

Post-digital print: a future scenario

Alessandro Ludovico 2012

There is no one-way street from analog to digital; rather, there are transitions between the two, in both directions. Digital is the paradigm for content and quantity of information; analog is the paradigm for usability and interfacing. The recent history of video and music provides a good example, since the use of digital technology for these types of content is much more advanced than it is for publishing. In the case of video, the medium (whether VHS or DVD) is merely a carrier, since the content is always ultimately displayed on screens. The same is true for music, where cassettes, vinyl records, and CDs are only intermediate carriers; the actual listening always happened through speakers (and increasingly through headphones). In both cases, the format changed without dramatically affecting the watching or listening experience. Sometimes the experience was improved by changes in the media technology (with HD video); sometimes it was almost imperceptibly worsened (with the loss of frequencies in MP3s).

Print, however, is a very different case, since the medium—the printed page—is more than just a carrier for things to be shown on some display; it is also the display itself. Changing it consequently changes people's experience, with all the (physical) habits, rituals, and cultural conventions involved. E-publishing therefore still has a long way to go before it reaches the level of sophistication which printed pages have achieved over the course of a few centuries.

But as more and more content moves from print to digital, we seem to be approaching an inevitable turning point, where publishers soon will be releasing more electronic publications than printed materials. A key factor in this development is that e-publishing is gradually becoming just as simple and accessible as traditional publishing—not only for producers, but also, thanks to new interfaces, habits, and conventions, for consumers as well. However, the real power of digital publishing lies not so much in its integration of multiple media, but in its superior networking capabilities. Even if it were possible to write some spectacular software to automatically transform e-books into another media standard (for instance, an animation of book or magazine pages being turned) or vice-versa, this would be far less interesting for users than new and sophisticated forms of connectivity—not only to related content hosted elsewhere, but also to other humans willing to share their knowledge online. To this end, digital publishing will have to establish universal interoperability standards and product identities that don't lock customers into the closed worlds of one particular application or service.

Traditional print publishing, on the other hand, is increasingly presenting its products as valuable objects and collector's items, by exploiting the physical and tactile qualities of paper. It thus acts as a counterpart to the digital world, while looking for ways to cope with a gradually

shrinking customer base—particularly in its traditional sectors such as newspaper production and distribution (where costs are becoming unsustainable) or paper encyclopedias (which have already become vintage status symbols rather than practical information tools). A number of products will thus need to be reinvented in order to still make sense in print.

At the time of writing, the development toward print as a valuable object can best be observed in the contemporary do-it-yourself book and zine scene. Until the late 1990s, this scene was mostly focused on radical politics and social engagement; the contemporary scene however is more fascinated with the collection of visual-symbolic information into carefully crafted paper objects. Despite its loyalty to print, this new generation of DIY publishers has created offline networks for print production and distribution which, in their bottom-up structure and peer-to-peer ethic, very much resemble internet communities. At the same time, the work they create is meant to remain offline and not be digitized, thus requiring a physical exchange between publisher, distributor, and reader. This ethic is squarely opposed to the so-called "go all digital" philosophy which advocates a completely digital life, getting rid of as much physical belongings as possible, and relying only on a laptop and a mobile phone filled with digitized materials.

For sure, the DIY print publishing ethic is closely related to the (often dormant) bottom-up social dynamics of the internet. But as it currently stands, it still lacks one crucial aspect (besides production and sharing): it does not include mechanisms able to initiate social or media processes which could potentially bring the printed content to another level—what I would call the "processual" level. In the past, print activism (using pamphlets, avant-garde magazines, Punk zines, etc.) was deployed for spreading new ideas meant to induce new creative, technological, and—by implication—social and political processes. The future of post-digital print may also involve new processes, such as remote printing, networked real-time distribution, and on-demand customization of printed materials—all processes with (as of yet) unexplored social and political potential.

Conversely, digital networking technologies could make better use of print. Those who advocate and develop these new technologies should perhaps become more aware of print's cultural significance. Many readers will continue to choose print products above electronic publications, possibly leading to a demand for networked (perhaps even portable) printers allowing individuals to print materials at any location, anywhere in the world. Combined with personal binding devices (however primitive), such personal "book machines" would allow readers to "teleport"

print publications to and from any location. Furthermore, resistance to the ubiquitous and nonstop surveillance of the internet may well take a more radical turn: individuals and groups could make a political statement out of going completely offline and working in isolation as neo-analog media practitioners.

If print increasingly becomes a valuable or collectible object, and digital publishing indeed continues to grow as expected, the two will nevertheless cross paths frequently, potentially generating new hybrid forms. Currently, the main constraint on the development of such hybrids is the publishing industry's focus on entertainment. What we see, as a result, are up-to-date printable PDF files on one hand, and on the other hand, online news aggregators (such as Flipboard and Pulse) which gather various sources within one application with a slick unified interface and layout. But these are merely the products of "industrial" customization—the consumer product "choice" of combining existing features and extras, where the actual customizing is almost irrelevant. Currently, the industry's main post-digital print entertainment effort is the QR code—those black-and-white pixellated square images which, when read with the proper mobile phone app, give the reader access to some sort of content (almost always a video or web page). This kind of technology could be used much more creatively, as a means of enriching the process of content generation. For example, printed books and magazines could include such codes as a means of providing new updates each time they are scanned—and these updates could in turn be made printable or otherwise preservable. Digital publications might then send customized updates to personal printers, using information from different sources closely related to the publication's content. This could potentially open up new cultural pathways and create unexpected juxtapositions.

Martin Fuchs and Peter Bichsel's book *Written Images* is an example of the first "baby steps" of such a hybrid post-digital print publishing strategy. Though it's still a traditional book, each copy is individually computer-generated, thus disrupting the fixed "serial" nature of print. Furthermore, the project was financed through a networked model (using Kickstarter, a very successful "crowdfunding" platform), speculating on the enthusiasm of its future customers (and in this case, collectors). In other words, this book

is a comprehensive example of post-digital print, through a combination of several elements: print as a limited-edition object; networked crowdfunding; computer-processed information; hybridization of print and digital—all in one single medium, a traditional book. On the other hand, this hybrid is still limited in several respects: its process is complete as soon as it has been acquired by the reader; there is no further community process or networked activity involved; once purchased, it will remain forever a traditional book on a shelf. And so, there is still plenty of room for exploration in developing future hybrid publishing projects.

When we are no longer able to categorize publications as either a "print publication" or an "e-publication" (or a print publication with some electronic enhancement), then the first true hybrids will have arrived. It may be worth envisioning a kind of "print sampling," comparable to sampling in music and video, where customized content (either anthologies or new works) can be created from past works. Such a "remix" publishing strategy could create new cultural opportunities and open up new "processual" publishing practices. We can already see this happening to some extent, in contemporary zine and DIY art book publishing, as well as underground e-book websites.

Since software is a prerequisite for any digital technology (and is also being used for the creation of most analog works today), its "processual" nature should be reflected in the structure and dynamics of future publishing: enabling local and remote participation and also connecting publishing to real-life actions. The younger "digital native" generation has no compunction in irreverently sampling, remixing and "mashing up" traditional and social media (as several adventurous small organizations, born out of the current financial crisis and the "Occupy" movement, have already demonstrated). Print is, unsurprisingly, an important component of this "mashup," because of its acknowledged historical importance as well as its particular material characteristics. And so this new generation of publishers, able to make use of various new and old media without the burden of ideological affiliation to any particular one of them, will surely be in a position to develop new and truly hybrid publications, by creatively combining the best standards and interfaces of both digital and print.

Appendix
 Print vs. electrons

100 differences and similarities between paper and pixel.

PRODUCTION

- | | | |
|----|--------------------------|---------------------------------|
| 1 | Screen color consistency | Cross-browser consistency |
| 2 | 300 dpi | 72 dpi |
| 3 | A(x), (e.g. A4) | (x)GA (e.g. XGA) |
| 4 | Snap to grid | css constraints |
| 5 | Postscript I/O error | Error 404 |
| 6 | Ethernet | Wi-Fi |
| 7 | Glowing ink | Flash (Adobe) |
| 8 | Image not found | Can't connect to server |
| 9 | Magnifying glass | Magnifying icon |
| 10 | Moiré Excessive | JPEG compression |
| 11 | nth color | Custom programming |
| 12 | Pantone | Optimised palette |
| 13 | Stock photography | Google images |
| 14 | Proofreading | Debugging |
| 15 | Test print | Draft version |
| 16 | Higher resolution | Anti-aliasing |
| 17 | Page layout software | Content management system |
| 18 | Spines | Partial browser incompatibility |
| 19 | Optimizing for print | Optimising for search |
| 20 | Cutting | Screen format |
| 21 | Recycled paper | White text on black screen |
| 22 | Hollow punch | Layers |
| 23 | PDF logo | JPEG logo |
| 24 | Advertising space | Banner |
| 25 | Paid promotional flyer | Pop-up window |
| 26 | Ink | Brilliance |
| 27 | Full-color insert | Picture gallery |
| 28 | Imposition | Sorting with tags |
| 29 | Binding | Website structure |

STRUCTURE (INTERNAL)

30	Color addition	Color subtraction
31	Centerfold	Background image
32	Contrast	Brightness
33	Dot	Pixel
34	TIFF	JPEG
35	PDF (fixed layout)	EPUB (reflowability)
36	vector graphics	Bitmap
37	Front cover	Home page
38	Externally illuminated	Backlit
39	Local link	Remote link
40	paperweight	Download time
41	Plastification	Use of 3-D/shadows
42	RAM	Kbps
43	Best viewed in bright light	Best viewed in dim light
44	Fire damage	File corruption
45	Fibers	Waves
46	Turns yellow	Reveals its pixel matrix
47	Consumed in local time	Consumed in global time
48	Slow replication	Instant replication
49	Hardcover	Paid access
50	Paperback	Free access
51	Static	Cinematic

STRUCTURE (EXTERNAL)

52	Printer	Sysadmin
53	Barcode	WHOIS
54	ISSN Online	ISSN
55	Local storage backup	Remote server backup
56	Back catalog	Internal search engines/
57	Optimized distribution	Optimised server configuration
58	Stocks	Link on the home page
59	Second (nth) edition	Database rebuilt
60	Headquarters	Hosting
61	Shipping strike	No connection

EVALUATION

62	Readership	Unique visits
63	Certified distribution	Guaranteed bandwidth
64	Distributor list	Access logs
65	Referenced by other media	Incoming links
66	Low copy/user ratio	High copy/user ratio
67	Promotional copies	RSS

REAL AND VIRTUAL SPACE

- 68 Bookshelf
- 69 Shelf space

- Database
- Web host storage space

CONVENTIONS

- 70 Table of contents
- 71 Promotional T-shirt
- 72 Handwritten font
- 73 Captions
- 74 News department
- 75 Page format
- 76 Print
- 77 Bibliography
- 78 Name
- 79 Paper bookmark
- 80 Page numbering
- 81 Clippings
- 82 Import dialogue window

- Menu
- Textual link
- Pixel font
- Alt text tag
- Blog
- Scrolling
- Save
- Hyperlinks
- Domain name
- Browser bookmark
- Posting date
- Cache
- Online form

CONSUMPTION

- 83 Reader
- 84 Subscriber
- 85 Subscription
- 86 Reproduction prohibited
- 87 Syndication
- 88 Freebie
- 89 Shipping
- 90 Cover price
- 91 Dust

- User
- Registered user
- Push technology
- Digital rights management
- Creative commons
- Free download
- Spamming
- Password-protected access
- Dust

GESTURES

- 92 Flipping through
- 93 Smell of ink
- 94 Photocopying
- 95 Annotating
- 96 Underlining
- 97 Fingerprint on coating
- 98 Folding
- 99 Locally read
- 100 Handing over

- Clicking
- Sound of mouse clicks
- Copy/paste
- Comments
- Underlining
- Fingerprint on screen
- Scaling
- Remotely read
- Forwarding

Search, compile, publish.

Paul Soulellis 2013

Toward a new artist's web-to-print practice.

I recently started collecting artists' books, zines, and other work around a simple curatorial idea: web culture articulated as printed artifact. I began the collection, now called Library of the Printed Web, because I see evidence of a strong web-to-print practice among many artists working with the internet today, myself included. All of the artists—more than thirty so far, and growing—work with data found on the web, but the end result is the tactile, analog experience of printed matter.

Looking through the works, you see artists sifting through enormous accumulations of images and texts. They do it in various ways—hunting, grabbing, compiling, publishing. They enact a kind of performance with the data, between the web and the printed page, negotiating vast piles of existing material. Almost all of the artists here use the search engine, in one form or another, for navigation and discovery.

These are artists who ask questions of the web. They interpret the web by driving through it as a found landscape, as a shared culture, so we could say that these are artists who work as archivists, or artists who work with new kinds of archives. Or perhaps these are artists who simply work with an archivist's sensibility—an approach that uses the dynamic, temporal database as a platform for gleaning narrative.

In fact, I would suggest that Library of the Printed Web is an archive devoted to archives. It's an accumulation of accumulations, a collection that's tightly curated by me, to frame a particular view of culture as it exists right now on the web, through print publishing. That documents it, articulates it.

And I say right now because this is all new. None of the work in the inventory is more than five years old—some of it just made in the last few weeks. We know that net art has a much longer history than this, and there are lines that could be drawn between net-based art of the '90s and early 2000s and some of the work found here. And certainly there are lines that could be drawn even further into history—the use of appropriation in art going back to the early twentieth century and beyond. And those are important connections.

But what we have here in Library of the Printed Web is something that's entirely twenty-first century and of this moment: a real enthusiasm for self-publishing, even as its mechanisms are still evolving. More than enthusiasm—it could be characterized as a mania—that's come about because of the rise of automated print-on-demand technology in only the last few years. Self-publishing has been around for awhile. Ed Ruscha, Marcel Duchamp, Benjamin Franklin (*The Way to Wealth*), Virginia Woolf (Hogarth

Press) and Walt Whitman (*Leaves of Grass*) all published their own work. But it was difficult and expensive and of course that's all changed today.

Lulu was founded in 2002 and Blurb in 2004. These two companies alone make most of this collection reproducible with just a few clicks. I could sell Library of the Printed Web and then order it again and have it delivered to me in a matter of days. Just about. About half of it is print-on-demand, but in theory, the entire collection should be available as a spontaneous acquisition; perhaps it soon will be. With a few exceptions, all of it is self-published or published by micro-presses and that means that I communicate directly with the artists to acquire the works.

Besides print-on-demand, some of it is also publish-on-demand, and both of these ideas put into question many of our assumptions about the value we assign to net art, artists' books and the photobook. The world of photobook publishing, for example, is narrow and exclusive and rarified—it's an industry that designs and produces precious commodities that are beautiful and coveted, for good reason, with a premium placed on the collectible—the limited edition, the special edition, and even the idea of the sold-out edition. (See David Horvitz's stock photography project *Sad, Depressed, People*—one of a few non-self-published and not printed-on-demand photobooks in Library of the Printed Web). Controlled scarcity is inherent to high-end photobook publishing's success.

But many of the works in Library of the Printed Web will never go out of print, as long as the artists makes them easily available. There is something inherently not precious about this collection. Something very matter-of-fact, straight-forward or even "dumb" in the material presentation of web culture as printed artifact. It's the reason I show the collection in a wooden box. It's utilitarian and functional and a storage container—nothing more than that.

So we have print-on-demand as a common production technique. But what about the actual work? What concepts on view here might suggest what it means to be an artist who cultivates a web-to-print practice? And how is print changing because of the web? Are there clues here?

The content of these books varies wildly, but I do see three or maybe four larger things at work, themes if you will. And these themes or techniques have everything to do with the state of technology right now—screen-based techniques and algorithmic approaches that for the most part barely existed in the twentieth century and may not exist for much longer. If something like Google Glass becomes the new paradigm, for example, I could see this entire collection becoming a dated account of a very specific moment in the history of art and technology, perhaps

spanning only a decade. And that's how I intend to work with this collection—as an archive that's alive and actively absorbing something of the moment, as it's happening, and evolving as new narratives develop.

So here are three or four very basic ideas at the heart of Library of the Printed Web. They are by no means comprehensive, and in each case the techniques that are described cross over into one another. So this isn't a clean categorization, but more of a rough guide. My goal is not to define a movement, or an aesthetic. At best, these are ways of working that might help us to unpack and understand the shifting relationships between the artist (as archivist), the web (as culture) and publishing (as both an old and a new schema for expressing the archive).

Grabbing (and scraping)

The first category is perhaps the most obvious one. I call them the grabbers. These are artists who perform a web search query and grab the results. The images or texts are then presented in some organized way. The grabbing is done with intent, around a particular concept, but of primary importance is the taking of whole images that have been authored by someone else, usually pulled from the depths of a massive database that can only be navigated via search engine.

So a key to grabbing is the idea of authorship. The material being grabbed from the database, whether it be Google or Flickr or a stock photography service, is at least once removed from the original source, sometimes much more. The grabbing and representing under a different context (the context of the artist's work) make these almost like readymades—appropriated material that asks us to confront the nature of meaning and value behind an image that's been stripped of origin, function, and intent.

A defining example of a grabber project is Joachim Schmid's *Other People's Photographs*. Amateur photographs posted publicly to Flickr are cleanly lifted, categorized, and presented in an encyclopedic manner. This was originally a 96-volume set, and this is the two-volume compact edition, containing all of the photographs. Removed from the depths of Flickr's data piles, banal photographs of pets or food on plates or sunsets are reframed here as social commentary. Schmid reveals a new kind of vernacular photography, a global one, by removing the author and reorganizing the images according to pattern recognition, repetition, and social themes—the language of the database. The work's physicality as a set of books is critical, because it further distances us from the digital origins of the images. By purchasing, owning, and physically holding the printed books we continue Schmid's repossession of "other people's photographs" but shift the process by taking them out of his hands, so-to-speak. This idea is made even more slippery, and I would say enriched, by it being a print-on-demand work.

Texts can be grabbed too. Stephanie Syjuco finds multiple versions of a single text-based work in the public domain, like Ray Bradbury's *Fahrenheit 451* or Joseph Conrad's *Heart of Darkness* (part of the installation *Phantoms* (*H_RT_F D_RKN_SS*)). She downloads the texts from different sources and turns them into "as is" print-on-demand volumes, complete with their original fonts, links, ads, and mistranslations. She calls them re-edited texts. By possessing and comparing these different DIY versions as print objects she lets us see authorship and publishing as ambiguous concepts that shift when physical books are made from digital files. And that a kind of rewriting might occur each time we flip-flop back-and-forth from analog to digital to analog.

If a grabber works in bulk, I'm tempted to call it scraping. Site scrape is a way to extract information from a website in an automated way. Google does it every day when it scrapes your site for links, in order to produce its search results. Some grabbers write simple scripts to scrape entire websites or APIs or any kind of bulk data, and then they "send to print," usually with little or no formatting. The data is presented as a thing in itself.

Grabbing and republishing a large amount of data as text is at the heart of conceptual poetry, or "uncreative writing," a relatively recent movement heralded by Kenneth Goldsmith. In conceptual poetry, reading the text is less important than thinking about the idea of the text. In fact, much of conceptual poetry could be called unreadable, and that's not a bad thing. Goldsmith tweeted recently: "No need to read. A sample of the work suffices to authenticate its existence."

Guthrie Lonergan's *93.1 JACK FM LOS ANGELES 2008* is a good example of a scraper project. JACK FM radio stations don't have DJs—the format is compared to having an iPod on shuffle. Lonergan wrote a simple script to download all of the activity of one of these JACK FM radio stations over the course of a year—the date, time, artist, and the title of every track played—and presents it as a 3,070-page, five-volume set of print-on-demand books. The presentation of the data in bulk is the thing, and the project is richer because of it. Again, the questions at hand are about authorship, creativity, ownership, and the nature of decision-making itself—human vs. machine. As Lonergan says on his site, "Who is Jack? ... How much of this pattern is algorithmic and how much is human? You might begin to read the juxtaposed song titles as poetry."

Chris Alexander's language-based *McNugget* project is another scraper, or so I thought. This work of poetry is a massive index of tweets containing the word *McNugget* from February to March 6, 2012, nothing more and nothing less. I was curious about how he did it—if he was a grabber or more of a scraper, if you will, and I asked him that directly. Here's his response:

Somewhere early in the process, I discussed automated methods of capture using the Twitter API with a programmer friend, but in the end I opted for the manual labor of the search because I was interested in experiencing the flow of information firsthand and observing the complex ways the word is used (as a brand/product name, as an insult, as a term of endearment, as a component of usernames, etc.) as they emerged in the moment. Most of my work is focused on social and technical systems and the ways they generate and capture affect, so I like to be close to the tectonics of the work as they unfold—feeling my way, so to speak—even in ‘pure,’ Lewitt-style conceptual projects whose outcome is predetermined. Getting entangled with what I’m observing is an important part of the process. At the same time, I think it’s useful to acknowledge that much of what I do could be automated—and in fact, I use a variety of layered applications and platforms to assist in my work most of the time. Somewhere in the space between automation and manual/affective labor is the position I’m most interested in. [email 5/20/13]

So, his process isn’t automated. It’s not scraping. But the potential to automate and this connection to conceptual art and predetermined outcome intrigues me—“the idea becomes a machine that makes the art” (Sol Lewitt). The art may be reduced to a set of instructions (like code?), and the execution is secondary, if necessary at all (dematerialization of the art object). So does it matter if the execution—the grabbing—is done by a human or a bot? Of course it does, but perhaps along a different axis, one that looks at this idea of entanglement vs. noninterference. But that’s another matter, one that I won’t address here. I’ve come to suspect, after this discussion with Chris, that the distinction between grabbers and scrapers, on its own, is not so important after all. Without more information, it doesn’t reveal anything about artistic intent or the nature of the object that’s been created.

Hunting

So, let’s talk about hunters. Some of the more well-known work in the collection is by artists who work with Google Street View and Maps and other database visualization tools. The work is well-known because these are the kinds of images that tend to go viral. Rather than grabbing pre-determined results, these artists target scenes that show a certain condition—something unusual or particularly satisfying. I call them the hunters. The hunter takes what’s needed and nothing more, usually a highly specific screen capture that functions as evidence to support an idea. Unlike grabbers, who are interested in how the search engine articulates the idea, hunters reject almost all of what they find because they’re looking for the exception. They stitch together these exceptional scenes to expose the database’s outliers—images that at first appear to be

accidents but as a series actually expose the absolute logic of the system.

A great example of this is Clement Valla’s project *Postcards from Google Earth*. He searches Google Earth for strange moments where bridges and highways appear to melt into the landscape. He says: “They reveal a new model of representation: not through indexical photographs but through automated data collection from a myriad of different sources constantly updated and endlessly combined to create a seamless illusion; Google Earth is a database disguised as a photographic representation.” Google calls its mapping algorithm the Universal Texture and Valla looks for those moments where it exposes itself as “not human.” When the algorithm visualizes data in a way that makes no sense to us, as humans in the physical world—the illusion collapses. By choosing to print his images as postcards, Valla says he’s “pausing them and pulling them out of the update cycle.” He captures and prints them to archive them, because inevitably, as the algorithms are perfected, the anomalies will disappear.

Performing

The remaining set of works in *Library of the Printed Web* is a group I call the performers. This is work that involves the acting out of a procedure, in a narrative fashion, from A to B. The procedure is a way to interact with data and a kind of performance between web and print—the end result being the printed work itself. Of course, every artist enacts a kind of performative, creative process, including the hunters and grabbers we’ve looked at so far. But here are a few works that seem to be richer when we understand the artist’s process as a performance with data.

One of my favorite works in the collection is *American Psycho* by Jason Huff and Mimi Cabell, and it’s performative in this way. The artists used Gmail to email the entire Bret Easton Ellis novel back and forth, sentence by sentence, and then grabbed the context-related ads that appeared in the emails to reconstruct the entire novel. Nothing appears except blank pages, chapter titles, and footnotes containing all of the ads. Again, another unreadable text, aside from a sample here or there. But the beauty is in the procedure—a performance that must be acted out in its entirety, feeding the text into the machine, piece by piece, and capturing the results. It’s a hijacking of both the original novel and the machine, Google’s algorithms, mashing them together, and one can almost imagine this as a durational performance art piece, the artists acting out the process in real time. The end result, a reconstructed *American Psycho*, is both entirely different from and exactly the same as the original, both a removal and a rewriting, in that all that’s been done is a simple translation, from one language into another.

My own practice is increasingly web-to-print, so I have a special, personal interest in seeing *Library of the Printed Web* evolve in real time. It’s too early to call it an anthol-

ogy, but it's more than just a casual collection of work. I'm searching for something here, a way to characterize this way of working, because these artists are not in a vacuum. They know about each other, they talk to and influence each other, and they share common connections. Each time I talk to one I get introduced to another. Some of the links that I've uncovered are people like Kenneth Goldsmith, places like the Rhode Island School of Design, and certain Tumblr blogs where the work is easily digested and spread, like Silvio Lorusso's *mmmmarginalia*. I'm curious—is anyone else doing this? Who is looking at web-to-print in a critical way, and who will write about it? I'd like Library of the Printed Web to become a way for us to monitor the artist's relationship to the screen, the database and the printed page as it evolves over time.

Grabbing/scraping

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Hunting

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The Book as Machine

bpNichol, Steve McCaffery 1992

bpNichol and Steve McCaffery, "The Book as Machine," in *Rational Geomancy* (Vancouver: Talonbooks, 1992),
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It would be a mistake to suppose that the trend towards the oral and acoustic means that the book is becoming obsolete. It means rather that the book, as it loses its monopoly as a cultural form, will acquire new roles.

—Marshall McLuhan

Don't look around yourselves for inspiration. We have only one teacher: THE MACHINE.

—Nikolai Foregger

In the beginnings of our research into narrative we ran up against the inescapable fact that "there exists no standard definition of narrative in the sense that writers seem to use the word." There is so much confusion particularly between narrative and plot, the two terms being used almost interchangeably. Thus we feel free to create a definition which is not in the strictest sense new because there is no existing old definition. What we need to establish is a working definition of narrative and then discard it if further research proves it false or inadequate in scope.

For the purpose of this report we will deal with narrative in print rather than as an oral phenomenon. This will allow us to eliminate consideration of the innumerable narratives of daily living that are characterized by their provisionality, evanescence and intractability. In the strictest sense the most comprehensive definition of narrative would be simply our sequential life experience. We will not address this comprehension but rather deal with narrative as it occurs within the specialized area of the print experience.

Gertrude Stein put it most simply when she pointed out that narrative was anyone telling anything to anyone anytime. When we transpose this definition into print we begin to recognize two distinct experiences:

1. The physical experience of print as word and ink and the book itself as a physical object.
2. The psychological and psychosemantic experience of operating verbal signs.

In this first part of our report we will deal with the physical aspects of the book as machine, documenting some of the attempts made toward an understanding and reassessment of physical forms the book has already acquired and the emerging outline of future forms, considering the implications of the book's mechanicity and the active application of such considerations.

Backgrounds

By machine we mean the book's capacity and method for storing information by arresting, in the relatively immutable form of the printed word, the flow of speech conveying that information. The book's mechanism is activated when the reader picks it up, opens the covers, and starts reading it. Throughout its history (and even prior to Gutenberg) the

book has possessed a relatively standard form varying only in size, color, shape, and paper texture. In its most obvious working the book organizes content along three modules: the lateral flow of the line, the vertical or columnar build-up of the lines on the page, and thirdly a linear movement organized through depth (the sequential arrangement of pages upon pages).

Significantly the book assumes its particular physical format through its design to accommodate printed linguistic information in a linear form. Taking the line as a practically impossible continuum, it breaks it up into discrete units of equal length, placing them one above the other in sequence until a page unit is filled. Similarly the page units are ordered sequentially and the whole sewn or glued together to form the complete book. Already it is possible to note that the linear experience as continuum has been significantly altered, for the second and third modules mentioned are the ones which the book has placed before our reading pose. In addition the book has underlined and reinforced the first module so that we now accept all three as not simply modules but constants which are seldom questioned. Hence the surprising shock value of typographic experiments (evinced by the very fact that they are labeled *experiments*).

So far in our description of the book as machine we have dealt with it as a prose print experience. It is important, however, to point out the difference between the reading experience of prose and poetry. Prose as print encourages an inattention to the right-hand margin as a terminal point. The tendency is encouraged to read continually as though the book were one extended line. In poetry, by contrast, the end of each line is integral to the structure of the poem whether it follows older metrical prosodic models or more recent types of breath-line notation. This emphasis upon the structural aspects of the terminal point of each visual line unit in the poem is why concrete poetry is called, in fact, poetry and why the latter word is apt in its description. In poetry, where the individual line is compositionally integral, the page is more often than not itself integral. Most short poems for instance involve a significant degree of iconicity: we see the poem as a visual whole before we read it. Perceived optically as a complete unit the page is qualified to such an extent that it ceases to function as an *arbitrary* receptacle, or surface, for the maximum number of words it can contain (functioning thereby as a random-sized unit in a larger construct), becoming instead the frame, landscape, atmosphere within which the poem's own unity is enacted and reacted upon. Page and type function as the two ingredients in a verbal sculpture.

By contrast, in the majority of prose the general rule holds that the paragraph—through effecting a visual separation of sense and event—performs a similar function

(optically) to the poetic line. A sentence is not visually integral until combined with other sentences to form the paragraph. However, in both prose and the visually continuous poem (Milton's *Paradise Lost* for instance) the page has no optical significance. Being to a large extent a working out of information through duration, prose structures tend to be temporal rather than visual. For instance the chapter can seldom be grasped iconically precisely because the chapter extends over the surface of several pages, occupying a part of the depth module which runs from the start of a book to its end. Even the paragraph's optical quality tends to be accidental. The effect of this surface extension is to pressure the reader into moving along as quickly as possible in the depth module. In extended prose or poetry the page becomes an obstacle to be overcome. There is a difference too of urgency in the poetic and prose line. In the former the left-hand margin is always a starting point, the right-hand margin a terminal, neither of which is determined by the randomness of page size but rather by the inner necessity of the compositional process. It becomes obvious how historically the emphasis on the visual element in writing would have a *poetic* emergence, for only in poetry occurs that bridging point which permits the steps from a significance through inner necessity (where each visual terminal point gains pertinence and value) to a new way of perceiving in which the visuality becomes, not the end product of an interior psychological process, but rather the beginning of a whole *new* method of perception.

There seems to exist at present a dichotomy in attitude between the book as a machine of reference and the book as a commodity to be acquired, consumed, and discarded. Traditional printed narrative is largely thought of as the transcription of a hypothetical oral activity: a speech line running from a point of commencement to an end. Such books transcribe language along horizontal axes running from top left to bottom right of each page. This accidentally conventional manner of reading along the length of the line and down the length of each page from first to last in actuality reconstitutes the duration of a "listening." In reference books such as dictionaries and directories, however, the oral hypothesis is minimized to the point, perhaps, of non-existence. Such books are not thought of as having authors or a supposed unitary voice behind them. They exist as physical storage units for information, to be consulted at various times, but not designed to be consumed in a single, linear duration. Popular fiction, marketed for mass audiences, performs a different function; there the page's nonsequential storage qualities are ignored. Nobody would consider the page of such a book as an area requesting the reader's free, nonlinear eye movements over a multi-activating, multi-acting surface, but rather as a unit *necessarily endured* as a means to the complete reception of the book's information. The current predicament of popular mass fiction is the competitive threat staged by the other great machines of consumption: television and film are indubitably the more

efficient media. The reason for this is clear. The book's power as an object to be dwelt on and referred back to is not a desirable feature. Not only the page but the book in its entirety is conceived as an obstacle to be overcome in order to achieve the desired goal of unproblematic, uninterrupted, unsophisticated consumption. Television and the cinema on the other hand afford more rapid and totally sensorial means of satisfying such an appetite for story. In the light of this phenomenon two important implications of such pre-masticated reading as *Reader's Digest* become obvious. There is a "division of labor" on the reader's part in that he renounces a portion of the total reading role which is performed for him. And secondly the more serious implication of a hierarchical structuring imposed upon the reading experience, by means of which a superior "essence" is thought of as being abstracted from a "lesser" padding. To extend this consumer metaphor we may say that plot is product within linguistic wrapping. Dictionaries and directories work against this status by throwing emphasis onto the single page and the information stored thereon. In their function, dictionaries move much closer to the page-iconicity described above.

Narrative then can be developed freely along either of two directions: One rooted in oral traditions and the typographic "freezing" of speech; the other set in an awareness of the page as a visual, tactile unit with its own very separate potential.

Twenty-one facts that could alter your life (send for free illustrated booklet)

1. The front page of a newspaper is the paradigm of typographic cubism. Considered as a multi-page whole, the newspaper is founded on a model of structural discontinuity and a principle of competitive attentions. Front-page stories seldom end on the front page, nor do they all end on the same interior page. The front page is an opening made up of many opening terminating on different pages, which themselves contain other openings—to read a newspaper as a consecutive experience leads to extreme discontinuity.
2. A page is literally one side of a two-sided sheet of paper—the surface of a three-dimensional object.
3. If we consider the printless page to be a static, neutral surface, then by applying continuous type to cover the entire surface (as in a page of a novel or this page of a TRG [Toronto Research Group] report) that neutrality is not altered. Where a rectangle of type is placed upon a rectangle of page there is no attempt made to work creatively with the possible tension existing between surface (page) and object on that surface (print). Moreover, in such a placement we invest the page with a secondary quality not inherent to it: viz., a top left to bottom right orientation (radically different languages such as Chinese and Hebrew impose, of course, a similar directional limitation).

4. When Rabelais (in book 5, chapter 45 of *Gargantua and Pantagruel*) has the Goddess Bottle speak, she speaks from within a pictorial representation of a bottle. This bottle is not verbally described but rather imaged on the page; it does not illustrate the story as an appendage, it is an integral part of it. Like the corporal's stick-flourish in Sterne's *Tristram Shandy* words are forsaken for a visual instantiation of an object/event.
5. When Simmias of Rhodes composed his *Egg*, George Herbert his *Easter Wings*, and Apollinaire his *Calligrammes*, all were trying to bring together the object signified with the words that signified them. A case of verbal description and the pictorial shape of the object described being joined iconically in a pictorial space.
6. In *Tender Buttons*, Gertrude Stein's carafe and umbrella are not visually fixed on the page. When all the words inside her at the moment of composition (of perception) came out they fused perceiver with perceived within the activity of perceiving. The language which described the object also became the object in a physical space.
7. In such poems as "now they found the wagon cat in human body," "no body speaking," and other pieces in *We Sleep Inside Each Other All*, Bill Bissett brings together perceiver and perceived in psychic space which becomes jointly manifest in a pictorial space. Both Stein and Bissett use syntactic rhythm to indicate subjective rhythm; both are dealing with the fundamental relationship between language and consciousness. By moving the poem back into the pictorial space Bissett furthers the visual technique employed by Simmias, Herbert, and Apollinaire, as well as Stein's sense of the autonomous existence of the thing composed.
8. The compositional technique employed by Simmias and Bissett makes a radically different demand upon the page than regular linear transcription. The page ceases to be a neutral surface of support and becomes instead a spatially interacting region; it is granted thereby a metaphorical extension. Conceived as a spatially significant unit, the page carries dimensional and gravitational implications. In Stein's writing it does not.
9. Pierre Garnier employs the term *spatialisme* to describe his own particular type of lettristic composition. Garnier developed a theory of the letter as self-sufficing entity existing and operating within an open space or field: the page. This application of a spatial metaphor alters radically the physics of his page. In his own texts autonomous letters (as objects) occupy a gravitational region, with syntactic emphasis falling on the *interval* between the letter objects. The page becomes not only container but definer of the lettristic configuration and becomes additionally a profoundly active space.
10. *Spatialisme* is a lettristic application of Eugen Gomringer's formal concept of poetic *constellation*: a word or word cluster balanced—the analog is "electro-magnetically"—within the force field of the page. Both *Spatialisme* and the *constellation* deploy the page as a metaphor for space in general. The page is not altered physically but its materiality receives a metaphoric supplement.
11. Page becomes an active space, a meaningful element in the compositional process and the size and shape of it becomes significant variables.
12. The typewriter fixes page size to carriage capacity.
13. In Steve McCaffery's *Carnival* the carriage capacity limitations are actively confronted. By rejecting its dimensional restriction of size and by forcing it to operate modularly as a smaller unit in a much larger surface, both the page (and its traditional function in the book) are destroyed. *Carnival* is an anti-book: perforated pages must be physically released, torn from sequence and viewed simultaneously in the larger composite whole. The work demands that language be engaged nonsequentially rather than read in sequence. Altering the physical space allows both book and page to utilize at a maximum their sculptural potential.
14. By replacing the pictorial representation of the thing with its verbal description, Greg Curnoe, in his painted series *View of Victoria Hospital 1*, exploits the tensions between the viewer/reader's traditional assumptions as to what constitutes both a painting and a page. Curnoe's canvas becomes his page and by implication his page becomes his canvas.
15. John Furnival abandons the page and the book entirely in his language constructs which treat syntax as both physical and environmental matter. Word order becomes panel/architectural layout in his elaborate verbal-architectural labyrinths that replace the complexities of paragraph and sentence. Furnival not only concretizes language but architecturalizes it as well.
16. In the environmental works of Ferdinand Kriwet the pressure to externalize language and alter the mechanics of its reading is achieved by a four-dimensional application that radically modifies the reading space. No longer turning through a book nor looking at a canvas or panel, the reader exists inside a total linguistic environment. As the book constitutes the traditional method for storing verbal information, so the four walls, ceiling, and floor of the gallery become the storage tool for Kriwet's plastic word surfaces. The activation of Kriwet's machine inherently transforms the reader's role and placement. In Dickens you bring the book into your life, with Kriwet you bring your life into the "book."

17. Hart Broudy is now (1973) effecting a different application of language to environment. Using the photographic principle of the *blow-up* and applying it to a hybridized work that is both poetry and painting he is arriving at a new kind of optical linguistic environment. The starting point for his compositions is a physical fragmentation of the single letter which then functions as a blueprint for a macro-composition. Text is blown-up to canvas size in which interlocking fragments are magnified to become giant connected panels. The reader emerges as an active object in a mental paradox: a giant in a miniature world that is larger than his or her self.

18. Fragment from Tom Mot's *Seventh Notebook*:

... i should try technique of microfiche ... could compress my random sequences onto entire card surface ... Swift's Gulliver ... microcard ... what is it ... microcard in fact to reinforce upon the large canvas sense its original quality of print as an isolated experience ... microviewer as one machine to activate another ... do this and then combine microcard with macroprojection say a huge screen in an auditorium if i can get one ... this way could get the combination of communal experience with traditional printed book's isolated experience

19. Ian Hamilton Finlay, at his home of Stonypath in Scotland, has returned to and revitalized the Renaissance concept of the Book of Nature. Stonypath is essentially a landscape brought into linguistic concerns as a living metaphor. The garden is Finlay's Book in which pages transform themselves to quasi-functional objects. Poems become sundials, gravestones, the page's traditional material opacity becomes the window's clear view into the objects signified. Any traveler through Finlay's garden has to be a reader too; it is a book involving participation of the feet as well as eyes.

20. In their *Bi-Point Poetry Manifesto*, the French poets Julien Blaine and J. F. Bory urged the abandonment of book and print each in its entirety (save for their minor use in reporting non-typographic language events). The urban landscape provides both alphabet and subject for their work; economic, social, and political factors become syntactic elements. Bory and Blaine's lives and actions become their writing.

21. William Shakespeare (somewhat earlier) spoke of sermons being in stones and books running in brooks. Finlay's Stonypath and the Blaine-Bory Manifesto are the physical, dynamic applications of a sixteenth-century analogy of Book and Nature.

Afterthoughts

Or what this has to do with anything at all

So far we have reviewed/described a specific set of books and writers from the viewpoint of our own concerns with the book as machine. Each of them has, for us, significant comments to make regarding the machine's capacity to alter function and affect the psychological content of the fictional reality presented. There are three questions that arise from our considerations: 1) What are the precise applications of the solutions arrived at? 2) Does the arrived solution present a hindrance to "understanding"? 3) Does the attendant challenge to habitual reading patterns result in breakthrough or deadlock?

These questions have relevance to an interesting text case: Bill Bissett's special attention to the spelling of words. Bissett's idiosyncratic orthography and the resultant effects on that minutest level of reading—the single word—has already enjoyed a large influence inside Canada. Yet the writers who have gone on to orthographic modifications in their own work have been judged mere copiers of Bissett, rather than valorized as individuals adapting to *their own purposes* Bissett's singular insight: that spelling should be an individual decision and not an imposed norm. Accordingly, the work of these writers is in danger of being ignored through the effects of attitude that sees formal innovation as a novelty and, by extension, as unrepeatable. In the background of such an attitude lurks the hulking form of *traditional literature* as a pre-established, easily subsumed and hence "safe" finite number of technical solutions.

To answer the above questions will require the deployment of each single isolated experiment in order that comparative assessments can be made among the experiments themselves. Consequently the answers to these questions lie outside the limits of this present article in the future writing/research to be done. What we will argue for here is an expanded awareness of both the effects on and the possibilities for narrative, by an active and thorough utilization of the book-as-machine.