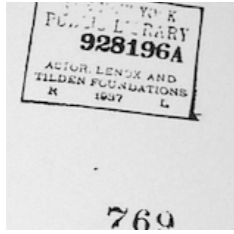


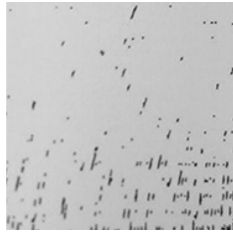
**POSTDIGITAL
PUBLISHING
PRACTICES: ↙
*ON HYBRID
AND PROCESSUAL
↗ PRINT***



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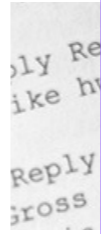


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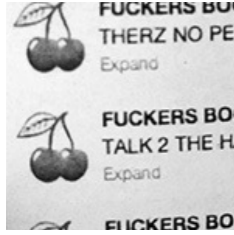
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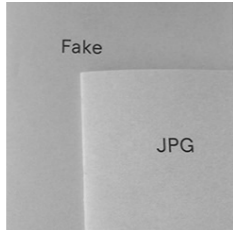
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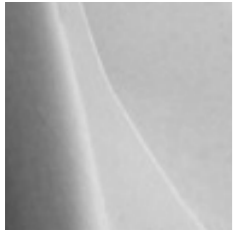
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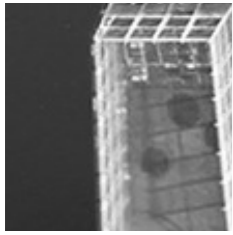
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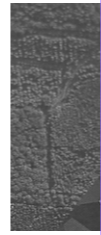
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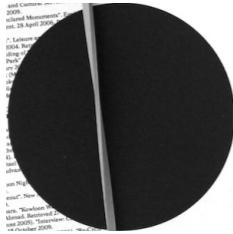
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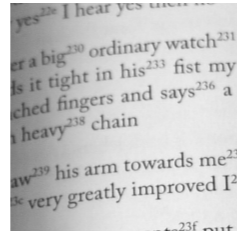
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[1] Ludovico, Alessandro (2014) . “Post-Digital Publishing, Hybrid and Processual Objects in Print” . In Christian Ulrik Andersen and Geoff Cox *A Peer-Reviewed Journal About: Post-Digital Research* . Volume 3, Issue 1 . (pp. 78-85) . Digital Aesthetics Research Centre, Aarhus University.

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PostDigital Print “Hybrid” (Object) (9), a history of alternative publishing reflecting the evolution of print (13-15) [2], the end of paper: can anything actually replace the printed page? (16-20) [2], the mutation of paper: material paper in immaterial times (21-29) [2] [3], postprint: code in text production (30-31) [4],
[2] Ludovico, Alessandro (2012) . “Post-digital Print – The Mutation Of Publishing Since 1894” . In *A Peer-Reviewed Journal About* . Eindhoven: Onomatopée.
[3] Bajohr, Hannes (2016) . “Experimental Writing In Its Moment Of Digital Technization: Post-Digital Literature and Print On Demand Publishing” . In Annette Gilbert (Ed.) . *Publishing As An Artistic Practice* . (pp. 100-117) . Berlin: Sternberg Press.
[4] Hayles, N. Katherine (2021) . *Postprint : Books And Becoming Computational* . New York: Columbia University Press.

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[1] Ludovico, Alessandro (2014) . “Post-Digital Publishing, Hybrid and Processual Objects in Print” . In Christian Ulrik Andersen and Geoff Cox *A Peer-Reviewed Journal About: Post-Digital Research* . Volume 3, Issue 1 . (pp. 78-85) . Digital Aesthetics Research Centre, Aarhus University.
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[7] Thoburn, Nicholas (2016) . *Anti-Book: On the Art and Politics of Radical Publishing* . Minnesota: The University of Minnesota Press.

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[8] Gat, Orit (2012) . *Screen. Image. Text* . At thizome.org/editorial/2012/may/16/screen-image-text/

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POSTDIGITAL PUBLISHING PRACTICES.

Edited by Alexandra Guimarães
Academic Project / Master in Communication Design
Faculty of Fine Arts of the University of Lisbon, 2022



“Contemporary experiments are moving things a bit further, exploiting the combination of hardware and software to produce printed content that also embeds results from networked processes and thus getting closer to a true ‘form’. This ‘form’ should define at the technical and aesthetic levels the hybrid as a new type of publication, seamlessly integrating the two worlds (print and digital) up to the point that despite its appearance and interface, they would be inextricably tied together through the content. So it’s not just about ‘automatically generating a text’ and printing it, or randomly assembling bits and pieces of (eventually printed) content in digital form. A hybrid product should have a strategy composed by its software part, which would provide some content through a process, and an analogue part which would frame and contextualise it. The level that this hybridisation can reach is only limited by the conceptualisation and the sophistication of the act and the process.” [1]

In this way, “post-digital print starts here, with the alchemic intertwining of the traditional print with the digital (finally taken for granted) that generates new type of publications and genres.” [1]

Thus, “(...) the dynamic nature of publishing can be less and less extensively defined in terms of the classically produced static printed page. And this computational characteristic may well lead to new types of publications, embedded at the proper level. It can help hybrid publications function as both: able to maintain their own role as publications as well as eventually being able to be the most updated static picture of a phenomenon in a single or a few copies, like a tangible limited edition. And since there is still plenty of room for exploration in developing these kind of processes, it’s quite likely that computational elements will extensively produce new typologies of printed artefact, and in turn, new attitudes and publishing structures. Under those terms it will be possible for the final definitive digitalization of print to produce very original and still partially unpredictable results.” [1]

To this end, this project explores the development of hybrid print objects (whose content production and editing is software-based) and publishing practices (or to the act of making public), which take advantage of the complementarity of print and online media.

[1] Ludovico, Alessandro (2014) . “Post-Digital Publishing, Hybrid and Processual Objects in Print” . In Christian Ulrik Andersen and Geoff Cox . *A Peer-Reviewed Journal About: Post-Digital Research* Volume 3, Issue 1 . (pp. 78-85) . Digital Aesthetics Research Centre, Aarhus University.

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[2] Ludovico, Alessandro (2012) . “Post-Digital Print – The Mutation of Publishing Since 1894” . In *A Peer-Reviewed Journal About* . Eindhoven: Onomatopee.

[3] Bajohr, Hannes (2016) . “Experimental Writing in its Moment of Digital Technization: Post-Digital Literature and Print on Demand Publishing” . In Annette Gilbert (Ed.) . *Publishing as an Artistic Practice* . (pp. 100-117) . Berlin: Sternberg Press.

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a history of alternative publishing reflecting the evolution of print [2]
THE DIGITAL REVOLUTION, AND THE PEAK AND FALL OF ZINES
INTERTWINING MEDIA, A LOOK AT THE NEAR FUTURE

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the end of paper: can anything actually replace the printed page? [2]
THE TURNING POINT: ELECTRONIC CONTENT WITH THE LOOK
AND FEEL OF PRINT
POSTDIGITAL PRINT
PAPER IS FLESH. SCREEN IS METAL

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SPACE, PHYSICALITY, AND REPEATABILITY OF PRINT [2]
PRINT ON DEMAND, THE BALANCE OF POWER BETWEEN PAPER
AND PIXEL [2]
THE FRONTIERS OF POD: CUSTOMISATION AND OPEN SOURCE [2]
POD AS POST-DIGITAL [3]
TECHNIZATION AND THE POST-DIGITAL [3]

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postprint: code in text production [4]

In this post-digital age, digital technology is no longer a revolutionary phenomenon but a normal part of everyday life. The mutation of music and film into bits and bytes, downloads and streams is now taken for granted. For the world of book and magazine publishing however, this transformation has only just begun.

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Still, the vision of this transformation is far from new. For more than a century now, avant-garde artists, activists and technologists have been anticipating the development of networked and electronic publishing. Although in hindsight the reports of the death of paper were greatly exaggerated, electronic publishing has now certainly become a reality. How will the analog and the digital coexist in the post-digital age of publishing? How will they transition, mix and cross over?

(...) We shall attempt here to collect and systematise as many of these signals as space allows – examining various technologies, experiments, and visionary works of art, as well as hard facts and figures. The traditional role of print is unmistakably being threatened by the new digital world; but it is also, paradoxically, being revitalised. Both media share a certain number of characteristics, and yet they are fundamentally different – and they also fulfil different needs (for example, digital is built for speed, while print ensures stability).

The two media are clashing as well, resulting in efforts from both sides to discover some ideally balanced publishing ‘nirvana’, where pixels and paper live together in a perfect symbiosis, generating (of course) an endless flow of revenue for everyone involved. In an effort to reach this utopian goal, publishers of all shapes and sizes are currently developing and investing in countless hybrid strategies and products: strange beasts which incorporate, either literally or conceptually, elements and qualities of both paper and pixels, in an effort to score the highest possible degree of customer satisfaction – and thus revenue. But, being hybrids, these strategies and products face an uphill struggle to be accepted, let alone embraced – and in order to do so, they must quickly find their own role and niche within the global marketplace.

As they struggle for survival, they must rapidly evolve and adapt to an ever-changing media environment. One direct consequence of this process, obviously, is that printed publishing will never be the same again: it is being deeply transformed by two opposite (even contradictory) needs. On one hand, the timeless and immutable printed page is itself increasingly subjected to a variety of real-time updating schemes. On the other hand, having an information carrier which is physically reliable (as well as independent of electrical and data connections) is increasingly being recognised as a precious resource by a generation which spends much of its days glued to 'unsteady' laptops.

The timeless 'interface' of the printed page (including its classic 'golden ratio' dimensions and 'portrait' or vertical orientation) has finally been adopted by digital publishing; on the other hand, printed products increasingly attempt to incorporate 'digital' characteristics – such as update-ability and searchability. And yet, enlightening as it may be to observe such seemingly convergent developments, this is only the first step towards fully understanding this ongoing process.

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A history of alternative publishing reflecting the evolution of print – offers an analysis of the strategic use of print, by avant-garde artistic movements throughout the 20th century, as well as in the context of the underground press from the 1950s through the 1980s, and finally in light of the most recent developments in underground publishing (such as the production of technically perfect 'fakes' made possible through digital technology). The actions, gestures, and strategies of all of these types of press, while demonstrating how print can be put to use as a 'liberating' medium, are also intimately connected to contemporaneous technological developments. Such a parallel history of technologies and artistic strategies reveals how cultural and social passions have always found their way into print, using whatever means happened to be available and appropriate at the time – thus significantly reflecting and documenting the historical period in which they existed. Even now this continues to be the case (although in a more 'scattered' way than before, across different cultural scenes and using various combinations of technologies and strategies). As it will hopefully continue to be in the future (...).

The digital revolution, and the peak and fall of zines ↙

(...) the most important development to revolutionise print was surely the explosion of digital technology. Starting in the late 1980s, anyone could purchase Desktop Publishing (DTP) software in computer shops; from now on, simply owning a personal computer and a printer meant potentially having all the means of production in one's own home. Amateurs (often referred to as the 'bedroom generation') could now produce printed materials in their own personal environment. At the same time, new digital storage media were being introduced, such as the floppy disk, which was cheap and compact and could carry a reasonable amount of data. (...)

A number of zines started enhancing their printed editions with a floppy disk featuring 'bonus' content. One of the more conceptual applications was created by the Italian literary and Mail Art zine *Adenoidi*, adding a floppy disk containing colour pictures – which were also printed in black-and-white inside

the paper zine itself, with the missing colours indicated by text captions with arrows pointing to the corresponding fields. More and more publications were designed as ‘interactive’ magazines, experimenting with various media such as the emerging CD-ROM. One trend was to reproduce as faithfully as possible the conventions and standards of print, while adding ‘bonus’ animated or audio content. (...)

Various ‘interactive’ CD-ROM magazines were also produced which focused on experimental interfaces, such as the seminal (and almost impossible to navigate) *Blam!*, which was in fact more a purely digital product than a normal ‘publication’. Yet another genre was defined by the emerging profession of digital designers, as exemplified by the mixed-digital-media *Gas Book*, a publication showcasing multimedia and electronic music talents within a single package consisting of a book, a CD-ROM, an audio CD, stickers and a T-shirt.

Probably also as a result of the arrival of digital media, the early 1990s saw an unprecedented peak in the production of zines, (...).

By the late 1990s, the number of zines had exploded to an estimated 50,000, covering all kinds of social and personal themes. The zine scene featured well-attended meetings, professional distributors and dedicated sections in public libraries. As Gunderloy said in the introduction to his book *The World of Zines*: “The zine world is in fact a network of networks”. [1] But the economic crisis of the mid-1990s took its toll on the paper zines: increases in postage rates and bankruptcies of some of the major zine distributors (most notably Desert Moon) forced the zines towards a much more cautious publishing policy.

Furthermore, by the late 1990s the media-scape was – once again – being completely reshaped. Already in 1995, just as the World Wide Web was about to take off, John Markoff wrote in the *New York Times*: “Anyone with a modem is potentially a global pamphleteer.” [2] In the first decade of the 21st century, most zines stopped publishing on paper, choosing instead for a web-based platform. This too would soon be superseded by a new (and controversial) phenomenon, the (literally) millions of blogs and the ensuing ‘blogosphere’ (...).

Only science fiction could predict what might come next: and indeed, a fascinating vision of the relationship between paper and pixel was formulated by the science-fiction author William Gibson, an absolute master of twisting today’s reality into tomorrow’s possibility. His story *Agrippa*, written in 1992, was an electronic poem, sold as an expensive limited-edition work in

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[1] Gunderloy, M. (1992) . *The World of Zines*, Penguin.

[2] Markoff, J. (1995) . “If Medium Is the Message, the Message Is the Web” . In *New York Times*, November 20, 1995, p. A1.

a decorated case and with a 3.5” floppy disk containing the entire text. The software was designed to let the user turn the pages on the screen by clicking a computer mouse. But the pages, once turned, were immediately deleted from the disk. Also, the printed book was treated with photosensitive chemicals, so that the words and images gradually faded as the book was exposed to light. So once the book was read, it was gone forever. This work can be understood as a reflection on our faith in paper, as well as a representation of the instability of electrons – and it certainly sheds a light on the uncertain future of publishing in both paper and electronic media, while predicting how the two are destined to become increasingly intertwined.

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Intertwining media, a look at the near future ↙

“Zines are purely libertarian”, declared Stephen Schwartz in his *History of Zines*. [3] This is a definition which can be expanded to include any of the best underground publishing productions. Yet we may ask, does it still hold true in the current digital era? What does it mean to create an ‘alternative publication’ within this new environment? The basic requirements remain the same: to challenge the prevailing medium, to formulate a new original aesthetic based on the new medium’s qualities, and to generate content which is relevant to the contemporary situation. The trailblazing ‘intermedia’ concept formulated in the mid-1960s by Fluxus artist Dick Higgins seems to have now become the norm; and while independent publishers in the 21st century are increasingly apprehensive about their future survival, they will certainly use offset printing, photocopies, print on demand, PDF files, blogs, or whatever combination of media happens to be most useful for their current project.

On the other hand, while our trust in print remains more or less intact, we increasingly perceive printed media as being too slow in delivering content, compared to the ‘live’ digital media which can be constantly updated minute by minute. (...) A clear sign of this is the desperate trend of online platforms attempting to speculate on ongoing news developments, by constantly anticipating what may be going on, or what is about to happen very soon – often using a vague and elusive tone designed to trick the reader into trusting that all the developments mentioned in the news have already actually taken place. (...) Clearly, print is mutating profoundly as a result of its (final?) hybridisation with digital technology – as the last of all traditional media to undergo this process (...).

[3] Schwartz, op. cit. McLuhan, *Understanding Media*, p. 173.

THE END OF PAPER:
CAN ANYTHING ACTUALLY
REPLACE THE PRINTED PAGE?

(...) The end of paper: can anything actually replace the printed page? Here we shall critically examine the various electronic devices, strategies, platforms, successes and failures, keeping in mind that the subject we are attempting to dissect is in a state of constant flow, often radically redefined by one bold gesture of a single organisation or even individual. Here our challenge will be to track down and define the elusive thread connecting recent and ongoing developments with that ‘something’ which is destined to become, in the next decade or so, the stable foundation of the new digital publishing. This is, of course, a cultural phenomenon, which is affecting the world of publishing in all its dimensions: from physical distribution, to the changing nature of libraries, to the formulation of new alternative models of selling printed products. The cultural and perceptual shifts involved should not be underestimated; once we have attempted to define these, we shall once again examine how artists are busy envisioning them, conceptually as well as practically. (...)

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In 1894 Octave Uzanne and Albert Robida declared in *La fin des livres*: “Books must disappear, or they will ruin us. In the whole world there are eighty to a hundred thousand books published each year, and at a thousand copies each this is more than one hundred million specimens, of which the majority contain only trash and errors.” [4] More than a century later, a strikingly similar rhetoric is being used in order to promote electronic books, by discrediting the ‘obsolete’ printed medium. But can anything ever actually ‘kill’ the printed page? If so, it will have to comprehensively emulate print’s intuitive ‘user-friendly’ interface; it should also weigh about the same, and enjoy a continuous and seamless connection for downloading new content. That fatal bullet may indeed be on its way – but it’s clearly following a slow (and potentially long) trajectory.

One of the loftiest promises of the emerging e-book market, is the amount of space it will end up saving us. In a nutshell, the propaganda mantra suggests that consumers will have more space in which to store more goods – a perfect, endless cycle of consumption. In fact, printed materials are one of the few consumer objects that generally do not expire or become obsolete, meaning

[4] Uzanne and Robida, op. cit.

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they can’t be quickly ‘consumed’ and discarded, but just sit there taking up space, for years or even decades. And so, the magical process of digitisation is supposed to free up all this precious space, which seems to be in such tragically short supply in the Western world.

But will this eventual obsolescence of paper really liberate our shelves of all their printed content? Actually, if we observe what has happened in the case of music, we can see that vinyl records have not been comprehensively discarded; more than three decades after the launch of the compact disc, they are still very much there – and still taking up precious space. In fact, many record shops still have vinyl sections; there are various magazines focusing on ‘vinyl culture’; and a substantial number of releases are still (or again) being pressed in limited vinyl editions. Which begs the question: could printed paper some day become the ‘vinyl’ of publishing?

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The turning point: electronic content with the look and feel of print ↙

“What has spurred this new wave of hope is the fact that technologies are beginning to look and feel more paper-like.” Abigail J. Sellen and Richard H. R. Harper, *The Myth of the Paperless Office*, 2002 [5]

“In the first decades of the Gutenberg revolution, printing presses, as McLuhan long ago pointed out, poured forth a flood of manuscripts in print form. In a similar manner, one can expect that in the first stages of hypertext publishing, printed books will provide both its raw material and much of its stylistics.” George P. Landow, *Hyper/Text/Theory*, 1994 [6]

One major (and somewhat unexpected) turning point in the way print-like content is experienced on a screen, is that instead of (re)inventing some new interface (which had been the norm in the 1990s, as well as during at least the first half of the 2000s decade), publishers and software developers started to realise that the original book interface was simply the best one after all.

These have always been two more or less separate worlds: on one hand, web content developers all eager to design their own unique new interface (with catastrophic consequences for usability); on the other hand, graphic designers whose suspicions in dealing with the Web and its inherent graphic instability can best be understood in the context of false claims by the software industry that its products could actually be used to automate print-to-web publishing.

[5] Sellen and Harper, op. cit., p. 8.

[6] Landow, op. cit., pp. 1-48.

Or, to quote a popular joke among graphic designers: “the net was not developed by publishing houses”.

Then in the late 2000s, in a remarkable turn of events, the rows of icons and the clumsy animated mechanisms meant to (re)animate the on-screen simulation of paper started to disappear, and the classic paperback interface was resurrected in all its powerful historical simplicity. The most striking example is Wikipedia, where each entry can be formatted into a standard encyclopedia design, generating a single printable PDF file. [7] There’s even an advanced option which makes it possible to assemble, preview and print Wikipedia content in a classic ‘perfect bound’ book style, including automatically generated indexes, tables of contents, etc. The resulting book can be purchased through PediaPress. [8]

This kind of simple, classic appearance can in fact be applied to almost any web page by using an experimental (and free) browser ‘book-marklet’ called *Readability*, developed by Arc90. [9] This tool not only discards all advertisements and CSS (web page formatting) trimmings, but effectively strips a web page of all content except its main text, and “re-formats its layout, size, and margins, creating a newspaper or novel-like page for easier text digestion.” A somewhat similar software application, *Readefine* by Anirudh Sasikumar, [10] follows a more sophisticated approach, applying a rigorous multi-column newspaper grid layout (while preserving hyperlink functionality) to web pages, RSS feeds, plain text and HTML files. Interestingly, this also happens to be the general look-and-feel of most of the content recently produced for e-book readers.

Taking the effort to combine print and digital characteristics to its ultimate material conclusion, *Traumgedanken* (“Thoughts on Dreams”), an experimental design book by Maria Fischer, [11] is a “collection of literary, philosophical, psychological and scientific (sic) texts which provide an insight into different dream theories.” In the process of writing about dreams, with all their apparently scattered but interconnected elements and possible interpretations, the designer came up with a solution which is very much a physical transposition of the hyperlink: she connected keywords and passages across the book using threads of various colours, creating a unique prototype of a physically interlinked text.

[7] en.wikipedia.org/wiki/Help:Books

[8] pediapress.com

[9] readability.com

[10] readefine.anirudhsasikum.ar.net/desktop.html

[11] maria-fischer.com/en/traumgedanken_en.html

Postdigital print ↙

In his recent book *Remix*, Lawrence Lessig defined the contemporary role of text: “Text is today’s Latin. It is through text that we elites communicate (look at you, reading this book). For the masses, however, most information is gathered through other forms of media: TV, film, music, and music video. These forms of ‘writing’ are the vernacular of today.” [12] Not only are text and print historically and intimately connected, but a text once printed somehow gains an aura of being ‘real’ and permanent (‘scripta manent’ as the Romans used to say) even if, in the digital era, everything outside the digital environment is starting to be perceived as outdated or irrelevant – particularly by the younger generation.

A wonderful illustration of this relationship between text and print (and of the ‘authority’ of the printed word) is *Wordperhect*, [13] created by Tomoko Takahashi – a parody of a word processor, featuring an idiosyncratic hand-drawn interface, a set of functioning but strangely altered tools, and page templates such as *receipt* and *silver paper from a cigarette box* which all somehow ‘humanise’ the software. This shrinking of the distance between digital tool and physical reality is also one of the themes of Evelien Lohbeck’s video *Noteboek*, [14] in which a traditional paper notebook opens up to become a notebook computer (including various peripheral devices such as a printer and a scanner). Lohbeck playfully and surrealistically juxtaposes various meta-medium objects (handwritten notes, software interfaces, digital hardware) to achieve a stunning (yet stunningly simple) digital-inside-the-physical-and-vice-versa conceptual effect. (...)

Clearly, traditional print is increasingly being called into question – but is this really a direct consequence of the ongoing development of digital technologies? Or has the digital revolution merely exposed the printed medium’s own basic vulnerability? Whatever the case, the future of the traditional print/publishing model (the act of applying ink to cellulose, massively and at some fixed location – as opposed to simply switching the temporary state of some magnetic storage, perhaps halfway across the world) seems more uncertain than ever.

[12] Lessig, L. (2008) *Remix. Making Art and Commerce Thrive in the Hybrid Economy*, Bloomsbury.

[13] wordperhect.net

[14] vimeo.com/4116727

Paper is flesh. Screen is metal ↙

The duality (whether mutually exclusive or complementary) between paper and screen can be summarised in a cyberpunk metaphor: paper is flesh, screen is metal. What we're dealing with here is a transitional medium, with constantly mutating hybrid characteristics. Paper and pixel complement each other, even as they compete with one another. They need each other to survive, though they both may have good reasons for 'feeling superior' to the other. Digital media relies on the long experience of print in the fields of layout and content management. And print has much to gain from digital media's atomisation of content, with its endless possibilities of indexing and searching. Flesh and metal will thus merge as in a cyberpunk film, hopefully spawning useful new models for carrying and spreading unprecedented amounts of information and culture.

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(...) The mutation of paper: material paper in immaterial times – explores the current mutation of the role of printed paper as a medium; why paper, an inherently 'material' medium, still makes sense in our 'immaterial' age. This new role is, of course, still in the process of being clearly and comprehensively defined. The undeniable impact of digital publishing on the print publishing economy is a key factor in this process, as the established trade mechanisms and money flows which have sustained publishing for centuries are increasingly being called into question. At this turning point, with many long-established publishing enterprises facing bankruptcy, publishers both large and small struggle to (re)invent, experiment, hybridise, and exploit (some might say squeeze the last drops out of) the unique characteristics of print, while integrating new 'digital' features – or at least some essence of these features – into the printed page. Furthermore, the rapidly maturing 'print on demand' model, besides predictably revolutionising the traditional 'vanity press' and self-publishing markets, has also made possible the publication of many experimental, historical, collaborative, updateable, and otherwise non-commercial materials. And there is of course no shortage of (often enlightening) comments by media pundits on all the new and exciting possibilities offered by these endlessly mutating media forms. (...)

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Space, physicality, and repeatability of print ↙

So does print still make sense, in a society which is by now almost entirely networked as well as screen-based? Print does have a number of unique characteristics which are yet to be superseded by anything else. The first of these characteristics is the way print uses space. The space taken up by printed materials, whether in the shape of document folders, stacks of printed pages on a table, or a library of shelves filled with books, is real and physical. This is entirely different from something existing only on a screen, since it relates directly to our physical space, and to a sensorial perception developed over (at least) thousands of years.

When everything is reduced to the display screen, some kind of ‘simulation’ of space becomes necessary, since everything now must fit within these few inches. Also, in order to make the simulation understandable and/or realistic, any system for finding one’s way (‘navigating’) within this virtual space should include a consistent interface, allowing for multiple perspectives and levels of viewing. Unfortunately, there has never been a clear standard for implementing this. The different strategies, symbols (icons, pictograms) and navigational structures of various competing systems have not yet succeeded in presenting readers of virtual printed content with a set of standards that they can easily become accustomed to. The result is that a so-called ‘clean’ virtual reading space remains more unfamiliar than the ‘messy’ physical one.

Another important characteristic of paper is the ‘repeatability’ of traditional print. Reading a magazine or a book means being part of a community of customers all reading exactly the same content, so they can all share a single reference. As Marshall McLuhan noted in *Understanding Media*: “Repeatability is the core of the mechanical principle that has dominated our world, especially since the Gutenberg technology. The message of the print and of typography is primarily that of repeatability.” [15]

Theoretically, a digital file represents the very essence of repeatability, since it can be endlessly copied from one machine to another. In practice however, the slightest change in the file’s content, or even in the technical protocol or features of the machine on which it is being rendered (for example, automatic adjustments or replacements of fonts, margins or colours) are enough to undermine the document’s consistency and suddenly turn it into a quite different object.

And finally, a newspaper or magazine can be folded for convenient transport, can be dropped down the stairs without disastrous consequences, can be cut up for clippings, can be re-used for many different purposes. Do all these features suddenly become obsolete, simply because the ethereal nature of the online environment does not include them? Perhaps. But hundreds of years of reading and handling habits can’t be discarded just like that.

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[15] McLuhan, *Understanding Media*, p. 173.

Print on demand, the balance of power between paper and pixel ✓

Print has specific qualities which remain as of yet undisputed. Holding a printed object in one’s own hands, or seeing it on a bookshelf, remains an essential experience in (at least some parts of) our cultural environment. And the ‘balance of power’ between print and digital (if we still assume the end result to be some kind of printed product) seems now to lie with one technology which, more than any other, is allowing the printed page to survive the ‘digitisation of everything’: print on demand.

During the late 1990s, most of the ‘prepress’ services (small businesses which helped customers convert their often messy digital files into plates suitable for offset printing) started mutating into today’s digital printing services. Increasingly, digital printing machines were replacing offset printing for short print runs; this was made possible by the rapidly falling prices of high-speed laser printers (the first commercially available laser printer, introduced in 1977, was the Xerox 9700; [16] such machines were originally marketed to large office departments, enabling them to quickly print high-quality structured documents). Within just a few years, dedicated digital book-printing facilities were set up across the world, and the technology is now being seriously considered by publishers, particularly since the onset of the current economic crisis.

Print on demand (POD) is an extremely simple concept: the customer produces a PDF file of a magazine or book, and the POD service charges the customer a fee (there are cheaper and more expensive services, depending on the quantity and quality of services provided) to prepare and adjust the files for the production chain of a high-resolution, large-format, continuous digital copier. The customer can order any number of copies (even a single one) and the product is typically delivered within a week or so.

In addition to the actual printing, the POD firm may offer some important additional services:

1. *The firm can arrange to sell the publications online through its own infrastructure, paying the author or publisher monthly percentages on sales.*
2. *POD firms, especially the major ones, can provide detailed information about their publications to online outlets worldwide, in order to generate*

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3. *POD firms usually operate several facilities on different continents, each printing only for nearby countries, thus saving substantially on shipping costs as well as on CO2 emissions (and somehow reminiscent of the 1970s, when major international newspapers were wired overseas using large facsimile machines so they could be printed locally the very same day).*

4. *Publications are not required to generate continuous interest or sales, but may remain in the online catalogue indefinitely at no extra cost, simply waiting to be printed upon request.*

5. *The cost of producing the first copy is very low, depending on the specific package of services provided to the author or publisher, but can be as little as 10 to 20 euros for a regular book.*

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The major publishers in this field (Lulu, Lightning Source, Author Solutions) now already carry hundreds of thousands of titles in their ever-expanding catalogues. Amazon, the largest online bookshop, has already set up a subsidiary company called Create Space, as a part of their ‘Advantage Program’, in order to include authors and publishers “of all sizes” in their platform. [17]

Besides books, and of course photographs, print on demand is also being used for office reports and other business-related publications. The ‘Virtual Printer’ is a service that allows customers to send a PDF of (for example) an office report, which is then printed and bound in the desired number of copies, and delivered to either a FedEx courier store or the customer’s address. [18] Meanwhile, businesses such as Hewlett-Packard claim to be in the process of transforming themselves from a printer company to a printing company, focused on “Print 2.0... that embraces the Web as a channel to make printing more accessible, customizable and less expensive”. [19]

[16] everything2.com/title/Xerox%25209700

[17] advantage.amazon.com/gp/vendor/public/join

[18] fedex.com/us/office/online-printing.html?OMD157&site=FederatedMedia&value1=EyeBlasterDisplay

[19] computerworld.co.nz/news.nsf/spec/7267B4A516A99D3FCC25755E00826F31

The frontiers of POD: customisation and open source ✓

Of course, print on demand is a medium suitable for all kinds of business models besides vanity press. In fact, several established publishers have started releasing their out-of-print back catalogues in POD. (...)

Another possibility, still under development, is to customise the printed content for each individual customer. Various web-to-POD technologies are currently being developed to allow customers to select their own content – which, in the case of books, amounts to individual readers compiling their own publication. Such a level of customisation will undoubtedly signify a major shift in the role of the editor, since it effectively does away with the traditional publishing model of printing thousands of copies of the exact same content. While this obviously means more freedom for the reader, it also introduces a new problem for writers, who can no longer be sure their content is reaching every customer.

(...) Combining print on demand with software to generate potentially infinite permutations of content is already being applied outside the field of experimental self-publishing, in the mainstream publishing business. Already in 2007, the English publishing house Faber & Faber commissioned the designer Karsten Schmidt to participate in the development of a software system for generating complete, print-ready book covers for its new *Faber Finds* back catalogue imprint. The assignment was to create a ‘design machine’ flexible enough to generate a very large (theoretically infinite) number of unique designs – one for each book published in the imprint. The design itself, developed by the Canadian typographer Marian Bantjes, consists of a collection of shapes which are ‘parameterised’ and broken down into smaller elements, which in turn became micro-templates, thus forming a ‘vocabulary’ of shapes. The software generates a new cover every second, then judges whether the design is valid or should be discarded. [20]

Software has a long history of producing questionable results – particularly when these results are meant to be passed off as the work of a human. (...) And the entire process of generating and producing a book, combined with a POD scheme, is incorporated in Peter Bichsel and Martin Fuchs’ *WW*[21] project: a “generative book that presents programmed images by various artists”, all individually calculated immediately before they are printed, making each single book unique and literally unrepeatable.

(...) Software (which is clearly a defining element of POD) makes it simple to alter the content of a publication at any point during the production process

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[20] postspectacular.com/process/20080711faberfindslaunch

[21] writtenimages.net

– even between the production of individual copies. And this customisation can go much further than merely adding or deleting bits of content. The POD process actually makes it possible to continuously update the content – thus bringing a defining aspect of online publishing back to the printed medium.

In other words, the latest edition can be continuously kept up-to-date – by its author and publisher, and potentially also by an open community of readers/users/contributors. FLOSS Manuals [22] as a publishing effort founded by the artist Adam Hyde, focusing on free and open-source software (including tools used to create this software) as well as the community which uses these applications and tools. The editing scheme is almost entirely open, so that anyone can contribute to a manual, adding content or helping fix errors, and being credited for their contributions. The FLOSS (‘Free/Libre/Open Source Software’) paradigm, with its culture of openness, is here brilliantly applied to the field of technical manuals. The constantly updated books can be downloaded for free or purchased as cheap POD editions; alternately, single chapters from any of the manuals can be reassembled at will, and then downloaded or ordered in POD (Hyde has since pushed this concept even further, developing an online platform made entirely of free software for online collaborative authoring and publishing of books, called Booki [23]).

Using FLOSS software for publishing ensures that tools can be collectively developed and shared, and are guaranteed to remain open and unrestricted by patents. The Open Source Publishing consortium (initiated by a few members of the Brussels-based collective Constant) [24] is a major effort in this direction, supporting an organic and systematic use of FLOSS software for publishing. POD is of course the most obvious and natural medium for FLOSS-based publishing. Having open tools which are collectively developed and shared, implicitly guarantees fair access to the means of publishing, thus promoting freedom of expression.

Clearly, POD has the potential to make available in print enormous quantities of otherwise unpublished or forgotten information. POD seems destined to occupy a position very much similar to that of photocopying in the 1980s and 1990s: a chance to print and distribute content cheaply, in a format which is physically stable, easy to use, and pleasant to the senses. Which is still very much what paper is all about.

[22] en.flossmanuals.net

[23] booki.cc

[24] ospublish.constantvzw.org

POD as post-digital ↙

In *Post-Digital Print*, Alessandro Ludovico writes that “the death of paper — in retrospect, one of the most unfortunate and embarrassing prophecies of the information age — has obviously not happened.” [1] In his account of the development of independent and neo-avant-garde publishing, paper hasn’t been replaced by screens, and, on the contrary, the relationship between digital and analog turns out to be not antagonistic, but complementary: “Digital is the paradigm for content and quantity of information; analogue is the paradigm for usability and interfacing.” [2] Because the book, rather than the screen, is the most user-friendly and offers the best interface for the engagement with text, it will survive. More importantly, however, Ludovico maintains that it is increasingly the very materiality of books that gives them their cultural weight. A digital file, or more precisely, one represented on a digital reading-device, seems fleeting, cheap, and less serious than a tangible “post-digital” object. This is what makes POD so popular. [3]

[1] Alessandro Ludovico, (Eindhoven/Rotterdam: Onomatopee 77, 2012), 29.

[2] Ibid., 153.

[3] Ibid., 70.

[4] Melvin L. Alexenberg, *The Future of Art in a Postdigital Age: From Hellenistic to Hebraic Consciousness*, 2nd ed. (Chicago: Intellect, 2011), 10; Florian Cramer, “What is ‘Post-Digital?’” APRJA 3, no. 1 (2014), accessed June 22, 2015, aprja.net/?p=1318, now also in: David M. Berry and Michael Dieter, eds., *Postdigital Aesthetics: Art, Computation and Design* (Basingstoke: Palgrave Macmillan, 2015), 12–26.

[5] Cramer, “What is ‘Post- Digital?’”.

The term “post-digital” is often employed to denote the recuperated value of materiality. Mel Alexenberg has called the post-digital a longing for the “humanization of digital technologies,” and Florian Cramer considers it the state of “disenchantment with new media,” as well as a light from the increasing hegemony of digital technology toward DIY culture. [4] But it seems odd to use the term post-digital for POD, not only because it is a form of digital printing (and not something “truly analog,” like, say, silkscreen), but because its outcomes often look cheap and lack the very quality that “post-digital” seems to indicate (just look at the blindingly white paper, template typesetting, and often imperfect binding of most any recent academic book).

POD is not post-digital in this sense of a nostalgia for materiality-as-quality. Rather, I would like to understand it in epochal and ontological terms, and follow an observation made by Cramer: “‘Post-digital’ [...] refers to a state in which the disruption brought by digital information technology has already occurred.” [5] POD is post-digital because it points to the historicity of this disruption and makes it perceptible.

Technization and the post-digital ↙

What does it mean for a technology to no longer be new? German philosopher Hans Blumenberg made a distinction between “technology” and “technization.” [6] *Technology* suggests itself as discrete matters of fact in the objectivity of its artifacts. Once introduced, it is there, only to be replaced by better, newer technology. *Technization*, on the other hand, is the ongoing process by which technology fades into the background of our everyday experience. Blumenberg called this quotidian consciousness the “life-world,” a term borrowed from Edmund Husserl, who defined it as the “realm of original self-evidences.” [7]

For Blumenberg, the life-world is that which in its unquestionable obviousness (*Evidenz*, often translated “self-evidence”) lacks all resistance that would make it stick out as conspicuous. Similar to Heidegger’s “readiness-to-hand,” [8] but without his scorn of technology, Blumenberg described technization as the slow sinking-into-the-life-world of what was once artificial, unnatural, obtrusive, and novel. Any technology is, in the process of technization, “always-already” on the way toward this transparency, and becoming invisible to its users. Only a sudden event of resistance can disturb this process and make it apparent — a resistance that, as I will show, POD provides.

It seems that, with the initial rise of digital technology more than a generation behind us, we are now experiencing a threshold moment of such technization. The fact that something is produced, distributed, or perceived by digital means is no longer the first thing we notice about it, if we notice it at all. Digital technology is in the process of losing resistance to our experience of reality. Gradually, as Blumenberg writes, “The artificial reality, the foreigner among the encountered things of nature, sinks back into the ‘universe of what is pre-given as obvious,’ the life-world.” [9]

If today’s subjects of technization are digital technology and its practices, then the outcome of this process — their having become life-world — might be called “the digital.” Thus understood, the digital is, first, the epistemological integral of digital technology; Blumenberg calls this a “*concept of reality*,” that is, something that conditions the experience of the world without itself being apparent as a factor. [10]

But because this process of digital technization is not complete (after all, we can still be aware of it), the digital does not yet determine our life-world absolutely. The digital can therefore also describe, second, a *temporality*, a threshold moment that is precariously situated not between the old and the new, but

[6] Hans Blumenberg, “Lebenswelt und Technisierung unter Aspekten der Phänomenologie,” in *Schriften zur Technik*, ed. Alexander Schmitz and Bernd Stiegler (Berlin: Suhrkamp, 2015), 163–202.

[7] Edmund Husserl, *The Crisis of European Sciences and Transcendental Phenomenology: An Introduction to Phenomenological Philosophy*, trans. David Carr (Evanston: Northwestern University Press, 1970), 127.

[8] Martin Heidegger, *Being and Time*, trans. John Macquarrie and Edward Robinson (Oxford: Blackwell, 1962), 98.

[9] Blumenberg, “Lebenswelt und Technisierung,” 190.

[10] Hans Blumenberg, “The Concept of Reality and the Possibility of the Novel,” in *New Perspectives in German Literary Criticism: A Collection of Essays*, ed. Richard E. Amacher and Victor Lange (Princeton: Princeton University Press, 1979), 29–48.

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[11] See Alexander Galloway, *Laruelle: Against the Digital* (Minneapolis: University of Minnesota Press, 2014).

[12] Vilém Flusser, “Das Unding I & II”, in *Dinge und Undinge: Phänomenologische Skizzen* (Munich: Hanser, 1993), 80–89; English as Vilém Flusser, “The Non-Thing I & II,” in *The Shape of Things: A Philosophy of Design*, trans. Anthony Mathews (London: Reaktion Books, 1999), 85–94.

[13] Matthew G. Kirschenbaum *Mechanisms: New Media and the Forensic Imagination* (Cambridge: MIT Press, 2012), 3.

[14] *Ibid.*, 6.

the “opaquely” novel and the “transparently” evident; it vacillates between the no-longer and the not-yet. [11]

If the digital is a concept of reality or a temporality, increasingly transparent to scrutiny, the post-digital is what performs the sudden yank that makes it apparent again. It provokes a disharmony in the structure of the obvious, thus drawing attention to it, and makes the process of technization experienceable. The post-digital denotes the *ontological status* of an object, between the already-evident and the still-new. As soon as it is possible question which category applies in a given case, the post-digital offers the resistance necessary to bring back to consciousness the otherwise elusive process of technization and its resulting concept of reality.

What this means is that we don’t live in a post-digital, but very much a digital moment. The digital and the post-digital are not opposed terms, nor does the post-digital come “after” the digital. Rather, they operate on different categorical planes: As a concept of reality/temporality, the digital is what is disclosed by the ambiguous ontology of the post-digital. With Vilém Flusser, one could call the post-digital object an *Unding* — an object suspended between ontological states. [12] A book produced by POD technology has the potential to be a post-digital *Unding*. Its vacillating states are usually described as “analog” and “digital,” its forms of presence as material and immaterial. The most notable way in which it embodies its ontological ambiguity is in relation between file and product.

POD has an inherent connection to a digital file; its very existence relies on the creation of a digital master from which the copies of the book are made. While this is true of almost any book printed today, with POD this connection between file and object is especially unstable. Because of the ease of production and dissemination that services like Lulu and Blurb provide, it can be investigated, manipulated, and thrown into crisis by artistic and literary means (Syjuco’s *Phantoms* already hint in this direction). In turn, as we shall see, the attributes of the file are determined by the material constraints of POD. Any inclination to hierarchize the two elements — the text and the book, the immaterial and its materialization — thus inevitably fails. “Electronic textuality is [...] locatable, even though we are not accustomed to thinking of it in physical terms,” [13] Matthew Kirschenbaum pointed out in discussing a “forensic” approach to storage media. This idea holds for POD as *Unding*, too; few things illustrate “the heterogeneity of digital data and its embodied inscriptions” as well as this post-digital object does. [14]

What elements make postprint distinctively different from print? One approach would be to reference the differences that code makes in the material production of texts. The book artist and theorist Amaranth Borsuk captures this aspect of the computational transformation when she notes that “a text’s digital life untethers it from any specific material support, making it accessible through a variety of interfaces (including the computer, cell phone, tablet, and dedicated e-reader), each of which influences our reading.” The codes underlying digital texts position print in a profoundly different way than it was positioned in the previous epochs, for in the postprint era hard copy becomes merely one kind of output among many possible displays. As Borsuk concisely observes, “When books become content to be marketed and sold this way [as e-books], the historic relationship between materiality and text is severed.” [1] I would modify her observation by adding that although the specificity of display varies, as she notes, it is important to realize that digital forms are also instantiated in specific platforms, operating systems, coding protocols, and display mechanisms. The difference is emphatically not between the materiality of print and the immateriality of digital forms, as is sometimes proclaimed, but rather between different kinds of material instantiations and diverse kinds of textual bodies.

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To enhance the reader’s awareness of the code layers essential for generating the print page in the postprint era, this book features ten black pages with white ink that display one or more of the code layers necessary for producing the facing white page. By analogy with X-rays that reveal the body’s otherwise visually inaccessible skeletal frame, these pages may be considered “X-ray” versions of the print page, revealing the code architectures hidden from the print reader’s view but essential for the (post)print reading experience. Captions identify the relation of the displayed code to the print page, and readers are invited to read across the page spread, correlating black with white, code with output.

Moreover, this design alludes to the phenomenon that Jessica Pressman calls the “aesthetic of bookishness.” She argues that the advent of the digital has

[1] Amaranth Borsuk, *The Book* (Cambridge, MA: MIT Press, 2018), 206, 11.

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[2] Jessica Pressman, “The Aesthetic of Bookishness in Twenty-First Century Literature: Steven Hall’s *The Raw Shark Texts*,” *Michigan Quarterly Review* 48, no. 4 (Fall 2009).

[3] N. Katherine Hayles and Jessica Pressman, eds., *Comparative Textual Media: Transforming the Humanities in the Postprint Era* (Minneapolis: University of Minnesota Press, 2013); Jeff Gomez, *Print Is Dead: Books in Our Digital Age* (London: Palgrave Macmillan, 2007); N. Katherine Hayles, *Writing Machines* (Cambridge, MA: MIT Press, 2002), 18–33.

[4] Hayles, *Writing Machines*. Anne Burdick was the book’s designer at MIT Press, not a coauthor, but her work was indeed a collaboration, and she deserves to have it recognized.

[5] Borsuk, *The Book*, 40.

had the paradoxical effect of stimulating widespread interest in the history of the book, with a flowering of scholarship in this area that is truly remarkable [2]. Our collaboratively coedited essay collection *Comparative Textual Media: Transforming the Humanities in the Postprint Era*, which was among the first to put the term *postprint* into circulation, brought together some of this research to demonstrate that digitality has not endangered print books, as Jeff Gomez asserts in *Print Is Dead*, but rather has opened possibilities to compare different forms of textual media by engaging in what I have elsewhere called “media-specific analysis.” [3] Here media-specific analysis takes the form of visual presentations of code along with print pages, suggesting that traditional forms of reading print may now be augmented to include reading the underlying code as well. The idea of media-specific analysis grew out of my long interest in the materiality of texts, shown perhaps most extensively in my artist’s book collaboration with designer Anne Burdick, *Writing Machines* [4]. Almost a decade ago, then, I was already experimenting with the idea of “postprint,” but it has taken the intervening years for me to have the time and framework through which I could make this more than a rhetorical assertion. Now, with this book, I present a fully fleshed-out argument based on archival research, interviews, and, perhaps most importantly, an encompassing conceptual framework within which to position postprint as part of larger social, economic, and cognitive transformations. I see these transformations as analogous to other world-changing and species-defining cognitive developments such as the inventions of language and literacy. Borsuk makes much the same point when she succinctly observes, “It bears emphasizing that writing itself fundamentally changed human consciousness, much as our reliance on networked and digital devices has altered us at the core.” [5]

[1] Ludovico, Alessandro (2014) . “Post-Digital Publishing, Hybrid and Processual Objects in Print” . In Christian Ulrik Andersen and Geoff Cox . *A Peer-Reviewed Journal About: Post-Digital Research* . Volume 3, Issue 1 . (pp. 78-85) . Digital Aesthetics Research Centre, Aarhus University.

[5] Soulellis, Paul (2013) . Search, Compile, Publish — Towards a New Artist’s Web-to-Print Practice . Delivered as a talk at *The Book Affair* . At the opening of the *55th Venice Biennale*, 29–31 May 2013 . soulellis.com/2013/05/search-compile-publish/ .

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GRABBING (AND SCRAPING), HUNTING AND PERFORMING [5]
PROJECTS (IMAGES) [5]

For every major medium (vinyl and CDs in music, and VHS and DVD in video, for example) we can recognise at least three stages in the transition from analogue to digital, in both the production and consumption of content.

The first stage concerns the digitalisation of production. It is characterised by software beginning to replace analogue and chemical or mechanical processes. These processes are first abstracted, then simulated, and then restructured to work using purely digital coordinates and means of production. They become sublimated into the new digital landscape. This started to happen with print at the end of seventies with the first experiments with computers and networks, and continued into the eighties with so-called 'Desktop Publishing', which used hardware and software to digitalise the print production (the 'prepress'), a system perfected in the early nineties.

The second stage involves the establishment of standards for the digital version of a medium and the creation of purely digital products. Code becomes standardised, encapsulating content in autonomous structures, which are universally interpreted across operating systems, devices and platforms. This is a definitive evolution of the standards meant for production purposes (consider Postscript, for example) into standalone standards (here the PDF is an appropriate example, enabling digital 'print-like' products), that can be defined as a sub-medium, intended to deliver content within specific digital constraints.

The third stage is the creation of an economy around the newly created standards, including digital devices and digital stores. One of the very first attempts to do this came from Sony in 1991, who tried to market the Sony Data Discman as an 'Electronic Book Player' – unfortunately using closed coding which failed to become broadly accepted. Nowadays the mass production of devices like the Amazon Kindle, the Nook, the Kobo, and the iPad – and the flourishing of their respective online stores – has clearly accomplished the task (of 'Data Discman'). These online stores are selling thousands of e-book titles, confirming that we have already entered this stage.

Post-digital print starts here, with the alchemic intertwining of the traditional print with the digital (finally taken for granted) that generates new type of publications and genres.

Many possibilities emerge from the combination of digital and print, especially when networks become involved (and therefore infinite supplies of content that can be reprogrammed or recontextualized at will). A number of different strategies have been employed to assemble information harvested online in an acceptable form for use in a plausible print publication.

One of the most popular of these renders large quantities of Twitter posts (usually spanning a few years) into fictitious diaries. *My Life in Tweets* by James Bridle is an early example realised in 2009 (Bridle). The book compiled all of the author's posts over a two-year period, forming a sort of intimate travelogue. The immediacy of tweeting is recorded in a very classic graphical layout, as if the events were annotated in a diary. Furthermore, various online services have started to sell services appealing to the vanity of Twitter micro-bloggers, for example Bookapp's Tweetbook (book-printing your tweets) or Tweetghetto (a poster version).

Another very popular 'web sampling' strategy focuses on collecting amateur photographs with or without curatorial criteria. Here we have an arbitrary narrative, employing a specific aesthetic in order to create a visual unity that is universally recognisable due to the ubiquitousness of online life in general, and especially the continuous and unstoppable uploading of personal pictures to Facebook.

A specific sub-genre makes use of pictures from Google Street View, reinforcing the feeling that the picture is real and has been reproduced with no retouches, while also reflecting on the accidental nature of the picture itself. Michael Wolf's book *a series of unfortunate events*, points to our very evident and irresistible fascination with 'objets trouvés', a desire that can be instantly and repeatedly gratified online (Wolf).

Finally, there's also the illusion of instant-curation of a subject, which climaxes in the realisation of a printed object. Looking at seemingly endless pictures in quick succession online can completely mislead us about their real value. Once a picture is fixed in the space and time of a printed page, our judgments can often be very different.

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Such forms of 'accidental art' obtained from a 'big data' paradigm, can lead to instant artist publications such as Sean Rasper's *2GFR24SMEZZ2XMCV15... A Novel*, which is a long sequence of insignificant captcha texts, crowd-sourced and presented as an inexplicable novel in an alien language (Rasper).

There are traces of all the above examples in Kenneth Goldsmith's performance *Printing Out The Internet* (Goldsmith). Goldsmith invited people to print out whatever part of the web they desired and bring it to the gallery LABOR art space in Mexico City, where it was exhibited for a month (which incidentally also generated a number of naive responses from environmentally concerned people). The work was inspired by Aaron Swartz and his brave and dangerous liberation of copyrighted scientific content from the JSTOR online archive (Kirschbaum). It is what artist Paul Soulellis calls "publishing performing the Internet" (Soulellis).

Having said all this, the examples mentioned above are yet to challenge the paradigm of publishing – maybe the opposite. What they are enabling is a 'transduction' between two media. They take a sequential, or reductive part of the web and mould it into traditional publishing guidelines. They tend to compensate for the feeling of being powerless over the elusive and monstrous amount of information available online (at our fingertips), which we cannot comprehensively visualise in our mind.

Print can be considered as the quintessence of the web: it is distributing a smaller quantity of information available on the web, usually in a longer and much better edited form. So the above mentioned practices sometimes indulge in something like a 'miscalculation' of the web itself – the negotiation of this transduction is reducing the web to a finite printable dimension, denaturalising it. According to Publishers Launch Conferences' cofounder Mike Shatzkin, in the next stage "publishing will become a function... not a capability reserved to an industry" (Shatzkin).

Grabbing (and scraping), hunting and performing ↙

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.

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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 plates of food 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*

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or Joseph Conrad's *Heart of Darkness* (part of Syjuco's installation *Phantoms (H__RT_FD_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-editioned 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 re-writing might occur each time we flip-flop back- and-forth from analogue to digital to analogue.

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]

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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. non-interference. 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.

So, let's talk about hunters. Some of the more well-known works in the collection are 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.

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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.

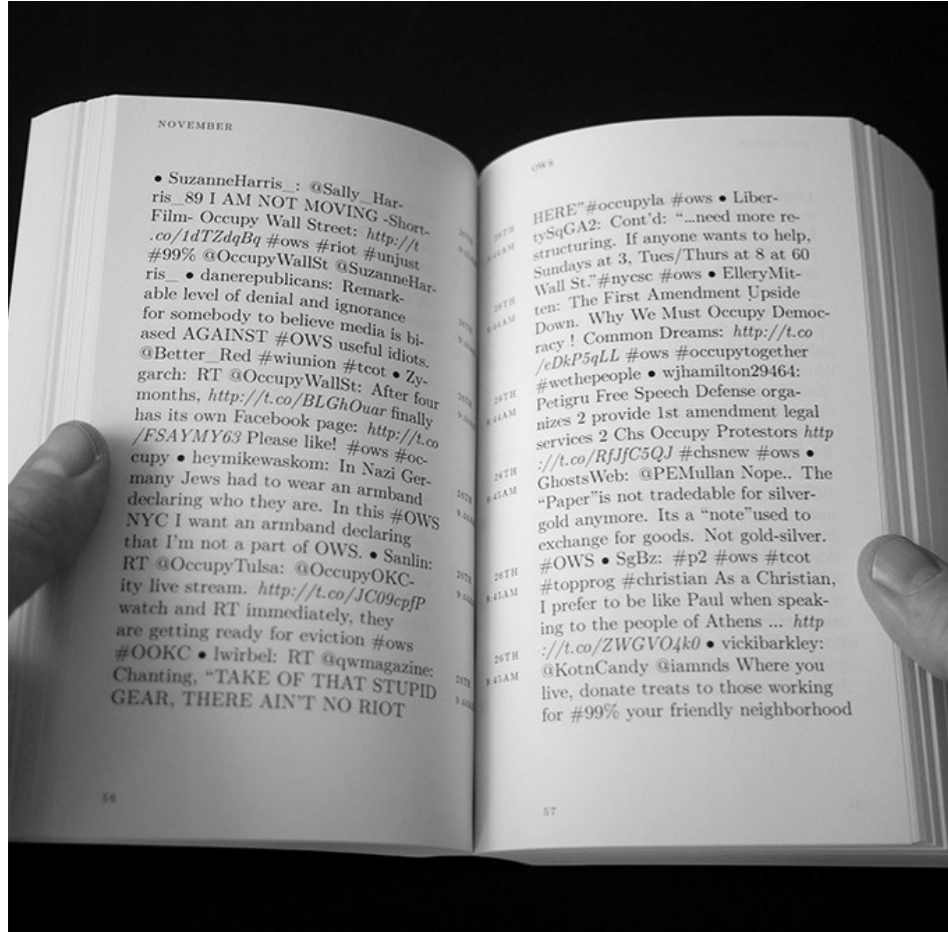
The remaining set of works in *LIBRARY OF THE PRINTED WEB* is a group I call the performers. This is work that involves the acting out of a procedure, in a narrative fashion, from A to B. The procedure is a way to interact with data and a kind of performance between web and print — the end result being 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 anthology, 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.





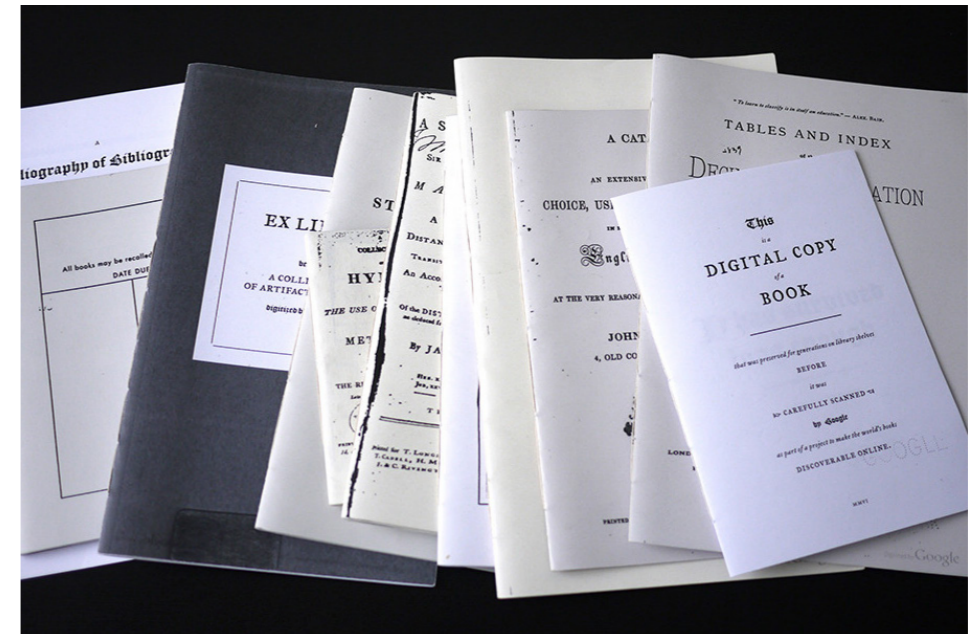
Occupay Wall Street
 Andrew LeClair
 2011

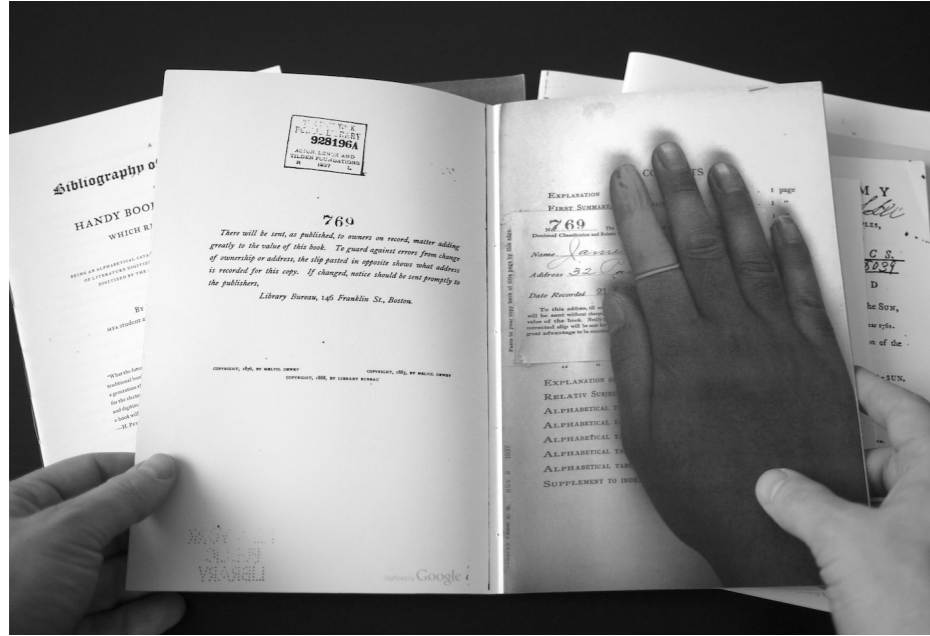
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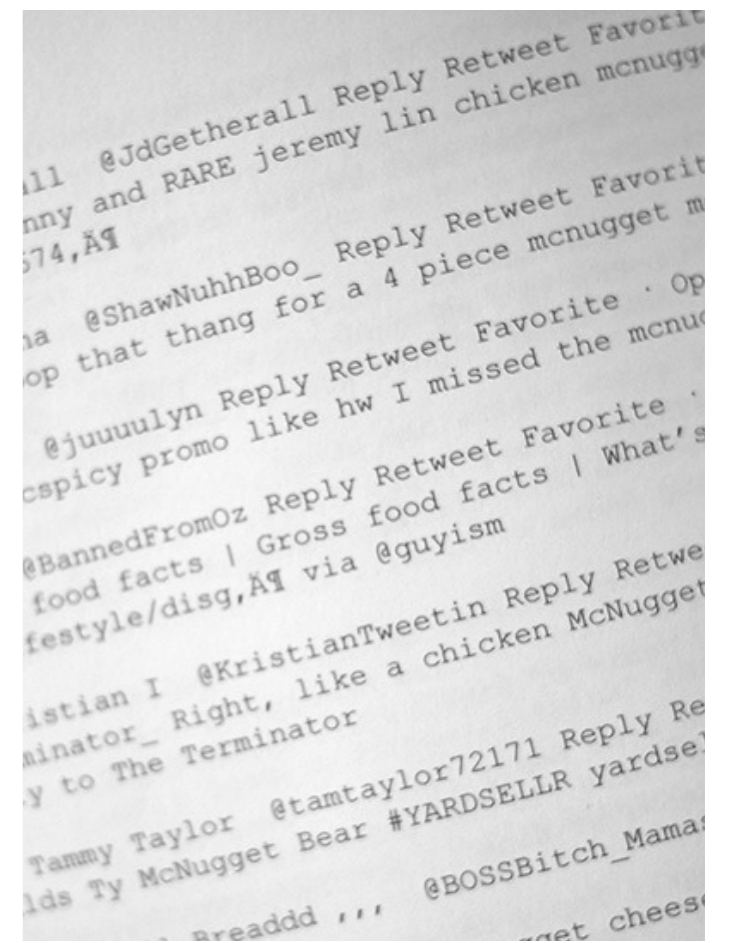
45

Special Collection
 Benjamin Shaykin
 2009
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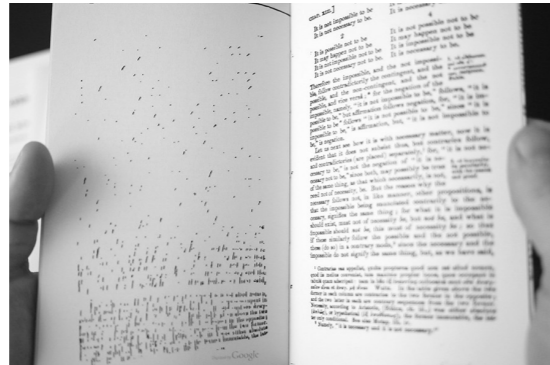


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47

Special Collection
Benjamin Shaykin
2009
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McNugget
Chris Alexander
2013

Search, Compile, Publish — Towards
a New Artist's Web-to-Print Practice
Paul Soulellis



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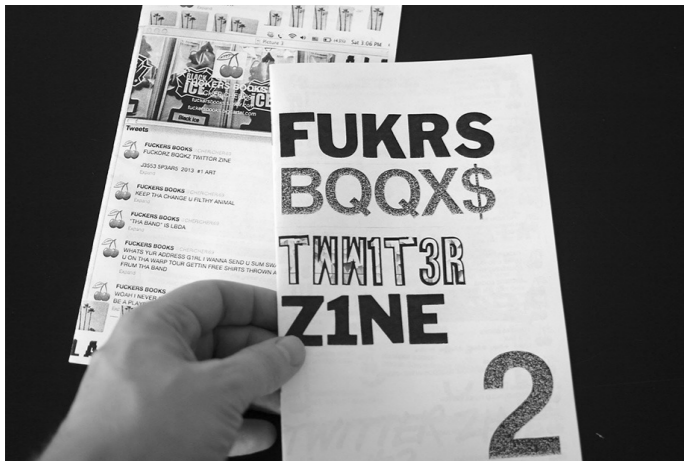
Grabbing (and scraping)

51



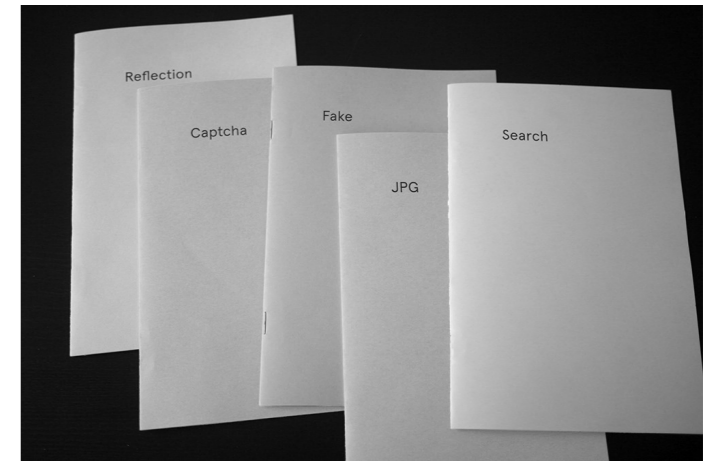
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Mona Lisa
Fraser Clark
2013



Search, Compile, Publish — Towards a New Artist's Web-to-Print Practice
Paul Soulellis

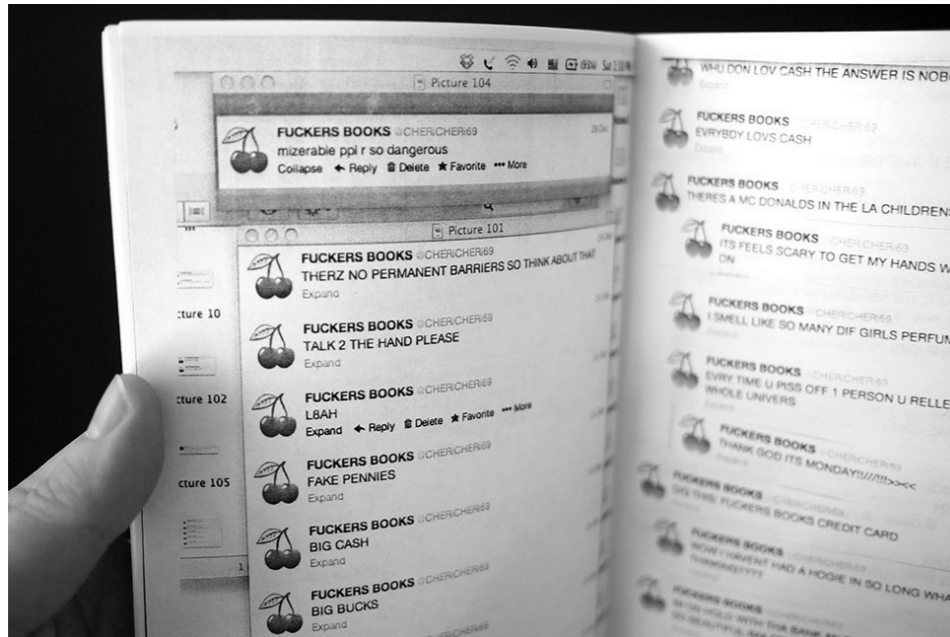
Grabbing (and scraping)



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↑ ↙
Anonymous Press
Karolis Kosas
2013



↑ ↗
TWWIT3R ZINE
Fuckers Books
2013

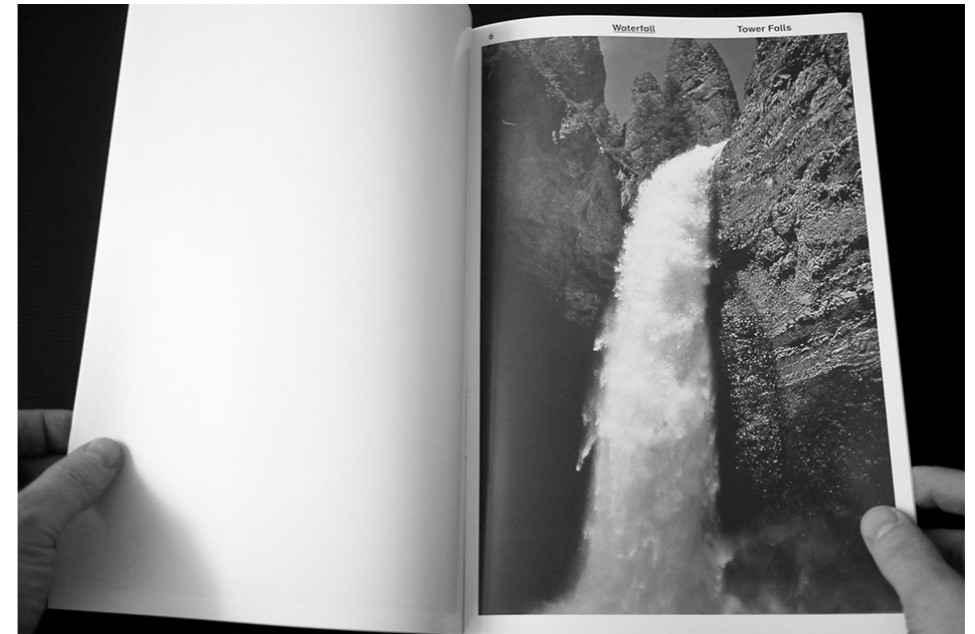


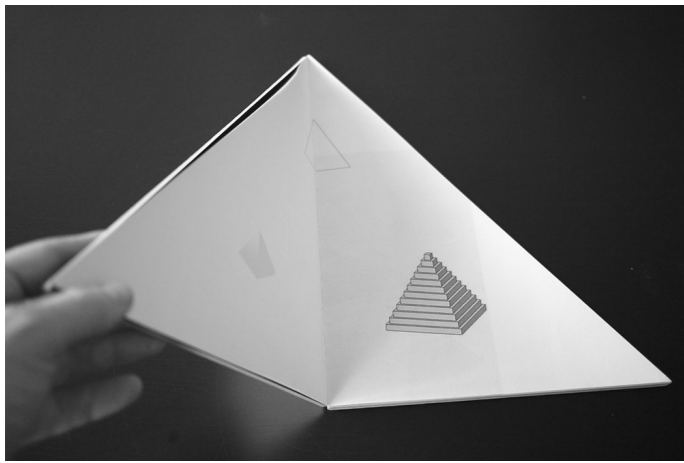
54



55

↖ ↗ →
Fist. Lobster. Waterfall
Ludovic Burel
2009





Search, Compile, Publish — Towards
a New Artist's Web-to-Print Practice
Paul Soulellis

Grabbing (and scraping)

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Enter The Pyramid
Olivier Cablat
2012

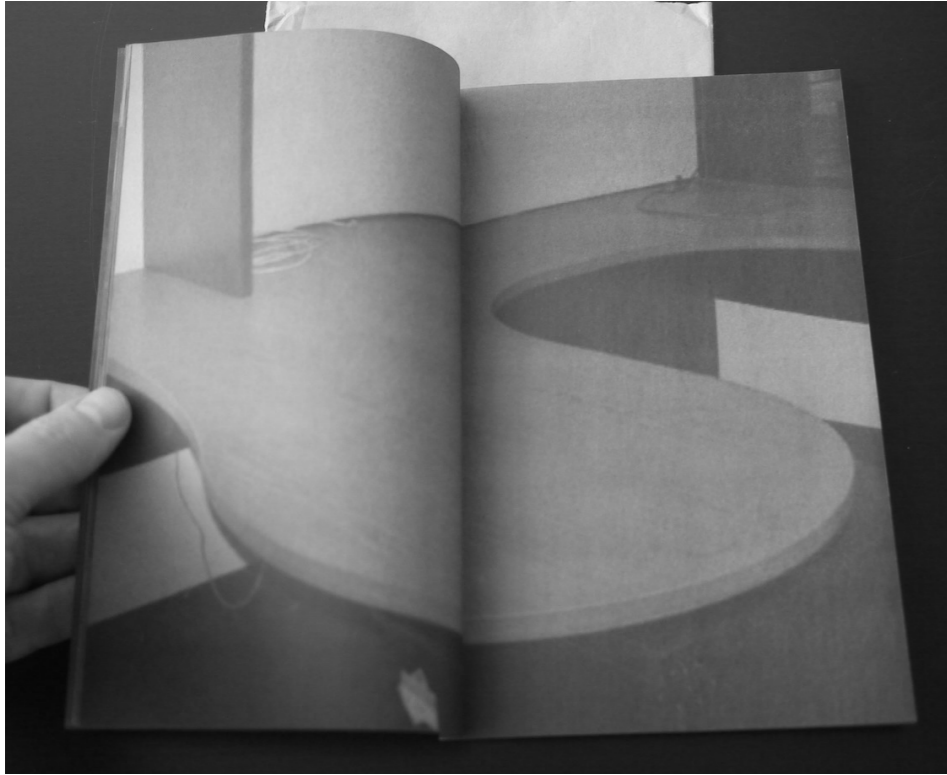
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Stripped
Paul Soulellis
2012
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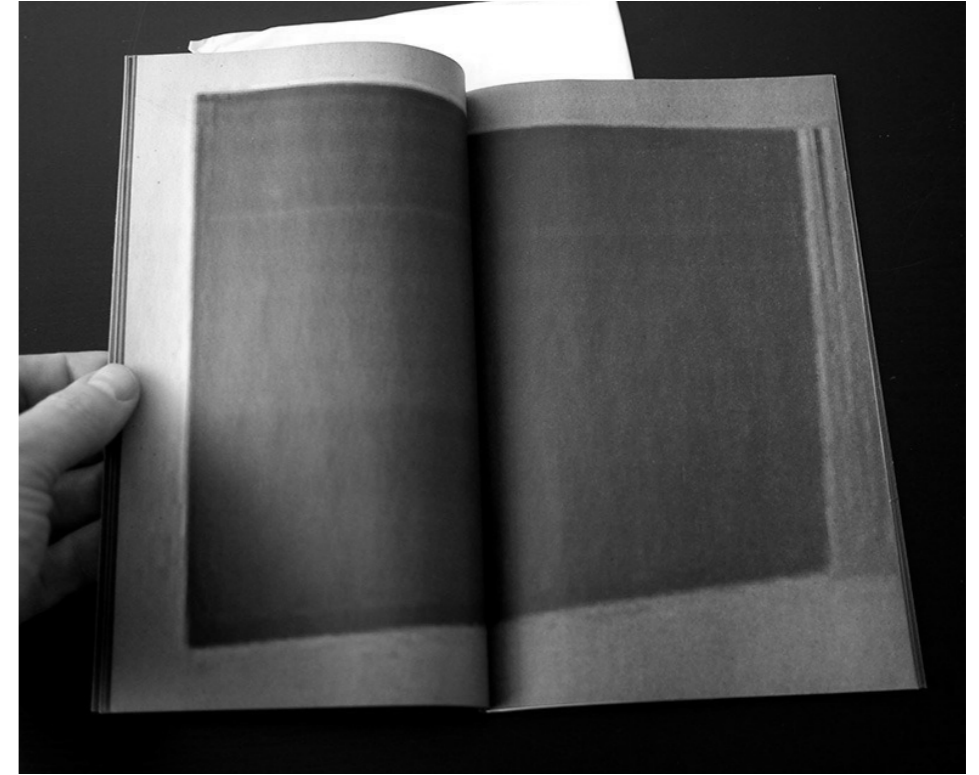


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56 Broken Kindle Screens
Silvio Lorusso, Sebastian Schmieg
2012



58

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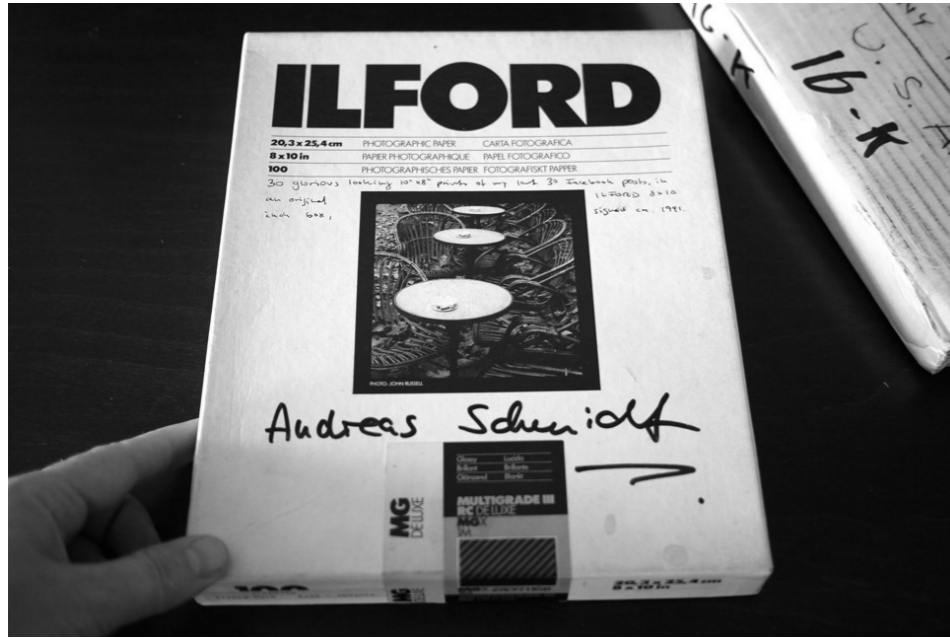




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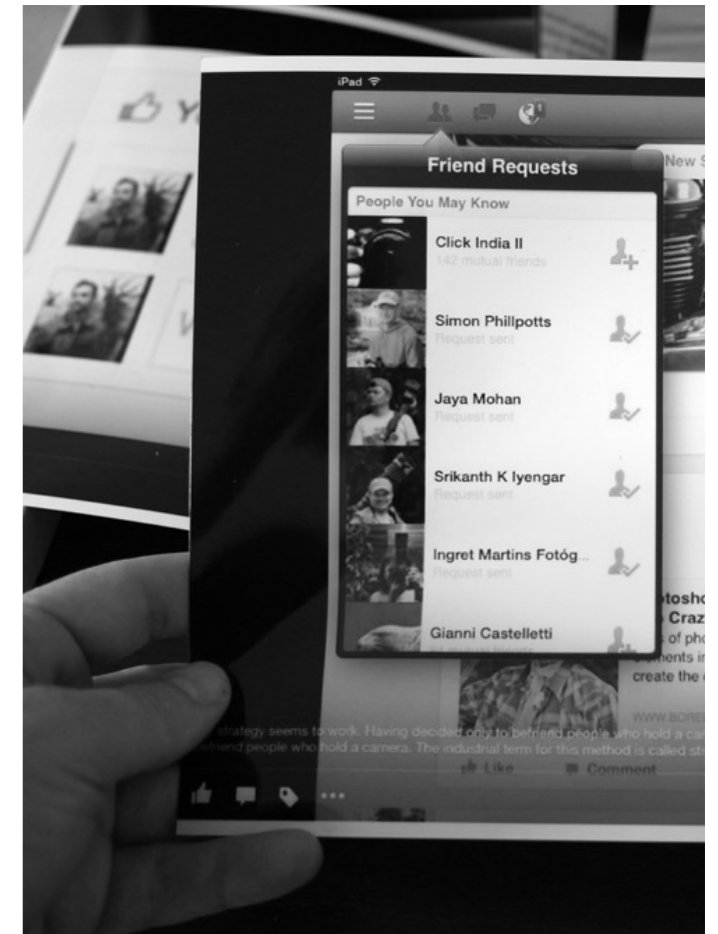
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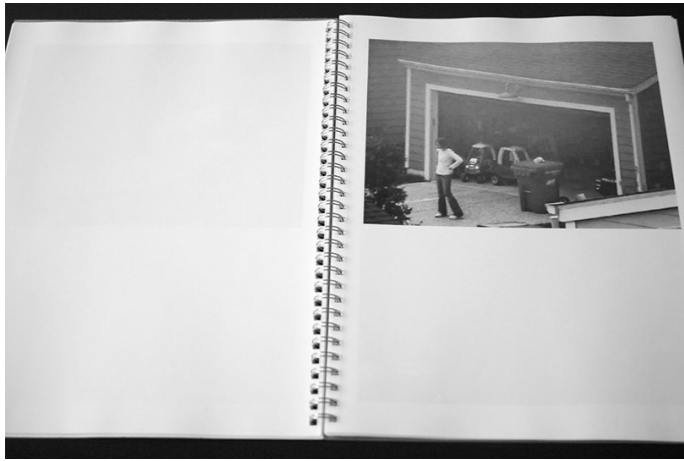
62

63



← ↶ ↷

30 Glorious Looking 10" x 8"
Prints Of My Last 30
Facebook Posts
Andreas Schmidt
2014



Search, Compile, Publish — Towards
a New Artist's Web-to-Print Practice
Paul Soulellis

Hunting



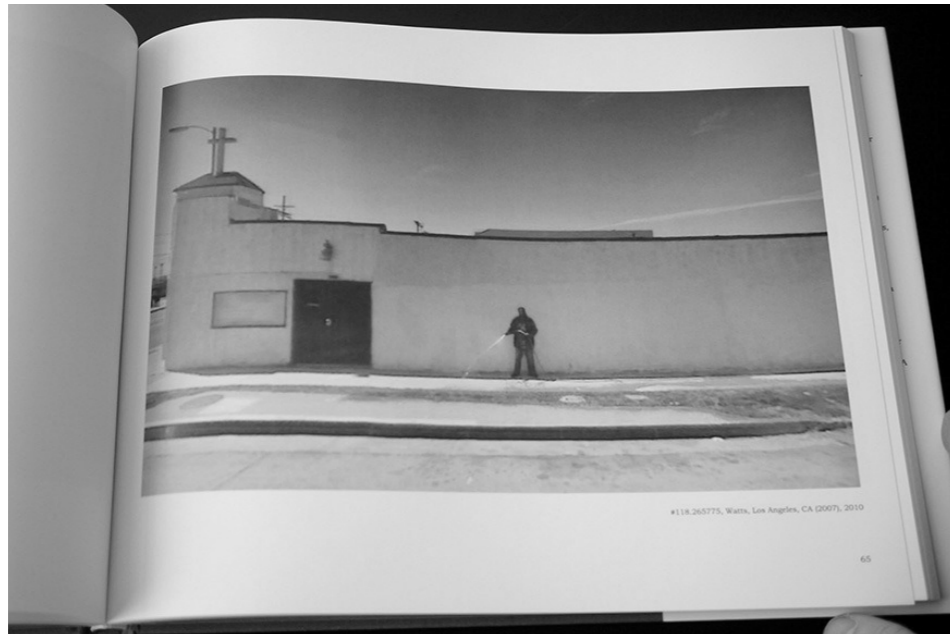
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The New Town
Andrew Hammerand
2013

64

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A New American Picture
Doug Rickard
2012
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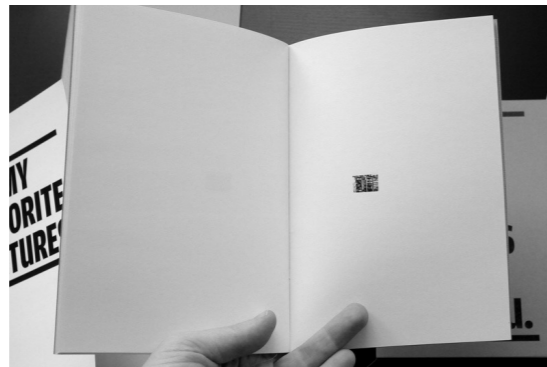
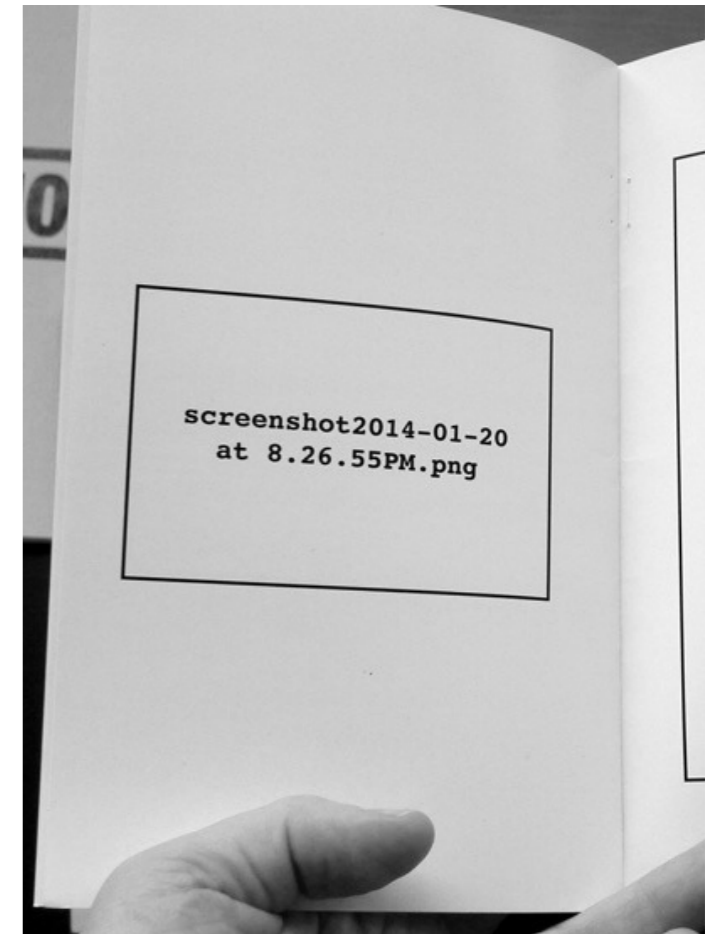
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Postcards From Google Earth
Clement Valla
2010



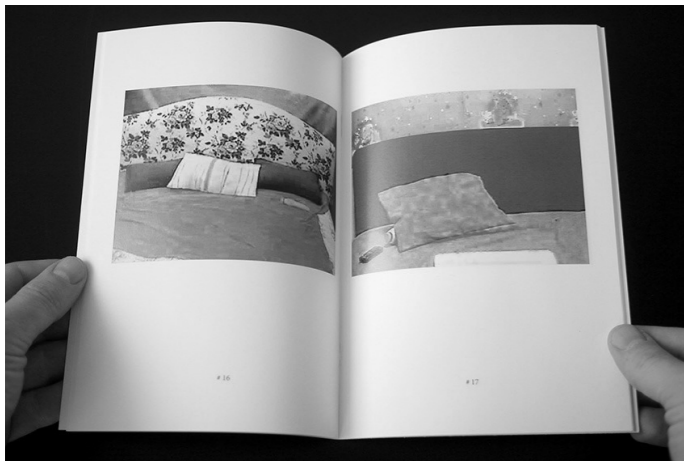
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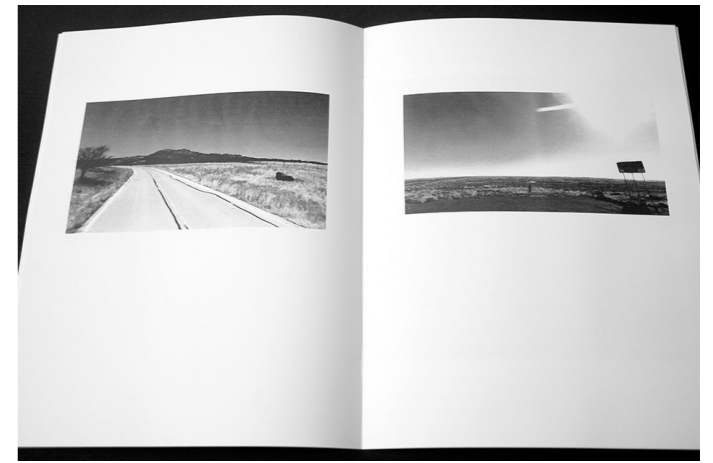
← ↶ ↷

Holiday, My Favorite Pictures,
Self-Portrait, Thumbnails,
Everyone Loves Tennis in
Malibu, Sculptures
Max Siedentopf
2013



Search, Compile, Publish — Towards
a New Artist's Web-to-Print Practice
Paul Soulellis

Hunting

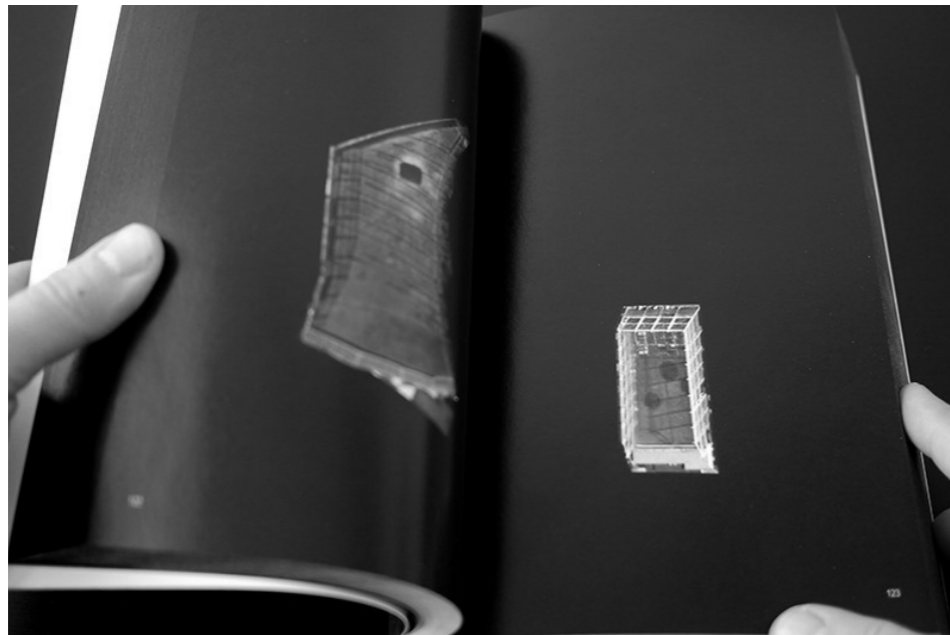


↑
Cyberspaces
Joachim Schmid
2004

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Sixteen Google Street Views
Jon Rafman
2009

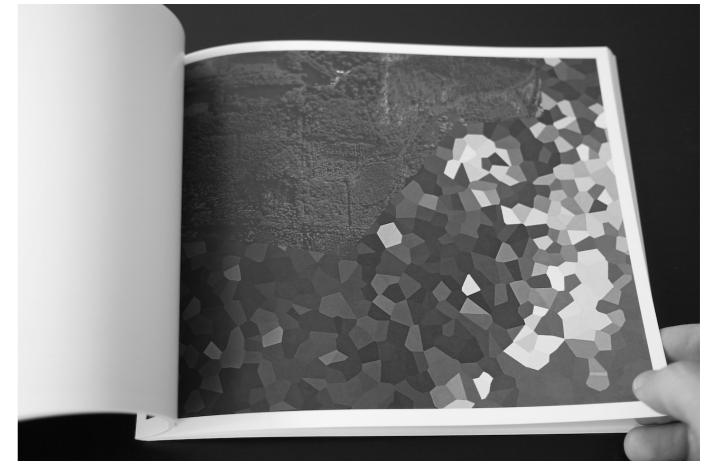
Night Greens
John Zisovici
2013
↓

The Nine Eyes Of Google
Street View
Jon Rafman
2011
↓





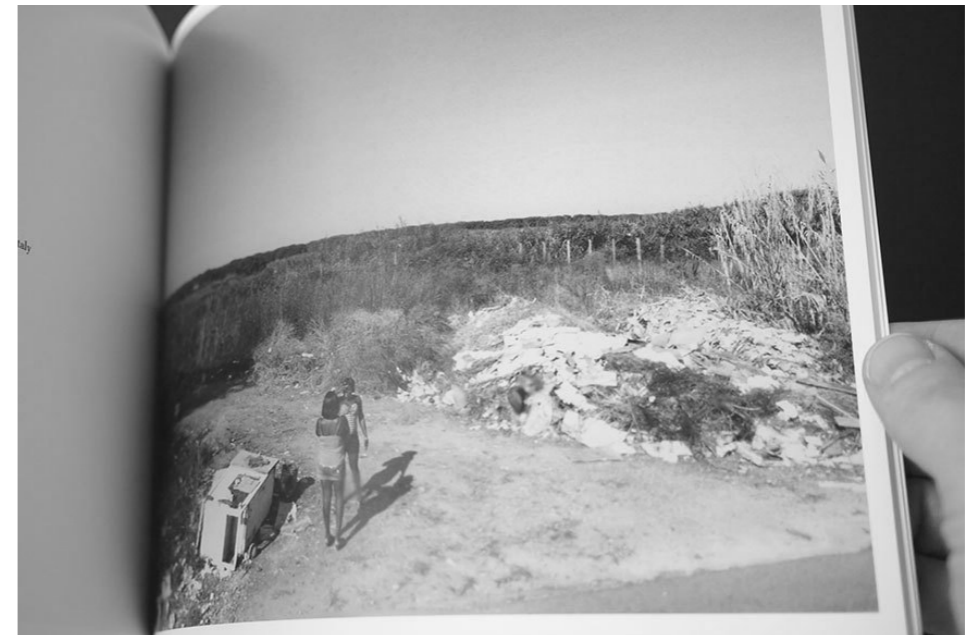
70



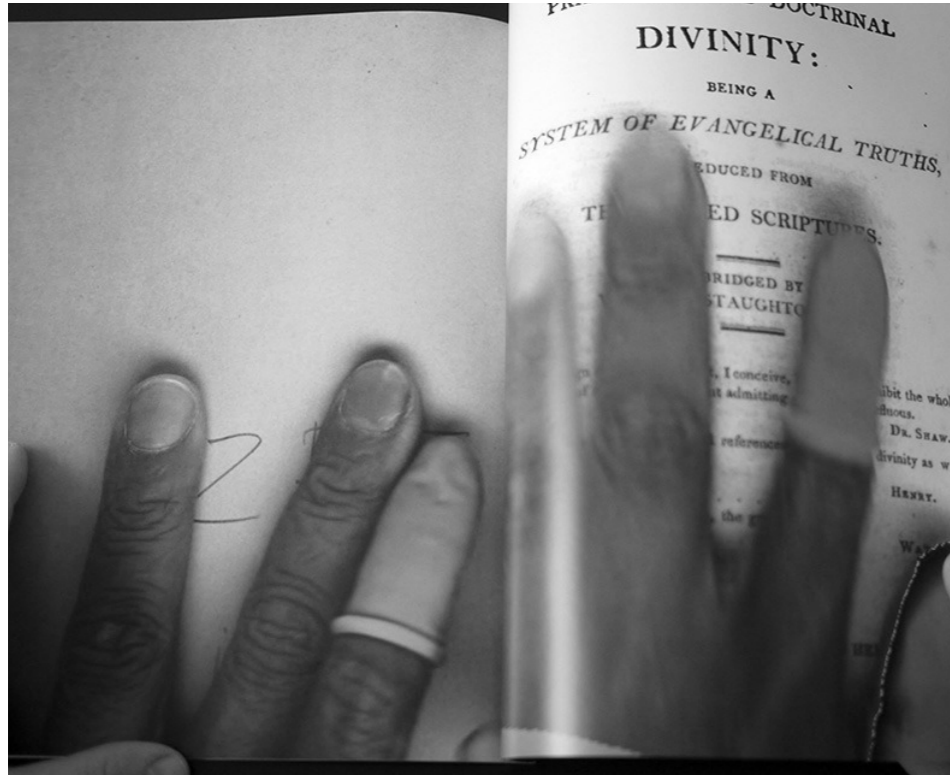
71

No Man's Land I And II
Mishka Henner
2011/12
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Dutch Landscapes
Mishka Henner
2011

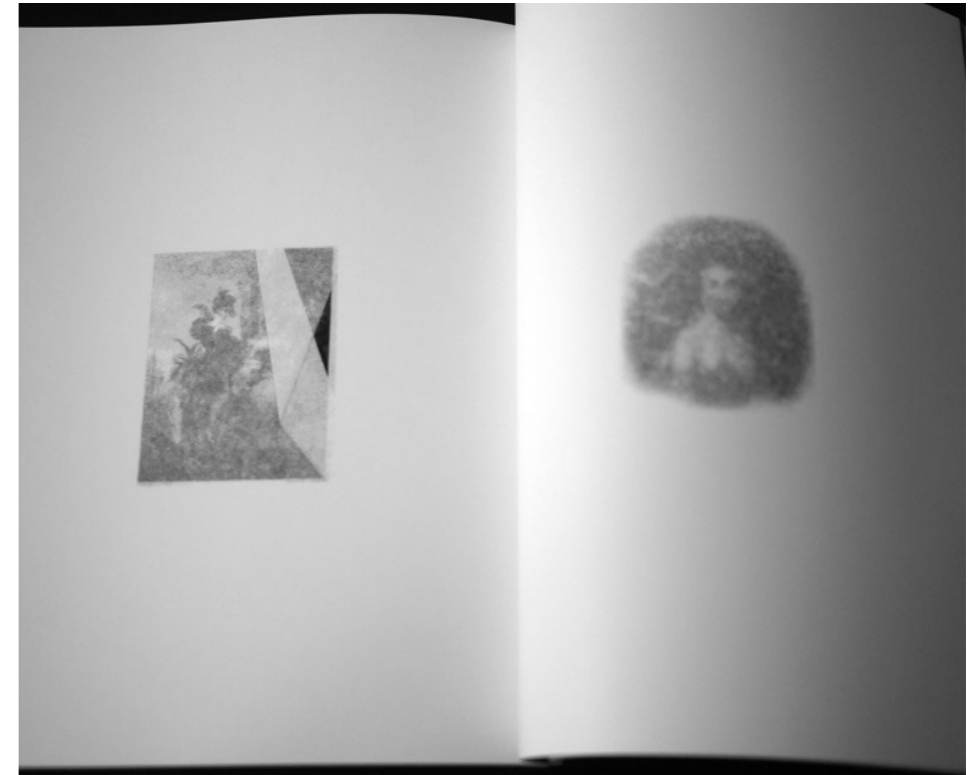


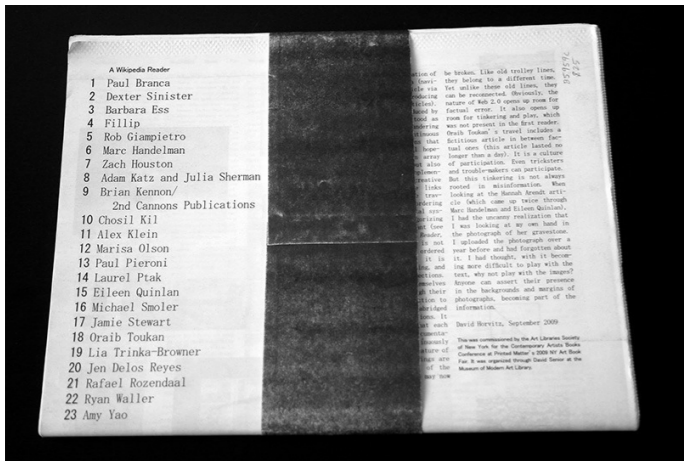
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Wanderer Books
Michael Wolf
2010



72

73





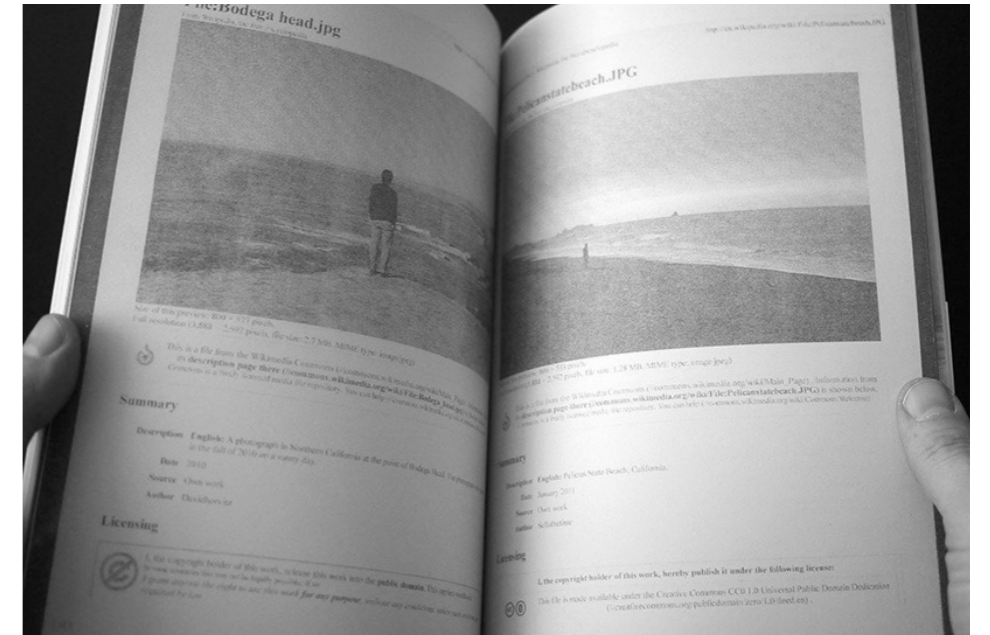
Search, Compile, Publish — Towards a New Artist's Web-to-Print Practice
Paul Soulellis

Performing

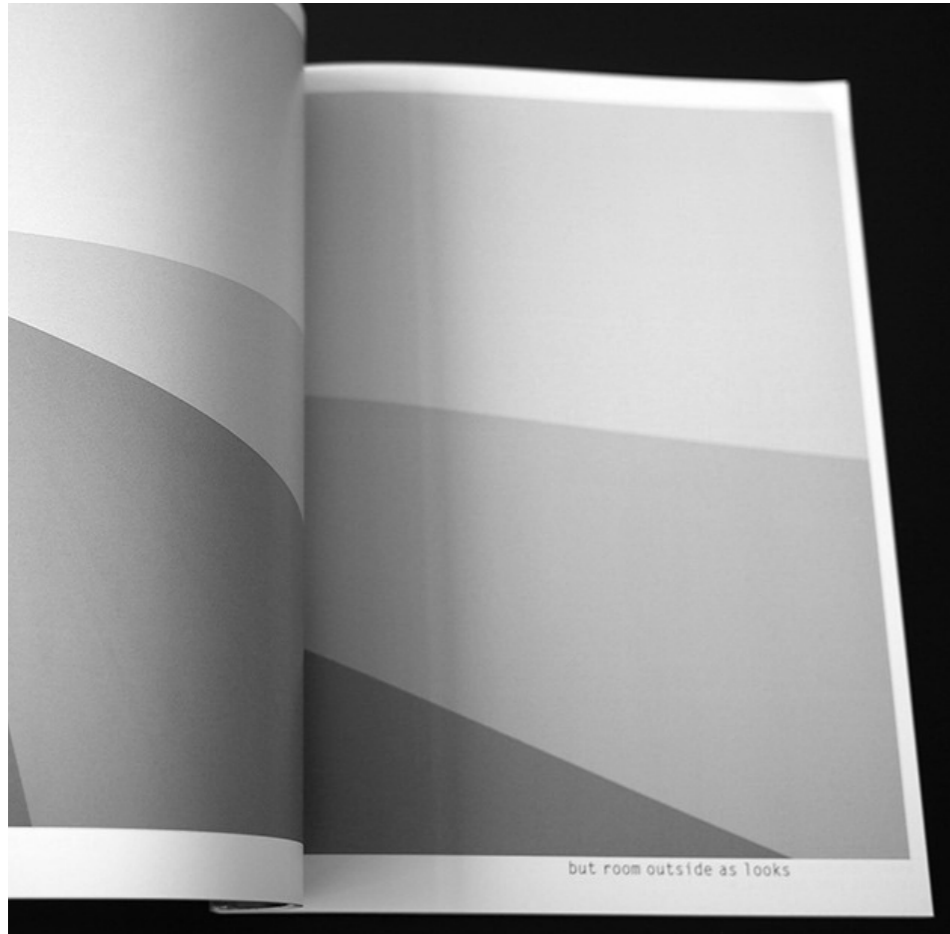
A Wikipedia Reader
David Horvitz
2009
↓ ↘

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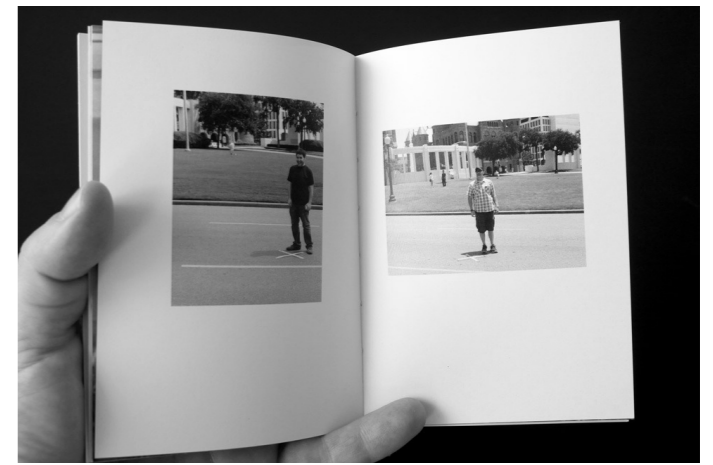


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Public Access
David Horvitz
2012



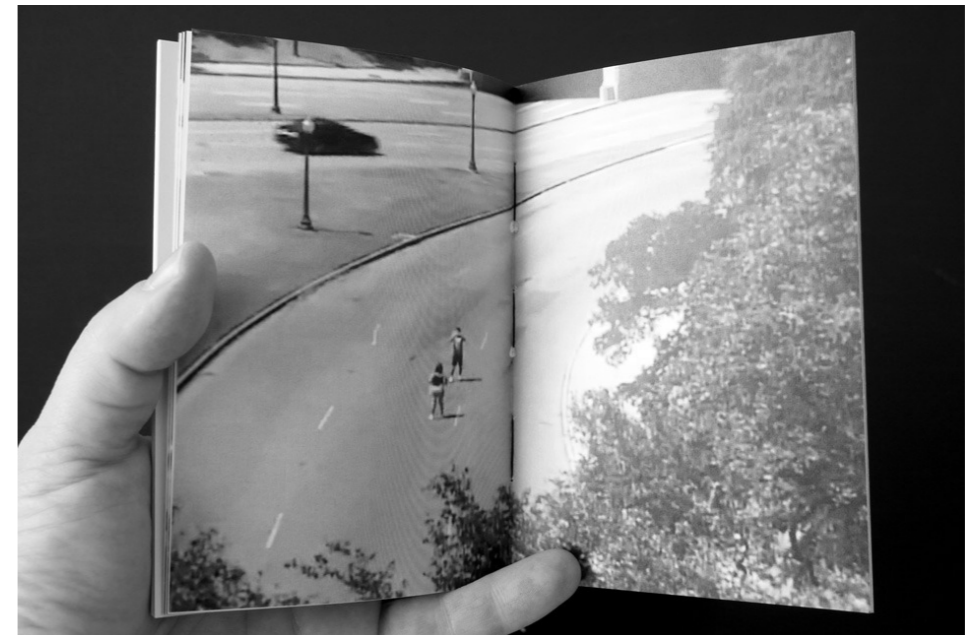
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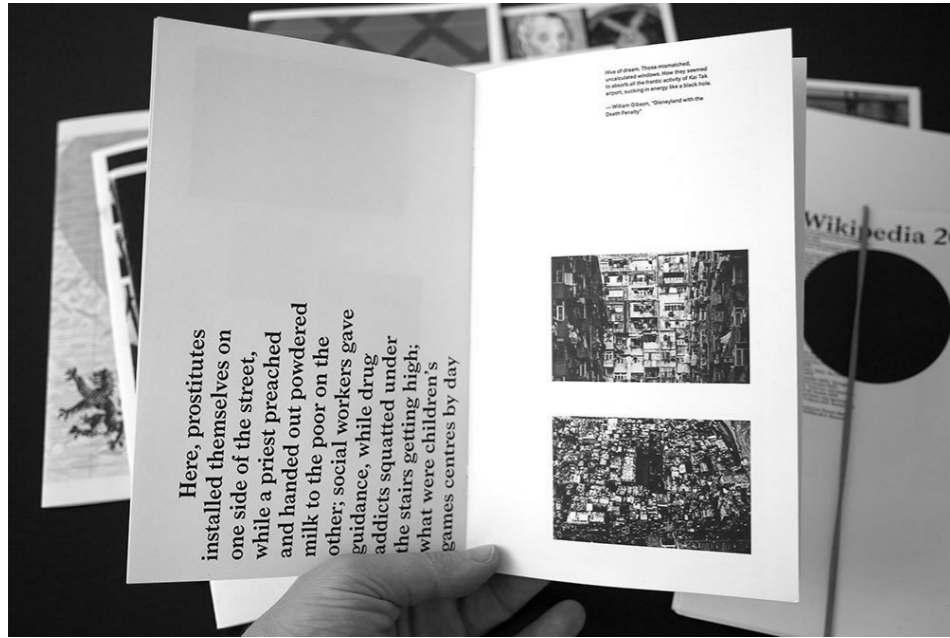
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Where Is God
Elisabeth Tonnard
2007



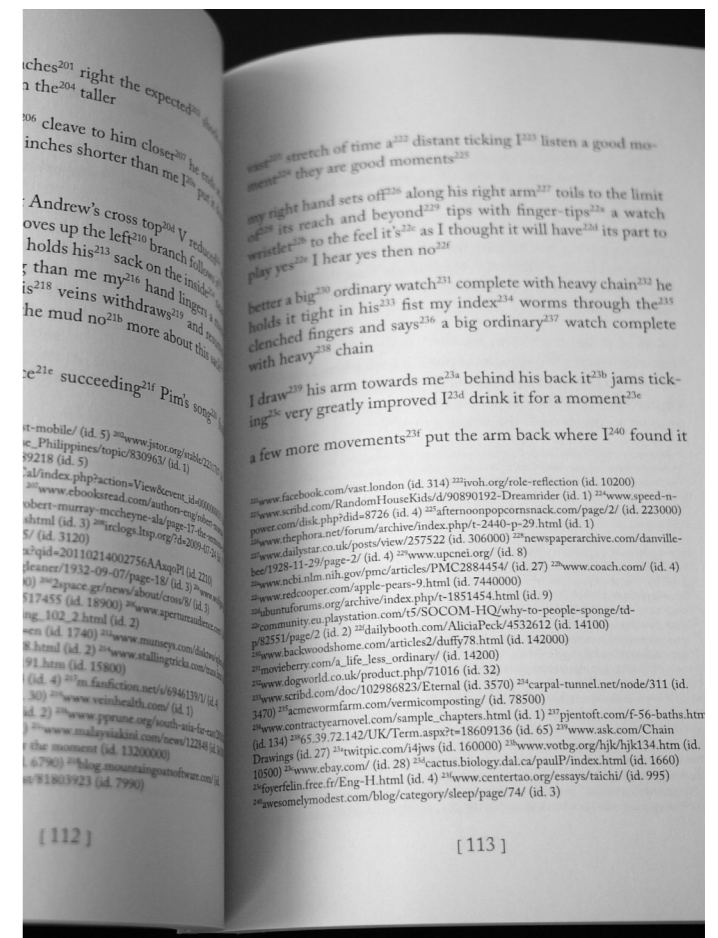
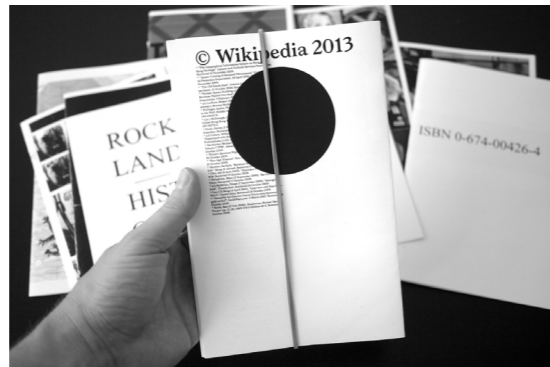
77

X Marks The Spot
Joachim Schmid
2013
↑ ↙

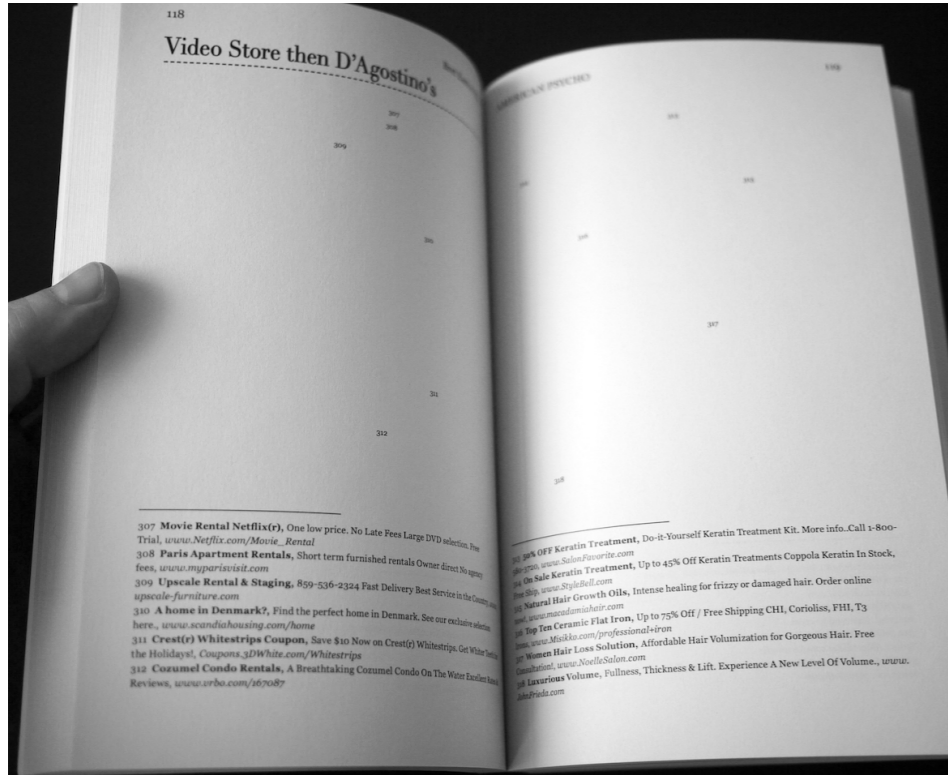




Wikipedia Random
Article Collection
Lauren Thorson
2013
↑ ↓

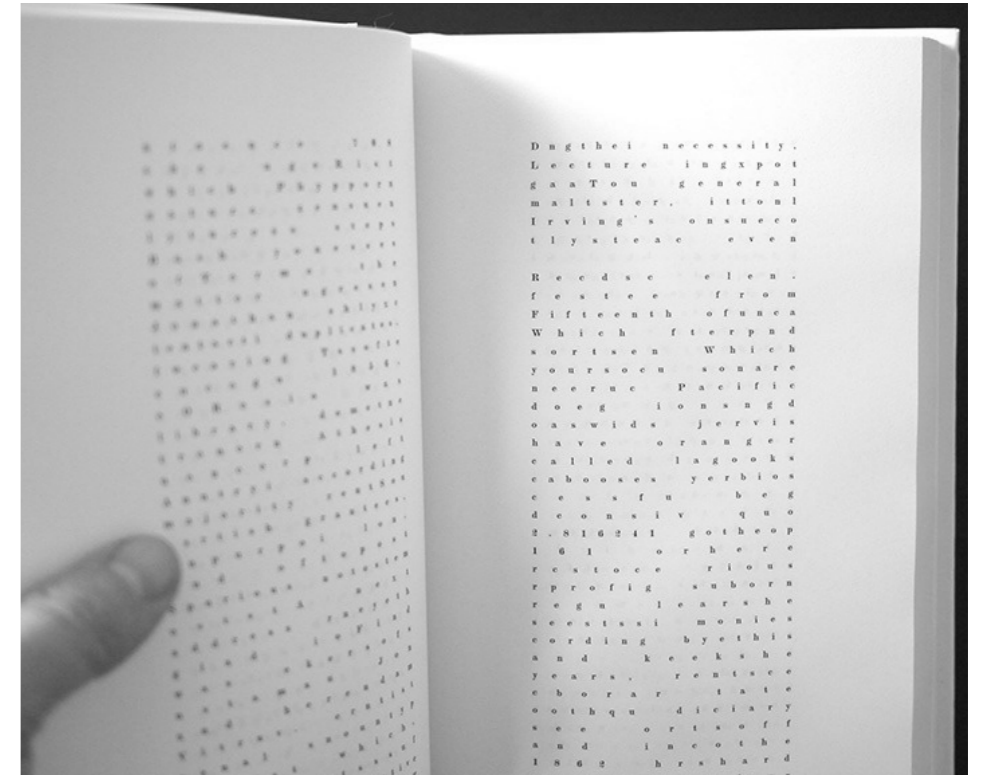


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How It Is In Common Tongues
John Cayley and Daniel C. Howe
2012



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81



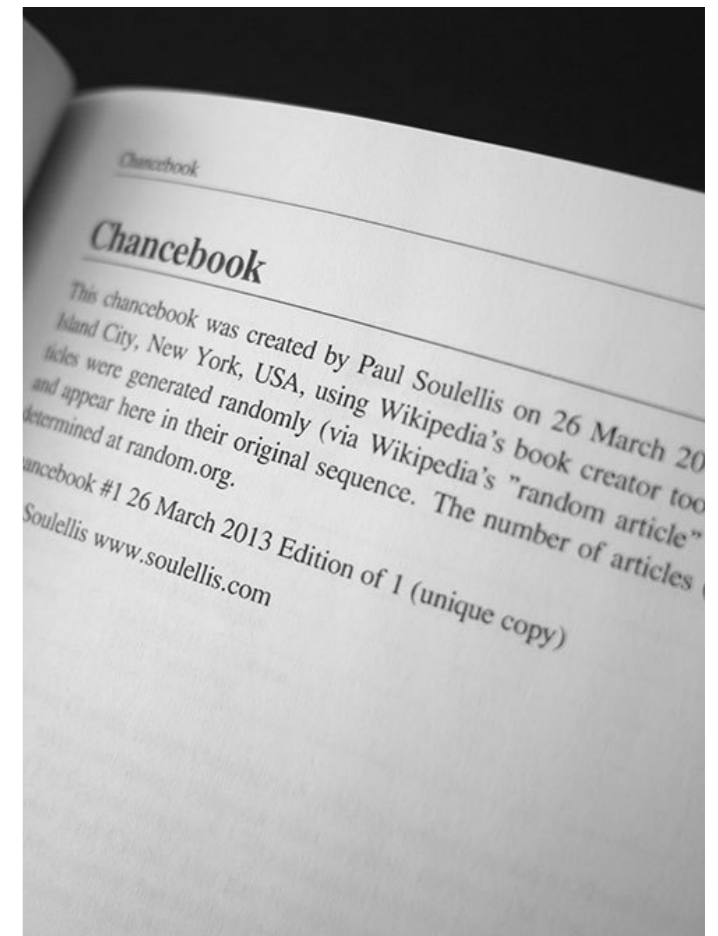
↖
American Psycho
Mimi Cabell and Jason Huff
2013

↗
2GFR24SMEZZ2XMCV15L8
X9Y38ZJ2JD25R6K4ZMAZS
LJ0GBH0WNNVRNO7GU2
MBYMNCWYB49QDK1ND
O19JONS66QMB2RCC26DG
67D187N9AGRCWK2JIHA7
E22HIG5TYMNCWYM8IO
4OJSPX11N5VNJ0 A Novel
Sean Raspet
2013



82

83



Blank on Demand
Silvio Lorusso, Giulia Ciliberto
2012
↑ ↘



↗
Chancebook #1
Paul Soulellis
2013

ALPOSTDIGIT
LISHING”“PUB
TICE)(PRAC

POSTDIGITAL
“PUBLISHING”
(PRACTICE)

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[6] Lorusso, Silvio. Post-Digital
Publishing Archive, Projects
and Artworks at the
Intersection of Publishing
and Digital Technology. At
p-dpa.net .

[7] Thoburn, Nicholas (2016)
. Anti-Book: On the Art
and Politics of Radical
Publishing . Minnesota:
The University of
Minnesota Press.

a oadbr tionno fo italdig lishingpub [6]
a broad notion of digital publishing [6]

t-digitalpos lishingpub [6]
post-digital publishing [6]

ti-bookan nda t-digitalpos lishingpub [7]
anti-book and post-digital publishing [7]

Much of the discussion around publishing is informed by a model of interpretation in which digital technology acts as the natural successor of printed matter. This model fosters a narrative of linear progress among media, according to which screen will eventually take over paper.

As a consequence, the relationship between the two is read as a form of rivalry and thus produces endless, often unconstructive, lists of pros and cons, improvements or worsenings.

This perspective doesn't take into account the dynamics of mutual arrangement and negotiation among media, including the various "backward" influences, so to say from screen back to paper. At the same time, it often tends not to dwell upon the specificities of the various typologies of artifacts that define the publishing field. Lastly, it is driven by an obsessive quest for future models, therefore the space where innovation is sought frequently corresponds to the narrow ecosystem of the newest device or platform, often transitional, that does not reflect the slower, less flashy but deeper mutations. In doing so, the universe of commonly used digital tools is often omitted from the discussion along with the analog, traditional, even retro technologies and the role they currently play.

In order to accurately define the current condition of digital publishing and to deeply comprehend its broader scope, wondering what is the best device for e-reading or what is the fate of paperbacks could be reductive.

The discourse on digital publishing should broaden its own horizons, asking whether the book itself can be considered a medium, investigating the existing relationships between the "closed" form of the printed book and the everchanging landscape of the Internet. It should find out what print has to say to digital media besides skeuomorphism, without considering digital tools as means to merely consume content. It should question how knowledge and access are affected by mass digitization initiatives.

Actually, such questions aren't new, but they are rarely addressed by designers, developers and publishers through critical designs or theoretical reflection. On the contrary, new technologies are often blindly embraced, as the capabilities

of the devices are explored with the aim of developing commercially successful products. For instance, while countless design programs are devoted to the development of iPad apps, only a few involve design and artistic strategies to analyze and communicate the implications of iTunes and its distribution model.

Whether independently or within institutional contexts, some artists and designers (a good number, but still a few in comparison to the creative industry of publishing) have grown a practice-based, speculative and often critical attitude toward publishing, whether digital or not. It's neither a self-aware current nor an avant-garde, since those people work in distinct disciplinary areas and with different aims. Sometimes their practice only accidentally deals with publishing. But their work deserve attention because it could be able to anticipate, comment and interpret the various issues that emerge at the intersection of publishing and digital technology. P-DPA aims to bring together those experiences.

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The term “post-digital” was coined by composer Kim Cascone in his essay “The Aesthetics of Failure: ‘Post-digital’ Tendencies in Contemporary Computer Music”. According to Cascone, «the revolutionary period of the digital information age has surely passed. The tendrils of digital technology have in some way touched everyone» (Cascone 2000). At least in the first world, digital technology is an integral part of our everyday life and it is consequently taken for granted. In this sense the very attribute “digital” becomes meaningless, as almost every artifact we deal with is produced, distributed, mediated or at least affected by digital means.

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The notion of post-digital was borrowed by Alessandro Ludovico (Ludovico 2012) and Florian Cramer (Cramer 2012) to be specifically applied to publishing. While this field hasn't yet profoundly undergone the radical mutations implied by digital technology, neo-analog means of production, such as the risograph or letterpress printing (and the style that characterizes them are restored both by independents artists or designers and big publishers because «they compensate for deficiencies of digital files — deficiencies that are both aesthetic and social, since tangible media are means of face-to-face interpersonal exchange» (Cramer 2013). Frequently the resultant artifacts are deeply informed by digitality anyway, either as a source of content or as a reference model. When digital is the default, analog becomes a firm choice that, while is not necessarily a form of opposition, often derives from the awareness of the specificities of both possibilities.

The “post-digital mindset” allows a more inclusive research framework of the publishing field, in which e-books and book-apps aren't the only object of study and where “old” and “new” media are not in a natural opposition. In the field of post-digital publishing, printed matter doesn't belong to the past and digital tools are not inherently innovative. Artists and designers seamlessly shift between blogs and stapled zines.

The digital environment is at the same time a source of inspiration, a repository of raw data to filter and organize, a channel for

collaboration or dissemination, a space for exposure, a mix of communication modes to exploit, a set of tools to tweak or to autonomously build. It is not an easy task to identify and analyze the various aspects of such a broad context. Likewise, it takes a big effort to trace back the many ways in which digital technology addresses the specificities of traditional media and processes of publishing.

Through a thematic approach to collection and archiving, P-DPA investigates experimental publishing in order to highlight aspects that specifically deal with digital technology and analog means, especially when they are not blatantly apparent.

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Anti-Book:
On the Art and Politics of
Radical Publishing

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ANTI-BOOK AND POST-DIGITAL
PUBLISHING

A contemporary account of the many materialities of political publishing needs a way of handling the relationship between print and digital media; this is where *Anti-Book* finds its third broad domain of intervention. If colonialism provides an opportunity to relativize the normative standard of the book, digital networked media institute a more direct and pervasive decentering, suggesting, as Jay David Bolter puts it in *Writing Space*, that “like the specializations on outer branches of an evolutionary tree, the printed book is an extreme form of writing, not the norm.” [1] In the early enthusiasm for digital media, Bolter and others foresaw that new network functionalities — notably, the branching and nonlinear structure of hypertext — might serve to realize the potential of avant-garde and experimental writing and publishing, to realize the “antibook,” as he describes it, where “antibooks ... disrupt our notion of how a book should look and behave before our eyes.” [2] For Bolter, this realization would simultaneously remove the critical ground from predigital experimentation, as the (now digital) medium shifts from resistant object of critique to one of facilitation. Take Derrida’s work of textual and graphic experimentation, *Glas* (which reads Hegel in relation with autobiographical writing by Jean Genet), as Bolter describes it:

In the printed Glas the network of relationships that normally remains hidden beneath the printed page has emerged and overwhelmed the orderly presentation we expect of a printed book. In the World Wide Web, on the other hand, the many relationships among textual elements simply float to the surface. An antibook like Glas would no longer be an antibook in an electronic edition, because it would work with rather than against the grain of its medium. [3]

[1] David Jay Bolter, *Writing Space: The Computer, Hypertext, and the History of Writing* (Hillside, N.J.: Lawrence Erlbaum Associates, 1991), 4.

[2] *Ibid.*, 116.

[3] *Ibid.*, 117.

It is of course true that digital and online media dramatically alter the field of writing and publishing, but, twenty-five years after *Writing Space*, it is apparent that our situation is less one of the realization and suppression of the anti-book in digital hypertext than one where the anti-book finds new conditions within which to gain far-reaching traction, to move beyond hitherto established confines. Contrary to the picture of a rhizomatic release of digital hypertext, core aspects of the object of the anti-book’s critique have come to proliferate, innovate, and intensify at quite some pace. Established mechanisms of the author-function and the capitalist forms of publishing have a renewed vigor in contemporary textual media, and these are interlaced with

born-digital instruments of capture and accumulation, not least of which, ironically, is the linking function of digital hypertext, as we have seen in the case of social media. Concurrently, the effect of digital media to decenter the printed book, loosening much textual media from the hold of the data management function, has freed up its other capacities, which serve as the terrain for a renewal of the critical sensibility of the anti-book, now less bound to specialist fields and potentially released across the broad terrain of writing and publishing. This terrain, then, is at once transformed by digital media and includes print media as an integral part.

It is this last point that I focus on here, for it is key to understanding how this book approaches the contemporary relation between print and digital media. To do so, I will push against another figure that Bolter employs to characterize the changed status of the book: “the late age of print.” [4] It is an expression more recently taken up by Striphas to characterize the condition I have been describing where the preeminence of the book has waned, relative to the wealth and diversity of digital audiovisual and textual media (“it seems difficult to imagine books shouldering much world- historical responsibility any more”), at the same time as it has been transformed by digital technology and the broader changes in production and consumption associated with post-Fordism. [5] Striphas has a keen sense of the intermediation of communicative media, but the characterization of this condition as “the late age of print” is unhelpful. It conveys a strong impression that we are living through a period of epochal change from one media form to another, a “period of transition,” as Striphas has it, the “passing” of the “Age of Print” for Hayles. [6] No doubt there is considerable truth in this naming of the contemporary as a particularly transformative period in the movement from paper to pixel; as I write, e-books, only a credible mass phenomenon since 2007, have overtaken print books in sales volume. [7] And yet such temporal framing does a disservice to the content of this body of research, for it channels the complexity of contemporary media forms into a linear narrative of change, and one that downplays the significance in the present of the medium that is deemed to be passing.

Anti-Book parts with this linear characterization of the passing of the printed book and proceeds instead on the understanding that *the digital future of the book has already arrived*, wherein print media has a fully contemporary place. We live in a time of “post-digital” publishing, as Alessandro Ludovico and Florian Cramer have characterized the situation, where digital technology has transformed all aspects of media such that, in Kim Cascone’s words, its

[4] Ibid., 2.

[5] Striphas, *Late Age of Print*, 2

[6] Ibid., 3. Hayles, *How We Think*, 2.

[7] In August 2012, Amazon reported that e-book sales outstripped hardback and paperback books combined, at a ratio of 114 to 100. See guardian.co.uk/books/2012/aug/06/amazon-kindle-ebook-sales-overtake-print.

[8] Kim Cascone, cited in Florian Cramer, afterword to *Post-Digital Print: The Mutation of Publishing since 1894*, by Alessandro Ludovico (Eindhoven, Netherlands: Onomatopoe, 2012), 162. Cramer credits Cascone with coining the term post-digital, with regard to glitch aesthetics in electronic music.

“revolutionary period . . . has surely passed.” [8] The post-digital “describes the messy state of media, arts and design *after* their digitization (or at least the digitization of crucial aspects of the channels through which they are communicated).” [9] Not only have smart phones, tablet computers, e-books, e-mail, and social media become ubiquitous and thoroughly enmeshed with social life but online digital media have also colonized their prehistory, *as print itself has become digital*, paper publishing now traversed and articulated by the most advanced technologies, infrastructures, and compositional paradigms. Cramer offers an illuminating image, if a little tongue in cheek, to convey the character of this transformation:

“Paper publishing has largely become a form of Digital Rights Management for delivering PDF files in a file sharing – resistant format (but also, a more stable form of long-term storage of digital content than electronic storage).” [10] To make the more general case, today’s printed books are composed, manufactured, marketed, distributed, reviewed, and debated through media that are thoroughly digital in their structure. And so printed books are not the last vestiges of predigital publishing but are forms of “post-digital print,” where the relationship between print and digital media is no longer characterized by linear succession but is one of hybridization, a complex and variegated set of publishing relations and forms, at once interlaced and specific.

[9] Florian Cramer, “What Is Post-Digital?,” *Post-Digital Research* 3, no. 1 (2014), aprja.net/?p=1318.

[10] Florian Cramer, “Post-Digital Writing,” *Electronic Book Review*, 2012, electronicbookreview.com/thread/electropoetics/postal.

[11] Murphie, “Ghosted Publics,” 105.

With this hybridization comes a loosening of the boundaries and authority of the book, which is now only one form among an interlaced and variable set of media forms, where publishing has come to infuse social life and is increasingly indistinct from writing and mediated communication more generally conceived. Murphie is right, then, to describe *mutability* rather than postprint as the essence of publishing today: “Publishing is now a generative, recursive network of events, with multiple forms of feedback into the ongoing mutation of forms of publishing themselves.” [11]

One of the benefits that accrue from approaching the field of publishing in this way, rather than as a linear succession of mediums, is that it encourages attention to the potential contemporaneity of *any* medium, “old” and “new” alike. Such is apparent in a recent Banner Repeater pamphlet by Nina Power, *A Pamphlet about a Book about a Blog*, which discusses her experience of publishing a printed book, *One Dimensional Woman*, from writings that had

first appeared on her blog, *Infinite Thought*. The title and published form of this work reverse the linear order of the “new,” so serving to bring blog, book, and pamphlet into contemporaneous juxtaposition. Power’s text has the same post-digital effect in considering the difference *and* interplay of these mediums while addressing the changes that digital media has introduced into writing and the difficulties and experimental possibilities that arise when writing migrates across them: “if making the transition from blogs to books was problematic, making it from Twitter will be even more interesting.” [12]

Older media can in these ways, hence, be fully part of the present, but they can also have a structuring effect on the *future*. As Simon Worthington puts it, “there is already a lot of ‘book’ in the digital — the vector of incursion moving as much from print to digital as it does from the digital into our notionally stable, ‘enshrined’ cultural form of the book.” [13] Certainly the book has been decentered from its dominant cultural position in the realm of textual media (though newspapers, job printing, documents, and so forth assured that it was never *quantitatively* dominant), and yet, as Derrida has it, in the new media environment, the “figures” of the book continue to impact the digital field. He makes a good deal of the inherently figural quality of the book, where a series of metonymies shift *biblion*, the Ancient Greek root of “book,” meaning a *support* for writing (itself derived from *biblos*, the internal bark of the papyrus), toward *writing* in general, and only then to *book*, whose artifactual form was originally not the codex but the scroll. I have counseled already, following Mignolo, against seeing the book as a linear progression of forms of textual inscription; the modern codex *is* a distinct and particular entity, compared, say, to the scroll. But the history of the figures of the book suggests, all the same, that there is slippage and mutation in the physical forms that count as books. And so there is nothing fundamentally ersatz about an electronic reading device being called a “book.” Electronic readers may well come to shrug off the book as a means of self-classification, but they may not, given all the features of books and book cultures with which they are interlaced; the book as unit of discourse, pagination, bodily habits of reading, page turning, bookmarking, the prescribed rhythm of reading, modes of legitimation, the author-function, proprietary regimes — all these are prolonged into the terrain of the e-book and digital publishing.

I do not mean to suggest that such interplay between print and digital media is an inherent good. In the face of the digital restructuring of textual media, Derrida seems to take comfort from the living on of the book (where “we can trust in the conservative, even fetishistic impulse” to “sanctify — sanctify

[12] Nina Power, *A Pamphlet about a Book about a Blog* (London: Banner Repeater, 2012).

[13] Simon Worthington, “Danger: Contains Books,” in *I Read Where I Am: Exploring New Information Cultures*, ed. Mieke Gerritzen, Geert Lovink, and Minke Kampman (Amsterdam: Valiz, 2011), 174.

[14] Jacques Derrida, *Paper Machine*, trans. Rachel Bowlby (Stanford, Calif.: Stanford University Press, 2005), 17.

[15] Johanna Drucker, *SpecLab Digital Aesthetics and Projects in Speculative Computing* (Chicago: University of Chicago Press, 2009), 166.

[16] Jerome McGann, *Radiant Textuality: Literature after the World Wide Web* (New York: Palgrave, 2001), 184.

[17] See, Johanna Drucker, “Diagrammatic Writing,” *New Formations* 78 (2013): 83–101, and Drucker, *SpecLab*.

[18] Gary Hall, “The Unbound Book: Academic Publishing in the Age of the Infinite Archive,” *Journal of Visual Culture* 12, no. 3 (2013): 497.

[19] p-dpa.net.

[20] Silvio Lorusso, *Post-Digital Publishing Archive*, ia600509.us.archive.org/15/items/p-dpa_booklet/p-dpa_booklet.pdf.

[21] Cramer, “What Is Post-Digital?”

once again — the book, the aura of culture or cult of the book”), whereas an anti-book orientation would be more critical, for which Johanna Drucker’s research is instructive. [14] By contrast to Bolter’s notion that digital hypertext is the *realization* of the aesthetic promise of experimental print, Drucker argues compellingly that the aesthetic potential of digital text has in fact been *hidebound* to the clichéd and reductive iconography of the book that abounds in culture, with “too much emphasis on formal replication of layout, graphic, and physical features and too little analysis of how those features affect the book’s function.” [15] It results in aesthetic forms and design applications that are often *less* complex and dynamic than the three-dimensional object of the codex, the branching structure of hypertext contrasting less than favorably to the “n-dimensional” reading of the printed page, as Jerome McGann has described the “multivariate” potential of the page for multiple, layered, and discontinuous meanings and semiotic interactions. [16] Drucker calls instead for a “diagrammatic writing” of new textual mediums and semantic effects that is truly responsive to the spatial and graphic potential of fungible electronic environments, a move that would break the conservative hold of book iconology on digital media while allowing books to continue their work of experimentation, apart and, no doubt, in interplay with digital diagrammatic writing. [17] Again, we see here the post-digital difference and interplay of mediums in their specificity, which Drucker embodies in her own practice as researcher and practitioner in both the digital realms of speculative computing and printed artists’ books. Other compelling experiments in this post-digital terrain include work on “hybrid publishing” and the “unbound book” at centers like Leuphana University’s Hybrid Publishing Lab, Amsterdam’s Institute of Network Cultures, and Coventry University’s Centre for Disruptive Media, where the unbound book, as Gary Hall describes it, develops “the book as something that is not fixed, stable and unified, with definite limits and clear material edges, but as liquid and living, open to being continually and collaboratively written, edited, annotated, critiqued, updated, shared, supplemented, revised, reordered, reiterated and reimagined.” [18] I should mention also the astonishing resource of experimental post-digital publishing curated by Silvio Lorusso, the Post-Digital Publishing Archive. [19]

I take up some of these themes of hybrid and unbound publishing with regard to magazine form, but this book is more strongly informed by a different aspect of the post-digital. Here the post-digital signifies a critical distance to digital media and its commercially induced pull of the “new,” what Lorusso calls “an obsessive quest for future models,” where the space that experimentation and innovation is sought “frequently corresponds to

the narrow ecosystem of the newest device or platform.” [20] In this sense, with Cramer again, “the term ‘post-digital’ can be used to describe either a contemporary disenchantment with digital information systems and media gadgets, or a period in which our fascination with these systems and gadgets has become historical”. [21] Regarding the presence of print in post-digital publishing, it is not, for example, a revival of mimeographed zines but “zines that become anti-blogs,” even as zines are at the same time transformed by the ethical and organizational conventions of online and open source cultures. [22] This is a feature of the considerable interest in print publications that has accompanied the expansion of digital media, where the post-digital is characterized by an experimental focus on the materialities, aesthetics, and properties of printed media. There is a historical dimension to it, apparent in high-profile exhibitions in London, for example, on the dissident Surrealist journal *Documents* at the Hayward Gallery in 2006 (where the *journal* took center stage rather than the movement), Futurist and avant-garde books at the British Library in 2007–8, and bookworks at the Victoria and Albert Museum in 2008. This historical focus might have suggested a last gasp of interest in print publishing, its specific qualities becoming visible at the moment of its demise, had it not been accompanied by a burgeoning practitioner field of small-scale print publishing — in art and critical theory circles but also in more overtly political scenes. Examples of the latter include *STRIKE! Magazine* (2012–), which has the rare distinction of being the last paper newspaper in Fleet Street, London’s traditional home of the print industry; *LIES: A Journal of Materialist Feminism*, a queer and antiracist project framed compellingly as “a communist journal against communists”; *Letters: An Anti-Political Communist Journal* (2007–), experimental in both content and form; *Chto Delat?* (2003–), newspaper of the Russian art and activism group of the same name; and *Tiempo Muerto* (2012–), an anarchist arts and letters newspaper from Mexico City. This realm of print publishing is also sustained by a wealth of small press and self-publishers’ fairs and centers. To name a handful of these with which I am familiar, London’s Publish and Be Damned, DIY Cultures, Small Publishers Fair, London Art Book Fair, the London Anarchist Bookfair, New York’s NY Art Book Fair, and bookwork centers like Minnesota’s Open Book; New York’s Printed Matter and Franklin Furnace; and London’s bookartbookshop, Book Works, London Centre for Book Arts, and Banner Repeater. [23]

In the post-digital manner that I have been describing, such contemporary print projects tend to be highly attentive to the particular aesthetics and social relations of printed matter, holding a critical and reflexive distance from

[22] Cramer, “Post-Digital Writing”.

[23] These fairs and institutions have all been established since 2000, with the exception of the *London Anarchist Bookfair*, first held in 1983; *Book Works*, established in 1984; *Franklin Furnace*, established by Martha Wilson in 1976; and *Printed Matter*, founded by Lucy Lippard, Sol LeWitt, and others in 1976.

digital and online media, while also utilizing digital capacities. For instance, while the Chto Delat? group publish online, they see the organizational, social, and sensory qualities and effects of the printed newspaper — a Russian and English bilingual publication in print runs of one thousand to nine thousand, distributed for free at exhibitions and political events — as a key dimension of their practice. Or take the small press AND Publishing (2009–), which focuses on the aesthetic and political capacities of the print technology of print on demand, whose digital capacities enable the publication of printed artists’ books “without having to compromise and conform [to] the conventions of a mass market.” [24] And a number of small press publishers employ open source business models where books are simultaneously available as purchasable hard copy and free downloadable e-pubs, as is the case with Open Humanities Press, Punctum Books, re.press, Minor Compositions, and Open Book Publishers.

No doubt there are reactionary elements at play in contemporary print scenes, of a future-canceling “retro” culture, and class dynamics also, what Jess Baines describes as a striving for social distinction through technical specialism and aesthetic rarity, as posited against the perceived plebian accessibility of digital and online media. [25] But my thesis is that burgeoning cultures of print also carry a post-digital sensibility, where paper, pixel, and critique of media form open out into a complex field of publishing potential unconstrained by the depoliticized fixation of the technological “new”. Let me stress that in no sense do I aim to map this field, which is developing in numerous exciting directions that I have not addressed here. The contribution made by *Anti-Book* to the contemporary field of post-digital publishing is to introduce and extend specifically communist problematics as they pertain to the many materialities of text.

Anti-Book carries a post-digital sensibility, then, with explorations of paper and print publishing taking a dominant place (...). My point in approaching these with a post-digital eye is not to say that differences of media history and sociopolitical conjuncture are now collapsed by the post-digital condition, as if these works have been made wholly contemporary. Rather, their salience is as historical instances of experimental material text that indicate alternative trajectories through the largely text-bound history of political textual media. These trajectories in part become visible because of the perceptivities that are opened by digital media, which, as Derrida put it, might “liberate our reading for a retrospective exploration of the past resources of paper, for its *previously* multimedia vectors,” but this is only insofar as they are also grasped by contemporary problems in the politics of material text. [26] (...)

[24] “AND About,” andpublishing.org/events/coming-soon/.

[25] Simon Reynolds, *Retromania: Pop Culture’s Addiction to Its Own Past* (London: Faber and Faber, 2012). Jess Baines, “Radical Print Revolution? Objects under Capitalism,” *STRIKE!* 8 (2014): 20–21.

[26] Derrida, *Paper Machine*, 47

[1] Ludovico, Alessandro
(2014) . “Post-Digital
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Centre, Aarhus University.

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hybrids, the calculated content is shared and printed out [1]

This 'functional' aspect of publishing, at its highest level, implies the production of content that is not merely transferred from one source to another, but is instead produced through a calculated process in which content is manipulated before being delivered. A few good examples can be found in pre-web avant-garde movements and experimental literature in which content was unpredictably 'generated' by software-like processes. Dada poems, for example, as described by Tristan Tzara, are based on the generation of text, arbitrarily created out of cut-up text from other works (Cramer). One of the members of the avant-garde literature movement Oulipo created a similar 'generative' concept later: Raymond Queneau's *Cent Mille Millions de Poèmes* is a book in which each page is cut into horizontal strips that can be turned independently, allowing the reader to assemble an almost infinite quantity of poems, with an estimated 200 million years needed to read all the possible combinations (*Hundred Thousand Billion Poems*). Here a natural gesture (moving strips as if they were sub-pages) becomes a process in the hands and eyes of the reader who can endlessly create not just a combinatory type of content, but truly unexpected poetry. That an Oulipo member created this was no accident— the movement often played with the imaginary of a machinic generation of literature in powerful and unpredictable ways.

Contemporary experiments are moving things a bit further, exploiting the combination of hardware and software to produce printed content that also embeds results from networked processes and thus getting closer to a true 'form'. This 'form' should define at the technical and aesthetic levels the hybrid as a new type of publication, seamlessly integrating the two worlds (print and digital) up to the point that despite its appearance and interface, they would be inextricably tied together through the content. So it's not just about 'automatically generating a text' and printing it, or randomly assembling bits and pieces of (eventually printed) content in digital form. A hybrid product should have a strategy composed by its software part, which would provide some content through a process, and an analogue part which would frame and contextualise it. The level that this hybridisation can reach is only limited by the conceptualisation and the sophistication of the act and the process.

If we take the traditional book as a starting point there are few cases of early hybrids. 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 (Fuchs). Though it is 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, the very successful 'crowdfunding' platform), speculating on the enthusiasm of its future customers (and in this case, collectors). The book is a comprehensive example of post-digital print, through the combination of several elements: print as a limited-edition object; networked crowdfunding; computer-processed information; hybridisation of print and digital forms – all residing in a single object – a traditional book. This hybrid is still limited in several respects, however: its process is complete as soon as it is acquired by the reader; there is no further community process or networked activity involved; once purchased, it will forever remain a traditional book on a shelf.

(...) Another example of an early hybrid is *American Psycho* by Mimi Cabell and Jason Huff (Cabell). It was created by sending the entirety of Bret Easton Ellis' violent, masochistic and gratuitous novel *American Psycho* through Gmail, one page at a time. They collected the ads that appeared next to each email and used them to annotate the original text, page by page. In printing it as a perfect bound book, they erased the body of Ellis' text and left only chapter titles and constellations of their added footnotes. What remains is *American Psycho*, told through its chapter titles and annotated relational Google ads only. Luc Gross, the publisher, goes even further in predicting a more pervasive future: "Until now, books were the last advertisement-free refuge. We will see how it turns out, but one could think about inline ads, like product placements in movies etc. Those mechanisms could change literary content itself and not only their containers. So that's just one turnover." In *American Psycho* the potential of the 'accidental' information, generated by the massive online advertisement mechanism is turned into a whole work. It tells a story through the generated advertisement parasites exploiting an unstoppable commercial mechanism, transducing a literature work into the language of advertisement through the 'quoting email' which then become active agents in the process.

Finally, why can't a hybrid art book be a proper catalogue of artworks? Les Lie Invisibles, an Italian collective of net artists have assembled their own, called *Unhappening, not here not now* (Les Liens Invisibles). It contains pictures and essential descriptions of 100 artworks completely invented but consistently assembled through images, generated titles and short descriptions, including

years and techniques for every 'artwork'. Here a whole genre (the art catalogue or artist monograph) is brought into question, showing how a working machine, properly instructed, can potentially confuse what we consider to be 'reality'. The catalogue, indeed, looks and feels plausible enough, and only those who read it very carefully can have doubts about its authenticity.

Categorising these publications under a single conceptual umbrella is quite difficult and even if they are not yet as dynamic as the processes they incorporate, it's not trivial to define any of them as either a 'print publication' or a 'digital publication' (or a print publication with some digital enhancements). They are the result of guided processes and are printed as a very original (if not unique) static repository, more akin to an archive of calculated elements (produced in limited or even single copies) than to a classic book, and so confirming their particular status. The dynamic nature of publishing can be less and less extensively defined in terms of the classically produced static printed page. And this computational characteristic may well lead to new types of publications, embedded at the proper level. It can help hybrid publications function as both: able to maintain their own role as publications as well as eventually being able to be the most updated static picture of a phenomenon in a single or a few copies, like a tangible limited edition. And since there is still plenty of room for exploration in developing these kind of processes, it's quite likely that computational elements will extensively produce new typologies of printed artefact, and in turn, new attitudes and publishing structures. Under those terms it will be possible for the final definitive digitalisation of print to produce very original and still partially unpredictable results.

CONCLUSION

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[8] Gat, Orit (2012) . Screen.
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org/editorial/2012/may/16/
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[2] Ludovico, Alessandro
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omfr ntpri ot screen nda kbac gaina [8]
from print to screen and back again [8]

t-digitalpos ntpri: a turefu arioscen [2]
post-digital print: a future scenario [2]

(from print to screen): ↙

When *Triple Canopy* was founded,” its editors recall, “the content was bounded in a box and you ‘flipped’ through the pages as you would a print magazine. We hoped that this page metaphor would underline our relationship the kind of serious content more associated with printed media — to (as we’ve often stated) ‘slow down the internet.’ In the end, this format proved to be limiting and, ultimately, anathema to our mission to consider the internet’s specific qualities as a form. We eventually redesigned the magazine and scrapped the page in favor of horizontally scrolling columns. In this new format, the relationships between image and text are more fluid. A given image is seen in the context of text that comes both before and after it and the bounds of the magazine are constrained by the size of the browser window and by the computer’s screen size, or are in other words, set by the reader.” What this description exemplifies is the way in which the design of web-based art publications considers itself in face of print. The design of numerous online art publications considers the history and tradition of print in a myriad of nostalgic, more or less skeumorphic ways while bringing up old fears that reading habits are almost unchangeable. Even though *Triple Canopy* is quite unique in its horizontal scroll, it shares a similar attention to the print versus screen reading experience. One interesting element of which is the persisting presence of the table of contents in web-based publications: as part of the linking culture of the internet, the links to the other articles in the same issue are visible across the board. Another aspect of online culture that these publications have picked up on is tagging by subject and “for further reading” tabs, which try to anticipate the reader’s interests according with the stated themes of a given article.

Where do images fall within these design questions? *Triple Canopy*’s editors attest that, “One issue that came up in the transition between the two formats [the flip box and the horizontal scroll] is that you lose the impact of a photograph when it slides onto the page rather than appearing in an instant. But, we do have a full screen function for those images that require more white space around them.” Most other publications have a vertical design that introduces images as sidebars or directly aligned in the text, mainly without linking the images out or allowing for a full-screen viewing option. I would argue that this is another remnant of print culture in the digital sphere.

Considering that the content of these online publications generally sways toward the theoretical more so than the glossy-print-magazine type, this brings forth a relationship with images where they are more illustrative and do not require a very specific — say, full-screen view — attention. *Mousse's* Cernuschi says, “We have a complicated relationship with images because we print in a newspaper format but we’re a fine arts magazine. So we flirt with this idea of inaccurate reproduction in the first place. The priority with images is not exactly to ‘get it,’ — for that, I think paper printing is a very honest filter: it looks cool, but not really good. On the screen, images look much better. I would much prefer an image printed on appropriate paper than on a screen, but that’s usually not the case. So for us it’s very different, especially considering that we can reproduce media. You develop a so-called video still aesthetic on paper.”

(and back again): ↙

When considering the multiplicity of valid reasons why so many contemporary art publications choose to go online, it is quite astonishing to see how extensively they consider print as an option. [1] Take *e-flux journal*: It was launched by an organization that made its name and brand by being the first to give a very specific — and much called-for — online service. The journal, too, started in 2008 as a web-based initiative; but it soon introduced a series of readers in book form, published in collaboration with the Berlin-based publishing house Sternberg Press, and a print-on-demand system that allows readers and institutions to print out full issues followed. *e-flux journal's* distribution system includes art institutions and bookstores around the world, who all download a PDF generated directly from the online articles, in what is a nod to ideas of open circulation and transmission of ideas on the internet, only in an offline, widely distributed but still independent, version.

A number of other web-based magazines seem inclined to follow *e-flux journal's* direction. *Triple Canopy* published a first reader, *Invalid Format*, in the end of 2011. The cover of the book reads “Volume 1”— and indeed, the reader only covers issues 1 through 4, bringing up the amusing question of whether *Triple Canopy* will forever chase its own tail: Will the book-form readers catch up with the online journals? And *Red Hook* editor Zolghadr states that publishing a reader could be one direction for the magazine, but according to him “we’re taking these things pedantically seriously, and are in no hurry to expand to other media just yet. The journal will first need to take its time to familiarize itself with its technical and institutional specificities.”

[1] The idea of the possible obsolescence of online media and the fact that technology seems to be developing at a pace much more rapid than the pace of editorial decision is cheekily picked up by Zolghadr in his editorial: “Curatorial education aside, a second moving target here, one that is at least as mystifying, perhaps even more so, is the new field of online publishing. This is where you get an even clearer sense of the privilege and vertigo of inhabiting a historical threshold, leading to a constant suspicion that you’re missing key conversations unfolding concurrently all around you, coupled with yet another nagging suspicion, (...).”

So what does it mean to print out the internet? In the introduction to *Invalid Format*, the editors of *Triple Canopy* discuss their initial speculations as to the possible longevity of a web-based publication: “We had a sense of the inevitability of obsolescence — think of cassette tapes, LaserDiscs, Mosaic Netscape 0.9 — and of the need to safeguard our work being reduced to so many broken links and 404 errors.” The idea of publishing books based on the online journal came up as a way of “artful archiving.”

Downloading, so to say, the content of these publications from the online sphere to print can also introduce new problem of design. When taken offline, the images gain a new visual character: whereas on the screen, all images are in color but are indiscernible in context (especially when linked out of the specific journal — an image used in an online publication is totally different when viewed through Google Images) and in origin, in a printed form it is tied in with the text and the design in a way that relates to the history of publishing and to our expectations as readers in a wholly different way. Take, for example, Boris Groys’s article, “The Weak Universalism,” in *e-flux journal*. The piece, where Groys considers avant-garde’s nondistinction between artists and non-artists, is accompanied by a number of images, like a photograph of Kasimir Malevich teaching a class, a painting by Kandinsky, and a screenshot of Andy Warhol’s Facebook page (“Sign up for Facebook to connect with Andy Warhol!”). The randomness of the screenshot may seem more intentional in print — in the print version of that issue, for example, it sits on the same spread as a still from *Empire* — and it loses its interconnected nature that it may have with its online home (imagine reading that article on one browser tab while keeping Facebook open in another tab). And, unlike traditional print, where a screenshot or a video still may be of visibly lesser quality than a high-resolution photograph of a Kandinsky, the printed versions of online art publications tend to retain the flattened-out, non-hierarchical nature of the image as it was seen online. But whether images printed in poor quality, off the internet, become simply signifiers or rather, an “aesthetic of screenshots,” remains with the reader.

(...) The specificities of contemporary art publishing initiatives online may echo the escalator at times, while also embodying certain characteristics of the stairs and the elevator. We are only getting more image-savy with time, which confuses and collides the relationship between text and images. The current decade is a very particular one in the history of publishing, as it will be full of moments that will be declared to be decisive for the “fate of the book.” And maybe books are like taking the stairs — it may be old-fashioned,

but still seems natural, and our brain-eye coordination is accustomed to it in a way similar to how quickly toddlers learn to crawl and walk up and down stairs. But the elevator? Standing in a slow-moving elevator seems more nerve wrecking than walking up the stairs. This is what reading an old e-book will be like one day. The need for constant reinvention in digital publishing calls for a certain flexibility, and one that online art publications seem to be offering simply by the sheer fact of their constant consideration of what publishing online means. A hybrid model of print-to-screen-and-back-again might teach us much about our relationship with images, which will define and shape the history of art and the way it is taught and written about in coming years. This might just be the equivalent of the possibility to run up or down the escalator in the opposite direction than it is heading. It's possible, even if exhausting. But sometimes, you just want to stand there on the escalator and see the ground distance itself from you while you take in the view.

CX

Post-Digital Print — The
Mutation of Publishing
Since 1894

Alessandro Ludovico

**POST-DIGITAL PRINT:
A FUTURE SCENARIO**

There is no one-way street from analogue to digital; rather, there are transitions between the two, in both directions. Digital is the paradigm for content and quantity of information; analogue 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.

CXI

(...) 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 encyclopaedias (which have already become vintage status symbols rather than practical information tools). A number of products will thus need to be re-invented in order to still make sense in print.

At the time of writing, the development towards 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 digitised, thus requiring a physical exchange between publisher, distributor and reader. This ethic is squarely opposed to the so-called ‘go all digital’ philosophy [1] 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 digitised 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 customisation 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

[1] techland.time.com/2011/04/20/are-you-ready-to-go-all-digital/

CXII

CXIII

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 non-stop 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-analogue media practitioners.

If print increasingly becomes a valuable or collectable 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 [2] and Pulse [3]) which gather various sources within one application with a slick unified interface and layout. But these are merely the products of ‘industrial’ customisation – the consumer product ‘choice’ of combining existing features and extras, where the actual customising 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 customised 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

[2] flipboard.com/

[3] pulse.me/

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; hybridisation 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.

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When we are no longer able to categorise 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 customised 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 analogue 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 organisations, 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.

This project consists of two editorial objects: a print publication and a website. The website intends to be a tool for exploring automated content manipulation processes, which frame the theme of web-to-print, print-to-web publishing. It provides a kind of generator of personalized publications, upon a remixing of content that results in a print-on-demand object.

+ See the Website page here (https://2022.fbaul-dcnm.pt/alexandra_guimaraes/postdigitalpublishingpracticesonhybridandprocessualprint/)



POSTDIGITAL PUBLISHING PRATICES:
ON HYBRID AND PROCESSUAL PRINT
— Print Publication & Web & Print on Demand

BOOK
185x230mm
120 pages
Munken Linx 120g

SPECIAL THANKS
Luísa Ribas
Pedro Ângelo

ON HYBRID AND PROCESSUAL PRINT

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Automation and Software Based (33), printing out the web (36-83) [5],

[5] Soulellis, Paul (2013) . *Search, Compile, Publish — Towards A New Artist's Web-To-Print Practice* . Delivered as a talk at *The Book Affair* . At the opening of the 55th Venice Biennale, 29–31 May 2013 . soulellis.com/2013/05/search-compile-publish/.

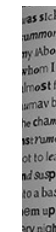
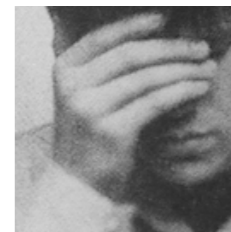
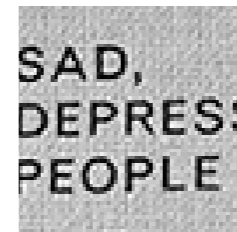
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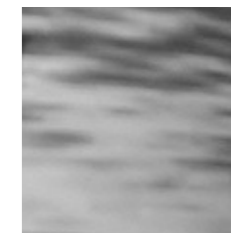
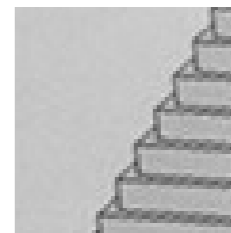
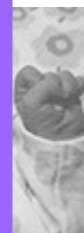


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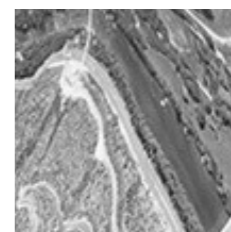
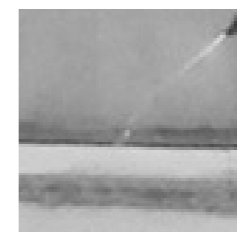
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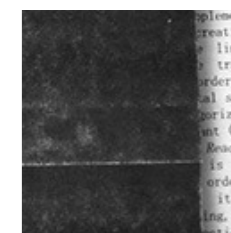
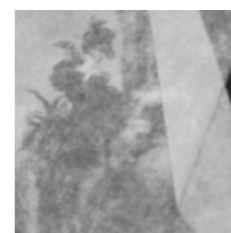
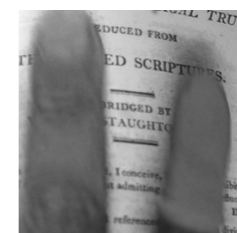
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The term 'postdigital' describes how everyday life and our surroundings are permeated by digital technologies. In this context, the distinctions between digital and non-digital, between old and new media, between being online and offline, become increasingly blurred. In the field of publishing, experimental practices explore the combination of hardware and software to produce content that results in hybrid forms. As Alessandro Ludovico points out, these hybrids are a new kind of publication that results from the integration of a software component, of content production through automated processes, and an analog printed component which frames and contextualizes it, seamlessly integrating the two realms (print and digital).

Postdigital Publishing Practices addresses the interweaving of computational features and processes into printed objects and explores complementary publishing dynamics and media. The project aims to reflect and experiment on the topic, in the form of a print publication and a webpage. The print publication frames the research on post-digital publishing, interlinking texts on the development of hybrid print objects whose content production and editing are software-based, and including practices that explore the complementarity of print and online media. The web component explores an automated process for manipulating appropriated content, allowing for the generation of a personalized edition through its remix, as a variable instance of the publication.

In this manner, the project seeks to incite reflection on post-digital aesthetics in contemporary publishing practices, while encouraging exploration of new forms of experimental publishing.