

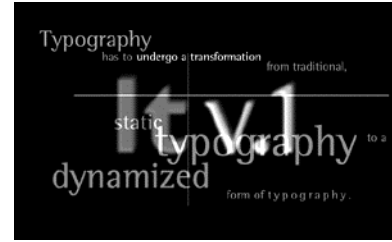
## **HYPertext**

For Norbert Bolz, “the post-modern world is the world of the New Media” in which “the information processing system 'book' is clearly no longer up to the complexity of our social systems” (Bolz 1993). This is not the place to discuss if our society has become more complex but the book both in the conventional form as we know it and in its extended form as electronic book has proven to be exceptionally well adaptable to new forms of text. Early hypertext representations have been on paper, foremost the Talmud which is traditionally designed in a form where the main text is printed in the center of the page, surrounded by commentaries which in turn are surrounded by secondary commentaries. This complex system of references is laid out on a two-dimensional page and the remapping of the hypertextual links take place in our brain.

When in 1962 Ted Nelson first coined the term “hypertext” he planned it to be a universal computer program that would keep track of the divergent paths of texts and ideas. (Wolf 1995, Nelson 1980) He planned it to be the underlying structure of Project Xanadu, the ultimate text database that would connect every text within itself and to all other relevant texts. Xanadu itself is described in “Literary Machines” a book on paper with “a chapter zero, several chapters one, one chapter two and several chapters three”. (Nelson 1980) It is this polyvalent ability to enter, amend, and exit the text in a non-linear fashion that defines hypertextuality (Landow 1991) . The representation of text on an electronic device adds a new form of dynamics which need not reflect hypertextuality. The dynamic medium offers to typography the temporal dimension and the chance for development. The design approach of “Liquid Typography” (Müller 1995) which maps the static graphemes onto the dynamic environment of the screen analyzes the adequacy of text on a screen but makes no statement about the structure of the content represented within. While the Expanded Books keep the structure of the book on paper and add the power of the computer to make text

more accessible, Liquid Typography redefines text as an evolving design process and hypertext concentrates on the multiple interdependencies of text.

It is no coincidence that this universal Project Xanadu never even got near completion, by definition such a task cannot be achieved as it would create the universal library as described by Borges that nobody would be able to use. Hypertext is an attempt to codify all links to a given corpus by defining and classifying the connections on an intertextual and intratextual level. This generates a new level of textuality which in turn needs to be analyzed by the similar rules in order to function as text. Bolz points out that “true hypertext is a rhizome” which “requires a self-assertive user” (Bolz, 1993) but it remains unclear if this true hypertext can come up to all the expectations.



Müller: Liquid Typography

## DYNAMIC MEDIA

By using electronic technologies of representation we enforce the apparatus-free perception of reality even more than with film and the effect described by Benjamin in 1937 becomes a central position in the definition of new media:

“Der apparatfreie Aspekt der Realität ist hier zu ihrem künstlichsten geworden und der Anblick der unmittelbaren Wirklichkeit zur blauen Blume im Land der Technik.” (Benjamin 1980, p.35)

Bob Stein from Voyager often stresses the point not to pass up text when we think about new media. His Gedankenexperiment is to discuss the Gulf War with pictures only. (Stein 1993) Being carried away by the marketing blurbs of the hardware companies we overlook the necessities of conceptual representation, often achieved only through text. We are at a very early stage in the development of new dynamic media, based on electronic representation. Our current status can be compared to film around 1903 when the attraction of the technology drew people into the movie theatres and the topics covered were of minor importance. The current interest in the WorldWideWeb has very similar sources and the fact that most of the information available on the Internet has little or no relevance has not stopped anybody from using it. Relevant to the topic of this paper a discussion on the future of reading is taking place on a New York based Web site between Bob Stein from Voyager, Sven Birkerts, the author of the Gutenberg Elegies and others and due to its transitory stage I am not even sure if it can be quoted (Feed 1995).

## CONVEYORS OF MEMORY

The need to conserve i.e. stabilize text was apparent and different approaches to create an artificial memory were taken already more than 3000 years ago. The *ars memorativa* had an equal status to rhetoric both in roman and medieval times. *Constat igitur artificiosa memoria ex locis et imaginibus* (The artificial memory is established from places and images) (Yates 1978)

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 *mnemotechnie* 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.” (ibid.) 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 *mnemotechnie*.

## TEXT REVISITED

Text often exists in more than two dimensions. Scribes scratched hieroglyphs into papyrus, stonemasons carved Latin inscriptions into stele, and printers from Gutenberg on have 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. Nevertheless “we still read according to print technology, and we still direct almost all of what we write toward print modes of publication”(Landow 1991).

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.'” (Weizenbaum 1978)

## **LIVE LONG AND PROSPER**

As much as generating a text not only allows us to express and communicate our ideas it contains also the pleasure of writing and the generation of an arte factum. The book as a conveyor of ideas as much as an artificial memory will be around for many years, both in the form we know it and in future iterations and generations to come. Books are ultimately memory objects not paper objects and as such play a role in our life.

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## **BIBLIOGRAPHY**

- Benjamin, Walter: Das Kunstwerk im Zeitalter seiner technischen Reproduzierbarkeit. - Frankfurt : Suhrkamp, 1973. (Edition Suhrkamp. 28.)
- Birkerts, Sven: The Gutenberg Elegies. - Boston; Faber, 1994
- Bolz, Norbert: The deluge of sense. Speech at Doors of Perception, Amsterdam 1993. Transcribed on the Doors of Perception 1 CD-ROM, Amsterdam: Mediamatic 1994.
- Borges, Jorge Luis, Labyrinths. Selected Stories. New York: New Directions, 1962
- Brody, Florian : The Expanded Books Project. - research report. Santa Monica, Voyager 1992
- Feed. Interactive journal on the World Wide Web at <http://www.nyweb.com/feed/>. 1995
- Gardener, Martin: The Complete Annotated Alice. Expanded Book. Santa Monica: Voyager, 1992
- Landow, George : Hypertext, The Convergence of Contemporary Critical Theory and Technology. - Baltimore: Johns Hopkins University Press, 1992
- Landow, George and Jay David Bolter : Writing Space: The Computer, Hypertext, and the History of Writing. (Hillsdale, NJ: Lawrence Erlbaum, 1991
- Müller, Thomas: Liquid Typography. - forthcoming CD-ROM. Research project at Art Center College of Design. 1995
- Nelson, Ted H.: Literary Machines. - Edition 87.1; personal copy T.H. Nelson
- Weizenbaum, Joseph personal conversation with the author, 1978
- Winograd, Terry & Fernando Flores: Understanding computers and cognition; a new foundation for design . - Reading MA : Addison-Wesley, 1986.
- Wolf, Gary, The Curse of Xanadu. in:Wired 3 (=June 1995) 6, p. 137 ff
- Yates, Frances : The Art of Memory, Hammondsworth: Penguin, 1978. p. 22.