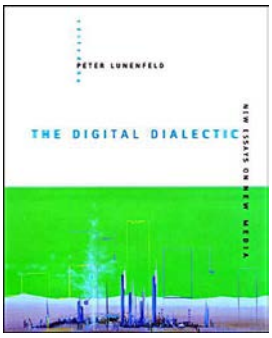


**Florian Brody**

# The Medium is the Memory

This paper was presented at a conference in Pasadena, CA in 1995. (12 years before iPhone) Many things have changed since and some ideas and concepts have become obsolete. A new version is in the works. Please contact me if you're interested.

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## MEDIAFETISHES

> For a long time, I would go to bed early. Sometimes, the candle barely out, my eyes closed so quickly that I did not have time to tell myself: "I'm falling asleep." And half an hour later the thought that it was time to look for sleep would awaken me; I would make as if to put away the book which I imagined was still in my hands, and to blow out the light; I had gone on thinking, while I was asleep, about what I had just been reading, but these thoughts had taken a rather peculiar turn; it seemed to me that I myself was the immediate subject of my book: a church, a quartet, the rivalry between François I and Charles V.
>
> — MARCEL PROUST: *Rememberance of Things Past; Combray*[1]

Books have been on the way out for most of the twentieth century. Our dreams are no longer located between their covers; first movies, then television, and now the computer have offered more involving fantasies. For those in search of narrative rapture, technological media are indeed seductive: Why take the trouble to dream when you can so easily consume that which has already been visualized? While the relation between the story and the apparatus has been much discussed in relation to film and television, we are only now at a point where we can develop a theoretical discourse that ties the consumption of narrative to the media that have spawned in the computer's wake. And yet, I contend that digital media – unlike film and video – have the potential to emerge as a new type of book.[2]

We "know" what books are. We can define them in terms of type: they are novels, collections of poetry and short stories, reference works, technical manuals, and so forth. 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 shelves.

In this age of textual ubiquity, a bibliophilic culture has flourished. Collectors are happy to buy books without reading them, valuing them as commodities independent of their position within the intellectual culture.[3] 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.

Throughout this essay, I will return to this key point: the book is a personal item, an extension of an individual's memory. The medieval *Books of Hours* were intimate objects, the only book carried on the person, read, re-read, and contemplated. The contemporary equivalent of book as extension of self is the Filofax (and those machines that ape it) as a compendium of blank pages to be filled and then discarded with each passing year. Changes in printing have affected the availability, portability, and longevity of the book, and its position within the reader's life. It strikes me that we are in the midst of returning to a medieval model: deaccesessioning our large scale personal libraries, unifying all our texts in the one place: the computer.

## WINDOW ON TOMORROWLAND

> The equipment-free aspect of reality… has become the height of artifice; the sight of immediate reality has become an orchid in the land of technology.
>
> — WALTER BENJAMIN[4]

I must acknowledge certain factors that militate against my basic thesis that digital media will mutate into the new book. At first glance, the realm of digital media is clearly the TomorrowLand of the information society. As much as the world still needs Disneyland and its colonies, the culture of the information age demands its own colorful and interactive environment to offer up a cornucopia of possibilities and prospects.[5] All the hopes and desires that theme parks can fulfill only for a short period are now available, in the words of an old Microsoft campaign slogan, "at your fingertip."[6] While television continues to fulfill its McLuhanist expectation to be a "window on the world," digital media—especially as they are linked and webbed via the Internet—actually connect the user to the world. Yet for all the hype, the Internet as we find it remains a remarkable concoction of sentimental snippets. As much as the private homepage on the internet is put forward (and put down) as the worst possible use of Web resources, the home page is nevertheless the ultimate form of personal publishing—a memory machine in and of itself.

Before engaging these issues any further, we would do well to remember Ludwig Wittgenstein's observation that paradigmatic differences lie in the rules that define meaning by its usage.[7] So, we need to more fully define our terms, to

determine the distinguishing features and unifying elements among interactive multimedia, academic hypertexts, Web-based infotainment, computer effects-driven cinema, broadcast graphics, and all the other variants of that multi-headed beast called “new media.”

## BUZZWORDS & HYPHENATES

> To read text
> is to make
> your own text of it
>
> — GERALD UNGER[8]

How are we to theorize that which does not even have a fully accepted, much less acceptable, name? In the transitional stage between extant and emerging media we are left without an adequate taxonomy to describe the qualitative assets of these media. We have either no words or too many to describe what they are and what we do with them. The computer industry fills this void with buzzwords and marketing campaigns: words to describe boxes that can be purchased and software that will run on them. Though I use the terms “multimedia,” “hypermedia,” and “new media” throughout this essay, I do so not out of choice, but rather out of necessity.

A hyphenate like multi-media always augurs a preliminary stage of a new medium. A multimedia structure need not necessarily become a new medium, but it has the potential to do so. The film projector connected to the gramophone by a rotating wire was as much multimedia as the multiple slide projection with sound so ubiquitous in the 1960s. The former turned into the talkies; the latter died of overcomplexity. As much as the television was the *Wunschmaschine* of the 1950s, the Multimedia PC is today’s wishing machine – the 1990s apparatus of desire.[9] Yet these desires are still somewhat inchoate, and the imprecision of the nomenclature extends to the complexities of conceptualizing digital information on screen: text, graphics, motion and sounds in an interactive environment.

The transition from the computer as a computational device to a multimedia communication machine happened in distinct steps: the move from punch cards to VDUs (visual display units); the transitions from uppercase, light-green-on-dark-green monitors to white-page multifont representation, and then to full-color displays; from straight text to the incorporation of graphics to the recent onslaught of sound and video. Looked at historically, it becomes hard to set the point where multimedia begins.

A new medium is only new until it is established and no longer new; but as any usage of a medium is based upon communicative conventions, a new medium is somewhat of a contradiction. By defining the medium as “new,” we

acknowledge the transitory stage of the integration of our current analysis, limited though this may be by its temporal frame. While it is still unclear if all the areas encompassed by "new media"—the wide range from Internet to CD-ROM based edutainment/ infotainment titles to art pieces to interactive TV and kiosk information systems—can pass as one medium we need to define basic structural parameters through the following question: How do they modulate time and space?

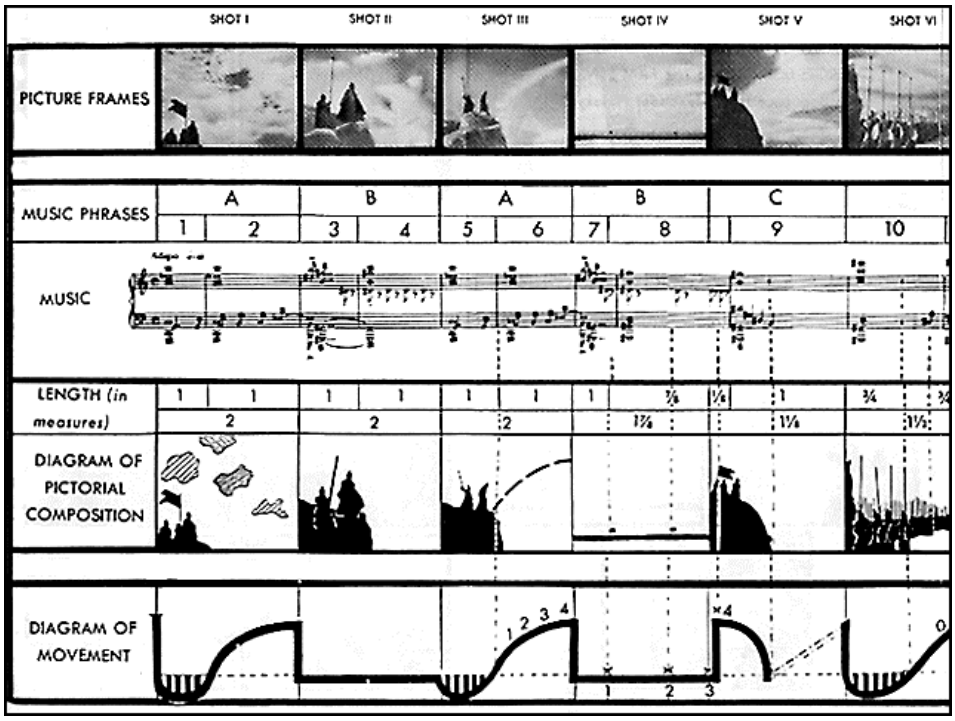
Time is as much a human convention as it is a condition of existence. Every "user" of time perceives it on an individual level that is in turn informed by social and cultural conditioning. The way we define the concepts of past, present and future (and even the unidirectionality of time) are reflected in of all media, and furthermore actually enforced by the way we use media. It is precisely because time and space are the cornerstones by which we define our environments that they are central categories within any discourse about media. If, following McLuhan, the medium is the message, and if the message is inextricably bound to space and time, what we are truly dealing with is not message so much as memory: the technology, the message, and the memory ultimately conflate. True multimediality is therefore not defined by the concoction of different media types but the integration of spatial, temporal and interactional media.

New places for our images allow for new explanations as well as new forms of contextualisation.

## MODELS& CONTENT

> "Vive la jeune muse cinéma, car elle possède le mystère du rève et rends l'irrealité realiste"
>
> — JEAN COCTEAU[10]

One of the best models for conceptualizing a multi-mediality structural analysis I have ever run across is the diagrammatic "score" Sergei M. Eisenstein developed for his 1938 sound film, *Alexander Nevsky*. This pre-production diagram of the construction of the underlying structure of a story line shows the initial phase of the *Battle on the Ice* between the Russians and the German knights, one of the fiercest battles in film history. The layout of the images is highly structured and follows exact graphical concepts. By actively constructing every single scene, Eisenstein generates a different type of memory system than that developed for and by the silent cinema. While Eisenstein constructed not only every single frame as an entity he also carefully choreographed the temporal flow of the images. The clear concept, the spatial and temporal composition of both the image and the development of the story, together with the sound are evident in these diagrams.




Eisenstein's diagrams for *Alexander Nevsky* remind me of nothing so much as the scores for interactive multimedia programs like Macromedia Director. While digital media offer themselves to rigorous preplanning, too many multimedia pieces lack the sophistication of an underlying structure, and become sprawling messes.


Alexander Nevsky – First Scene

Contrast them with *Alexander Nevsky*, which is built from a rigorous theoretical base and a superlative understanding of structure. Eisenstein constructs an artificial memory of places and images within his chosen medium. In looking at his model, we gain an understanding of how he intended to deploy visual and aural elements. Eisenstein offers a model as to how an emergent medium finds its parameters. In new media we are not yet at the point where the conceptual interdependency of time and space is being fully exploited. The lack of such specificity in the new media speaks to the need to get beyond the obsession with placing buttons on the screen. The task of the designer is not to create a better button, but to determine if buttons are required in the first place.

At first sight, the emergent digital media offer a structured access to information, linked pathways that allow readers to define their own paths and thus gain a better and deeper understanding of the content. But despite these "tools" the reader finds herself in a maze of mirrors. Which types of content are best represented in these emergent media? Encyclopedias, dictionaries and other reference works seem to work best, while novels are often problematic. This is to

say that regardless of the hype about hypertext, there are still very few examples that fully demonstrate the power of storytelling and thus authorship in the new medium. [11]

## MEMORY & 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"*[12]

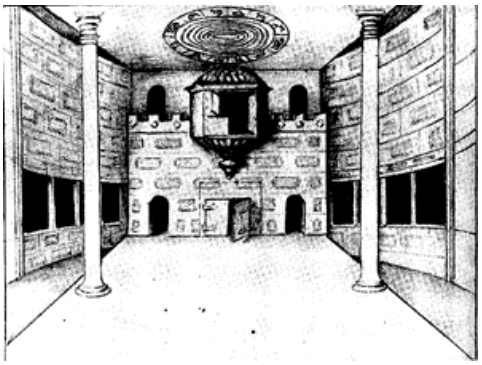
Borges' library is a metaphor for the limits, or infinities, of the world and the knowledge it encompasses. The computer, however, has occasioned a shift in the world, complicating the relation of text to books on the one hand, and to memory on the other. In preliterate societies, that which we now refer 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. The rampant confusion, and even revolt, that such a blurring of boundaries brings in its wake can be minimized by applying those rules for places and 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*.

Electronic texts have no body, only mind—they close the circle to the *mnemotechne* of the Romans. 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. Frances 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."[13]

When we see books as spaces that we are able to enter and explore, much like in a house, we find ourselves in memory spaces similar to the theaters used in the classical *ars memorativa*. The Memory Theatre, a concept used by Giulio

Camillo, Giordano Bruno and later by the English hermetic philosopher Robert Fludd, was a theater that would contain the concepts and the knowledge of the world. By entering the theater, one would gain access to that knowledge and be able to grasp the concepts contained. The theater was seen reversed—the information was set up in the auditorium and the user/reader was set on the stage, where he observed from this central position all the aspects presented to him: everything in the world, everything above and everything below.


The *Globe Theatre* based on Fludd

Later, the book becomes the stage of our memory theater; and we hit our marks by means of the technology of text. Interestingly, as text becomes more easily manipulable in electronic form, the differences between primary and secondary text vanish—the marks of memory become blurred. While handwritten marginalia in a printed book are clearly distinguishable from the printed text they appear on the same structural level with the primary text in a manuscript—even down to the same font.

If a medium is a conveyor of memory rather than of messages, this offers us some insight into how to design for new media. This starts at the level in which our memory technologies tend to define the very way we metaphorize our lives. Three generations ago, I would likely have categorized every evocative scent as inextricably linked to Proust's Madeleines. In my youth, I saw the road to work on an average morning as one long tracking shot in a *Nouvelle Vague* film. Today I find it difficult to think of my life as anything but an interactive net. The connection has become more important than the here and now of the situation.

## PRINT & THE PEOPLE OF THE BOOK

> Constat igitur artificiosa memoria ex locis et imaginibus
>
> — AD HERENNIUM LIBRI III[14]

As noted, books and technological media have always served as memory technologies. To write a text is to save the ideas, thoughts and stories of the text. But every external memory technology bears the risks of diminishing the individual's ability to develop her own "internal" memory systems. Plato describes the dangers of writing in *Phaedrus*; hermeneutic circles like the Druids were not allowed to write down their knowledge, but had to pass it on orally from one generation to the next. The Judaeo–Christian tradition is different. The

Jews refer to themselves as the People of the Book, and their laws define precise interfaces to this memory technology: the Torah is to be read and handled according to special rules and to be buried once it is no longer usable. From the Reformation on, the Christian West has seen possession of the Bible as a perquisite of faith.

This West is, of course, eschatological, and for the past few centuries its utopian hopes have had a distinctly technological flavor. These last few years before the next millennium have proven no exception. First interactive multimedia, then virtual reality and now the World Wide Web have been put forward as a means to salvation. But what is it that we hope to save? I think that the hope for these technologies is that at base, they will serve as the ultimate memory machines which will help us to store everything forever: all knowledge, every story, the punch lines to the totality of human humor, all questions, the sum total of the answers. In short, we will create an eternity out of our collective memories.

The underlying message of hardware producers has always been a message of ultimate salvation. And the problems that were supposed to disappear have always been memory problems: tokens you want to remember but cannot, and tokens you cannot forget. Today, we have a wide range of machines to remember, but only few contraptions that help us forget. Perhaps, we need to focus on forgetting.[15]

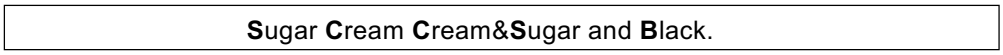
**S C CS B**

My working title for this essay was “Sip Here With Cover On.” This is the gnosticism of the European expatriate in that most and least American city, Los Angeles. I am Viennese no matter where I am, and for me, coffee lives in a café. Yet in Los Angeles, coffee is a part of car culture—the cup of lukewarm java to go is a convenient technology for the auto-bound. So, I learn the secret code — revealing the memory of a lost experience.


In Vienna the coffee arrives in a cup—in at least 43 variations—and we know how to activate its interface, as has every human since the discovery of the hollow gourd. Yet in LA, the coffee arrives covered and of an indeterminate hue. We no longer have access to it, and we need someone to tell us what to do. We no longer smell and feel the heat, and can not rely on human history as a guide. Just as CDs will be harder to decode than the stone of Rosetta, who

will be able to make sense of


in the future's excavations of our present? The smell and the taste lie below the lid and there is a door, a gateway that gives access to small quantities. Like the computer screen it gives way to a hyperreal perception of something that just has been perfectly ordinary. As much as the excitement effect of the movies, this wears off too:




Trompe l'œil is nothing but an inquiry into reality and the painted windows in 18th century houses no more an illusion than Windows NT. They have a different functionality and serve different primary purposes. It is in their functions as memory spaces that they are of similar importance. Computers are less windows to the mind than memory spaces for users to deposit icons for later use. Yet the paradox is that present systems work too much like the coffee lid—establishing a literal interface that bars the smell, the taste, and the experience of the coffee.[16]

Seeing the interface as a lid makes us think about it in a new form. The screen of the computer loses a lot of the magic it currently holds when we understand that new media experiences cannot be shared with the machine. Interactivity is never to be seen as interactivity with the computer. The machine is the container of the memory and thus an important part in our memory chain but nothing more. By understanding the computer as a memory machine, the question of its tool character becomes obsolete.

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."[17]

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

> 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: The Convergence of Contemporary Critical Theory and Technology*[18]

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 to 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.

Take the very physicality of text, for example. Text and type have often existed in more than two dimensions. Scribes scratched hieroglyphs into papyrus; stonesmiths carved Latin inscriptions into stele; and printers from Gutenberg on have pressed type and ink, modifying the very surface of the paper. Yet, new printing and reproduction technologies have all but abandoned 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.[19]

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.'"[20]

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. Eventually, a new memory culture will emerge that will generate its own rules and its own books. Our task is ultimately to overcome the limitations of an old medium by ways of a new medium by changing not the technology but the concepts. The medium conveys memory as much as messages.

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[1]Marcel Proust, *Remembrance of Things Past*, C.K. Scott Moncrieff & Terence Kilmartin, trans. (New York : Random House, 1981), *Swann's Way*. p. 3. quoted after the Expanded Book Version, Voyager 1993.

[2] I draw my arguments from history and from my specific experiences designing electronic media. My thinking about these issues was particularly influenced by my work as the technical director of the Expanded Books project at The Voyager Company. This project was established to produce an interface to read books on the screens of laptop computers, thereby creating a new (electronic) publishing medium.

[3] There are of course also the collectors who are more interested in the decorative effect of books on their walls ("They give the room such a warm ambience")—but, for them, backs pasted on a board do the job nicely and can also conceal a wet bar.

[4] Walter Benjamin, "The Work of Art in the Age of Mechanical Reproduction," in *Illuminations*, Hannah Arendt ed., Harry Zohn trans. (New York: Shocken, 1969), pp. 217-251, p. 233

[5] Scott Bukatman, "There's Always Tomorrowland: Disney and the Hypercinematic Experience," in *October* 57 (Summer 1991): pp 55-78

[6] As advertised by Microsoft in 1993 and1994.

[7] Ludwig Wittgenstein, *Philosphische Untersuchungen* (Frankfurt am Main: Suhrkamp, 1977) p. 43.

[8] Gerald Unger, *fuse* # 3. Poster. 1995.

[9] See *Wunschmaschine Welterfindung*: Eine Geschichte der Technikvisionen seit dem 18. Jahrhundert, Brigitte Felderer, ed. (Vienna: Springer, 1966).

[10] "Long live the young muse of the cinema, for she has the mystery of dreams and makes the unreal real." This quotation was featured on a Poster and invitation for the grand opening of the Vienna Film School; 1959.

[11] One that does, is *Le Livre de Lulu*, an electronic book for children which integrates text, images and an interactive approach in an engaging enough manner that the reader can truly commit to becoming immersed in the story. There is such a richness of text and images – not in the above noted encyclopedic mode, but rather in the depth of vision and effect – that "Le Livre de Lulu" offers the reader not a simulation of space but rather a sidereal space: a space to move around and create the memory spaces needed to internalize the story. The readers/users build their own relationships to the story, their own unique memory spaces. In this cybernetic age, textual memory representation returns to the mind, where it resided before the technology of the book became ubiquitous. Romain Victor-Pujebet, *Le Livre de Lulu* (New York: Organa, 1995).

[12] Jorge Luis Borges, "The Library of Babel," in *Labyrinths: Selected Stories and Other Writings*, (New York: New Dimensions, 1962), p. 51.

[13] Frances Yates, *The Art of Memory,* (Hammondsworth: Penguin, 1978). p. 22.

[14] "The artificial memory is established from places and images." Quoted and translated ibid.

[15] My thanks to UC Berkeley's Ken Goldberg for his contributions to these ideas.

[16] The text on the lid, explaining the useage of the coffee links us back to early days when we held our bottle with both hands: it tells us where to sip and that coffee is not always hot: it may be hot. So much for small print in case somebody sues the company for burning herself with the hot coffee. The "sip here" message has a similar function: to stop people for suing because of dehydration, as they could not find the drink.

[17] Bohumil Hrabal, *Too Loud A Solitude*, (New York: Harvest/HBJ, 1992), p. 2.

[18] George Landow, *Hypertext: The Convergence of Contemporary Critical Theory and Technology*, (Baltimore: Johns Hopkins University Press, 1992). p. 41.

[19] See Landow, *Hypertext*, and Jay David Bolter, *Writing Space: The Computer, Hypertext, and the History of Writing,* (Hillsdale, New Jersey: Lawrence Erlbaum, 1991).

[20] Personal conversation with the author, 1978.