

2014

What remains is the book: The idea of the book in and around electronic space

Andy Simionato
Edith Cowan University

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A close-up photograph of a person's hand, specifically the back of the hand and fingers, which are covered in a thick, blue, lumpy, and textured substance. The hand is positioned over a light blue surface, possibly a medical tray. The text "What remains is the book" is overlaid in white, with each word on a new line and underlined. The background is slightly out of focus, showing a light blue surface and a metal instrument at the bottom right.

What
remains
is the
book

Andy Simionato

What remains is the book

All photographs courtesy of the artist.

I certify that this thesis does not, to the best of my knowledge and belief:

- i. incorporate without acknowledgment any material previously submitted for a degree or diploma in any institution of higher education;
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Supervisors: Dr Stuart Medley & Dr Cat Hope.

Dedicated to Indigo, Jasper & Karen.

What remains is the book
The idea of the book
in and around electronic space

Andy Simionato

Thesis submitted for the
Degree of Doctor of Philosophy,
School of Communications and Arts,
Edith Cowan University, Western Australia

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Contents

7	Bookending
33	Chapter I What is the matter of the book? <i>Funeral Arrangements</i>
61	Chapter II Where are the boundaries of the book? <i>Worldbook</i>
101	Chapter III Who (or what) decides the book? <i>Athrowofthedicewillneverabolishchance.com</i>
141	Chapter IV What is the book for? <i>A Jagged Orbit and Silent Readings</i>
187	Chapter V The Situational Library
213	What remains is the book
223	Acknowledgments
229	References

Bookending

That books, writings, language
are destined for metamorphoses
to which, without our knowing it,
our habits are already opening, but
which our traditions deny ... we
would have to be quite out of touch
not to perceive this. – *Le livre à
venir*, 1959. (Blanchot & Mandell,
2003, p. 202)

“We are not scanning all those
books to be read by people,” an
engineer revealed to me after lunch.
“We are scanning them to be read
by an AI [Artificial Intelligence].”
(Google Books engineer cited in
Dyson, 2012, p. 367)

The purpose of this study is to question the
idea of the book *in general* and how this idea is
transforming in electronic space, understood as

a space of flows as distinct to a space of places (Castells, 1989, p. 349). In order to question the idea of the book in electronic space we must begin at its ending, or more specifically, at a point in the histories of the book that is widely understood as representing a closing of a parenthesis—that began with the invention of the printing press, up to the end of print—spanning some 500 years, beginning half way through the 15th century in Western Europe. The theory of a Gutenberg parenthesis is not new and is based on affirmations by scholars such as Marshall McLuhan and Walter J. Ong in the 1960s, but there is also a deeper, widespread, and largely subconscious parenthesising of the book that I want to address here (McLuhan, 2001; Ong, 1967a, 1967b). Consider some of the titles that riff on variations that bookend the inventor of mechanical typography with the age of informatics: *From Gutenberg to the Internet* (Briggs & Burke, 2010; Norman, 2005), *From Gutenberg to the Global Information Structure* (Borgman, 2000), *From Gutenberg to the Digital Age* (Kovarik, 2011), or simply *From Gutenberg to Today* (Ionescu, 2004), not to forget the irresistible alliteration of *From Gutenberg to Google* (Shillingsburg, 2006), *From Gutenberg to Gates*

(Speight S., 2008) and finally *From Gutenberg to Zuckerberg* (Naughton, 2012). A growing list of book titles that all depend on an understanding of the age of print as one that is coming to a close. Perhaps this impulse to parenthesise simply betrays a deeper need for closure, a way to escape the long shadows of history and reach some utopic ‘after’ that Modernism (and other –isms) failed to provide. Whether symptomatic of what Morozov calls ‘epochalism’ or the consequence of ‘post-historical’ perceptions as described by Fukuyama, these narratives promote an understanding of media history as a linear progression (Fukuyama, 2006; Morozov, 2013). A linear progression that reinforces long established adversarial thinking on technology:

The book will kill the building ...
When you compare [architecture]
to the idea, which ... needs only
a sheet of paper, some ink and a
pen, is it surprising that the human
intellect should have deserted
architecture for the printing press?
(Carrière, Eco, & Tonnac, 2011, p.
vii)

These words were pronounced by the Archdeacon Claude Frollo in Victor Hugo's novel *The Hunchback of Notre-Dame*, but shortly after, Théophile Gautier writes "The [newspaper] kills the book, as the book has killed architecture ..." (Gautier & Duncker, 2005, p. viii). The newspaper is killed by television and the contemplative act of reading is killed by wireless radio (Hilmes & Loviglio, 2002, p. 50; Hood & O'Leary, 1990, p. 35). "Video killed the radio star" and then Internet killed video (Carr, 2011; Downes, Horn, & Wooley, 1979). Together these assertions demonstrate the diabolical attraction of reducing complex and evolving media ecologies to a binary logic where 'this kills that.' But the logic of mediation does not necessitate a mutual exclusivity. One media does not replace another, one technology of inscription does not supplant the previous, and the complex pathways of the book, its production, dissemination and consumption, are not merely remapped after each new media or technology of writing.

All of which brings us to an important premise of this study; we are experiencing *a* transformation and not *the* transformation of the book. The metamorphoses of the book are ongoing, even if

at times unnoticed. I will argue that this impulse towards closure, to parenthesise the age of print, to replace the old with the new, is already deeply enfolded within the histories of the book and that it forms part of its originality. The book that is now perceived as dead, or dying and in need of saving, is always already ending. I will argue that the electronic surrogates of the book, along with whatever improvements on the paper-codex they proffer, will continue to test this and other ‘moral rules’ that can be considered ontological determinants of the book.

It is the book’s electronic surrogate that is now accused of being the principle cause for the traditional book’s demise (Striphas, 2013, p. 22). The basic assumptions underlying the more technologically determinant arguments reduce the paper-book—already a term that indicates a struggle with its retronym, unless we continue with the wordier and more morbid ‘the book as we knew it’—to be a material, static and generally outdated mode for the transmission of data. These popular arguments then go on to describe the book’s electronic surrogate as dynamic, containing the potential for interactivity and multimediality. Generally, the argument

polarises into two camps: the luddites and the technophiles. The former are easily recognisable for their fetishisation of material aspects of the printed book, for example the smell of paper and ink (Rindisbacher, 1992). This side of the debate often reacts anxiously to imagined Orwellian scenarios that digitisation must surely harbor (Polastron & Graham, 2007, p. 310). On the other side are the technophiles who embrace this brave new world of electronic textuality at their fingertips (or thumbs) (Kelly, 1995). Both positions, I will argue, are faulty. However two important points can already be distilled: the first is that the arrival of the book in electronic space is perceived as the definitive signaling of the end of the traditional (paper) book, and the second is that this same electronic surrogate of the book is considered an improvement on its predecessor. This creates the dual perception of the book to come in electronic space as both the primary cause of the book's demise *and* its salvation.

This paradoxical relationship is given prominence when notions of the end and the future of the book are combined, such as in "The book is dead: Long live the book" (Young, 2007) or "The

end of books or books without end?” (Douglas & Douglas, 2001). This linking the book’s beginning and ending suggests an inescapable duality bound to the idea of the book. So to question the book we must examine its continuous and simultaneous closing and opening. The book that is dead, again. The book that was to come.

Shortly after I began my own experiments in experimental publishing, the world’s largest private corporation Google announced its Google Print tool (later known as Google Book Search and the Google Library Project) at the Frankfurt Book Fair of 2004, and by the end of that year would describe the project as the mass digitisation of every library book in the world, estimated at 15 million unique editions (Vise & Malseed, 2005, p. 139). According to many of the hyperbolic claims of the period, projects such as Google would potentially result in the largest corpus of human knowledge in history, freely available to anyone with access to a computer network, “offering every book to every person” (Kelly, 2006). Google was not alone in its ambition, and in 2005 Microsoft partnered with the British Library, with plans to digitise thousands of its out-of-copyright books (“The British

Library 19th Century Book Digitisation Project,” 2008). All of which generated intense debate around the effects of the mass-digitisation of the book (Jeanneney, Fagan, & Wilson, 2008). The unprecedented number and scale of these and similar projects, has motivated much of this study, proposed in a moment of urgent need to address the effects of this mass transferal of the book into electronic space.

The great cathedrals did not vanish. The book is not dead. But, like the cathedral, the book’s privileged hegemonic position as primary carrier of information is diminishing. These inevitable ‘metamorphoses’ of the book also mean a profound changing of our relationship to it (Carrière et al., 2011, p. vii). Hugo intuited that the space of thinking would move from the cathedral to the book. To question the book to come is to question if the space of thinking is now the space afforded by digital architectures, if the space of literature will be Turing’s Cathedral, like those being built by infoglomerates such as Facebook, Wikipedia, Amazon, and Google all of which, in different ways, see the digitisation of universal knowledge as within their scope (Dyson, 2012).

Meanings, Methods and Methodologies

Before embarking on the thesis, I would like to outline some of the methods I have developed, the established methodologies and thematic structures that the study assumes as a general framework as well as some definitions of the terms that reoccurring more often, would benefit from explication in order to allow a more fluid progression.

Meanings

Central to this practice-led research is an analysis of the paratextual elements of the book. So a brief definition of what I mean by the ‘paratextual,’ what it is and why it is important to this study, may be useful before proceeding.

Books declare themselves through
their titles, their authors, their places
in a catalogue or on a bookshelf,
the illustrations on their jackets;
books also declare themselves
through their size. ... I judge a book

by its cover; I judge a book by its shape. (Manguel, 1997, p. 125)

The historian Manguel is describing but some of the paratextual elements of the book. A neologism commonly attributed to Gerard Genette who wrote an exhaustive study of paratextual elements in his *Seuils* originally published in 1987 (1997). Elements such as covers, titles, front matter such as the forewords and contents, and endmatter such as epigraphs and interviews are all paratexts. In short, all elements that may be given “a privileged place of a pragmatics and a strategy, of an influence on the public,” (1997, p. 2) or as Manguel states above, all the supports through which books ‘declare’ themselves. In this study I will extend Genette’s definitions of the paratextual to a much broader understanding that encompasses all those parts of a book which contribute to framing the work it contains as a book including, yet not limited to, its shape and materials, title, contents and index pages, cover and jacket design, typographic and page design. Many of these elements can be considered aseptic (non-semantic) carriers of meaning whose manipulation and usage falls within the professional crafts of graphic design

and industries related to book manufacturing; traditionally these are typesetting, printing, book binding, but also networks of distribution like bookstores, libraries and other places of commerce with books.

This far broader definition of paratext is based on an understanding of the book as distinct from the literary work it carries. When we speak of the book, especially the literary book, we conflate our material definitions of the book's embodiment with the metaphysical idea of the literary work. So the deliberate focus on the paratextual also signals an important delimitation of the study; by only addressing the book's paratext the study will not concern itself with theories pertaining to literary interpretations of the texts. The study will address how the book can be described as a program to construct meaning, but will refrain from any literary commentary of the text. As a concrete example, this study may be useful to examine the history of material and formal transformations of the book called *Moby Dick* but may not be as useful to examine Herman Melville's narrative of Captain Ahab's pursuit of a mythical white whale. Although there is a close relationship between the evolving

literary genres happening within developing informational systems, and an examination of the effects of the book in electronic environments on individual literary works and genres in general would be valuable, this study will not examine evolving literary theory in detail. My hope is that this thesis on the philosophy of the book will be a first step to better position and link subsequent research to emerging fields such as literary and genre studies, reading theory, and hypertextuality in electronic space.

Methods

My perspectives in this study are largely influenced by experiences as a graphic designer and artist over a career of three decades almost all of which working from the studio in Milan, Italy that I founded with my partner Karen ann Donnachie, a photographer and artist that has also contributed the computer coding of my experimental publication of Stéphane Mallarmé's *Un Coup de Dés*, (the exegesis of which can be found in the chapter "Who (or what) decides the book?"). From this studio I designed and managed the production of catalogues, posters,

and other commissions from Italy and other parts of Europe. But the majority of my time and interest was dedicated to the design of publications; working directly on the typefaces, page-design, and all other aspects of their art-direction and industrial production. This interest led me to found a publishing concern together with Karen ann, that involved the curation, design and publication of a number of artists' books including a series of compendia of internet art (Donnachie & Simionato, 2002, 2003, 2004, 2005, 2006, 2007, 2009). These publications are considered highly influential for their experimentation in design and production and have already provided many opportunities for the critical discussion of publishing in electronic space (Burgoyne, 2003; Camuffo, Piazza, & Vinti, 2012; Leslie, 2003; Noble, 2003; Parker, 2004; Tew, 2005).

However, the interest that led me to these publishing experiments arose from experiences from a more distant past when I was an apprentice graphic designer in the early part of the 1980s. This formative experience began with the introduction of the computer in a studio practice that previously consisted only of tools of the period such as drafting tables, Letraset

sheets and spray-glue. The computer in question was called a Macintosh, and it presented the singularly breathtaking possibility of placing *both* typographic elements and images together on the screen, visualising the composite ‘page’ directly on the video display. We were told that this was the new paradigm: ‘What you see is what you get!’ The phrase became so ubiquitous in the design community that it was replaced by the mnemonic ‘WYSIWYG’ (pronounced we-see-wig). It is hard to describe all the emotions connected to this early technological encounter, the net effect being that we could *already* see, on the screen, the page that would be printed. We were no longer composing disparate graphical elements with a view towards the printed page that we would only see on the printing press, rather we were creating the page directly, as if the page were *already* a distinct space. This study and its related artworks are a way to collect and present some of the questions that began forming when, as an apprentice designer I began working with what, I later realised, was the *book to come*.

Methodologies

If the methods adopted in this study are largely informed by my formative and professional experiences as a graphic designer and publisher, then the following describes the methodologies that will provide a framework for the theoretical parts of the research. These methodologies will help move the thesis from an expression of experiences to a sustained argument with some general conclusions.

Certain issues concerned with the structure of the book, its materials and design, do submit to a strictly analytical examination, as exemplified in Genette's streamlined research in the paratext already mentioned. It is conceivable that similar methodologies could be applied to isolate and analyze individual paratextual elements of the book, with a comparison to, or contrast against recent remediations of the book in electronic space. But this is *not* the approach this study adopts however because of the dissatisfaction with the outcomes of such analytical approaches that risk oversimplifying the multiple, inter-dependent and complex historical, social and psychological pathways of the

book. In addition, such reductive approaches risk teleological understandings of the book as a predetermined product resulting from a series of standardisations and increased efficiencies in production and distribution.

The earliest forms of the page such as stone tablets, the papyrus roll, and parchment, the subsequent emergence of paper, the invention and consequences of the printing press—together these draw a line that leads inevitably toward the conceptual space of the book, which in the late age of print has been perceived as the penultimate technology of writing, superseded only by the computer. (Stoicheff & Taylor, 2004, p. 3)

As seductive as it may be to imagine the history of the book shooting through time like an imaginary arrow that draws “a line that leads inevitably” towards that ultimate goal of the technology we call the computer, it is not constructive for a deeper understanding of the book. While discussing the biological sciences, Richard

Dawkins warns how the ‘conceit of hindsight’ leads to a homocentric view of evolution, “the historian must be aware of stringing together a narrative that seems, even to the smallest degree to be homing in on a predetermined climax” (2010, p. 1). In the case of the history of the book, the ‘predetermined climax’ of similar linear narratives places the electronic-book as the natural successor to the paper-based codex.

So if a techno-structuralist approach such as Genette’s is not suitable for this study, then what is? Although analytical practices are useful in the examination of the material and formal elements of the book as a static artefact we must acknowledge that the idea of the book is a result of continuous historical transformation. Questions pertaining to the dynamic changes of the book are better addressed through philosophical methodologies based on traditions where the idea of the book has developed from an ongoing commentary. Certainly the questions asked of the book have not always been the same, but I will argue throughout this study how an examination of how these questions are changing is significant to our understanding of the book.

My most evident use of historical methodology can be found in the organisation of the study into its four major areas, each departing chiefly from one of Aristotle's four 'causes,' considered to be from his second book on Physics. I use 'chiefly' because it is impossible to discuss any single question without also mentioning the others, and I use 'departing' because Aristotle's doctrine alone does not sufficiently resolve to a univocal understanding of the book, especially when discussing the book in electronic space (in practice, it is this 'failing' of classical philosophy to formulate a sufficiently resilient question of the book in electronic space that will later become central to the discussion). But for now it suffices to state that each of the following four chapters addresses a distinct question of the book based on one of Aristotle's four causes. As this framing device has shaped both the practical and theoretical parts of the research it deserves a brief explanation as well as an outline of how each of the four causes relate to each area of the study. For his elucidation of Aristotle's doctrine I refer to Professor Cohen's lectures at the University of Washington and his *Reader in Ancient Philosophy*, and for the translations of Aristotle's texts Irwin and Fine's *Selections*

(Cohen, 2006; Cohen, Curd, & Reeve, 2011; Irwin & Fine, 1995). All of Aristotle's quotations are from *Physics II.3, 194b24 ff.* except words in angle brackets as they do not correspond to anything in the original and are used by the translators to complete the sense.

Before describing each 'cause' or *aitia*, it is necessary to disambiguate Aristotle's specific use of the word:

[T]he difference between
Aristotelian and modern notions
of cause is so notable that some
scholars reject the traditional translation of *aitia* as cause; they prefer other terms such as 'explanation', or speak of the four becausees rather than the four causes. Aristotle himself tells us that they are four types of answer to the question 'why?'
(Kenny, 2006, p. 190)

From this perspective, each chapter begins by framing the question of the book through one of Aristotle's four causes in order to explore a different 'why' of the book, and ultimately to

test if each question is still useful when examining the book in electronic space.

The first chapter “What is the matter of the book?” begins with Aristotle’s first Material cause [*Causa Materialis*]: “... that from which, <as a constituent> present in it, a thing comes to be ... e.g., the bronze and silver, and their genera, are causes of the statue and the bowl.” By following Cohen’s interpretation we can rephrase Aristotle’s question this way: “What makes a book a certain way?” with a possible answer being “The book is made of paper.” For Aristotle this would become: “Paper is an *aition* of a book” and could be disambiguated as Cohen suggests by specifying the relevant sense of *aition* through “Paper is what the book is made of.”

The second chapter “Where are the boundaries of the book?” considers the question of the book through Aristotle’s Formal cause [*Causa Formis*]: “the form, i.e., the pattern ... the form is the account of the essence ... and the parts of the account.” Again, following Cohen’s description of Aristotle’s doctrine, a possible resolution could be “Having paper signatures folded and

bound together into a cover is an *aition* of a book,” which we may read as meaning “Having signatures folded and bound into a cover is what it is to be a book.”

Cohen warns that although questions of matter and form are useful explanatory factors for an initial analysis of a static artefact (for example the book at a given moment) these causes do not tell us how the book came to be that way, nor how it may change (Cohen, 2006). For that purpose we need to look at the book and its surroundings dynamically through causes that explain why matter has come to assume or lose a given form, to become the way that it has (or remain the way that it is). Thus the third and fourth of Aristotle’s causes on efficient and final factors are useful in explaining why this change occurs and they are the questions addressed in the subsequent two chapters.

So the third chapter, “Who (or what) decides the book?” considers the question of how change occurs through examining who or what brings the book into existence. This is based on Aristotle’s Efficient cause [*Causa Efficiens*] that questions “the source of the primary principle

of change or stability.” As Cohen explains, for Aristotle, “the producer is a cause of the product, and the initiator of the change is a cause of what is changed.” In the context of this research, this could be: “An artisan is an *aition* of a book,” or simply “An artisan produces a book.”

The fourth chapter “What is the book for?” addresses the last of Aristotle’s four causes, called the Final cause [*Causa Finalis*] which is “something’s end (*telos*)—i.e., what it is for—is its cause, as health is <the cause> of walking.” Having a space suitable for reading could be a possible *aition* of the book according to the doctrine, or simply “Reading is what a book is for.”

Now all this may appear very archaic, especially if we consider that we are setting out to arrive at ways to address the idea of the book in electronic space, however there is good reason to adopt such a framework; precisely because we are addressing a radical and relatively sudden transformation of an ancient invention, we must also address the question of *how* to question the book. If the book can be understood as a model for the mind, analogous to a system of recording and sharing codified symbols, then to question

the transformation of that model is to question our selves. So it is also to avoid such a *mise-en-abyme* that I propose to use Aristotle's doctrine of inquiry for the structural framework of the thesis, the doctrine is not simply a theoretical convenience; it shares its originality with some of the earliest books, its ontological and epistemological questions are inextricably linked. If we are to question the book before electronic space, we must accept that we are also addressing some of the earliest philosophical and liturgical doctrines. To question the book is also to question the 'moral rules' with which it shares its origins.

With the four 'whys' of the book addressed, the following chapter is dedicated to the central artwork of the thesis called the *Situational Library*, an itinerant installation-based and participatory project that explores the notion of the book, both physical and electronic, as a node within a larger network. This chapter provides an exegesis of three manifestations of the work which occurred in the Perth Institute for Contemporary Art (PICA), and then at the University of Sydney and the College of Fine Art on the occasion of the International Symposium

for Electronic Arts (ISEA). In this chapter I argue that the evolving social domains of the book are inseparable from the idea of the book itself.

Finally, in the concluding chapter of the thesis, “What remains is the book,” I summarise my assertions from the practical and theoretical threads of the research. This chapter closes with a call for the conceptualisation of a general model of the book that may be defined independently of its content, support, medium of transmission or technology of inscription: the book to come.

What
is the
matter
of the
book?

What is the matter of the Book?

Artwork: *Funeral Arrangements* (2012).

The English word ‘book’ arrives via the Germanic from an Indo-European word meaning ‘beech tree’ as the early Germanic peoples used strips of beech wood to write on. A similar semantic development occurred for the Latin root *liber* (whence the English word *library*) originally from the ancient Greek *biblos* both meaning the ‘fibre inside of a tree.’ These etymons are traceable to other descendants of the spoken Latin language including Basque (*liburu*), Catalan (*llibre*), French (*livre*), Galician, Italian and Spanish (*libro*), Occitan (*libre*), Portuguese (*libbru*), and Welsh (*llyfre*). In languages not originating in Latin or Ancient Roman the pattern for naming the book after its medium persists, for example, the Chinese character for *book* 書, is a pictogram of a tablet of bamboo. This is not rhetorical pedantry, but a way to reveal a fundamental dimension hidden within the question

of the book. Enfolded within the signifier of the book is its material originality. Whenever we refer to the signified book, in whatever form or support we would like to imagine the book (in East Asia bone, shells, wood, bamboo, silk, and in the West clay, stone, plants and animal skin), we must address the material origins of the signifier. To question the idea of the book is, in part, to question its materiality, or more precisely, within the question of the book is a secondary question that requires an examination of what is the matter of the book. The book carries forward not only the signs of writing, but also accumulates in additive process meanings circumscribed by its material shifts. For Derrida, these meanings may lie beneath writing but are not inert, submissive surfaces laid out underneath the markings, "... a substratum meant for sustaining them, for ensuring their survival or subsistence" (Derrida, 2005, p. 42).

There is no first book. Any attempt to indicate a point in time after which the idea of the book can be said to exist, and before which there was no book, is analogous to the search for a first man or woman, more the domain of theological than historical study. So with this in mind we

can begin addressing the material origins of the book and how this materiality influences our relationship to it.

Hannah Higgins links the shared origins of the brick and the clay tablet sometime towards the close of the Ice Age somewhere in the Middle East, when Neolithic humans began to domesticate animals and cultivate crops, permitting them to build more permanent structures instead of always improvising shelters along migratory paths (2009, p. 15). These structures were built by squeezing mud, and later clay, between the hands into bricks and then walls. Higgin's account describes how, for over 6000 years throughout Mesopotamia and the Ancient Near East, these same processes of production for making bricks with clay gathered from the banks of the rivers Tigris and Euphrates were used to make tablets for writing. So it was "... that humans in this part of the world first learned to build two kinds of gridded forms essential to Western civilisation as we know it: brick walls and recorded narration" (p. 33). Until well into the Iron Age, clay became the preferred medium for inscriptions as well as providing the primary material for constructions, occasionally the two

uses would intersect when bricks for the imposing Sumerian ziggurats were inscribed (King, 1994, p. 89). The ziggurats were staged temples used as storehouses, city administration, religious activities and perhaps even for celestial observation (Crawford, 2004, pp. 85-86). This sharing of materials and methods between these architectural structures and inscriptions permits a series of reflections on the material and mythological originality of the book that I will argue remains enfolded in how we perceive it, up to and including its introduction to electronic space.

The implications of linking the material sources of the architectural structures with the books can be revealed through an examination of one of the most influential of the Sumerian myths called the Enûma Eliš that was both enacted through the ziggurats and recorded on the clay tablets. As it provides an important conceptual key to more than one discussion in this study, it is worthwhile briefly summarising the Enûma Eliš. For this purpose I refer to W.G. Lambert's translation and commentary in *Mesopotamian Creation Stories* (Geller & Schipper, 2008, p. 15).

The Enûma Eliš is essentially a creationist myth originally shared orally and finally recorded on seven clay tablets that were discovered in modern-day Iraq. The myth tells the story of two new gods, the sky god *Anu* and the earth god *Ea*, being produced by the older dieties *Apsu* and *Tiamat* (respectively identified with fresh- and salt-water). These two younger gods *Anu* and *Ea*, rebel against the existing order, and *Ea* puts the older god *Apsu* into a deep sleep so that he can slay him. In the ensuing battle *Marduk*, who is the son of *Ea* and *Damkina*, in order to prove himself as a warrior battles the older *Tiamat*. Triumphantly *Marduk* “cuts the body of *Tiamat* into two, setting the heaven above and, resting on the ocean, the earth below. So it is that the cosmos is formed from the corpse of a primeval deity” (Coupe, 2008, p. 101).

This creationist story, of the new overwriting the old, is echoed throughout later cultures such as the Ancient Greek, Hindu, and Christian. All civilisations have developed creation myths, whether through the Enûma Eliš or otherwise; a story that tells of the eternal alternation of elemental forces of destruction and renewal such as fire or water (Báez & MacAdam, 2008, p. 7).

Christianity subsumed these myths and added to the Genesis of the Old Testament the apocalypse of the New Testament; where there is “destruction” there is also “revelation” (pp. 7-8). Thus “The Apocalypse of Jesus Christ” signifies a return through death (Taylor, 1961, p. 115).

The same notion of apocalypse in these mythological explanations—the attempt to resolve the dialectical framing of destruction and salvation—is significant for the ideologies of the book and our understanding of its ability to reconcile these forces. Both the book and the ziggurat share this dual-directive of fluidity and permanence, both permit their own continuous rebuilding. Like the eternally returning stars observed from the summits of these observatories, the ziggurats would be considered constant patterns in a state of fluid movement.

Today, these temples have lost such fluid connotations but are mostly considered for their material and formal characteristics; the tiered mud-brick construction becomes the constant in our understanding of the ziggurat even if this conception of a static, inert structure is an oversimplification of Sumerian traditions. In a

similarly reductive process, the earliest books are now considered as artefacts, purged of their functional dimensions, a petrification that leaves only material remains. While now the ziggurats, like the clay tablets, are perceived as submissive structures, intuition suggests instead that the constant repair and rebuilding of these virtual mountains reflects a far more fluid understanding of the natural forces observed by the Sumerians themselves.

One such naturally occurring destructive force was water, both the necessary creative principle, as well as the potential destroyer of the clay tablets whether they were used to build ziggurats or for recording memory:

But water was nature's principle
means of destroying the first books.
When the Tigris and Euphrates
flooded, they eradicated entire
towns and, of course, their archives
and libraries. It is no coincidence
that it was in Mesopotamia, where
water was considered a capricious
divinity, the enemy of the gods of
memory, that the first myths of the

universal flood appeared. (Báez & MacAdam, 2008, p. 23)

Conversely the natural force of fire—often linked to biblioclasms—in this case has the power to preserve. Indeed the great library of Sumer-Akkadian clay tablets of cuneiform, have outlasted the more lavishly recounted libraries of paper scrolls of Alexandria and Pergamon. Possibly due to the fact that fire instantly destroys any books made of paper, papyrus or parchment, but not clay for which, in contrast, it has the “effect of vitrifying the page in its natural state *ad aeternum*” (Polastron & Graham, 2007, p. 2).

By wetting the clay of the (non kiln-fired) Sumerian tablets they could be reused unlimited times, however with each new inscription whatever was previously inscribed would vanish. Placing the inscribed tablet in fire (within a kiln or otherwise) would permanently fix the writing, but from that moment no further correction, or the addition of other marks was possible. These two inter-related processes are determinant in our perception of the book and are useful when addressing the idea of the book in electronic

space; the potential to accept marks, that is, the book's *permeability*, and in seemingly diametric opposition to this, its ability for constancy, the book's *permanence*.

The question of the matter of the book requires consideration of both permeability and permanence. Like the Sumerian ziggurats, the clay tablet and the book all had mutable qualities linked to the most ancient models of causality, to create something from nothing [*creatio ex nihilo*] or from an eternal material [*creatio ex materia*]. Through the agency of the hand, form and meaning is given to the clay in order to address that chaotic unknown; once inscribed, the tablet can be returned to its original state through the application of water, with each new writing replacing the old. A pattern that echoes the Babylonian creationist myths enacted with each inscription.

What is important here is the notion that a palimpsest represents not only the removal of the old but is also a preparation for the new. This ontological determinant of the book continues throughout its histories and into its most recent manifestation in electronic space. This crisis of

the book, the book we see today, results from the persistence of a directive introduced through its material originality; the book is always already ending and beginning. The ontological directive of the book necessitates that it addresses *both* permanence and permeability. The hand that inscribes the book also scrapes it clean.

... yet before we depart out of Ægypt,
wee must not forget the plant
Papyrus, but describe the nature
thereof, considering that all civilitie
of this our life, the memoriall and
immortalitie also of men after death,
consisteth especially in paper which
is made thereof. – Pliny the Elder
(Holland, 1601)

This origin of paper predates its introduction to Medieval Central Europe, it even predates its most commonly documented invention in 2nd century BCE China (McMurtrie, Rogers, Lessing J. Rosenwald Collection & Pforzheimer Bruce Rogers Collection (Library of Congress), 1943, p. 61). The *princepium* of paper, its beginnings and hence moral rule (to borrow Derrida's terms) lies not far from the origins of the clay

tablets we have just described. Specifically, the paper to which I refer is papyrus, popular in the First Dynasty in Ancient Egypt, throughout the Mediterranean region and as far south as the ancient African Kingdom of Kush. It takes its name from the plant grown abundantly throughout the wetlands of the Sudd (now Southern Sudan) and the Nile Delta of Egypt (Parkinson, Quirke, Wartenberg, & Leach, 1995). It is not surprising then that the papyrus plant is the source not only of the etymon of the English word 'paper,' but the prefix 'biblio' derives from *biblos* which refers specifically to the inner bark of the papyrus plant. As the English word 'book' is etymologically rooted in the birch tree, its traditional medium of paper is bound to the stems of the papyrus. To question the matter of the book then, is to question this principle. If the material origins of the clay tablet permitted the book its dialectical tension between permanence and permeability, then paper introduces the logic of the substrate that in its ultimate manifestation necessitates its own dematerialisation. A disappearing act that will define many of the ideologies of the screen.

The papyrus plant and clay tablets share the destructive and regenerative effects of the waters of the Nile. As water could dissolve the clay tablet, it could rapidly deteriorate the cellulose materials forming papyrus, which was best suited for the naturally dry surroundings of Egypt. This frailty may have led to the gradual replacement of papyrus with parchment, made from the skins of animals such as sheep, cattle or donkey as writing surfaces from around the 3rd century BC in Pergamon—but the change may have just as likely been a response to the increased control over the export of papyrus from Alexandria. Eventually it was the production of paper using the pulped fibers of cotton or linen rags and finally wood that gained preference with the centres of scribal activity. Over the centuries these manual processes became industrialised, machines disintegrate raw materials in order to release the fibers for subsequent ‘screening’ into forms of paper (Adanur, 1997, p. 6). The most highly considered of these industrial papers for the printing of books, according to the historian McMurtrie, is a calendered paper with a dull or opaque finish that makes it ideal for the reception of print yet durable, ensuring longevity. This unique and sought after surface

is made possible by the addition of an ancient material: clay. The paper-bound book absorbs and propagates the clay tablet.

All these media have maintained that dialectical tension between the (perme)ability to accept marks and the potential for permanence, but the principle, or beginning, of paper also represents an ending.

Paper is evidently the limited “subject” of a domain circumscribed in the time and space of a hegemony that marks out a period in the history of a technology and in the history of humanity. (Derrida, 2005, p. 41)

A period that we have noted is coming to a close, signaled by the many claims of the death of the book. We are in a sense preparing for this passing of the book, no longer bound to the material world we are preparing for its entry into an after-life in the cloud.

Continues p. 50



Process image (2011)

Some early experiments
in the breaking down of
paperbound books.

Funeral Arrangements

Whether deployed for ‘Private,’ ‘Community,’ ‘Public’ or hybrid uses, the model of ubiquitous computing services that has been attributed the paradigm of the ‘cloud’ represents the most recent manifestation of the myth of an unbound but connected network of objects (Grance & Mell, 2011). With material differences removed in electronic space we are left with only relationships, a space of places becomes a space of flows as Castells has described (1989, p. 349). In addition, the metaphor of the cloud has contributed to a perception of the book’s electronic surrogate as untethered by earthly needs and concerns. Digitisation heralds the ascension of the material book to an imaginary space far from the creative/destructive forces such as fire and water. In the ‘cloud’ the book is finally safe from all earthly “enemies of books” (Blades, 1888). Arguments from the supporters of the electronic transfer of the book are grounded in an understanding of the paper-based book as a prosthetic for memory, capable of carrying information across time and space, and any frailty attributed to its material elements should be therefore reduced or ideally removed.

Once we reduce the book to a flow of encoded signals that can be interpreted and stored by any number of reading devices, we free ourselves from the responsibilities to protect it from the potential dangers to its material existence. An artwork that successfully links this material frailty of the book perceived as a relic of the past with the potential for its words to continue eternally is Antonio Riello's series called *Diabolus in Vitro* (2012). Riello performed the ritualized burning of his most precious and beloved books in order to seal their ashes into the stems of hand-blown glass goblets that are inscribed with the bibliographical data of the book: the name of the author, the date and place of both its publication and destruction. Although this last term is perhaps not accurate, as curator James Putnam distinguishes Riello's incineration of books as transformative rather than destructive (2012, p. 2). These glass 'tombs' containing the ashes of books represent that intimate and final sacrifice of abandoning one's love.

Sherry Turkle describes a technology that proposes itself as the architect of our intimacies as "seductive when what it offers meets our human vulnerabilities" (Turkle, 2011, p. 1). Technology

is equally seductive, I would add, when it meets the vulnerabilities of the objects with which we have a close relationship, like the book. Yet these seductive qualities remain in tension with the prevailing influence of technocracy on the flow of information and knowledge as described by Jean-Francois Lyotard when he states how “the ideology of communicational ‘transparency,’ which goes hand in hand with the commercialisation of knowledge, will begin to perceive the State as a factor of opacity and ‘noise’” (1984, p. 5). These two ideologically driven questions of the book become paradoxically interlinked: on the one hand the seductively ‘safe’ uncoupling of the material book from its material ontologies, free to exist eternally in the ‘cloud,’ and on the other hand, a diminishing communicational transparency brought about by technocratic control. I will not attempt to resolve such a paradox here, but simply frame these questions as an extension of the same directives that we have linked to the ancient creationist myths of the new overwriting the old.

Alexander Galloway, echoing Foucault’s controversial (and later retracted) statement that “*logos* has no contrary,” declares that today’s systemics

have no contrary, he laments the unrepresentability of informatics, and subsequent need for a digital poetics:

Offering a counter-aesthetic in the face of such systematicity is the first step toward building a poetics for it, a language of representability adequate to it. (Galloway, 2012, p. 99)

In the series of digital artworks, *Funeral Arrangements* (2012), photographic images of floral compositions are altered through the insertion of complete texts of one or more books.

See
image in
Vol.2

The process of adding the book's text to the data of the image, in essence, induces an error in the code required by the computer for the 'correct' display of the original image, with often unpredictable results. The technique used is called 'glitching' or 'databending,' both terms that have entered the lexicons of professionals or enthusiasts working within informatics, attested by the recent glossy volumes dedicated to collecting 'glitched' digital images (Moradi, 2009). In addition to an aesthetic appreciation, there are ongoing critical discussions surrounding the

subject, often grounded on understandings of the subversive potential of the systemic error:

Given the growing influence of this ideology of informatic control, error provides us with an important critical lens for understanding what it means to live within a network society. *Error* reveals not only a system's failure, but also its operational logic. (Nunes, 2011, p. 3)

Among the more subversive examples of art that make use of this, by now, common technique of digital détournement is the political commentary of the *Some Gentlemen (Coded Portraits)* series by the Dutch design collective Metahaven in which digital images of official portraits of political leaders are altered through the insertion of theoretical texts (Vishmidt, Metahaven, & Groys, 2010, p. 291). The change in skintone from 'natural' to a monstrous purple implies how the addition of texts (notably concerning ideology) triggered a 'revealing' of otherwise hidden traits in the subjects of the portraits.

Funeral Arrangements similarly appropriates steganography—the process of concealing a message, often a text, within another message, image, or file. The practice of steganography, as indicated by its etymology—‘covered writing’ in Ancient Greek—is not only concerned with concealing the contents of a specific message, as is the case with cryptography, but is additionally concerned with concealing the fact that a secret message is being transmitted at all. We will return to this notion that a document may carry a hidden message, making it both the lock and the key to its transmission, in my artwork based on Mallarmé’s *Un Coup de Dés Jamais n’Abolira le Hasard* that I discuss in the fourth chapter.

Funeral Arrangements is not intended as a series of examples of encryption per se, nor of political criticism, but rather act as a speculative homage for the book to come through a conceptual pun; within the images of floral arrangements composed for the death of the book, are ‘pressed’ complete texts taken from books, sometimes entire collections. Ironically, this technique of inducing error or breaking the code of the file requires a certain amount of trial, and often dozens

of attempts are needed to achieve a satisfactory result—‘satisfactory’ here can simply mean an outcome that is still viewable with available image-rendering software.

Derrida describes writing on the computer as still “*with a view* to the final printing on paper, whether or not this takes place.” This analogy can be extended to comprise the book.

The norms and figures of paper ...
are imposed on the screen: lines,
sheets, pages, paragraphs, margins,
and so on ... these infinitives and
imperatives also retain the memory
of what has disappeared: the paper,
the page of the codex. Thus the
order of the page, even as a bare
survival, will prolong the afterlife
of paper—far beyond its disappearance
and withdrawal. (Derrida,
2005, p. 46)

In *Funeral Arrangements*, this afterlife, or the physical absence, the missing body of the book in electronic space, is embedded within the altered images of flowers. The phantom

presence of the disembodied book, through this manifestation continues to follow us, as Derrida describes paper "... continuing to haunt the computer screen and all Internet navigations in voyages of all kinds" (2005, p. 46). The disembodied book will travel wherever the digital images are transmitted. Should the digital image be shared, so too will the book contained within it. Over time, these texts may well be forgotten, at least until the next occasion in which the files are 'opened' and the book it contains, revealed.

In his essay "Revealing Errors" Benjamin Mako Hill states:

From a reader's purely material perspective, books are books; the press that created the book is invisible or irrelevant. Yet, while the specifics of print technologies are often hidden, the affordances of any particular print technology has important effects on what is printed and how, effects that are often exposed by errors. (Nunes, 2011, p. 29)

By inducing errors in the code that encapsulates, and obfuscates them, these books, stripped of their traditional paratextual elements, continue to exert an influence on their environment through the errors they cause. These errors reveal the tendency of computer technologies to reduce, or screen, differences between media; the intersection of these books and images, both metalinguistic products, reveals otherwise hidden traits.

The permanence/permeability of the book is contingent on the atrophying effects of time. A kind of petrification occurs in the book. Inevitably, independently of the medium that constitutes it, the book will become as dry and brittle as the flowers pressed into its pages, acquiring the same status we attribute the clay tablets of the Sumerians. We will continue to build ziggurats, not of clay bricks, but of piles of books or digital files in our desktops, real or virtual. The medium is not the message here, what matters, what is the matter, is our ongoing and changing relationship to these ziggurats—here I must stress the importance of maintaining a distinction between media and mediation. Permeability and permanence are held in asymmetrical tension through

this idea of the ziggurat, whether it be of clay bricks, books or digital files. Ziggurats that tradition requires us to maintain until each, in turn, becomes but a monument.

Where
are the
boundaries
of the
book?

Where are the boundaries of the Book?

Artwork: *Worldbook* (2012).

After questioning the material causes of the book and its medial transformations, this chapter will address the question of the form of the book, or what Aristotle describes as the *Causa Formis*. I will begin by imagining the book as a boundary, as suggested by Genette (1997, p. 2). Admittedly, topographic metaphors risk being confused with other spaces of the book such as literary space (the space described by the narrative of the text for instance), psychological space (for reflection on or beyond the text), and social space (as in the case of marginalia) and others. But as a thought experiment, let us imagine Genette's scenario: the book actuated through a series of liminal spaces through which the reader can choose to pass. These liminal spaces are effectively boundaries, each defining a subset belonging to a larger system of meanings. Defining any boundary necessitates the establishing of

a closure that implies an (arbitrarily defined) interior and exterior to the book.

The idea of the book is the idea of a totality, finite or infinite, of the signifier; this totality of the signifier cannot be a totality, unless a totality constituted by the signified preexists it, supervises its inscriptions and its signs, and is independent of it in its ideality. (Derrida, 1976, p. 18)

The idea of the book remains separate, independent of the totality it signifies and that defines it, a framing device onto itself. Mae Hendersen draws our attention to Derrida's term 'parergon' introduced in *The Truth in Painting* (*La Vérité en peinture*):

... in which he examines this space that is neither essence nor ornamentation: "neither work (ergon) nor outside the work (hors d'oeuvre)." The spatial limits of the outside border (external edge) of the painting and the inside border (internal

edge) of the frame, “disconcerts any opposition” between “the outside and the inside, between the external and the internal edge-line, the framer and the framed.” (Derrida cited in Henderson, 1995, p. 237)

Or to return to our thought-experiment in bibliotopography, the boundary of the book belongs to both interior and exterior realms, simultaneously existing in finite and infinite domains.

I will attempt to demonstrate in this chapter how this paradox, brought about by the functions of the book that is both “framer and the framed” can be in part addressed by considering the boundaries of the book as a distinct domain. I will argue that the book is not simply a liminal space, as Genette suggests, that exists *between* what it contains (traditionally referred to, but not limited by ‘the text’) and the world of the reader that is beyond the book, but instead can be considered as a codependent but distinct *third space* onto itself. What for convenience has been considered a ‘no-man’s land,’ functioning as a static transitional zone between active states, is the domain we call the book. The implications

are important, to start with the idea of the book is not reducible to a ‘tool’ that remains passive in its transmission of information. It does not lay inert until wielded for the purpose of accessing some univocal truth that lays beyond language. Derrida warns that such lapses of signification cannot be reduced by reason or deduction, because “... language is the *rupture* with totality itself” (1978, p. 87). Not only does such a rupture cause a multiplicity of indeterminate meanings that cannot be simply closed by the book, but I will also argue that this notion of language’s rupture with totality is inextricably bound to the idea of the book.

A simple yet concrete example of this indeterminacy of the book transpired after my misreading of Derrida’s aphorism on the rupture of language that I cite above. A misreading that led me to write the marginalia in my edition of *Writing and Difference*: “language is the *rapture* with totality itself” to which I later added a reference to Thessalonians 4:17: “Then we who are alive and remain shall be caught up together with them in the clouds to meet the Lord in the air” (Thes. 4:17, *The Holy Bible*, 1828). Blissfully ignoring how faulty the foundations

to my reasoning were, I continued to add to these notes with further references to tropes regarding the remains of the book and its raptured return to the 'clouds.' In short, I did not heed Derrida's warning, and I misconstrued the incompleteness of language as reducible by reason, by attempting to provide my own (erroneous) closure. This brief digression did serve a purpose, since rereading the passage (and rereading my misreadings) I couldn't abandon the notion (antithetical to Derrida's) that an important function of language stems from its potential to be misconstrued. This incompleteness of language represents a symbolic 'rapture,' a mythical return to a totality that pre-existed it, "supervises its inscriptions and its signs," in other words the return to that totality which governs the book. In addition, the liturgical origins of the word 'rapture' coincide with those of the codex, which offers further reason for reflection on the 'promise' of the book in general.

So the remainder of this chapter will consider the book from the binary perspective of *rupture* (a divisive fracturing from a totality as suggested by Derrida) and *rapture* (a potential to reunite with that totality as suggested by chance or

endeavour), before concluding with an exegesis of the related work *Worldbook* that experiments with the systematic unmeaning of the book.

The rupture of the book

The Sumerian creationist myth of the Enûma Eliš described in the first chapter serves not only as a way to address notions of destruction and renewal in the book, but also the division and ordering of the infinite unknown into recognizable forms. Tiamat represents not only the source of everything but is also the thing that is cut into pieces by the hero Marduk, “role model for the culture of the West, who violently carves the unknown into pieces, and makes the predictable world from those pieces” (Peterson, 2002, p. 123). For example in the following passage from the fifth tablet, Marduk carves the stars of the infinite heavens into constellations, giving them familiar patterns useful for the prediction of seasons and navigation:

- 1 He fashioned heavenly stations
for the great gods,
- 2 And set up constellations, the

patterns of the stars.

3 He appointed the year, marked
off divisions,

4 And set up three stars each for
the twelve months.

5 After he had organized the year,

6 He established the heavenly
station of Ne-beru to fix the stars'
intervals.

7 That none should transgress or
be slothful

8 He fixed the heavenly stations of
Enlil and Ea with it.

9 Gates he opened on both sides,

10 And put strong bolts at the left
and the right.

— (Enûma Eliš, Tablet V,
translated by W.G. Lambert in
“Mesopotamian Creation Stories,”
Geller & Schipper, 2008, p. 15)

This instinctual act of organizing space and time through the division of the infinite into the finite is important to our understanding of the mythological implications underlying writing technologies. Already the act of scratching out a line to

leave a mark and define a boundary is a symbol that has not lost any of its power, an activity underlying many of my own typographic works as remarked by Steven Heller and Mirco Ilċ in their *Handwritten: Expressive Lettering In The Digital Age* (2004). The divisory mark invents a surface. All technologies of inscription can thus be linked to creationist mythologies where the unknown is divided into the familiar through the act of enscription. “Related to the Indo-European etymological root skribh, the act of enscribing, or writing, is to ‘cut, separate, make distinct’” (Báez & MacAdam, 2008, p. 10). The scribe’s mark permits the organisation of clustered meanings. It gives direction to writing, top to bottom, left to right, right to left or ‘as the ox ploughs.’ The hand is the agent for the invention of page-space, and with it the invention of that ontological relationship between body and book.

The pointed stylus that was made from reeds transformed into a wedge-like instrument called a Cuneus. The resulting Cuneiform writing—taking its name from the tool—was composed of small triangles of relatively uniform size. The regularity of this script implied an invisible grid through the linear arrangement

of its mark-making. The page became a self-organizing space. The machine, in this prosthetic form, was added to the human activity of inscription, signaling the beginning of the tri-logical relationship between text, machine and human that will persist for thousands of years.

This invisible abstraction of the wedge-like letterforms not only implied a gridded page but also, in general, opened the way to further abstractions through systems of writing, most importantly the shift from representational pictograms to the development of logo-syllabic writing (Higgins, 2009, p. 39). According to Higgins, that potential to form new meanings from compounds of these new abstracted letterforms was essential to the formation of “a new ancient world order—one dominated by trade” (p. 39).

The new global economy described by Higgins dictated the need to develop a page space with a binding and a reassuringly regular grid of horizontal lines of text aligned into vertical columns (all the better for numerical calculations). Higgins goes on to describe how Derrida arrives at this point from another perspective:

The trader invents a system of graphic signs, which in its principle is no longer attached to a particular language. This writing may in principle inscribe all languages in general. It gains universality, it favors trade ... That is why the alphabet is commercial, a trader. It must be understood with the monetary moment of rationality. (Derrida, 1998, p. 300)

The invention of the space of the book coincides with the establishing of relationships between monetary and literary concerns. Commerce, in all its different meanings that Jean-Luc Nancy describes, helped define many of the paratextual boundaries of the book (2009). The elements of the page, linear writing and the self-organizing space this implies, are fiscal in origin. The form of the book is grounded on numerological more than literal concerns. Here we are reminded that along with the earliest systems of writing, the Sumerians are believed to have also developed the first complex systems of mathematics (Maisels, 2003).

To attribute to Gutenberg's invention the introduction of the machine to writing is to artificially truncate this numerological impulse of writing and ultimately reduce the importance of our symbiosis with the machine. For example scribal activity, with its highly organised and ruthlessly efficient scriptoria, is already dependent upon the logic of the machine, the meticulous copying of letterforms into horizontal and vertical grids. The territory was already so densely mapped with paratextual boundaries dictated by this machine logic that Gutenberg's invention had almost no immediate effect on their appearance. Demonstration of this is how the commercial success of the Gutenberg Bible was based on its high production values and not on any identifiable visual change to the hand-inscribed versions it was based on. Gutenberg had invented the simulacrum of the book, one that could screen its own technological innovations in order to present itself perfectly frozen. To paraphrase Baudrillard, the book proceeded and replaced itself (1994, p. 1).

This symbiotic relationship between the body and the machinery of language continued through to the 19th century, when new

inventions alongside advances in the materials and supports permitted greater automation in typesetting and page design, for example the introduction of Linotype and then Monotype technology permitted the ‘setting’ of an entire word or line of words at a time (McMurtrie, Rogers, Lessing J. Rosenwald Collection & Pforzheimer Bruce Rogers Collection (Library of Congress), 1943, pp. 527-528). The end of hand composition of type with its laborious letter-by-letter construction signaled the last significant shift in the design and production of the book before its present metamorphoses in electronic space. Many of the design practices and principles of the 19th century have remained unchanged in over a century, indeed I have included many of them in my own *Handbook For the Graphic Arts* (Donnachie, Simionato, & Zanazzo, 2006). The move away from hand-composition signaled the end of imagining the page as a mirror. For the century that followed, the book entered directly through that combinatorial machine we call a keyboard. Every letter a key.

But by the early part of the 20th Century photographic reproduction had become commonplace and the page began to be perceived as an image.

Thanks to his experiments with photography and film, Moholy-Nagy was one of the first typographers of the 1920s who realised the potential of combining script, surface design, and pictorial drawing with the era's new photographic techniques (Moholy-Nagy, Pfeiffer, Hollein, & Frankfurt, 2009). Influenced by the “photo-mechanical processes” that were becoming widespread in this period, the page was imagined as a surface sensitive to varying densities of light and dark. This understanding of the page as a composite image was influential also for typographers such as Jan Tschichold whose books, despite his famous retractions, have been embraced by centers of graphic design around the world, maintaining a ‘moral rule’ over the design of the book for decades (Tschichold, Bringhurst, & Hader, 1991; Tschichold & McLean, 2006). In computer space this moral rule holds, as “the page remains a screen. ... It is primarily a figure of paper (of the book or codex), but the page nowadays continues ... ” (Derrida, 2005, p. 46).

By 1976 the Lasercomp was introduced, this device could image an entire page at a time. However it was in 1984 that a collaboration between Microsoft and Monotype permitted the

design and imaging, and therefore imagining of the page and book to come. This software was “an object-oriented language that describes type-faces and pictorial material as objects instead of bitmaps” (Pohlen, 2011, p. 142). In simple terms, this revolutionary software relies on the mathematical description of the boundaries of every letterform, or glyph, through anchor points, lines and Bezier curves. Each glyph becomes a geometric formula that divides an imaginary infinite Cartesian plane into smaller subsets of topographic space. Every letter is described through numbers. The name of this typographic technology that subconsciously implies both its scribal heritage and aspiration to move beyond writing is Postscript. This numerological writing preceeds the book (this is the monetary moment of rationality that Derrida describes) and surpasses it.

So, if the histories of the book symbolise the triumph of form over the infinite—like Marduk’s division of the unknown stars scattered across the sky into smaller clusters of recognizable constellations—then the boundary of the book, the formal question that binds the book, must always begin with the division from a totality

that pre-existed it. But the book can also be imagined as a promise of return to the totality from which it is taken. This promise of a totality is the basis for that powerful symbol of the book as synecdoche of universal knowledge.

Thus, the world, if it could be exactly translated and copied in a book, would lose all beginning and all end and would become that spherical, finite, and limitless volume that all men write and in which they are written: it would no longer be the world; it would be, it will be, the world corrupted into the infinite sum of its possibilities. (Blanchot & Mandell, 2003, p. 95)

If a rupture from totality brings the book into the world, then the promise of a return to that totality is represented by the world in a book, embodied in the histories of the *Encyclopædia*.

The rapture [sic] of the book

Formal questions of the book are not entirely resolved with the understanding of the book as a rupture from a totality, the boundaries of the book function not only to divide but also to bind. The book, in being an incomplete fragment of a totality must also carry within it some idea of the totality from which it is divided, and to which it refers. So the idea of the book encompasses the desire to resolve this incompleteness, to “fix the infinite” to borrow Meillassoux’s term (Meillassoux & Mackay, 2012). This promise of a return to a totality from which it was divided gives the book the properties of a synecdoche. A representation of the infinite from which it was divided and to which its return is always imminent yet constantly postponed. A pattern that the Christian doctrine has named the ‘rapture.’

The liturgical influences on the early development of the book’s shape (roll, polyptych, volumen, codex) and its medial shifts (papyrus bark, parchment skins and paper) have been already noted; the codex was considered superior to the increasingly deprecated scroll which it was slowly supplanting since “a large body of

material could be presented in one unit, reference to any part was easy, and the use of parchment made the unit durable” (Levarie, 1968, p. 20). Levarie’s description helps reveal the ontological directive of the book to move towards unification. The idea of the book presents itself as a unifying force.

The legacy of this myth of a universal-book with the capacity to hold multiple works simultaneously searchable as one encompassing unit persists in the rhetoric surrounding later transformations of the book such as its mass miniaturisation into microfiche film archives in the 1980s (Baker, 2002). Then there is the more recent mass-virtualisation of the book—exemplified by the attempted digitisation of every unique book by Google Book Search—to which I will return repeatedly in this research.

Presently I will outline some historical precedents to Google’s attempt at making a repository of universal knowledge, that for the purposes of this study I will refer to as the ‘Google book.’ For this purpose I refer mainly to Giulio Carnazzi’s and Enrico Fedriga’s *Il Mondo in un Libro* (*The World in a Book*) for a general

survey of the development of the Encyclopædia in Western Europe (2002).

There are many myths of finding the key to knowledge through the construction of a book that can contain every possible combination of words. From the earliest search for the mythical philosophical stone in the Mesopotamian era, the book has represented many attempts at containing all human knowledge in one unit. This desire for the exhaustive permutational resolution of a closed set of signs can be found in Borges' parable on the Library of Babel:

This thinker observed that all the books, no matter how diverse they might be, are made up of the same elements: the space, the period, the comma, the twenty-two letters of the alphabet. (Borges & Hurley, 1998, p. 112)

From its liturgical origins, the myth of collecting all knowledge in a single book is one of the most seductively persistent. As we have discussed in the first half of this thesis, the Mesopotamian and Sumerian scribes recorded

lists and inventories onto clay tablets; also lists of professions and titles; and places of products of commerce. Harriet Crawford describes various theories on the significance of this collecting and organizing of meanings into thematic areas, but regardless of what motivated the production of these ancient ledgers, they appear to be the beginnings of encyclopædic activity (2013, pp. 295-296).

One of the earliest known attempts for an ordered system of knowledge can be traced to Aristotle, whose works were organised into a ‘corpus,’ a body of works that ranged from what is now called philosophy to the listings of everyday events. The dream of universality held by Aristotle is given concrete form by the Ptolemies, “who want to make their capital ‘a city–museum’ gathering the intellectual heritage of Hellenism, and a ‘mirror city’ which will reflect the whole world” (Johnson & Parker, 2009, p. 145). The contents of this ‘mirror city’ was every unique book in the world:

They had a particular goal in view,
for they had calculated that they
must amass some five hundred

thousand scrolls altogether if they were to collect at Alexandria “the books of all the peoples of the world.” (Canfora, 1990, p. 20)

Within the myth of the Alexandrian library lies many of the identifying functions and purposes of all libraries to follow; “the reason for the creation of libraries ... is to preserve in this form all the knowledge of the world” (Johnson & Parker, 2009, p. 145). I will argue that the book represents a synecdoche of this ideal library, as it relies on the impulse to amass and contain knowledge.

Even if its etymological origins were Greek (*enkyklios paideia* was considered a collection of general knowledge for students) it was the Ancient Romans who sought a universal compilation of all Greco-Roman knowledge to date, such as the encyclopedic attempt—that would become a model for collecting canonical and contemporary texts—of Pliny’s 37 volume *Naturis historia* which globalised all previous bibliographies on botany, medicine and zoology, including many by Aristotle, alongside an

exhaustive recording of every possible scientific minutiae (Carnazzi & Fedriga, 2002, p. 9).

The proto-encyclopædia of the medieval also demonstrated the desire to create an exhaustive inventory of knowledge with titles like *Speculum*, *Tresor* (or *Thesaurus*), *Imago mundi*, *Summa* etc. The *Speculum* were often organised as collections of pre-existing volumes, forming archive-surrogates designed to be easier to consult and search. These medieval writers intended the metaphor of the mirror, or *Speculum*, to mean not only that the text represented the world, but that all the texts were a system of mirrors each reflecting the other (Franklin-Brown, 2012, p. 272). They were networks.

The analytic/arbitrary alphabetic ordering systems introduced within these Encyclopædias in the 17th century are read as representing not only a structural shift, but also an ideological and conceptual one, symbolising a new efficiency in ordering the knowledge of the world (Carnazzi & Fedriga, 2002, p. 15). Carnazzi goes on to cite the example of, how after the *Encyclopædia Britannica* begins publishing in 1768, Hegel adopts the notion of the

encyclopædia as a model of totality in his own works (Carnazzi & Fedriga, 2002, p. 15; Hegel, Lucas, Bonsiepen, Rameil, & Grotsch, 2000).

The encyclopædia becomes a model for the systemic compartmentalisation of knowledge, it is no longer required to hold and actuate a sustained argument but must deliver discrete packages of information without beginning or end. The desire to accumulate universal knowledge into a readily searchable volume without beginning or end finds a spectacular realisation in projects such as Wikipedia and Google, both subjects I will argue that hold an important significance to the evolving idea of the book as *summa* and *speculum* of networked knowledge.

Founded by Jimmy Wales in 2001, the online encyclopædia Wikipedia (www.en.wikipedia.org) in 2014 consisted of 31 million articles in 285 languages. This has prompted Wikipedia to describe itself as the largest reference site on the web, and one of the highest trafficked English-language sites on the internet (Baron, 2009, p. 195). The online encyclopædia has become a self-organizing body of thousands of volunteer contributors who can both write

original entries or edit existing articles on any subject. The ancient model of authorial expertise is gone however, as the Wikipedia site states, in fact, that “what is contributed is more important than the expertise or qualifications of the contributor.” (“Wikipedia : About,” 2014)

“The democratization of knowledge now seems to be at our fingertips. We can make the Enlightenment ideal come to life in reality” says the academic historian Robert Darnton (2009, p. 11). Utopian visions, such as Darnton’s are swiftly tempered by critics who foresee the potentially negative consequences of the populist project as outlined in Martin Cohen’s article “Encyclopædia Idiotica” (2008). Many of these concerns stem from the possibility of anonymous authorship connoting no clear delineation between expert opinion and that of an amateur. Wikipedian logic assumes that the community will “weed out” these unwanted entries in a process of collaborative review by “many experienced editors [who] are watching to help ensure that edits are cumulative improvements” (“Wikipedia : About,” 2014). This kind of informational ecology implies new parameters for determining the legitimacy of information,

for example the length of time an article has survived intact on Wikipedia becomes a sign of its trustworthiness: “Older articles tend to be more comprehensive and balanced; newer articles may contain misinformation and/or unencyclopedic content.” (“Wikipedia : About,” 2014) An inverse logic can be applied to the printed encyclopædia where caution dictates that the longer an article has remained in print *without* editing or revision the *less* likely its accuracy. Time becomes a liability for the aging paper-encyclopædia and a legitimizing factor for its digital surrogate.

Google is the first known philosophical machine that regulates our dialogue with the world by substituting “vague” metaphysical and ideological presuppositions with strictly formalized and universally applicable rules of access. (Grois, 2011, p. 5)

Google’s rules of access—the way a user must question Google—are so well known that they have been replaced by the verb ‘to Google’; every question entered into the search engine

must be formulated by a word or a combination of words.

The sum of all displayed contexts is understood here as the true meaning of the word that was asked by the user ... This true meaning appears as the only possible truth that is accessible to the contemporary subject. Accordingly, true knowledge as such is understood here as the sum of all the occurrences of all the words of all the languages through which mankind currently operates. (Groiš, 2011, p. 6)

The 'Google-book' thus appears as an ideological fulfillment of a primary directive of the book that is the promised return to a totality. Or rather, it is another in a history of ambitious attempts to address the question of universal knowledge, and it does so by moving beyond traditional philosophical formulations, such as the grammatically structured dialogical reasoning of previous models. Instead, as Groiš describes, Google proposes a liberation of the word from grammatical restraints permitting

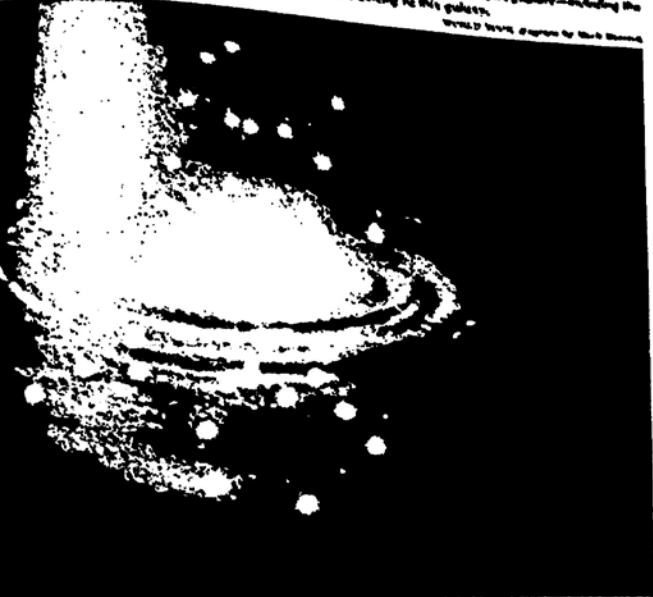
the democratisation and proliferation of metaphysics; every Google search becomes a struggle for the truth. I will argue that this metaphysical search for the truth is linked to the idea of the book in general, or that the impulse to search for a metaphysical truth, the primary directive of both the idea of the book and Google, originates from the shared belief in an external totality, with access to this totality perceived to be through a key to universal knowledge.

Before proceeding to an exegesis of my work *Worldbook*, I will conclude with the story of how Google acquired its name, which has all the charm of folklore but also hides a deeper significance for this discussion on the boundary of the book. The name of the infoglomerate originated through a misspelling of 'googol', a term coined by the nine-year-old nephew of its inventor Edward Kasner who defined a googol as a 1 with a hundred zeros after it. The naming of such a number, explains Kasner, has the function of fixing in our minds that we are still dealing within the finite (Kasner & Newman, 2013, p. 23). Yes, it is a very large number, but not impossibly so, for it can be reduced to the binding logic of a word. I would argue that the identity of

Continues p. 93

The Milky Way is one of more than a billion groups of stars called galaxies that are found throughout the universe. Among the billions of stars in the Milky Way are the sun and its planets—including the earth. All the stars we can see without a telescope belong to this galaxy.

WILLIAM H. STARR, Professor of Earth Science



which indicates the temperature of its surface. Temperature varies from about 3,000° F. for red stars to 50,000° F. for blue stars. Stars of other colors have surface temperatures somewhere in between. The sun, a yellow star, has a temperature of about 10,000° F. The brightest stars are not always the largest nor the closest to the earth. Brightness also depends on the amount of light energy that a star sends out. Rigel is farther from the earth than is Betelgeuse. Rigel sends out so much more light energy that it is brighter than Betelgeuse.

Star Motion. Every day, the sun and all the other stars seem to move across the sky, rising in the east and setting in the west. The rising and setting comes from the spinning of the earth, not from the motion of the stars. See Earth (How the Earth Moves). The sun is moving, but a star's motion produces only a change in its position among other stars. Astronomers measure this change—called *proper motion*—in terms of the angle that tells the direction in which the star is moving. Barnard's Star has the greatest known proper motion. It takes 130 years for this star to move half the angle equal to the diameter of the moon as seen from the earth. The closer a star is to the earth, the easier it is for astronomers to measure its proper motion. However, most stars are so far away

that their proper motion is too small to be measured.

The sun itself moves at a speed of 12 miles per second through the Milky Way. In addition, the sun and all the other stars of the Milky Way sweep around the center of the galaxy. This spinning motion of the galaxy gives the sun and the stars near it a speed of 150 miles per second.

Star Groups. The Milky Way has more than 100 billion stars. Many of these stars are in smaller groups called star clouds and star clusters. Pairs of stars are called double stars.

Star Clouds look like bright, hazy areas when seen without a telescope. The brightness comes from the millions of stars that make up these areas. Such clouds form a background against which astronomers can see dark clouds of interstellar (between-the-stars) dust.

Star Clusters may be either ball-like or of irregular shape. Ball-like clusters, called *globular clusters*, consist of thousands of stars. About 100 globular clusters lie around the center of the Milky Way. Irregularly shaped clusters, called *open clusters*, have from 10 to a few hundred stars. These clusters lie within the main "pancake" of the Milky Way.

Double Stars, also called *binaries*, consist of a pair of stars. Many double stars belong to larger groups that include other double stars and single stars. Such groups are called *multiple stars*.



Worldbook (2014) —
Digital archive

A DIY book scanning
device that automatically
creates images from the
pages of the
Encyclopædia whenever
movement is detected.
The device incorporates
natural phenomena such
as wind and trees.

Black Rock
1979-1980
100' section

Black Rock
1979-1980
100' section

Greenish
Upper Fe-
1.5 ft. sec
1.5 ft. sec
2.5 ft. sec

Ribbon
Cut for sec
1.5 ft. sec
401 meters

Black Rock
1979-1980
100' section
100' section
100' section
100' section

Google, in part subsumes this attempt to contain the infinite that the googol number it is based on embodies. Yes, Google is perceived to contain every letter and word combination, which must be a very large number of combinations, but not impossibly so for it can be reduced to the binding logic of a word. Lawrence Page and Sergey Brin, the founders of the company, decided on the name Google since they believed it described the ‘mission’ of their fledgling company that was “indexing the infinite content of information available on the Net” (Koller, 2004). Later, Page and Brin would widen this mission with the attempt to digitise every unique book in the world.

Worldbook

The artwork *Worldbook* makes use of a complete set of the *World Book Encyclopædia* that was purchased by my family in the late 1970s. Originally published in an edition of 8 volumes in 1917 by the Hanson-Roach-Fowler Company, The *World Book Encyclopædia* is published in Chicago, Illinois and is self-described as “the

number-one selling print encyclopedia in the world” (“World Book Encyclopedia,” 2014).

See
plans in
Appendix

The work *Worldbook*, consists in the automated ‘scanning’ of each of these 22 volumes. The construction for scanning of the books was originally made outdoors with recycled materials in order to benefit from the natural movement of air to turn the pages of the volumes. The final installation used 2 electric floor fans positioned facing each other on opposite sides of the volume such that they alternately turn its pages back and forth as they oscillate side to side. The over-head digital video camera takes an image whenever a computer program detects movement and sends the data to be automatically processed through Optical Character Recognition and added to a new digital surrogate of the original encyclopædia.

Like the *Funeral Arrangements* described in the first chapter, the work is designed to subvert the normalising forces of informatics. Furthermore, the induced scanning ‘errors’ disturb the arrangement of the formal paratexts of the page, frustrating our desire for making meaning the page returns to a series of illegible glyphs.

The phenomena resulting from improper or accidental scanning of paper books in Google's Book (or Library) project has resulted in a new pastime of searching for and collecting the scanning errors as documented in community projects such as *The Art of Google Books* or artworks like *ScanOps* by Andrew Norman Wilson (A. N. Wilson, 2012; K. Wilson, 2014). Such works heighten our awareness of the human relationship to the book, and specifically how the hand has remained an agent throughout its histories, from forming clay tablets, to the hand-setting of mechanical type to its mass-digitisation. These scanning errors include distortions from improperly positioned pages, the accidental inclusion of rubber-gloved hands of the operators, various marginalia and damaged pages.

Goldsmith describes this widespread interest in the 'glitched' image of the book as resulting from a mix of nostalgia and growing concerns for the effects of mass-digitisation (Goldsmith, 2013). This communal activity of collecting and sharing these scanning anomalies is both the celebration of the codex and stage for the critical discussion of its transferal to electronic space.

Instead of searching out and revealing errors in the existing systems of mass-digitisation, *Worldbook* deliberately incorporates the chance effects of natural forces (represented in the installation by the electric fans) into its transferal to electronic space. Furthermore, the completion of this process of digitisation is forever postponed as the pages are free to move back and forth according to the movement of air. *Worldbook* reveals and celebrates the arbitrariness in the processes of remediation of the book by embracing the resulting ‘errors’ of its deliberately imperfect system of acquisition. This system is an opportunity to develop a poetics through the imperfect mirror of the book, represented as the heir to the *speculum*. The disembodied book may lose its material vesting but not its vicissitude; the book maintains that incompleteness that Nancy calls its ‘illegibility.’

I have argued that the metaphysical belief in the possibility of a *summa* of information organised in a way that assumes a global or universally comprehensive view of the universe remains throughout the histories of the book and indeed extends to the digital realm. The univocal and monotonal authorial voice of the

encyclopaedia that was once a monument to efficiency and synthesis, is reorganizing into distributed networks of meaning in the late age of print. The *Worldbook* attempts to radically corrupt these notions of the encyclopaedia, in order to reveal the less than utopic outcomes of the emerging systems of communication that attempt to contain universal knowledge such as the community driven Wikipedia, or more overtly commercial models like that of Google. *Worldbook* offers a counter-model of indeterminacy to the systemic bias inherent in these infoglomerates who view the accumulation, storage and ultimately, control of universal knowledge as within their scope.

Projects such as Wikipedia and Google are an inversion of the idea of the book, instead of rupturing from a totality that is language, these projects of mass-digitisation disperse language into a 'cloud' of words that is presented as a totality without beginning or end. Access to this cloud of knowledge is possible through combinations of letters and words we call 'keys.' Following Groiř's description of Google, if a sufficient number of key combinations are entered then the *summa* of all responses would amount

to universal knowledge (2011, p. 6). Projects such as Google's are driven by encyclopædic urgency, and their success can be attributed to the mythological promise of rapture with the universal knowledge from which every book is ideologically divided. The promise is that "we who are alive and remain shall be caught up together with them in the clouds" (Thes. 4:17). What remains returns to the cloud.

Who
(or what)
decides
the
book ?

Who (or what) decides the book?

Artwork: Internet specific work
athrowofthedicewillneverabolishchance.com
(2014).

Un Coup de Dés orients the future of the book both in the direction of the greatest dispersion and in the direction of a tension capable of gathering infinite diversity, by the discovery of more complex structures. ... The book that collects the mind thus collects an extreme capacity for rupture, a limitless anxiety, one that the book cannot contain, one that excludes all content from it, all limited, defined, and complete sense. (Blanchot & Mandell, 2003, pp. 234-235)

So far we have used the first two of Aristotle's causes concerning Matter [*Causa Materialis*] and

Form [*Causa Formis*], in order to address the idea of the book *in general*. But examining material and formal qualities can only provide a limited understanding of the book as an artefact in stasis. It is time to address how changes in the book, in the idea of the book, occur in dynamic systems of exchange between co-dependent entities. This chapter will begin with Aristotle's third question of efficient cause [*Causa Efficiens*]: Who or what instigates, or resists, transformations in the material and formal qualities of the book? Or simply, who (or what) decides the book? When applied to the book to come in electronic space similar questions inevitably lead to the effects of shifting agency. Traditionally agency is ascribed according to a series of linearly structured relationships based on an understanding of the book as a mediating device; at first as a tool useful for the transmission of information along predetermined pathways (author > text > reader), and then directly as an extension, a prosthesis of the mind (McLuhan, 2001). The question of the book in electronic space has introduced notions of a distributed authorship where meaning travels according to a rhizomatic logic, and the book is perceived as another node within larger networks (Deleuze & Guattari, 1987, p. 8; Foucault,

1972, p. 23). This notion of shifting agency has complicated the question of efficient cause, the book is no longer perceived as the product of an artisan, or for that matter, after Barthes, it is not even evident that the book is the product of an author. Its authority is constructed and maintained through ongoing, dynamic and complex negotiations.

The artwork that leads this thread of the research is essentially an experiment in algorithmic design that, if successful, will provide an opportunity to experiment the changing relationships between text, machine and human by combining the two ideological ‘books’ of *Un Coup de Dés Jamais n’Abolira le Hasard* [A Throw of the Dice Will Never Abolish Chance] by the 19th century French symbolist poet Stéphane Mallarmé, and Google. Certainly defining these ‘books’ as such already carries some controversy; Mallarmé’s *Un Coup de Dés* exists tentatively between poem and book, its paratextual design ‘unfinal’ as demonstrated by many of its posthumous publications that mostly misinterpret, if not ignore, Mallarmé’s instructions, and Google, let’s admit it, is not a book at all. The latter of these controversies I have addressed at length

Hereafter
Mallarmé’s
poem and
book is
referred
to with the
shorter
form of
*Un Coup
de Dés*

in the previous chapter in which I described Google as grounded on the ideologies of the book as universal knowledge, the former I will address shortly. For the moment I will simply note that each work originates at opposite ends of the twentieth century; Mallarmé wrote his poem in 1897, and the Internet domain of Google was registered in 1997. Mallarmé's work originates from a period that marks the onset of mass industrial production of the book, for by the end of the 19th Century almost every major innovation in the printing process had been established, from the use of wood-pulp for the making of paper (1840), the rotary press (1846), half-tone photo-lithography (1880), Linotype and Monotype (1885). All technologies that would increase in speed and efficiency but would otherwise remain unchanged until the later part of the 20th century. Therefore linking Mallarmé and Google, while heeding my own caution as laid out in the introductory notes to this thesis, is principally an attempt to question the idea of the book at the extremes of a century long parenthesis of the book—from the age of print to what is increasingly described as the end of print (Blackwell & Carson, 1997).

Practical outcomes from this thread of the research include the participatory online environment for the experimental interpretation of Mallarmé's poem, for which the site employs the English title:

athrowofthedicewillneverabolishchance.com

A Throw of the Dice

Stéphane Mallarmé is one of France's major 19th Century poets, his contemporaries include Charles Baudelaire, Paul Verlaine, and Arthur Rimbaud. His poetry is generally acknowledged to be difficult to understand because of its rigorous grammatical structures, complex syntax and obscure symbology (Bowie, 1978). Furthermore, the poem in question has been described as "one of the most indecipherable pieces of writing in any literature" (Cohn & Mallarmé, 1980, p. 3). For these reasons I will limit my discussion regarding the literary meanings of Mallarmé's poem to what is practical for elucidating the visual (paratextual) elements of the book.

To start with, the subject matter of Mallarmé's poem *Un Coup de Dés* can be summarised as follows; a ship's captain, or Master, is floating on the ocean in a terrible storm, in the depths below him lies the wreckage of his ship. The Master is holding the dice that he hesitates to throw but realises that if this throw of the dice takes place, it will reveal the Number. This Number is said to be unique and is suggested by some scholars to hold the key to the poem itself (Meillassoux, Mackay, & Mallarmé, 2012). Mallarmé has written that the task of the poet is not to explain, but to suggest. "To paint, not the thing, but the effect it produces" (Cohn & Gillespie, 1998, p. 67). In the case of *Un Coup de Dés*, it is necessary to move beyond literary expositions to uncover the subject that lies at the heart of the book, that is its own revealing.

When Stéphane Mallarmé first showed his friend Paul Valéry a version of his poem *Un coup de Dés* that he had hand-written on quadrille paper in early 1897 it so deeply affected Valéry that he would later write:

It was as if I saw a figure of thought
[une figure de la pensée] placed in

our space for the first time ... here,
truly, extension spoke, dreamed,
gave birth to temporal forms;
anticipation [*l'attente*], doubt, concentration, were visible things. My sight was directed at silences that had become embodied [*qui auraient pris corps*]. (Guerlac, 2000, p. 98)

These 'embodied silences' are the distinctive white spaces that occupy a majority of the double page spreads with their distribution of words and groups of words across the page space. Indeed the space has been quantified to occupy 72% of the work (Charité, 1987, p. 83). All of which has contributed to establishing a position for the book that places it not only within literary canons but also those of the visual arts and graphic design. One example among many that demonstrates the influence of the poem/book's visual experimentation that until then had rarely been considered the domain of the author is Philip B. Megg's entry for *Un Coup de Dés* in his History of Graphic Design:

In 1897, the French Symbolist poet
Stéphane Mallarmé (1842–1898)

published the poem “Un Coup de Dés” composed of seven hundred words on twenty pages in a typographic range: capital, lowercase, roman, and italic. Rather than surrounding a poem with white, empty margins, this “silence” was dispersed through the work as part of its meaning. Instead of stringing words in linear sequence like beads, they were placed in unexpected positions on the page to express sensations and evoke ideas. (Meggs, 1992, pp. 242-243)

For these reasons, Mallarmé’s poem/book presented itself as an ideal subject to begin an examination of the deliberate subversion of paratextual elements of the book. Furthermore, the poem has been the subject of countless interpretations, notably by Marcel Broodthaers who redacted all of the text with linear black rectangles, foregrounding the importance of the relationship between the words on the page that has been described as representing “an extension of Mallarmé’s poetics” (Dworkin, 2003, p. 150). So, in the wake of many critical, theoretical

and artistic interpretations, I set out to create my own experimental edition of the book; how naïve I was.

The first difficulties I encountered arose from the assumption that a univocally agreed, fixed combination of paratextual elements of the poem could exist—it didn't. Plans to produce the first edition of the book by the publisher Didot were soon abandoned after Mallarmé's death in 1898, and the book remained unpublished until 1914 when Mallarmé's son-in-law, Edmond Bonniot succeeded in producing a version that was however smaller in dimensions and with an entirely different typeface than was agreed on for the unfinished Didot edition (Charité, 1987, p. 93). Until then the book that was to come existed only as an 'unfinal' version in the edition of the literary magazine *Cosmopolis* of May, 1897. This preview of the work placed one double page spread per single page of the magazine, furthermore it was described as incomplete by Mallarmé himself. With each new edition, additional variations of the paratextual elements entered the work. The most extreme example being the edition with arguably the widest distribution, the Google-book project's

digitisation of Bonniot's original 1914 edition. In the Google-book version the double pages of Mallarmé's work are presented as a continuous scroll of single pages, not only destroying the back and forth motion of reading across the gutter (a conceit Mallarmé had intended to symbolise the motion of the mast of a vessel as it floats on rolling waves) but also disrupts the page order making the most simple of semantic connections unclear. Even when the pages are visualised correctly, the lines of the poem attain an arbitrary alignment due to the uneven acquisition by the imaging device, those that should line up across the gutter do not correspond, and together with the addition of archival signs (library stamps, underlines and other marginalia) the poem is unrecognizable. However, there is no reason to attribute any less authenticity to this version, indeed if a sufficient number of readers, critics and scholars refer to this 'Google-book' version then it will attain the same if not more authenticity than the original 1914 document it was scanned from.

These examples of paratextual ambiguity prompted me to search for an edition more faithful to the author's intent. Knowing that all

editions of the poem in book form were published posthumously, my only choice it seemed was to source a more authentic artefact of the poem in the original printer's proofs comprising Mallarmé's hand annotations for the unrealised edition by Didot of 1898. Which is how, in the early summer of 2011, I found myself sitting in the dimly lit reading room of the rare books collection of the Bibliothèque Nationale de France (BnF), Paris.

As I began leafing through the printer's sheets my initial thoughts were how similar these proofs were to countless others that I have handled over the years, even the way that the sheets were loosely bound between two pieces of grey card felt familiar. The poem/book appeared suspended in an industrial flow of production more than a century long, still awaiting the author to write: "Good to print!" (or "bon à rouler") alongside his signature. Once signed, proofs represent that final approval of the author and form a contractual agreement with the printer, they 'authorise' the printer and officially, legally and psychologically transfer agency. This linear progression of agency is peculiar to the industrial age of printing, out of place both in the collective authoring

of projects such as Wikipedia, as it was in the former medieval scriptoria (Carpo, 2011, p. 118).

The staff at the BnF had advised against using gloves, (they only dull our senses and increase the possibility of accidental damage, I was told) so I gingerly moved through the proofs copying Mallarmé's annotations onto my own block of quadrille paper. Across each printer's sheet representing a single page—these proofs were not yet in an imposition for print so they could be read as if in the final sequence—were several markings in red and blue, reportedly he had reviewed the pages in two separate occasions using a different colour for each set of corrections. Numerous brief annotations regarding alignment were written near thin, spidery lines that were clearly intended to indicate a relationship between the baselines of the parts of the texts that ran down and across the spreads. Many lines crossed from one sheet to another as these sentences were intended to be read across the gutter of the double page spread. Almost every page repeated the same obsessive notes that connected parts of the poem both horizontally or vertically. It was evident that Mallarmé was concerned with the mapping of the lines of text, whether

single words or longer lexia, and sculpting the white space on the page more than achieving figurative calligrams. At least, if his intention was to construct calligrams I found no indications on this proof, instead these corrections all indicated a concern with employing the space of the page as another variable at his disposal for the making and unmaking of meaning.

From these proofs an understanding of the author's paratextual concerns for the realisation of the poem could be inferred, that along with observations documented by other scholars can be summarised as follows:

1. Only two typefaces are used throughout *Un Coup de Dés*, Roman and *italic*. The alternating uses of these, along with the use of all CAPITALS, has been suggested by Mallarmé to allow the reader to uncover "a latent conducting line" in the poem.
2. The poem has been linked to the historic traditions of suggesting images through the deliberate positioning of textual elements but does not, in my opinion, demonstrate the use of calligrams as can be seen in famous precedents to

Mallarmé's work such as George Herbert's poem "Easter Wings" (1633). Rather, if this were a priority for Mallarmé I could find little evidence. Mallarmé's designs were intended to conduct the reader's gaze and emphasise semantic relationships, not to create pictures from words. As Malcolm Bowie argues, Mallarmé is not a 'calligramatical' poet (Bowie, 1978, p. 119).

3. Mallarmé's deliberate manipulation of page elements to define distinct positive and negative areas of the page anticipates the work of typographers such as László Moholy-Nagy. Analogies to constellations of stars have been proposed by a long list of scholars, beginning with Valéry who imagined the black ink of the letters and the white of the page inverted to become white stars in the night sky (Guerlac, 2000, p. 98). Possibly due to this precedent, along with the words "*UNE CONSTELLATION*" that appear on page 11 of the book, ideogrammatic representations of constellations through the positions of words in the poem have been noted. This subject has received detailed attention and prompted a preliminary work in this thesis involving 3d mapping of the poem's page space.

4. Mallarmé's typographic connection of lines of text on different pages through vertically or horizontally aligning words or sentences, including the alignment 'through' pages, as if imagining them to be transparent—an effect made possible through the use of vellum. This gives the work a further dimension in depth, and possibly another potential method for semantic manipulation through the paratext. The paper of the printer's proofs I held was too opaque to allow a confirmation or otherwise of this conceit. Possibly when the poem was still on the more transparent quadrille paper, the alignment through pages was visible by simply overlaying sheets or holding them against a source of light. To confirm the effect on the printer's proofs I held would have required a rapid back and forth movement of one sheet over another (a technique I didn't dare experiment in this environment) or some other method to determine if the desired effect had been achieved. In my own design practice when determining the correspondences of printed matter 'through' pages (for example, from recto to verso, or from one sheet onto a second) I would insert pin holes through the sheets to verify if elements were correctly aligned. But unfortunately it did not

occur to me to look for similar holes during my examination of the sheets. If they do exist then this would be sufficient proof that Mallarmé or the printer were interested in verifying the correspondence between the positions of lines of text over multiple pages.

With this knowledge I returned to the various editions of the poem, with the confidence that I could identify and empirically measure the necessary paratextual variables to determine a mathematical model of the poem. This process resulted in the precise measurement of the following variables for approximately 200 individually numbered lexia (words or groups of words):

1. the page number
  2. the location of the bottom left of the first character on a line in mm from the left margin of a double page and in mm from the top of the page
  3. the height of the text string in mm
  4. the font type, Roman or *Italic*
  5. the case, Upper or lower
  6. the number of words in the string
  7. the length of the string in mm
- Additional information:

8. number of letters in a string
9. average width of a character in a string, counting spaces and assuming that the width of a space is the same as the width of a character

– (Mueller & Simionato, 2013)

Together with Ute Mueller, a scholar in the field of mathematics specialising in geostatistics, strategies were devised that would permit the statistical simulation of Mallarmé's poem—the resulting statistical tables and calculations are appended to the internet site for this artwork. These methods were analogous to a reverse-engineering of the poem, returning it to a hypothetical proto-book not dissimilar to the notion of the hand lettered poem on the large sheets of quadrille paper that Mallarmé had first shown Paul Valéry.

My first use of this data was in the construction of 3-dimensional array 'point-clouds' (using 3d-imaging software) that permitted the visualisation of the paratextual elements of the poem, their occupancy of the page space and relative distribution. The remarkable result of

For 3D
images
see
Appendix

the rendering of the wireframes of these ‘point clouds’ was how similar these looked to the constellations that Mallarmé himself conjectured in his release of the work.

Continuing in the vein of imagining *Un Coup de Dés* as a topography or constellation, the following step involved analysis of this data to generate a statistical inference of the patterns of semantic distribution, so that any number of ‘variations’ of the paratextual structures in Mallarmé’s poem could be generated algorithmically. In other words, the same statistical data that was used to generate the point-cloud constellations would be used to build a Mallarmé-machine that would statistically infer where the text of the poem would fall on the page and with what semantic emphasis, and then would generate unlimited, but statistically plausible variations of the book. For this stage of the work I enlisted the help of Karen ann Donnachie who used Ute Mueller’s statistical calculations to create algorithms for a program to generate editions of the poem in which the paratextual elements are reorganised according to the statistical probabilities derived from my initial empirical measurements. The program automatically determines,

after a virtual roll of two dice, the number of words in a line, the length and height of the line, the font (Roman or *italic*), its case (Upper or lower), and where the line is positioned on the page. It completes one double page spread before moving onto the next, repeating the processes until the book is complete. Because the program accomplishes these processes in accordance with a statistical weighting calculated from the original *Un Coup de Dés*, it attempts to deliver an algorithmically generated distribution of paratexts of Mallarmé's poem, potentially capable of producing any number of new editions of the original fixed text of the poem.

It is important to underline that these editions are not simply randomised outcomes, but statistically weighted according to Mallarmé's intentions for the book. The visual indication that the machine is working correctly, called 'goodness of fit' in statistics, is determined by comparing the machine's outcomes to Mallarmé's original. Put simply, if the Mallarmé-machine is generating books that look sufficiently like Mallarmé's original, then the machine can be assumed to be working correctly. Or conversely, given a finite number of attempts, it is conceivable that the

Continues p. 128



un coup de dés jamais

QUAND BIEN MÊME

lancé

éternelles

SOUS UNE INCLINAISON PLANE DÉSESPÉRÉMENT
d'aile

par avance retombée

à dresser

*A throw of the dice will
never abolish chance*
.com (2014) — Work in
progress

Screen-capture showing
one of the algorithmically
generated editions based
on a model of statistical
inference developed from
Mallarmé's 1897 original.

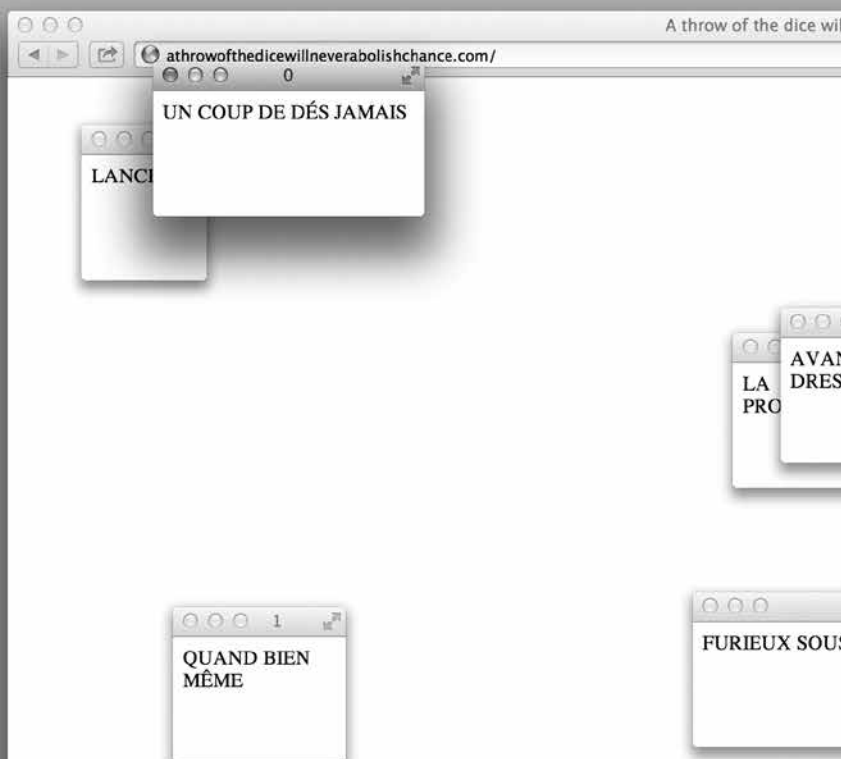
dans des circonstances

du fond d'un naufrage soit que

l'abîme blanchi étale furieux

la sienne

d'un mal



*A throw of the dice will
never abolish chance
.com (2014) — Work in
progress*

Screen-capture of an
abandoned experiment
that automatically
opened 'pop-up' browser
windows with positions
on the screen calculated
according to Mallarmé's
original design.

DANS DES CIRCONSTANCES
ÉTERNELLES

DANS E VOILE
TIVE

D'AILE LA
SIENNE PAR

NCE R
SER MAL À

ET COUVRANT LES
EMENTS

DU FOND D'UN NAUFRAGE SOIT QUE L'ABÎME
BLANCHI ÉTALE

S UNE INCLINAISON PLANE DÉSESPÉRÉMENT

À L'INTÉRIEUR RÉSUME L'OMBRE ENFOUIE

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spinning

advised

and

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our

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*A throw of the dice will
never abolish chance
.com (2014)*

A screen capture from the final version of the work. The algorithm not only reproduces the positions according to Mallarmé's indications but enlists Google's reCAPTCHA program to populate the poem with words (and sometimes numerals) from Google's archive of digitised books. Pages 7-8 shown.



Reader



BISH
 obola
 SALADE
 same
 lozenges
 among
 fiscal
 alenyo
 gnsper
 CITIES
 SOCIETY
 liveth
 1887
 direyo
 thou
 sizes
 023/235

machine generates an edition perfectly matching Mallarmé's original blueprints.

Through experimenting with the variables in the Mallarmé-machine a curious pattern emerged when instead of randomly selecting the pages of the book to simulate, we selected them according to one of 11 possible outcomes of throwing a pair of die, with each selected spread removed from the potential total number of pages. The implication of the discovery appears significant to an understanding of the internal combinatorial logic of the poem, and above all the experiment prompts a simple yet important question: What if Mallarmé had used dice to determine the arrangement of certain elements of the design of *Un Coup de Dés*?

Evidence that supports such a possibility can be inferred from notes that Mallarmé kept, describing his ambitious and unrealised (we will return to the significance of this last word shortly) masterwork that he called simply *Le Livre* 'the Book.' Meillassoux describes Mallarmé's detailed sketches for the Book that included the organising of reading 'ceremonies' analogous to a secularised mass:

...a ceremony whose Bible would be a Book made of mobile pages, without the name of an author, and whose officiant is presented as an ‘operator’ joining two by two the loose-leaf pages according to a complex combinatorial that, so it seems, was intended to discover a multitude of meanings that would vary with the connections. (Meillassoux & Mackey, 2012, p.24)

According to these notes, Mallarmé’s conception of the Book included unbound double-page spreads that could be re-shuffled according to a “complex combinatorial” affording the reader new meanings. Some scholars have argued that Mallarmé’s universal masterwork of the Book was not purely imaginary, but had found its “support and reality” in *Un Coup de Dés* (Blanchot & Mandell, 2003, p. 234). Whether *Un Coup de Dés* was the realisation of the Book that Mallarmé theorised is unimportant here, it is suffice to note Mallarmé’s interests in the potential for generating new meanings from the perpetual recombination of the paratextual elements of the book, precisely the outcome of our

Mallarmé-machine. These first experiments in applying this combinatorial logic of the dice to the *Un Coup de Dés* triggered an excitement of having perhaps uncovered the poem's hidden 'key' within the book. What if the poem already represented a 19th century proto-algorithmic artwork? A generative (hyper)text-machine that consciously experiments a program for reading?

The Metaphysical reCAPTCHA

Once operational the Mallarmé-machine could generate continuous variations of the poem's paratexts so successfully that without prior knowledge of the poem, the casual reader could possibly mistake a machine-generated version for the original. This automated flow of simulacra prompted the further question of how to heighten the reader's awareness of the role of the machine in the making of the poem? Furthermore, these simulacra unwittingly fetishised early 20th century print technologies, such as through the use of the distinctively early-Modernist Didot typeface on a pristine white 'page,' failing to engage the reader with the affordances of electronic space. Finally, these

constant typographical variations also resulted in the foregrounding of the only element that remained fixed, the text. The risk was that the text of the poem would overshadow its pattern, the opposite of my intention. This last point offers an insight to Marcel Broodthaer's own intervention on Mallarmé's poem in which he redacted the words with black boxes, presumably to divest the text of all semantic power in order to celebrate the paratext.

With these questions in mind, the artwork entered a new phase that consisted of a more conscious and evident distribution of agency as well as providing a way to bridge Mallarmé's 19th century poem/book to the infoglomerate Google. The bridging of these two subjects that sit a century apart was accomplished through appropriating Google's own reCAPTCHA program for the making of the poem, a program that bears some explanation.

'reCAPTCHA' is a user-dialogue system originally developed by researchers at Carnegie Mellon University and acquired by Google in September 2009. It is based on the 'CAPTCHA' interface, an acronym that stands for 'Completely

Automated Public Turing test to tell Computers and Humans Apart.’ Users are commonly asked to type the wavy or distorted characters to ‘prove’ they are human in order to access specific areas of a website. Based on the current limitations of a computer program’s ability to read distorted text as well as humans can, the CAPTCHA system assumes the role of sentry against automated programs that attempt malicious use of online services (von Ahn, Maurer, McMillen, Abraham, & Blum, 2008).

The Google reCAPTCHA system however goes further by capitalising on the human effort of ‘reading’ the distorted texts as verification and adds to it a system that helps digitise the texts of books. A major limitation in the digitisation process of books is the less than perfect Optical Character Recognition (OCR) of words in images of scanned pages, so the reCAPTCHA takes advantage of the superior human faculty to read even distorted or wavy texts, to assist in the mass-digitisation of books, “...enlisting humans to decipher the words that computers cannot recognize” (von Ahn et al., 2008).

The final published artwork employs an algorithm that calls on reCAPTCHA in order to generate the randomised text and paratext of the poem. Each visitor to the site will generate a unique series of reCAPTCHAs, and therefore a new edition of the book. The visitor is encouraged to submit the generated book back to the Google Book project as it constitutes a new edition of Mallarmé's work. When Google's OCR systems eventually fail to correctly 'read' the edition it will once again enter Google's reCAPTCHA program. An 'edition' generated by the artwork may potentially contain words from previous editions. This recursive cycle between the making and unmaking of meaning, between the artwork and Google, represents the incompleteness of the book in general. An incompleteness that returns us to the question of who (or what) decides the book.

Mallarmé was acutely aware of the question of agency. Roland Barthes describes Mallarmé as the first to substitute language itself for the author, although perhaps not for the purpose of, as Barthes claims, restituting its place to the reader (Barthes & Howard, 1989, p. 50). Instead, it is the movement of fragments of text in the

poem that replaces the narrator and narration (Hoffer, 2006, p. 57). Movement that results in the conception of the poem as a combinatorial machine, the figure of the author is replaced with constantly moving configurations of words like constellations across the page:

The suppression of the I and of personal consciousness ... The negation of itself is the precondition of the work's creation and of the resurrection of the true life, which is not the immortality of the I in the beyond but rather the act through which the infinite absorbs chance and fixes it in a constellation—a figure in rotation, a configuration. (Cohn & Gillespie, 1998, p. 128)

In a letter to Cazalis, Mallarmé writes “I have just had a dreadful year; my thought has thought itself and has arrived at a pure conception. ... Now I am impersonal and no longer the Stéphane that you knew” (Cohn & Gillespie, 1998, p. 128). Mallarmé's *Un Coup de Dés* appears to have brought on a perceived loss, not the loss of the Master in the narrative of the poem, but the loss

of the intellectual presence of the poet (Robb, 1996, p. 212). Derrida locates this loss in the act of writing itself:

Death strolls between letters. To
write, what is called writing,
assumes an access to the mind
through having the courage to lose
one's life, to die away from nature.
(Derrida, 1978, p. 87)

The book necessitates this loss, or dying away from nature as Derrida suggests, so that the reader may return to it. "A writer only begins a book," wrote Samuel Johnson, "A reader finishes it." Umberto Eco describes this as the reason that, without the reader to help operate it, the book remains a 'lazy machine' (Eco, 1994, p. 3). In short, the book is already an instrument for the transfer of agency because without this transfer it remains unrealised. When referring to Mallarmé's Book (*Le Livre*), in the essay "Livre Irréalisé" Derrida makes an important distinction:

Unrealized: this does not mean
that Mallarmé did not succeed in
realizing a Book which would be

at one with itself—he simply did not want to. He unrealized the unity of the Book by making categories in which it was supposed to be securely conceptualized tremble... (Derrida, 1978, p. 29)

Mallarmé intuitively creates an incompleteness that he realises will be treated as a cipher, thus rendering the poem capable of generating a multiplicity of meanings. But Mallarmé places this missing piece within the work itself, the book thus becomes both the key and the lock. Like Kafka's deliberate omissions within his own works, "this gap leaves it continually in want of a completion that commentary always tries to supply" (Dowden, 1995, p. 70). This is the incompleteness that Maurice Blanchot believes is the condition of literature itself, and that Jean Luc-Nancy describes as the 'illegibility' of the book, that failure "to achieve its deciphering, to shed light on its sense" (Nancy, 2009, p. 27).

Grois has argued that to enter a search term into Google is a metaphysical pursuit for truth that moves beyond the rigid structures of language and into 'clouds' of words. Through its

reCAPTCHA program, Google is demonstrating its own search for meaning by enlisting the help of humans to complete what cannot be completed. My artwork, the subject of which is Mallarmé's poem and book, re-appropriates Google's appropriation of the human faculty to make meaning. Google's attempt at remaking meaning is unmade by my interpretation of Mallarmé's poem. This making of unmeaning then in turn represents the metaphysical reCAPTCHA of the book.

Addendum: The Number

The rapid advances in the development of digital technologies dictates an expectancy for change, so contingencies were made for new information that would inevitably come to light during the writing of this exegesis. However this did not prepare me for the appearance of new elements in the reCAPTCHA program in the closing months of 2013. As work on the Mallarmé-machine was concluding we noticed a change in the reCAPTCHAs that we were accessing for the making of the poem. Instead of always being purely text based, these reCAPTCHAs would occasionally

appear as a typographic numeral alongside a photograph of a second number. Some investigation revealed that Google had, with uncharacteristically little fanfare, successfully brought the Google-book project up to date—although at the moment of writing this remains conjecture. If it were confirmed the implication would be that Google has achieved the mass-digitisation of all unique books. Subsequently, Google appears to be utilising the reCAPTCHA program in part to help decipher house-numbers for its streetview/mapping services.

The Mallarmé-machine was based on the idea of experimenting with combinatorial logic as an attempt to decipher the meaning of the poem, a meaning that has been argued can be only unlocked through the discovery of the Number. The algorithm of the Mallarmé-machine was designed however to serve texts generated by Google's reCAPTCHA program, but presently and without our intervention, it also attempts to construct the poem by recombining numbers. In these instances, the work is both visually manifesting the numerological originality of the book, and revealing its incompleteness.

What
is the
book
for?

What is the book for?

Artworks: *Silent Readings* (Digital video, 2012–ongoing) and *A Jagged Orbit* (Digital sculptures, 2013).

Reading means stripping herself of every purpose, every foregone conclusion, to be ready to catch a voice that makes itself heard when you least expect it, a voice that comes from an unknown source, from somewhere beyond the book, beyond the author, beyond the conventions of writing: from the unsaid, from what the world has not yet said of itself and does not yet have the words to say. (Calvino, 1993, p. 239)

This chapter begins with a seemingly straightforward question: What do you do with a book? In keeping with our Aristotlean framework, this question would correspond to a fourth and final

cause [*Causa Finalis*] or *telos* of the book. Along with each of the previous causes interpreted as Matter [*Materia*], Form [*Formis*] and Agency [*Efficiens*], the question of Function [*Causa Finalis*] can be considered another explanation, or ‘why’ for the book. The final cause or *telos* of something is a dynamic cause that needs to be considered through an exploration of the co-dependent elements of the book and its final uses. For this research those elements are at least two, the book and the reader. In the previous chapter I used the subject of Mallarmé’s poem *Un Coup de Dés* to explore notions of ‘incompleteness’ in the book. Mallarmé’s conscious manipulation of the book’s indeterminacy—what Nancy calls the ‘illegibility’ of the book—was useful in addressing the idea of the book in general and in electronic space. Wolfgang Iser argues that these ‘gaps’ of meaning in the book become definitive for reading, where “the asymmetry between text and reader stimulates a constitutive activity on the part of the reader; this is given a specific structure by the blanks and the negations arising out of the text, and this structure controls the process of interaction” (1980, pp. 169-170). These ‘blanks’ and ‘negations’—visually manifested through the topographic space

of the page in the case of Mallarmé's poem and book—necessitate the reader in order to actuate, setting the machinery of the book into motion.

In essence the book speaks to, it is addressed, it addresses itself, it destines itself, it turns toward an interlocutor who is therefore a reader. The book doesn't speak of, it speaks to, or rather, it doesn't speak of without also speaking to, and in such a way that that address becomes in-dissociable, essentially undetachable from what is spoken or written "about." (Nancy, 2009, p. 12)

So in order to resolve this 'why' of the book we must also ask 'What, then, is reading?'

The title of one of the artworks for this thread of the study, *Silent Readings*, can be interpreted in at least two significant ways: the first and perhaps more self-evident meaning of 'readings' refers to the cognitive process of decoding symbols to derive meaning, for example from a text (as intended in "reading a book"); the second meaning

is intended as a way to gaining insight through an interpretation of the book as a metaphor or symbol (as in “reading the signs”). I propose that both of these functions, the reading of the book as transmitter of codified signals, and the reading of the book as a sign in and of itself are inextricably related and to some degree always at play. First I will briefly address the mental activity of reading, in order to demonstrate how its common misconception limits the broader understanding of the function of the book.

Psychological studies in reading began in the 1970s as an extension to the growing interest in cognitive psychology from the previous decade. “Reading is a splendid natural laboratory for cognition, one that can be linked to almost all cognitive processes from sensation and perception on up to comprehension and reasoning” (Crowder & Wagner, 1992, p. vii). This understanding of the neuropsychological study of reading, perceived as a portal into the mind is of particular importance. Traditionally considered a set of skills that are “taught,” research has demonstrated that instead of being an entirely cultural invention visual language is also grounded on biological foundations (Beech & Colley, 1987,

p. 31). For example our eyes do not scan the page in the same ways that the page is organised. The French ophthalmologist Émile Javal demonstrated this through her discovery that our eyes actually move around the page in saccades that occur 3 or 4 times a second, at speeds around 200 degrees a second (Manguel, 1997, p. 37). These rapid and erratic movements of the reader's eye happen between successive periods in which the eyes remain directed at a single point, called fixations, permitting "the pickup of information from a page as being a succession of still snapshots, each superimposed on the last one" (Crowder & Wagner, 1992, p. 8). Instead of following the page's paratextual directives the reader's eye moves according to some other, biological faculty, in this way, "they generate meaning as they read by constructing relations between knowledge, their memories of experience, and the written sentences, paragraphs and passages" (Pirozzolo & Wittrock, 1981, p. 229).

Recent advances in brain imaging methods permit the mapping of the areas that activate in the brain when we decipher these 'snapshots' of the page. Dehaene describes how these new understandings are leading to a theory

that postulates how the circuitry we need for reading was inherited from our primate evolution, “our neuronal networks are literally ‘re-cycled’ for reading” (Dehaene, 2009, p. 9). In other words, reading occurs somewhere within existing neuropsychological networks that have been ‘re-cycled’ to interpret the encodings of the page. Reading is not quite the product of a language that is “arbitrary absurdity” as Manguel fears (1997, p. 39). Instead, these ‘re-cycled’ neuropsychological networks are used in “a generative process that reflects the reader’s disciplined attempt to construct one or more meanings within the rules of language” (Pirozzolo & Wittrock, 1981, p. 251).

If reading then, is not only the abstracted processes of the mind, but also a biological activity, then why not extend this function of the book to the body in general, addressing both the physiological as well as neuropsychological domains?

“The act of reading in time requires a corresponding act of reading in place, and that the relationship between the two is inextricable” (Manguel, 1997, p. 151). Manguel goes on to cite Colette’s observations that “not only do certain books

demand a contrast between their contents and their surroundings; some books seem to demand particular positions for reading, postures of the reader's body that in turn require reading-places appropriate to those postures" (p. 151). Again, when describing the interactions of the Early modern reader and the text, Sharpe and Zwicker conclude how "in a variety of ways, reading was as much a moral and physiological phenomenon as it was a mental activity" (2003, p. 218).

The *idea* of the book is not reducible to a device for reading in the mind. Reading is a phenomena resulting from relationships between the body and the book; its paratextual supports have been designed for and through these symbiotical relationships.

In order to examine the final 'why' of the book as 'reading,' understood as an evolving relationship between mental and physical activities, two practical works were developed. The first of these works, called *A Jagged Orbit*, involved creating a system of capturing and visualising the physical act of hands reading paperbound books, what I describe as the micro-motion of reading. The second practical work, called *Silent*

Readings, collects portions of existing films in which actors read books in silence, and represents a study of what I call the macro-motions of reading.

A Jagged Orbit

See
image in
Appendix

Work on *A Jagged Orbit* began in early 2013, when I began experimenting with motion capture technology to record the physiological activity of reading. In practical terms motion-capture is the process of recording the movement of humans, animals and objects as 3-dimensional data. The technology has been widely applied in military, entertainment, and medical fields and has become increasingly available to artists (Kitagawa & Windsor, 2008, p. 1). The motion-capture process often involves interpreting video capture of live action from a series of synchronised motion cameras in order to sample and apply these movements onto digital models in a computer generated representation of 3-dimensional space. Within the context of *A Jagged Orbit* however the technology was not applied to animate characters or objects but rather to record all the hand and

body movements required to read a book. These movements were then aggregated into a single digital sculpture representing the reading of a specific book.

The title of the work is taken from the science-fiction novel by John Brunner and refers to that unanticipated change in the expected trajectory of a celestial body. Through capturing the micro-movements of the hands as they turn the pages of a book during the activity of reading, and presenting these movements as a single moment, perhaps otherwise unobservable phenomena can be detected. Phenomena that may be exerting an invisible influence on the expected fluid flow of gestures would, in theory, generate a 'jagged orbit.'

In this experiment, the activity of reading the book is revealed to happen somewhere between a practiced balancing act which suspends the object in space and a sort of sleight of hand that transforms each page into the next. Each movement accomplishes that simultaneous opening and closing of the book, and all together these movements represent a complete 'revolution' or 'orbit' of that book.

During the earlier attempts at capturing the hand and finger motions as they manipulate the pages of a book during the activity of reading a number of technical difficulties emerged such as the accidental obscuring of tracking points by the hands or book. Similar challenges are described in recent studies on micro-motion detection as being caused by “the large number of degrees of freedom, self-occlusions, and similarity between the fingers, even in the case of multiple cameras observing the scene” (Ballan, Taneja, Gall, Gool, & Pollefeys, 2012, p. 640). Despite the multiple array of cameras it was not possible to capture the micro-motion of the fingers and hands holding the book. This ‘slippage’ between my intent and the capturing system’s ‘glitches’ represented in itself the complex trajectories of the physiological and neuropsychological act of reading, somewhere within this domain of ‘indeterminacy’ I hoped to find the ‘jagged orbit.’

Once more embracing the aesthetic of ‘glitch’ I created my own micro-motion capture system using a series of commercially available electronic input devices that I repurposed using some custom computer coding, also known as ‘hacking.’ By appropriating existing systems

such as Microsoft's 'Kinect' gaming system and the 'Leap Motion' device that I controlled by adapting open-source code within the Processing development environment, I arrived at a system that was ideal for my purposes. This smaller and more portable set-up was more appropriate to the requirements due to its concentrated 'capture volume' which also permitted greater and more frequent experimentation, and so many 'orbits' were recorded, each representing a unique book. The system permitted me to successfully capture almost every micro-motion of my hands for dozens of volumes, often working in the background as I went about my daily readings for this study.

Admittedly empirical values recorded by my 'home-made' micro-motion capture device are of little scientific value, especially when compared to the capabilities of the more sophisticated systems available. Yet its ease of use and transportability—for example it does not require the wearing of special gloves and markers—permitted the recording of the casual and subconscious physiological movements of reading. From these digital sculptures I can draw some broad conclusions on the evolving physiology

of reading and its possible significance to the book in general.

The stars in the night sky only appear to orbit around who observes. The observer is of course standing on a moving body, and together they are in rotational and orbital movement. The hands of the reader that move around a book, the reader's gaze on the page, also creates the illusion of the universe revolving around the book, that the book is fixed in space. This illusion of perspective becomes significant for reading, for the book demands a suspension of disbelief, reading represents accepting a totality that excludes any other. In short, it represents a *bibliocentricity*.

For thousands of years the book has established a central importance within systems for the control and flow of information. Has the introduction of new paradigms to these existing systems of control caused a disturbance to this bibliocentricity? Are the bibliocentrists experiencing the equivalent to a Copernican revolution? It took 200 years before the Ptolemaic model of the heavens, which described the cosmos with a stationary Earth at its centre, was abandoned for

the heliocentric model. That ‘revolution,’ from Ptolemy to Copernicus, ended only with Isaac Newton’s theories. The question of the end of the book may not be a conditional one, but more a question of the speculative-historical kind, that asks, how much longer before an alternative to bibliocentricity is acknowledged, and when will the book complete this revolution? Or alternatively, now that the complex motions once needed to transform one page into the next has been reduced to a swipe or a tap, a sleight of hand, should we consider this a revolution or a momentary point of inflection for the book, like a jagged orbit?

Silent Readings

The idea that the book is something more than a physical structure that supports collective or individual memory, has generated powerful metaphors. (Báez & MacAdam, 2008, p. 11)

In the remainder of this chapter we expand upon this understanding of reading of the book

within a larger network of metaphors and stereotypes that proceed and form part of the idea of the book. Through an examination of some of these iconographical patterns from their earliest adoption to more contemporary uses such as in cinema, we can attempt to trace how the idea of the book has evolved and how this idea influences the way we use the book.

German critic E. R. Curtius, in a chapter on the symbolism of the book in his *European Literature and the Latin Middle Ages*, suggests that although book metaphors began in Classical Greece, it was Jewish, Christian and Islamic societies who developed a profound symbolic relationship with their holy books. Curtius goes further in attributing to Christianity the highest consecration of the book, as “Christ is the only god whom antique art represents with a book-scroll” (2013, p. 310). Zanker describes the need to find new iconographical systems after the official recognition of Christianity around A.D. 200 (1995, p. 289). This need to represent the metaphysical was met by linking the already familiar iconography of the book as a source of philosophical and intellectual enlightenment

to the figure of Christ, which will influence all subsequent uses of the book as metaphor:

Christ invariably holds either a book roll or a codex in his left hand. He does not actually read but rather proclaims his teachings contained therein. ... Often the apostles have opened rolls or books in their hands as well, and they sometimes converse among themselves ... (Zanker, 1995, p. 293)

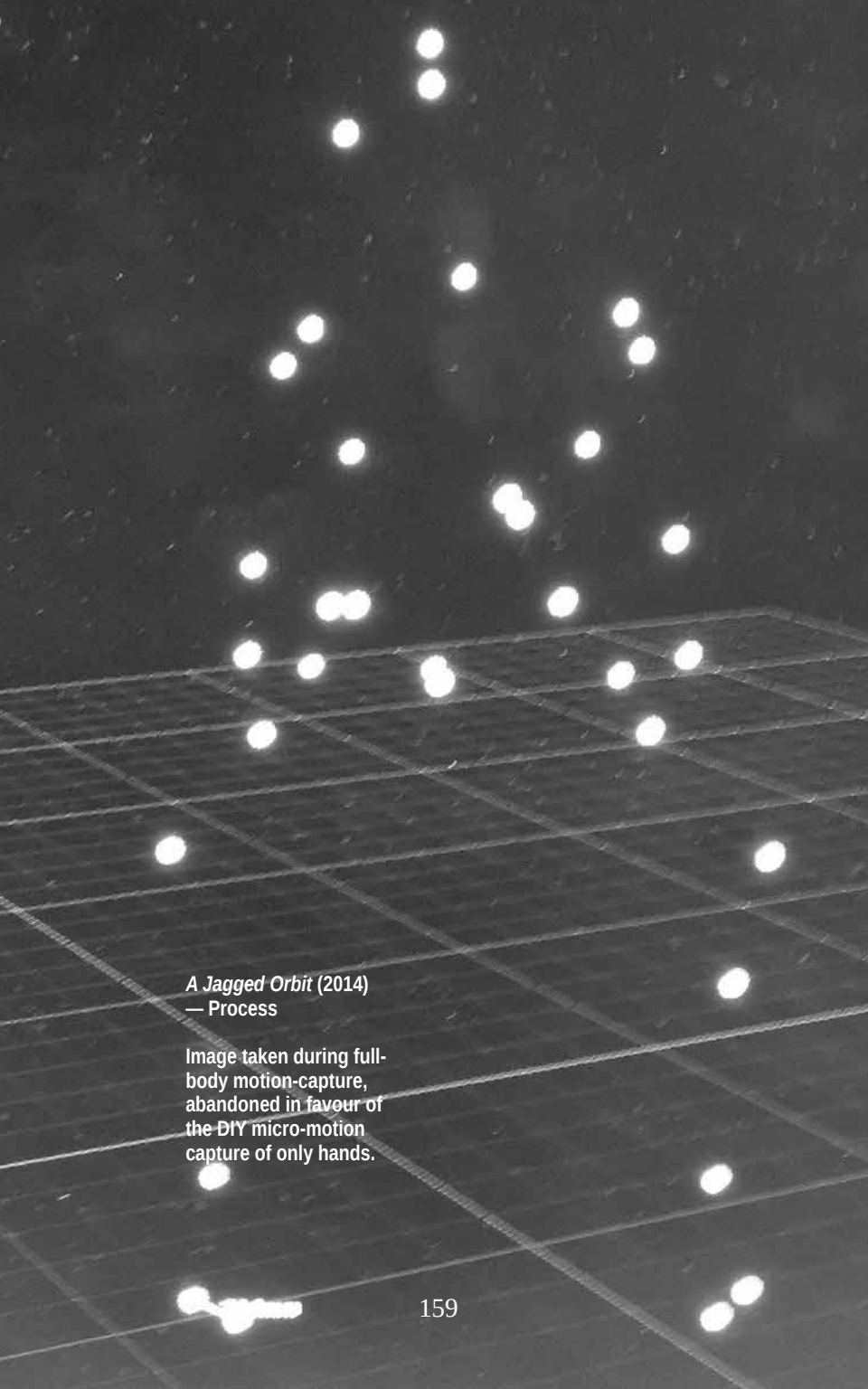
Zanker goes on to describe how this appropriation of the pagan imagery of intellectual pursuits evolved into a new hierarchy in which the Christ the teacher, holds the book but with absolute authority over his devoted pupils: "Not incidentally, from now on the book rolls and codices are displayed in such a way that the viewer is able to read the Holy Writ" (1995, p. 304). This transformation in how the book is represented, concludes Zanker, signals a move from notions of the book as a simple attribute for intellectual pursuit to "a spiritually charged cultural icon whose power is aimed directly at the viewer"

(pp. 330-331). The consecration of the book as icon is complete.

These same motifs are repeated endlessly in the sculptures that adorn the tympana of Romanesque churches. A symbol of the Revelation, knowledge, and truth, the book is the quintessential mythical object of Christianity. For centuries it was central in painting. (Vandendorpe, Aronoff, & Scott, 2009, p. 119)

Even beyond the church's influence the presence of the book continued to resonate throughout the history of painting as books and libraries were used as symbols at least until the twentieth century, when "the place of the book became even more limited, ... the book was no longer an attribute of knowledge or power. Books were still a major motif in still lifes, but they were depicted as old or tattered, ... Its expulsion from the collective imagination had begun" (Vandendorpe, Aronoff, & Scott, 2009, p. 120).

Continues p. 161



A Jagged Orbit (2014)
— Process

Image taken during full-body motion-capture, abandoned in favour of the DIY micro-motion capture of only hands.

A Jagged Orbit (2014)
— Process

An early attempt at micro motion-capture. The gloves and markers created a number of self-occlusion problems and were later abandoned for a less intrusive method.

Despite the occasional use of the symbology of a prominent backdrop of books on shelves in some image-making, for example for political leaders, it is the computer that is increasingly replacing the book's centrality within the image, "... because it is now the computer, and no longer the book, that provides access to the totality of human knowledge" (p. 120).

The work *Silent Readings* (Digital video, 2012–ongoing) is essentially a collection of sections of films in which actors read in silence. Or more precisely, the collected scenes are of the actors performing roles that require their characters to be reading in silence. The sections are mostly very brief, with an average duration of not more than a minute, many lasting only a few seconds.

The popularity of the practice of collecting cinematic tropes from existing films, television or video-games in order to create new works, called 'supercuts,' is demonstrated by Internet sites such as www.supercut.org. Yet the practice received international attention through Christian Marclay's *The Clock* (2010) in which sections of films where a watch or clock face appears are edited together to form a new 24-hour

long film in which every instance of ‘cinematic-time’ corresponds to the viewer’s ‘real-time.’ Marclay cites Fluxus, Duchamp and Hip-hop remix culture as influential to his practice of appropriation: “I was more interested in taking something that existed and was part of my surroundings, to cut it up, twist it, turn it into something different; appropriating it and making it mine through manipulations and juxtapositions” (Seliger & Marclay, n.d., ¶ 12).

Guy Debord, who is well known for his use of appropriated films in order to evoke an authentic life “as it should be,” argued that the use of *détourned* portions of films, “regardless of whatever their original meaning may have been, [are to] to represent the rectification of the ‘artistic inversion of life’” (2003, p. 222). Another interpretation of the practice can be found in *Postproduction*, where Nicholas Bourriaud distinguishes between established notions of citation, recycling, and *détournement* that he calls “‘the art of appropriation,’ which naturally infers an ideology of ownership” from “a culture of the use of forms, a culture of constant activity of signs based on a collective ideal: sharing” (2005, p. 9).

Also in *Silent Readings*, the activity of reading is considered through the collection, examination and analysis of actors reading books in films using online digital archives “as tools to probe the contemporary world” (Bourriaud et al., 2005, p. 9). *Silent Readings* is an overt example of what Lev Manovich describes as “cinema [that] already exists right in the intersection between database and narrative” (2001, p. 237). The work therefore permits a secondary consideration of the persistence of the symbol of the book in cinema through the hundreds of book-centric tropes collected.

Origins of the iconography of the book in film begin with the advent of cinema itself. Representations of the book as both object and voice date to the earliest representations of the flipping pages of a book used as the introduction of a film either to indicate the narrative’s literary heritage, for its usefulness as an expositional tool, or simply for its comforting effect on the earliest cinematic audiences. A tradition grounded in that subconscious acknowledgment of the new to the old, of passing the baton from one media to the next. So the variety and number of examples of filmic book tropes are too many to

list here, instead I have collected a number of examples that came to light during the making of *Silent Readings*. This sampling therefore is by no account exhaustive, however through its organisation we can already observe certain patterns emerging, some of which link to earlier discussion of the origins of the book symbol.

1. Book as blunt object

In Herzog's art film *Aguirre, the Wrath of God* (1972) about a Spanish expedition to find the mythical city of El Dorado there is a scene which crystalises the conflicted relationship between the spoken and the written word:

“Has this heathen heard of our
Saviour, Jesus Christ and of our
mission and the True Word of God?
This is a Bible. It contains the Word
of God that we are bringing to
lighten the darkness of their world.
Has he understood that this Book
contains the Word of God? Take it
in your hand, my son...”

The Indian takes the book and tentatively holds it to his ear...

“He says it doesn’t speak.” The
soldiers then beat the Indian.
— transcript (Herzog, 1972)

In a pivotal scene in *Apocalypse Now* (1979), director Francis Ford Coppola’s adaptation of Joseph Conrad’s novel *Heart of Darkness*, in which the two diametrically opposed characters of the young American Captain Willard (Charlie Sheen) and Colonel Kurtz (Marlon Brando) meet for the first time, Kurtz suddenly throws the book he is reading at the jester (Dennis Hopper). Kurtz’ character reveals both his intellectual pursuits (through reading) and his irrational and unpredictable violence (in throwing the book), this conscious and deliberate framing of violence and intellect will ultimately lead Kurtz (Brando) to his epiphany of “the horror” (Coppola, 1979).

The moment of literary rebellion in Peter Weir’s film *The Dead Poet’s Society* (1989), when the unorthodox substitute teacher John Keating (Robin Williams) encourages his students to tear

all the pages from their classical poetry books, thus providing a literal and physical liberation of poetical thought from authoritarian control.

In all three examples above the book is represented as both repressive (binding) and liberating (boundless) agent. The Indian is offered the book as a symbol of salvation but is subsequently beaten for his inability to 'hear the Word of God.' Colonel Kurtz exposes both his penchant for cultured nuance and his blind rage through the object of the book. John Keating inspires his students with poetry while advocating collective bibliocide.

2. Book as portal

The mirrored worlds of religious doctrine and the occult are often linked through the symbol of the book in cinema, innumerable appearances of the *Bible* and other religious books come to mind, but also the *Book of the Dead* for example as in films such as *Necronomicon* (Gans, Kaneko, & Yuzna, 1994). In the B-movie *Fiend Without a Face* (Crabtree, 1958) the scientist (Kynaston Reeves) attempts to turn the

pages of a large and heavy tome using only the power of his mind. Even the opening scene from Ivan Reitman's popular comedy *Ghostbusters* (1984) takes place in the New York public library haunted by readers (later in the film, a barely audible line from Egon Spengler (Harold Ramis) resonates: "Print is dead"). Again in Steven Spielberg's *Indiana Jones and the Last Crusade* (1989) Indiana Jones (Harrison Ford) moves from book to book, in the form of ancient manuscripts, clay tablets or his father's (Sean Connery) notebook to form a net of meaning that leads to the discovery of the mythical Holy Grail. But one of the more curious filmic linkings to the occult nature of the book that I uncovered is from Roger Corman's horror film *Frankenstein Unbound* (1990) based on the Brian Aldiss novel of the same name. The film follows an accidental time-traveller (John Hurt) into the Victorian era where he meets Mary Wollstonecraft Godwin (Bridget Fonda) and shows her a copy of her yet-to-be-written novel *Frankenstein*. Significantly, this book to come is printed from the dashboard of the time-traveller's car one page at a time, falling into a neat stack of unbound paper. Mary Wollstonecraft Godwin, the author (to be) reads her book (to come) in a recursive Hollywood

loop. In this scene, the book that pre-exists the author delivers itself to her—and we are reminded that the french word for book, *le livre* also means ‘to deliver’ (Nancy, 2011).

3. Book as lock and key

Another popular filmic trope is the hiding of an object, a key but also a gun and sometimes a bomb, inside a hollowed-out book. Connected to this symbol of the book as a place of hiding is the use of the book as a secret lever to trigger a trap-door to a passageway or revolving book-case hiding another room—a popular conceit is to have a protagonist inadvertently discover the book/trigger in order to reveal the secret room, passage or stairwell. Both tropes offer a strong alignment of notions of the potential for the book to contain knowledge and the revealing of hidden objects, rooms or crypts. Of course, the caveat is that only one of the books on the shelves holds the object, or can trigger the door to the hidden rooms. Indeed it takes the learned Sherlock Holmes to find the key to unlock the hiding place of *The Secret Weapon* (Roy William Neill, 1943).

See
image
on pp.
176-177

4. Book as supporting actor

Many conscious uses of the book-symbol can be found in the filmic traditions of Italian neo-realism or the French New-wave. An example from the first can be found in Michelangelo Antonioni's *La Notte* (1961) where an author (Marcello Mastroianni) and his estranged wife (Jeanne Moreau) move through a single day and into the night. The film opens and revolves around the publication of the author's latest book called *The Season*, a simple yet effective reminder of the transient nature of the characters' relationship and their struggle to give it meaning. Another rich source of book appearances are Jean-Luc Godard's films where the actors are often reading in silence to form a kind of living tableau, for example in *Le Mépris* (1963), or they read a few words or a phrase from a book providing both an embodied and external narrative voice. In some instances the pages are visible for the viewer of the film to see (its effect however appears an inversion of the authorial hierarchy of the open book in early Christian iconography) becoming a portal into alternate spaces, such as the Pompeian imagery that interrupts the narrative of *Le Mépris*. The paratextual elements of

See
image
on pp.
174-175

the book are isolated and used by the characters to extract new meanings, for example in *Une Femme est une Femme* (Godard, 1961) the titles of books are used to express the lovers' quarrel (Anna Karina and Jean-Paul Belmondo).

But these are all films placed firmly in the period when arguably the influence of the book could still ensure a certain trade in its iconic value, even more so for films produced to appeal to an intellectual audience such as Antonioni's or Godard's in which the book is deliberately attributed a symbolic status. What of the iconography of the book in films produced in the second half of the 20th century and later?

What emerges is an increasing will to represent the book as an historic, material artefact often irrelevant or at least ineffectual in its capacity to influence contemporary life, most often the book becomes a nostalgic connection to a previous era.

5. Book as sign of the times

Effectively the traditional book is difficult to find in science-fiction films, the book's functions

apparently so successfully supplanted by alternative technologies that it disappears altogether or is unrecognizable at best. One example of this symbolic use of the book within the genre is when the (paper) book of *Moby Dick* appears in the film *After Earth* (Shyamalan, 2013) it does so thanks to the protagonist's inter-planetary communication screen that he wears around his forearm. Besides providing the film-makers a convenient foregrounding of the literary aspirations of the film's narrative (the potentially self-destructive yet self-defining search for an illusive prize) the fact that the book is used as a dual-symbol of nostalgia and literary linking is significant. In these fictional scenarios the book is no longer considered a tool for the transmission of information, the only subject it refers to is itself. Its presence is purely symbolic. To borrow Nancy's term, this speculative book to come only reads to, without reading of.

See
image
on pp.
180-181

Some tentative conclusions can be drawn from the ongoing *Silent Readings*. Firstly, representations of the book in films produced in the late age of print continue to depend on many of the original symbolic values of the book grounded in metaphysical and intellectual pursuits for

Continues p. 182



Silent Readings
(2012–ongoing) — Still

Breakfast at Tiffany's
(Blake Edwards, 1961).





Silent Readings
(2012–ongoing) — Still

*Une Femme est une
Femme* (Jean-Luc
Godard, 1961).





Silent Readings
(2012–ongoing) — Still

The Secret Weapon
(Roy William Neill, 1943).





Silent Readings
(2012–ongoing) — Still

Pulp Fiction (Quentin
Tarantino, 1994).





Silent Readings
(2012–ongoing) — Still

After Earth (M. Night
Shyamalan, 2013).



See
images
on pp.
172-173
178-179

knowledge. For example, the book continues to be used to isolate the character that is reading from surrounding action. However a new dimension in how the book is represented is entering the stage; the book becomes increasingly used for its nostalgic connection to a past, representing an anachronistic artefact in a scene.

Most importantly, what was initially a symbol of cultural enlightenment, personal improvement or intellectual achievement has become a symbol linking to ideologies originating in a static past disconnected from the future present. Like many other stage properties that help fix a scene in time—such as the monocle, the penny-farthing, or the telegraph—the book now symbolises a new era: the ‘book-age.’

A note on silence

The use of the term ‘silence’ in the title of the artwork *Silent Readings* should be addressed before closing this chapter. The movement from aural to silent reading is well documented, however the question of silence in respect to reading the book deserves some reflection.

The evolutionary musicologist Joseph Jordania has connected silence to a non-verbal signal for danger among some social animals, which may account in part for our (human) discomfort of experiencing periods of silence. The feeling of safety, says Jordania, derives not from the absence of sound, but from continuous ‘humming’ or the background noises known as ‘contact calls’ (2009). In other words, Jordania has revealed how silence is used to indicate danger, a predator, or some other cause for alarm in animals, and this instinct may be linked to human attitudes towards silence.

In the artwork *Silent Readings* the original soundtracks to the individual portions of appropriated film and video have been removed entirely and replaced with recordings of moving pages of a book. This sound forms part of the ‘multi-mediality’ that Derrida attributes to paper, as it is “utilized in an experience involving the body, beginning with hands, eyes, voice, ears; so it mobilizes both time and space” (2005, p. 44). It is this relationship to our bodies that possibly explains the insistence of many electronic ‘readers’ to offer the feature of a sound effect of turning pages. The function of these sound

effects is not only to ease and encourage our adoption of the electronic surrogate of the book by providing a familiar experience of paper in time and space, but as electronic devices make no other mechanical noise, perhaps these effects are also needed to avoid the complete absence of sound during reading. The 'silence' of reading in silence includes hearing the turning page, or the shuffling of chairs, or the murmurs in libraries, all sounds of the physical activity of reading which provide us with something analogous to the instinctive 'humming' or 'contact calls' that Jordania tells us is a signal that all is well. The implication of this analogy is that if these instinctive noises around the book were to stop, if silent reading were to become truly silent, it would be read as a signal of imminent peril.

The
Situational
Library

The Situational Library

Artwork: *Situational Library*, Itinerant participatory artwork, PICA (2012), University of Sydney and COFA (2013).

This chapter is an exegesis of the ongoing series of itinerant participatory artworks known as the *Situational Library*. Through the construction of a publicly accessible and open-source archive of physical and digital books, each iteration of the *Situational Library* attempts to create a heightened sense of the exchange of something other, or external, which accompanies the exchange of the book itself. The practice of organising, installing and running a *Situational Library* provides many opportunities for the critical discussion of many of the assertions that I have made during my research through formal and improvised encounters with visitors and staff. These discussions have been useful in testing and expanding my understandings of the idea of the book.

The Idea of the book is the Idea that there is no end to this very Idea, and that it contains nothing less than its own proliferation, its multiplication, its dispersion, and always, at some moment and in some respect or another, there is the silent or eloquent advice from the book that is an invitation to throw it away, to abandon it. (Nancy, 2009, p. 41)

The quote is from Jean-Luc Nancy's *Sur le commerce des Pensées: Du livre et de la librairie* (On the Commerce of Thinking: Of Books and Bookstores) and was appended to the texts associated with my first *Situational Libraries* in 2012 (2009, p. 41). Citing Nancy's words was intended as an additional way to provoke the public interaction on which the unfolding of the artwork relied. The artworks more or less appropriate and subvert the dynamic of a community book swap in order to address general notions of the book and the archive in light of the radically transformative forces currently affecting the complex pathways of the book's ideation, production and distribution.

Presently I will introduce some of the basic concepts underlying the *Situational Library* which I present as a model for a self-organising, self-running archive with the potential to create a heightened awareness of a shared place and space through which a system of exchanges can be experienced. A system not restricted to the commerce of and with the book itself, material or otherwise, but open to other less easily defined exchanges that I will describe later in this chapter. Another underlying motivation to the structure of this artwork is to permit other interested parties to build upon and develop their own *Situational Libraries*, and for those who read with this purpose in mind I make available detailed plans, images and code at the main website hosting the project along with a version of this chapter (Simionato, n.d.).

Before we discuss the *Situational Library* itself, a note on what I mean when I talk about a ‘participatory artwork.’ I refer to Claire Bishop’s critical volume *Artificial Hells* in which she distinguishes participatory art as connoting the involvement of many people and which she opposes to ‘interactive art’ which traditionally involves a one-on-one relationship (2012).

I would add that further to involving and encouraging the activity of any number of participants the *Situational Libraries* also permit an equal distribution of their potential for intervention. The rules for this intervention are simple: Every participant has an equal possibility to shape the archive. Anyone can add or remove any number of books from the physical archive. Anyone connecting to the network may upload, download and delete files or categories, rename them, or whatever else is required to shape the archive. The implication is that once set into motion, the *Situational Library* must survive, and sometimes end, according to these rules of distributed public control.

Finally a note on the project's title, which borrows from the Situationist International (SI) movement founded in 1957, lasting around 15 years. The use of the term 'Situational' in the project's title is intended to evoke some of the same primary concerns as addressed by the SI, specifically acknowledging the need to counteract the alienating effects of the 'spectacle' produced by late-capitalist society through the conscious construction of 'situations' for the purpose of heightening and uncovering authentic

feelings and relationships with the body and idea of the book. A copy of one of the SI founder Guy Debord's *La Société du Spectacle* (*The Society of the Spectacle*), originally published without copyright restrictions in 1967, is always among the first books I share in the *Situational Library* along with a version of this thesis (1967).

The Situational Library 1.0

In its most elementary form, the *Situational Library* is a free exchange of books in a publicly accessible space and place. The first such iteration of the *Situational Library* occurred at the Perth Institute of Contemporary Art (PICA), for a duration of two months beginning November, 2012. In this inaugural event several thousand de-accessioned books, donated by the State Library of Western Australia, were placed on and around a raised wooden platform in the center of one of the main rooms near the entrance of the Institute. The books were initially stacked in tiered stages, resulting in a ziggurat shaped mountain. Nearby, an improvised table constructed from recycled materials was placed and, secured to this table, some custom made

Images
from the
SL (PICA)
on pp.
195-201
and
also in
Appendix

See p.
200 for
logo from
identity
design

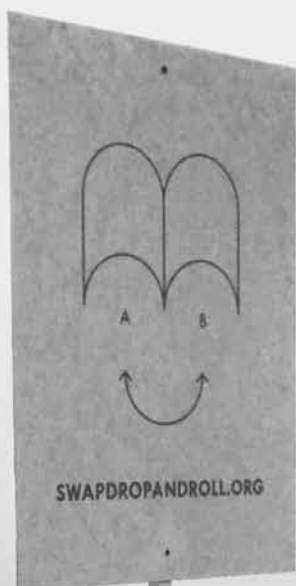
rubber-stamps were made available which the public was encouraged to use on the books in the room. The stamps read “This book belongs to the Situational Library” along with the project’s symbol and a web address. The event was advertised through posters and leaflets made from re-cycled pages of debound books silk-screened over with the name of the Library and the simple instructions to “Swap, Drop and Roll.”

This *Situational Library* attracted many visitors, at first through the general flow of gallery visitors and later, in the course of the installation, specifically for the purposes of contributing to the library. The curators noted repeat visits of some individuals who also began donating their own unwanted books to the archive. The front of house and technical staff of the institute were requested to allow the public to perform any and all activities within the institute’s standard legal and safety parameters. Activities that were encouraged included the reorganising and sorting of the piles of books, archiving (such as stamping the books), and of course removing or adding any book to the archive.

Continues p. 203

Situational Library
(PICA, 2012)

Detail from the
installation,
including custom
signs, book stamps
and fliers.



Situational Library
(2012) — Process

Testing custom
made stamps,
and silk-screened
leaflets.

The South-Horr Gap

...still that feeling that it wasn't just Rudolf that
y... but something more personal, more
ing. It would have been easy to convince myself
as no more than the strangeness of my sur-
... I had not experienced this feeling before.
my closed lids the sun shone red on my eyes,
my chest and that bird, which I later learned was
... a hornbill, piping away, the murmur of
everything drowsy in the midday heat. I knew Abe
Van Dellen wasn't interested in archaeological
could almost wish that they'd find him and ship
... knew they wouldn't, and as I dozed off I
... as he had stood looking at the remains of that
edge at the edge of the Serengeti, tears in his eyes.
... fallen before Kirby Smith returned, the Land-
... trucks full of Africans, its headlights
... the trees. They had shot a duiker,
... the male antelope was roaring
... making warm beer with a pressure
... and the night full of stars. The
... make contact by radio, but the
... the nearly completed
... bus. He had swept an area
... oyanyanni and east across
... here to the lake, it's all
... desert and lava, a few
... a vehicle except at
... But Jeff says he
... If the vehicle had
... it. So it must be
... Mary said in a
... voice. 'He's... operations
... hesitated, his... in the dark.
... know,' he said... a radio call -
... all... the... to her

159

ANY BOOK TO SWAP OR DROP



SCRIBNER LIBRARY BOOKS

FICTION

Of Lena Greyer (5L 31)
Babylon Revisited and Other Stories
The Great Gatsby (5L 1)
Tender Is the Night
The Beautiful and Damned
This Side of Paradise
The Age of Innocence

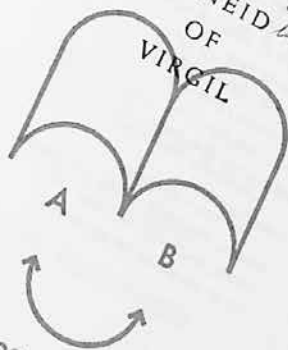
FICTION

- LIBRARY**
- FICTION**
- O' Lena Geyer (SL 31)
Babylon Revisited and Other Stories (SL 70)
The Great Gatsby (SL 1)
Tender Is the Night (SL 7)
The Beautiful and Damned (SL 60) (SL 90)
This Side of Paradise (SL 3)
The Apple Tree and Other Tales (SL 100)
The Man of Property (SL 3)
For Whom the Bell Tolls (SL 4)
In Our Time (SL 24)
The Old Man and the Sea (SL 104)
The Snows of Kilimanjaro and Other Stories (SL 32)
The Sun Also Rises (SL 5)
To Have and Have Not (SL 8)
The Tensid of Virgil (SL 23)
The Prevalence of Other Stories (SL 23)
The Ramayana (SL 78)
The Golden Warrior (SL 91)
Cry, The Beloved Country (SL 7)
Tales from a Troubled Land (SL 131)
Too Late the Phalarope (SL 79)
The Yearling (SL 40)
Abe Lincoln in Illinois (SL 23)
The Affair (SL 24)
The Conscience of the Rich (SL 24)
Homecoming (SL 115)
The Light and the Dark (SL 92)
The Masters (SL 105)
The New Men (SL 33)
Strangers and Brothers (SL 80)
Time of Hope (SL 130)
Indigo (SL 55)
The Custom of the Country (SL 62)
Ethel Frome (SL 8)
The House of Mirth (SL 41)
Roman Fever and Other Stories (SL 93)
- (Continued on inside cover)

Stories (SL 93)
(Continued on inside back cover)

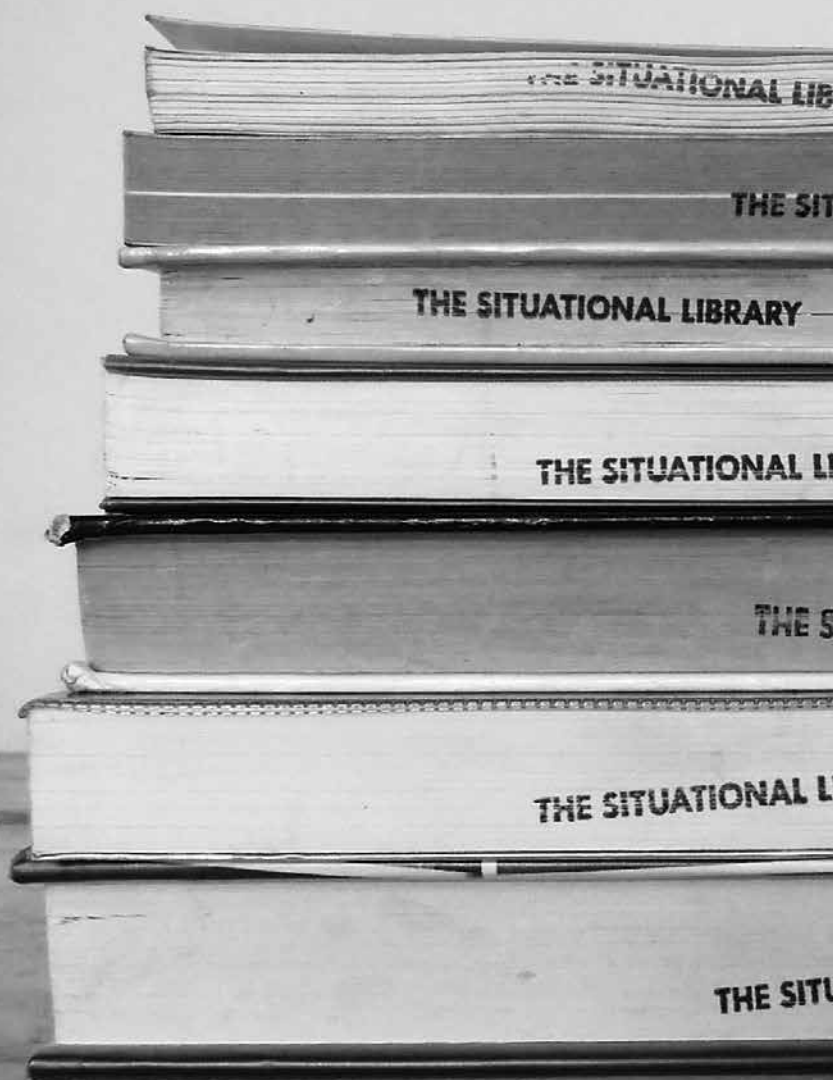
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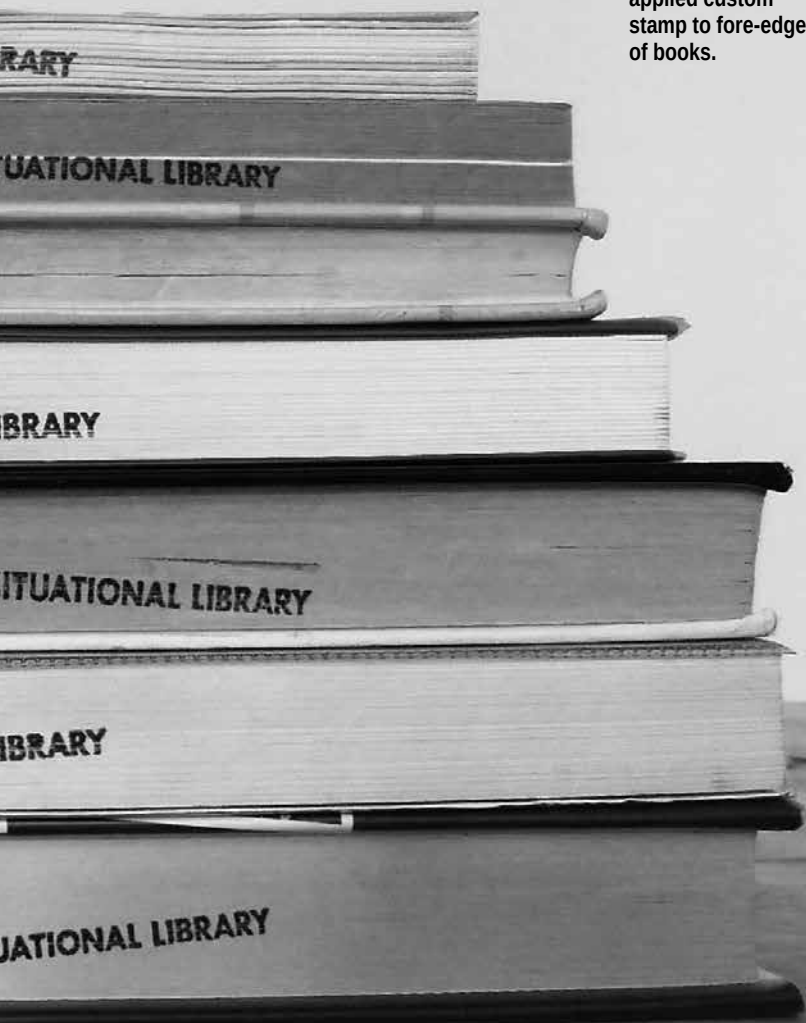
THIS BOOK BELONGS TO
THE SITUATIONAL LIBRARY
WWW.SWAPDROPANDROLL.ORG

THIS BOOK BELONGS TO
THE SITUATIONAL-LIBRARY
WWW.SWAPDROPANDROLL.ORG



Situational Library
(PICA, 2012)

Detail showing
applied custom
stamp to fore-edge
of books.



Book is due for return on or before the last date stamped

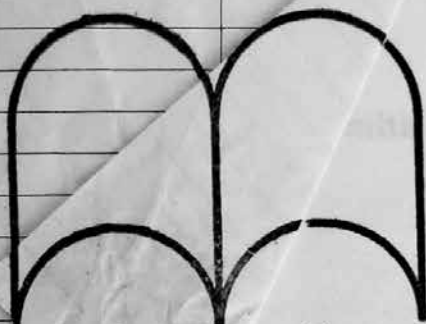
Books will be renewed or reserved on application unless required
another reader.

WHITFORD

4 AUG 2000

K

use

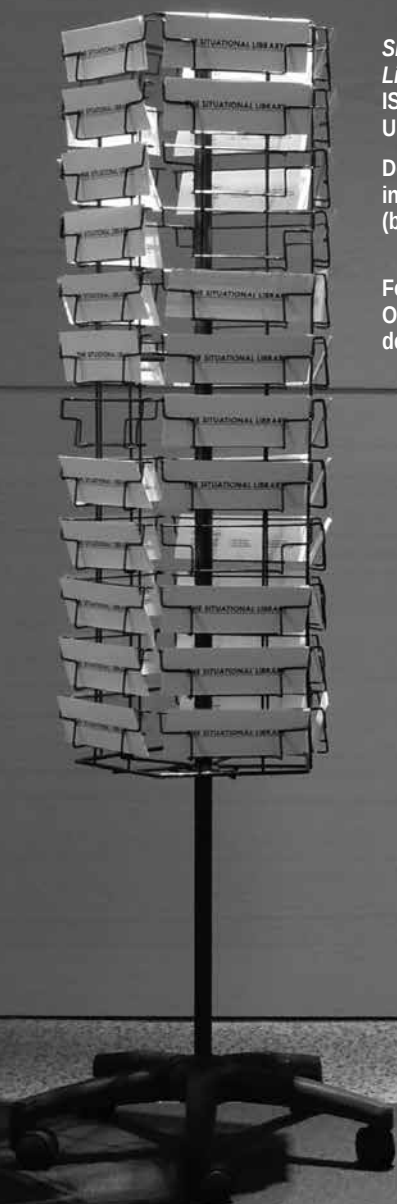


LB14L - 2/90 - 50M

**THIS BOOK BELONGS TO
THE SITUATIONAL LIBRARY
WWW.SWAPDROPANDROLL.ORG**

Situational Library
(2012) — Identity

Stamp on re-
accessioned book.



*Situational
Library* (2013)
ISEA Conference,
University of Sydney

Detail from
installation
(bookmarks, stand)

Following page:
One of the 2 poster
designs.

HABENT

SUA

FATA

LIBELLI



This last point was not given any more weight than the other possibilities as it was not my intention to overtly frame the event as a book giveaway or ‘free-for-all’. Over the course of the installation the ziggurat of books transformed in size, location around the room, and shape depending on the net activity of the day’s visiting public, the interventions of front-of-house volunteers and the institute’s technical and cleaning staff. Depending on which day one visited, the stacks of books could be found lining the walls, scattered across the floors (this often after visiting school groups), arranged by size, or subject, or colour, or other harder to define criteria. By the end of the installation, the remaining books were removed and that iteration of the *Situational Library* was declared closed.

Habent Sua Fata Libelli

On the occasion of the International Symposium of Electronic Art (ISEA2013) a new *Situational Library* was created in the foyer of the New Law Building on the University of Sydney campus for the duration of the Symposium, followed by another *Situational Library* installed in the

**See also
images in
Appendix**

courtyard of the College of Fine Arts (COFA) in the University of NSW for the closing events of ISEA2013 hosted by the college.

As an evolution of the original model of the *Situational Library*, these new installations included the provision for the free exchange of electronic books and indeed almost any other form of digital file the visitor wished to share in the archive. As I have noted in the exegesis of my work *Funeral Arrangements*, the traditional formal restraints have become problematic in the digital book; and images, video or any other data file can potentially contain a book. The only limitation placed on the type of file exchanged was that it needed to be less than 10MB. Any further limitations (often in the form of restrictions of file type) to the sharing were due to the individual user's electronic device and their operating system.

In the simplest terms, this digital version of the *Situational Library* is a local open-access wireless network generated by a computer programmed in collaboration with Phil Lewis. The system allows specifically the visitors within the range of the network to join, upload, download

and shape the archive. This network is not dependent on any other system or network, nor is it accessible through other networks, for example the Internet. The network's signal becomes inaccessible beyond a radius of approximately 10 meters obliging participants to remain within close quarters.

Besides a user accidentally noticing the free (unlocked) *Situational Library* network appearing on his device's list of available networks, the project required strategies to raise awareness of its presence. The methods for raising this awareness for an otherwise 'invisible' library were three-fold. Firstly a number of physical books donated by the famous Gould Books were freely distributed, all of which were stamped with the Situational Library stamp (the same used at the PICA event), secondly a display-stand of printed bookmarks with instructions on how to access the network was placed in a prominent position in the foyer of the New Law Building, and thirdly a number of large format posters were glued onto the walls of the space. In addition to these direct methods another poster design was employed containing a more cryptic message with the Latin words *Habent Sua Fata Libelli*

and a Quick Response (QR) code which once scanned by smart devices, directed users to information on the project.

Habent Sua Fata Libelli is an abbreviation of the Latin phrase *Pro captu lectoris habent sua fata libelli* meaning (literally) “According to the capabilities of the reader, books have their destiny” (Verse 1286 of “De litteris, De syllabis, De Metris,” Terentianus & Cignolo, 2002). Walter Benjamin adopts this shortened form in his essay on book collectors “Unpacking My Library,” and Umberto Eco in his novel *The Name of the Rose* in which the phrase is interpreted as “Books share their fates with their readers” (Benjamin & Arendt, 1986; Eco, 1983). The posters printed with the Latin phrase were pasted around the site of the *Situational Library* and were very likely illegible to anyone seeing them who did not read Latin, or at least, anyone who was not already familiar with the quote, yet the QR code (a square machine-readable sign) placed prominently below the Latin sentence, offered their devices an easy path to interpretation. Written language appears momentarily redundant, and the decipherment of the poster has been deferred to the machine. Once visitors

discovered the open *Situational Library* network, and subsequently the list of titles and other digital files available, they were free to add or take books and files, or categorise and organise the archive. Some visitors would also become aware of others in the vicinity also participating in the experiment, thus creating the situation. So what conclusions can be drawn from these experiments? What will become of the *social uses* of the book in a period where its hegemonic dominance as principle carrier of information is no longer guaranteed?

1. Books are for Use
2. Every Reader his Book
3. Every Book Its Reader
4. Save the Time of the Reader
5. A Library is a Growing Organism

– (Ranganathan, 1931)

Ranganathan's five laws of library science have been embraced by librarians around the world ever since, and have found echo in various scholarly texts for decades (Sen, 2008).

Yet the growing divergence between traditional models of the book and the places we build to house them has tested these 'laws' for:

... it happens that the name of this place, Bibliothèque, gives its name to a place which, as it already does, will more and more in the future have to collect together (in order to make them available to users) texts, documents, and archives that are further and further away from both the support that is paper and the *book* form. (Derrida, 2005, p. 7)

Ranganathan's laws, seldom criticised and often cited, may soon be straining to hold true as the idea of the book becomes loses its certainty in electronic space. The mass digitisation of books by projects such as Google Library (to name one among the many, more or less altruistic endeavors to build massive online repositories of books) and their deference of reading to the machine, affect the fate of the book, the archive and the library that holds them ("Google Book Library Project," n.d.).

Perhaps Ranganathan's laws, and more importantly the ideologies that support and define the library, may need to accommodate this new form of deferred reading by the machine and other implications of the digital era (Barner, 2011). Indeed, the underlying premise of this mass-digitisation indicates that the electronic-book will be increasingly used by machines to help in what Groiř calls our metaphysical search for the truth, raising further questions of the human uses of what remains of the book (Groiř, 2011).

Despite Google's careful rewording of their original hyperbole that announced their creation of a digital archive of every book in the world to the more restrained statement of providing a searchable 'card catalog,' the Google-book project remains a mass-rendering of books into machine-readable data. I have begun exploring some of the implications of this mass-digitisation through my Mallarmé-machine discussed in the chapter "Who (or what) decides the book?" but a *Situational Library* has the potential for further experimentation in the transforming relationships between humans, machines and books.

As I have described it, the *Situational Library* is a model for an open, evolving, and publicly driven repository unconnected to any external network, specifically (and significantly) inaccessible through the Internet such that it obliges participants to be physically present to share digital files; close enough that they become aware of each other and their activities. I consider this exchange of ‘energy’ (the word is not ideal, but it’s all I have for now to connote the momentary transfer) as a local area network of books. An exchange that this work has revealed as a primary function of the book, regardless of whatever material or formal dimensions it assumes. Increasingly, but I suspect from its originality in some way, this exchange is what the book is *for*.

When addressing this question of the *telos* of the book in the previous chapter I discovered that the idea of the book is not simply reducible to a support for reading. Nor is it merely a node within larger networks. Perhaps through further installments of the *Situational Library*, where the relationships around the book are made distinct these notions can be explored further.

For now, I propose that with each exchange of the book, there is the potential for the exchange of something other, external to the book; this ‘otherness’ or ‘energy’ is inextricably connected to, but situated outside, the book itself. The *Situational Library* is an attempt to make visible, if only for an instant, the exchange of such energies by those who commerce with books. Every exchange of the book is potentially a library, and every library a situation.

What
remains
is the
book

What remains is the book.

I would like to conclude by summarising some of the assertions that I have made during this thesis. These are not intended as answers to the question of the book, for a solution often ends an inquiry which is not my aim. But rather these assertions are proposed as responses intended to open the way for future discussion. This chapter, and indeed the study as a whole can be read as a call for a new conceptualisation of the book that may be defined independently of its content, medium and technology of inscription: the book to come.

What is the matter of the book?

In the first chapter I established a parallel between the earliest clay tablets used for inscription and the bricks used to construct the Mesopotamian ziggurats, both linked by the creationist myth Enûma Eliš that described an eternal replacement of the old with the new. Both

writing media and buildings were considered fixed ideals with fluid relationships, as they both shared readily available materials that could be easily reformed, reused or replaced. It is not accidental that these myths recounting the elemental forces of creation and destruction attributed to fire and water have an enduring connection with the material book.

Another elemental force described in these creationist myths is located in the sky, often described as a place of return in an afterlife. I argued that through the disembodiment resulting from digitisation, the book is perceived to transcend earthly dangers and enter the 'cloud.' This dematerialisation is in fact an atomisation of the book into 'clouds' of words.

All notions that are explored in the work *Funeral Arrangements*, in which the complete texts of books, even entire archives, are pressed into digital images of flowers. These phantom books generate unpredictable effects as they continue to manifest their presence in electronic space. What I uncovered during this thread of the study was that only permeability and permanence are of material concern to the idea of the book.

Where are the boundaries of the book?

In the second chapter the notion of the book was described as a division from a totality, as well as a promise of return to a totality. The scratch, typographic space, and the mathematical boundaries of 'Postscript' are all linked through this notion of a division from a totality that simultaneously implies an incompleteness of meaning. The formal question of the book, the signs of written language and the self-organising page-space they desire, is a question directed to the reader who is asked to resolve this 'gap' of meaning. In this way, the role of the reader is to find the key to unlock the book. Projects such as Google embody the reader's metaphysical search—they can also be seen as a continuation of many historical attempts at containing universal knowledge.

The work *Worldbook* is the subversion of these notions of the book as vessel of knowledge, as it allows natural elements such as the wind to generate the motion of the pages which in turn activate the processes of digitisation. The resulting images are saved to a growing digital archive called *Worldbook*, that is illegible yet

familiar in its paratextual organisation of the page, like the earliest cuneiform inscriptions.

The idea of the book in general necessitates a rupture from a totality, and carries within it the implicit promise of a return to this totality. In this way it remains bound to this totality that is external to its formal and material embodiment and subsequently renders it in need of completion. Through this divisory act the book becomes a synechdoche of that totality.

Who (or what) decides the book?

The exploration of the shifting notions of agency in the book is conducted through an artwork that combines the subjects of Stéphane Mallarmé's poem *Un Coup de Dés Jamais n'Abolira le Hasard* first published in 1897, and Google, first registered as an internet domain in 1997. The work is a publishing experiment that offers the opportunity to examine these two subjects a centennial apart in order to uncover how notions of authorship have changed from the industrial era of the book to the late-age of print. A number of experiments were conducted on the paratextual supports in Mallarmé's poem

before reconstituting the work as a computer-mediated space using elements appropriated from Google's proprietary system of automated human-assisted reading called reCAPTCHA. Essentially the work permits a distributed authorship of Mallarmé's poem following what I argue are his own theories of combinatorial logic. The project reveals and elevates the structural elements of the book into a visible program that are in part influenced by the machine. The domain of the book is governed by asymmetrically distributed and networked authorities. As an extension of the combinatorial logic of written language, that in turn is grounded on numerological concerns, the book becomes self-organising, self-defining and self-running.

What is the book for?

The traditional notion that a book is for reading is questioned in this thread of the study. Traditional misconceptions of reading as the faculty to decipher written language along prescribed pathways are considered insufficient to resolve a *telos* of the book. Instead reading is argued to carry multiple meanings. Along with the neuropsychological dimension of this acquired faculty it is

important to consider physiological aspects of reading. These physical activities are linked to but remain distinct from the internalised reading in the mind. This physiology of reading is explored through two artworks: the first, called *A Jagged Orbit* is a system for recording the movement of hands as they read a book; the second, called *Silent Readings* is a video consisting only of portions of films where actors read books in silence. These two works not only offer an examination of micro- and macro-motions in reading, but also represent the changing significance of the symbolic power of the book.

Throughout this inquiry led by the practical works, I have uncovered how the activity of reading is a simultaneous process of decipherment and encryption, turning each page is both an unlocking and locking of meanings. Herein lies the twin-metaphor of the book as both lock and key. Each sign is unraveled only so it can be rewoven into a new text by the reader. The book is a machine for the making of meaning and unmeaning.

The Situational Library

Central to this research is this social experiment on the communities that form where the complex pathways of the book intersect. Sharing a book requires a point of contact, the sharing of a common space through which there may be an exchange of ‘energies’ (the term is still unsatisfying), along with the material or digital object itself. Every exchange of the book also carries the potential for the divergence and reconfiguration of the book, not because of some intentional alteration of its medium or mode of inscription, but through those who hold the *idea* of the book in common. As the pathways of the book become increasingly controlled by technocratic concerns the question of our own relationship with the book will become more urgent and will determine the book to come.

Regardless of its future vestitudes or vissitudes, the book to come will continue to be negotiated at each exchange. Along the way piece after piece of the book will be replaced, like the Ship of Theseus, until only the idea remains.

Acknowledgments

The title of this thesis and its concluding chapter “What remains is the book” was originally the title of a short essay I wrote for a book called *Hijacked III: United Kingdom and Australia*, published by Big City Press (Clements, McPherson, Robb, & Perth Institute of Contemporary Arts, 2012). The chapter in this thesis is, however, an entirely new text.

The title of the first chapter of this thesis, “What is the matter of the book?” was also the title of an artists’ talk that I gave at the Perth Institute of Contemporary Art (PICA) on the 11th of September, 2013 by invitation from the Western Australian branch of The Australian Graphic Design Association (AGDA).

A version of the chapter “The Situational Library” was published on the occasion of ISEA2013 and is available through the University of Sydney eRepository. The chapter in this thesis has been expanded and edited.

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www.blender.org
meshlab.sourceforge.net
www.processing.org

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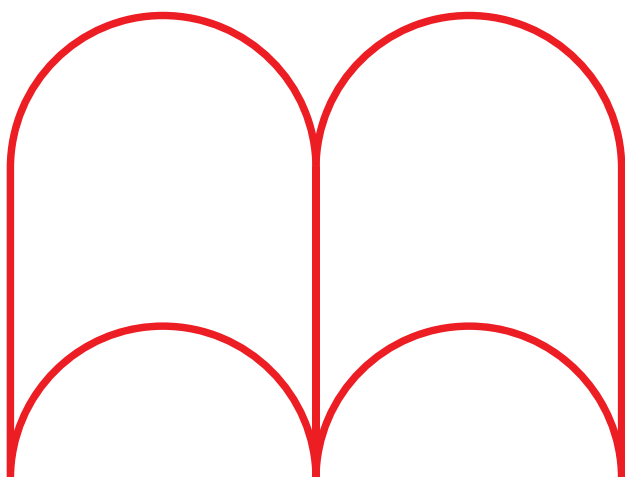
Appendix of works

What remains is the book:
The idea of the book
in and around electronic space

Andy Simionato

Appendix of works

This Appendix contains all the material
originally presented in Volume 2 of the
thesis as well as previously unpublished
documentation.



A

B



Appendix contents

7	Early experiments
21	<i>Funeral Arrangements</i>
27	<i>A Jagged Orbit</i>
43	<i>The Situational Library</i>
67	<i>A throw of the dice will never abolish chance.com</i>
83	<i>World Book</i>
102	Acknowledgments

See also accompanying PAL DVD for
Silent Readings

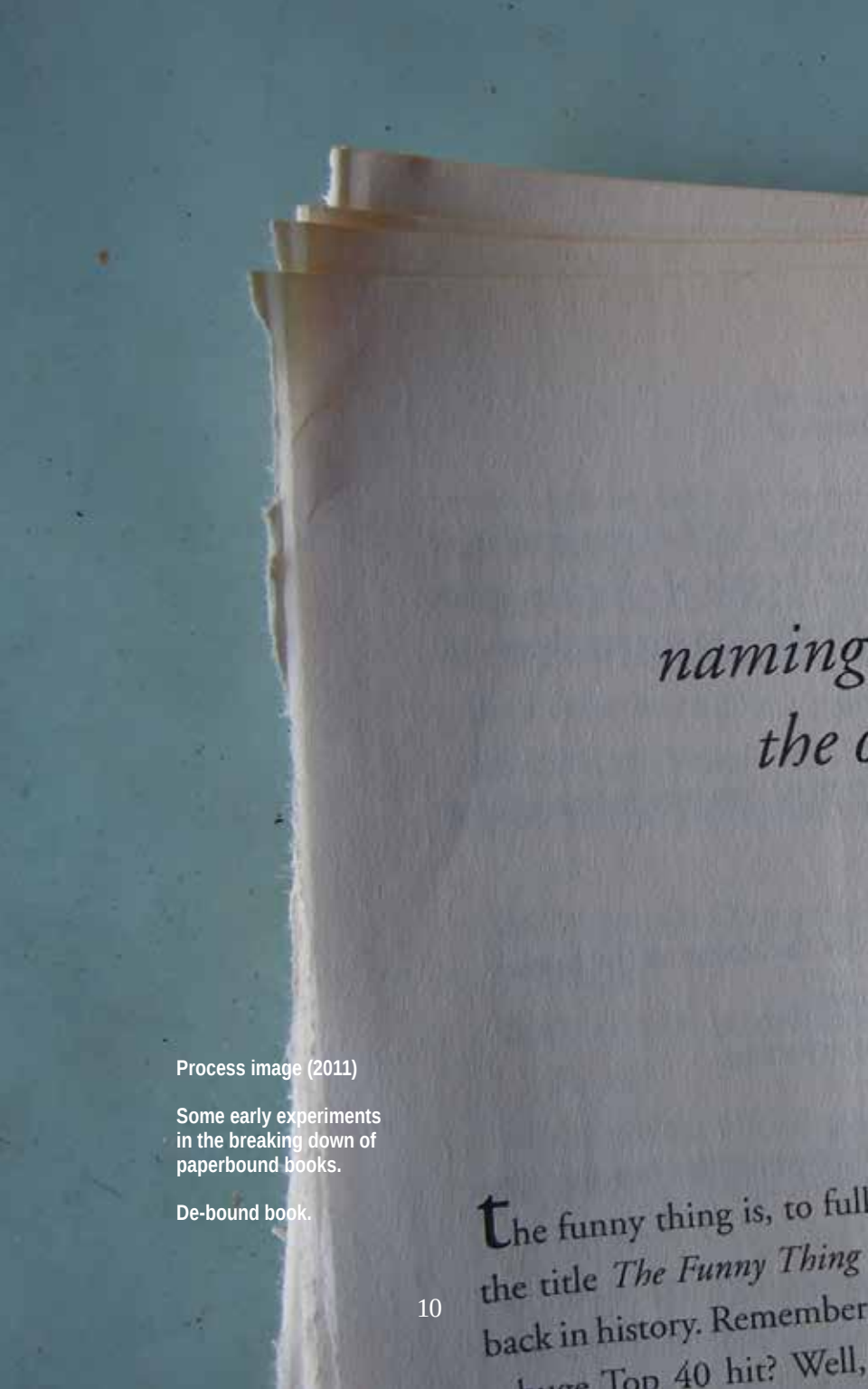
Early experiments



Process image (2011)

Some early experiments
in the breaking down of
paperbound books.

Image was eventually
used for the cover-design
of the thesis.



*naming
the c*

Process image (2011)

Some early experiments
in the breaking down of
paperbound books.

De-bound book.

The funny thing is, to full
the title *The Funny Thing*
back in history. Remember
huge Top 40 hit? Well,

my book:
Odyssey

y understand how and why I chose
Is . . . for my book, we need to go
the year "Billy, Don't Be a Hero" was
luckily we have to go back much,
1615 / 1620 or the early



Process image (2011)

Some early experiments
in the breaking down of
paperbound books.

Pages from de-bound
books are mechanically
sliced.





Process image (2011)

Some early experiments
in the breaking down of
paperbound books.

Books are returned to a
sludge like substance.



Process image (2011)

Some early experiments
in the breaking down of
paperbound books.







Thesis book design
(2014)

Early experiments contributed to the final design of the thesis. The thesis was industrially produced to appear as a soft-cover paper-back book of 240 pages.



Funeral Arrangements



Funeral Arrangements
N.3 or The Complete
Stories of Franz Kafka
(2012)

From a series of digital
images of flowers
containing 'pressed'
texts.

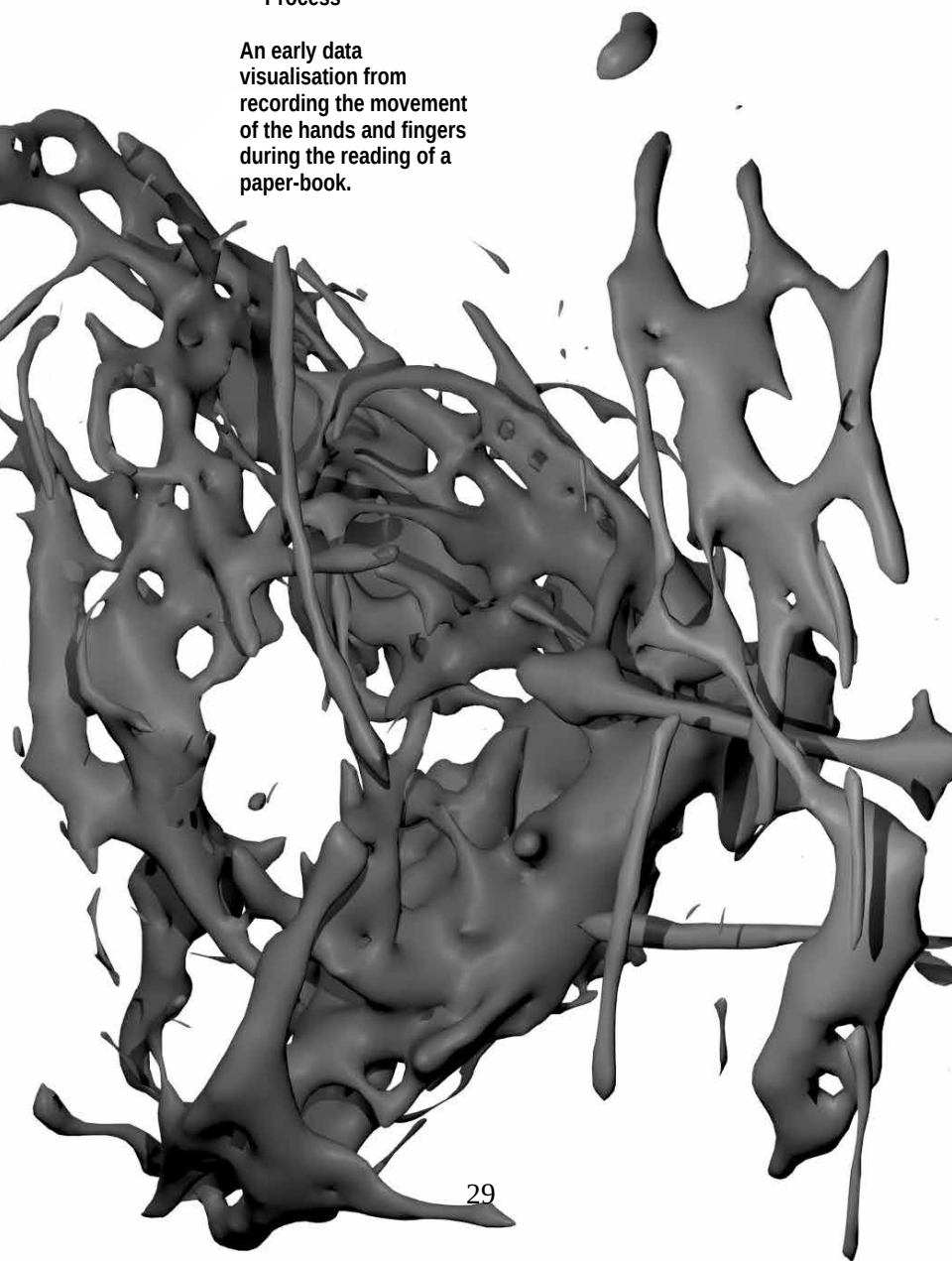


Funeral Arrangements
N.3 or The Complete
Stories of Franz Kafka
(2012) — Detail

A Jagged Orbit

A Jagged Orbit (2014)
— Process

An early data
visualisation from
recording the movement
of the hands and fingers
during the reading of a
paper-book.

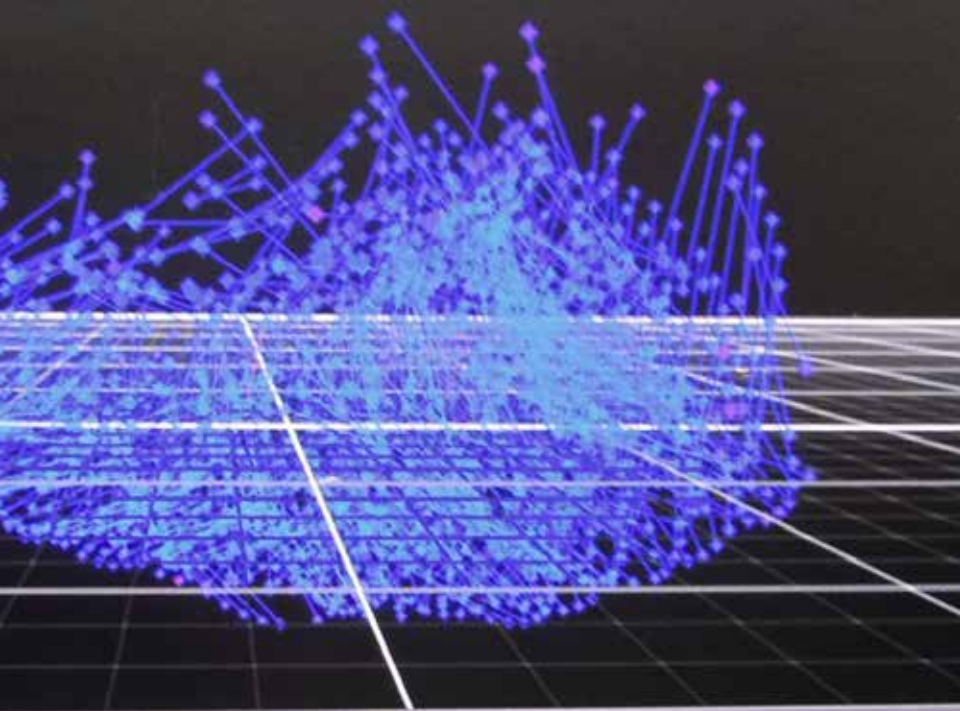
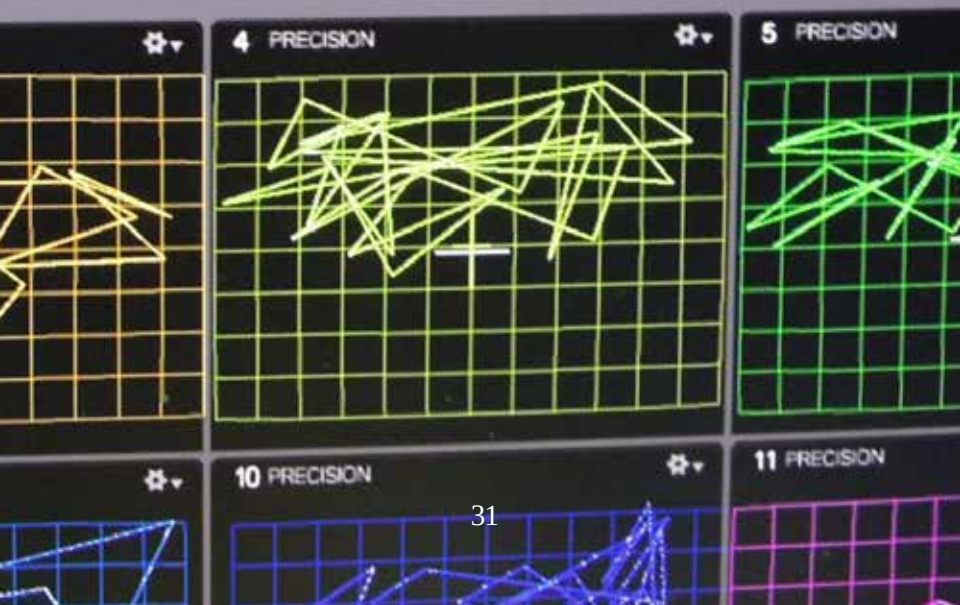


A Jagged Orbit (2014)
— Process

Screen capture during the calibration of the professional motion-capture system.

A smaller and more precise system was preferred for the scanning of micro-motions.







A Jagged Orbit (2014) —
Process

Tracking markers are applied to black gloves for an improvised experiment in micro-motion capture.

Eventually a markerless system was developed.





A Jagged Orbit (2014) —
Process

Tracking balls are applied to a book (from which the title of this work is taken). This early experiment revealed a number of issues of self-occlusion when recording the micro-motion of reading.





A Jagged Orbit (2014)
— Process

This page: Initial results from the full-body motion-tracking prompted further research in order to generate more accurate data.

Opposite page: Attempting a full-body motion capture of the physical act of reading.

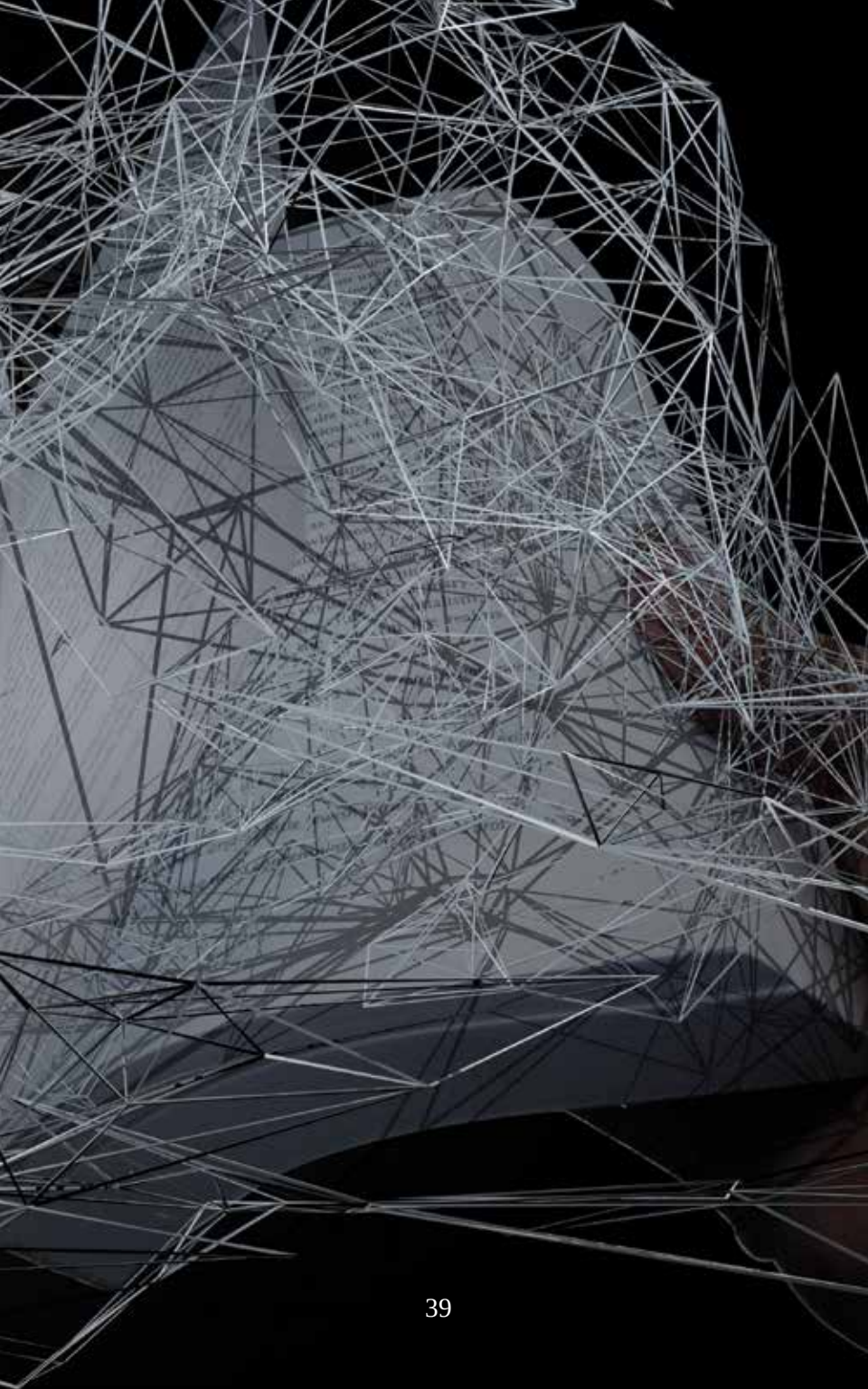


A Jagged Orbit (2014)

A series of 3D renderings that aggregate the micro-motions of hands during the physiological activity of reading a book.

The customised system functioned non-intrusively throughout the research.

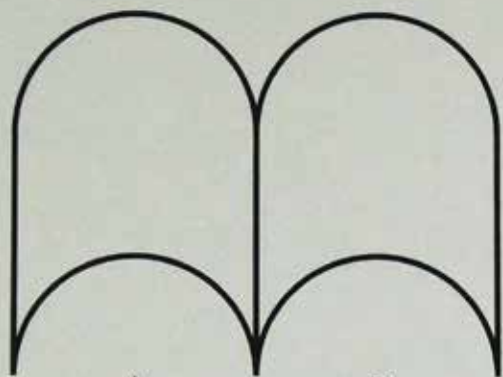
This image shows the micro-motion data from the reading of Jacques Derrida's *Of Grammatology* (1998).



The
Situational
Library

Situational Library
(ISEA, 2013) — Poster

One of the 2 poster
designs for the
installation of the
Situational Library in the
University of Sydney for
ISEA2013.



A

B



THE SITUATIONAL LIBRARY

COLLEGE OF FINE ARTS
UNIVERSITY OF NSW
SAT 8 – MON 10, JUNE

NEW LAW BUILDING
UNIVERSITY OF SYDNEY
TUE 11 – THU 13, JUNE

A SWAP, DROP AND ROLL
PROJECT BY
ANDY SIMONATO

THE SITUATIONAL LIBRARY
ISEA2013.ORG
SWAPDROPANDROLL.ORG





Situational Library
(PICA, 2012) — Process

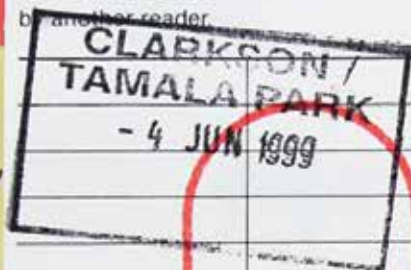
Custom designed
furniture for the
Situational Library
was constructed from
recycled wooden
pallets.



THE LIBRARY AND INFORMATION
SERVICE OF WESTERN AUSTRALIA

This book is due for return on or before the last date stamped below.

Books will be renewed or reserved on application unless required by another reader.



A

B



THIS BOOK BELONGS TO
THE SITUATIONAL LIBRARY
WWW.SWAPDROPANDROLL.ORG



Situational Library
(PICA, 2012)

Installation view after
one week of opening the
library. Participants and
gallery staff are free to
organise and shape the
archive.







Situational Library
(PICA, 2012)

Silk-screened pages from de-bound books as leaflets announcing the first *Situational Library* at the Perth Institute of Contemporary Art (PICA) November–December 2012.

The leaflets are printed with the instructions to “Swap, drop and roll.”

SWAP DROP AND ROLL

A CONCISE HISTORY
OF
MODERN PRINTING

READING ROOM
2012

SWAP DROP AND ROLL

SWAP DROP AND ROLL

PICA READING ROOM
NOV 2 - DEC 30, 2012
SWAPDROPANDROLL.ORG
BRING ANY BOOK TO SWAP OR DROP

SWAP DROP AND ROLL

PICA READING ROOM
NOV 2 - DEC 30, 2012
SWAPDROPANDROLL.ORG
BRING ANY BOOK TO SWAP OR DROP

PICA READING ROOM
NOV 2 - DEC 30, 2012
SWAPDROPANDROLL.ORG
BRING ANY BOOK TO SWAP OR DROP



Situational Library
(PICA, 2012) —
Installation view (detail)
overlaid with the latin
phrase "Habent sua fata
libelli."

FATA LIBELLI



Situational Library
(PICA, 2012) — Installation
view (detail)

Opposite page:
Situational Library
(PICA, 2012) — leaflet.

1 colour Silk-screen on
unique page from debound
book.



interpretation of consciousness and imagination, we have then returned to Kandinsky's law of internal necessity. Art is simply the correspondence effected between this internal necessity, this clamant vision, and certain gestures, movements, colour positions, unified as a structure of two or three dimensions—the word becoming flesh and dwelling among us.

The actual transition from the figurative Expressionism of painters like Kokoschka, Soutine, and Nolde to the abstract Expressionism which has been the characteristic style of the period since the Second World War does not possess the chronological continuity which makes for tidy history; nevertheless, the elements are there—in the early improvisations of Kandinsky, in Kokoschka's visionary transformation of reality, in Soutine's stretched membrane of paint, in Rouault's and Nolde's glowing encrustations of colour—a gradual approach to a mode of communication relying entirely on autonomous formations of outline and colour; symbols as automatic and as expressive as a signature.

OSKAR KOKOSCHKA
Murder Hope of Women, 1910

**SWAP
DROP
AND
ROLL**
PICA READING ROOM
NOV 2 - DEC 30 2012
SWAPDROPANDROLL.ORG
BRING ANY BOOK TO SWAP OR DROP

Situational Library
(ISEA, 2013)

A freely accessible geographically limited wireless network was installed in the main foyer of the Law Building of the University of Sydney for the International Symposium of Electronic Art (ISEA2013).

Participants were free to organise and shape the digital archive that appeared on mobile devices and computers.





CONNECT 

THE
SITUATIONAL
LIBRARY

DIRECT YOUR BROWSER:

<http://the.situational.library>

1. TAKE ANY FILE
2. LEAVE ANY FILE
3. SHAPE THE ARCHIVE

This page: *Situational Library* (COFA, 2013) —
Installation view (detail)

An improvised sign for a
Situational Library at the
College of Fine Arts (COFA).

Opposite page: *Situational Library* (ISEA, 2013) —
Interface design

Screen capture of interface
for the management of the
digital archive.

Chrome

File

Edit

View

History

Bookmarks

Window

Help

Poplar

Popular

ECU

Social

Imported From Firefox

Amazon.c

http://sw

www.isea

the.situational.library/library.php

Facebook

Aurasma

Announce

The Situa

The India

The Situa

Mills Colle

62%

Thu 8:21 PM

THE SITUATIONAL LIBRARY -- ISEA2013

LIBRARY UPTIME: 5 days, 3 hours

EDIT CATEGORIES

INSTRUCTIONS/ABOUT

CURRENT USERS: 1

TOTAL USERS: 14

CURRENT FILES: 65

DELETED FILES: 0

BOOK TITLE	CATEGORY	TYPE	SIZE	DATE
Bastard Culture! (Mirko T. Schäfer)	Media Studies	pdf	3.1MB	12/06/2013
Coded Cultures Between New Media Arts and Production Cultures (Tarasiewicz)	Electronic Art	pdf	351.1kB	12/06/2013
The Silver Chair (Lewis)	Fiction (General)	epub	210.0kB	12/06/2013
The Demolished Man	Science-fiction	epub	291.2kB	12/06/2013
Hard-boiled wonderland etc	Fiction (General)	mobi	661.3kB	12/06/2013
Philosophical Investigations	Philosophy	pdf	2.5MB	12/06/2013
Poetry Language Thought	Philosophy	txt	437.7kB	12/06/2013
Art of Conversation2 -- Szewczyk	Uncategorised	pdf	762.9kB	12/06/2013
Art of Conversation -- Szewczyk	Uncategorised	pdf	726.1kB	12/06/2013
Politics of Installation (Boris Groys)	Uncategorised	pdf	360.6kB	12/06/2013
Curatorship (Boris Groys)	Uncategorised	pdf	142.3kB	12/06/2013
Image, Music and Text -- Barthes	Uncategorised	pdf	5.0MB	12/06/2013
Intelligent Systems (Burnham)	Media	pdf	79.2kB	12/06/2013
Progress as Recession (Chan)	Uncategorised	pdf	559.8kB	12/06/2013
Community (Chan)	Media	pdf	1.0MB	12/06/2013
Commodification (Chan)	Uncategorised	pdf	6.7MB	12/06/2013
Aesthetic Creation	Uncategorised	pdf	3.2MB	12/06/2013

59

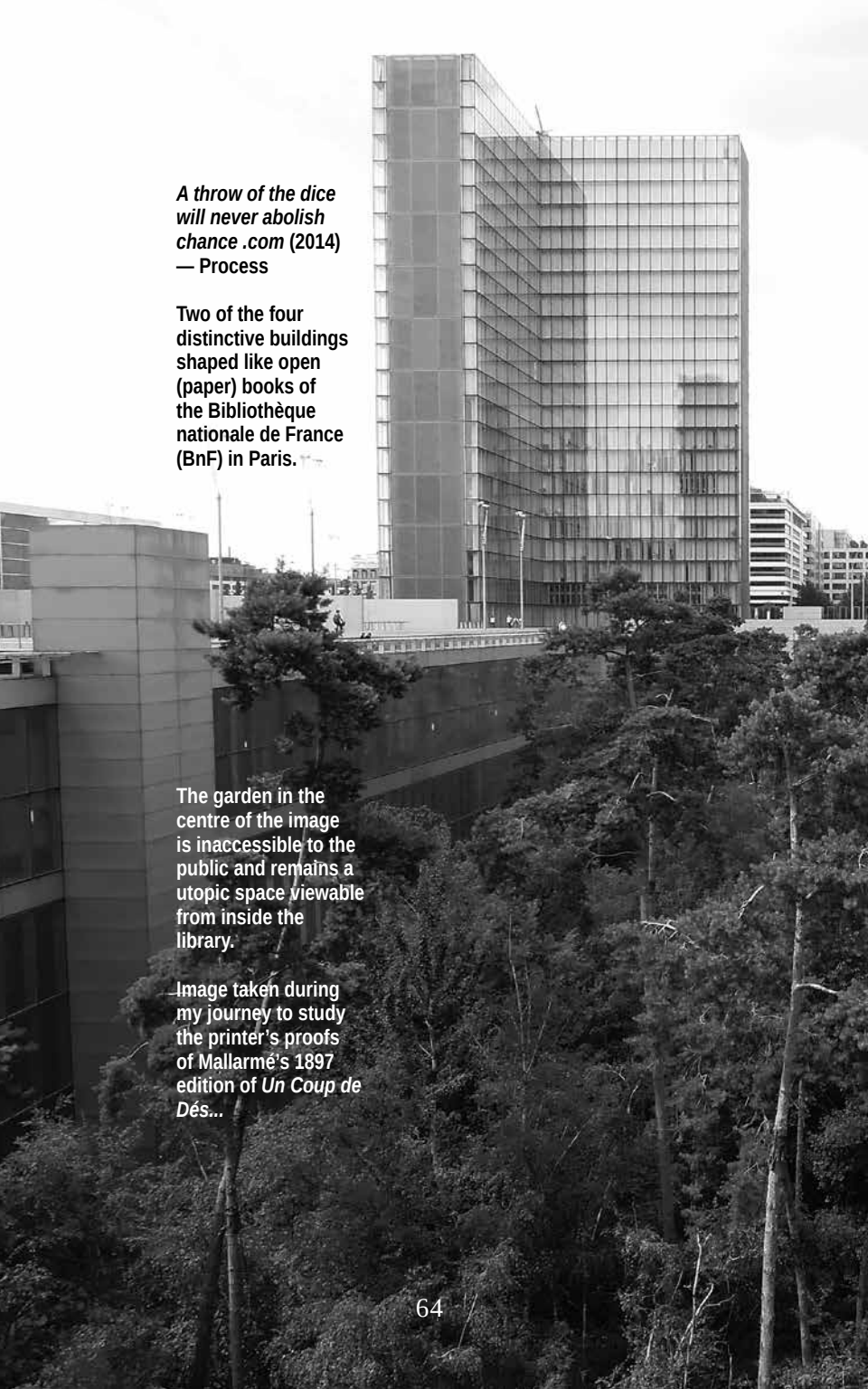
Delete from ser

A throw of the
dice will
never abolish
chance.com



*A throw of the dice will
never abolish chance
.com (2014) — Process*

Entrance to the BnF
on the way to the Rare
Books collection to study
the 1897 printer's proofs
of Mallarmé's *Un Coup
de Dés...*



***A throw of the dice
will never abolish
chance .com (2014)
— Process***

**Two of the four
distinctive buildings
shaped like open
(paper) books of
the Bibliothèque
nationale de France
(BnF) in Paris.**

**The garden in the
centre of the image
is inaccessible to the
public and remains a
utopic space viewable
from inside the
library.**

**Image taken during
my journey to study
the printer's proofs
of Mallarmé's 1897
edition of *Un Coup de
Dés...***

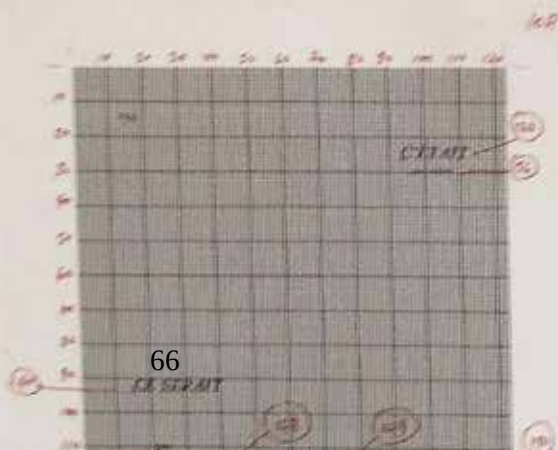


A throw of the dice will
never abolish chance
.com (2014) — Process

After studying the
printer's proofs of the
unfinal 1897 edition of
Mallarmé's poem every
word was indexed
(top part of the image)
in order to record
parameters such as word
length, letter height,
capitalisation and font
choice via a custom
gridded version (lower
part of the image).

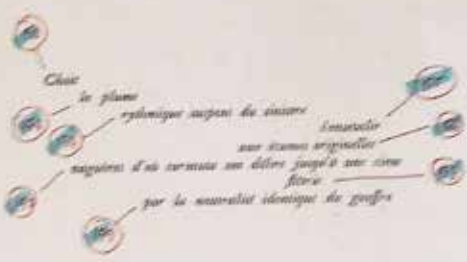


Épigramme
à la fin
d'un grand
livre.





LE HASARD

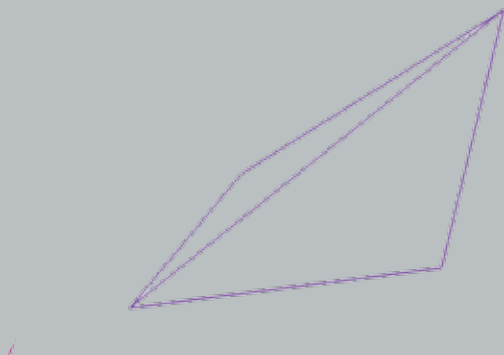


*A throw of the dice will
never abolish chance .com*
(2014) — Process

These preparatory sketches were the first visualisation of the empirical measurement of the paratextual elements in Mallarmé's poem/book.

Each 'constellation' represents the distribution of paratextual elements across a double page spread from Mallarmé's poem in 3D-space

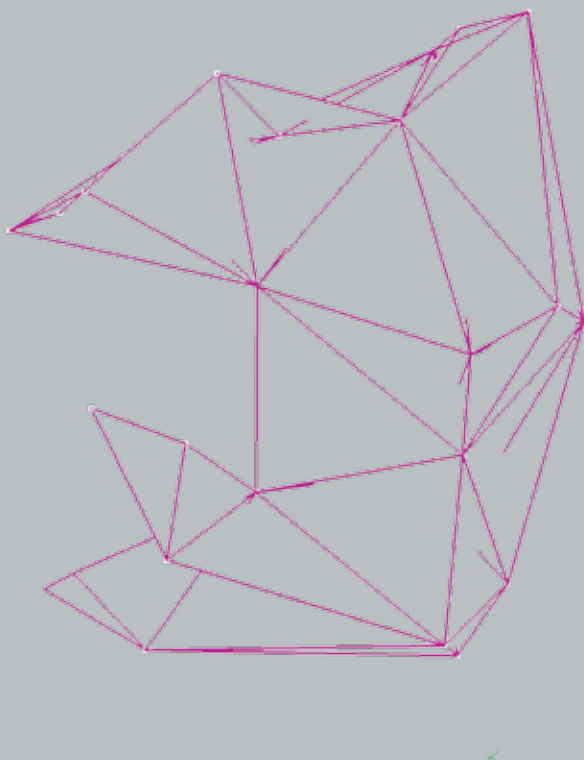
The objects can be manipulated in virtual space permitting new perspectives on the relationships between page elements. See pp. 78–79 for a combined visualisation of all the spreads into one 3D mesh.



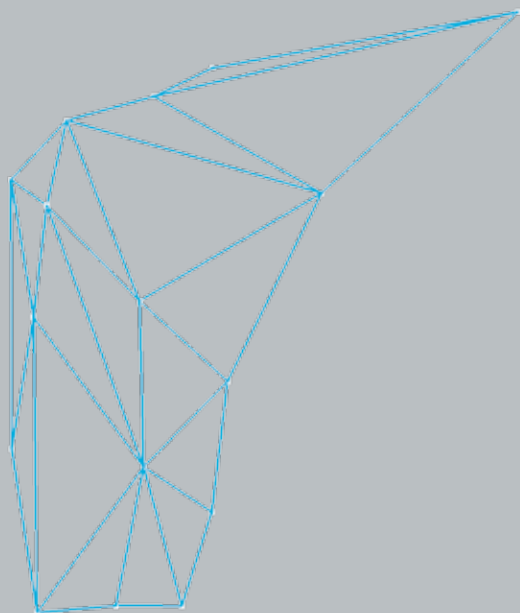
Un Coup de Dés Jamais
N'Abolira Le Hasard
(Spread N.3)



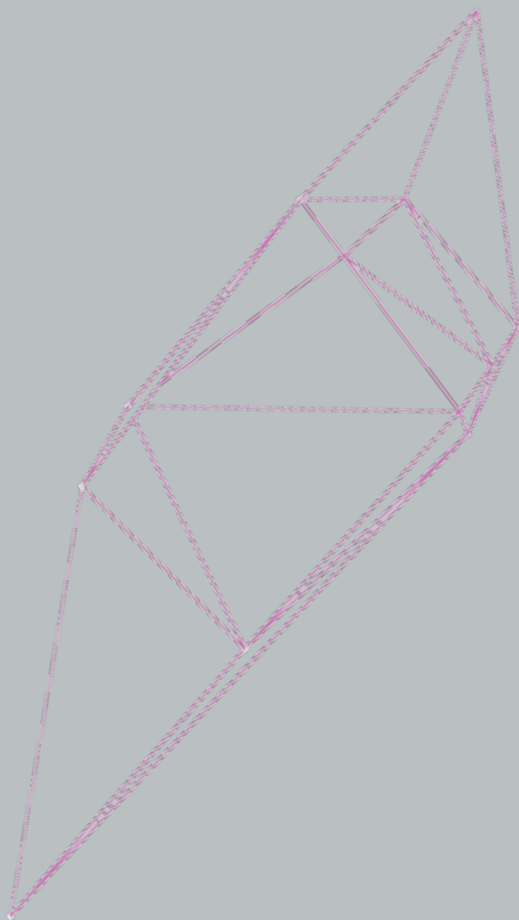
Un Coup de Dés Jamais
N'Abolira Le Hasard
(Spread N.4)



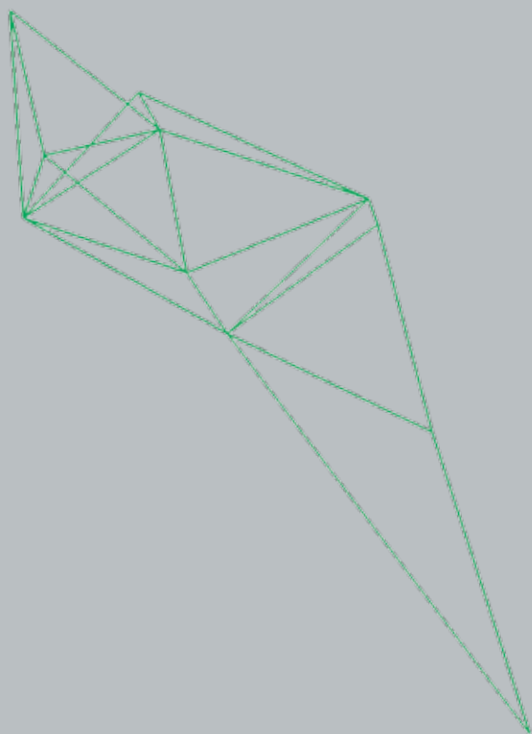
Un Coup de Dés Jamais
N'Abolira Le Hasard
(Spread N.5)



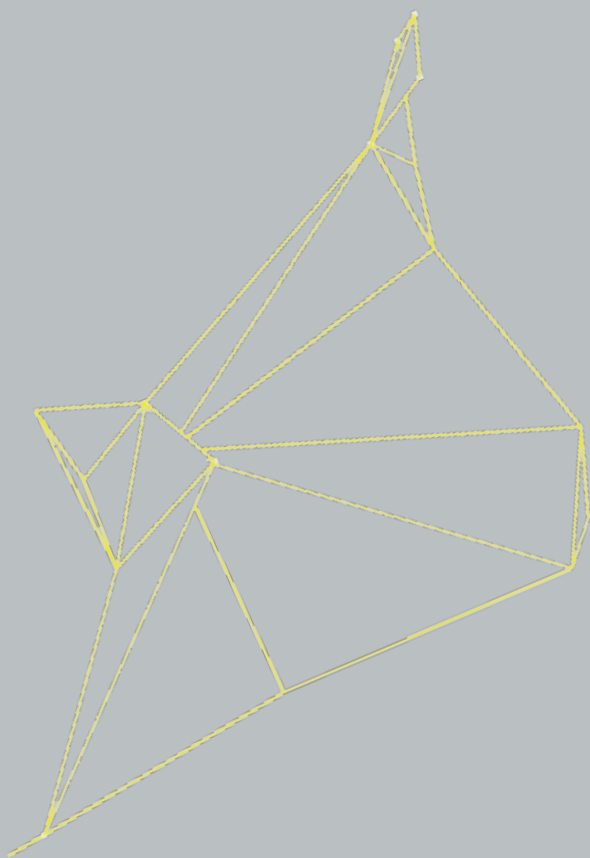
Un Coup de Dés Jamais
N'Abolira Le Hasard
(Spread N.6)



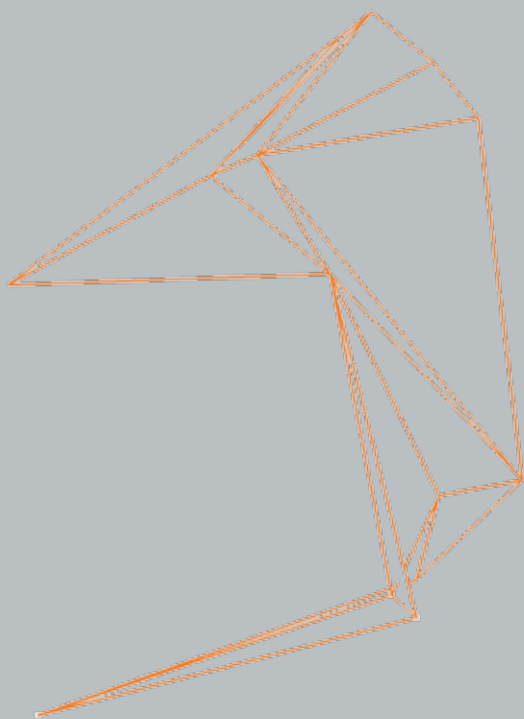
Un Coup de Dés Jamais
N'Abolira Le Hasard
(Spread N.7)



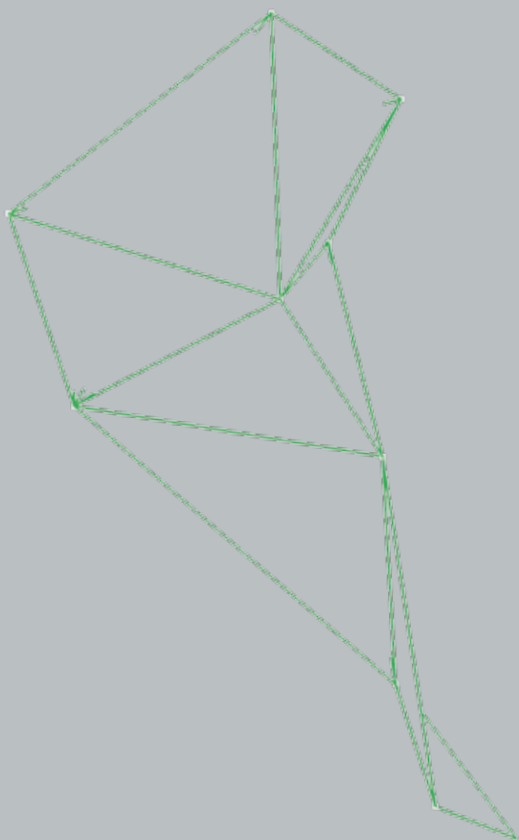
Un Coup de Dés Jamais
N'Abolira Le Hasard
(Spread N.8)



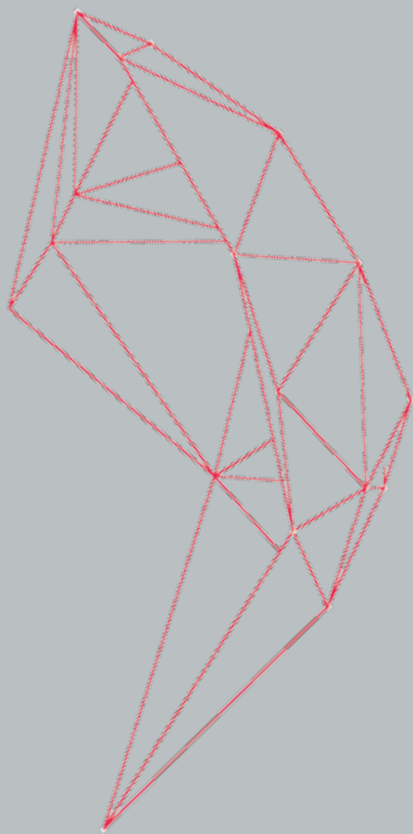
Un Coup de Dés Jamais
N'Abolira Le Hasard
(Spread N.9)



Un Coup de Dés Jamais
N'Abolira Le Hasard
(Spread N.10)



Un Coup de Dés Jamais
N'Abolira Le Hasard
(Spread N.11)

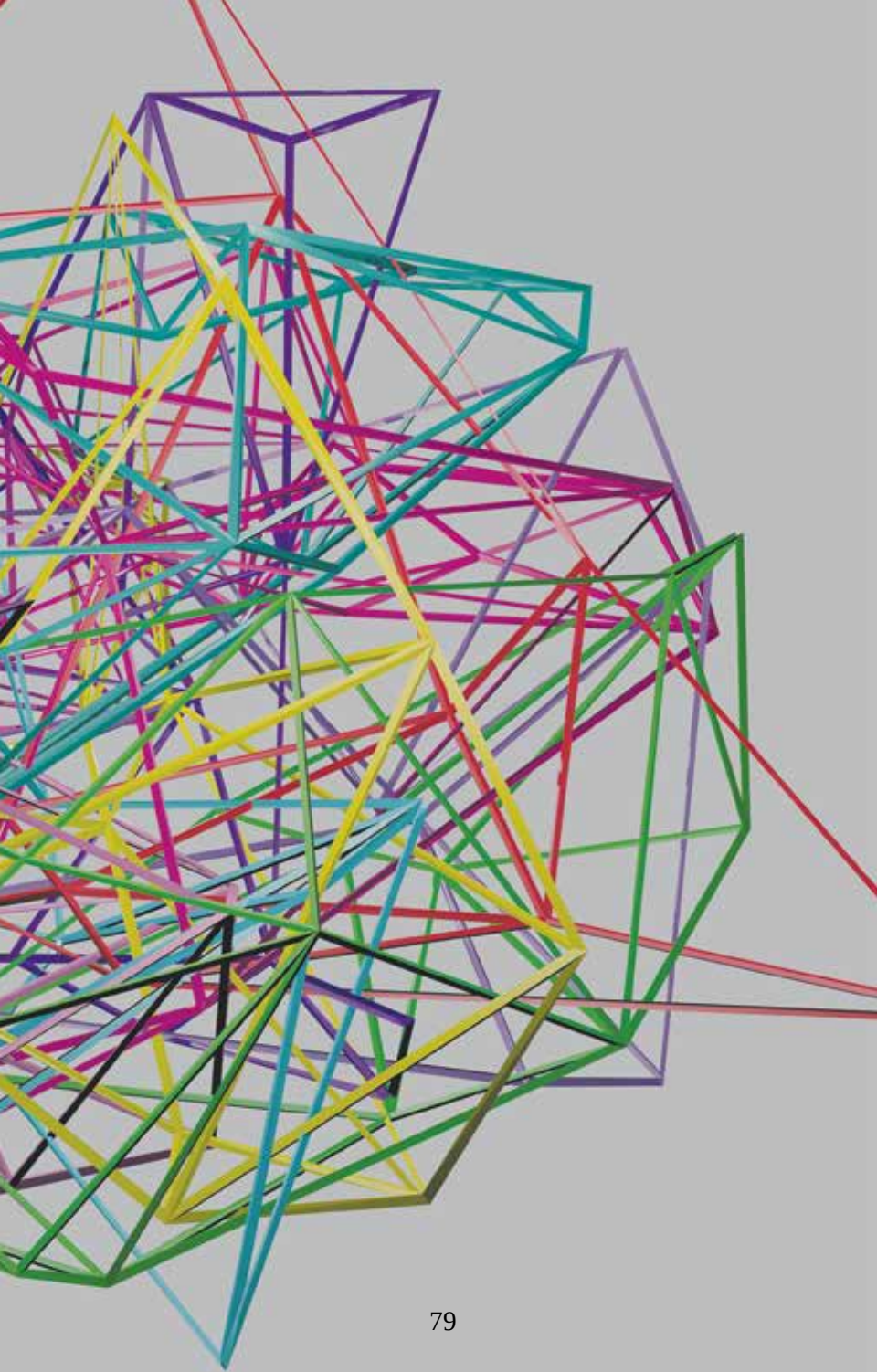


Un Coup de Dés Jamais
N'Abolira Le Hasard
(Spread N.12)



*A throw of the dice
will never abolish
chance .com (2014) —
Preparatory 3D sketch*

Data visualisation of
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Stéphane Mallarmé's
original poem (1897).
Each coloured mesh
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*A throw of the dice will
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*A throw of the dice will
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.com (2014) — Google,
Stéphane Mallarmé & Andy
Simionato

A sample of print edition
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Mourners weep at
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AGRIMONY

AGRIMONY, *AG rih mon' ny*, is the common name for members of a group of perennial woodland plants that grow in the United States, Mexico, and the Mountains of South America. The hairy leaves of agrimony consist of a number of smaller blades or leaflets. The small, yellow flowers grow in clusters on a spike. The fruit is a cone-shaped box with hooked lid.

Scientific Classification. Agrimony belongs to rose family, *Rosaceae*. It is classified as genus *Agrimonia* species *A. eupatorioides*. HAROLD BONNING STONE

AGRIFFA, MARCUS. See **AGRICULTURE** (Rise to Power).

AGRIFFA THE YOUNGER, *AG rih PEE mih* (21-59), was the great-granddaughter of the Roman Emperor Augustus and the mother of Emperor Nero. A.D. 39, Emperor Caligula banished her for her part in conspiracy. Agrippa returned to Rome after her son Claudius became emperor in A.D. 41. Agrippa married a wealthy senator, and became known as the richest and most beautiful woman in Rome. She married Claudius in A.D. 49, after his wife was executed. She dominated Claudius and had him adopt her son Lucius under the name of Nero. Nero became emperor when Claudius died. Nero had her murdered because she tried to rule through him. See also **CLAUDIUS**; **NERO**. MARY FRANKLIN GINS

AGRONOMY, *ah GRAYN uh me*, is the branch of agricultural science that deals with the study of plants and their relation to the soil. Agronomists work to develop methods that will increase crop yields. They help farmers to grow the food supply of the world.

One important phase of agronomy is the selective breeding of plants which will produce the best crops under various conditions. Sometimes new plants are introduced from other lands for this purpose. Through these methods, agronomists have developed strains of plants that resist disease. The U.S. sugar-beet industry, for example, was saved by the development of a disease-resistant (mildew-free) beet. Agronomists have also produced plant strains that can be harvested easily with machines. They have developed dwarf varieties of grain crops that can be harvested by combines, and cotton that resists damage from storms and can be picked by mechanical pickers.

Agronomists study ways of making soils more productive. They classify soils, and test them to determine whether they contain chemical elements vital to plant growth. Such elements include compounds of nitrogen, phosphorus, and potassium. If the soil tested lacks these important substances, they must be supplied by fertilizers.

Agronomists also develop methods to preserve the soil, and to decrease the effects of erosion by wind and water. One such method, contour plowing, may be used to conserve winter rainfall in dry regions, thereby providing additional moisture for plants. Crop rotation is another widely used method of soil preservation. Long ago, agronomists discovered the soil-building characteristics of legumes, such as clover and alfalfa. These plants transfer nitrogen to the soil (see **NITROGEN** [Fertilizer; Nitrogen Cycle]). When grown in rotation with other crops, they have a beneficial effect.

See also **AGRICULTURAL EXPERIMENT STATION**; **SOIL**; **AGRICULTURAL RESEARCH SERVICE**; **CROPPING SYSTEM**. WALTER W. MORRIS

just above the land and atmosphere. Air seems like nothing, is mixed together. Without air, plants or animals on the earth, his very minute. You must have stayed alive more than a week without air only a few minutes with-

well, and no taste. Yet air is in. You do not usually see air. That is, objects can be seen. Light rays pass straight. It appears to be wavy if we look at water air surrounded water air rising above a hot and it seems wavy. In this to see air.

your face when the wind, clouds, and tree branches them. Air can blow large oceans. It can turn wind-sounds come so in through the world would be silent. In a vacuum (see Science) this weight that keeps half-high above the earth. Air in. This air resistance keeps air, just as water resistance on the surface of the water, as a real as any ocean of push along the bottom of ice crawls on the bottom of ice a larger area than all

the masses of water put together. It is hundreds of miles deep and covers all the earth.

What is Air?

Air is made up of a mixture of gases that we cannot see. Water in the form of super (superheated) particles (see line to see) is mixed with the gases. Air also carries tiny particles of solid materials, such as dust. But the water and the solid particles are not considered part of the air.

Gases in the Air. The most important gases in air are nitrogen and oxygen. Nitrogen makes up slightly more than 78 per cent, or almost eight tenths, of dry air by volume. Oxygen accounts for nearly 21 per cent, or about two tenths of the volume of air. The remaining 1 per cent of air consists almost entirely of the gas argon.

Air also contains very small amounts of several other gases. They include neon, helium, krypton, xenon, hydrogen, ozone, carbon dioxide, nitrous oxide, and methane. In some parts of the world, the air contains small traces of ammonia, carbon monoxide, and hydrogen sulfide. See the articles on each of these gases.

Molecules in Air. You cannot see the water vapor, or moisture, in the air. It is in the form of a gas. Each molecule (every tiny particle) of the vapor is smaller than one millionth of a millionth of an inch (see Microscopic). The molecules of moisture float freely among the molecules of nitrogen and oxygen, much as bees drift among flowers. The amount of water vapor in the air is not always the same. Air expands, or stretches out, when it becomes warmer. Because of this, warm air can hold more moisture than cool air can. When the relative humidity reaches more than 100 per cent, the excess water usually comes out in the form of small droplets. Relative humidity is the amount of water that a certain volume of air contains, compared with the amount of air could hold at a given temperature (see Humidity). Clouds are formed when the droplets come close together without touching. When the droplets actually touch and flow together, they form rain, which falls from the clouds. The rainfall removes the moisture from the air and leaves the air drier than before.

Particles in the Air. Air often contains many solid particles. These, like water vapor, are usually invisible except when present in great numbers. A cubic inch of air normally contains about 100,000 solid particles. We can see (puffs of smoke or clouds of dust when many particles of sand and dust are crowded together. The dust count has ranged from 15,000 particles in a cubic inch of clean air over the mid-Pacific Ocean to more than 5 million particles in a cubic inch in the smoke over a large city.

Other particles commonly found in the air include salt from the ocean, pollen from plants, and tiny living things called microbes. High above the earth, men have found tiny crystals of ice in the air. Sometimes solid particles settle into the earth's air from outer space. They are the ashes of meteors that burn upon hitting the atmosphere (see Meteor).

The Ocean of Air

Air forces include weight and resistance. These forces are important to man. Air pressure, air resistance,

5 IN DRY AIR

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The Chesapeake Bay Bridge, opened in 1952, crosses the bay. The 7.7-mile bridge provides hot transportation between Maryland's two "shores."

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the government's representative who
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ALLEGEDLY

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The city is on the western side of the Mississippi River, about 100 miles east of St. Louis. The railroad crosses the community by way of the Grand River.

There is the house of a Pennsylvania farmer who
wears a Pennsylvania coat, where the farmer and
his wife are more than 100 years old. The city has a
population of 100,000 and a river runs through it.

Albino was last seen at a train in 1949. It did not start to grow until 1974 when the Pennsylvania Railroad bar was complete and was used by the city. Albino then began to be used as a device in spreading paint and a major step toward the city has a comprehensive plan of government.

ASTORIA INTERNATIONAL is an organization of women workers, both in union and non-union industries, established to be a permanent organization of women workers for the purpose of promoting peace. About 18,000 women belong to over 150 local clubs in the United States, Canada, Western Hemisphere, Australia, Pacific Rim, England, Iceland, Sweden, New Zealand, Australia, India, and the Philippines. There is a planned program of international relations, community affairs and national affairs. It was founded in 1917 and has headquarters at 321 S. Michigan Avenue, Chicago, Ill. 60604.

[illegible][illegible]

Oct. 2, 1981, Reagan announced a weapons program that would be as the most ambitious strategic defense program since the Manhattan Project. The plan called for six new missile launchers, each with 100 missiles, and a new class of missile, the M-X, which would be housed in existing underground shafts called silos, now used for Titan II missiles. The aging Titans would be deactivated, and their silos hardened to provide more protection for the M-Xs. To strengthen the U.S. air-borne deterrent force until the Stealth bomber can be built in the 1990s, Reagan planned to put 3,000 cruise missiles on existing B-52 bombers in 1982 and on B-1 bombers when the new planes become available. He proposed to obtain additional F-15 jet fighters, which can travel at more than twice the speed of sound, and more of the sophisticated radar reconnaissance aircraft called AWACS (Airborne Warning and Control System).

Reagan's plan was a continuation of the strategic defense program that he announced in 1981. The plan called for six new missile launchers, each with 100 missiles, and a new class of missile, the M-X, which would be housed in existing underground shafts called silos, now used for Titan II missiles. The aging Titans would be deactivated, and their silos hardened to provide more protection for the M-Xs. To strengthen the U.S. air-borne deterrent force until the Stealth bomber can be built in the 1990s, Reagan planned to put 3,000 cruise missiles on existing B-52 bombers in 1982 and on B-1 bombers when the new planes become available. He proposed to obtain additional F-15 jet fighters, which can travel at more than twice the speed of sound, and more of the sophisticated radar reconnaissance aircraft called AWACS (Airborne Warning and Control System).

Reagan deferred a permanent decision on basing the M-X until 1984, when more information would be available. However, the production of 100 M-X missiles would begin immediately upon congressional approval of the plan. The first 36 missiles would be housed in existing underground shafts called silos, now used for Titan II missiles. The aging Titans would be deactivated, and their silos hardened to provide more protection for the M-Xs. To strengthen the U.S. air-borne deterrent force until the Stealth bomber can be built in the 1990s, Reagan planned to put 3,000 cruise missiles on existing B-52 bombers in 1982 and on B-1 bombers when the new planes become available. He proposed to obtain additional F-15 jet fighters, which can travel at more than twice the speed of sound, and more of the sophisticated radar reconnaissance aircraft called AWACS (Airborne Warning and Control System).

Additional Build-Ups. To strengthen the U.S. air-borne deterrent force until the Stealth bomber can be built in the 1990s, Reagan planned to put 3,000 cruise missiles on existing B-52 bombers in 1982 and on B-1 bombers when the new planes become available. He proposed to obtain additional F-15 jet fighters, which can travel at more than twice the speed of sound, and more of the sophisticated radar reconnaissance aircraft called AWACS (Airborne Warning and Control System).





Palladium Alloys
Alloys containing palladium are used to replace expensive platinum in jewelry.



Titanium Alloys
Strong, lightweight titanium alloys strengthen the frames of jet planes.



Nickel Chromium Alloys
Jet engine parts made with these alloys stay strong at high temperatures.



Manganese Steel
Alloys of tough manganese steel make gears, chains, cranes and other parts.

...or more metals, as of a
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usually remains unchanged. But sometimes the metals in the alloy react in such a way that the particles be- come rearranged and form chemical compounds.

Alloys consist of compounds and particles called grains. Each grain is a small crystal that is shaped differently from those next to it. Most alloys contain many grains. The rate at which alloys are heated and cooled affects the grain size. Usually, the faster they are cooled from a high temperature, the smaller the grains will be. The more ductile grain size depends on the amount of the alloy. The grain size and controlling factors followed by these cooling are important processes for making the desired kinds of alloys. See below on this.

There are two types of alloys. Single phase alloys have the same composition throughout. In contrast, copper and nickel in some proportions form a single phase alloy. Polymorphic alloys have different phases. The composition of the various metals in a polymorphic alloy is the same throughout a region. But the proportions change slightly from one region to another. Thus a polymorphic alloy of iron and a very small amount of carbon.

TELEVISION

TELEVISION. The most significant television events in 1981 occurred off camera in the United States. On screen, viewers found retreads of old series, old themes, and generally lackluster network programming. Meanwhile, behind the scenes, the television industry was being transformed by several forces — governmental deregulation, consumer activism, labor unrest, and the emergence of pay-TV.

Deregulation. The Federal Communications Commission (FCC) in 1981 asked Congress to repeal several regulations — among them, the fairness doctrine, which requires broadcasters to give balanced coverage to issues of public importance. The commission also asked Congress to repeal the equal-time regulation, which requires broadcasters to provide equal access to the airwaves to all major candidates for political office.

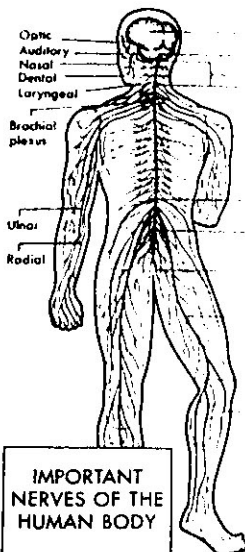
The FCC on August 4 also granted CBS Inc., owner of the CBS television network, permission to own cable-television systems to experiment with new technologies. An FCC staff proposal, not put to a vote in 1981, would repeal the regulation barring individuals and companies from owning television stations and cable-TV franchises in the same market.

Consumer Pressure. While the federal government was pulling back from television, crusading consumers were plunging in. Donald E. Wildmon.



NERVOUS SYSTEM

NERVOUS SYSTEM consists of the brain, spinal cord, and the nerve cells and fibers that run out the bodies of man and the other animals. The nervous system keeps us in contact with our bodies by receiving from sense organs, such as the eyes and ears, information and messages and causes us to react. It enables all parts of our body, and all the organs, to work together to keep going.



The nervous system, like other parts of the body, is made up of cells (see UNIT 1). Nerve cells are called *neurons*. Like the other cells of the body, neurons have a nucleus surrounded by cytoplasm. The nucleus and the cytoplasm make up the *cell body*. The cytoplasm surrounding the nucleus of a neuron grows out into one or more fine threads or fibers. Most neurons have a single long fiber called an *axon* and several branched extensions of the cell body called *dendrites*. A *nerve* may be a single nerve fiber or a bundle of nerve fibers. Nerves vary in shape and size depending on their function. Some neurons have short axons and dendrites, and others may have axons that are several feet long.

The **sense organs** have specialized *nerve endings* (ends of nerve fibers) that respond to stimuli from the world around us. Such sense organs as the eyes and ears allow us to see and hear. Others, including some in the skin, tell us if things are hot or cold. Those in the nose and tongue allow us to smell and to taste. Still other sense

organs are in the muscles and joints. They tell us when we are moving or when we are hurt.

The nervous system is made up of many different parts. The brain, spinal cord, and nerves are the main parts.

The brain is the control center of the nervous system. It receives information from the sense organs and sends out orders to the rest of the body.

The spinal cord is a long, thin, tube-like structure that runs from the base of the brain down to the lower back. It is made up of many small, individual nerve cells called neurons.

Several nerves are connected to the spinal cord. These nerves carry messages between the brain and the rest of the body.

PERSONALITIES OF

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Worldbook
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Installation view (Detail)

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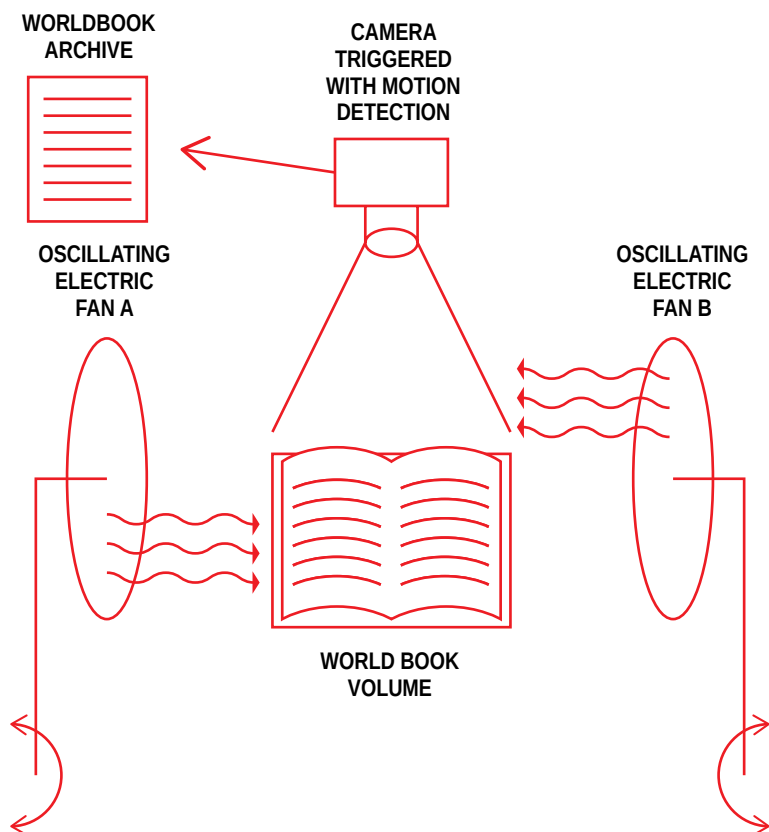
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Opposite page: An early attempt at using the wind to move pages which triggered motion-detection algorithms in the image-capturing software.

This page: Project plans for scanning machine. This version with oscillating fans replacing natural forces of the wind.

Acknowledgments

These acknowledgments are also in the main volume of this thesis. They are repeated here for convenience.

For A Throw of the Dice:

Thanks to Professor Ute Mueller, School of Engineering, ECU for the collaboration in developing the statistical calculations and models. All the coding and programming for the final work, as well as numerous fully functioning interim versions is by Karen ann Donnachie, without whom this project was unthinkable.

For the access to work directly with Mallarmé's original hand-annotated printer's proofs of the poem from 1897 I thank the Director Antoine Coron, and staff of the Department of Rare Books, Bibliothèque Nationale de France (BnF).

For the Situational Library:

The SL installation at PICA was made possible with the help of the curator Leigh Robb, and PICA's staff, technicians and volunteers.

The original repository of thousands of de-accessioned books were donated by the WA State Library. Thanks to the Chief Executive Officer and State Librarian Margaret Allen, as well as Susan McEwan and Karen de San Miguel and the library staff.

For the SL at University of Sydney (ISEA) thanks to Laura Fisher and the staff of the International Symposium of Electronic Art.

For the SL at the College of Fine Arts of Sydney (ISEA): Thanks to Karen Ryan and staff.

In the electronic versions of the SL the wireless server, database design and interface was programmed by Phil Lewis. I thank Phil not only for his coding expertise, but also for the long discussions permitting many of my concepts on the Situational Library to move from theory into practice.

For printing of bookmarks and other ephemera, as well as providing a temporary studio in Sydney, I thank Augustin and his Print Supplies. Second-hand books donated by Gould Books on King St., Newtown.

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Warm thanks for the work of the individuals and communities that develop and maintain open-source projects such as Blender, Meshlab and Processing, all of which I have used for various projects in this research. The body of this thesis has been typeset in Liberation Serif, a freely available typefont distributed by Redhat Linux.
blender.org,
meshlab.sourceforge.net,
processing.org

Phd supervisors:
Dr Stuart Medley and Dr Cat Hope.

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Unless otherwise stated all texts and photography by Andy Simionato.
www.andysimionato.com

— Printed June, 2014

The possibilities and challenges afforded by computer mediated environments are affecting the relationships between the book, the machine and the reader.

This study explores how the idea of the book *in general* is changing in electronic space by asking four questions:

**What is the matter of the book?
Where are the boundaries of the book?
Who (or what) decides the book?
What is the book for?**

Through a series of practical works, this thesis attempts to develop an understanding of the book that is independent of its content, medium of transmission and technology of inscription: the book to come.

What remains is the book
— Andy Simionato

Thesis submitted for the
Degree of Doctor of Philosophy
School of Communications
and Arts, Edith Cowan University,
Western Australia