

In the Making: An interdisciplinary revision of the concept of the skeuomorph for material practice

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ABSTRACT

This PhD project, 'In the Making: An interdisciplinary revision of the concept of the skeuomorph for material practice', initiates a new role for the skeuomorph in relation to material practice, argues that it is revealing of material experimentation and interacting craft methods, and proposes that, by refocusing attention on its crafted logic, we can revitalise the concept for practitioners and associated professionals in the contemporary context.

The skeuomorph, roughly translated as “structure-form”, is a nineteenth-century formulation that acknowledges the formal interrelationship among material things. It denotes an object whose method of production corresponds to an altogether different material – such as basketry techniques assimilated into ceramics, or woodwork into masonry – and is described accordingly as “skeuomorphic”. It was conceived within an industrialising context where the ideological role of objects, as well as the impact of new fabrication methods and materials, was central to architectural and design discourse. Now would seem the ideal cross-disciplinary context within which to re-encounter it, either materially or discursively. However, its significance as a marker of materials experimentation has become obscured, primarily due to its unthinking appropriation in the digital realm, which yields its own material and temporal ambiguities.

This thesis sets out to question the ambivalence towards the concept, and asks: *In what ways is the skeuomorph misinterpreted in the contemporary context? What different facets of the skeuomorph come to light through a focus on its making? What is the relevance of the revised concept of the skeuomorph for contemporary material practice?* Part I of the thesis problematises the distortion of the concept, notably via digitality – given its intrinsically

crafted origins – and proposes that contemporary theorisations can be remedied through craft thinking. Building on this theoretical work, Part II of the thesis examines four discrete instances of the skeuomorph from across material practice, with the aim of revealing its inventiveness, and, ultimately, to provide a more timely perspective on it. To do this, the thesis knits together theory and practice. It integrates historiography with textual analysis, and mixes theoretical concepts from material culture studies, craft theory, and process philosophy with the tacit knowing of practitioners. The thesis does not take the skeuomorph at face value, but rather re-examines its role *in the making*. What emerges is an intrinsically material, temporally complex, and tactical mode of making that has the capacity to open up new perspectives on making, as well as our critical engagement with objects.

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DECLARATION

I declare that the research contained in this thesis, unless otherwise formally indicated within the text, is the original work of the author. The thesis has not been previously submitted to this or any other university for a degree, and does not incorporate any material already submitted for a degree.



Kimberley Chandler

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INTRODUCTION

In the collections at the Museum of Design in Plastics, Bournemouth, is an electric hot water bottle (c. 1945) (fig. 1). Fashioned from Bakelite, the first synthetic plastic, this quasi-bottle resembles a standard rubber hot water bottle. It has the prototypical shape with textured sides; it is sealed with a stopper, and has a subtle bulge that denotes its hot, fluid interior. Yet, this hot-water bottle is without water. It relies on electric wires to heat it: *Just slip into the bed and plug in.*¹ It is not a flexible object, but brittle and unforgiving. Compression-moulded in Bakelite, it is an inventive take on a conventional form.

A similar imprint to that on the surface of the electric water bottle is visible in designer Peter Marigold's *MALAYALAM* (2010), although organic rather than synthetic (fig. 2). Exhibited as part of *Design Miami*, *MALAYALAM* reconciles woodworking with casting in the interest of symmetry. This furniture series is part-mould, part-cast. The negative wooden mould and positive plaster cast are sutured together as one unit, accentuating the correspondence between the liveliness of wood and the exactitude of gypsum plaster. *MALAYALAM* reveals the animation of its materials at its surface. There is a grain discernible in both.

This correspondence between materials fuses in the construction of artist Rachel Levine's *Material Anxiety* (2015), in which Levine creates 'an unusual coming together'

¹ 'Electric Bed Warmer', Museum of Design in Plastics <<http://www.modip.ac.uk/artefact/p/hs1-3>> [accessed 16 September 2016].



Figure 1.
**Bakelite electric
hot water bottle,**
compression-
moulded
Bakelite bottle,
manufactured
by RA Rothermel
Limited, c. 1945, L
330 mm x W 200
mm.

Courtesy Museum
of Design in
Plastics (MoDiP)

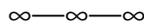


Figure 2.
Peter Marigold
– *MALAYALAM*
(from the
PALINDROME
series), wood,
acrylic and gypsum
composite,
fibreglass,
dimensions
variable, 2010.

Courtesy Crafts
Council Collection
(Photo: Todd-White
Art Photography)



of materials in variously implausible forms (fig. 3).² A sheet of sound-absorbing foam, cast in jesmonite, lies motionless over a rail, while a length of towelling with its unmistakably bobbed surface, here moulded in silicon, lacks any hint of comfort. *Material Anxiety* plays on our expectations for materials, resulting in objects that are simultaneously intricate and substantial, durable and ‘textilic’,³ conventional and inventive.



The electric hot water bottle is materially ambiguous. *MALAYALAM* playfully integrates two distinct materials into one harmonious object. *Material Anxiety* presents a contradictory material performance. I propose that the peculiar inventiveness of each of these objects can be best understood via the concept of the “skeuomorph”; that is, that each object is materially, temporally, and vitally complex. The aim of this PhD thesis is to bring to light the articulacy of this critical concept, obscure as it sounds, for contemporary material practice. The skeuomorph makes it possible to assemble the dissonant qualities of these objects under one enigmatic term, and yet it has been steadily marginalised in the discourses on making. The question is how to redress this.

As a design practitioner and writer, I am aware that the skeuomorph is either little known, or more often overlooked in the critical discourse on objects, despite its conceptual robustness with regard to making. The word itself is partly to blame. Formed of “skeuos” (σκεύος), the Greek term meaning “utensil, implement,” and “morphē” (μορφή) meaning “form”, which roughly translates as ‘structure-form’,⁴ the skeuomorph is often mistaken to mean something “skewed” – strange and unfamiliar.

² Rachel Levine: *Material Anxiety* (Hayward Gallery, London, 21 April-14 June 2015) <<http://www.southbankcentre.co.uk/whatson/rachel-levine-material-anxiety-1000949>> [accessed 24 September 2016].

³ Tim Ingold uses the term ‘textility’ to describe the ‘tactile and sensuous’ aspects of making, which he analogises to the ‘haptic’. We can understand the ‘textilic’ as contrasting with the more scientific, or ‘architectonic,’ aspects of making. See Tim Ingold, ‘The textility of making’, *Cambridge Journal of Economics*, 34 (2010), pp. 91-102 (pp. 92 & 100).

⁴ Henry Colley March, ‘The Meaning of Ornament; or its Archaeology and its Psychology,’ *Transactions of the Lancashire and Cheshire Antiquarian Society*, Vol. VII.—1889 (Manchester: Manchester Press Co. Ltd., 1890), pp. 160-92 (p. 174).



Figure 3.
Rachel Levine
– *Material Anxiety*
(detail), towelling
moulded in silicon,
2015.

Courtesy
Southbank Centre,
London

Yet, in reality, it is discernible in a diverse range of making practices, from textiles through to plastics. It was anthropologist Henry Colley March who, in 1889, first conceived of the skeuomorph to describe forms of ornament that arise from structure,⁵ that is, from their facture. The skeuomorph is an object whose form markedly differs from its constituent material, or vice versa, that its materials are at odds with its form. This owes to its method of production, to taking up, or experimenting with processes from across material practice; for example, basketry techniques assimilated into ceramics, or woodwork into masonry. The skeuomorph exhibits the inventiveness that issues from the exchange of ideas, materials, and techniques across disciplines, and, would seem to be in keeping with the contemporary mode of making.

Yet, despite its critical potential as both a tactic of making and tool for deciphering objects, current interpretation of the skeuomorph focuses primarily on its deployment in digital interface design, and, in doing, obscures its immanent materiality and purposiveness. In response to this oversight – what I deem to be a blind alley in its history – I aim to revise the concept for material practice, to bring it up to date with “new materials” and techniques, and to reintroduce it to the discourses on making. In its original manifestation, the skeuomorph reflected debate about the aesthetic and ideological role of objects. There is certainly room to expand on the concept in line with contemporary preoccupations with cross-disciplinarity, experimentation, and innovation. To do this, I draw on the specialist knowledge of material practitioners – among them, makers, technicians, and theoreticians – with the aim of introducing the messiness of materiality to the history and theory of the concept. This is my original contribution to the problematic of the skeuomorph: I believe that current understanding of the skeuomorph lacks the liveliness, vitality, and agency that material knowledge affords. I argue that the skeuomorph provides valuable insights into the emergence of seemingly incongruous objects, and it is *in the making* that it can be most acutely perceived. I reposition the skeuomorph as a mode of material encounter that is temporally complex and multi-layered, and that serves to bring craft and materiality to the fore when thinking critically about objects.

⁵ Colley March, 'The Meaning of Ornament', p.166.

This thesis does not present an exhaustive account of the development of the skeuomorph; nor does it follow a conventional chronology. Rather, it takes a deliberately cross-sectional approach to its history. I examine a diverse range of “skeuomorphic” examples, from the 1980s to today, with a view to addressing the here-and-nowness, or “contemporaneity” of the skeuomorph in each instance, rather than analysing how it has changed over time. This is not a design-historical thesis therefore, but a more experiential one that brings material practice to bear on history and theory. That said, like design history, it is interdisciplinary in its approach, drawing on theories and concepts from other disciplines,⁶ including art history, anthropology, theories of time, digital studies, craft theory, architecture, and philosophy. I also consciously merge historical and contemporary voices, allying myself with philosopher Michel Serres’s proposition that: ‘All Authors Are Our Contemporaries.’⁷ To my mind, this patchwork of voices satisfies the interdisciplinary and cross-sectional nature of the research. It is a strategy that carries right through to what I call my “knitted methods,” to the careful knitting together of different research sources: instructional texts with visual representations, theoretical treatises with observation, as well as experiential learning with conversation. The knitted methods are not only a theoretical response to the question of how to examine the skeuomorph, but also a practical one.

This thesis asks: *In what ways is the skeuomorph misinterpreted in the contemporary context? What different facets of the skeuomorph come to light through a focus on its making? What is the relevance of the revised concept of the skeuomorph for contemporary material practice?* The purpose of this research is threefold: First, to evaluate the critical literature on the skeuomorph, both historical and contemporary, to identify the reasons behind the current diminution of the concept. Second, to respond critically to the ambivalence about the skeuomorph by expanding on the concept from an interdisciplinary

⁶ John A. Walker, *Design History and the History of Design* (London: Pluto Press, 1989), p. 35.

⁷ Michel Serres and Bruno Latour, ‘Second Conversation: Method’, in *Conversations on Science, Culture, and Time*, trans. by Roxanne Lapidus (Ann Arbor: University of Michigan Press, 1995), pp. 43-76 (p. 44). See also, Umberto Eco, *How To Write a Thesis*, trans. by Caterina Mongiat Farina and Geoff Farina (Cambridge, MA: MIT Press, 2015), pp. 16-17.

perspective. Integrating ideas from across disciplines is more suited to the contemporary mode, in which ‘cross-pollination’ predominates,⁸ thus providing a more timely perspective on the skeuomorph. And third, to link theory with practice through the close examination of four discrete “object studies” that reveal the skeuomorph as a tactic of making, and that draw attention to its potential relevance for material practice: from education to curatorship and criticism.

The thesis is organised in two parts: Part I is broadly theoretical and methodological, whereas Part II is concerned with practice. This is not to suggest that there are no overlaps between the two: the structure simply represents the sequential nature of the research. I start, in Part I of the thesis, with a brief introduction to the historical context in which the skeuomorph emerged. In Chapter 1, I relate the emergence of the concept to predominant discussions about the aesthetic and ideological role of objects in the mid- to late-nineteenth century, and in particular, to the discourses on ornament. Drawing off architect Adolf Loos’s unequivocal condemnation of ornament in ‘Ornament and Crime’ (1908), I demonstrate how it is the superfluity and unproductive qualities of ornament that beset the skeuomorph from the outset. I then undertake a close reading of Colley March’s original thesis (1889), arguing that, while he does indeed acknowledge the material dimension of the skeuomorph, he fails to account for the peculiar agency of materials in the process of manufacture. Thus, I agitate for materiality to be reintroduced to thinking about the skeuomorph.

I move on, in Chapter 2, to track a range of historical and contemporary interpretations of the skeuomorph, in an effort to comprehend the reasons for its diminution. This review cuts across anthropology, sociology, digital studies, literature studies, and architecture, before ending in the midst of the ‘post-analogue era’.⁹ I have organised this review around three interrelated concerns that emerged from my initial research into the discourse on the skeuomorph: that the skeuomorph is deemed “immaterial,”

⁸ Mike Ashby and Kara Johnson, *Materials and Design: The Art and Science of Material Selection in Product Design* (Oxford; Boston: Butterworth–Heinemann, 2002), p. 127.

⁹ David H. Fleming and William Brown, ‘FCJ-176 A Skeuomorphic Cinema: Film Form, Content and Criticism in the “Post-Analogue” Era’, *The Fibreculture Journal*, 24 (2015), pp. 81-104 (p. 81).

“anachronistic,” and “imitative”. Each of these concerns relates to craft, to methods of production, and substantiates my central thesis that what is lacking in the current discourse on the skeuomorph is material thinking *and* practice. Arguing that current debate on the skeuomorph tends to trivialise its significance to material practice on account of such misinterpretations, I propose that the skeuomorph is, in fact, a tactic of making that reveals the material and temporal complexity of objects, their inventiveness and difference.

Chapter 3 responds directly to the findings of Chapter 2, and its objectives are threefold. First, returning to the originating context of the skeuomorph, I find support for my argument that craft lies at its heart in architect and critic Gottfried Semper’s theories on the emergence of ‘style’ in the technical arts and architecture, and in particular, his belief in the primacy of materials and techniques in the development of form.¹⁰ Aware that Semper’s theories imbued thinking about objects in the mid- to late-nineteenth century,¹¹ this contemporaneous account to Colley March’s provides an alternative slant on the crafted origins of the skeuomorph. Thus, in Chapter 3, I start with a close reading of extracts from Semper’s *Style in the Technical and Tectonic Arts; or, Practical Aesthetics* (1860-63) to re-introduce material consciousness to thinking about the skeuomorph.

This alternative approach to the skeuomorph prompts a theoretical expansion of three specific dimensions of its making – “materiality,” “temporality,” and what I call “vitality” – each of which, in turn, offsets claims that the skeuomorph is immaterial, anachronistic, and imitative, and, crucially, help build a more complex picture of the skeuomorph that befits material practice.¹² Drawing on thinkers as diverse as Glenn

¹⁰ Gottfried Semper, *Style in the Technical and Tectonic Arts; or, Practical Aesthetics*, trans. by Harry Francis Mallgrave and Michael Robinson (Los Angeles: Getty Research Institute, 2004).

¹¹ Alina Payne, *From Ornament to Object: Genealogies of Architectural Modernism* (New Haven: Yale University Press, 2012), p. 33. See also, Henry Balfour, *The Evolution of Decorative Art: An Essay Upon Its Origin and Development as Illustrated by the Art of Modern Races and Mankind* (London: Percival and Co., 1893); and Alfred C. Haddon, *Evolution in Art: As Illustrated by the Life-Histories of Designs* (London: Walter Scott, Ltd., 1895).

¹² This notion of ‘vitality’ is borrowed from political theorist Jane Bennett, who describes it as ‘the capacity of things [...] not only to impede or block the will and designs of humans, but also to act as quasi-agents or forces with trajectories, propensities, or tendencies of their own.’ I discuss Bennett’s theories of ‘vibrant matter’ in more

Adamson, Tim Ingold, Gilbert Simondon, Martin Heidegger, Michael Ann Holly, Giorgio Agamben, and Benedikte Zitouni, I complicate the rather reductive interpretations of the skeuomorph that emerge in Chapter 2, arguing that it is, in reality, materially, spatio-temporally, and formally complex, and that it is in the making – or through craft thinking – that we can understand it more fully. Notably, with regard to the skeuomorph’s temporality, I introduce “materialised time” as a distinct facet of time that relates to making. This novel theorisation is my own, and was conceived in response to a perceived lack in the literature on time with regard to making. Materialised time emerged in the overlaps and gaps between the temporal perspectives of thinkers such as philosopher Henri Bergson, drama theorist Elsie Fogerty, and media philosopher and design theorist Marc Boumeester, as well as in dialogue with practice.

Chapter 3 closes with a discussion of the interface between theory and practice.

Drawing on writer Maria Fusco’s ‘expansive approach to writing’,¹³ I introduce the specific conditions of the research into the practical application of the skeuomorph in Part II of the thesis, which include concerns for “scale,” “time,” and “proximity”. I acknowledge that craft is immanent in my approach, as a designer and writer, and that this ‘commitment’ to craft has impacted on my choice of methods, as well as my selection of objects.¹⁴ Here, I introduce what I call my “knitted methods,” which is a creative response to the specific demands of this research – that is, to the need to merge various languages of making in order to examine the skeuomorph in practice: tacit, gestural, visual, verbal, processual, and textual. I also acknowledge the influence of creative and critical writing on the tone of the thesis, particularly in Chapter 6, in which I experiment with “writing the composite object”.

Part II of the thesis builds on the theoretical and methodological work of Part I, and involves the close examination of four skeuomorphic object studies, each of which

detail in section 3.2.3. Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (Durham: Duke University Press, 2010).

¹³ Maria Fusco, ‘Experiential and Creative Writing Co-Production’, *Arts Research ENrichment Activities* (Emerson College, Sussex, 10-12 June 2015).

¹⁴ Michael Polanyi, *The Tacit Dimension* (London: Routledge & Kegan Paul Ltd, 1967), p. 24.

exemplifies contemporary material practice, as well as corresponding to historical precedents of the skeuomorph. These are: Glithero's *Les French* furniture series (2009) in Chapter 4; Silo Studio's *Textile-Moulded Glass* (2012) in Chapter 5; and Arline Fisch's *Lace Ascot* (1980) and Gijs Bakker's *Knitted Maria* (1997), examined simultaneously in Chapter 6. The skeuomorph variously emerges in this broad spectrum of practices, but what unites them is a cross-disciplinary approach to making, experimentation, and the transference of material knowledge. These object studies correspond to three distinct contexts: in Chapter 4, in response to a client's brief; in Chapter 5, to the opportunity to expand into industry; and in Chapter 6, to the impulse to assimilate a specific technique into an unfamiliar material. What matters are the material insights they offer to the contrariety and inventiveness of the skeuomorph, as well as the wider relevance of the concept to material practice. There was no fixed plan for writing the chapters in Part II: each is structured relative to the material. There is, however, a noticeable shift in tempo in Chapter 6, where I expound my theory of materialised time. The reason for this inside-out approach is twofold: first, materialised time is very much a product of thinking through textiles, the material-focus of this chapter; and second, it provides a theoretical pause between the micro-focuses on making in the preceding chapters. In this way, Part II of the thesis starts and ends with a skeuomorph *in the making*. What emerges is a tactical, contradictory, experimental, and temporally complex object that deserves greater critical attention in relation to material practice.

I begin by clarifying some of the terms used throughout the thesis. "Material practice" encompasses all disciplines that work with materials and with making: be it architecture, industrial design, or curatorship. I use this term consciously to distance myself from the constraints of categories such as "craft," "design," or "art". Material practitioners, therefore, include makers, but also curators, educators, writers, critics, and museum professionals. "Contemporary" is a more complicated term, but I grant the prefix "contemporary" to material practice simply to refer to objects made within my lifetime,

i.e. since the 1980s.¹⁵ I describe this research as “interdisciplinary,” in recognition of the fact that I draw on more than one discipline simultaneously, integrating approaches from fields as diverse as material culture, craft theory, and theories of time, process philosophy, and textile studies.¹⁶ However, in contrast, I describe the contemporary mode of making as “cross-disciplinary,” as there is lateral movement and an exchange of ideas *across* disciplines – from textiles to ceramics or plastics, for example.¹⁷ I take “materiality” to mean more than matter: It is matter that has a specific agency or set of qualities, what I call “grain”. “Temporality” denotes a relationship to time, and here it is materialised time that is the focus – that is, the effect of time specifically in relation to making. “Vitality” is a more fluid concept: it encompasses process, the taking on of form, the peculiarity of materials, their agency, and intention. I struggled to find a better word for the liveliness and agency of things. I understand “craft,” another loaded term, via craft theorist Glenn Adamson, who describes it as a process that pertains equally to pottery and architecture: ‘it is an approach, an attitude, or a habit of action.’¹⁸ I make no apologies for the comprehensive application of his ideas; his teachings are embedded in the field in which I have trained, am working, and continue to explore.

Finally, some notes on the structure: It may seem odd to consciously separate theory from practice in Part I and Part II, given that theory is intrinsically tangled up in practice.¹⁹ I simply wanted to reflect the two modes of engagement with the skeuomorph: the first, primarily, through texts, the second, in the workshop or studio. I needed to understand what the skeuomorph *was*, before I could understand what it *does*. It also allows me to refer back to specific ideas throughout the thesis, thereby avoiding

¹⁵ I expand on the notion of the contemporary as it relates to material practice in section 3.2.1.

¹⁶ As craft theorist Glenn Adamson explains, ‘research in the arts and humanities is intrinsically interdisciplinary as it routinely draws from methodologies developed in other fields.’ Personal communication with Glenn Adamson (17 August 2016).

¹⁷ Hella Jongerius admits to the cross-fertilisation of ideas in her practice, ‘drawing on the language of textiles when [working] in ceramics or plastics’, for example. See Sarah A. Lichtman, ‘Sarah A. Lichtman in conversation with Hella Jongerius’, *The Journal of Modern Craft*, 8: 2 (2015), pp. 225-34 (p. 226).

¹⁸ Glenn Adamson, *Thinking Through Craft* (Oxford; New York: Berg, 2007), p. 4. See also *The Craft Reader*, ed. by Glenn Adamson (Oxford: Berg, 2010); and Glenn Adamson, *The Invention of Craft* (London: Bloomsbury, 2013).

¹⁹ This is the approach taken by poet Kristen Kreider in her doctoral thesis, and it immediately appealed to me as a novel way to structure the thesis. Kristen Kreider, ‘Toward a Material Poetics: Sign, Subject, Site’ (doctoral thesis, University College London, 2007).

repetition. I have used a method of subdividing and numbering the chapters that assists with this back-and-forth approach. As Part I explores the methods and methodologies underpinning the thesis, I have refrained from describing them in this Introduction. Finally, I have chosen to work with the Modern Humanities Research Association (MHRA) system of referencing.

Thus, the central aim of this thesis is to restore the peculiar materiality, temporality, and liveliness to the skeuomorph in contemporary material practice, and to reintroduce it to the discourses on making. My sense is that, rather than being a defunct concept, the skeuomorph is critical to engaging with the inscrutable will of objects, which is, undoubtedly, their most potent asset.

PART I

1. THE SKEUOMORPH AND ITS SELECTED BEGINNINGS

1.1. Brief Historical Context and the Skeuomorph's Relation to Ornament

The “skeuomorph” is a concept that began to take shape in the context of late nineteenth-century discourse on objects and ornament. The Great London Exhibition in 1851 precipitated theoretical discussions about the aesthetic and ideological role of objects within an industrialising context, as well as the impact of new fabrication methods and materials on their construction.¹ Ornament became the principal site of anxiety. Transposed from the surfaces of architecture, where it was considered ‘a rhetorical flourish, a poetic gesture, a sign about architecture,’² to the surfaces of objects, ornament was reduced – *physically*, in terms of scale, and *conceptually*, in terms of propriety – emerging as a marker of taste, and thus morality. It became mere surface effect, as well as an object of critical attention.

In *From Ornament to Object* (2012), Alina Payne attributes the nineteenth-century preoccupation with ornament and objects to the synchronous expansion of materials in industry: ‘The rise of mechanical processes to obtain both utilitarian and artistic objects of household use, and the invention of new materials and alloys that industry made

¹ The Great London Exhibition of 1851 emerged from the annual exhibitions of the Society of Arts, of which Prince Albert (1819-1861) was President, and was conceived as ‘a true test and a living picture of the point of development at which mankind has arrived, and a new starting point from which all nations will be able to direct their future Exhibitions’. Prince Albert quoted in Christopher Hobhouse, *1851 and the Crystal Palace* (London: John Murray, 1937), p.14. For more on the Great London Exhibition of 1851 see, for example, Paul Greenhalgh, *Ephemeral Vistas: The Expositions Universelles, Great Exhibitions and World's Fairs, 1851-1939* (Manchester: Manchester University Press, 1998); Jeffrey A. Auerbach, *The Great Exhibition of 1851: A Nation on Display* (New Haven: Yale University Press, 1999); and Ralph N. Wornum, *The Art Journal Illustrated Catalogue. The Industry of All Nations, 1851* (London: George Virtue, 1851).

² Alina Payne, *From Ornament to Object: Genealogies of Architectural Modernism* (New Haven: Yale University Press, 2012), pp. 23-24.

possible, all precipitated what amounted to a crisis of fabrication both with respect to quantity (which was high) and quality (which was low).³ Thus, design reformers, art historians, and architects alike endeavoured to moralise about manufactured objects in a move to moderate the proliferation of “unnecessary” objects and ornament, and to improve aesthetic taste. There was, simultaneously, a stirring of interest among anthropologists and archaeologists eager to develop their own theories around objects, and in particular, to understand our material histories.⁴

In its original formulation, the concept of the skeuomorph denoted the origin of ornament derived from structure.⁵ It was a product of this moralising and meaning-making discourse. Anthropologist Henry Colley March first introduced the concept in his essay, ‘The Meaning of Ornament; or its Archaeology and its Psychology’ (1889), although as I explore in Chapter 3 of this thesis, his theorisation was conceived on the back of a swell of ideas that had already emerged about material aesthetics. Colley March conceived of the skeuomorph in an attempt to rationalise that particular facet of the design process that materialised as “structural” ornament, in order to establish a psychological explanation for the need for such ornament, and, ultimately, to “tame” and to codify it. Yet this clear-cut objective to categorise the skeuomorph as ornament also had its drawbacks. According to Payne, ornament was a site of contestation in this period; it was ‘interchangeably used with “decoration”’ and, unless it could be rationalised, was dismissed outright as superfluous, or unproductive.⁶ It seems that the conditions that gave rise to the skeuomorph were, paradoxically, to shape its undoing. This ambiguity in the skeuomorph remains contested in the present context; as such, it has motivated this research into its relevance to material practice.

³ Payne, *From Ornament to Object*, p. 25.

⁴ Notable examples within the European context include: the collecting of ethnographic objects by British ethnologist and archaeologist Augustus Pitt Rivers, which led to the founding of the Pitt Rivers Museum at the University of Oxford in 1884; Henry Balfour, British archaeologist and the first curator at Pitt Rivers Museum, who published *The Evolution of Decorative Art* (London: Percival and Co., 1893), expanding on Pitt Rivers’ theoretical principles of the evolution of design that cut across geographies and timeframes; and British anthropologist Alfred C. Haddon’s *Evolution in Art: As Illustrated by the Life-Histories of Designs* (London: Walter Scott, 1895), in which he charts the gradual development of art objects through three distinct phases: ‘origin’, ‘evolution’, and ‘decay’.

⁵ Henry Colley March, ‘The Meaning of Ornament; or its Archaeology and its Psychology’, *Transactions of the Lancashire and Cheshire Antiquarian Society*, VII (1889), pp. 160-92 (p. 166).

⁶ Payne, *From Ornament to Object*, p. 32.

Among the critics of ornament at the start of the twentieth century was the architect Adolf Loos, who, in 'Ornament and Crime' (1908), sets up an inverse correlation between ornament and cultural evolution, denouncing ornament as a 'symptom of degeneracy'.⁷ Subtending Loos's vehement rhetoric, in which he describes ornament as a "disease," as "retrograde" and "backward," is the idea that ornament is disruptive of temporal continuity – of the gradual evolution of form over time, towards some sort of unornamented perfection. As he writes: 'ornament is no longer a natural product of our culture, [...] it is a phenomenon either of backwardness or degeneration'⁸ – criticisms that are often directed at the skeuomorph. In the late-nineteenth century, evolutionary theories such as Charles Darwin's *On the Origin of Species by Means of Natural Selection* (1859) had taken hold on popular imagination: the idea that different species evolve through natural selection was transposed into objects; objects, some believed, would reach their apotheosis in cultivated society, and ornament was certainly not in keeping with emerging modernist innovation. While it is not within the remit of this thesis to discuss Loos's theories in detail, or to write the historiography of ornament, I draw particular attention to his temporal characterisation of ornament, as it reflects a way of thinking about ornament in this period that, I believe, has influenced subsequent interpretations of the skeuomorph. What follows is a close reading and explication of Loos's temporalisation of ornament.

Loos's argument pivots on a number of temporal scales: from the child's development towards adulthood, and from the 'Papuan', who gradually civilises into an 'ancient Teuton' before becoming 'Voltaire'.⁹ For Loos, ornament cohabits the bottom rung on each of these scales; it is as much the concern of the child as it is of "primitive" man. In

⁷ Adolf Loos, 'Ornament and Crime' (1908), in *Programs and Manifestoes on 20th-century Architecture*, ed. by Ulrich Conrads (London: Lund Humphries, 1970) pp. 19-24 (p. 20). While the theoretical thrust of Loos's text was not unprecedented, 'Ornament and Crime' is often cited as the definitive criticism of ornament in this period; Loos is seen as 'the great moralist' of European architecture and design in this period. It is for this reason that I have chosen to examine the text as representative of the anti-ornament sentiment. For more on Loos, see Adolf Loos, *Ornament and Crime: Selected Essays*, ed. by Adolf Opel, trans. by Michael Mitchell (Riverside, California: Ariadne Press, 1998); and Adolf Loos, *On Architecture*, ed. by Adolf and Daniel Opel, trans. by Michael Mitchell (Riverside, California: Ariadne Press, 2002).

⁸ Loos, 'Ornament and Crime', p. 22.

⁹ *Ibid.*, p. 19.

a rhetorical move to undermine ornament, Loos associates it with the assumed primitivism of ‘the Papuan [who] tattoos his skin’ and the child who ‘scribble[s] erotic symbols on the walls,’¹⁰ arguing that it is with temporal distance – vis-à-vis “cultural evolution” – that man can escape such degenerate behaviour. Modern man has no need for ornament, he argues; ornament signifies a lack of development: ‘Ornament does not heighten my joy in life or the joy in life of any cultivated person. If I want to eat a piece of gingerbread I choose one that is quite smooth and not a piece representing a heart [...], which is covered all over with ornaments. The man of the fifteenth century won’t understand me. But all modern people will.’¹¹ With this statement, Loos insists that ornament belongs in the past, to the primitive and the retrograde. Also implicit in his writing is the idea that temporality and materiality are inextricably linked: the tattoo necessitates skin, much as the scribble necessitates a surface on which to draw. As we shall see, materiality and temporality are continually imbricated in the discourse on objects and ornament, and, as such, are crucial concerns of this research.¹²

Loos also likens ornament to the slow and irregular ‘straggler’, who fails to keep up with cultural developments: ‘I am perhaps living in 1908, but my neighbour is living in 1900 and the man across the way in 1880. It is unfortunate for a state when the culture of its inhabitants is spread over such a great period of time.’¹³ Here, Loos is keen to emphasise the temporal dissonance among peoples, which manifests itself in all aspects of cultural life. His argument reflects the theory of historical progress: for Loos, progress is accumulative and, ultimately, strengthens the human condition;¹⁴ there is a chronological hierarchy between the pre-modern and modern, between primitive and modern man, and ornament is consigned to the former.

¹⁰ *Ibid.*, p. 19-20.

¹¹ *Ibid.*, p. 21.

¹² I should like to stress at this point that there was, from the start of this project, a clear implication of the skeuomorph’s material and temporal conditioning, not just in historical accounts, but also in the present context, which has shaped the research since the outset.

¹³ Loos, ‘Ornament and Crime’, p. 21.

¹⁴ This paradigm of progress is implicit in the discourse on digitality, as I demonstrate in section 2.1, which stresses the continual re-emergence of the past in the present that occurs in this research.

Remarkably, in relation to the specific temporal and material concerns of this thesis, Loos draws a parallel between the time taken to fabricate an object and its exchange value, both with and without ornament: ‘The ornamentor has to work twenty hours to achieve the income earned by a modern worker in eight. [...] Omission of ornament results in a reduction in the manufacturing time and an increase in wages.’¹⁵ The value added by passage of time is, in this instance reversed: whereas in earlier sections he insists on the amelioration of the human condition in positive correlation to time, here, the less time spent manufacturing an object the greater its value. ‘Ornament,’ he writes, ‘is wasted labour power [...] It always has been so.’¹⁶ Loos equates the taking time of the skilled maker as a form of “straggling”, of inefficiency and unproductiveness. He effectively empties time of skill, transposing it from handiwork to machine production. For ornament – and, by association, the skeuomorph – it is, paradoxically, the long and involved making process that renders it “dumb”. This is one interpretation that will prove hard to shift.

It is possible to understand Loos’s negative temporalisation of ornament with recourse to anthropologist Johannes Fabian’s *Time and the Other* (2002). Fabian’s central thesis is that anthropologists revert to using distancing rhetoric when speaking about the social practices and behaviours of other cultures, a process that he describes as the ‘denial of coevalness,’ or, in his own words, ‘a persistent and systematic tendency to place the referent(s) of anthropology in a Time other than the present of the producer of anthropological discourse.’¹⁷ Coevalness constitutes being a contemporary, so in talking *about* the “Other”,¹⁸ rather than talking *with* her, the anthropologist is refusing her status as a contemporary. Fabian demonstrates that the denial of coevalness is an activity grounded in language, which manifests in the temporal categories used to describe the “Other” as “primitive”, as temporally distanced and unsophisticated. This, Fabian

¹⁵ Loos, ‘Ornament and Crime’, p. 22.

¹⁶ *Ibid.*, p. 22. Craft’s relationship to time is, as I discuss in more detail in section 3.2.4, undoubtedly complex. Arguably, in the present context it is skill, or the ability to do something well, that is valued most – whether woodcarving, lace making, or throwing – and craft *takes* time.

¹⁷ Johannes Fabian, *Time and the Other: How anthropology makes its object*, 2nd edn (New York: Columbia University Press, 2002), p. 31.

¹⁸ The term “Other” is deployed to be in keeping with the format of Fabian’s own writing in *Time and the Other* (2002).

argues, is ultimately a political act. The self-same “otherness” infuses the language deployed by Loos. By consciously situating ornament in relation to the primitive “other”, he introduces doubt and distrust into its construction; it is deemed to be crude. More specifically, he differentiates between the object itself and the ‘ornament *on* things’ that ‘represents wasted labour and ruined materials,’¹⁹ thus separating the tangible object from what he deems to be impulsive ornament. This is a theoretical move that likens the relationship between object and ornament to the separation of milk into curds and whey: ornament is the thinned down and fluid adjunct to the useful object.

It is this linguistic “othering” of ornament as insubstantial, shallow, and lightweight that ratifies it as mere surface effect – as the product and extension of the surface.²⁰ Despite contrary opinion, such as Payne’s assertion that it is not always easy to differentiate between the object and ornament,²¹ or Glenn Adamson and Victoria Kelley’s contention that assumptions about the surface as ‘skin-deep’ or ‘shallow’ belie their material complexity,²² it is the supposed superficiality of ornament that continues to trouble it. Thus, the ambiguous skeuomorph, as a ‘form of ornament demonstrably due to structure,’²³ is compounded with the contradictory nature of ornament. Crucial to this conflation is the notion of being ‘supplemental’, which itself presupposes a lack in the object itself.²⁴ If we submit to the legacy of the Arts and Crafts Movement, then we can think of ornament as attending to a (presumed) lack in the object, as an attempt to compensate for a lack in skilled making, for example. Yet, the skeuomorph is caught

¹⁹ Loos, ‘Ornament and Crime’, p. 23.

²⁰ *The Production of Ornament: Reassessing the Decorative in History and Practice* (conference) (University of Leeds, 21-22 March 2014). See also *Surface Tensions: Surface, finish and the meaning of objects*, ed. by Glenn Adamson and Victoria Kelley (Manchester: Manchester University Press, 2013).

²¹ Alina Payne argues that, historically, ornament has been continually contested, but never entirely lost, even to modernism. See Payne, ‘Introduction,’ *From Ornament to Object*, pp. 1-24.

²² Adamson and Kelley propose that the relationship between surface and depth is dialectical, that it is ‘a site where complex forces meet.’ ‘The surface is not so much a barrier to content as a condition for its apprehension.’ ‘Introduction,’ in *Surface Tensions*, pp. 1-12 (p. 1) [emphasis mine].

²³ Colley March, ‘The Meaning of Ornament,’ p. 166.

²⁴ Glenn Adamson contends that it is because the idea of the supplement has been aligned with the ‘decorative’ that craft, or crafted things, are often considered to be ornamental. See Glenn Adamson, *Thinking Through Craft* (Oxford; New York: Berg, 2007), p. 11. I discuss these ideas in more detail in section 2.3.

somewhere between being an accessory to, as well as ‘inseparable’ from, the object.²⁵ From the start, it manifests contradictory (or, dialectical) tendencies.

The split nature of ornament, as both ‘material and theoretical’,²⁶ structural and supplemental, is best understood with regard to philosopher Jacques Derrida’s ‘*parergon*’, or that which is ‘against, beside, and above and beyond the *ergon*, the work accomplished, the accomplishment of the work’,²⁷ similar to the picture frame, which is considered to be ornamental. Derrida emphasises the dialectical relationship that the frame has with the painting: it delineates the borders of the painting while also being incorporated within it. In other words, the frame is *apart from* and *part of* the painting. We can think of ornament in the same way. It is both intrinsic to the object, in that it marshals the material qualities of that object to “ornamental” effect, or extrinsic, that is, “applied” to the object. Following Derrida, we can understand ornament as being inseparable from form. That is, that ornament emerges from form, rather than being incidental to it. Either way, it is materially *and* conceptually complex.

Although the skeuomorph was, from its inception, predisposed to the critical discourse on ornament, Colley March never intended for it to be dismissed on those terms. Rather, his aim was to open up debate about the rationale for “structural” ornament, on the ‘necessities of the mind’ that created it.²⁸ Yet, despite his best academic intentions, the skeuomorph emerged within this problematic.

So far I have introduced the first stirrings of the concept of the skeuomorph within the late-nineteenth century discourse on objects and ornament, in order to bring to light the ambiguities that have shaped its reception. The three main strands of this discussion relate to materiality, to the expansion of materials and techniques in this period; to temporality, to historical consciousness and making sense of our material connections to

²⁵ Colley March, ‘The Meaning of Ornament,’ p. 166.

²⁶ Spyros Papapetros, ‘Ornament and object—ornament as object’, *Journal of Art Historiography*, 7 (2012), pp. 1-12 (p.5).

²⁷ Jacques Derrida, ‘The Parergon’, *October*, 9 (1979), pp. 3-41 (p. 20).

²⁸ Colley March, ‘The Meaning of Ornament,’ p. 161.

the past; and to the skeuomorph's inauspicious relationship to ornament. Thus, from the moment of its emergence in the discourse on ornament, the skeuomorph was open to critique. As Payne has cogently argued, objects had, by the early-twentieth century, become the 'most tangible rhetorical dimension' of modernism.²⁹ The skeuomorph, it seems, is no exception.

In view of this brief historical context, I call attention to a contemporary parallel. In *Materials and Design* (2002), Mike Ashby and Kara Johnson explore the practicality of materials in the twenty-first century, arguing that not only are there 'new materials' such as 'light-emitting polymers' and 'amorphous metals', but also new approaches to more commonplace materials; both materials science as well as experimentation engender novelty.³⁰ Likewise, Susanne Küchler describes a situation today in which 'all materials are potentially new,'³¹ owing to our increased ability to manipulate their intrinsic qualities; new technologies engender a bespoke materiality. Arguably, current interests in material expansion parallel those of the late-nineteenth century. It is the current opening up of fabrication methods, materials, and techniques, as well as the comparable interest in innovation and experimentation that substantiates the timeliness of this research into the skeuomorph. It also brings to light ideas that emerged in the nineteenth century and that continue to haunt contemporary debate, giving rise to the diminution of the concept. This research not only considers the historical conditions for the emergence of the skeuomorph, but also expands on the intrinsic ambiguities that manifest in contemporary discourse, and, in doing, re-evaluates the bearing of skeuomorphic thinking and making on material practice.

²⁹ Payne, *From Ornament to Object*, p. 6.

³⁰ Mike Ashby and Kara Johnson, *Materials and Design: The Art and Science of Material Selection in Product Design* (Oxford; Boston: Butterworth-Heinemann, 2002), p. 157.

³¹ Susanne Küchler, 'Materials and Design', in *Design Anthropology: Object Culture in the 21st Century*, ed. by Alison Clarke (Wien; New York: Springer, 2011), pp. 124-35 (p. 127).

1.2. From Zoomorph to Skeuomorph: The genesis of a concept

There can be no beginning of ornament till the mind has come to demand it; and before a thing can be decorated, it must be made. But the forms of ornament demonstrably due to structure require a name. If those taken from animals are called zoomorphs, and those from plants phyllomorphs, it will be convenient to call those derived from structure, skeuomorphs, from σκευη, tackle, tools, vessels, equipment, dress.³²

As we have witnessed, the concept of the skeuomorph was conceived in the late-nineteenth century, under the impetus of industrialisation, in which there was a maelstrom of theories about objects and ornament. As an anthropologist, Colley March's singular concern was with the origination and development of ornament, and what its perpetuation in artefacts revealed about human societies. Published under the title 'The Meaning of Ornament; or its Archaeology and its Psychology' (1889), Colley March set out to examine the transference of ornament across artefacts and its influence on human behaviour, and it was here that the concept first emerged. Drawing on Ralph N. Wornum's *Analysis of Ornament* (1882), Colley March concurred that: 'The symbolic style of ornament appeals to our understandings; the aesthetic to our feelings.'³³ That is, ornament performs a social role. It communicates socially recognised patterns of behaviour; it speaks to the intellect. He describes the skeuomorph as a particular 'form of ornament demonstrably due to structure', that is, to construction.³⁴ It stemmed from the almost automatic transference of structural details from one object to another, despite their differing methods of manufacture (fig. 4). There was, according to Colley March, 'order' to ornament, in that it consisted in 'contrast, repetition, and series',³⁵ and in aligning it with animals and plants, the implication was that it had evolutionary status. Inevitably, this transference engendered change, given the shift in material

³² Colley March, 'The Meaning of Ornament,' p. 166.

³³ Ralph N. Wornum cited in Colley March, 'The Meaning of Ornament', p. 161.

³⁴ Colley March, 'The Meaning of Ornament', p. 166.

³⁵ Wornum cited in Colley March, 'The Meaning of Ornament', pp. 161 & 166.



Figure 4.
 (Left) **'Plate I.—**
Skeuomorphs of
Binding.'
 (Right) **'Plate II.—**
Skeuomorphs of
Wattle Work.'
 (Below) **'Plate**
V.—Skeuomorphs
of Timbering.'
 Reproduced
 from Henry
 Colley March,
 'The Meaning of
 Ornament' (1889),
 Plates I, II, & V.

context, so much so that gradually, over time and with distance from the original artefact, structural ornament degraded. He writes:

The mental image of the skeuomorph, if unrenewed by constructional handicraft and unstimulated by utility, becomes increasingly fainter, the unrefreshed memory of a memory, until, at last, the requirement of taste may be satisfied by a few meaningless chevrons or spirals.³⁶

Here Colley March traces the evolution of ornament across contexts and timeframes, and admits to its gradual degeneration; what emerges as a structuring technique becomes, with time, “a few chevrons or spirals”. In an attempt to give name to this ornamental impulse in the process of facture, Colley March prefixed “skeuos” (σκεύος) the Greek term meaning “utensil, implement,” to “morphē” (μορφή) meaning “form” to account for appearance of ‘the forms of ornament demonstrably due to structure’.³⁷ In fact, σκεύος translates as a motley of manufactured things, among them ‘tackle, tools, vessels, equipment, [and] dress’; their comparability resides in their equipmental value, that is, their functionality.³⁸ In citing “use-full” objects, Colley March redeems some purpose for the skeuomorph. The functional role it performed in conferring a structural logic (or, the ‘mechanism of structure’)³⁹ to an artefact ensured its continued development. He reconciled the skeuomorph to design conscience, to the need to reproduce the structural components of a particular object in future iterations of it, with the intention to satisfy ‘a mental demand’.⁴⁰ Fundamental to this account is the human agent, or ‘artificer’,⁴¹ who almost automatically replicates ornament, and its “symbolic” effects, across different material contexts. ‘Skeuomorphs have become an inseparable

³⁶ Colley March, ‘The Meaning of Ornament’, p. 186.

³⁷ *Ibid.*, p. 166.

³⁸ I purposefully use the word ‘equipmental’ here to align Colley March’s skeuomorph with Martin Heidegger’s definition of ‘equipmentality’ as ‘something in-order-to,’ which is bound to its structure. I discuss the equipmental nature of the skeuomorph in more detail in section 3.1.1. For more on this, see Martin Heidegger, ‘The Origin of the Work of Art’, in *Martin Heidegger: Basic Writings from Being and Time (1927) to The Task of Thinking (1964)*, ed. by David Farrell Krell (London and New York: Routledge, 1993), pp. 89-139.

³⁹ Colley March, ‘The Meaning of Ornament’, p. 183.

⁴⁰ *Ibid.*, p. 187.

⁴¹ *Ibid.*, p. 185.

part of his existence,' admits Colley March, which 'grew, as it were, with the growth of his brain, and ultimately occasioned a mental craving or expectancy.'⁴²

Archaeologist Carl Knappett's insightful essay, 'Photographs, Skeuomorphs and Marionettes' (2002), illuminates Colley March's particular approach to ornament. That ornament is attributed to the human agent is, Knappett argues, symptomatic of Western nineteenth- and twentieth-century thinking, whereby subjects and objects are believed to perform independently of one another.⁴³ This sentiment is evident in Colley March's account, in which there is little material resistance; in other words, the transference of form between contexts relies, on the whole, on the 'expectant mind'.⁴⁴ Yet, as Knappett skilfully argues, drawing on Alfred Gell and Bruno Latour among others,⁴⁵ it is impracticable to conceive of humans and artefacts as distinct, independent entities:

An idea "in mind" is rarely fully understood without some form of tangible expression [...] and, vice versa, an object cannot be properly grasped independently of how it relates to the body and indeed to its underlying idea. The two key characteristics of human cognition that are most relevant here are that the mind is embodied, and that the mind is extended.⁴⁶

Knappett's acute understanding of the relationship between mind and matter is, however, absent in Colley March's account. Colley March describes how, in making an object such as a flint axe, the basic method of attaching the axe head to the handle using 'thong-work', for example, became a necessity, establishing what he called the axe's

⁴² Ibid., p. 166.

⁴³ Carl Knappett, 'Photographs, Skeuomorphs and Marionettes: Some Thoughts on Mind, Agency and Object', *Journal of Material Culture*, 7: 1 (2002), pp. 97-117 (pp. 97-98).

⁴⁴ Colley March, 'The Meaning of Ornament', p. 184.

⁴⁵ Knappett draws directly from Alfred Gell's *Art and Agency* (1998), as well as Bruno Latour's seminal essay, 'The Berlin Key or How To Do Words With Things' (2000). See Alfred Gell, *Art and Agency: Towards a New Anthropological Theory* (Oxford: Clarendon Press, 1998), and 'The Technology of Enchantment and the Enchantment of Technology', in *Anthropology, Art and Aesthetics*, ed. by Jeremy Coote and Anthony Shelton (Oxford: Clarendon Press, 1992), pp. 40-67; as well as Bruno Latour, 'The Berlin Key or How To Do Words With Things', in *Matter, Materiality and Modern Culture*, ed. by Paul Graves-Brown (London: Routledge, 2000), pp. 10-21.

⁴⁶ Knappett, 'Photographs, Skeuomorphs and Marionettes', p. 99.

‘structure-form’⁴⁷ – in other words, a stone head and wooden handle bound together using leather became the normative structure of the axe. The structural integrity of the leather-thong-as-binding prompted the maker, in subsequent designs, to manufacture the same structural binding, regardless of any change in materials, or techniques, for no other reason than ‘to satisfy a mental demand’.⁴⁸ The thong-work is transferred from the flint axe, ‘where it was functional’, to the bronze celt, ‘where it was skeuomorphic.’⁴⁹ The unfamiliar cast-bronze implement is supplemented with the anticipated, and socially recognised, binding of the flint axe. It is this that enables the cast-bronze axe to communicate its function.

Colley March interpreted this skeuomorphic activity as symptomatic of both a form of ‘mental craving or expectancy’⁵⁰ – the anticipation of particular structural details, by both maker and user, in the design of an object – as well as the inevitable consequence of the material context within which it was made, i.e., the established methods and techniques of the maker. In other words, for Colley March, the skeuomorph was of mind as it was of circumstance:

In the beginning every constructional device was necessarily in keeping both with function and with material. But in process of time, when these devices had established themselves in the mind as definite expectancies, it became possible to detach them, as isolated skeuomorphs, from their place of origin, and to transplant them to another field, *with which they were not always entirely consistent*.⁵¹

[...]

Ornament had arisen, and in the form of a skeuomorph.⁵²

While this notion of “expectancy” provides a plausible motive for the skeuomorph, it nonetheless reflects an anthropocentric – and now contested – view of matter as

⁴⁷ Colley March, ‘The Meaning of Ornament’, p. 174.

⁴⁸ *Ibid.*, pp. 174 & 187.

⁴⁹ *Ibid.*, p. 168.

⁵⁰ *Ibid.*, p. 166.

⁵¹ *Ibid.*, p. 183 [emphasis mine].

⁵² *Ibid.*, p. 166.

secondary to the workings of the mind, as the passive recipient of human intention. For Colley March, the skeuomorph represented the logical consequence of manufacture, because ‘the mind requires it’;⁵³ it constituted the seemingly immaterial transference of form between things. I use the word “immaterial” purposefully here, as it seems that, for Colley March, skeuomorphic transference was primarily disembodied, or, in his words, psychological. It also chimes with contemporary criticisms of the skeuomorph, particularly in the digital context, that continue to pivot on the illusion of immateriality, which, as I demonstrate in section 2.1, have contributed to its diminution as a critical concept. Colley March’s prioritisation of the psychological motives behind the transference of structural details between material contexts, irrespective of the role of materials in their formation, reflects the interest of the social anthropologist to understand the motifs common to material culture.⁵⁴ Yet, it is difficult to conceive of this transfer as immaterial, that is, to submit to the idea that mind and body, brain and hand, are separate from one other. Indeed, as Knappett reminds us, ‘idea, behaviour, and artefact are codependent.’⁵⁵ Intentions (human and non-human), materials, and techniques are profoundly intermeshed in relation to making, which impacts on the structuring of the object; making cannot be detached from thinking, and agency is relational. It originates in the interconnections between mind, body, and material. While assimilating psychology to aesthetics was common to nineteenth-century theory,⁵⁶ Colley March’s interpretation, and others like it, reflect a way of thinking that is now outmoded. By contrast, contemporary theorists such as Jane Bennett describe the ‘vitality’ of materials: ‘the capacity of things [...] not only to impede or block the will and designs of humans, but also to act as quasi-agents or forces with trajectories, propensities, or tendencies of their own.’⁵⁷ Bennett’s assertion that ‘matter [is] intrinsically lively’⁵⁸ contributes to my own understanding of the peculiar agency of materials in the process of manufacture. It is the fact that the skeuomorph makes

⁵³ *Ibid.*, p. 179.

⁵⁴ Payne, *From Ornament to Object*, p. 97.

⁵⁵ Knappett, ‘Photographs, Skeuomorphs and Marionettes’, p. 100.

⁵⁶ Payne, *From Ornament to Object*, pp. 112-13.

⁵⁷ Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (Durham: Duke University Press, 2010), p. viii.

⁵⁸ Bennett, *Vibrant Matter*, p. xxii.

material agency explicit that, I believe, earns it its place in the contemporary discourse on objects.

My aim is to re-examine the skeuomorph in the contemporary context, via the tacit knowing of material practitioners. There is a tendency in the field of design to view it as little more than surface effect. By contrast, I intend to disentangle it from the constraints of surface, from its unthinking appropriation in the digital context, and explore its critical scope as a tactic of making with its own temporal and material agency. The skeuomorph does not, to my mind, involve the passive transference of structural details from one object to another, like putting on and taking off a hat. Rather, I understand it to be an active agent in material transformation. It is on account of the co-constitutive, and transformative, properties of materials that the skeuomorph emerges. These include: physical properties such as elasticity and hardness; mechanical properties such as plasticity, resilience, and tensile strength; and their manufacturing properties such as castability and machinability. Crucially, the skeuomorph is not “ornamental”, but rather *indicative*, to an almost excessive extent, of the liveliness, instability, and ambiguity of material things. Such ambiguities are a productive facet of the skeuomorph, not, as is commonly thought, counter-productive. It is the material, temporal, and vital ambiguities of the skeuomorph that, in fact, make it well suited to the inventive activities of contemporary material practice.

Rather than discount the influence of materials in the manufacture of skeuomorphic objects, another aim of my thesis is to investigate exactly how materials participate in the skeuomorphic process, and what we can learn about material transformation more broadly. More specifically, I demonstrate how materials inter-act in tandem with one another – either directly (indexically), or indirectly (non-contemporaneously) – in the process of manufacture; as well as the ways in which the ambiguous skeuomorph takes form and takes time in the making.

2. CONTEMPORARY DISCOURSE ON THE SKEUOMORPH

The skeuomorph is a valid aspect of the making process; it is a strategy of making. Given its crafted logic, it would seem reconcilable with the contemporary context, in which makers continue to experiment with materials and techniques, and particularly with the recent decentring of medium-specific approaches to craft in education.¹ If we consider the skeuomorph as evidence of the shaping of material in non-medium-specific ways, then now would seem the ideal ‘cross-disciplinary’² context within which to re-encounter it, either materially or discursively. However, this is rarely the case.

Thinking critically about the skeuomorph has become clouded in recent years by the almost unthinking appropriation of the term in the digital context. The skeuomorph is bandied about online as the dubious expedient of past technologies that appear to haunt the digital realm. It is considered to be the analogue “drag” on the transformative conditions of digital media – the residual influence of the offline world – rather than having agency in-and-of-itself.³ What the concept of the skeuomorph has come to stand for online is the visual detailing that articulates the functionality of the user

¹ For example, Edinburgh College of Art offers a one-year MSc in Material Practice ‘that takes an innovative, cross-disciplinary approach to understanding the qualities and potential of different physical materials’, rather than focusing on any one craft discipline in particular. The University of Edinburgh: Edinburgh College of Art, ‘Material Practice – MSc’ <<http://www.eca.ed.ac.uk/architecture-landscape-architecture/postgraduate/taught-degrees/material-practice-msc>> [accessed 1 June 2016]. This move is endemic in craft education today, as Matthew Partington has argued in relation to ceramics: ‘Many ceramics courses have amalgamated with other media specific courses to become degrees in contemporary crafts and applied arts.’ See Matthew Partington, ‘Can British ceramics education survive?’ *NCECA Journal* (2010), pp. 104-05. See also *Specialism*, ed. by David Blamey (London: Open Editions, 2016); and Alice Kettle, Helen Felcey and Amanda Ravetz, ‘Introduction,’ in their co-edited volume *Collaboration Through Craft* (New York and London: Bloomsbury, 2013), pp. 19-21.

² Craft theorist Glenn Adamson defines ‘cross-disciplinarity’ not as an historical moment, but rather as an approach taken by ‘different artists at different times,’ those who engage in ‘the exchange of ideas across disciplines.’ Personal communication with Glenn Adamson (17 August 2016).

³ Dino Franco Felluga, ‘The Victorian Archive and the Disappearance of the Book’, *Victorian Studies*, 48: 2 (2006), 305-19 <<http://doi.org/10.2307/3830254>>.

interface, the ‘various finishes and functionally irrelevant elements’ that enable the user and the computer to interact effectively, such as the ‘curl-effect’ on the pages of e-books, the torn-edge-effect of the digital calendar, and the patterning of cork on a virtual corkboard.⁴ Critical theorist Dino Franco Felluga likens these interfaces to ‘the persistence of the dead in our own contemporary reality,’⁵ while digital designers bemoan the lack of inventiveness that the skeuomorph represents: is it not possible to conceive of the user interface differently, they ask, without recourse to ‘faux detailing’ and ‘kitsch visual metaphors’?⁶ But more critically than this, it is the broader misunderstanding of *how* digital media actually work that, I would argue, contributes to the denigration of the skeuomorph in the digital context, and that undermines the significance of its materiality. Words and ideas stick fast, and it is the assimilation of the concept into digital parlance that appears to have distorted its wider meaning, and particularly in relation to making.

My aim in this next section is to review the literature on the skeuomorph at the crossover between digital studies, literature studies, architectural theory, archaeology and anthropology in an attempt to determine the reasons for this misinterpretation and to establish the conditions for my own research into the skeuomorph. This review builds on the work of archaeologist Catherine Frieman, who, in her doctoral thesis titled ‘Skeuomorphs And Stone-Working’ (2010), provides a comprehensive account of the skeuomorph in archaeological discourse, skilfully plotting the nuanced interpretations that have emerged since its earliest expression in the late-nineteenth century.⁷ I feel no need to reinvent the wheel. Yet, where Frieman draws attention to

⁴ G. F. Seattle, ‘User Interfaces: Skeu You’, *The Economist*, 8 November 2012 <<http://www.economist.com/blogs/babbage/2012/11/user-interfaces>> [accessed 1 June 2016].

⁵ Felluga, ‘The Victorian Archive and the Disappearance of the Book’, p. 316.

⁶ Steve Rose, ‘Why Apple ditched its skeuomorphic design for iOS7’, *The Guardian*, 12 June 2013 <<http://www.theguardian.com/technology/shortcuts/2013/jun/12/skeuomorphism-apple-ditched-ios7>> [accessed 15 April 2014]; and Dan O’Hara cited in Chris Baraniuk, ‘How We Started Calling Visual Metaphors “Skeuomorphs” and Why the Debate over Apple’s Interface Design is a Mess’, *The Machine Starts*, 13 November 2012 <<http://www.themachinestarts.com/read/2012-11-how-we-started-calling-visual-metaphors-skeuomorphs-why-apple-design-debate-mess>> [accessed 14 April 2014].

⁷ Catherine Frieman, ‘Skeuomorphs And Stone-Working: Elaborate Lithics From The Early Metal-Using Era In Coastal, Northwest Europe’ (doctoral thesis, University of Oxford, 2010). There are several other, albeit much more brief, reviews of the literature on the skeuomorph in the cognate literature. See, for example, Dan O’Hara, ‘Skeuomorphology and Quotation’, *Morphomata*, 2 (2012), pp. 281-94 <<http://danohara.co.uk/OHara%20>

the variability of conceptualisations of the skeuomorph across different material contexts and time frames, her focus is primarily on the skeuomorph as the conduit for economic and socio-cultural values – on the associative meanings of skeuomorphic artefacts – rather than as the adjunct to purposive making. It is Frieman’s intention to look *through*, rather than *at* the skeuomorphic object. To part from Frieman, I have chosen to organise this review thematically, expanding on what I believe to be the three main strands of critique of the skeuomorph as it relates to craft, and drawing from a wider set of disciplines. For example, one area that Frieman’s review overlooks, despite her admission that the original concept of the skeuomorph has been compromised by contemporary attitudes and evaluations,⁸ is its assimilation into the digital realm. This is, I believe, a crucial aspect of its contemporary misinterpretation and one that needs to be more closely examined. What follows is not a comprehensive review of all that has been written about the skeuomorph, but rather a summation of the recurring themes that have contributed to its undoing. I propose that it is the crafted facet of the skeuomorph that is most absent in contemporary theorisations.

There are three central strands or recurrent themes to the critique of the skeuomorph that are productive of – and a product of – the contemporary misinterpretation of it. These are: (i) that the skeuomorph is “immaterial”; (ii) that the skeuomorph is “anachronistic”; and (iii) that the skeuomorph is “imitative”. Each of these tropes relates to a wider set of (indeed, interrelated) themes – namely, materiality, temporality, and vitality – and draw a connection between the skeuomorph and the wider concerns of craft. The skeuomorph is an intrinsically crafted facet of the making process, and so its marginalisation on the same grounds, or via the conditions that constitute making, demands attention. I begin this review with the principal question: *In what ways is the skeuomorph misinterpreted in the contemporary context?*

%20Skeuomorphology%20and%20Quotation.pdf> [accessed 21 September 2016]; John H. Blitz, ‘Skeuomorphs, Pottery, and Technological Change’, *American Anthropologist*, 117: 4 (2015), pp. 665-78; and Alice A. Donohue, ‘Material, Technique, and Form’, in *Greek Sculpture and the Problem of Description* (Cambridge: Cambridge University Press, 2005), pp. 62-87.

⁸ Frieman, ‘Skeuomorphs And Stone-Working’, p. 37.

2.1. Challenging the Perceived “Immateriality” of the Skeuomorph

A Google search of the term “skeuomorph” offers some insight into contemporary definitions of it; or, at least, those common to digital users: ‘Skeuomorph design, is a design practice where real world objects are represented digitally, creating *visual metaphors*’;⁹ ‘A skeuomorph is an object or feature that imitates the design of an older similar object, *just for show*’;¹⁰ ‘Digital skeuomorphism involves *taking* characteristics from real life objects and *applying* them to digital interfaces in order *to foster a sense of familiarity*.’¹¹ Each of these statements denies the skeuomorph of any basis in materiality; it is an imitative representation, nothing more. There is also, online, the conventional roll call of skeuomorphic examples: electric candles, fake wooden panels in cars, imitation leather; as well as the “trash” icon on the computer desktop that prompts the user to delete digital files, the simulated camera “click” in mobile phones when taking a digital photograph, and the mimicking of wood-grain in Apple’s iBooks library.¹² While such examples do nothing to reflect the extent of this research into the concept, it quickly exemplifies (and replicates) the incidental, inattentive, and often-oversimplified interpretations of the skeuomorph in the present context. These examples introduce the problematic of contemporary theorisations of the skeuomorph, as I see it, as well as emphasising the rephrasing of digital rhetoric that can often flatten, rather than enrich, the conversation. The often-repeated idea that the skeuomorph is “derivative” of actual objects offers little in the way of critique of its worth to material practice, which it is my aim to redress in this next section. For example, how is it that such a motley crew of material things have come to represent, in the contemporary mindset, the concept of the “skeuomorph”? And what effect does this succession of

⁹ Oliver McGough, ‘The Skeuomorph is Dead, Long Live the Skeuomorph’, *Usabilla*, 12 December 2013 <<http://blog.usabilla.com/skeuomorph-dead-long-live-skeuomorph/>> [accessed 7 June 2016] [emphasis mine].

¹⁰ Judith B. Herman, ‘17 Skeuomorphs That Show Retro Is Always In’, *Mental Floss*, 3 June 2014 <<http://mentalfloss.com/article/56619/17-skeuomorphs-show-retro-always>> [accessed 3 June 2016] [emphasis mine].

¹¹ Jessica Moon, ‘A Showcase of 50 Skeuomorphic Designs’, *Digital Telepathy*, [n.d.] <<http://www.dtelepathy.com/blog/inspiration/50-skeuomorphic-designs>> [accessed 3 June 2016] [emphasis mine].

¹² It is interesting to consider the simulated wood grain of Apple’s iBooks in light of Kristen Kreider’s argument that, drawing from Roland Barthes’s essay ‘The Grain of the Voice’ (1972), the grain indexes the ‘materiality quality [...] that is specific to one’s unique corporeality’; in other words, that materiality is what makes the intangible tangible. I discuss this in more detail in section 3.1.2.

materialities – from the dense temporality of wood to the flickering logic of software applications and algorithms – have on our understanding of the skeuomorph, which has its basis in making? What effect do these examples have on our understanding of how temporality manifests itself within the skeuomorph? And finally, how is it that the skeuomorph has become so decidedly “immaterial,” both conceptually and materially?

In ‘Media Transitions: The cases of digital imagery and email’ (2004), Kimberly Cass and Thomas W. Lauer invoke the skeuomorph in their discussion of the transition of processes of communication from off- to online environments, specifically the digital image and email. The skeuomorph, they explain, is the means by which ‘recognisable and now non-functional attributes from earlier versions of an artefact’¹³ are replicated in the design of the digital interface. The skeuomorph manifests itself in digital-image making, in the semblance of the image and in the editing process. Let’s take, as an example, the white frame of an actual photographic print that delineates the separation between light-sensitive emulsion and non-reactive border. Their argument is that the attributes of an actual photograph¹⁴ become digital affordances. That is, elements of the actual object are transferred to the design of the user interface to suggest how the digital object should be interacted with. The digital image recalls its analogue other in form and performance. Thinking back to Colley March’s original thesis on the skeuomorph, this interpretation seems plausible: The digital image is constructed in such a way that the white-frame-as-unusable-image-space is replicated online ‘to satisfy a mental demand’.¹⁵ There is no real need for the digital representation to comprise the white frame – which, in the actual photograph functions to consolidate the different elements of the film unit¹⁶ – since it is an altogether different medium. As Cass and Lauer admit,

¹³ Kimberly Cass and Thomas W. Lauer, ‘Media Transitions: The cases of digital imagery and email’, *Information Technology & People*, 17: 3 (2004), pp. 252-67 (p. 254).

¹⁴ Admittedly, the white border is not an aspect of *all* photographs, but it is a conspicuous attribute of the Polaroid photograph, which is consciously replicated in Instagram, the photo-sharing application. This forms the basis for the example in this section. For more on Polaroid, see Christopher Bonanos, *Instant: The Story of Polaroid* (New York: Princeton Architectural Press, 2012); and Mary-Kay Lombino, *The Polaroid Years: Instant Photography and Experimentation* (Munich: DelMonico Books, Prestel, 2013).

¹⁵ Colley March, ‘The Meaning of Ornament’, p. 187.

¹⁶ Continuing with the example of Instagram, as per fn. 14, the white frame of the actual photograph structures the five separate elements that constitute the Polaroid photograph: the ‘trap’, ‘frame’, ‘pod’, ‘receiving sheet’, and

‘Digitized processes [...] differ from their chemical-based counterpart in critical ways.’¹⁷ In place of a light-sensitive image surface, which is permanently and chemically altered in contact with light, the digital image is an infinitely manipulable ‘information object.’¹⁸ It involves the conversion of light data into a continuous-tone image – one that is composed of discrete pixels (or, picture elements) each with their own colour and radiance values. On screen, the digital image *appears* to perform in the same way online as it does offline: it has the self-same “live,” sensitised image area and inoperative frame. Yet, in actual fact, all the pixels are “working” all of the time. It is the relative transparency of the media interface that belies the complexity of digital processing; of data storage and software functioning that renders the screen image, itself a complex of electrical signals. The white frame, then, a non-digital attribute of the photograph, is incongruous with the workings of digital media. It becomes a visual cue, rather than an integral component.

It is for this reason that Cass and Lauer go on to characterise the digital skeuomorph in terms of ‘metaphor,’ which – drawing on George Lakoff and Mark Johnson’s *Metaphors We Live By* (1980) – they define as the means to ‘conceptualise one domain of experience in terms of another’.¹⁹ Lakoff and Johnson’s notion of metaphor is decidedly intellectual, although Cass and Lauer do distinguish between linguistic metaphors that *describe* the digital medium with reference to the non-digital – such as “cc” or “carbon copy” in the case of email communication – and the skeuomorph as a ‘physical’ metaphor, with its basis in reality.²⁰ Despite this distinction, I believe that it is the

‘negative’. The constitutive structure is contained within Polaroid’s trademark white frame, with a degree of flexibility that allows for the slight expansion of the internal layers during processing.

¹⁷ Cass and Lauer, ‘Media Transitions’, p. 259.

¹⁸ Thibodeau, Kenneth, ‘Overview of Technological Approaches to Digital Preservation and Challenges in Coming Years’, in Documentation Abstracts, Inc, and Council on Library and Information Resources, *The State of Digital Preservation: An International Perspective: Conference Proceedings: Documentation Abstracts, Inc., Institutes for Information Science, Washington, D.C., 24-25 April 2002* (Washington, D.C: Council on Library and Information Resources, 2002), pp. 4-31 (p. 5) <<https://www.clir.org/pubs/reports/reports/pub107/pub107.pdf>> [accessed 22 September 2016].

¹⁹ Cass and Lauer, ‘Media Transitions’, p. 255. In truth, it may have been Lakoff and Johnson’s reference to the desktop metaphor in computer interface design that initiated Cass and Lauer’s analysis. See George Lakoff and Mark Johnson, *Metaphors We Live By* (Chicago: University of Chicago Press, 2003), p. 2.

²⁰ Cass and Lauer’s notion of the skeuomorph as a ‘physical’ metaphor resembles point-by-point the writings of anthropologist Nicholas Gessler, whom they explicitly cite in their essay. Gessler argues that skeuomorphs are ‘material metaphors’ that assist with transposing the new into an existing cognitive structure. See Nicholas

alignment of the skeuomorph with metaphor that has undermined thinking about it *materially*. The skeuomorph is considered a conceptual framework for understanding the similarities between the on- and offline environment, as opposed to being contingent on materiality. It aids interpretation.²¹ And it is a trope that, I argue, is compounded in the digital realm with the surface, or screen manifestation of non-digital attributes – attributes that appear to have no basis in the construction (or conceptualisation) of digital media. The digital realm obscures its own workings and materialities, and the skeuomorph – as a mechanism for the transition from analogue to digital – is implicated in the ‘groundlessness’ of this transformation.²²

It is Felluga who introduces the idea of ‘groundlessness’ in relation to digitality, which I have found to be an incisive concept when thinking about how the skeuomorph has come to represent little more than stylistic finishes in the digital interface. In ‘The Victorian Archive and the Disappearance of the Book’ (2006), Felluga discusses the implications of digitising a body of nineteenth-century literature and the difficulties that presents, both in terms of intellectual property and normative scholarly practice.²³ Felluga describes the common fear among scholars about the dissemblance of the book into ‘immaterial encoding,’²⁴ while he himself believes that the book is not about to disappear; instead, he argues, it has been assimilated into the digital realm via the skeuomorph. Drawing on N. Katherine Hayles’s oft-quoted tenet, he describes it as being ‘a design feature that is no longer functional in itself but that refers back to a feature that was functional at an earlier time.’²⁵ I discuss Hayles’s definition in more detail in section 2.2, but suffice it to say that Felluga considers the skeuomorph to be a dialectic of attending to, and transforming, the old in terms of the new – and vice versa;

Gessler, ‘Skeuomorphs and Cultural Algorithms’, *Proceedings of the 7th International Conference on Evolutionary Programming VII* (London: Springer-Verlag, 1998), pp. 229-38.

²¹ This view is recognised by Catherine Frieman, who, after an extensive review of the literature on skeuomorphism, deduces that: ‘Skeuomorphism is one of these interpretative tools created for, and used by, archaeologists seeking to explain the nature and processes of material change.’ Frieman, ‘Skeuomorphs And Stone-Working’, p. 1.

²² Felluga, ‘The Victorian Archive and the Disappearance of the Book’, p. 308.

²³ *Ibid.*, p. 314.

²⁴ *Ibid.*, p. 310.

²⁵ N. Katherine Hayles, *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics* (Chicago: University of Chicago Press, 1999), p. 17.

rather than annihilating its analogue counterpart, the digital book is able to accommodate the non-digital aspects of the book, while expanding on its functionality. Even so, Felluga considers how digitisation of this kind has met with considerable opposition, which he ascribes to the assumed groundlessness of programming code in digital environments. The fundamental issue is the perceived collapse of the 'natural bounds of the book.'²⁶ In contrast with the tangible, circumscribed format of an actual book, the digital book is not so easily locatable. Translated into digital code, it becomes infinitely programmable – a dynamic complex of electronic hypertexts and user-interface conventions that can be continually modified and updated.²⁷ Crucially, argues Felluga, with digitisation 'material reality is [...] subordinated to pre-existing codes that are imagined as moving freely through time and space, instantiating themselves at will.'²⁸ This is where the notion of groundlessness comes into play. It stems from the idea that digital coding is frictionless or abstract; it comprises a set of instructions that actualises in different screen representations, but that in-and-of-itself is little more than information. Digital code is simply a numerical representation.²⁹ It is considered to be disembodied, diffuse, and mutable.

Felluga's theory of 'groundlessness' can be expanded on with regard to Gilbert Simondon's writing about technical objects. In 'On the Mode of Existence of Technical Objects' (2011), Simondon describes the genesis of technical objects whereby the 'figure,' or form, of the object emerges from a swell in material forces and potentialities, from the 'ground reality that supports them.'³⁰ Simondon distinguishes between the complex of potential forces that constitutes the ground, and the emergence of the figure in terms of 'structuring'.³¹ Structuring gives tangible form to the indefinite, but latent potential of material forces; it is a transformative process. With this in mind, Felluga's

²⁶ Felluga, 'The Victorian Archive and the Disappearance of the Book', p. 310.

²⁷ For more on the complex interrelationship between print and code, see N. Katherine Hayles, 'Print Is Flat, Code Is Deep: The Importance of Media-Specific Analysis', *Poetics Today*, 25: 1 (2004), pp. 67-90.

²⁸ Felluga, 'The Victorian Archive and the Disappearance of the Book', p. 307.

²⁹ Lev Manovich, *The Language of New Media* (Cambridge, MA: MIT Press, 2001), p. 27.

³⁰ Gilbert Simondon, 'On the Mode of Existence of Technical Objects', trans. by Ninian Mellamphy, Dan Mellamphy, and Nandita Biswas Mellamphy, *Deleuze Studies*, 5.3 (2011), pp. 407-24 (p. 412).

³¹ Simondon, 'On the Mode of Existence of Technical Objects', p. 418.

invocation of the ‘groundlessness’ of digital code is due to its lack of tangible form; it comprises a series of code elements that can be rendered as this or that digital representation, but that, in-and-of-itself, is information. It informs, but it isn’t form. Felluga’s digital book, then, is the provisional instantiation of digital coding – a complex of extended, and innovative functions – and analogue resemblance – pages, bookmarks, and printed text.³² It hovers somewhere between the actual and the virtual.

Arguably, it is this ‘illusion of immateriality’³³ in the digital environment that contributes to the continual abstraction of the skeuomorph from the discourse of materiality. Yet, there is materiality to computing, as Dan Farmer and Wietse Venema testify with regard to the development of digital forensics.³⁴ Data necessitates memory chips, disk drives, and remote servers in order to function, all of which are inherently difficult to wipe with data remaining as ‘leftover fragments of bits.’³⁵ This does not concern the user, however, who witnesses a continuous flow of data that operates at screen level. The assumed passivity of this screen image – which comprises the analogue interface – negates the incessant ‘always-in-the-making’ of software that is contingent on the reliable storage of data on disks and servers.³⁶ Thus, digital media appears to be autonomous, or somehow disembodied.³⁷ In ‘A Material History of Bits’ (2011), Jean-François Blanchette examines the ‘trope of immateriality’ that recurs in the literature on the digital, which he believes stems from anxiety about the ‘technical complexity’ of digital technologies, as well as the lack of critical discourse that engages with the digital ‘in material terms’.³⁸ Blanchette takes a detailed look at the constitutive materialities of computing that enable “bits” to circulate and information to flow, concluding that ‘there

³² Felluga, ‘The Victorian Archive and the Disappearance of the Book’, p. 311.

³³ Jean-François Blanchette, ‘A Material History of Bits’, *Journal of the American Society for Information Science and Technology*, 62: 6 (2011), pp. 1042–57 (p. 1045).

³⁴ Dan Farmer and Wietse Venema, *Forensic Discovery* (Upper Saddle River, NJ: Addison-Wesley, 2005).

³⁵ Farmer and Venema, *Forensic Discovery*, p. 12.

³⁶ Alex Preda, ‘The Turn to Things: Arguments for a Sociological Theory of Things’, *The Sociological Quarterly*, 40: 2 (1999), pp. 347–66 (p. 353).

³⁷ Exhibitions such as *Digital Revolution* at the Barbican Centre, London, perpetuate this myth of disembodiment in the digital realm, with ‘computers lit inside display cases like mysterious and precious artefacts’. Alastair Sooke, ‘Digital Revolution, Barbican Centre, review: “gimmicky”’, *The Telegraph*, 30 June 2014 <<http://www.telegraph.co.uk/culture/art/art-reviews/10935600/Digital-Revolution-Barbican-Centre-review-gimmicky.html>> [accessed 25 September 2014].

³⁸ Blanchette, ‘A Material History of Bits’, p. 1045.

is much to be gained—theoretically, methodologically, empirically—from approaching bits as material objects.³⁹ Media theorist Lev Manovich adopts a similar view, prompting us to think critically about the configuration of digital media, which, he argues, constitute data structures that simply replicate analogue materials and technologies. What digital media achieves, he argues, is a meshing together of the techniques associated with discrete media – from wood to paint – with the effect that it performs beyond the capacities of its ‘real-world’ counterparts.⁴⁰ This is particularly compelling in the context of the skeuomorph, whose methods of construction, as we have seen in section 1.2, involves the assimilation of techniques from one medium into another – from textiles into ceramics, for example. The digital skeuomorph, like its analogue counterpart, is evidence of cross-craft experimentation, although when seeking to interpret this phenomenon an understanding of craft is absent.

Despite the arguments for approaching the digital realm *materially*, the myth of ‘immateriality’ prevails. Given the assumed groundlessness of digital code, it is easy to see how the skeuomorph – understood to bridge the divide between analogue form and its digital manifestation – has become enmeshed in the discourse of immateriality. Understood as related to metaphor, which is in-itself virtual,⁴¹ the skeuomorph seems to have gradually become detached from its moorings in the material world. Felluga’s digital book, however, does not negate its material origins altogether. Rather it builds on the affordances of the actual book, by which I mean the embodied act of reading. For it is the act of reading itself that is coded into the form of the digitised version, and which grounds it in material reality. Despite the shift in context from actual to virtual and the possibilities that presents, the digitised version indexes the functionality of the

³⁹ *Ibid.*, p. 1043.

⁴⁰ Lev Manovich, *Software Takes Command: Extending the Language of New Media* (New York; London: Bloomsbury, 2013), p. 206.

⁴¹ I use the term “virtual” here to mean that metaphor is abstract, rather than concrete. My understanding of the virtual draws directly from Pierre Lévy’s illuminating book, *Becoming Virtual* (1998), in which he describes the virtual as ‘that which has potential rather than actual existence’. Pierre Lévy, *Becoming Virtual: Reality in the Digital Age*, trans. by Robert Bononno (New York and London: Plenum Trade, 1998), p. 23. See also, Rob Shields, *The Virtual* (New York: Routledge, 2003).

actual thing.⁴² Furthermore, this assimilation of the act of reading into the digital realm is much more complex than a simple translation of the printed text into on-screen text. It involves the complex functioning of layers of code. In a reversal of the commonplace assumption that the digital realm is insubstantial, Hayles cogently argues that ‘print is flat, code is deep.’⁴³ That is, with digital media, attention often centres on the screen; however, the flat resemblance between the digital book and its non-digital counterpart – or in Cass and Lauer’s case the digital and the analogue photograph – belies the dynamic relationship between surface image and intrinsic code. Indeed, Hayles argues that materiality emerges in this ‘complex dynamic interplay with content, coming into focus or fading into the background, depending on what performances the work enacts.’⁴⁴ The point is that digital code reconstitutes the particularities of the book online; it gives spatial and material logic to online reading. Conceived in this way, the skeuomorph is embedded in functionality.

This, then, is an altogether different process from the mimicking of wood-grain in Apple’s e-book application iBooks,⁴⁵ which is often cited as being skeuomorphic. The difference is that the screen image of wood grain does little to facilitate the performance of the application. It is inconsequential to the act of storing and retrieving electronic books (or rather, digital files). This facet of the application is imagistic, rather than performative. I propose that the wood-grain is better understood as an image, as distinct from being skeuomorphic. It is a peculiarity of the analogue interface that is incidental to the performance of the e-book application as a functional object. Yet, it is exactly these visual details that are confused with the workings of the skeuomorph, and that contribute to its misinterpretation. Philosopher Dan O’Hara concurs with the view that

⁴² Tom Boellstorff makes sense of the mutual relationship between on- and offline worlds in his suggestion that the ‘digital’ relates to the ‘digits on a hand’; the actual and the virtual are in a dialectical relationship to one another. See, Tom Boellstorff, ‘Rethinking Digital Anthropology’, in *Digital Anthropology*, ed. by Heather A. Horst and Daniel Miller (London: Berg, 2012), pp. 39-60 (p. 40).

⁴³ Hayles, ‘Print Is Flat, Code Is Deep’, p. 75.

⁴⁴ *Ibid.*, p. 71.

⁴⁵ This example refers to iBooks version 3 (launched in 2012), which ran on iOS 6, rather than a later version of the application. With the introduction of iOS 7 in 2013, Apple redesigned its iBooks interface, abandoning the wood-grain effect in preference to ‘flatter design’. See John Maeda, ‘The Future of Design Is More Than Making Apple iOS Flat’, *Wired Online*, 6 December 2013 <<https://www.wired.com/2013/06/the-future-of-design-is-more-than-making-apple-ios-flat/>> [accessed 22 September 2016].

the skeuomorph has been misrepresented, writing that: ‘What’s being called “skeuomorphic” is not at all skeuomorphic.’⁴⁶ O’Hara ascribes this pervasive misattribution of the skeuomorph to the debates surrounding the design of Apple’s user interface, in particular, to the perceivable “flattening” of the screen image introduced in the iOS 7 interface.⁴⁷ He writes of the analogue resemblances of digital media that: ‘They’re kitsch visual metaphors, but they’re not the unintentional side-effects of technological evolution. In every case in the Apple UI debate, a designer is consciously responsible for the metaphor. Might be bad taste, but that’s all.’⁴⁸ The intentional “metaphorising” that O’Hara identifies has, in fact, been fundamental to computing since the 1970s, as Manovich points out.⁴⁹ Such metaphors include the “trash” icon and the workspace-as-“desktop.” The analogue resemblance of digital technologies functions as a reminder that ‘online worlds are simply another arena, alongside offline worlds’;⁵⁰ that we should apprehend digital technologies as constitutive of technology, more broadly. To critics, however, it is the residual traces of analogue media that permeate the design of Apple’s user interface – the drop shadows and simulated surfaces of iBooks, for example – that have become associated with a resistance to change, which, in turn, is allied to the skeuomorph – the so-called ‘training wheels’ of analogue media.⁵¹ This relates back to Felluga’s comment on the perceptual, or rather, ‘skeuomorphic lag’ between off- and online environments,⁵² between already-existing functionality – in the form of recognisable objects – and the potential to renounce the interrelationship between actual and virtual and, instead, accentuate the “unprecedented” capacities of digitality.

⁴⁶ Dan O’Hara cited in Baraniuk, ‘How We Started Calling Visual Metaphors “Skeuomorphs”’.

⁴⁷ Madeline Bennett, ‘iOS 7 vs iOS 6 head-to-head review’, V3, 25 October 2013 <<http://www.v3.co.uk/v3-uk/review/2295962/ios-7-vs-ios-6-head-to-head-review>> [accessed 15 April 2014]. See also, Buster Hein, ‘Jony Ive Explains Why He Decided To Gut Skeuomorphism From iOS 7’, *Cult of Mac*, 19 September 2013 <<http://www.cultofmac.com/246312/jony-ive-explains-why-he-decided-to-gut-skeuomorphism-out-of-ios/#6FVf8Mmbl5vk8T6W.99>> [accessed 15 April 2014].

⁴⁸ O’Hara cited in Baraniuk, ‘How We Started Calling Visual Metaphors “Skeuomorphs”’.

⁴⁹ Manovich, *Software Takes Command*, p. 44.

⁵⁰ *Digital Anthropology*, p. 13.

⁵¹ Maeda, ‘The Future of Design Is More Than Making Apple iOS Flat’.

⁵² Dino Franco Felluga, ‘The Eventuality of the Digital’, *Interdisciplinary Studies in the Long Nineteenth Century*, 21 (2015) <<http://doi.org/10.16995/ntn.742>>.

Implicit in this sentiment is the assumption that the digital realm is distinct from the actual world with regards to temporality; that digital technologies represent an absolute break with convention, and thus, with the phenomena of the “past”. Felluga’s “skeuomorphic lag” encompasses a time lag between cause and effect, between actual and virtual. In other words, the skeuomorph is thought to represent a past time that jars with the unparalleled conditions of the digital. Digital rhetoric continuously attempts to erase the analogue, and *material* beginnings of digitality, rather than acknowledge it.

And this brings the review full circle to Cass and Lauer, who insist on the co-constitutive nature of on- and offline media, and the reciprocal functioning of the skeuomorph. As such, the digital user responds to the ‘remediated’⁵³ photograph as she would to an actual photograph. The skeuomorph enables the actual object to continue to be useful, even in a novel context, while the digital object is more readily accepted when associated with a former iteration.⁵⁴ Implicit in this statement is the suggestion of a back-and-forth motion, a flickering between off- and on-, either-or, and before and after – between past and present. This parcelling of time into events, or objects that belong to the past, present, or future attributes to the second misinterpretation of the skeuomorph: that it is “anachronistic.” It literally belongs to a before-now time and is, therefore, considered out-of-place. It is to this mistaken temporal dimension of the skeuomorph that I turn to next.

2.2. Towards the Thick Temporality of the Skeuomorph

The skeuomorph appears in the most unlikely of places. In *Greek Sculpture and the Problem of Description* (2005), art historian Alice Donohue problematizes the influence that nineteenth-century theories of material and artistic form have had on stylistic descriptions of Greek statuary, and it is here, in her discussion of Gottfried Semper’s

⁵³ Cass and Lauer’s interpretation chimes with Jay David Bolter and Richard Grusin’s notion of ‘remediation’; that is, the process whereby a medium is represented in the form of another. A significant facet of remediation is ‘immediacy’, the idea being that the digital user is unaware that the digital photograph is distinct from an actual photograph. It is the content of the photograph, rather than the medium, that matters most. Jay David Bolter and Richard Grusin, *Remediation: Understanding New Media* (Cambridge, MA: MIT Press, 1999).

⁵⁴ Cass and Lauer, ‘Media Transitions’, p. 255.

work, that we briefly encounter the skeuomorph.⁵⁵ What is striking about Donohue’s understanding of the concept – and why it serves to introduce this section on the “anachronism” of the skeuomorph – is her assertion that the concept has been emptied of its most radical proposition: that it simultaneously embodies the “formal histories” of its making, the before *and* after, and all events in-between. This, she argues, is owing to ‘the capacity of clay and other materials to carry information about the formal history of artifacts.’⁵⁶ A clay form, for example, bears witness to the contextual circumstances of its making, and its life thereafter. It maintains those circumstances as form. It is telling of its own making histories. The temporal complexity of the skeuomorph is, arguably, its most potent asset.

This enlightened view of the skeuomorph is not how it is often perceived today. Instead, interpretations tend to describe it as: “anachronistic,” that is, that it doesn’t belong to now, but to a before-now. It is Hayles’s citation of the skeuomorph that is continually taken up in the literature, and that appears to have influenced contemporary theorisations so profoundly. Hayles borrows the concept of the skeuomorph from archaeological discourse to demonstrate that the history of cybernetics constitutes the dialectic of innovation and replication, rather than involving a radical change from normative experience.⁵⁷ It is her belief that the emergence of the skeuomorph in periods of change attests to the patchwork nature of “progress,” since it merges aspects of the new with traces of what has come before – as a form of ‘boundary object’⁵⁸ – and thus, is infused with notions of temporality. For Hayles, it is the skeuomorph’s ability to merge distinctive temporalities that avows to the true nature of cybernetics: it involves constant

⁵⁵ Alice A. Donohue, ‘Material, Technique, and Form’, in *Greek Sculpture and the Problem of Description* (Cambridge: Cambridge University Press, 2005), pp. 62-87.

⁵⁶ Donohue, ‘Material, Technique, and Form’, p. 80.

⁵⁷ N. Katherine Hayles describes how cybernetics involves the ‘synthesis of the organic and the mechanical’ through the shared action of ‘information, control, and communication.’ N. Katherine Hayles, *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature and Informatics* (Chicago: University of Chicago Press, 1999), p. 8.

⁵⁸ The term ‘boundary object’ is attributed to Susan Leigh Star and James R. Griesemer, who describe the potential for objects that appeal to different professions, and so encourage interaction between them. Susan Leigh Star and James R. Griesemer, ‘Institutional Ecology, “Translations” and Boundary Objects: Amateurs and Professionals in Berkeley’s Museum of Vertebrate Zoology, 1907-39’, *Social Studies of Science*, 19: 3 (1989), pp. 387-420.

negotiations between off- and online worlds. The skeuomorph is evidence of successive change, rather than a radical break.

Hayles's particular skeuomorphic example is the automated confessional *Catholic Turing Test*, which was exhibited at *SIGGRAPH 93*, Anaheim, California (fig. 5). The installation simulated a confessional wherein the participant could crouch on a leather kneeler and confess to a digital screen.⁵⁹ What is clear in photographs of the installation is the almost crude merging of red-leather kneeler with keypad, confessor and computer program. As its inventor stated, 'This work challenges the sinner kneeling at this automated confessional to make a digital leap of faith';⁶⁰ for Hayles, it represented the inability to break with normative models of confession. It sutured past and present in an awkward mix of *convention* and *invention* – *with* the past and *towards* the future. It was the *Catholic Turing Test* that prompted Hayles to describe the skeuomorph as a 'Janus figure' that 'looks to past and future simultaneously reinforcing and undermining both.'⁶¹ The simple backwards and forwards gesturing that two conjoined heads presuppose reflects the temporal ambivalence of the *Catholic Turing Test* vis-à-vis the skeuomorph. She continues with the assertion that the skeuomorph:

[...] calls into a play a psychodynamic that finds the new more acceptable when it recalls the old that it is in the process of displacing and finds the traditional more comfortable when it is presented in a context that reminds us we can escape from it into the new.⁶²

The suggestion that the skeuomorph conflates past with present, attributable neither to *before*, nor being of the present, infers that the skeuomorph is 'noncontemporaneous,'

⁵⁹ For more on Gregory Garvey's 'The Automatic Confession Machine: A Catholic Turing Test', presented at *SIGGRAPH 93*, see *Computer Graphics: Proceedings of ACM SIGGRAPH 93* (Anaheim, CA: Association for Computing Machinery, 2-6 August 1993); *Proceedings of ACM SIGGRAPH 2007* (San Diego, CA: Association for Computing Machinery, 3-4 August 2007); and Greg Garvey, 'The Automatic Confession Machine: A Catholic Turing Test', *Leonardo Electronic Almanac*, 2: 7 (1994), pp. 2-8.

⁶⁰ Garvey, 'The Automatic Confession Machine', p. 5.

⁶¹ N. Katherine Hayles, *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature and Informatics* (Chicago: University of Chicago Press, 1999), p. 17.

⁶² Hayles, *How We Became Posthuman*, p. 17.



Figure 5.
The Automatic Confession Machine: A Catholic Turing Test, by Greg Garvey.
(Left) Exhibited at *Intuition and ingenuity: An Official Touring Exhibition for the Alan Turing Centenary*, 2012.

(Photo: Love Bytes/
Flickr)

(Right) Exhibited at *SIGGRAPH 2007*, San Diego, California.

(Photo: Leah/Flickr)

that is, it is not of *this* time, but rather it is inflected with some other time, a before-now, that is considered to be past.⁶³ As I discussed in section 2.1, it is the false notion that digitality represents a radical break from normative practice that, I believe, contributes to the mistrust of the skeuomorph. It cannot, argue its critics, be permitted to trample traces of the past on the unprecedented digital environment – a past that contradicts the “smooth” logic and unparalleled functions of digitality. This links in with the notion of temporal lag insinuated by Felluga in the previous section;⁶⁴ the skeuomorph represents an inability to throw off the past, and to fully apprehend the digital future, whatever shape that might take. As David Pogue, technology columnist for the *New York Times*, admits of the skeuomorph: ‘Slavish dependence on real-world visual metaphors could be holding back more creative, space-efficient or self-explanatory designs.’⁶⁵ Not only is the epithet “visual metaphors” limiting, but so is the belief that skeuomorph is an impediment to progress.

In an earlier essay titled ‘Boundary Disputes: Homeostasis, Reflexivity, and the Foundations of Cybernetics’ (1996), Hayles consents to the notion that the skeuomorph – as Donohue points out – manifests (or rather, enfolds) its own history, but then goes on to suggest that the skeuomorph ‘refers back to an avatar that was functional at an earlier time.’⁶⁶ This is not the same synthesis of all previous iterations of form in the present configuration that Donohue identifies, but rather entails the splitting off of the skeuomorph between discrete temporalities, a before time and a now time. The notion of referring *back* is infused with nostalgia, with an inability to let go, and the refusal to be fully in the present. The difference may be subtle, but it is there. Hayles proceeds to equate the skeuomorph with ‘anachronisms, their pejorative first cousins.’⁶⁷ While she does not directly characterise the skeuomorph as anachronistic, the alliance between it

⁶³ Bernhard Giesen, ‘Noncontemporaneity, Asynchronicity and Divided Memories’, *Time & Society*, 13: 1 (2004), pp. 27-40.

⁶⁴ Felluga, ‘The Eventuality of the Digital’.

⁶⁵ David Pogue, ‘Out With the Real’, *Scientific American*, 308: 2 (2013), p. 29.

⁶⁶ N. Katherine Hayles, ‘Boundary Disputes: Homeostasis, Reflexivity, and the Foundations of Cybernetics,’ in *Virtual Realities and Their Discontents*, ed. by Robert Markley (Baltimore: Johns Hopkins University Press, 1996), pp. 11-37 (p. 16).

⁶⁷ Hayles, ‘Boundary Disputes’, p. 16.

and seemingly ‘preposterous’ forms has,⁶⁸ I believe, contributed to its misalignment. Hayles’s statement re-enters the literature on skeuomorphism in various guises. For example, Cass and Lauer’s assertion that the skeuomorph ‘simultaneously focuses on the past and future, while reinforcing and undermining both’ is, as we have seen, attributed to Hayles;⁶⁹ while media theorists David H. Fleming and William Brown cite anthropologist Nicholas Gessler’s interpretation of the skeuomorph as ‘an object or form that anachronistically retains ornamental features or design cues from an earlier technological era or method of production.’⁷⁰ Online critics denounce such ‘anachronistic design elements’ on the grounds that they just don’t belong with statements like: ‘Are you ready to join the future?’⁷¹ Each utterance draws on characterisations of the past as outmoded and retrograde, and implies that, in turning to the past, the skeuomorph is behind the times. In obscuring the nowness of the skeuomorph, it has come to represent an out-dated category.

This paradigm of noncontemporaneity also binds temporal and material concerns about the digital skeuomorph together. The skeuomorph is considered to be noncontemporaneous *precisely because* it replicates an altogether different material reality from that believed to belong to the digital environment. It is the profound contradiction between the material origins of digitality and its imaginary bounds that unsettles it. The descriptor that is often used for the skeuomorph is “fake,” that is, disingenuous and imitative. As Pogue has it, skeuomorphs comprise: ‘Fake shutter sounds in digital cameras. Fake candles in electric chandeliers. Fake grain in leatherette.’⁷² This allusion

⁶⁸ ‘A Greek term, the “anachronistic” has become inseparable from its close Latin counterpart, the “preposterous”—literally, the before-behind.’ *The Uses and Abuses of Time: Anachronism/Achronicity in the Premodern Era* (conference) (University of North Carolina, Chapel Hill, NC, 21-23 March 2013) <<http://achronicity.web.unc.edu/about/>> [accessed 8 June 2016].

⁶⁹ Hayles, *How We Became Posthuman*, p. 17.

⁷⁰ David H. Fleming and William Brown, ‘FCJ-176 A Skeuomorphic Cinema: Film Form, Content and Criticism in the “Post-Analogue” Era’, *The Fibreculture Journal*, 24 (2015), pp. 81-104 (p. 83).

⁷¹ See, for example, Robb Green, ‘Design jargon explained: Skeuomorphism’, *Creative Bloq*, 20 August 2012 <<http://www.creativebloq.com/app-design/jargon-skeuomorphism-812538>> [accessed 8 June 2016]; Steve Rose, ‘Why Apple ditched its skeuomorphic design for iOS7’, *The Guardian*, 12 June 2013 <<https://www.theguardian.com/technology/shortcuts/2013/jun/12/skeuomorphism-apple-ditched-ios7>> [accessed 8 June 2016]; and Nathan Hunt, ‘This isn’t your Dad’s skeuomorphism’, *The Dressler Blog*, 15 December 2014 <<http://dressler.io/digital-trends-12152014.html>> [accessed 12 June 2016].

⁷² Pogue, ‘Out With the Real’, p. 29.

to fakery is bound up with the idea that the forms of objects, over the course of their evolution,⁷³ occupy a particular position within the conventions of normal chronology, or what sociologist Benedikte Zitouni calls ‘linear past-present-futures’.⁷⁴ That is, that we assume objects to be reflective of a particular time-space, and that there is a “correct” or “appropriate” form of things.⁷⁵ This recalls the late-nineteenth-century discourse on objects and ornament explored in Chapter 1, in which the lively expansion of materials and technologies simultaneously prompted a heightened critique of material appropriateness. When Loos described ornament as “retrograde” or “backward,” he was giving voice to the time-worn idea of progress – to the idea that forms inevitably develop but always in a forward motion, reaching their apotheosis in the present, in the so-called ‘present time’.⁷⁶

In the digital environment, the belief that “present time” should look somehow different from the past is ubiquitous. Returning to Pogue, he cites the example of the mimicking of a tape-deck interface, ‘a technology that fell out of use 30 years ago,’ in Apple’s Podcast application for iPhone and iPad as ‘not making sense to modern-day customers.’⁷⁷ In contrast, states Pogue, Microsoft’s interfaces bear no relation to the

⁷³ While this review does not focus on the evolution of design, there is a large body of literature that identifies the skeuomorph as evidence of design change. Ranging from archaeology to architectural theory and digital design, these sources acknowledge the role played by the skeuomorph in the context of new technological formations, drawing on evolutionary analogies to account for the correspondent shift in materials and techniques. See, for example, George Basalla, *The Evolution of Technology* (Cambridge: Cambridge University Press, 1988); Andrew B. Hargadon and Douglas Yellowlees, ‘When Innovations Meet Institutions: Edison and the Design of the Electric Light’, *Administrative Science Quarterly*, 46: 3 (2001), pp. 476-501; Nicholas Gessler, ‘Skeuomorphs and Cultural Algorithms’, *Evolutionary Programming VII: Lecture Notes in Computer Science*, 1447 (2005), pp. 229-38 <<http://link.springer.com/chapter/10.1007%2FBFb0040776>> [accessed 15 June 2016]; and Philip Steadman, *The Evolution of Designs: Biological Analogy in Architecture and the Applied Arts*, 2nd edn (New York: Routledge, 2008).

⁷⁴ Benedikte Zitouni, ‘Shuffling Times’, *First PARSE Biennial Research Conference on TIME* (University of Gothenburg, Sweden, 4-6 November 2015).

⁷⁵ Christopher Pinney problematises this notion of the contemporaneous object in his brilliant essay, ‘Things Happen: Or, From Which Moment Does That Object Come?’ in *Materiality*, ed. by Daniel Miller (Durham, NC: Duke University Press: 2005), pp. 256-72.

⁷⁶ Adolf Loos, ‘Ornament and Crime’ (1908), in *Programs and Manifestoes on 20th-century Architecture*, ed. by Ulrich Conrads (London: Lund Humphries, 1970) pp. 19-24 (p. 24). Loos’s zealous text also had a moralising agenda. In equating the use of ornament with non-European culture, he hierarchically distanced the European architect, and European architecture and design more broadly, from what he deemed to be a lack of morals in wider culture. Adolf Opel describes how Loos’s ‘reforming zeal stretched beyond architecture to the whole way of life of his age’. See Adolf Opel, ‘Introduction’, in Adolf Loos, *Ornament and Crime: Selected Essays*, ed. by Adolf Opel, trans. by Michael Mitchell (Riverside, California: Ariadne Press, 1998), pp.1-13 (p. 3).

⁷⁷ Pogue, ‘Out With the Real’, p. 29. As with its iBooks application, however, Apple redesigned the Podcasts application with the introduction of iOS 7 in 2013.

physical world: ‘The designers are clearly saying, “It’s 2013, people. We don’t need fake wood grain and green felt to convey software functions”.’⁷⁸ Implicit in these judgements is what philosopher Michel Serres describes as the narcissism of the present, the belief that ‘we never cease to be [...] at the state-of-the-art of development.’⁷⁹ The skewed notion of progress is so bound up with the contemporary (temporal) misunderstanding of the skeuomorph that Serres’s assertion demands to be transcribed here in full:

We conceive of time as an irreversible line, whether interrupted or continuous, of acquisitions and inventions. We go from generalizations to discoveries, leaving behind us a trail of efforts finally corrected-like a cloud of ink from a squid. [...] Just as in space we situate ourselves at the center, at the navel of the things in the universe, so for time, through progress, we never cease to be at the summit, on the cutting edge, at the state-of-the-art of development. It follows that we are always right, for the simple, banal, and naive reason that we are living in the present moment.⁸⁰

This ambition of progress, of leaving behind all that is “outmoded” and “unnecessary” is implicit in digital rhetoric in particular, which continuously attempts to erase the material beginnings of digitality. The skeuomorph, therefore, is considered a glitch in the narrative of progress. It does not conform, as Shad Gross et al. have identified, to the ‘temporal continuum of formal qualities in other, related artifacts.’⁸¹

While most critics rebuke what they consider to be the temporal stasis that the skeuomorph inflicts on the contemporary “moment,” Fleming and Brown endeavour to mitigate the drawbacks of its noncontemporaneity. Fleming and Brown suggest that, if we accept that the skeuomorph constitutes a complex merging of different temporalities, ‘of old and new, familiar and novel, pasts [sic] and future,’⁸² then it

⁷⁸ Pogue, ‘Out With the Real’, p. 29.

⁷⁹ Michel Serres and Bruno Latour, ‘Second Conversation: Method’, in *Conversations on Science, Culture, and Time*, trans. by Roxanne Lapidus (Ann Arbor: University of Michigan Press, 1995), pp. 43-76 (p. 48).

⁸⁰ Serres and Latour, ‘Second Conversation: Method’, p. 48.

⁸¹ Shad Gross, Jeffrey Bardzell, and Shaowen Bardzell, ‘Skeu the Evolution: Skeuomorphs, Style, and the Material of Tangible Interactions’, *Proceedings of TEI 2014: 8th International Conference on Tangible, Embedded and Embodied Interaction* (Ludwig Maximilian University of Munich, Munich, 16-19 February 2014), pp. 53-60 (p. 55).

⁸² Fleming and Brown, ‘FCJ-176 A Skeuomorphic Cinema’, p. 82.

correspondingly enables us to discern what is novel in analogue media – in this instance, pre-digital cinema – as it does what is old in the new ‘post-analogue era’.⁸³ That is, the skeuomorph enables us to see things afresh, as well as asserting that there is always something novel to differentiate it. Their aim, with the development of what they term a ‘skewed critical concept of the skeuomorph,’ is ‘to reveal some of the untapped novelties, and futural becomings (or unbecomings) already apparent or latent within our present film technologies and practices’ – including special effects and aesthetic possibilities – rather than focusing on what is attributable to the past.⁸⁴ Their hunch is that film technologies tend to be read in terms of their past (qua actual) rather than their future (qua virtual) potential. Fleming and Brown’s recommend, instead, that the skeuomorph functions as a lens through which to approach film technologies *side-on*, ‘so that we may bring the past and the future into our peripheral vision, and simultaneously account for both the familiarity (pastness) and novelty (futuraity) of these technologies.’⁸⁵ Rather than situating ourselves within a linear timeframe wherein the past is behind us and the future is in front, we should approach past and future “simultaneously,” as occurring in the present.

In ‘skewing’ our thinking in this way, we can approach objects as examples of ‘polychronic enframing,’ as constituting multiple temporalities at once.⁸⁶ Fleming and Brown cite Serres’s example of the model car, which comprises ‘amongst many others, technologies emerging from or developed within Neolithic times (the wheel), the Nineteenth century (the combustion engine), the Twentieth century (the Air Conditioning Unit), and our own digital era (ABS and GPS),’⁸⁷ yet their theorisation acknowledges the optimisation of each particular configuration, *this* highly-developed wheel and *that* innovatory air-conditioning unit, rather than seeing it as a contemporary assemblage of past technologies. Instead, they argue, each of those discrete technologies embodies novelty. The contemporariness of the model car is attributable to more than

⁸³ *Ibid.*, p. 81.

⁸⁴ *Ibid.*, pp. 81 & 82.

⁸⁵ *Ibid.*, pp. 84.

⁸⁶ *Ibid.*, p. 84.

⁸⁷ *Ibid.*, p. 84. See also, Serres and Latour, ‘Second Conversation: Method’, p. 45.

the sum of its parts; newness is there in each of its constituent parts. Fleming and Brown's temporal paradigm draws from the work of Walter Benjamin, Gilles Deleuze and Félix Guattari, and Simondon, in order to redress the balance of temporalities that constitute the present. It is not that the past encumbers the present, or indeed the future, but that the present is readily infused with the past, while also anticipating the future. This so-called "skewed" condition of the skeuomorph," argue Fleming and Brown, 'allows us to push beyond simulation of pastness and to encounter a novel third synthesis of time qua a thinking from the future which is also immanently and virtually bound up within present digital technologies.'⁸⁸ It constitutes newness, pastness, and future potential simultaneously.

Fleming and Brown's theorisation differs from Hayles's in subtle ways. Where Hayles describes the skeuomorph as 'look[ing] to past and future simultaneously reinforcing and undermining both,'⁸⁹ their skeuomorph calls attention to what is new alongside what is past. It counterbalances the novel dimensions of technologies with those that are more familiar, but in a much more even-handed way. In this way, Fleming and Brown's theorisation comes closest to Donohue's appraisal of the skeuomorph that it simultaneously embodies the 'formal histories' of its making.⁹⁰

Yet, what I argue is still missing is any acknowledgment of the temporal agency of materials, by which I mean, the capacity of materials to assimilate different temporalities. It is not the case that the skeuomorph is "anachronistic" – far from it. What does emerge is a temporally complex category of objects that points to the heterogeneity and multiplicity of temporalities that coexist at any one time. Revising the concept of the skeuomorph, therefore, demands that we re-think our conception of time and temporality, and particularly in relation to making. The skeuomorph is better accounted for, not by a linear timeframe, but a folded, "thick," and contradictory one.⁹¹

⁸⁸ Fleming and Brown, 'FCJ-176 A Skeuomorphic Cinema', p. 87.

⁸⁹ Hayles, *How We Became Posthuman*, p. 17.

⁹⁰ Donohue, 'Material, Technique, and Form', p. 80.

⁹¹ Zitouni, 'Shuffling Times'.

In this last section, I explore the final trope in the contemporary discourse on the skeuomorph: that it is “imitative”.

2.3. The Skeuomorph as a Novel Material Encounter

The epithet “imitative” for the skeuomorph is, arguably, the most inimical to it. It is bound up with notions of not belonging, of being uninventive or deceptive. It is a timeworn criticism of the skeuomorph that was implicit in the specific historical circumstances of its conception, within the mid to late-nineteenth-century discourse on objects and ornament. As Alina Payne argues about this period: “Theory and manufacture of objects coincided and caused a high-density point for thinking about them.”⁹² The expansion of fabrication methods and materials precipitated anxieties about the fitness of form of objects, as well as the fear that ornament would proliferate freely, which was to reach its apotheosis with modernism. Certainly, the call by the Arts and Crafts Movement for ‘truth to materials’ was influential in shaping thinking about materials at the turn of the century,⁹³ and the skeuomorph cannot have escaped its critical reach. As art historian Sarah Guérin notes: “When “intelligent design” is applied, [...] form ought to follow function and the unthinking skeuomorph has no place in a modernist aesthetic.”⁹⁴ The claim is that the skeuomorph involves the transference of form from one material context to another; it supplements the innate qualities of materials with those that are borrowed from others. It is the promiscuity of form across materials – forms that are thought to belong to specific materials – that yield the epithet “imitative” for the skeuomorph. Yet, the question is whether this interpretation still holds in the present context, in which material-specificity is continually contradicted.

⁹² Alina Payne, *From Ornament to Object: Genealogies of Architectural Modernism* (New Haven: Yale University Press, 2012), p. 10. These ideas are discussed in more detail in section 1.1.

⁹³ Truth to materials’ was a central tenet of the Arts and Crafts Movement that stressed the importance of working with the intrinsic properties of materials, and was to become a principal tenet of modernist architecture and design in the twentieth century. For more on the modern movement, see Nikolaus Pevsner, *Pioneers of Modern Design from William Morris to Walter Gropius* (New York: Museum of Modern Art, 1949); Gillian Naylor, *The Arts and Crafts Movement: A Study of Its Sources, Ideals and Influence on Design Theory* (London: Trefoil Publications, 1990); *Form and Function: A Source Book for the History of Architecture and Design, 1890-1939*, ed. by Tim and Charlotte Benton, and Dennis Sharp (London: Crosby Lockwood Staples, 1975); and *Journal of Design History* (Oxford: Oxford University Press, 1988-present).

⁹⁴ Sarah Guérin and Nicholas Herman, ‘Skeuomorphic: The Skeuomorph from the Acropolis to iOS’, *College Art Association: 103rd Annual Conference* (New York Hilton, New York, 11-14 February 2015).

Arguably, too, the tenet of truth to materials has proven inconsequential within other disciplines, as the enduring debates about material imitation, certainly within archaeological and anthropological discourse, testify.⁹⁵ In fact, material imitation constitutes a much more complex process than a simple resemblancing, and discloses a far more tangled relation of equivalences of materials, than it does differences. It is possible to rethink the conditions of imitation and establish a much more dynamic interrelation between materials and form. “Imitation” can open up, rather than close down, thinking about the skeuomorph.

We learned in section 1.2 that Colley March’s skeuomorph was borne of the need to identify the ‘ornamental’ attributes of objects that ‘derive from structure,’⁹⁶ which he sought to differentiate from those traceable to animals or plants. In allying the skeuomorph with the “naturalness” of form – although not that of nature, but of what he termed ‘incipient manufacture’⁹⁷ – Colley March demonstrates awareness of the discourse on the appropriateness of materials. Yet, he ascribes his particular understanding of ornament to Wornum, who writes that ‘any object treated naturally is only a model,’ and that, in order to become ornament, ‘it must be applied as an accessory decoration to something else,’ since it ‘can have no independent existence.’⁹⁸ To imitate something is to ‘follow a model or example.’⁹⁹ The “model” in this instance is the “object treated naturally”; its true nature is manifest. A wood’s natural grain is visible, or stone resembles stone. For Wornum, it therefore follows that an object treated “unnaturally” becomes ornament. Properties of form that are translated from one material context, in which they are likely, to another material context, in which they are unexpected, are characterised as “decorative”: this, in effect, is the basis of truth-to-

⁹⁵ See, for example, John Linton Myres, *Who Were the Greeks?* (Berkeley, California: University of California Press, 1930); Michael Vickers and David Gill, *Artful Crafts: Ancient Greek Silverware and Pottery* (Oxford: Clarendon Press, 1996); Carl Knappett, ‘Photographs, Skeuomorphs and Marionettes: Some Thoughts on Mind, Agency and Object’, *Journal of Material Culture*, 7: 1 (2002), pp. 97-117; Linda M. Hurcombe, *Archaeological Artefacts as Material Culture* (London; New York: Routledge, 2007); and Linda M. Hurcombe, *Perishable Material Culture in Prehistory: Investigating the Missing Majority* (London; New York: Routledge, 2014).

⁹⁶ Colley March, ‘The Meaning of Ornament’, p. 166.

⁹⁷ *Ibid.*, p. 166.

⁹⁸ Wornum cited in Colley March, ‘The Meaning of Ornament’, p. 161.

⁹⁹ ‘Imitative, n.1’, OED Online (Oxford University Press, September 2016)

<<http://www.oed.com/view/Entry/91780?redirectedFrom=imitative#eid>> [accessed 23 June 2016].

materials tenet of modernism mentioned earlier. In equating the skeuomorph with ornament, Colley March imparts to it a degree of irrationality, of non-functionality. Yet, he later describes the skeuomorph as the reiteration, in another material, of ‘a necessary element of suitable construction’ in the first;¹⁰⁰ in other words, it has a structural logic. There is an implied contradiction in his interpretation. The skeuomorph is neither “applied as an accessory,” in the sense of being put into use as a supplement to the object, since it brings into play the material conditions of that specific iteration of the object; nor is it treated “naturally,” if that implies holding fast to the essentialist view of the “naturalness” of materials. A shoe can be made from leather or polyvinyl chloride (PVC) plastic and still performs its particular function of covering the foot. The skeuomorph is purposeful in application, since it entails the same shaping but in a different material, and it has an “independent existence”: the skeuomorph is a category of things, not a surface effect.

We can make sense of the contradictory skeuomorph with regard to the notion of the ‘supplement,’ – or ‘that which provides something necessary to another, “original” entity, but which is nonetheless considered to be extraneous to that original.’¹⁰¹ This idea stems from Glenn Adamson, who believes craft to be a supplement to art, just as decoration is deemed a supplement to form. Yet, being supplemental does not preclude its integrity.¹⁰² Adamson borrows the idea of the supplement from Jacques Derrida’s translation of ‘*parergon*’ to explore craft’s relationship to art, and contends that it is because the idea of the supplement has been aligned with the “decorative,” – which is often, via modernism, equated with the non-functional – that craft, or crafted things, are considered to be ornamental add-ons.¹⁰³ Rather, craft is implicit in art making, being the ‘process of achieving that end,’¹⁰⁴ even if it ceases to be visible in the final artwork. My aim, in invoking the supplement, is to problematise the imitative status of the skeuomorph, proposing instead that it emerges as a necessary adjunct to the making

¹⁰⁰ Colley March, ‘The Meaning of Ornament’, p. 167.

¹⁰¹ Glenn Adamson, *Thinking Through Craft* (Oxford; New York: Berg, 2007), p. 11.

¹⁰² Adamson, *Thinking Through Craft*, p. 12.

¹⁰³ *Ibid.*, p. 11. See also Jacques Derrida, ‘The Parergon’, *October*, 9 (1979), pp. 3-41 (p. 20).

¹⁰⁴ Adamson, *Thinking Through Craft*, p. 13.

process in both historical and contemporary instances. Adamson's proposal that the supplement circumvents the anti-craft bias at work in art compels my belief in its ability to right the anti-craft bias at work in contemporary discourse on the skeuomorph.

Derrida describes the *parergon* as 'being against, beside, and above and beyond the *ergon*, the work accomplished, the accomplishment of the work.' However, for Derrida, 'it is not incidental; it is connected to and cooperates in its operation from the outside.'¹⁰⁵ Derrida draws attention to the columns of a temple, without which it might not be "read" as a temple, but as an altogether different kind of structure: 'It is not simply [the columns] exteriority that constitutes them as *parerga*, but the internal structural link by which they are inseparable from a lack within the *ergon*. And this lack makes for the very unity of the *ergon*. Without it, the *ergon* would have no need of a *parergon*.'¹⁰⁶ The columns function as structural supports, without which the temple cannot stand. Both the frame and the column are integral as well as being supplemental.

I equate the "internal structural link" in Derrida's statement with the structural logic of objects. Thinking back to Colley March's example of the flint axe discussed in section 1.2, it is the 'thong work' that binds the stone head and wooden handle together, becoming the normative structure of the axe. The thong work as "structural link" re-emerges in the cast-bronze skeuomorph; there is a rationale for transferring the thong-work from the flint axe 'where it was functional, to the bronze celt, where it was skeuomorphic.'¹⁰⁷ This is not the same thing as "non-functional" decoration. Yet, despite the usefulness of the supplement to the object itself, it is deemed to be derivative because of the shift in material context. This interpretation makes sense if you subscribe to the persistence of an essentialist view of materials in the contemporary context, despite continual innovation in materials and process. It is, nonetheless, implicit in the paradigm of imitation that overwhelms the literature on the skeuomorph.

¹⁰⁵ Derrida, 'The Parergon', p. 20.

¹⁰⁶ Ibid., p. 24.

¹⁰⁷ Colley March, 'The Meaning of Ornament', p. 168. Notably, the self-same process is evident in Glithero's *Les French* (2009), which I examine in Chapter 4.

This paradigm of imitation is, however, crucial to material culture studies, in which archaeologists utilise the skeuomorph as a conceptual framework for understanding the dynamic exchange of materials and form across different material, or technological, contexts. In Frieman's doctoral thesis cited earlier, she opens with the proposition that skeuomorphs are 'meaningful imitations', by which she means that the assimilation of metallic features into stone copies is not inconsequential, but rather 'reflects the shaping of the earliest metal objects into already widespread, socially meaningful forms.'¹⁰⁸ This is analogous to the replication of 'recognisable [...] attributes from earlier versions of an artefact'¹⁰⁹ in the design of the digital interface. Implicit in Frieman's proposition is the notion that the material is subservient to function, to the anticipated functionality of things, in relation to form; that material is second to the social in the context of production. Furthermore, in "imitating" metal, Frieman's stone skeuomorphs attest to the ascendancy of metal, in this instance, in the context of prehistoric Europe, to its social value; stone assumes value by association with metal. This is what anthropologist Timothy Taylor refers to as a process of 'envaluation,' whereby makers 'seek to understand a new or different material by manipulating it within the stylistic and functional framework of better known materials.'¹¹⁰ It is the possibility of accessing the value of another material through imitation that, argues Frieman, incites the production of the skeuomorph; the 'directionality of that imitation' discloses the value hierarchies among materials in a specific context.¹¹¹

Archaeologist John Linton Myres acknowledges the self-same interchange of formal properties across material contexts, although he articulates it differently. It is less a question of imitation than a 'symptom of a fresh relation between the craftsman and his work, and usually the reaction to a fresh material or means of expression.'¹¹² For

¹⁰⁸ Frieman, 'Skeuomorphs And Stone-Working', p. 3.

¹⁰⁹ Cass and Lauer, 'Media Transitions', p. 254.

¹¹⁰ Timothy Taylor, cited in Catherine Frieman, 'Imitation, Identity and Communication: The presence and problems of skeuomorphs in the Metal Ages,' in *Lithic technology in metal using societies: Proceedings of a UISPP Workshop*, ed. by Berit Valentin Eriksen (Aarhus: Jutland Archaeological Society, 2010), pp. 33-44 (p. 35).

¹¹¹ Frieman, 'Skeuomorphs And Stone-Working', p. 17.

¹¹² Myres, *Who Were the Greeks?*, p. 229.

example, a craftsman skilled in basketry does not imitate ‘old basket patterns’¹¹³ when working with clay, but simply draws on her materials knowledge – her ‘tacit knowing,’ to cite Michael Polanyi – in her approach to a different material context.¹¹⁴ This is not intentional, argues Polanyi, but rather the effect of ‘dwelling in’¹¹⁵ the techniques of basketry so much so that those techniques inform all future interactions with materials. The techniques of basketry become the virtual imperative to working with ceramics.

Likewise, archaeologist Linda M. Hurcombe fleshes out the imitative paradigm of the skeuomorph in *Perishable Material Culture in Prehistory* (2014), in which she performs a reverse archaeology on the craft materials that are absent from the material record, what she calls ‘the missing majority’.¹¹⁶ Hurcombe focuses on the evidential value of those materials that endure, but that demonstrate the past presence of organic materials that have since deteriorated, such as textiles. She writes: ‘Impressions of perishable materials in fired clay occur in a number of ways: by accident, deliberate decorative impressions or incidental production-related activities,’¹¹⁷ citing the skeuomorph as evidence of this material impressionability. Hurcombe’s particular focus is the ‘inter-craft relationships’ of the skeuomorph;¹¹⁸ as such, she is able to intuit the plied-basket-forms that figure as traces on ceramic skeuomorphs, through a back-to-front process of deduction. Here, the resemblance of the skeuomorph to its material “other” makes it crucial to archaeologists seeking to establish a more nuanced understanding of cross-material relationships. Reading Hurcombe in relation to Myres suggests that there is conceptual (and constructive) latitude to the imitative paradigm in the context of the skeuomorph, one that speaks to the interaction of craft methods across material practice. It is *exactly* this capacity of the skeuomorph that needs strengthening in the present context, in which the imitation paradigm prevails.

¹¹³ Ibid., p. 229.

¹¹⁴ Michael Polanyi, *The Tacit Dimension* (London: Routledge & Kegan Paul Ltd, 1967), p. 9.

¹¹⁵ Polanyi, *The Tacit Dimension*, p. 16.

¹¹⁶ Hurcombe, *Perishable Material Culture in Prehistory*, p. 2.

¹¹⁷ Ibid., p. 14.

¹¹⁸ Linda M. Hurcombe, ‘Translation, transformation and transience: issues in skeuomorphic phenomena’, *WAC 6: Sixth World Archaeological Congress* (University College Dublin, Ireland, 29 June-4 July 2008) <<http://www.ucd.ie/wac-6/>> [accessed 22 September 2016].

In what she deems the ‘economy of imitation’ in relation to the skeuomorph,¹¹⁹ Frieman calls on the work of archaeologists Michael Vickers and David Gill in *Artful Crafts* (1996), who problematise the common perception of Greek painted pottery as a valuable commodity, with the skeuomorph their material aide. *Artful Crafts* examines the socially ascribed value of materials in the context of Ancient Greece and the art historical motives behind the subsequent attribution of value to Attic pottery. Vickers and Gill observe that ‘the value placed on ceramics is a relatively modern phenomenon,’¹²⁰ suggesting that art historians and archaeologists – particularly in the context of the Arts and Crafts Movement with its emphasis on truth to materials – may have profited from the historical fallacy of material value. Instead, Vickers and Gill ascribe the value of ceramic vessels to their ability to imitate precious metal, owing to ‘a “trickle-down effect” whereby fashions created in expensive materials were copied in cheaper.’¹²¹ The skeuomorph is the means by which this interrelation of material value comes to light, with ceramics closely imitating, in form and resemblance, the development of metallurgy.

Their thesis – that ‘plain black glaze evokes oxidized silver’, red-figure pottery recalls ‘ruddy gold’, and ivory was conjured up through white ware – called for a radical reassessment of the value of Greek painted pottery when *Artful Crafts* was first published. In their account, the skeuomorph provides the material evidence of imitation; it is an “accomplice” in this practice of false appearances. The skeuomorph, which they define as ‘the manufacture of vessels in one material intended to evoke the appearance of vessels regularly made in another,’¹²² enables valuable inferences to be drawn about the nature of the original object. Vickers and Gill’s interpretation draws on the work of V. Gordon Childe, who wrote about the basic principles of archaeology in *Piecing Together the Past* (1956). In a discussion of the material record as evidence of human activity, Childe briefly cites the skeuomorph as an object ‘aping in one medium

¹¹⁹ Frieman, ‘Skeuomorphs And Stone-Working’, p. 22.

¹²⁰ Vickers and Gill, *Artful Crafts*, p. 33.

¹²¹ *Ibid.*, p. 54.

¹²² *Ibid.*, p. 106.

shapes proper to another.¹²³ While this disclosure makes clear the usefulness of the skeuomorph in pointing towards the ‘productive activities and artistic media, of which no direct evidence survives,’¹²⁴ it also emphasises the imitative qua deceptive qualities of this category of things. The claim that the skeuomorph entails the unthinking imitation of metallic qualities in stone, of “aping” those qualities proper to another material, has doubtless contributed to its debasement. The ceramic skeuomorph stands in for its metal counterpart, yet it does not intend to make itself known.

Vickers and Gill’s account supports the claim set out at the start that the three paradigms of the skeuomorph are interrelated. Not only were details of the three-dimensional metallic prototype effectively rendered in the two-dimensional painted surface of the clay copy, but also the transference of detail across materials had the potential to cultivate error. The suggestion is that the ceramic record is replete with imperfections and defects. More specifically, the skeuomorph is capable of approximating the material and temporal conditions of its making, rather than indexing them. For example, an oxidised silver surface rendered as a plain black ground in clay involves the misrepresentation of the effects of time; the patina is effectively nullified, and time is ‘bundled together’.¹²⁵ This is not the surface manifestation of years of oxidation, but a shortcut to the future untouched by the past. The skeuomorph has the capacity to distort qua *simulate* its material beginnings and temporal scale. What’s more, as Vickers and Gill maintain, this activity is intentional.

In the same vein, Vickers and Gill describe the naïve translation of metallurgic properties to ceramic vessels, ‘of shapes for which clay is ill-fitted, and of details, such as

¹²³ V. Gordon Childe, *Piecing Together the Past: The Interpretation of Archaeological Data* (London: Routledge & Kegan Paul, 1956), p. 13.

¹²⁴ V. Gordon Childe, *Piecing Together the Past*, p. 13.

¹²⁵ Literary critic Frank Kermode uses the successive tick-tock of the clock to consider our human need for beginnings and ends; specifically, in relation to literary form. What happens in the interval between tick [beginning] and tock [ending], according to Kermode, is *kairos*, or ‘a point in time filled with significance’ – time that is indeterminate as it is the present, as well as conscious of its past and expectant of its future. This ‘bundled together-ness’ of time resonates with the temporal ambiguity of the skeuomorph discussed earlier, and provides a useful metaphor for the concision and complexity of the skeuomorph’s temporality. Frank Kermode, *The Sense of an Ending: Studies in the Theory of Fiction*; The Mary Flexner Lectures, 1965 (New York: Oxford University Press, 1967), p. 46.

rivets, which are functionless.’¹²⁶ This statement seeks to establish the subversive potential of the skeuomorph, as a category of objects that cannot easily be deciphered, or that refuses to give itself away. Just as Hayles invokes the skeuomorph’s ambivalent relationship to time, Vickers and Gill recognise its duplicity, since, as Frieman articulates, ‘they have material access to at least two different worlds of meaning, their own and their prototype’s.’¹²⁷ In this sense, the skeuomorph yields to a variety of meanings; it is temporally *and* materially ambiguous. Vickers and Gill’s skeuomorph reveals an assemblage of details that, in a bid for historical validity, has the potential to obscure the study of history. It is thus easy to see how the skeuomorph has become entangled in the discourse of imitation.

In the context of materials and making, in particular, imitation has a long, and critical history. Archaeologist Chantal Conneller questions the imitative construct in the literature on the skeuomorph, and argues that it has its basis in two foundational concepts of Western ontology: ‘an essentialist view of materials, whereby particular materials occupy discrete, immutable categories; and the privileging of form over material, or representation over reality.’¹²⁸ Conneller argues that the skeuomorph has so far been subjected to a partial interpretation owing to the excessive emphasis on form, and that rather than considering it to be a fixed thing, we should approach the skeuomorph as processual. That is, materials are fluid and changeable, and reveal a complex of similarities rather than differences. Taking ceramist Bernard Palissy’s “imitative” ceramics as an example, Conneller demonstrates that what on the surface appears to be the direct imitation of animal life in clay is, in fact, far more experimental. Instead what he was doing ‘was producing fossils by reproducing the processes whereby fossils were generated.’¹²⁹ Palissy, she claims, was experimenting with process.¹³⁰ With

¹²⁶ Vickers and Gill, *Artful Crafts*, p. 108.

¹²⁷ Frieman, ‘Imitation, identity and communication’, p. 37.

¹²⁸ Chantal Conneller, ‘Deception and (Mis)representation: Skeuomorphs, Materials, and Form’, in *Archaeology After Interpretation: Returning Materials to Archaeological Theory*, ed. by Benjamin Alberti, Andrew Meirion Jones, and Joshua Pollard (Walnut Creek, CA: Left Coast Press, Inc., 2013), pp. 119-34 (p. 120).

¹²⁹ Conneller describes how Palissy’s fascination with chemistry, with experimenting with materials and glazes, incited him to recreate, as diligently as possible, the processes that led to the fossilisation of plants and animals. Conneller ‘Deception and (Mis)representation’, p. 124.

¹³⁰ Silo Studio does likewise, as I set out to describe in Chapter 5.

this simple reversal of thinking, Conneller redeems the skeuomorph from the margins of making: rather than being imitative, the skeuomorph emerges from an exploratory encounter *with* materials. Drawing on Deleuze and Guattari, Conneller states: ‘We need to understand how particular articulations of materials, technology, and knowledge combine to actively produce broader ontologies.’¹³¹

It is this particular facet of the skeuomorph that I intend to explore in the contemporary context. It emerges from an encounter that entails material transformation; an encounter that is temporally complex and purposive, but not necessarily deliberate. It has been my aim with this review to problematise the three main strands of critique of the skeuomorph, as I understand it, and to bring to light the complexities of the concept, as well as the counterarguments that help to redeem it. I propose, in response to claims that the skeuomorph is “immaterial,” “anachronistic,” and “imitative,” that it is an intrinsically material, temporally complex, and tactical mode of making. In order to reclaim the concept, which has, for the most part, been digitally distorted, I will refocus attention on its fabrication, in the maker’s studio and at the workbench, in order to tease out a more nuanced understanding of the skeuomorph as emerging from experimental making practices.

¹³¹ *Ibid.*, p. 124.

3. THE GRAININESS OF THE SKEUOMORPH

3.1. Reviewing the Skeuomorph Through the Lens of Material Thinking

The skeuomorph appears to have had a somewhat muddled start. Scholars rightly attribute it to anthropologist Colley March, although it is clear that there was a significant swell in thinking about objects and ornament in the late-nineteenth century that precipitated debate and reflection. In familiarising myself with the broader theoretical concerns of this period, it was the corresponding theory of “*Stoffwechsel*,” often translated as “material change,” in Gottfried Semper’s writings on material aesthetics from the 1860s that clarified for me the contradictions embedded in the idea of the skeuomorph.¹ Semper’s thesis, which tacitly introduces the skeuomorph in his discussions of the interrelationship between the “technical” and fine arts, is infused with craft thinking in ways that contemporary theorisations of the skeuomorph are not. Through a close reading of extracts from Semper’s *Style* – specifically his ‘Prolegomena,’ which provides the most lucid introduction to his theories – I re-introduce the skeuomorph as an intrinsically crafted facet of the making process. This approach elaborates on the historiographic work of the previous chapter, and refocuses attention on what I believe has been lost to contemporary theorisations of the skeuomorph: that is, material thinking and practice.

Architect and theorist Gottfried Semper is often credited with having brought attention to the material basis of form in the applied arts and architecture, specifically in relation

¹ In the title to his book, Gottfried Semper uses the term ‘practical aesthetics’ as comparable to ‘style’. Practical aesthetics is compelling in the context of this research, as it roots aesthetics – or, what Semper identifies as the ‘formal articulation, detailing, and composition of parts’ – in what is practical and material. Gottfried Semper, *Style in the Technical and Tectonic Arts; or, Practical Aesthetics*, trans. by Harry Francis Mallgrave and Michael Robinson (Los Angeles: Getty Research Institute, 2004), p. 45.

to aesthetics, in his ambitious study *Style in the Technical and Tectonic Arts; or, Practical Aesthetics* (1860–63).² This was not a theory of form based on simple intuition, but rather the ‘tacit knowing’³ of a recognised architect, a practitioner who had thought at length about the specificity of craft techniques to the emergence of form. Semper’s thesis intended to ‘show the development of art-forms from their first motives,’⁴ meaning the motifs appropriate to the four ‘technical arts’ that resurface in architectural production: those in ceramics, carpentry, masonry, and textiles. Each of these practices constitutes a particular set of materials – or, material qualities. As Harry Francis Mallgrave describes in his introduction to the first English edition of *Style*, Semper’s thesis ‘proposed to resurrect from these artifacts [among them, adornment, weapons, weaving, pottery, household and utensils] the “organic life” of their becoming, the process of their symbolic development, and their significance for contemporary practice.’⁵ This was a theory rooted in craft, and it is here, I argue, that we find the first echoes of a more nuanced theory of the skeuomorph. I take Semper’s text as an alternative starting-point to Colley March’s, and propose that in order to redress the imbalance of contemporary theorisations of the skeuomorph we need to think through craft.⁶

3.1.1. The Influence of Materials and Process on Form

The ‘Prolegomena’ to Semper’s *Style* opens with a temporal proposition: that, at the time of writing, artistic production was undergoing a change. Semper was sensitive to the effects of an industrialising society on production, ‘a crisis wrought by the twin

² See, for example, Alina Payne, *From Ornament to Object: Genealogies of Architectural Modernism* (New Haven: Yale University Press, 2012) and in particular ‘Chapter 1: Semper’s Heritage’, pp. 25–64; and Alice A. Donohue, ‘Material, Technique, and Form,’ in *Greek Sculpture and the Problem of Description* (Cambridge: Cambridge University Press, 2005), pp. 62–87.

³ Michael Polanyi, *The Tacit Dimension* (London: Routledge & Kegan Paul Ltd, 1967).

⁴ Semper cited in Harry Francis Mallgrave, ‘Introduction’, in *Style*, pp. 1–67 (p. 15).

⁵ Mallgrave, ‘Introduction’, p. 3.

⁶ This proposal to ‘think through craft’ refers specifically to Glenn Adamson’s book of the same title, and acknowledges the significant influence of his teaching and writing on my interest in craft-based research. See Glenn Adamson, *Thinking Through Craft* (Oxford; New York: Berg, 2007); *The Craft Reader* (Oxford: Berg, 2010); *The Invention of Craft* (London: Bloomsbury, 2013); and Glenn Adamson and Julia Bryan-Wilson, *Art in the Making: Artists and their Materials from the Studio to Crowdsourcing* (London: Thames & Hudson, 2016).

agencies of poor artistic education and an abundance of technical and industrial means,⁷ and the implications that had for material aesthetics – or, the principles that condition material form. He sought to extrapolate from the emergent plurality of objects and innovation in materials ‘the fundamentals of an empirical theory of art’⁸ – in other words, to expose the link between materials and form. With this use of the term “empirical,” Semper is proposing a theory of form that is has its basis in practice, rather than being exclusively theoretical. He calls this his “style theory”.⁹ While “style” is a term that appears to conflict with his more materialist concerns, Semper understood style to be dependent on the intrinsic qualities of materials and the techniques used to work them: style is a material-technical concern, rather than being characteristic of a particular period or country.¹⁰ It was Semper’s aim to refocus attention on ‘the basic preconditions of form,’¹¹ as opposed to stopping short at extrinsic conditions, such as local influences or artistic convention.¹² This is not to suggest that Semper was unaware of the network of factors that condition form, from intrinsic to extrinsic, but rather that he believed that any stylistic investigation needs to start with the examination of the object’s material make-up and the techniques needed to shape it.

According to Semper, form is not the structuring principle of matter, but is itself informed by ‘the idea, the force, the material, and the means’, that is, by craft.¹³ While Semper does not explicitly use the term “craft” in his thesis, his invocation of ideas, material forces and properties, and different processes of making resonates with contemporary theorisations of craft as a series of interrelated actions undertaken with

⁷ Mallgrave, ‘Introduction’, p. 18.

⁸ Semper, ‘Prolegomena’, in *Style*, pp. 71-100 (p. 71).

⁹ *Ibid.*, p. 72.

¹⁰ Art historian Henri Focillon helpfully describes the generic meaning of “style” thus: ‘Conceived as an absolute, style is not only a model, but also something whose validity is changeless. [...] In utilizing style as an absolute, we give expression to a very fundamental need: that of beholding ourselves in our widest possible intelligibility, in our most stable, our most universal aspect, beyond the fluctuations of history, beyond local and specific limitations.’ Henri Focillon, *The Life of Forms in Art* (New York: Zone Books, 1992), p. 46.

¹¹ Semper, ‘Prolegomena’, p. 72.

¹² We can analogise the focus on extrinsic factors to the sociologist’s preoccupation with the designer’s response to a brief, or the critic’s preoccupation with context. While both are valid approaches, they provide insights into just one aspect of material production.

¹³ ‘Style theory [...] sees beauty as a *unity*, as a product or a result, not as a sum or a series. It looks for the constituent parts of form *that are not form itself* but rather the idea, the force, the material, and the means – in other words, the basic preconditions of form.’ Semper, ‘Prolegomena’, p. 72.

intention: as a process rather than a thing. This interpretation is supported by Semper's assertion that his purpose was to demonstrate *how* a particular art form comes into being, rather than to focus on *what* it is.¹⁴ Glenn Adamson articulates this self-same dimension of craft as a "habit of action":

Rather than presenting craft as a fixed set of things—pots, rather than paintings—[...] craft is an approach, an attitude, or a habit of action. Craft only exists in motion. It is a way of doing things, not a classification of objects, institutions, or people.¹⁵

Likewise, I understand Semper's preconditions of form as a "habit of action," as the capacity to be attuned to specific material attributes, and adopting a particular mode of working with, or expanding on, those attributes. The form of an object is therefore dependent on the intrinsic qualities of its material, the techniques used to work it, and the inventiveness of the maker. It is exactly this potential for materials to be worked, reshaped, and assembled as form that this research into the skeuomorph seeks to redefine: that is, the agency of materials, and the integrity of craft, in the emergence of skeuomorphic form.

In the 'Prolegomena,' Semper sets out the specifics of his thesis: that the four "technical arts" – ceramics, carpentry, masonry, and textiles – each of which comprises specific materials, material properties, and processes of making – are constitutive of the recurrent motifs of form in architecture. In other words, there is an interrelationship between the "technical arts," or techniques of craft, and "the higher realms of art,"¹⁶ such that particular material expressions in the former emerge in the latter. With this proposition, Semper intended to democratise form, to redeem it from philosophical discussions and restore it to the artist, to production, and to the practicalities of making.¹⁷

¹⁴ Semper, 'Prolegomena', pp. 71-72.

¹⁵ Adamson, *Thinking Through Craft*, p. 4.

¹⁶ Semper, 'Prolegomena', p. 72.

¹⁷ *Ibid.*, pp. 71-72.

These “fundamental principles” are determined through craft, through the practicalities of making in response to a specific need, of choosing a material and a technique with which to make something. The making process constitutes a certain degree of resourcefulness and invention. Notably, among the technical arts that Semper lists are ‘household utensils,’ items such as clay bowls, cupboards, and jewel cases that are always in use.¹⁸ Utensils are useful items: everyday objects that are used to implement specific tasks, such as eating or storing, and that are repeatedly fashioned from the materials that are to hand. The suggestion that architectural form has evolved from such practical artefacts is radical in itself, but even more significant in light of this research is the corresponding evocation of utensils in Colley March’s invented term, the “skeuomorph”.

In section 1.2, I described how Colley March attached the prefix “skeuos” (σκεύος) the Greek term meaning “utensil, implement,” to “morphē” (μορφή) meaning “form”.¹⁹ ‘Structure-form’ is the variant form of the term ‘skeuomorph’ that Colley March consistently deploys in his writing,²⁰ yet this modification belies its relation to “σκεύος,” to utensils, and, arguably, to Semper’s thesis. While we cannot be certain that the skeuomorph had its genesis in Semper’s theories, it is highly likely that Colley March, like many of his contemporaries, was stimulated by the ideas presented in *Style*; in particular, the belief that ornamenting objects was a necessary human endeavour. Certainly, Alina Payne argues that Semper’s theories gave new impetus to the discourse on objects and ornaments in relation to human social development, and that among the practitioners influenced by Semper were Colley March and Alfred C. Haddon, both anthropologists, who have written treatises on the skeuomorph.²¹ There is, in Semper’s treatise, the kernel of an idea about the appearance of forms reminiscent of utensils –

¹⁸ Semper, ‘Style’, pp. 72, 481, & 882.

¹⁹ Henry Colley March, ‘The Meaning of Ornament; or its Archaeology and its Psychology’, *Transactions of the Lancashire and Cheshire Antiquarian Society*, VII (1889), pp. 160-92 (p.166).

²⁰ Colley March, ‘The Meaning of Ornament’, pp. 174 & 183.

²¹ Payne, *From Ornament to Object*, p. 33. Anthropologist Alfred C. Haddon acknowledges his indebtedness to both Colley March and Semper for the belief that ornament has its basis in the technical arts. Alfred C. Haddon, *Evolution in Art: As Illustrated by the Life-Histories of Designs* (London: Walter Scott, Ltd., 1895), p. 75.

whether the means of binding a handle, or the traces of 'beaten metal or fired clay [in] stone'²² – that may have galvanised Colley March into response.

In order to understand the significance of this link between “utensils,” or useful things, and the skeuomorph in relation to craft and to making, I draw on Martin Heidegger’s text ‘The Origin of the Work of Art’ (1935), in which he attempts to show that an artwork is not the sole endeavour of the artist, but is a process of revealing the form hidden within matter, matter which is in itself infused with potential. In a section in which he attempts to distil the ‘thingly element’ of all things, both made and found, Heidegger introduces the utensil as a particularly useful thing as distinct from a ‘mere thing’.²³ Heidegger’s text helps to explain the integrity of the utensil, as a particular kind of made thing; and can be used, in the context of my thesis, to restore a degree of purposefulness to the skeuomorph, which has its origins in utensils, as an inferred subcategory of Semper’s technical arts.

Heidegger distinguishes between ‘things of nature’ and ‘utensils,’ between the already-there-ness of natural form – a block of granite, for example – and the capability of useful form, of utensils, among them ‘a jug, an ax [sic], a shoe’.²⁴ He describes how the form of the utensil is infused with the ability to do something, and that ‘it prescribes in each case the kind and selection of the matter’ whether watertight for a jug, or hard for an axe.²⁵ The form of the utensil differs from that of natural matter in its purposiveness; in contrast to a natural thing, the function of a utensil is self-evident. He writes: ‘A being that falls under usefulness is always the product of a process of making’; in other words, it has been purposefully fashioned to perform some task. ‘It is made as a piece of equipment for something.’²⁶ The skeuomorph, reviewed via Heidegger’s ‘utensil-form’,

²² Semper, ‘Style’, pp. 172-73, & 456, fn. 305.

²³ Martin Heidegger, ‘The Origin of the Work of Art’, in *Martin Heidegger: Basic Writings from Being and Time (1927) to The Task of Thinking (1964)*, ed. by David Farrell Krell (Oxon: Routledge, 2011), pp. 83-139 (p. 97).

²³ Heidegger, ‘The Origin of the Work of Art’, pp. 96-97.

²⁴ *Ibid.*, p. 97.

²⁵ *Ibid.*, p. 97.

²⁶ *Ibid.*, p. 97.

is ‘something in-order-to’²⁷ as opposed to being non-functional. It has purpose. If this is so, it lends weight to my argument that the skeuomorph is a “tactical” facet of the making process, and that it should be studied as such.

3.1.2. Semper’s “Stoffwechsel”, or “Material Change”

In practice, then, Semper’s *Style* provides a detailed account of the basic forms and structural configurations common to the four technical arts – ceramics, carpentry, masonry, and textiles – and their progressive influence on architectural form. The basic premise is this: that a design is initiated in a particular material, using a specific set of tools and procedures; it is intended for a particular task, and the choice of materials and tools used to make it is linked to its ability to perform that task. If the object performs that task well, its basic form will be replicated, since it represents ‘the clearest expression’²⁸ of that technical performance – whether for storing water, or for binding. Thus, notes Semper, ‘every technical product is a result of purpose and material.’²⁹ Material, technique, and idea are interconnected. It is the purposefulness of the original design that is maintained in all subsequent iterations. Gradually, therefore, the principles that arise in the technical arts, ‘in their most primitive application,’³⁰ gradually transpose into applied arts and architecture. Architecture draws on the motifs of the technical arts to reproduce the purposefulness of the original construction in, say, ceramics or textiles; the original motifs, therefore, acquire a “structural-symbolic” value.³¹ In his chapter on the technical-historical genesis of form in textiles, Semper provides a lucid example of this kind of material transformation:

For instance, [...] the beautiful marble candelabras and tripods that adorn the Vatican and the Louvre are not art-forms determined entirely by the material (stone) – that is, not forms that had to be adopted by the basic constructional idea in order to satisfy the

²⁷ Martin Heidegger, *Being and Time*, trans. by John Macquarrie and Edward Robinson (London: Blackwell Publishing, 2000), p. 97.

²⁸ Heidegger, ‘The Origin of the Work of Art’, p. 107.

²⁹ Semper, ‘Style’, p. 107.

³⁰ *Ibid.*, p. 106.

³¹ *Ibid.*, pp. 106 & 379.

aesthetic sense – but rather that their formal appearance is determined by the style they still retain from the time when they were made of beaten metal or fired clay, not stone.³²

It serves to remember that, for Semper, “style” does not simply mean the outward appearance of something, but rather the technical, material, and ideal preconditions of form.³³ The marble candelabras of the Vatican formally correspond to their metal counterparts; there is the transference of the candelabra-motif across material contexts, the effectiveness of which depends on the potential for fashioning the same candelabra-motif in a different material. In his ‘Introduction,’ Semper advises the reader that ‘he will encounter certain basic forms [...] that in some cases can be clearly and distinctly seen but in others only dimly so in a secondary or tertiary transformation,’³⁴ his argument being that, depending on the context within which it is encountered, form either demonstrates the specificity of its making, as a form of present-ness, or gestures towards its origin, as a form of past-ness. In other words, it tells of its own history.

This telling-ness of form is significant to the skeuomorph for two reasons. First, the form objectifies the processes of its making; as cultural theorist Pierre Lévy declares, ‘it traces the situation’.³⁵ This notion of artistic form as an act of disclosure enables makers and researchers to work backwards from the final object-form to learn about the specifics of its genesis; Semper enjoins us to approach the final form as the actualisation of the interplay between ideas, materials, and processes of making. Second, form is telling of its own history, the time of its own making. This is what I mean when I say that form is representative of “present-ness” and “past-ness,” of “before” and “after”: form is an aggregate of times. This simple act of refocusing on the genesis of form via craft, on its material and temporal conditions, gives ‘grain’ to the object.³⁶ I purposefully

³² Ibid., pp. 456, fn. 305.

³³ Mallgrave, ‘Introduction’, p. 18.

³⁴ Semper, ‘Style’, p. 106.

³⁵ Pierre Lévy, *Becoming Virtual: Reality in the Digital Age*, trans. by Robert Bononno (New York and London: Plenum Trade, 1998), p. 162.

³⁶ It is Kristen Kreider who first introduced me to the idea of the ‘grain’ in her doctoral thesis on material poetics. Drawing directly from Roland Barthes’s essay ‘The Grain of the Voice’ (1972), Kreider argues that there is a ‘specific

use the word “grain,” here, as it indexes the materiality and temporality of the object. If we think of wood, it is the grain that gives it texture – that evidences its materiality – and it is the grain that is representative of its time-making; time is visible in the patterning of fibres that grow concentrically from its centre.³⁷ Conceptually, then, the “grain” embodies the twofold concerns of this thesis, as well as linking in with the craft-based disposition of the research. It the so-called “graininess” of the skeuomorph, its tangible material and temporal values, that, via craft thinking, I seek to re-examine.

It is, however, Semper’s notion of *Stoffwechsel*, or “material change” that chimes most with my research, since the skeuomorph is a particular *kind* of made thing. The concept of the “skeuomorph” was intended, in its original manifestation, to denote the origin of ornament derived from structure, which is then reconstructed in a different material context. The example given by Colley March is the binding used to structure an axe – the leather-thong-as-binding reimagined in cast bronze. A change of material context is the necessary precondition of the skeuomorph. With this precondition in mind, Semper introduces the concept of *Stoffwechsel* in his chapter on the figurative use of materials in the development of architecture.³⁸ It is through *Stoffwechsel* that he recognises the potential split between originating material and motif, between the origin of form, in this instance in textiles, and its reapplication in architecture; and it is this split that, I argue, gestures towards the skeuomorph. This is not to suggest that *Stoffwechsel* is interchangeable with the concept of the skeuomorph, or that Semper is responsible for it, but that the circumstances of *Stoffwechsel* approximate those of the skeuomorph.

This passage from *Style* on the subject of material change is, to my mind, particularly appropriate to the study of the skeuomorph, to our understanding of the origin of ‘structure-form’, that I transcribe it in full:

material quality or “grain” to speech and writing, since both are embodied acts; the body that performs is inscribed *within* the event of speech or writing. Kristen Kreider, ‘Toward a Material Poetics: Sign, Subject, Site’ (doctoral thesis, University College London, 2007), p. 56. See also Kristen Kreider, *Poetics and Place: The Architecture of Sign, Subjects and Site* (London: I. B. Tauris, 2014).

³⁷ This is not to suggest that, as it does within wood grain, time takes form concentrically within objects. I simply use grain as a metaphor for the taking time of objects more broadly. I discuss the time and temporality of the skeuomorph in more detail in section 3.2.4.

³⁸ Semper, ‘Style’, pp. 250-53.

A particular method of artistic representation is inherent in each material because each has properties that distinguish it from other materials, and each demands its own treatment or technique. When an artistic motive undergoes any kind of material treatment, its original type will be modified; it will receive, so to speak, a specific coloring. The type is no longer in its primary stage of development but has undergone a more or less pronounced metamorphosis. If the motive undergoes a new change of material [*Stoffwechsel*] as a result of this secondary or even multiple transformations, the resulting new form will be a composite, one that expresses the primeval type and all the stages preceding the latest form.³⁹

Semper's belief that a material "has properties that distinguish it from other materials" and so "demands its own treatment" corresponds with Heidegger's interpretation of the thingliness of things cited earlier;⁴⁰ but also, more importantly, it suggests that there is a direct connection between the workability of materials and the feasibility of form. In other words, material change is only possible if the two materials, the "before" and "after," share some intrinsic material properties, be it plasticity or tensile strength. That is not to deny that, on account of this transformation, the motif receives "a specific coloring" – that it acquires characteristics in addition to those of the originating material, becoming a "composite" – but that for the transformation of the artistic motif to be effective, there must be similitude between materials. Otherwise, the transformation cannot take place. Furthermore, it is the technique that is facilitative of this transformation, in concert with the adaptability of the material. It is the method of making that sets the transformation in motion.

We can think of the technique of casting. A precondition for casting is a liquid material that solidifies, with time, within a mould. This precondition delimits the choice of materials that can be cast. In *Materials and Design* (2002), Mike Ashby and Kara Johnson reassert the importance of matching material properties with methods of

³⁹ Semper, 'Style', p. 250.

⁴⁰ Heidegger, 'The Origin of the Work of Art', pp. 83-139; see also Martin Heidegger, *What Is a Thing?*, trans. by William Bryan Barton and Vera Deutsch (Chicago: Henry Regnery Co., 1967).

making, stating that: ‘Processes must be matched to materials – the processes that can shape or join polymers differ from those that can do the same to ceramics or glasses or metals, and even within this family, the process must be matched to the polymer type.’⁴¹ What Semper intended with *Stoffwechsel*, and what Ashby and Johnson reaffirm, is not that materials are bound to certain forms, or that there is a right and wrong application for materials – which accords with the “truth-to-materials” tenet that underpins modernist design thinking –, but rather that it is the material properties that determine form, and that those properties are common to a variety of materials. In other words, a material does not have a particular set of forms that is “proper” to it, but rather a technical potential – that is, a potential to be crafted in multiple ways. It is the shared properties of materials that allow for the transference of form.

3.1.3. Craft Thinking and the Skeuomorph

Where Semper was able to appreciate the “naturalness” of this material change, contemporary theorists have tended to feel uneasy about it. Instead of a mode of making that is demonstrative of its materiality,⁴² time making, and craft, we have a skeuomorph that is “immaterial,” “anachronistic,” and “imitative.” It is, therefore, with recourse to Semper’s thinking, to his nuanced understanding of the potential for material change – as a viable facet of the making process – that we can begin to retexture the skeuomorph. Semper’s theories are brought to bear in an effort to extend material thinking and practice to the academic, philosophical, symbolic, and historiographic interpretations of the skeuomorph. Thinking along the lines of *Stoffwechsel* can help to restore a degree of legitimacy to it. The skeuomorph is possible because materials are workable – because of the intrinsic potential of materials to be processed in multiple ways. The skeuomorph is not, as its critics would like us to believe, an imposter in another material context, but rather a mode of material encounter. There is a subtlety to Semper’s concept of material

⁴¹ Mike Ashby and Kara Johnson, *Materials and Design: The Art and Science of Material Selection in Product Design* (Oxford; Boston: Butterworth–Heinemann, 2002), p. 89.

⁴² Here, I concur with Michael Ann Holly’s definition of materiality as the ‘meeting of matter and imagination’ – the idea that materiality constitutes the material and the ideas that in-form and structure it, as a kind of ‘material presence’. I expand on this in section 3.2.3. Michael Ann Holly cited in Martha Rosler et al., ‘Notes from the Field: Materiality’, *The Art Bulletin*, 95:1 (2013), pp. 10-37 (pp. 15-16) <<http://10.1080/00043079.2013.10786104>>.

change that is capable of recovering the decidedly crafted, and legitimate, origins of the skeuomorph. I concur with Chantal Conneller that an essentialist view of materials appears to persist in the present context, despite continual innovation in materials and process;⁴³ we can, pace Semper, redress the material-technical imbalance in the theorisation of the skeuomorph.

It is this aspect of Semper's theories that is stimulating in the context of this research, as it lends weight to my argument for a craft-based revision of the concept of the skeuomorph for material practice. Contemporary theorisations of the skeuomorph comprise little, if any, reference to craft-based thinking and yet it is exactly these conditions that, following Semper, engender skeuomorphic form. It is Semper's particular sensitivity to craft, and to the material conditioning of form, that has contemporary resonance.⁴⁴

Rereading Semper in the present context of my research has confirmed the need to take a craft-led approach to the study of the skeuomorph. By "craft-led" I simply mean to delimit the conditions of the research to those that relate directly to making – to the material conditions of production, to technique and facture, and to materials and their properties – as distinct from social practices, cultural transmission, or reception. The skeuomorph is not in need of additional analysis of its social function or purpose, but instead needs revitalising as a tactic of making, as a circumstance of craft. The skeuomorph has become an interpretative principle that borrows from the archaeological understanding of the term, rather than a mode of material transformation in and of itself. It remains a "dead husk" emptied of any creativity.

Notably, Semper himself identifies the 'splitting' off of art into different conceptual factions – 'materialism, historicism, and schematism' – and notes how this 'separates

⁴³ Chantal Conneller, 'Deception and (Mis)representation: Skeuomorphs, Materials, and Form', in *Archaeology After Interpretation: Returning Materials to Archaeological Theory*, ed. by Benjamin Alberti, Andrew Meirion Jones, and Joshua Pollard (Walnut Creek, CA: Left Coast Press, Inc., 2013), pp. 119-34.

⁴⁴ Furthermore, adopting Semper's line of thinking admits to the relevance of past thinking in the present, and enacts, in the methods of research, the same temporal folding that this research intuits as a capacity of the skeuomorph.

more that it connects or compares.⁴⁵ The materialists, he argues, reduce artistic form to the agency of the material from which it is made, when the material is but one element in the materialisation of form. The historicists, conversely, attribute artistic form to historical convention and transmission, and overlook the influence of materials in the moment of their making. In other words, for historicists, the material is immaterial. He writes: ‘In a certain sense the historicists and the materialists are opposites, although both schools depreciate the present and tradition.’⁴⁶ This statement is insightful as it reinforces the positive attributes of a craft-led approach, one that constitutes traditional making practices as well as those in the here and now; there is the simultaneity of past time and present time in craft. Lastly, are the schematists, or philosophers, whom Semper describes as devising complex aesthetic theories devoid of practice, and for whom ‘the appreciation of art is an intellectual exercise.’⁴⁷ Like the historicist, the schematist also neglects the messy materiality of form, and in doing so, impoverishes and debases it. In an effort to redress this conceptual split, Semper proposes that we attend to the material-technical genesis of form, to the specific techniques and methods of craft that generate form.

Thus, I propose to adopt some of Semper’s methods in this examination of the skeuomorph; in particular, his proposition that form can be understood as the synthesis of ideas, material force, materials, and methods – that is, craft. Form is also a temporal process; it is responsible for its own ‘time-making’ and ‘temporality’.⁴⁸ These particular concerns of making – materiality, temporality, and taking on form – form the basis for this research into the “graininess” of the skeuomorph.

⁴⁵ Semper, ‘Prolegomena’, p. 77.

⁴⁶ *Ibid.*, p. 78.

⁴⁷ *Ibid.*, p. 80.

⁴⁸ Benedikte Zitouni, ‘Shuffling Times’, *First PARSE Biennial Research Conference on TIME* (University of Gothenburg, Sweden, 4-6 November 2015).

3.2. Re-Examining the Skeuomorph in the Contemporary Context

My aim in section 3.2 is to flesh out the specific concerns of this research into the skeuomorph, as it relates to experimentation and interacting craft methods. I intend to theoretically explore each of these concerns – materiality, temporality, and vitality – in turn, drawing on theories from across disciplines⁴⁹ – from material culture studies, craft theory, theories of time, process philosophy, and textile studies – to demonstrate that it is the material, temporal, and vital complexities of the skeuomorph that ensure its relevance to contemporary material practice, in which practitioners continue to experiment with materials and techniques. I use Hella Jongerius's *Soft Urn* (1994) as a jumping-off point, an object that is paradigmatic of the decentering of medium-specific approaches to making (fig. 6). *Soft Urn* is representative of material transformation, and serves to briefly introduce the theoretical scope of the concept of the skeuomorph to material practice.

In 1994, Dutch designer Hella Jongerius exhibited her *Soft Urn*, a vase that contrasted the flexible strength and softness of polyurethane foam with a conventional vessel form, at *Fuorisalone*, Milan.⁵⁰ This was the young designer's initiation into manufacture under the aegis of Droog, a design collective formed by Renny Ramakers and Gijs Bakker in 1993, who then worked in collaboration with Development Manufacturing Distribution to fabricate products that 'change the status quo and cunningly deceive our expectations.'⁵¹ Jongerius's *Soft Urn* supplements the structural logic of the vessel form with the infinite flexibility of polyurethane, and this peculiar alliance is made manifest in the casting seam.⁵² Design historian Timo de Rijk describes Jongerius's approach to materials as 'surrealist' with its 'combination of a context that is partly familiar and partly new':

⁴⁹ It is for this reason that I describe this research as "interdisciplinary," since I draw *simultaneously* from a range of disciplines.

⁵⁰ *Fuorisalone* is an exhibition that runs in conjunction with *Salone del Mobile Milano*, the annual furniture fair in Milan, Italy.

⁵¹ *Droog Design: Spirit of the Nineties*, ed. by Renny Ramakers and Gijs Bakker (Rotterdam: 010 Publishers, 1998), p. 15 [emphasis mine]. For more on Droog see Renny Ramakers, *Less + More: Droog Design in Context* (Rotterdam: 010 Publishers, 2002); and Ida van Zijl, *Droog Design, 1991-1996* (Utrecht: Centraal Museum, 1997).

⁵² This material transformation is manifested in Droog's advertising imagery (fig. 6).



Figure 6.
(Above) **Soft Urns** in situ, Jongeriuslab, Rotterdam. Reproduced from Louise Schouwenberg, *Hella Jongerius* (2003).

(Below) **Hella Jongerius** – *Soft Urn*, soft polyurethane, H 23 cm, 1993.

Courtesy Collection
Boijmans Online



The Urn is notable in presenting a generic model, without any definite, historically determined roots. Its form, however, is unmistakably that of a wheel-thrown vase. The very visible casting seams refer, in turn, to slapdash manufacture using a mould, most commonly associated with cheap industrial production.⁵³

What de Rijk 's review picks up on is that *Soft Urn* is replete with material, temporal, and formal contradictions. It is neither derivative of ceramics, nor of plastics manufacturing, but is a specific *kind* of thing; it is historical, ahistorical, and contemporary simultaneously. It is formed in a mould, while, at the same time, manifesting the centrifugal force that shapes a wheel-thrown form. It is the heterogeneity of *Soft Urn* that deems it “skeuomorphic”. That is, it brings together a heterogeneous combination of material qualities, and in doing so, shows itself at the centre of cross-craft experimentation in material practice. This example demonstrates how the skeuomorph complicates the enduring notion of material-specificity, or ‘integrity,’⁵⁴ and, more importantly, equips material practitioners with a new mode of engaging critically with objects. I propose that the skeuomorph is revealing of interacting materials and methods, and that it is *in the making* that it can be most carefully interpreted. As Glenn Adamson argues, understanding what has gone into the making of objects allows for a ‘renewed appreciation’ of them.⁵⁵

To begin, I will contextualise my approach within the specific timeframe of the “contemporary”, taking into account the recent “material turn” in the arts and humanities that calls for the reinstatement of materials and materiality to theorising objects. Thus, in section 3.2.1, I set out to define this timeframe as it relates to material practice, and to discuss some of its characteristic aspects, before exploring the complexity of the interrelated themes of materiality, temporality, and vitality that

⁵³ Timo de Rijk, ‘So-called Craft: The Formative Years of Droog Design, 1992-1998’, *The Journal of Modern Craft*, 3: 2 (2010), pp. 161-78 (pp. 173-74).

⁵⁴ Ashby and Johnson, *Materials and Design*, pp. 78-79.

⁵⁵ Glenn Adamson, ‘Looking at Craft: Upside Down, Backwards, and Inside Out’, *Garland Magazine* <<http://garlandmag.com/article/looking-at-craft-upside-down-backwards-and-inside-out/>> [accessed 25 June 2016].

demarcate this research into the skeuomorph in sections 3.2.2 through 3.2.4. Here, I draw on contemporary theoretical discourse, as well as acknowledging its theoretical foundation in the work of philosophers such as Martin Heidegger and Gilbert Simondon. I close section 3.2 with a theoretical proposition for “materialised time” as a distinct facet of an object’s temporality that enables a more nuanced interpretation of the temporal complexity of the skeuomorph.

3.2.1. “New Materials” and Contemporary Material Practice

There is, I believe, an interesting parallel to be drawn between the expansion of materials and structural methods in the nineteenth-century, out of which the skeuomorph emerged, and that of contemporary material practice. While it was the possibilities of materials such as glass and cast iron that galvanised interest in the mid to late-nineteenth century, it is the expansion of the ‘functional, sensorial, and technical capacities’ of already-familiar materials, as well as the potential of new composites, algorithms, and robotics that defines contemporary material practice.⁵⁶ It is this parallel to the present that helps validate this research into the skeuomorph: material expansion is common to both contexts. In *Materials and Design* (2002), Mike Ashby and Kara Johnson explore the practicality of materials in the twenty-first century, arguing that not only are there ‘new materials,’ such as ‘light-emitting polymers’ and ‘amorphous metals,’ but also new approaches to more commonplace materials;⁵⁷ both materials science and experimentation engender novelty. Likewise, Susanne Küchler describes a situation in which ‘all materials are potentially new,’⁵⁸ owing to our increased ability to manipulate the intrinsic qualities of materials. Küchler distinguishes between ‘designed materials,’ which ‘no longer fit existing classificatory paradigms’ and ‘smart materials’ that ‘are now the functioning thing itself,’⁵⁹ that is, materials that are “agentic” and respond to external stimuli, such as temperature or moisture. A good example is the shape-memory

⁵⁶ Susanne Küchler, ‘Materials and Design’, in *Design Anthropology: Object Culture in the 21st Century*, ed. by Alison Clarke (Wien; New York: Springer, 2011), pp. 124-35 (p. 125).

⁵⁷ Ashby and Johnson, *Materials and Design*, p. 157.

⁵⁸ Küchler, ‘Materials and Design’, p. 127.

⁵⁹ *Ibid.*, pp. 128 & 124.

materials used in both fashion and medicine. What unites new materials is their expanded functionality; these are materials that have been “engineered” to perform a specific task.

Ezio Manzini examines the transformative potential of materials in design and manufacture in *The Material of Invention* (1989), in which he declares – with respect to what was deemed a more dynamic phase of manufacturing – that ‘Material is being “intellectualised”’.⁶⁰ There is no longer the right material, he argues, but rather a ‘continuum of possibilities’.⁶¹ Manzini draws attention to the relativity of the term “new” when describing materials – which comprise both novel materials and new configurations of more familiar materials, – as well as their possible emergence across the spectrum of material practice, from the research laboratory to the packaging industry: ‘[New materials] may spring from any point in the design and manufacturing system in which the new culture of materials is interwoven with creative capacities.’⁶² Manzini draws attention to a number of known objects – from Jonathan de Pas’s *Blow* (1967) (fig. 7), an inflatable polyvinyl chloride (PVC) chair that marked the shift away from “heavy” furniture, to Daniel Weil’s iconic *Radio in a Bag* (1981) (fig. 8) that strips the analogue “radio” of its established, box-like form – to demonstrate the limitless scope of materials. This freeing up of materials from conventional form – ‘glass to make a lightbulb, wood to make a roller-blind’⁶³ – characterises the contemporary context within which we encounter the heterogeneous skeuomorph.

Manzini’s *The Materials of Invention* introduces “newness” as a relative concept. It depends on difference and context. The newness of new materials owes much to different ways of processing, rather than *entirely* new materials; it is possible to composite or manipulate specific properties of already-existing materials in the search for newness. Linked to this is the idea that contemporariness does not automatically equate with newness. Certainly, newness has been enfolded in the skeuomorph

⁶⁰ Ezio Manzini, *The Material of Invention: Materials and Design* (Cambridge, MA: MIT Press, 1989), p. 15.

⁶¹ Manzini, *The Materials of Invention*, p. 38.

⁶² *Ibid.*, p. 42.

⁶³ *Ibid.*, p. 40.



Figure 7.
Jonathan de Pas
– *Blow armchair*,
clear PVC
(polyvinyl chloride)
with a removable
seat cushion and
an air pump, H
75 cm x W 101
cm x D 90 cm,
manufactured in
2010; designed in
1967.

Courtesy Victoria
and Albert
Museum, London



Figure 8.
Daniel Weil
– *Radio in a Bag*,
transistor radio
components in
a printed plastic
(PVC) bag, H 29 cm
x W 20.7 x D 3 cm,
1981.

Courtesy Victoria
and Albert
Museum, London

throughout its “career,” but what is new is evident in both historical and contemporary examples. As Ashby and Johnson make clear, “The use of an old material in a new setting can make it seem new, re-stimulating excitement in its potential.”⁶⁴ And second, that research in the context of new materials does not necessitate starting in the twenty-first century, but can, theoretically, start much earlier. Here, I define “contemporary material practice” as the period from 1980s onwards; in other words, within my own lifetime. This temporal bracketing relates to my own experience and does, therefore, provide a conceivable framework for this research project on material practice. In addition, this timeframe roughly corresponds with the ‘interdisciplinarity of postmodern practice’ with its ‘slipperiness’ of styles, and the ‘conscious departure’ from modernism.⁶⁵ Given its ambiguous status, the skeuomorph seems suited to a period of such fluidity.

Here, I examine a range of examples that are not fabricated from so-called “smart materials,” but from more prosaic materials that have been manipulated, or transformed for specific ends. This is where the emphasis on experimentation comes into play; these objects are fabricated from materials that have been skilfully processed using the techniques, or technical know-how, normally associated with other disciplines, for example, textile techniques for metalwork.⁶⁶ I recognise the transformative potential of materials, and the transference of skill, as a requisite to experimentation, as well as being the wellspring of the skeuomorph. It is for this reason that I have chosen to re-examine the skeuomorph through the exact-same conditions that condemn it – materiality, temporality, and vitality – but also to nuance these conditions through a sensitivity to craft and to making, that is, with a focus on specific material properties, on the taking time of form, and on the ‘cross-pollination’ of craft processes.⁶⁷

⁶⁴ Ashby and Johnson, *Materials and Design*, p. 157.

⁶⁵ *Postmodernism: Style and Subversion, 1970-1990*, ed. by Glenn Adamson and Jane Pavitt (London: V&A Publishing, 2011), p. 10.

⁶⁶ This is the case with Arline Fisch, who works primarily with textile techniques, such as knitting and crochet, to manipulate wire structures. Fisch’s work is discussed in more detail in Chapter 6.

⁶⁷ ‘Cross-pollination’ is a term used by Ashby and Johnson to describe the process whereby ‘developments in one field can be adapted for use in another where it was previously unknown’, as a form of innovation in contemporary design. Ashby and Johnson, *Materials and Design*, p. 127.

3.2.2. The Vitality of Things

Here, I return briefly to Jongerius's *Soft Urn*. It is clear that what makes *Soft Urn* so ambiguous an object is the visible disjuncture between a wheel-thrown form and the flexibility of polyurethane foam, an incongruity that is conspicuous in the casting seam. The wheel-thrown form is assumed to be rigid; the polyurethane foam denies it that aspect. It is the trace of the casting process that reveals its method of construction. That is, it is the polyurethane foam that reveals the form as mould-made, rather than wheel-thrown, and that modulates, or gives "grain" to, the outward form of the vase. This material quality reveals itself in the casting seam, in the imprint of the making process on the finished form.⁶⁸ It is the materiality of *Soft Urn* that discloses its particularity, not the vase form itself.

The emphasis on outward form that predominates in the discourse on the skeuomorph is, as we learned in Chapter 2, implicit in the mistrust of the digital-book format, and it is the fundamental premise of Chantal Conneller's reassessment of Bernard Palissy's ceramics.⁶⁹ The overemphasis on form has been subject to critique in recent years in material culture studies, social sciences, and humanities,⁷⁰ most notably by anthropologist Tim Ingold, who calls for a re-engagement with materials, 'the tangible stuff of craftsmen and manufacturers,'⁷¹ which he maintains are glossed over in academic literature. In alliance with Ingold, I subscribe to the "material turn" that contests the tendency to overlook matter – or what Esra Atamer helpfully calls the

⁶⁸ Glenn Adamson argues that it is in attending to details, in 'decoding the process', that objects reveal themselves to us. Adamson, 'Looking at Craft'. See also, in relation to architecture, Marco Frascari, 'The Tell-the-Tale Detail', *VLA 7: The Building of Architecture* (1984), pp. 23-37.

⁶⁹ See Dino Franco Felluga, 'The Victorian Archive and the Disappearance of the Book', *Victorian Studies*, 48: 2 (2006), 305-319 <<http://doi.org/10.2307/3830254>>; and Conneller, 'Deception and (Mis)representation', pp. 119-34.

⁷⁰ For more on the so-called "material turn" in material culture studies, social sciences, and humanities see *Materiality*, ed. by Daniel Miller (Durham, NC: Duke University Press, 2005); Tim Ingold, 'Materials Against Materiality', *Archaeological Dialogues*, 14: 1 (2007), pp. 1-16 <<http://doi.org/10.1017/S1380203807002127>>; Diana Coole and Samantha Frost, *New Materialisms: Ontology, Agency, and Politics* (Durham; London: Duke University Press, 2010); *Visuality/Materiality: Images, Objects and Practices*, ed. by Gillian Rose (Farnham: Ashgate Publishing, 2012); and *Digital Anthropology*, ed. by Heather A. Horst and Daniel Miller (London: Berg, 2012).

⁷¹ Ingold, 'Materials against materiality', p. 2.

‘excluded middle’⁷² – in discussions about objects, and draws attention to the agency of materials. I argue that focusing on the outward form of the skeuomorph only tells part of the story; a lot more can be learnt from beneath its surface, or, as Atamer claims, from the ‘subterranean processes that occur within it’.⁷³ This idea resonates with the widespread conception of material agency among materials specialists and theorists,⁷⁴ as well as among makers themselves.⁷⁵ I aim to re-examine the skeuomorph from the ‘inside out’.⁷⁶

In ‘On weaving a basket’ (2000), Ingold sets out to adjust our thinking about artefacts as static, mute things by demonstrating the symmetry between making and growing. Living things, he asserts, carry within their heredity material, in their genes, ‘the information specifying [their] design,’⁷⁷ whereas with artefacts, it is assumed that this “information” is imposed from without, as a force exterior to the material: “Thus, the world of substance – of brute matter – must present itself to the maker of artefacts as a surface to be transformed.”⁷⁸ What is implicit in this statement is that makers have the capacity to act on matter, to transform it, and that human agency is more instrumental than matter; the maker’s idea is simply inscribed onto the surfaces of matter. Art historian Petra Lange-Berndt makes the same argument. She attributes the shortcomings of art and design history to the perpetuation of the mind-matter dualism: ‘For some, to engage with materials still seems the antithesis of intellectuality, a

⁷² Esra Atamer, ‘Dissipative Individuation’, *Parrhesia*, 12 (2011), pp. 57-70 (p. 60).

⁷³ Atamer, ‘Dissipative Individuation’, p. 60.

⁷⁴ See, for example, Alfred Gell, *Art and Agency: Towards a New Anthropological Theory* (Oxford: Clarendon Press, 1998); *Materiality*, ed. by Daniel Miller (Durham, NC: Duke University Press: 2005); *Material Agency: Towards a Non-Anthropocentric Approach*, ed. by Carl Knappett and Lambros Malafouris (New York: Springer, 2008); and *The Social Life of Materials: Studies in Material and Society*, ed. by Adam Drazin and Susanne Küchler (London and New York: Bloomsbury, 2015).

⁷⁵ Makers are particularly attuned to the specific qualities of materials, and how those materials respond in the process of forming, or shaping them; materials are not passive entities but “live” and diverse, and determine form as much as the maker herself does. For a particularly dramatic example of this, see Glithero’s flammable-paint installation *Burn Burn Burn for Jerwood Encounters: Formed thoughts*, Jerwood Space, London, 18 January-26 February 2012; and Keith Harrison’s performance *Lucie Rie vs Grindcore* as part of his 2012 Ceramics Residency at the Victoria and Albert Museum, London, October 2012-March 2013. Glithero, ‘Burn Burn Burn’ <<http://www.glithero.com/burn-burn-burn>> [accessed 13 March 2017]; and Keith Harrison, ‘Lucie Rie vs Grindcore’ <<http://www.keith-harrison.info/works/lucierievgrindcore.html>> [accessed 13 March 2017].

⁷⁶ Adamson, ‘Looking at Craft’.

⁷⁷ Tim Ingold, ‘On weaving a basket,’ in *The Perception of the Environment: Essays on livelihood, dwelling and skill* (London: Routledge, 2000), pp. 339-48 (p. 339).

⁷⁸ Ingold, ‘On weaving a basket’, p. 339.

playground for those not interested in theory, while material studies are defined, at best, as an auxiliary science.⁷⁹ Drawing from Gottfried Semper, Lange-Berndt argues for ‘material complicity’ as a corrective to the mind-matter dualism, by which she means ‘acting with’ and ‘listening to’ the material, in the same way that ‘artists, designers, architects, conservators or technicians’ do.⁸⁰ This is the central thesis of much of Ingold’s writing,⁸¹ and nowhere more explicitly stated than in his treatise on basket weaving. For Ingold, the problematic of the basket, which is neither ‘made’ (in the sense of ‘forces [...] applied from without’)⁸² nor ‘grown’ like an organism, calls for a reworking of the standard view of making as cause-and-effect in which ‘the form pre-exists in the maker’s mind, and is simply impressed upon the material,’⁸³ to a more nuanced understanding of all forms of making as dialogical, reciprocal, and emergent processes:

In the process of weaving, the surface of the basket is not so much transformed as built up. Moreover, there is no simple or straightforward correspondence between the surface of the basket and the surfaces of its constituent fibres. [...] *In short, the form of the basket is the result of a play of forces, both internal and external to the material that makes it up.* One could say that the form unfolds within a kind of force field, in which the weaver is caught up in a reciprocal and quite muscular dialogue with the material.⁸⁴

The ‘force field’ that Ingold describes includes the activities of both maker *and* material, as well as the unforeseen circumstances of making, for example, the variable temperature of the kiln, or the relative speed of the annealing process. The primacy of process is also fundamental to materials science, in which the ‘structural scales’ of materials are taken into account; the materials science view is that making something

⁷⁹ Petra Lange-Berndt, ‘Introduction: How To Be Complicit with Materials’, in *MATERIALITY*, ed. Petra Lange-Berndt (London: Whitechapel Gallery; Cambridge, MA: MIT Press, 2015), pp. 12-23 (p. 12).

⁸⁰ Lange-Berndt, ‘Introduction’, pp. 15-16.

⁸¹ See, for example, Tim Ingold, *The Perception of the Environment: Essays on livelihood, dwelling and skill* (London: Routledge, 2000); *Making: Anthropology, Archaeology, Art and Architecture* (Abingdon, Oxon; New York: Routledge, 2013); and *The Life of Lines* (Abingdon, Oxon; New York: Routledge, 2015).

⁸² Ingold, ‘On weaving a basket’, p. 341 [emphasis mine].

⁸³ *Ibid.*, p. 342.

⁸⁴ *Ibid.*, pp. 341-42. I explore weaving in more detail in Chapter 6.

involves modifying the material at a particular scale, anywhere from micro- to macro-level, to produce the desired effect.⁸⁵ Materials science is premised on the notion of ‘information,’ which travels back-and-forth between different structural scales, from the smallest cell to the environment, and ultimately affects the constitutive properties of that material. To form something, therefore, is to change the structure of the material at a particular scale, and this straightforward principle of making is made explicit in textiles, for example, in which a sequence of links, or loops, in the basic structure of the textile determines its universal structure. There is a continual back-and-forth between the process of constructing textiles, and the textile structure, and I extrapolate from this the idea that the materials and techniques used shape to something, in other words: craft, is all-out revealing of the structure of objects.

Woven textiles, therefore, enable Ingold to re-think making as ‘form-generating,’ rather than form-imposing, and it is this inverted thinking of the relationship between form and matter that underscores my thesis that, in order to expose the workings of the skeuomorph, we need to focus attention on the formative processes of its manufacture, rather than the superficial effect of its surfaces. Craft thinking is, therefore, both theoretical and practical, as it enables us to re-conceptualise the skeuomorph as a specific *kind* of thing rather than mere ornament.

This revisionary approach is implicit in the critical literature. Colley March’s original account of the skeuomorph infers that it is possible to deconstruct the skeuomorph via its process of facture. In the same way that we can *physically* dismantle the flint axe into its constituent parts – axe head, handle, and leather-thong-as-binding – it is possible *conceptually* to work backwards from any skeuomorphic form – through a conscious focus on the interaction between materials, technique, and the taking effect of structure – to ascertain *how* it takes the form that it does, and what that reveals about the particularity of the skeuomorph.

⁸⁵ Mark Miodownik, ‘Bio-Inspired Materials’, *The Matter of Mimesis: Studies on mimesis and materials in nature, art and science* (Centre for Research in the Arts, Social Sciences and Humanities, University of Cambridge, 17-18 December 2015). See also, Mark Miodownik, *Stuff Matters: The Strange Stories of the Marvellous Materials that Shape Our Man-made World* (London: Penguin, 2014); and Philip Howes and Zoe Laughlin, *Material Matters: New Materials in Design* (London: Black Dog Publishing, 2012).

This allusion to thingness is purposeful, here, and draws on philosopher Martin Heidegger's seminal essay, 'The Thing' (1950), in which he problematises the notion of the thing in-itself. Heidegger's thinking has been crucial to my understanding of the ambiguity of the skeuomorph, and has motivated the emphasis on making – on the materiality, temporality, and vitality – of the skeuomorph. Taking the example of a ceramic jug in 'The Thing,' Heidegger separates out the perceptible, or phenomenological, extent of the jug – how it 'stands on its own,' and 'holds something else within it'⁸⁶ – and its less tangible aspect that is, nonetheless, complicit in its jugness, however remote or hidden from sensory perception. Heidegger centres his argument on the dialectics of distance, that which is near and far at once, taken to mean the object in front of us and that which precedes, or derives from, it in time and space. The jug, therefore, is both an immediate thing – base and sides, handle, earthenware – *and* what Heidegger terms 'a recollective representation,'⁸⁷ which I understand to be the allusive, conjured, and evolving capacities of the jug form. For Heidegger, the jug endures in the dialectical contact between presence and absence: somewhere between its manufacture and its unmade-ness, its clay sides, bottom, and the void. In fact, it is in the void, he argues, in the latent capacity of the jug's void that thingness resides: 'The jug is a thing as a vessel—it can hold something. To be sure, this container has to be made. But its being made by the potter in no way constitutes what is peculiar and proper to the jug insofar as it is *qua* jug. The jug is not a vessel because it was made; rather, the jug had to be made because it is this holding vessel.'⁸⁸ The jug form, in its thingness, corresponds to the capacity for holding.

Heidegger's jug materialises the capacity for holding; however, this capacity for holding, this "thingness," is not restricted to this particular jug, but is potentially realisable in other container-forms. I draw from Heidegger's notion of the "*qua* thing," therefore, an understanding that the skeuomorph, as another *qua* thing, is acting *in the capacity of*

⁸⁶ Martin Heidegger, 'The Thing', in *The Craft Reader*, pp. 404-08 (p. 405).

⁸⁷ Heidegger, 'The Thing', p. 405.

⁸⁸ *Ibid.*, p. 406.

something – as an instance of something. Colley March defines the skeuomorph as a “structure-form,” meaning that there is a correspondence between it and other forms in terms of its structure; yet, its thingness, its capacity for doing, is infinitely variable. Whereas Heidegger’s jug form is a specific kind of thing – ‘a vessel, something of the kind that holds something else within it’⁸⁹ – the skeuomorph is more complex. It is a specific kind of thing, but its specificity is as much contingent on its materiality. To take an example, whether a shoe is made from leather, PVC plastic, or cast steel, it materialises the capacity for covering the foot ‘insofar as it is a qua [shoe]’, yet it realises that capacity more or less competently depending on the materials from which it is made. A PVC-plastic shoe is flexible, water-resistant, and durable in ways that a leather shoe is not. A steel-cast shoe, on the other hand, is cast in a mould, unbending, and ‘theoretical,’ rather than wearable.⁹⁰ While Heidegger’s formulation of ‘The Thing’ is useful when thinking about the limitlessness of things, the skeuomorph, I would argue, complicates this notion of thingness further by the simple fact of its stubborn materiality. Materiality, I would argue, is fundamental to the thingness of the skeuomorph, since the translation of form between things is contingent on the readiness and so-called “plasticity,” or liveliness, of materials. Even so, material agency is an idea that is flirted with, but rarely confronted head-on in ‘thing theory’ subsequent to Heidegger, as critical theorist Bill Brown points out.⁹¹

This receptiveness to materiality is borne of a kind of ‘personal commitment,’⁹² to cite philosopher Michael Polanyi, which is to acknowledge the inescapable disposition of the researcher. As a design practitioner with an innate sensitivity towards the material qualities of things, it is my commitment to materiality, to the active participation of materials in the processes of making that informs my particular approach to the

⁸⁹ Ibid., p. 405.

⁹⁰ The example of the cast-iron shoe is taken from Maria Militsi’s *Shoe Rack and Shoes* (2015) exhibited in *Second Hand, First Hand* (Marsden Woo Gallery, London, 14 October-14 November 2015). The term ‘theoretical’ is taken from Mieke Bal’s reading of Louise Bourgeois’s *Spider* (1999) as ‘theoretical object,’ which is to say, an object that “speaks back” and calls for active, critical engagement, rather than being a passive instance of something. See Mieke Bal, *Louise Bourgeois’ Spider: The Architecture of Art-Writing* (Chicago: University of Chicago Press, 2001).

⁹¹ See Bill Brown, ‘Thing Theory’, *Critical Inquiry: Things*, 28: 1 (2001), pp. 1-22; and ‘Thing Theory’, in *Things*, ed. by Bill Brown (Chicago: University of Chicago Press, 2004).

⁹² Polanyi, *The Tacit Dimension*, 20.

skeuomorph. While phenomenologists such as Heidegger and Bruno Latour draw attention to the complex entanglement of things (whether ‘mediators,’ ‘actants,’ or ‘non-humans’) in social processes and conscious experience,⁹³ their distinct approaches are marked by an inattention to the ‘incipient tendencies and propensities’ of matter brought to light by Jane Bennett.⁹⁴ Latour’s compelling invocation of the Berlin key with ‘two symmetrical bits’ that is inscribed with the action of unlocking and locking a door before the key can be removed;⁹⁵ as well as the moral character of the hinged door of La Halle aux Cuirs at La Villette, Paris;⁹⁶ and Heidegger’s disquisition on the handmade ceramic jug fail to notice the agency of materiality *as opposed to* things, in these human–non-human transactions. While material phenomenology submits to the idea that, like humans, things have agency, or the capacity to act, its rhetoric often reveals a distancing from the specific materialities of the things themselves; the tendency is still to objectify things, rather than carefully analyse their material constitution.

3.2.3. Expanding on Materiality

I would like to differentiate between materiality and matter. In thinking about the specific qualities of materiality, I draw on art historian Michael Ann Holly’s definition in ‘Notes from the Field: Materiality’ (2014), in which she describes it as ‘the meeting of matter and imagination.’⁹⁷ What I like about this definition is that it ascribes imaginativeness to matter, which attributes liveliness to it, or more specifically, *agency*. Ann Holly intuits materiality in the dialectic between ‘surface/depth’ and

⁹³ For more on phenomenological approaches to things, see Martin Heidegger, ‘The Thing’; *Martin Heidegger: Basic Writings*, ed. by David Farrell Krell (London; New York: Routledge, 1993); Bruno Latour, *We Have Never Been Modern*, trans. by Catherine Porter (New York; London: Harvester Wheatsheaf, 1993); and Michel Henry, *Material Phenomenology* (New York: Fordham University Press, 2008).

⁹⁴ Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (Durham: Duke University Press, 2010), p. 56.

⁹⁵ Bruno Latour, ‘The Berlin key or how to do words with things’, in *Matter, Materiality and Modern Culture*, ed. by Paul Graves-Brown (London: Routledge, 2000), pp. 10-21 (p. 12).

⁹⁶ Bruno Latour, “‘Where Are the Missing Masses? The Sociology of a Few Mundane Artifacts’”, in *Shaping Technology/Building Society: Studies in Sociotechnical Change*, ed. by Wiebe E. Bijker and John Law (Cambridge, MA: MIT Press, 1992), pp. 225–58.

⁹⁷ Ann Holly, ‘Notes from the Field: Materiality’, p. 15.

‘absence/presence,’⁹⁸ which I relate to Jacques Derrida’s “supplement”. Materiality amounts to more than matter; it is matter that has a specific capacity, or combination of qualities. In relation to new materials, matter has diverse potential; materials are highly versatile, adaptable, and complex. Ann Holly identifies materiality as consisting of three parts: the “medium”; its “structure,” or formal appearance of the object; and its “image,” or impression:

Materiality is more than a medium. A medium is that which carries a visual message, and together—structure and image—they result in the *thickness*, the sensuous materiality of a work of art, a thing among other things. Yet in its physical vibrancy, its affect and effect, this special thing possesses a certain kind of agency.⁹⁹

Ann Holly’s invocation of materiality as a kind of “thickness” relates back to Derrida’s notion of the supplement. Thickness is the “sensuous materiality” of the object, the amalgamation of material qualities that constitutes form.¹⁰⁰ The particularity of materiality is fundamental to the agency of the skeuomorph, since the transference of form among things is contingent on the readiness, or so-called “plasticity,” of materials. I argue that there is more to the skeuomorph than its outward form, or “structure”. There is also materiality.

This insight into the material agency is familiar to material practitioners. Bennett makes the salient point that those who are conversant with materials are also attuned to their particularity: ‘what woodworkers and metallurgists know quite well [is that] there exist “variable intensive affects” and “incipient qualities” of matter’;¹⁰¹ the idea that matter is changeable, and responsive, is second nature to the craftswoman, for whom the ability to work with the material, to respond to it, depends. Likewise, Ingold advocates a form of ‘knowing from the inside,’ and asserts that ‘we learn from those with whom (or

⁹⁸ *Ibid.*, p. 15.

⁹⁹ Ann Holly, ‘Notes from the Field: Materiality’, p. 16 [emphasis mine].

¹⁰⁰ Derrida cited in Adamson, *Thinking Through Craft*, p. 13.

¹⁰¹ Bennett, *Vibrant Matter*, p. 56.

which) we study’,¹⁰² what he succinctly describes as ‘a process of correspondence’.¹⁰³ This correspondence is learned rather than given, and entails careful thought for your materials. In failing to acknowledge the phenomenal attributes of materials, philosophers like Heidegger miss the finer insight into things that materials-based thinking sustains – from architecture to ceramics, performance art to prosthetics, and textiles to materials science.

By contrast, and of vital importance to rethinking the material peculiarity of the skeuomorph, is philosopher Gilbert Simondon’s concern for the changeability of matter in his ‘principle of individuation’.¹⁰⁴ At its core is the idea that materials are active and reactive. For Simondon, individuation is about becoming, about ‘genesis’; it is about momentary, short-lived, and prolonged ‘phase-shifts’¹⁰⁵ in the becoming of the ‘individual’ that are, ultimately, able to sustain a relatively stable state.¹⁰⁶ Individuation, he argues, is the process whereby all things, living and non-living, come into being; and while on the surface a person’s character, or a mass of molten glass, may appear to be static, they are *continually* becoming; it is the individual’s ability to resolve any inner tensions, disparities, or physiological imbalances through a process of individuation that constitutes their being in equilibrium.¹⁰⁷ The relative chaos and coincidence of this process, which Simondon lucidly describes in his account of crystal growth,¹⁰⁸ resonates with the unpredictability of making. Making does not entail the imposition of form on passive matter, but rather the interplay of material properties, human and non-human

¹⁰² Ingold, *Making*, pp. 1 & 2.

¹⁰³ *Ibid.*, p. 31.

¹⁰⁴ Throughout this thesis, I rely on translated versions of Simondon’s work, rather than his original manuscripts published in French. These include: *Gilbert Simondon: Being and Technology*, ed. by Arne De Boever, Alex Murray, Jon Roffe and Ashley Woodward (Edinburgh: Edinburgh University Press, 2012); Muriel Combes, *Gilbert Simondon and the Philosophy of the Transindividual*, trans. by Thomas LaMarre (Cambridge, MA: MIT Press, 2012); and Pascal Chabot, *The Philosophy of Simondon: Between Technology and Individuation* (London: Bloomsbury, 2013).

¹⁰⁵ Gilbert Simondon, ‘On the Mode of Existence of Technical Objects’, trans. by Ninian Mellamphy, Dan Mellamphy, and Nandita Biswas Mellamphy, *Deleuze Studies*, 5.3 (2011), pp. 407-24 (p. 415).

¹⁰⁶ Simondon recognises the commonality of functioning among all things, whether living or non-living; it is for this reason that I use the Simondonian term “individual” to describe the thing or object in this instance. Gilbert Simondon, ‘Technical Mentality’, trans. by Arne de Boever, in *Gilbert Simondon: Being and Technology*, pp. 1-15 (p. 1).

¹⁰⁷ This is similar to the ‘structural scales’ of materials science; see fn. 85.

¹⁰⁸ Gilbert Simondon, ‘The Genesis of the Individual’, in *Incorporations*, ed. by Jonathan Crary and Sanford Kwinter (New York: Zone, 1992), pp. 296-319 (pp. 313-14).

energies, such as the breath and mould, specific techniques, and potentials – as well as certain degree of serendipity – all of which is context-specific. In addition, individuation, like making, takes *time*. There is a sequential aspect to individuation, which Anne Sauvanargues develops with regard to Simondon. Her account provides a way in to understanding the complex temporalities of materials, both inorganic and organic:

The purely functional difference between past and future is only inscribed in the living at its margins, in its folds. The temporality of the living is in no way continuous, unitary or durable but traverses in the movement of time *the different phased temporalities of the interior past and the current exterior present*. [...] The future is concentrated in this relative exterior, while the past subsists in the relatively durable interiority of the organism. [...] While the borders of the skin, sensible contact, turn out to be the creator of temporality, organic depth condenses memory; interiority, harnessing duration, becomes a temporal condenser, a time trap.¹⁰⁹

With this statement, Sauvanargues makes clear the intricate and composite nature of what I call “materialised time,” that is, the proximity of “condensed memory” within the “folds” of material to the futurity of the surface that is susceptible to the both the gestures of the maker, and the conditions of the environment. Materialised time is a distinct facet of an object’s temporality, and is central to my theorisation of the plurality of the skeuomorph. I identify with this conception of multiple times within the substructure of objects, and it is through Simondon that I have been able to conceive of the skeuomorph as an inherently complicated concept, and one that merits the attention of material practitioners and professionals alike. While it might, at first, be difficult to connect Simondon’s principle of individuation with the skeuomorph, there is a paradigmatic method to his thinking that enables me to expand theoretically on Bill Brown’s much-cited ‘Thing Theory’ (2001). In *Things* (2004), Brown writes that the thing ‘hovers over the threshold between the nameable and the unnameable, the figurable and unfigurable, the identifiable and the unidentifiable.’ Yet, while Brown

¹⁰⁹ Anne Sauvanargues, ‘Crystals and Membranes’, trans. by Jon Roffe, in *Gilbert Simondon: Being and Technology*, pp. 57-70 (p. 69).

identifies the multiplicity of things, the obscure in them, Simondon affords a way of thinking things that has material depth and application. I relate my understanding of Brown's unquantifiable thing to Simondon's process of individuation: Both relate to the fluid nature of being, yet where Brown's thing seems destined to linger in uncertainty, it finds form, or – to borrow a term from Simondon – 'concretises' in the individuated being.

Heidegger's argument about the ambiguity of things corresponds with Simondon's notion of 'individuation', and crucially, to the inevitability of processes, or 'modes of change' over time.¹¹⁰ Simondon's work can be understood as process philosophy, which philosopher Nicholas Rescher describes as a doctrine that insists on the primacy of process over substance; in other words, that, rather than being static and knowable, things are manifold and complex, and in a constant state of change. He writes: "The great promise of a philosophy of process lies in its capacity to fuse into one unifying conception *such contrasting polarities* as unity and plurality, stability and change, specificity and generality, uniqueness and type."¹¹¹ I draw from Rescher's definition the recognition that there are, embedded in the skeuomorph, multiple identities, parallelisms, ambivalences, and dualities. This, in turn, enables me to understand Heidegger's notion of the '*qua*-thing' in the context of the skeuomorph as its hinge-like quality – a device that connects linked things – but which is also transferable. Thus, I propose that the skeuomorph, as a specific kind of thing, is a *conditional* thing. I use the term "conditional" to emphasise its transitional nature: the skeuomorph materialises in manifold materials, from plastics through metal to cast bronze.

¹¹⁰ Nicholas Rescher, *Process Metaphysics: An Introduction to Process Philosophy* (New York: State University of New York Press, 1996), p. 7.

¹¹¹ Rescher, *Process Metaphysics*, p. 4 [emphasis mine].

3.2.4. From Temporality to “Materialised Time”

Time, in its fullest sense, is incredibly complex; it is not simply linear, ‘nondimensional,’¹¹² or objective, disciplined by the mechanical clock time of industrial modernity, but rather *lived* and messy. Given time’s complexity, with all its disorderliness and inconsistencies,¹¹³ I focus on two particular facets of time as it relates to this study of the skeuomorph: first, to the “materialised time” of objects, which is the effect of time specifically in relation to making; and second, to the notion of the “contemporary” as it applies to material practice.

Materialised time prioritises the making, or ‘taking effect,’¹¹⁴ of time in materials as a correlative of the making process. It can be understood as a subset of time that is manifest in objects. I conceive of materialised time in order to disentangle the concerns of this research from the wider problematic of time, while, simultaneously, responding to Marc Boumeester’s assertion that, rather than try to understand what time *is* – which, as the sheer scope of the literature bears witness, is a near-on impossible task¹¹⁵ – it is more useful to ask what time *does*.¹¹⁶ Boumeester – in collaboration with his students in cinema and architecture at AKI Academy of Art & Design, Enschede, The Netherlands

¹¹² Robert J. Dostal, ‘Time and phenomenology in Husserl and Heidegger’, in *The Cambridge Companion to Heidegger*, ed. by Charles Guignon (Cambridge: Cambridge University Press, 2006), pp. 141-69 (p. 146).

¹¹³ See, for example, Peter Wollen’s essay, ‘Time In Video and Film Art’ (2000), in which he unfolds the semantics of time, and Amelia Groom’s edited volume on the different facets of time as it relates to art-making. Peter Wollen, ‘Time In Video and Film Art’, in *Making Time: Considering Time as a Material in Contemporary Video & Film*, ed. by Amy Cappellazzo (Lake Worth: Palm Beach Institute of Contemporary Art, 2000), pp. 7-13; and *TIME*, ed. by Amelia Groom (London: Whitechapel Gallery; MIT Press: Cambridge, MA, 2013).

¹¹⁴ “‘Technical Mentality’ Revisited: Brian Massumi on Gilbert Simondon,’ in *Gilbert Simondon: Being and Technology*, pp. 19-36 (p. 26).

¹¹⁵ The literature on time is impossibly vast. It is for this reason that I have drawn specifically from a select number of titles either recommended to me personally, or that have emerged in my reading. I fully acknowledge the partiality of this list: Alfred Gell, *The Anthropology of Time: Cultural Constructions of Temporal Maps and Images* (Oxford: Berg, 1992); Johannes Fabian, *Time and the Other: How anthropology makes its object*, 2nd edn (New York: Columbia University Press, 2002); Zitouni, ‘Shuffling Times’; *TIME*, ed. by Groom (2013); Suzanne Guerlac, *Thinking in Time: An Introduction to Henri Bergson* (Ithaca, NY: Cornell University Press, 2006); Henri Bergson, *Time and Free Will: An Essay on the Immediate Data of Consciousness*, trans. by F. L. Pogson (London: Swan Sonnenschein & Co.; New York: The Macmillan Co., 1910); George Herbert Mead, ‘The Nature of the Past’, in *Selected Writings: George Herbert Mead* (New York: The Bobbs-Merrill Company, Inc., 1964), pp. 345-54; Gilles Deleuze, ‘Theory of Multiplicities in Bergson’, *Lectures by Gilles Deleuze* <<http://deleuzelectures.blogspot.co.uk/2007/02/theory-of-multiplicities-in-bergson.html>> [accessed 29 June 2016].

¹¹⁶ Marc Boumeester, ‘8 Avatars of Time’, *First PARSE Biennial Research Conference on TIME* (University of Gothenburg, Sweden, 4-6 November 2015).

– sets out what he describes as ‘a taxonomy of the appearance of time’, which is his attempt to bridge philosophical concepts of time with the temporal experience of material practitioners.¹¹⁷ His so-called “avatars” of time include: Volume, Significance, Necessity, Sequence, Bearing, Indexical, Simultaneity, and Proximity. Each one corresponds to an aspect of time as it makes itself known *in practice*, or depends on a material metaphor that gives texture, so to speak, to time. Volume, for example, refers to the quantitative aspect of time, but via the metaphor of the aerosol can, Boumeester describes how it is, in fact, immeasurable. In the same way that it is impossible to regulate the flow of aerosol from a nozzle, so it is impossible to measure the extent of time. Proximity, on the other hand, calls attention to the nearness in space and time of individuals, whose chronologies may vary dramatically; for example, the life of a tree compared with that of man.¹¹⁸ Indexicality implies the simple cause-and-effect of time – the movement of clock hands makes visible the passing of time, whereas patina is the physical effect of oxidation *over* time on the surface of an object.¹¹⁹ Requirement denotes the length of time needed *in order to* do something, for example, to fire stoneware or cure polyurethane (PU) foam. Boumeester’s eight avatars not only provide a model for delimiting research into the time of objects, but also skilfully translate time into tangible effects. The eight avatars establish a link between time and material practice that has helped me to conceive of materialised time.

Materialised time emphasises the material dimension of time: it is manifest in objects at the time of their making, *within* the processes of their making, and in the entropy of materials thereafter. Materialised time is neither simply the date-stamp that verifies the object’s fixed origin – the synthetic, and all-too-often oversimplified, data of museum acquisitions – nor is it found in the formal identification of objects as being either of the past, present, or future. Rather, materialised time is effectual, rhythmic, processual time; it is the time of making. I conceive of the distinct, temporal dimension of materialised

¹¹⁷ Boumeester, ‘8 Avatars of Time’.

¹¹⁸ Boumeester, ‘8 Avatars of Time’.

¹¹⁹ Carl Knappett’s description of the index, vis-à-vis the icon and symbol, makes instructive reading, particularly in relation to the skeuomorph. See Carl Knappett, ‘Photographs, Skeuomorphs And Marionettes: Some Thoughts on Mind, Agency and Object’, *Journal of Material Culture*, 7: 1 (2002), pp. 97-117.

time in the overlaps and gaps between the approaches of various critics, including Henri Bergson's *Time and Free Will* (1889) and Elsie Fogerty's treatise on 'rhythm' (1937). I expand on the notion of materialised time in Chapter 6, but suffice it to say that it merges the complexities of time with the intricacies of making, *in* and *through* materiality.

Examining the making of material objects necessarily involves an analysis of time, of their 'time-taking'¹²⁰ and temporality in, for example, casting a vessel form using polyurethane foam. This relationship of things to time, as we saw in section 2.2, is often abbreviated in connection with the skeuomorph.¹²¹ Yet, exactly how the skeuomorph constitutes such contrasting temporalities remains under-theorised. The dominant perception is that objects index the conditions of culture in which they are made, and can be easily periodised: This object was made in 1994; that one took several firings.¹²² What's more, theories of time *specifically* in relation to objects, and to making, are thin on ground.¹²³

In an attempt to overcome this theoretical shortfall, we can call on a strand of photographic theory that focuses on the effects of time in the making of a specific *kind* of object, the 'photo-object',¹²⁴ as well as the temporal degradation of that object, thereby bringing into sharp focus the complex temporalities of objects. Certainly, time is of primary concern to photographic theory, since the photograph is understood as

¹²⁰ Zitouni, 'Shuffling Times'.

¹²¹ N. Katherine Hayles, *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics* (Chicago and London: University of Chicago Press, 1999), p. 17.

¹²² Christopher Pinney, 'Things Happen: Or, From Which Moment Does That Object Come?' in *Materiality*, ed. by Daniel Miller (Durham, NC: Duke University Press: 2005), pp. 256-72.

¹²³ Notable exceptions include Glenn Adamson, 'The Speed of Craft', *Collect* (Saatchi Gallery, London, 14 May 2010) <<https://www.youtube.com/watch?v=m62nm7bfB2l>> [accessed 16 January 2015]; Mole Leigh, 'Chronomanual Craft: Time Investment as a Value in Contemporary Western Craft', *Journal of Design History*, 15: 1 (2002), pp. 33-45; Lucy Lippard, 'Time: A Panel Discussion', *Art International*, 9 (1969), pp. 20-23 & 39; and Adrian and Inge Konik, 'The political significance of patina as materialised time', *South African Journal of Art History*, 28: 2 (2013), pp. 133-55. There is, of course, Groom's edited volume about time, although the time of making is little discussed. See *TIME*, ed. by Groom (2013).

¹²⁴ Peter Buse argues that a photograph is not simply an image, but is also an object: 'it has a physical being in space and time'. This material quality of the photograph is discernible in the Polaroid photograph, which is the specific focus of Buse's thesis. See Peter Buse, 'The Polaroid Image as Photo-Object', in *Journal of Visual Culture*, 9: 2 (2010), pp. 189-207 (p. 190) <<http://doi.org/10.1177/1470412910372754>>.

being a marker of instantaneity and an index of reality. If we concede to the symmetry of living and non-living things, then it is possible that photographic theory constitutes fertile grounds for reflexive research into the temporal inconsistency of all things, not just photographs. We can, arguably, conjecture that objects behave like photographs.¹²⁵

This conjecture may seem implausible, but in fact it emerges in the literature on the skeuomorph. In his essay 'Photographs, Skeuomorphs and Marionettes' (2002), Carl Knappett skilfully problematises the Western philosophical notion that there is a 'profound dichotomy between people and things' by thinking through the complex manifestations of agency, and the co-dependency of humans and things, from Scrabble tiles to 'the modem and the motorway'.¹²⁶ Knappett writes that: 'The agency of an artefact is contingent upon the nature of its interconnections with other nodes in a network',¹²⁷ and that this interconnectedness is contingent on the "meaning" of the artefact-sign, which can either be an icon – i.e. it has a 'visual similarity' to its referent; an index – something that has a 'spatio-temporal connection' with its referent, like smoke and fire; or a symbol – that is, it has an 'agreed-upon link' with its referent, but neither looks like nor is contiguous with it.¹²⁸ Or, an artefact-sign can be a combination of these.¹²⁹ Knappett begins with an examination of the complex nature of the photograph, before moving on to a discussion of the skeuomorph, which he claims 'refers indexically to the prototypical form it represents'.¹³⁰ He cites the example of a basket skeuomorph, which, like the photograph, is a 'composite of both index and icon', as 'it is pressed into a mould bearing relief basket patterns'.¹³¹ Basket-forms were often used early on in the production of Minoan ceramics to generate a mould structure that

¹²⁵ This is possible because photographs, like objects, have 'a physical depth and presence.' Nat Trotman cited in Buse, 'The Polaroid Image as Photo-Object', p. 190.

¹²⁶ Knappett, 'Photographs, Skeuomorphs and Marionettes', pp. 1 & 2.

¹²⁷ Ibid., p. 6.

¹²⁸ Ibid., pp. 6-7.

¹²⁹ Notably, Knappett draws on the work of Alfred Gell and Charles Peirce to develop his argument about the meaning of signs. Gell, *Art and Agency* (1998); *Collected Papers of Charles Sanders Peirce: Vol. II: Elements of Logic*, ed. by Charles Hartshorne and Paul Weiss (Cambridge, MA: Harvard University Press, 1932); and Charles Peirce, 'Logic as Semiotic: The Theory of Signs', in *Philosophical Writings of Peirce*, ed. by Justus Buchler (New York: Dover Publications, 1955), pp. 98-119.

¹³⁰ Knappett, 'Photographs, Skeuomorphs and Marionettes', p. 14.

¹³¹ Ibid., p. 15.

could be used repeatedly to form the clay body. Knappett relates the “honesty” of the mould-making process to what he identifies as the “veracity” of the photograph, arguing that both technologies admit to the realities of their production, to ‘the way in which the world “imprints itself” on the material.’¹³² Following Knappett, therefore, it seems plausible that, via photographic theory, we can gain some insight into the temporality of the skeuomorph, as a similar kind of “artefact-sign”.

Yet, while time is intrinsic to the object, it is also extrinsic to it. It is evident in the relationship of the object with time. As we learned in section 2.2, the temporality of the skeuomorph is continuously called into question, and among the various criticisms levelled at it is the notion that it is somehow “anachronistic,” a term that denotes an extrinsic temporal relation. N. Katherine Hayles’s skeuomorph is the dashboard of her Toyota Camry, whose ‘simulated stitching alludes back to a fabric that was in fact stitched, although the vinyl “stitching” is formed by an injection mold’,¹³³ and she characterises the skeuomorph as ‘homeostatic,’ as attaining some form of equilibrium between the traditional and the new.¹³⁴ While Hayles identifies the skeuomorph in the seam-like folds of the injection-moulded plastic, her bi-fold interpretation conforms to a linear model of time, to a one-dimensional, ‘objective’ view of time.¹³⁵ To conceive of time in this way is, as sociologist Benedikte Zitouni has argued, to ‘lock up the present potential; to strangle time.’¹³⁶ To rethink the skeuomorph, then, is to rethink time.

In response to Hayles, I invoke philosopher Giorgio Agamben’s insightful essay, ‘What is the Contemporary?’ (2009), in which he draws on thinkers such as Friedrich Nietzsche and Walter Benjamin to destabilise the assumption that the contemporary is of-the-time; rather, argues Agamben, being contemporary is to be out-of-step with the present, or to acknowledge that the present constitutes a disjuncture of times, ‘a peculiar

¹³² Ibid., p. 13.

¹³³ Hayles, *How We Became Posthuman*, p. 17.

¹³⁴ Ibid., p. 16.

¹³⁵ Dostal, ‘Time and phenomenology in Husserl and Heidegger’, p. 146.

¹³⁶ Zitouni, ‘Shuffling Times’.

discontinuity'.¹³⁷ Agamben presents his thesis on contemporariness using fashion as an example,¹³⁸ writing that: 'The time of fashion [...] constitutively anticipates itself and consequently is also always too late,'¹³⁹ by which he means that there is an instability intrinsic to fashion, such that its newness is constantly under threat by its now-ness. In other words, our proximity to fashion is at most provisional, as the present instantly becomes the recent past, to be superseded by a new present. Agamben identifies the time of fashion in this wavering between the possible and the unobtainable, stating that: 'It always takes the form of an ungraspable threshold between a "not yet" and a "no more."' ¹⁴⁰ 'So,' he continues, 'being in fashion, like contemporariness, entails a certain "ease", a certain quality of being-out-of-phase or out-of-date, in which one's relevance includes within itself a small part of what lies outside of itself, a shade of *démodé*, of being out of fashion.'¹⁴¹

I relate the disjuncture identified by Agamben in the contemporariness of fashion to the assumed outmodedness of the skeuomorph, but what Agamben's theorisation proposes is that the skeuomorph is not *anachronistic*, but rather "achronic," that is, that it 'cannot easily be contained within a traditional historical chronology.'¹⁴² I understand the 'not belonging' of the skeuomorph, via Agamben's theory of contemporariness, such that it establishes itself firmly in the present, rather than being a holdover of the past. Following Agamben, I argue that the skeuomorph is, in fact, fluid and emergent, and that the "referring back" that Hayles identifies is evidence of its contemporariness. 'Contemporariness,' argues Agamben, 'inscribes itself in the present by marking it above

¹³⁷ Giorgio Agamben, 'What is the Contemporary?' (2009) in *TIME*, ed. by Groom (2013), pp. 82-89 (p. 86). See also Giorgio Agamben, *What Is an Apparatus?* and *Other Essays*, trans. by David Kishik and Stefan Pedatella (Redwood City, CA: Stanford University Press, 2009).

¹³⁸ Agamben's use of fashion as an exemplar of the ever-changing present is a recurrent trope of material philosophy. See, for example, Walter Benjamin's 'Theses on the Philosophy of History', in which he describes the heterogeneity of fashion as a 'tiger's leap into the past.' Walter Benjamin, 'Theses on the Philosophy of History', in *Illuminations*, ed. by Hannah Arendt, trans. by Harry Zorn (London: Pimlico, 1970), pp. 245-55 (p. 253). Ulrich Lehmann develops Benjamin's idea further to discuss the contemporaneity of fashion in *Tigersprung: Fashion in Modernity* (Cambridge, MA: MIT Press, 2001).

¹³⁹ Agamben, 'What is the Contemporary?', p. 86.

¹⁴⁰ *Ibid.*, p. 86.

¹⁴¹ *Ibid.*, p. 87.

¹⁴² Amy J. Buono, 'Historicity, Achronicity, and the Materiality of Cultures in Colonial Brazil', *Getty Research Journal*, 7 (2015), pp. 19-34 (p. 20).

all as archaic',¹⁴³ and it is by being attentive to the conflicting temporalities that we can begin to revitalise the concept of the skeuomorph in the present context.

In addition to re-thinking the skeuomorph as “achronic,” or falling outside of normative temporal frameworks, as a form of temporal *exteriority*, I am conscious of the complex temporal *interiority* of the skeuomorph, that is, the multiplicity of “presents” that, in the process of making, transforms it into *this* or *that* kind of object. As we saw in section 2.2, often it is the visibility of these temporal inconsistencies in an object that causes concern, whether in the “patina” of painted-clay surfaces, or the analogue drag of past technologies online. Sociologist Bernhard Giesen describes how it is the conspicuous disjuncture between what we deem to be ‘contemporary culture’ and ‘phenomena that we relate to different historical periods’, that leads us to assume that the phenomenon, the object, is ‘noncontemporaneous’:¹⁴⁴

We take notice of this event because we assume inadvertently an encompassing unity of society in which the meaning of every phenomenon can be translated into or be related to every other phenomenon *in a consistent way*.¹⁴⁵

I relate Giesen’s “event” to the skeuomorphic object; it is because we equate contemporariness with synchronicity – with the perfect coordination of things with events, with periods, and with histories – that the skeuomorph, with its visibly conflicting temporalities, is considered to be unsuited to the present context. In particular, as we saw in section 2.2, it is the persistence of an analogue past in a digital realm uncontaminated by ‘brute matter’¹⁴⁶ that displeases its critics. Furthermore, Giesen makes the point that this aversion to a mixing of times is an offshoot of modernist and historicist thinking, with its ‘insistence on the purity of style’,¹⁴⁷ as well as the imprudent belief in The Future as the absolute separation with The Past. On the

¹⁴³ Agamben, ‘What is the Contemporary?’, p. 87.

¹⁴⁴ Bernhard Giesen, ‘Noncontemporaneity, Asynchronicity and Divided Memories’, *Time & Society*, 13: 1 (2004), pp. 27-40 (p. 28).

¹⁴⁵ Giesen, ‘Noncontemporaneity, Asynchronicity and Divided Memories’, pp. 28-29.

¹⁴⁶ Ingold, ‘On weaving a basket’, p. 339.

¹⁴⁷ Giesen, ‘Noncontemporaneity, Asynchronicity and Divided Memories’, p. 29.

contrary, argues Giesen, it is *exactly because* it does not synchronise with the present that the “event,” the object, is truly contemporary. This is because time is always-already constituted of a mix of contrasting, unrelated, and unknowable phenomena; there is no radical break between times, a defunct *then* and an unprecedented *now*, but rather the ‘coexistence of historically heterogeneous phenomena’.¹⁴⁸ Thus, in visibly manifesting a multiplicity of temporalities, the skeuomorph, or any object for that matter, is entirely in step with the contemporary. I draw from Giesen’s insistence on the inconsistency of time the idea that the skeuomorph simply manifests these temporal incongruities; it is unambiguous in this regard.

It is for this reason that I feel justified in examining objects made by Dutch design collective Droog in the 1990s alongside those currently in production, for example, at Silo Studio in east London; this thesis takes a deliberately cross-sectional approach to the history of the skeuomorph. There is considerable theoretical scope to this method, which finds support in anthropologist and art historian Christopher Pinney’s provocative essay ‘Things Happen: Or, from which moment does that object come?’ (2005), in which he challenges the assumption that ‘objects and culture are sutured together in national time-space.’¹⁴⁹ Pinney draws explicitly from Siegfried Kracauer, who admires the photograph’s ability to record the ‘fleeting impressions’ of modern life, as well as the strangeness of details that converge on the film surface.¹⁵⁰ Kracauer attributes this confusion of visual details to the ‘cataracts of time,’¹⁵¹ to the muddled trajectories of things that are, simultaneously, contemporaneous in the photograph. So, we have an object, a photograph that gathers in the present, and on the same plane, a diversity of details with multiple temporalities. Pinney extrapolates from this the idea that ‘there are cataracts of objects never fully assimilable to any “context”,’¹⁵² given the perceptible incoherence in things:

¹⁴⁸ Ibid., p. 29.

¹⁴⁹ Pinney, ‘Things Happen’, pp. 262-263.

¹⁵⁰ Siegfried Kracauer, *Theory of Film: The Redemption of Physical Reality* (Princeton, NJ: Princeton University Press, 1965), p. 65.

¹⁵¹ Siegfried Kracauer, *History: The Last Things Before The Last* (Princeton: Markus Wiener Publishers, 1995), p. 199.

¹⁵² Pinney, ‘Things Happen’, p. 269.

Instead of a context that can be sliced sideways (either transversely under the rubric of “culture” or horizontally under the rubric of a contemporaneous “history”) it may be more appropriate to envisage images and objects as *densely compressed performances unfolding in unpredictable ways* and characterised by what (from the perspective of an aspirant context) look like disjunctions.¹⁵³

I relate Pinney’s statement that things are “densely compressed performances unfolding in unpredictable ways” to the temporal inconsistencies visible in the skeuomorph, and it is for this reason that I have conceived of materialised time, with which it is possible to conceptualise the convergence of different “events” in the making of the skeuomorph, that, nonetheless, give it coherence and “contemporariness”.

3.3. Where Theory and Practice Meet

In the previous section 3.2, I theoretically explored the three interrelated conditions of materiality, temporality, and vitality that, I believe, are crucial to revitalising the concept of the skeuomorph. I argued that the skeuomorph is materially, spatio-temporally, and formally complex, and it is in the making – or through craft thinking – that we can understand its novel capacities more fully. The aim of this next section is primarily methodological, to explain the relationship between theory and practice, beginning with a brief review of the ideas that have come to light in support of taking a craft-based approach to the skeuomorph. I then explain how Maria Fusco’s proposition that we ‘rethink the conditions of research’¹⁵⁴ has led me to conceive of my own “knitted methods,” which respond to the need to interweave first-hand accounts of making with historical evidence, technical literature and theoretical writing; in other words, to merge theory with practice.

¹⁵³ Ibid., p. 269 [emphasis mine].

¹⁵⁴ Maria Fusco, ‘Experiential and Creative Writing Co-Production’, *Arts Research ENrichment Activities* (Emerson College, Sussex, 10-12 June 2015). All subsequent quotations from Fusco refer to this workshop, unless otherwise stated.

3.3.1. The Need for a Craft-Based Methodology

The decision to think through craft emerged for several reasons: First, from Colley March's conceiving of the skeuomorph as the transference of structural details from one object to another, that is, through fabrication. Second, from the evident theoretical parallels between Colley March's "structure-form" and Semper's *Stoffwechsel*, or material transformation, as well as Semper's belief in the technical 'motive'¹⁵⁵ of each craft – its structural, and formal, logic. And third, from the realisation that the skeuomorph is possible because materials are modifiable. American jeweller Arline Fisch's *Lace Ascot* (1980) makes explicit the transference of form – in this instance the web-like pattern of lace – across two discrete materials. *Lace Ascot* is Fisch's silver-wire interpretation of Grinling Gibbons's seventeenth-century carved lime wood cravat, which is itself a reinterpretation of Venetian needlepoint lace.¹⁵⁶ As such, Fisch's *Lace Ascot* shares similarities with Gibbons's lace interpretation, but also exhibits distinct differences in technique and material. Where Gibbons's cravat is a literal inscription of the intricately knotted textile into the surfaces of lime wood, static and dense, Fisch imagines the lace anew, using the trace-like quality of silver wire to construct a lace pattern from the inside out. The construction of textiles is fundamental to both, which prompted me to situate making as the central concern of the thesis.

Craft is immanent in manifold material practices that use different materials, tools, techniques, and timescales. I relate my understanding of the ambiguous status of craft as theory and practice to the intrinsic ambiguity of the skeuomorph: there is, I propose, some symmetry between the supplemental status of craft as Adamson theorises it, on the one hand, and the supplemental, or structural gain of the skeuomorph on the other. My aim here is to actively acknowledge the peculiar "craftiness" of the skeuomorph, and to respond critically to its emergence, using making as a means to reimagine its temporal, material, and vital ambiguities. In this next section, I describe how I

¹⁵⁵ Gottfried Semper, *The Four Elements of Architecture and Other Writings*, trans. by Harry Francis Mallgrave and Wolfgang Hermann (Cambridge; New York: Cambridge University Press, 1989), p. 29.

¹⁵⁶ 'Grinling Gibbons, "Carving", c. 1690', Victoria and Albert Museum: Search the Collections <<http://collections.vam.ac.uk/item/O59271/carving-gibbons-grinling/>> [accessed 10 December 2015].

comprehended the conditions of this research into the skeuomorph, before introducing my own “knitted methods” in response to this.

3.3.2. An Expansive Approach to the Skeuomorph

In an attempt to revive the skeuomorph for the purpose of material practice, and to reinvent the lexicon, I have been drawn to the critical writing of Maria Fusco, who advocates an ‘expansive approach to writing’ that utilises a set of ‘conditions’ designed to elaborate on the act of research.¹⁵⁷ For Fusco, these conditions include: ‘time,’ ‘proximity,’ and ‘scale,’ each of which has helped me fine-tune the particular conditions of this research into the skeuomorph. I briefly introduce Fusco’s conditions below, and discuss how each has impacted on my own critical approach.

Fusco’s first condition, “time”, draws directly from an interview between Michel Serres and Bruno Latour, in which Serres demonstrates his indifference to temporal separations, arguing that: ‘All Authors Are Our Contemporaries.’¹⁵⁸ The conscious levelling of timeframes, of the bringing together of voices and perspectives from different periods, is analogous to Serres’s example of the model car, which, as we saw in section 2.2, constitutes manifold times in one, “contemporary” object. Serres contends that what is contemporary is not necessarily synchronic; that it is possible to draw from the writings of Greek antiquity, as well as the nineteenth century, and still be ‘up-to-date’.¹⁵⁹ This idea relates to contextual theorist Pamela Johnson’s cinematic analogy to research, which I introduce later, and is reflected in my decision to examine objects made by Dutch design collective Droog from the 1990s alongside those made recently, such as Glithero’s *Les French* (2009).

There is another facet to Fusco’s condition of time, which is that the researcher continually encounters her object of study, working *with* and *through* it, rather than

¹⁵⁷ Fusco, ‘Experiential and Creative Writing Co-Production’.

¹⁵⁸ Michel Serres and Bruno Latour, ‘Second Conversation: Method’, in *Conversations on Science, Culture, and Time*, trans. by Roxanne Lapidus (Ann Arbor: University of Michigan Press, 1995), pp. 43-76 (p. 44).

¹⁵⁹ Serres and Latour, ‘Second Conversation: Method’, pp. 45-46.

simply writing *about* it, which is implicit in conventional academic writing that attempts to “fix” the object. Instead, Fusco recommends that we maintain ‘present-tense-ness’ in relation to the object of study, so that each time we encounter it, we learn something new. I have attempted to foster Fusco’s “present-tense-ness” in my research by drawing on the real-time-ness of my encounters with making – at Morley College, London, in particular – in order to weave my own account of the making process. I do this rather than reflect on the textile, or any other, process after the fact, as a form of ethnographic research. This encounter is both technical and epistemic, doing and thinking, and is my attempt to unravel what is happening at *that* moment.

Fusco’s second condition, “proximity,” denotes our closeness to the research object, and raises questions about our positionality in relation to the research. Michael Polanyi’s notion of ‘tacit knowing,’ a form of knowledge production that derives from the relationship between ‘proximal,’ or practical work, and ‘distal,’ or theoretical work, helps in understanding proximity.¹⁶⁰ Polanyi argues that there is a direct relationship between the first “doing” term and the second “experiential” term that leads to tacit knowing. Knowledge is *made* not learned:

In an act of tacit knowing we *attend from* something *to* something else; namely, *from* the first term *to* the second term of the tacit relation. In many ways the first term of this relation will prove to be nearer to us, the second further away from us. Using the language of anatomy, we may call the first term *proximal*, and the second term *distal*. It is the proximal term, then, of which we have a knowledge that we may not be able to tell.¹⁶¹

Having trained as a designer, I am conversant with materials and processes of making, and it is this that informs my particular take on the skeuomorph. Craft is immanent in my approach, and has undoubtedly influenced my choice of research methods. I extrapolate from Polanyi’s statement the idea that the researcher is the ‘proximal term’

¹⁶⁰ Polanyi, *The Tacit Dimension*, p. 11.

¹⁶¹ *Ibid.*, p. 10.

in the research – embedded and embodied *within* it – while the we ‘attend from’ this position of proximity ‘to’ the research question, which is the distal term. In this sense, the researcher, like Jane Rendell’s critic, occupies ‘a discrete position as mediator’,¹⁶² and demonstrates a very specific kind of involvement, or what Polanyi describes as ‘commitment’.¹⁶³

It is this “commitment” that has informed the selection of objects examined in this thesis; it is a selection based on intuition, foresight, and my own form of “tacit knowing”. These are: Glithero’s *Les French* furniture (2009) (fig. 10); Silo Studio’s *Textile-Moulded Glass* (2012) (fig. 37); Fisch’s *Lace Ascot* (1980) (fig. 42); and Gijs Bakker’s *Knitted Maria* (1997) (fig. 43). Each of these objects relates to the concerns of this thesis – materiality, temporality, and vitality – and sheds light on distinct facets of the skeuomorph in contemporary material practice. I examine each object on its own terms, focusing specifically on methods of production. This requires consideration for formal attributes (shape and form, dimensions, weight, texture, physical wear); functional properties; medium and material; evidence of specific techniques; and technical (handmade or machinic) influences.¹⁶⁴ This examination draws on the specialist knowledge of makers within each instance, as well as specialists and technicians in, for example, mould making and casting, in order to understand the behaviour of materials and emergence of form.

Many practitioners ignore categorisations, or choose not to engage with art- or design-historical descriptors,¹⁶⁵ which can obscure the research process. As Ingold notes, theorists and practitioners are too often positioned ‘on opposite sides of the academic fence’,¹⁶⁶ although it is a difference that can be overcome, as Etienne Wenger et al. have

¹⁶² Jane Rendell, *Site Writing: The Architecture of Art Criticism* (London: I. B. Tauris, 2010), p. 4.

¹⁶³ Polanyi, *The Tacit Dimension*, p. 24.

¹⁶⁴ Art historian Jules Prown encourages a tripartite methodology for examining objects, which involves straightforward ‘description’; followed by ‘deduction’, or ‘the relationship between the object and the perceiver’; and finally, ‘speculation’. My own methods fall, largely, under his deductive rubric. See Jules Prown, ‘Mind in Matter: An Introduction to Material Culture Theory and Method,’ *Winterthur Portfolio*, Vol. 17, No. 1 (Spring 1982), pp. 1-19 (pp. 7-12).

¹⁶⁵ Personal communication with Gijs Bakker (7 December 2015).

¹⁶⁶ Ingold, ‘Preface,’ in *Making*.

argued, through careful negotiation at the boundary between practices.¹⁶⁷ I relate this notion of “boundary negotiation” to Fusco’s attention to “proximity,” and the need for me, as a researcher and practitioner, to gauge the appropriateness of my research methods. Linked to this is an awareness of the tacit languages of craft – be it writing, or making – that require openness to the activities of craft and practical know-how, and to asking questions.

Fusco’s final research condition of the “one-to-one scale” expands on the notion of “proximity,” and foregrounds the scale of the research; in other words, the specific nature of the contact between the research object and the researcher – whether practical or theoretical, experiential or speculative, intimate or distant. Drawing from Deleuze and Guattari in ‘1440: The Smooth and the Striated’ (1988), the suggestion is that, rather than focus on either-or, on “striation” or on “smoothing,” there is potential in the mixture, in the combination of smooth and striated space that can be applied to the interpretation of artworks, or to making more broadly. They write that ‘Cézanne spoke of the need to *no longer see* the wheat field, to be close to it, to lose oneself without landmarks in smooth space,’ after which ‘striation can emerge: drawing, strata, the earth, “stubborn geometry,” the “measure of the world,”’¹⁶⁸ – in other words, objects emerge in the flickering between nearness and farness, subjectivity and objectivity, closeness and distance. Drawing on Deleuze and Guattari, I nuance Fusco’s insistence on “one-to-one-scale” with the need to engage with the skeuomorph at a variety of scales, with both its material *and* theoretical aspects.

To do this, I knit together three different “scales” of research sources: visual and material representations (2D and 3D), propositional texts (technical literature and material-specific treatises), and the tacit knowledge gained from studio visits – that is, the knowledge learned on-site, through direct experience, observation, and in

¹⁶⁷ *Learning in Landscapes of Practice: Boundaries, Identity, and Knowledgeability in Practice-Based Learning*, ed. by Etienne Wenger-Trayner, Mark Fenton-O’Creavy, Steven Hutchinson, Chris Kubiak, and Beverly Wenger-Trayner (Abingdon: Routledge, 2015).

¹⁶⁸ Gilles Deleuze and Félix Guattari, ‘1440: The Smooth and the Striated,’ in *A Thousand Plateaus: Capitalism and Schizophrenia*, trans. by Brian Massumi (Minneapolis; London: University of Minnesota Press, 2005), pp. 474-500 (p. 493).

conversation – as well as through workshops at the University of Brighton and Morley College. I subsume these three scales under what I call the “knitted methods.”

3.3.3. Knitted Methods

Examining the skeuomorph in the making demands an awareness of the intrinsic properties of materials in which the skeuomorph emerges, as well as the techniques used to fabricate it. While there is a surfeit of literature that focuses on materials and techniques,¹⁶⁹ there is very little that articulates, for example, clay’s particular aptitude for transformation beyond the detailed specifications of structure, performance, and firing temperatures; indeed, it is the design theoretical texts that tend to expand on this. In contrast, these theoretical texts often appear to gloss over the techniques and detailed processes by which something is made: it is somewhat taken for granted, as Ingold reminds us.¹⁷⁰ In addition, the wealth of literature on materials science situates the structure of materials within the bounds of chemistry and physics, which, although illuminating, often overlooks the creative in preference to the scientific.

To overcome this shortfall, this research attempts to bridge the divide between technical manuals – with their categorical focus on materials and technique – and theoretical treatises that often overlook things in the making, and involves the careful meshwork of theory and practice. On the other hand, the inherent difficulties of “writing about skill” are the abiding problem for researchers, and especially given the hierarchical dimension of knowledge that values the intelligibility of language over practical skill.¹⁷¹ Beyond having direct access to makers’ studios and workshops – which has only been possible in

¹⁶⁹ For example, a keyword search for “clay” at the National Art Library, London, calls up a diverse selection of titles, such as: Susan Peterson, *The Craft and Art of Clay: A Complete Potter’s Handbook* (London: Laurence King, 2012); Dennis Kowal and Dona Z. Meilach, *Sculpture Casting; Mould Techniques and Materials, Metals, Plastics, Concrete* (London: George Allen & Unwin, 1972); and Rex W. Grimshaw, *The Chemistry and Physics of Clays and Allied Ceramic Materials* (London: Benn, 1971). Yet, not one of these examples enlarges on the more theoretical, or meditative aspects of working with the material.

¹⁷⁰ Ingold, ‘Preface,’ *Making*.

¹⁷¹ Ingold warns against what he calls the ‘iceberg metaphor’, the idea that knowledge is assumed to exist within the ‘apex’ of logical thought, rather than the ‘substructure’ of tacit, or bodily, knowledge, which may be less tangible, but is no less valuable. Tim Ingold, ‘The Line and the Whorl’, *V&A Research Institute Workshop* (V&A Museum, London, 18 April 2015).

specific instances – the making process can best be understood in the dialectical relationship between theory and practice, and calls for the careful “knitting together” of different research sources: instructional texts with visual representations, theoretical treatises with observation, as well as experiential learning with conversation. This is what I refer to as “knitted methods,” which is not only a theoretical response to the question of how to examine the skeuomorph in the making, but a practical one.

I have drawn from a number of discrete research sources throughout this research. First, from drawings, photographs, preliminary models, and finished objects, that demonstrate the makers’ thinking process. This material was either acquired through makers’ monographs, craft and design journals, and exhibition catalogues; or solicited from the makers themselves, or via their websites. The recent rise in “process videos,” in which makers skilfully demonstrate aspects of their making process, has proven equally valuable.¹⁷² These short, three- or four-minute videos make for absorbing viewing, although it is crucial to recognise their mediated nature as research sources; for example, their structure, editing, and post-production, as well as their viewing context, format, and purpose.¹⁷³ Process videos raise a question about how best to transcribe visual sources, which is a nascent field of inquiry with its own ad-hoc solutions.¹⁷⁴ In response to this, I have developed an improvised method of transcription: first, using “thick description” to provide a written account of the making process as it appears to me,¹⁷⁵ drawing on the knowledge learned from textual sources; and second, in the identification and extraction as image sequences of specific ‘events’ that are pivotal to

¹⁷² There is scant literature available on videos made by makers in order to document their process. Notable exceptions include: Elizabeth Glickfeld, ‘Film Studio: Theatricalizing the design process online’, *frieze.com*, 157, 9 September 2013 <<https://frieze.com/article/film-studio/>> [accessed 22 September 2016]; and Ann-Sophie Lehmann, ‘Showing Making: On Visual Documentation and Creative Practice’, *The Journal of Modern Craft*, 5: 1 (2012), pp. 9-24. I discuss the use of video in more detail in Chapter 5.

¹⁷³ For more on the use of video as a research tool, see *Video in Qualitative Research: Analysing Social Interaction in Everyday Life*, ed. by Christian Heath, Jon Hindmarsh, and Paul Luff (Los Angeles: SAGE, 2010); *Video Analysis: Methodology and Methods*, ed. by Hubert Knoblauch, Bernt Schnettler, Jürgen Raab, and Hans-Georg Soeffner (Frankfurt am Main; New York: Peter Lang, 2006); and for visual research methods more generally, *The SAGE Handbook of Visual Research Methods*, ed. by Eric Margolis and Luc Pauwels (Los Angeles: SAGE, 2011).

¹⁷⁴ *Video Analysis: Methodology and Methods*, p. 16.

¹⁷⁵ This is not the same ‘thick description’ that anthropologist Clifford Geertz recommends, but is more in line with Benedikte Zitouni’s notion of the ‘thick present’, as a kind of ‘thickening’ of the present through the ‘plots and stories’ we tell each other in an attempt to understand an event. She writes: ‘So the present can be poor or rich, bare or flourishing, deserted or crowded, depending on the stories we tell.’ Using thick description to understand the making process is, therefore, subjective and narrativised. See Zitouni, ‘Shuffling Times’.

that particular making process. This two-tiered approach can only be achieved in consultation with textual sources, as it necessitates a level of visual literacy that is connected with epistemic and practical knowledge.

Textual sources provide the second research source, with the wide availability of manuals, whether on making Jesmonite moulds, digital processes, or macramé. This technical literature has been accessed in materials-specific libraries, such as the National Art Library and the Institute of Materials, Minerals and Mining, both in London. In this vein, design historian Jeffrey L. Miekle reminds us of our limitations as researchers, and the potential to overstate the design process; he is acutely aware that ‘design writers [...] have tended to subordinate the very *stuff* of their discourse to more general abstract issues.’¹⁷⁶ By integrating material and textual sources, my aim is to counteract this methodological issue. This negotiation of two altogether different terrains – design and writing, or what Grace Lees-Maffei terms ‘Writing Design’ – is an attempt to reconcile the conventionality of technical essays with the instantaneity of visual representations; or, in contrast, to translate the subtlety of gesture and skill into prose, with the aim, ultimately, to materialise the tacit languages of craft. However, my task, as Miekle verifies, ‘is [...] transposing objects back into insights, and reflecting on how and why we do that’;¹⁷⁷ and it is through engagement with the making process that this task can be realised most effectively.

A third strand in the knitted methods, alongside visual materials and textual sources, is tacit knowing, which necessitates a “commitment” to the craft process, to a sustained dialogue with makers, to ‘handling and tinkering with the things,’¹⁷⁸ often in situ; in other words, within the studio or workshop. Examining making necessitates visits to the sites of production, as well as conversations with makers that focus solely on process. However, these conversations were neither recorded, nor transcribed, with the exception

¹⁷⁶ Jeffrey L. Miekle, ‘Writing About Stuff: The Peril and Promise of Design History and Criticism’, in *Writing Design: Words and Objects*, ed. by Grace Lees-Maffei (London; New York: Berg, 2012), pp. 23-32 (p. 27).

¹⁷⁷ Miekle, ‘Writing About Stuff’, p. 31.

¹⁷⁸ Alex Preda, ‘The Turn to Things: Arguments for a Sociological Theory of Things’, *The Sociological Quarterly*, 40: 2 (1999), pp. 347-66 (p. 350).

of Bakker. This was solely for reasons of translation and accuracy; English is not Bakker's first language.¹⁷⁹ Neither were these conversations used to extract personal narratives, but rather to access technical details that otherwise remain undocumented, or to intuit the particularities of process specific to each studio. Kiln firing is a perfect example: It varies according to oxidation or reduction firing, the choice of fuel, or the surface effect the ceramist seeks to achieve. Peter Dormer and Glenn Adamson, who make a sharp distinction between 'propositional' and tacit knowledge, corroborate this approach.¹⁸⁰ Tacit knowledge about the making process, they argue, cannot be accessed exclusively through theoretical texts; and, for many makers, tacit knowledge takes precedence over discursive knowledge. As such, the "situated" aspects of the making process can only be acquired through observation and in discussion. For my part, I endeavoured to spend time talking with makers, who have an incredible breadth of knowledge, and encountering the making process; it seems inconceivable not to. I have made determined efforts to engage with practice, and have participated in 3D Design and Craft workshops at with Nick Gant and Tanya Dean, including 'Polyester Resins and Fibreglass Casting'; as well as a two-week introduction to Rhino, a 3D-modelling tool for material practitioners, in the Architecture School; both at the University of Brighton. I also enrolled in a ten-week 'Contemporary Basketry for Beginners and Improvers' with Stella Harding at Morley College, London, to develop textiles knowledge that would help me in interpreting Fisch and Bakker's work.¹⁸¹ This encounter was pivotal to the research, not least because it validated, for me, the importance of material knowledge, as well as the practicalities of communicating the research within different, real-world contexts.

In addition, each of the practitioners I have worked with throughout the course of this research – whether Oscar Lessing and Attua Aparicio of Silo Studio, or Fisch – have

¹⁷⁹ I visited Gjs Bakker at his studio in Amsterdam, The Netherlands, on 7 December 2016. Our two-hour conversation was recorded using Voice Recorder Pro on a Nokia Lumia 635. Although extracts from this dialogue are cited in Chapter 6, this conversation has not been fully transcribed.

¹⁸⁰ See Peter Dormer, 'Wishful Thinking: A Thesis on Skill and the Studio Crafts' (doctoral thesis, Royal College of Art, 1992); and Adamson, *Thinking Through Craft*.

¹⁸¹ 'Contemporary Basketry for Beginners and Improvers' with Stella Harding at Morley College, London, 22 September-15 December 2015.

been generous with their showing making, explaining their process, or choice of materials. I made several visits to Silo's studios in Stratford and Leyton, and Glithero in Crouch Hill, both in London; as well as Bakker in Amsterdam, The Netherlands. I was in constant contact with Fisch, who is based in the US, throughout the writing of Chapter 6. She sent me photographs and course notes, as well as answering questions about her textile practice. I have also called on a number of material specialists outside of these studios, those who have assisted in the fabrication of the makers' work, and who operate as a kind of satellite practice. While these conversations have not been directly documented, their effect is implicit in the writing about process. These include: Bronze Age, Sculpture Casting, Repairs, and Restoration, Limehouse, London; Development and Result (formerly Development Manufacturing Distribution), Amsterdam, NL; dForm workshop, KHiO - Oslo National Academy of the Arts, Norway; and JUJU Limited, Northampton.

Thus, this research into the making of the skeuomorph entails the knitting together of visual and material objects, 2D and 3D; propositional texts, such as manuals; and the tacit knowledge gained from studio visits and workshop participation. This deliberate interweaving of research sources is, to my mind, analogous to American designers Charles and Ray Eames's inventive approach to film-making, in particular,¹⁸² and answers to Pamela Johnson's proposal for applying the cinematic paradigms of 'the close-up, the wide angle and the flashback' to critical writing about craft.¹⁸³ In 'Can Theory Damage Your Practice?' (1998), Johnson identifies a triad of concerns that should be attended to in writing about craft. These are: (i) 'Production' – i.e. with what materials and technologies is the object made. This represents the "close-up shot"; (ii)

¹⁸² Of interest to me, particularly in relation to the "knitted methods", is the Charles and Ray Eames's film *Polaroid SX-70* (1972) that narrates the complex operations of the Polaroid SX-70 camera. The film capitalises on the visual effects of the close-up, and switches continually between two viewpoints: through the camera lens, and to the "photo-object" itself. At a critical moment in the film (04:15), the Eameses adopt the prudent method of reading aloud the instructions for the SX-70 (the "propositional" text), while observing the internal mechanisms of the camera (as a form of "tacit knowing"), as well as superimposing schematic diagrams that help to explain the process (as a form of visual transcription). This is a recurrent trope for the designers. See, for example, *Toccata for Toy Trains*, dir. by Charles and Ray Eames (1957); and *Powers of Ten: A Film Dealing with the Relative Size of Things in the Universe and the Effect of Adding Another Zero*, dir. by Charles and Ray Eames (1977). For more on the Eameses films see Paul Schrader, 'Poetry of Ideas: The Films of Charles and Ray Eames', *Film Quarterly*, 23 (1970), 2-19.

¹⁸³ Pamela Johnson, 'Can Theory Damage Your Practice?' in *Ideas in the Making: Practice in Theory*, ed. by Pamela Johnson (London: Crafts Council, 1998), pp. 15-21 (pp. 15-16).

‘History’ – i.e. the relationship of the object to its context, as well as to historical precedents, or future iterations. This, argues Johnson, is the equivalent of the “flash back,” since it calls for a reflection on the ‘changes in meaning over time’; it is the ‘diachronic’ aspect of craft writing. And (iii) ‘Current context,’ which emphasises the contemporary significance of the object, much like a ‘wide-angle shot’. This is the ‘synchronic’ aspect of craft writing.¹⁸⁴ Johnson states: ‘Critical writing around any cultural practice ideally negotiates the interplay of all three’,¹⁸⁵ and what I particularly like about this proposition is the temporal constituency of critical writing, that is, it should manifest the contrasts, as well as the overlaps, between different critical perspectives. In this way, it aligns with the temporal concerns of this research, and the skeuomorph in particular, which is itself a manifold object. The imaginative knitting together of instructional texts with detailed observations, close-up accounts with critical analysis, presents an effective set of research methods in this specific context, as it brings to life the manifold languages of making: tacit, gestural, visual, verbal, processual, and textual.

A final note on research ethics. Throughout the research process, I have sought the consent of the makers to use the material gathered through studio visits, informal conversations, photographs, and email correspondence. Each of the makers has voluntarily consented to being the subject of this research, to having their practice critically analysed, and to be named within the final written thesis (see Appendix). The only exception is Glithero’s intern in Chapter 4, whose identity has been anonymised, on account of her coincidental presence in the studio at the time of my visit, and her temporary involvement there.¹⁸⁶

¹⁸⁴ Ibid., pp. 15-16.

¹⁸⁵ Ibid., pp. 15-16.

¹⁸⁶ For more on the ethical reasons for anonymising research data, or not, see Andrew Clark, ‘Real Life Methods Working Papers: Anonymising Research Data’, ESRC National Centre for Research Methods, NCRM Working Paper Series (December 2006), 1-21 <http://eprints.ncrm.ac.uk/480/1/0706_anonymising_research_data.pdf>.

3.3.4. Writing the Composite Object

The knitted methods call for a specific approach to writing the thesis, one that interweaves first-hand accounts with historical evidence, technical literature with notes on making in situ: theory with practice.

This thesis does not offer an auto-ethnographic account of textile practice, or indeed of any of the craft practices encountered throughout the course of writing it, in the same vein that craft theorist Peter Dormer does for lettering and clay modelling, or sociologist Erin O'Connor with glassblowing, for example.¹⁸⁷ Nor does it offer a detailed description of the textile process, for example, that could provide a technical source for future craft practitioners. Instead, I have developed a method of writing that situates the research alongside that of writers such as Mieke Bal, Jane Rendell, and Emma Cheadle, for whom 'the boundary between subjects and objects is more porous'.¹⁸⁸ It is the knitted methods that engender a different method of writing, in a similar vein to Sadie Plant's *Zeros + Ones* (1997), or Jane Rendell's *Site-Writing: The Architecture of Art Criticism* (2010), in which both writers interweave secondary, or supplemental, texts with observation and critical analysis, both linguistically and graphically. Rendell cites artist Joseph Kosuth's *One and Three Chairs* (1965) (fig. 9) as having been influential in shaping a writing method to describe her mother's Welsh dresser that hovers 'between several modes of writing, two apparently objective – a series of dictionary definitions and theoretically inflected notes; and another typically subjective',¹⁸⁹ and it is an example that makes sense in the context of this research, since any attempt to pinpoint the skeuomorph *exactly* seems unattainable. Kosuth's artwork problematises the idea of "knowing" what a thing is, in this instance a chair, by setting up a dialectic between three different "languages" – text (textual), image (visual), and

¹⁸⁷ See Dormer, 'Wishful Thinking'; Erin O'Connor, 'Embodied knowledge: The experience of meaning and the struggle towards proficiency in glassblowing', *Ethnography*, 6: 2 (2005), pp. 183-204 <<http://doi.org/10.1177/1466138105057551>>; and Erin O'Connor, 'Glassblowing Tools: Extending the Body Towards Practical Knowledge and Informing a Social World', *Qualitative Sociology*, 29: 2 (2006), pp. 177-93.

¹⁸⁸ Rendell, *Site Writing*, p. 2.

¹⁸⁹ Rendell, 'The Welsh Dresser', in *Site Writing*, pp. 121-34 (p. 121).



chair, n hence v; chaise (langue) and chay;
(ex) cathedra, cathedral (adj and n), cathedraic;
clement -hedra, -hedron, q.v. sep.
1. Gr *hedra*, a seat (cf Gr *hēzesthai*, to sit, and, ult, E *SIT*), combines with *kata*, down (cf the prefix *cata-*), to form *kathedra*, a backed, four-legged, often two-armed seat, whence L *cathedra*, LL bishop's chair, ML professor's chair, hence dignity, as in 'to speak *ex cathedra*', as from—or as if from—a professor's chair, hence with authority. L *cathedra* has LL-ML adj *cathedrālis*—see sep CATHEDRAL; and the secondary ML adj *cathedrāticus*, whence E legal *cathedraic*.

Figure 9.
Joseph Kosuth
– *One and Three*
Chairs, chair,
photograph
of a chair and
photographic
enlargement
of dictionary
definition
(Etymological) of a
chair, 1965.

Courtesy Museum
of Modern Art,
New York

object (phenomenal) – each of which gets at some aspect of the object, but none of which – either singularly or collectively – ascertains its thingness.

The concerted effect of Kosuth's *One and Three Chairs* relates to the ambiguity of Heidegger's 'The Thing' (1950) cited earlier, and the obvious need to approach the skeuomorph laterally given its intrinsic ambiguity. Thus, like Rendell, I can see the creative potential for interweaving 'theoretically inflected notes,' or propositional texts, with 'typically subjective' observations, to construct a more comprehensive – or composite – theorisation of the skeuomorph.

Rendell's method of writing has influenced my approach to the thesis, as has the work of cultural theorist and critic Mieke Bal, specifically her notion of the 'theoretical object' as a framework for approaching works 'that become familiar while retaining their fascinating strangeness.'¹⁹⁰ In *Louise Bourgeois' Spider* (2001), Bal introduces the theoretical object as a facet of her methodological approach that seeks to revise the characteristic tenets of art-historical research, 'such as those relating to influence, context, iconography, and historical lineage',¹⁹¹ by starting with a close reading of the work itself. Bal argues that, all too often in art-writing, the work is overlooked, or becomes secondary to, the argument, but that this intellectual short-sightedness can be overcome through close engagement with the object. This process involves looking, experiencing, and dwelling. The object of Bal's critique is Bourgeois's installation *Spider* (1997), which, she argues, 'fits no genre or several' and whose 'contents and associations evoke social issues without being reducible to any one of them',¹⁹² and that therefore prompts a form of art-writing that 'put[s] the art first.'¹⁹³ The theoretical object, then, is an object that has folded into it the method of its own critique; rather than fall back on a priori assumptions about the work, Bal advocates 'a principle of openness' toward its

¹⁹⁰ Bal, *Louise Bourgeois' Spider*, p. xi.

¹⁹¹ *Ibid.*, pp. xi-xii.

¹⁹² *Ibid.*, p. xi.

¹⁹³ *Ibid.*, p. xii.

‘emotional, cognitive, and affective processes’,¹⁹⁴ and the theoretical discussions that such close interaction engenders.

While it could be argued that all research objects are ‘theoretical’ in their suggestion of research, Bal’s approach emphasises their phenomenological aspect, which cannot be accessed through textbooks and images alone. She writes: ‘If an account [...] ends up articulating a different theoretical position, this is precisely because a theoretically strong work of art (one that proposes its own theory) has something to contribute to the way we look at art’.¹⁹⁵ The theoretical object, then, is one that generates its own theoretical framework. I draw from Mieke Bal’s notion of the ‘theoretical object’ an appreciation that the skeuomorph, as a specific *kind* of object, necessitates different methods of interpretation from those common to design-theoretical, or design-historical, research – one that starts with a close engagement with the materials, properties, methods of manufacture, and structure of the skeuomorph. I argue that the study of the skeuomorph has to start with craft.

¹⁹⁴ *Ibid.*, p. xiii.

¹⁹⁵ *Ibid.*, p. xiv.

PART II

CONTEMPORARY OBJECT STUDIES: AN INTRODUCTION

The aim of Part II of this thesis is to open up new perspectives on the skeuomorph in contemporary material practice through the careful examination of a selection of “skeuomorphic” objects. Each object study expands on the interrelated concerns of materiality, temporality, and vitality that are implicit in the contemporary discourse, as discussed in Chapter 2, and that have become the central criteria for re-examining it in the context of making. In each chapter, I focus on the making of the objects, and what each one reveals about the inventiveness and contrariness of the skeuomorph, as well as the wider relevance of the concept to material practice. The principal questions are: *What different facets of the skeuomorph come to light through a focus on its making? And: What is the relevance of the expanded definition of the skeuomorph for contemporary material practice?*

Each object is representative of a particular aspect of contemporary material practice: be it in response to a client’s brief; to the transference of process across materials and time frames; or to experimenting with different materials. In addition, each object relates to an historical precedent of the skeuomorph that has emerged in the literature. I introduce these precedents into the discussion to shed light on past conceptualisations *at the same time* as bringing to light the present, as a form of iterative research. I also draw on like-minded, or, in some instances, antithetical, contemporaneous objects in an attempt to flesh out specific aspects of my argument. These objects point to a nexus of ideas, or preoccupations, and are brought into play to supplement the critical interpretation of the objects.

I have allowed my own critical judgment to guide the selection of objects. Each object is a “one-off production,” in the sense that it is labour-intensive, handmade – or at most, batch-made using templates, moulds, specialised tools, or innovative techniques – and produced either as a singular work, for exhibition, or in relatively small batches to order. In other words, these are not objects that are industrially produced, but rather self-initiated.¹ The only exception is Glithero’s *Les French* furniture (fig. 10), which was, in its original manifestation, made in response to a brief; however, the conditions of the brief were such that the designers had license to creatively manoeuvre.² Likewise, Gijs Bakker conceived of his *Knitted Maria* through *Experiments in Porcelain* (1996-1997), a yearlong collaboration with Rosenthal, the German porcelain manufacture, with the intention ‘to study the new expressive potential of porcelain applied to traditional objects’ (fig. 43).³ Bakker was also given a brief, but he was able to respond in whatever way necessary; he was not “guided” by client constraints. In fact, Bakker’s *Knitted Maria* is a curious mix of serially manufactured and one-off, since the starting-point for the design was Rosenthal’s *Maria* coffee pot (c. 1914): Bakker simply modified an already-existing design.⁴ In addition, both Glithero’s *Les French*, and Silo Studio’s *Textile-Moulded Glass* (fig. 37) are now sold online, or via their representative galleries.⁵ Silo’s *Textile-Moulded Glass* has also been redesigned for industry in collaboration with Sebastian Wrong for HAY, a Danish furniture company. However, it was Silo who initiated the project: their *Textile-Moulded Glass* had its genesis in the studio. Bakker’s *Knitted Maria* was destined for production, but never made it past the prototype.⁶ It shares something in its manufacture with Glithero’s *Les French*, since both utilise lost-material casting, but under quite different circumstances. Arline Fisch’s *Lace Ascot*,

¹ Gareth Williams prefers the term ‘self-generated’ to describe Glithero’s work, since they set the conditions for the making of the piece, often in a gallery setting; the work generates itself over time. Williams views this as a ‘performance spectacle’. Gareth Williams, *21 Twenty One: 21 Designers for Twenty-First Century Britain* (London: V&A Publishing, 2012), p. 150.

² Personal conversation with Sarah van Gameren (5 May 2016).

³ ‘Droog Design for Rosenthal: “Experiments in Porcelain”’, Droog <www.droog.com> [accessed 18 January 2016].

⁴ ‘Maria – Rosenthal Selection: the classic set for generations’, Rosenthal Porcelain Online Shop <<http://www.rosenthal.de/en/shop/brands/selection-1-en/dining-collections-1-en/maria-1-en/coffee-pot-3-43/>> [accessed 27 January 2016].

⁵ For Glithero, this is Gallery FUMI, and for Silo Studio, Marsden Woo Gallery, both in London.

⁶ Bakker admits that *Knitted Maria* was, in essence, a prototype, and that only thirty percent of the *Knitted Marias* manufactured by Rosenthal succeeded. Personal conversation with Gijs Bakker (7 December 2015).

which forms part of the Victoria & Albert Museum's permanent Jewellery Collections, is entirely unique (fig. 42).

There is, among these objects, a strong emphasis on process, on experimentation and invention, as well as learning from failures. This is not the streamlined operation of the production line, but the more experimental approach to making that defines contemporary critical design practice.⁷ In *21 Twenty One* (2012), design curator and writer Gareth Williams attributes this current tendency to 'explore the outer margins of making and using objects,' rather than the 'conventions of industrial design' proper, to the accelerated production and consumption of recent years, which leaves the contemporary maker free to experiment.⁸ While this interpretation may seem too simplistic, it nonetheless draws attention to the different ways of working that define contemporary practice. It is through these examples that we can bring to light the specific capacities of the skeuomorph, as well as discern its value to contemporary material practice.

⁷ This contemporary mode is evident across manifold exhibitions and makers' residencies, and is the subject of much debate in gallery talks, conferences, and associated literature. It is impossible to do justice to the breadth of contemporary material practice, but by way of (recent) example see: Williams, *21 Twenty One*, especially his introductory essay, pp. 8-27; 'The Why Question?' (debate) (Royal College of Art, Battersea, 22 June 2016); *Make:Shift 2014* (conference) (Ravensbourne, London, 20-21 November 2014); *Make:Shift 2016* (conference) (Museum of Science and Industry, Manchester, 10-11 November 2016); *Jerwood Makers Open* (exhibition) (Jerwood Visual Arts, London); Project Space at *COLLECT: The International Art Fair for Contemporary Objects* (exhibition) (Saatchi Gallery, London); 'Thinking Forwards and Backwards', *Design and Time: Design History Society Conference 2016* (Middlesex University, London, 8-10 September 2016); 'PROCESS: Making – And How Craft Makes the Difference', *Clerkenwell Design Week* (The Goldsmiths' Centre, London, 26 May 2016); *Crafts* magazine, published by the Crafts Council, 1973 onwards; *ICON*, published by Media Ten, 2003 onwards; and *Dezeen*, online design journal <<http://www.dezeen.com/about/>> [accessed 6 July 2016].

⁸ Williams, *21 Twenty One*, p. 148.

4. FROM SKETCH TO PRODUCT GLITHERO'S *LES FRENCH* (2009)

In April 2009, Gallery FUMI, in east London, unveiled a series of furniture designed by Studio Glithero (fig. 10). The colour photograph that accompanies FUMI's press release assembles a motley collection of furniture pieces within the exhibition space – including sideboards, stacked drawers, and cupboards – each with its own distinct temperament. The structural framework for each piece is constructed using a number of copper-coloured, bamboo-like elements – with naturally bending, jointed stems – that are bound together haphazardly at points where the elements intersect; each framework is strengthened with either box-, or cross-stretchers at the lowermost part. The joints are articulated as knots, with the ends of each bamboo-like element projected out beyond the joint. The box volumes that sit atop the bamboo-like frames vary in function, from single-drawer units to stacked drawers and cupboards. The volumes have variable dimensions and are decorated with a cross pattern of gum paper, in either buff or black. The handles for the drawers, or doors, resemble bundled knots of string. There is visible similarity and difference between each piece. The press release reads:

Les French is a project of two parts. Studio Glithero first create ad-hoc configurations of bamboo, binding the joints with wound string. These frames are then sent to a bronze foundry and through a process of loss [sic] material casting, the fragile and unlikely structures transform to structural and permanent casts in bronze.

For the top part, with no predetermined idea in mind, the designers build the functional volumes of the furniture in response to the bronze pieces. Underlining the friction in permanence and value that takes place in the casting process, they wrap a lightweight fabrication in gum-paper strips.



Figure 10.
Glithero
– *Les French*,
patinated bronze
and birch plywood,
dimensions
variable, 2009.

Courtesy Gallery
FUMI

The project is an exercise in process. It will grow to become a family of unique characters that entertain a variety of principles for lifting volumes from the ground.¹

I want to develop Glithero's assertion that *Les French* is an "exercise in process", arguing that it is also a prime example of material transformation. What I mean is that in visibly and *materially* maintaining the first phase of its making in the final product, *Les French* embodies the transformative potential of materials that is characteristic of the concept of the skeuomorph; in the recasting of bamboo and string to bronze – from sketch to product – *Les French* exemplifies the taking on of form across different material contexts.² In the initial phase of design, Glithero constructed an impromptu framework from bamboo cane and string, a framework that was expedient and "sketchy." Yet, in the second phase, via the process of lost-material casting, this provisional framework is transformed into static, load-bearing furniture. The "woodiness" and relative flexibility of the bamboo cane is skilfully maintained in the hardness of bronze. The documentation for *Les French* makes this connection even clearer (fig. 11).

The liveliness of the preliminary model is maintained in the final product. It is prototype and product *simultaneously*. This ability to reconcile the "not yet," or future tense of the prototype with the multiple phases of making, or multiple "presents" that are bound together with each new knot, as well as the pastness, or no-longer-there-ness of the model in the final bronze cast is revealing of the temporal multiplicity of the skeuomorph. I propose that it is the bound-knot-as-joint that is, to borrow from Marco Frascari, the 'tell-the-tale detail' in this instance,³ and is the locus of revealing the skeuomorphic capacities of *Les French*. It is the "friction" of the knot – its "knottiness" – that is not only revealing of the complex methods of its making, as well as its technical

¹ Gallery FUMI, 'FUMI presents *Les French* by Studio Glithero' (press release) (Gallery FUMI, London, 3 April 2009).

² 'From Sketch to Product' was the title given to a series of blogs posted by craft theorist Glenn Adamson, during his tenure as Head of Research at London's Victoria & Albert Museum, between 2009-2011, in which he 'examined the preparatory dimension of design' through a selection of 'drawings, models, and prototypes' in the V&A's collections. The title of this chapter borrows from this. Glenn Adamson, 'From Sketch to Product (2009 – 2011)' <<http://www.vam.ac.uk/blog/section/sketch-product>> [accessed 20 July 2016].

³ Marco Frascari, 'The Tell-the-Tale Detail', in *Theorizing a New Agenda for Architecture: An Anthology of Architectural Theory 1965-1995*, ed. by Kate Nesbitt (New York: Princeton Architectural Press, 1996), pp. 500-14.

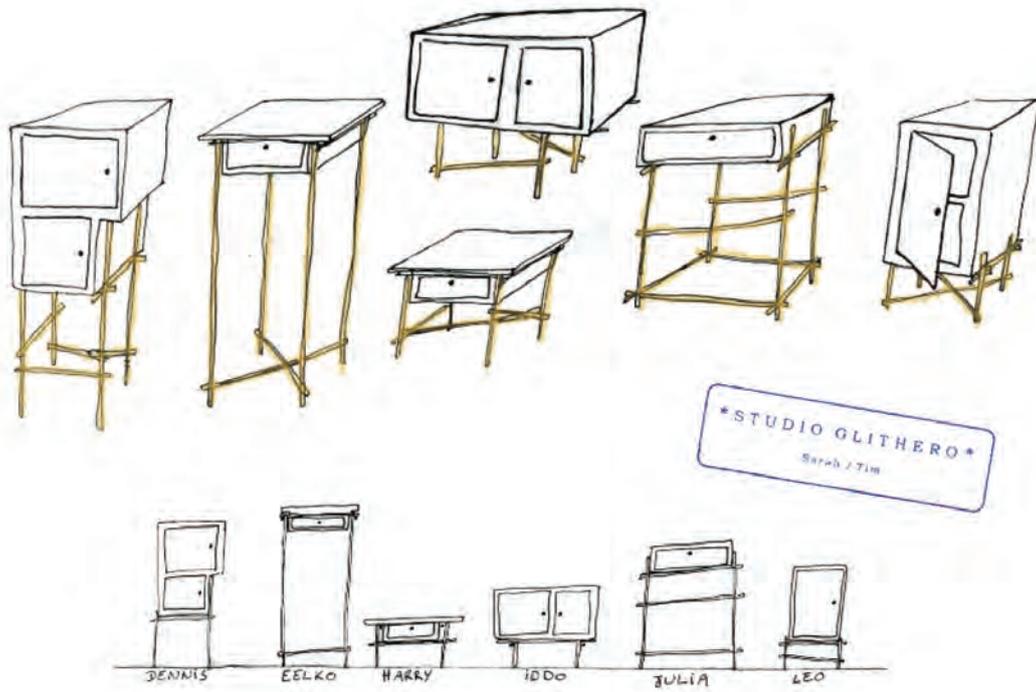


Figure 11.
Glithero
– *Les French*, sketch,
2009.

Courtesy Gallery
FUMI

(Semperian) history, but that also manifests the *conceptually* contrasting nature of this skeuomorphic series of furniture.

I set out to examine Glithero's *Les French* from initial sketch to final product, in order to tease out the material and temporal particularities of a series of furniture that visibly compresses the provisionality of the prototype with the presencing of the future product. That is, that *Les French* is interiorly temporally complex in the manner identified in section 3.2.4. This assessment is organised into several parts, each of which hinges on the various threads in Glithero's press statement, thereby using the designers' own lexicon as the jumping-off point for a critical examination of *Les French*. I do this in recognition of Glithero's own critical faculties as a design studio that is acutely aware of its own critical and historical context,⁴ which is not to suggest that I submit wholly to the designers' interpretation, but rather that there is, in its construction, the critical means for its evaluation. The threads are as follows: (i) that *Les French* is an "ad-hoc configuration", i.e. purposeful and quick; (ii) the *tactical* decision to "bind the joints with wound string" and retain those joints in the cast-bronze version; (iii) the "transformation" of materials from "fragile" to "permanent" through the process of lost-material casting; and (iv) the "friction" invoked by that process. These interrelated threads provide the basis for the practical and theoretical "unpicking" of *Les French*, as well as the opportunity to fine-tune the concept of the skeuomorph through a particularly tangible example.

I will start by contextualising *Les French* in relation to Glithero's studio practice. In many ways, *Les French* is unusual for the design duo that readily admits to the performativity of their work. That is, Glithero often produces time-based works for exhibition rather than finished, commercially viable, objects.

Among their most celebrated works are *Big Dipper* (2007) (fig. 12), an automated candle-making machine – comprising a complex system of pulleys, suspended wicks,

⁴ Craft historian Tanya Harrod has described Glithero as 'fiercely intellectual'. See Tanya Harrod, 'Inside No. 10', *The Spectator* (19 May 2012) <<http://www.spectator.co.uk/2012/05/inside-no-10/>> [accessed 14 July 2016] (para. 6 of 7).



Figure 12.
Stills from *Big Dipper*, dir. by
Glithero, candle-
wax chandeliers in
the making, 2007.

Courtesy Glithero

and drums of melted wax – whereby the audience is able to ‘witness the complete life of a product’;⁵ and *Running Mould* (2010), a performance staged at Z33 Kunstencentrum, Belgium, in which a team of nine assistants continuously shaped wet plaster using a large, circumferential running mould, thereby scaling up the traditional profiling of plaster in architectural moulding to a site-specific performance (fig. 13). Both of these “events” exist as films, each one aestheticising the moment of production. In *Miracle Machines* (2007), a short manifesto written at the start of their careers, the designers’ state that their particular focus is ‘the space between designer and product’ that is the particular remit of the ‘machine,’⁶ and that, in order to call attention to it, their aim is to unravel their manufacturing methods. ‘In most of us,’ writes Glithero, ‘[...] there is a natural inquisitiveness to understand things and how they are made. It helps us to make rational sense of the things around us. When it is understood and rationalised, an object becomes more tangible and rewarding to us.’⁷ It is this aspect of Glithero’s practice that gives rise to the metaphor of the concertina: their work aims at elaborating – as well as abbreviating, through careful editing – the making process, with film their preferred medium for capturing the exact moment that things emerge.⁸

With *Les French*, however, it is the series of furniture itself that maps out the making process, rather than film. It does so via the peculiar capacities of materials to reveal the circumstances of their making. These capacities are particularly acute in casting, which is a process premised on the careful preservation of detail, from the original to the cast. Furthermore, casting provides a “palimpsest” of the multiple times of making, which can be traced in the contours, marks, and imprints in the finished object. Time is intrinsic to casting, as it is to film; there is a temporal semblance to both. It is, arguably, the documentary potential of casting that appeals to Glithero’s aesthetic sensibilities, and in particular, to their desire to, in the words of van Gameren, ‘translate [the string-and-bamboo] sketch into something that was real and permanent without losing that

⁵ Glithero, ‘Big Dipper’ <<http://www.glithero.com/big-dipper>> [accessed 14 July 2016]. *Big Dipper* was, in fact, van Gameren’s exhibition project for *SHOW RCA 2007*; however, she acknowledges that it is representative of Glithero’s broader approach to design.

⁶ Tim Simpson and Sarah van Gameren, *Miracle Machines and the Lost Industries* (London: self-published, 2007).

⁷ Simpson and van Gameren, *Miracle Machines* (p. 3 of 4).

⁸ Henrietta Thompson, ‘Do you like to watch?’, *Wallpaper*, 142 (2011), pp. 40-44 (p. 44).



Figure 13.
Stills from
***Running Mould*,**
dir. by Glithero,
wooden mould
with zinc profile,
wet plaster, 2010.

Courtesy Glithero

feeling.⁹ *Les French* chronicles the events of its making in one, idiosyncratic – and enduring – gesture.

4.1. The Sketch

I begin with the notion of the “sketch” that initiated the design of *Les French*. In conversation with van Gameren, she explained the circumstances of the commission. Glithero was approached to design a series of furniture, with no particular specifications, or constraints; in fact, van Gameren intimated that the client simply wanted a motive for sponsoring the emerging designers.¹⁰ With little to go on, except that the objects needed to function as furniture, Glithero began by playing with materials that they had ‘to hand’ in the studio: bamboo cane, string,¹¹ masking tape, and cardboard. The lightness and strength of bamboo allowed for the quick construction of structural legs, which were held together using string; cardboard sheets, folded and stuck together using masking tape formed the “functional volumes”. These initial sketches became simple ‘studies in shape,’ and enabled the designers to quickly give form to their ideas.

Bamboo is a useful material for sketching with, because of its lightness and elasticity. During a visit to Glithero’s studio in May 2016, I encountered one of their interns working up several maquettes for a desk lamp using the same bamboo-and-string technology as the *Les French* furniture (fig. 14).¹² She talked me through the process of making the maquettes, demonstrating the relative ease with which bamboo can be cut to size, using little more than a hacksaw, and manipulated. The natural bending of bamboo cane determines its suitability as structural legs, as well as influencing the overall construction of the form, while the nodes provide a practical constraint for the

⁹ Sarah van Gameren cited in Teleri Lloyd-Jones, ‘Performance Related Play’, *Crafts*, 223 (2010), pp. 36-41 (p. 40).

¹⁰ Personal conversation with Sarah van Gameren (20 April 2016). Unless otherwise stated, all further quotations from van Gameren emerged from this conversation.

¹¹ The string that Glithero use for *Les French* is, in fact, 3 mm 16-plait nylon.

¹² Studio visit with Glithero, Finsbury Park, London (5 May 2016). Like many studio practices, Glithero regularly employs interns, who gain work experience while assisting with various projects. In this instance, I have chosen to anonymise their intern’s name, as I had Glithero’s consent for information rather than hers specifically; she is only a temporary member of the studio. I discuss this decision in more detail in section 3.3.3.



Figure 14.
(Above) **Bamboo cut-to-size for the desk-lamp prototypes, fixed using masking tape.**

(Below) **Maquette for desk lamp.**

(Photos: Kimberley Chandler)



positioning of the joints. This is because the nodes naturally assist in the contact between canes, thereby structuring the joint. The joints are held in place using masking tape, in the first instance, and are also strengthened using cocktail sticks, which are burnt out in the pre-casting firing process. She explained how the joints are then bound together using string, prepared using wax to ensure a “tidy” knot. The knot is technical, as well as what Gottfried Semper would describe as ‘aesthetic,’ that is, it is purposive in its decoration; the knot articulates the ‘composition of parts’ in the construction of the desk lamp.¹³ The string is methodically wound around the joint, several times if necessary. The precision of the bound knot is visibly more acute in the desk-lamp maquettes, than in the furniture (fig. 15).

There is a twofold reason for this. First, the furniture precedes the desk-lamp in its conception; Glithero have refined the process with time. And second, the desk lamps are smaller in scale, and the detail will, therefore, be more prominent in the final product. Also, the maquettes that their intern was working on were the exact models that were to be sent on to Flassh, the bronze foundry in Balk, Friesland, The Netherlands, who cast in bronze all of Glithero’s *Les French*.¹⁴ In this way, these maquettes were the last in a series of models for the desk lamp made during her internship; this particular maquette was soon to go into production.

Returning to the sketching of *Les French*, a photograph of its making on Glithero’s website communicates the “ad-hoc” nature of this process (fig. 16). We see a pair of legs (presumably van Gameren’s) standing in front of their material sketch.¹⁵ The bamboo legs of this first model are supplemented with a branch of an altogether-different wood, presumably found in the outside space of the studio; the nodes of the branch providing a ‘ready-made’ stretcher, or crosspiece, for the structural framework.¹⁶

¹³ Gottfried Semper, *Style in the Technical and Tectonic Arts; or, Practical Aesthetics*, trans. by Harry Francis Mallgrave and Michael Robinson (Los Angeles: Getty Research Institute, 2004), p. 73.

¹⁴ ‘Flassh’ <<http://flassh.nl>> [accessed 21 September 2016].

¹⁵ With this, the designers (whether consciously or not) call to mind Édouard Manet’s painting *A Bar at the Folies-Bergère* (1882), in which, in the top-left-hand corner, Manet painted an acrobat’s feet wearing green boots, often taken to be the artist’s signature.

¹⁶ Personal conversation with van Gameren (20 April 2016).



Figure 15.
(Above) **Carefully bound knots of desk-lamp maquette.**

(Below) **“Sketchy” knot used to bind joints of Les French furniture maquette.**



(Photos: Kimberley Chandler)



Figure 16.
Making of Les
French, 2009.

Courtesy Glithero

Using the intrinsic qualities of the wood to solve the problem of the crosspiece visibly corresponds to what Charles Jencks and Nathan Silver would describe as ‘ad hoc means’, or ‘practical adhocism’; that is, to the ‘bringing together [of] various, immediately-to-hand resources in an effort to satisfy a particular need’.¹⁷ Adhocism is an approach to making that denotes ‘purpose’ and ‘utility’,¹⁸ both of which are evident in the circumstances of Glithero’s model making. In *Adhocism: The Case for Improvisation* (2013), Jencks cites the example of seventeenth-century boat-makers who ‘cut ready-made “subsystems” from the trees, combining them *ad hoc* to construct ships’,¹⁹ “subsystems” being the term used to describe the systems already at work in the tree, i.e. its network of branches (fig. 17). Jencks describes how the natural curvature and orientation of the cut branches informed the design of a set of ribs. In other words, the ship-builders imagined the already-formed branches anew. Adhocism involves the re-purposing of already-existing forms within the immediate context. There is a distinct similarity between the schematic diagram of the branches-qua-ribs in Jencks’s essay, and the branches-qua-stretchers in Glithero’s photograph. Glithero draw on the already-ness of the wooden branch to determine the orientation of their stretchers; a natural subdivision of the branch at its halfway point makes for an ideal cross-stretcher. In other words, the material determines the form, as well as its purpose.

4.2. Learning from Adhocism

This (material and lexical) gesture towards adhocism leads to the first strand of my critique of *Les French*: that *Les French* is an ‘ad-hoc configuration’.²⁰ This is Glithero’s own admission, and is certainly evident in the aforementioned photograph. But it raises a question as to the relationship between Glithero’s material sketch, what they describe

¹⁷ Charles Jencks and Nathan Silver, *Adhocism: The Case for Improvisation*, expanded and updated edn (Cambridge, MA: MIT Press, 2013), p. 110.

¹⁸ Jencks and Silver, *Adhocism*, p. vii.

¹⁹ *Ibid.*, 16.

²⁰ Gallery FUMI, ‘FUMI presents *Les French* by Studio Glithero’.

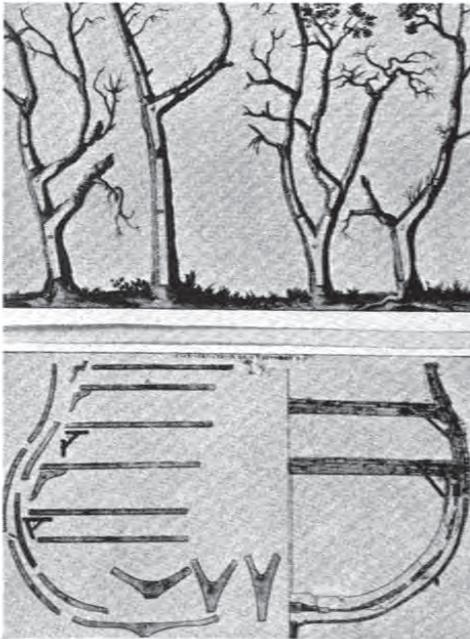


Figure 17.
'Boat from trees.'
Charles Jencks
and Nathan Silver,
*Adhocism: The Case
for Improvisation*
(1972), p. 16.

(2) *Boat from trees.* Agents from the Royal Navy would first pick out the most suitable trees and then number the parts corresponding to the boat's desired shapes

as a ‘prototype’²¹ and Jencks’s adhocism, as well as what this association of ideas reveals about the concept of the skeuomorph. Adhocism may assist in nuancing the concept, especially since it is familiar to design and architecture practice.

In his introduction to *Adhocism* (2013), Jencks articulates its guiding principles:

Born from the conjunction of *ad hoc*, meaning “for this particular purpose,” and *ism*, shorthand for a movement in the arts, the combination thrives in many places. Adhocism denotes a principle of action having *speed* or economy and *purpose* or utility, and it prospers like most hybrids on the edge of respectability. Basically, as in architecture, it involves using an available system in a new way to solve a problem quickly and efficiently.²²

Glithero’s motivation for describing their material sketch as ‘ad-hoc’ is clear in their photograph. The bamboo, string, cardboard, and tape construction is provisional; it manifests the “speediness” and “purpose” of problem-solving in the roughly-cut masking tape, and the improvised cross-stretcher in wood. Each of its constituent elements is available to-hand, and their assimilation into the overall construction is unrefined; in other words, it is a gestural, rather than precise, object. This process of sketching, which Tim Ingold would describe as ‘thinking through making’,²³ is a crucial phase of the making process, as it is not often until you handle materials that ideas emerge. The preliminary model of *Les French* is an “exercise” in thinking through structure. It uses the “available system” of cardboard, bamboo, tape, and string “to solve a problem quickly and efficiently.”

However, Jencks’s adhocism is also social, in that it relates to the immediate material context, or to a lack therein. It is not about working with the most ‘appropriate’ materials, or those that are well chosen, but rather with whatever is available; there is an

²¹ Glithero describe *Les French* series of furniture as ‘an ode to the prototype’. Glithero, ‘Les French’ <<http://www.glithero.com/les-french>> [accessed 15 July 2016].

²² Jencks and Silver, *Adhocism*, p. vii.

²³ Tim Ingold, *Making: Anthropology, Archaeology, Art and Architecture* (Abingdon, Oxon: Routledge, 2013).

‘urgency’ to it that transcends any pretensions to design, if design is understood as a more rational, or intentional form of problem-solving, and one that takes time.²⁴

Arguably, the use of bamboo and string is not about urgency, but about using materials that have proven effective in the making of previous models; these are materials that are known to be useful. Although there was no design specification for *Les French*, there is, in the choice of bamboo and string, the tacit assumption that these materials will meet the objectives of the preliminary model. That is, Glithero works within a studio space – a space set apart from the exigencies of everyday life for the purpose of making – so their working “ad-hoc” is more specialised than reactive. This difference suggests that, in terms of intention, adhocism, in fact, precedes the skeuomorph; the ad-hoc approach is almost a “practice run” for the skeuomorphic mode. It constitutes a similar set of working conditions, a similar approach, but where adhocism is reactive, the skeuomorph is revealing of proactivity, of making in response to a set of “familiar” conditions. Thus, the skeuomorph, as a mode of making, is more deliberate than incidental.

Jencks describes how adhocism is an activity that is, in part, an attempt to counter the ‘homogenised product’, that is, the standardised, often ‘seamless’ design product.²⁵ In the Foreword to the later edition of *Adhocism* (2013), he writes that: ‘Our hope was that, in place of market stereotyping, a more creative pluralism would emerge.’²⁶ This statement is consistent with Glithero’s design ethos, which is predicated on more than simply designing for consumer needs;²⁷ and it is Jencks’s evocation of the seam, in particular, that most acutely manifests this commitment to “creative pluralism” – or what I refer to in this thesis as material experimentation and interacting craft methods. The seam exposes, and registers, the making process. I will return to the notion of the seam in more detail in the chapter on Silo Studio, but it appears, in many ways, to be one of the most unambiguous mechanisms of the skeuomorph; it is its most revealing motif. That the seam is also fundamental to Jencks’s adhocism is telling of its technical capacity within material practice.

²⁴ Jencks and Silver, *Adhocism*, p. 17.

²⁵ *Ibid.*, p. viii; and Charles Jencks, ‘Adhocism’ (seminar) (Institute of Contemporary Arts, London, 13 July 2016).

²⁶ Jencks and Silver, *Adhocism*, p. viii.

²⁷ Simpson and van Gameren, *Miracle Machines*.

The creative pluralism advocated by Jencks is symptomatic of a broader interest in ‘innovation, narrative, expression and experience’ in contemporary material practice.²⁸ Glithero are no exception, who, in their own manifesto, as well as countless journals, make known their disinterest in the more ‘prosaic’ side of design: ‘We were simply bored by the designer and consumer market’, admits van Gameren. ‘The designers keep designing and the consumers keep buying the products, getting bored and buying new ones. We didn’t want to be part of that. That’s why we shifted the focus a little bit...’²⁹ Thus, it is no surprise that Glithero identifies with Jencks’s spirit of “creative pluralism,” making unlikely associations between materials, and things, in the invention of form; as well as consciously citing adhocism among their methods. Adhocism is a mode of re-configuring the commonplace, resulting in something offbeat, or unorthodox. Furthermore, adhocism often, but not always, makes itself known in the conspicuous articulation of its parts, which Jencks analogises to the hyphen in the word “ad-hoc” itself.³⁰ A notable example of the hyphenated, or discontinuous, ad-hoc object is Jencks’s own *Madonna of the Future* (1968), in which the architect assembles a Belling electric heater, a headless mannequin, insulated wire, and a copy of Henry James’s novel of the same name, as a creative protest against the ugliness of the heater (fig. 18). It is the deliberateness of this juxtaposition that announces its adhocism. The ad-hoc object constitutes a number of ‘visible knuckles, or joints’,³¹ which, as we can see in Glithero’s photograph, is also tangible in *Les French*. The ad-hoc assemblage of bamboo and cardboard is articulated through the adhesive tape, and wound-string joints. Jencks’s states that: ‘Meaningful articulation is the goal of adhocism’,³² and Glithero’s *Les French* follows a similar plan.

²⁸ Gareth Williams, *21 Twenty One: 21 Designers for Twenty-First Century Britain* (London: V&A Publishing, 2012), p. 7.

²⁹ van Gameren, cited in Lloyd-Jones, ‘Performance-Related Play,’ p. 37. See also Simpson and van Gameren, *Miracle Machines*; and ‘Glithero’, in Williams, *21 Twenty One*, pp. 148-55.

³⁰ Jencks and Silver, *Adhocism*, p. 107.

³¹ *Ibid.*, p. 107.

³² *Ibid.*, p. 73.



Figure 18.
Charles Jencks
– *Madonna of the Future*, headless mannequin, thirty feet of electric cord, Belling's heater, and Henry James's novel, *Madonna of the Future* (1873), 1968. Courtesy *The Spectator*

Here, I would like to return briefly to Colley March's original thesis on the skeuomorph where he describes the basic method of making a flint axe. There is, in the 'structure-form'³³ of the flint axe, in the binding together of a stone head and wooden handle using leather, a comparable articulation of parts. The leather-thong-as-binding, much like Jencks's electric cord, constructs the object. It makes known that the object is assembled from different parts, and it is an activity premised on difference: whether visible, material, or textural. There is a novel, as well as a purposive, relationship between its constituent parts. And so, this workable configuration becomes the recognised structure-form of the flint axe, which, over time, becomes its *expected* structure-form. It is for this reason that the leather-thong-as-binding, argues Colley March, is transposed into different material contexts; it comes to define the flint axe. This particular aspect of his thesis is consistent with adhocism in remarkable ways. For Jencks also identifies the 'evolution' of adhocism, of this articulation of purpose in the design of objects, which he ascribes to three stages. The first stage is the 'creative moment,' the moment in which there is invention – a sudden, and dramatic difference.³⁴ Next, is the main phase of 'simulated adhocism,' whereby the original, ad-hoc solution becomes 'conventional, improved, and supplemented', in other words, it is replicated in different contexts in a conscious attempt to access the intensity of that first 'eureka!' moment.³⁵ The third, and final, phase involves the 'seamless integration' of the constituent parts of the 'put-together' object, such that it no longer jars with the norm.³⁶ The ad-hoc object becomes convention. It merges seamlessly with its environment; it loses its edge. What Jencks is, in fact, describing is the evolution of design, the gradual transformation of the designed object from 'violently different' to identifiable.³⁷ That is not to suggest that the original configuration is any less inventive, but that it comes to be expected – much like Colley March's skeuomorph.

³³ Henry Colley March, 'The Meaning of Ornament; or its Archaeology and its Psychology', *Transactions of the Lancashire and Cheshire Antiquarian Society*, VII (1889), pp. 160-92 (p. 174).

³⁴ Jencks and Silver, *Adhocism*, p. viii.

³⁵ Jencks, 'Adhocism' (13 July 2016).

³⁶ Jencks and Silver, *Adhocism*, p. viii.

³⁷ Jencks, 'Adhocism' (13 July 2016).

Where Jencks's adhocism departs from the skeuomorph, however, is in its reliance on the already-ness of its constituent parts: here a headless mannequin, there an electric heater. The object is composed of separate elements and it 'keeps its hyphens advertised.'³⁸ That is, the ad-hoc object is always a synthesis of parts, each part retaining its own singular character. With the skeuomorph, however, the difference between these separate elements – the stone head, wooden handle, and leather become, with time, fused into one, *materially homogenous* object. In other words, the original structure, and temperament, of the object remains the same, but its material composition differs. It integrates the intrinsic qualities of its constituent parts into one material thing. This nuance is visible in the final realisation of Glithero's *Les French* in cast bronze. It is the coincidences of its making – first, as a sketch in bamboo and string, and second as a cast-bronze structure – that Glithero intended to be seen *simultaneously*. Their motive was 'to capture the impulsive gesture we see in the first sketch'³⁹ in the final product, and it is the tactics of the skeuomorph, as a mode of making, that I argue facilitates this move.

4.3. The Role of the Prototype

On their website, Glithero specifically introduce *Les French* as an 'ode to the prototype'⁴⁰ – as a material performance that attends to the preliminary model. This statement is telling of the temporal ambitions of the project, as well as the distinct capacities of the skeuomorph in realising this particular objective. The prototype is, after all, the first or earliest model; it precedes the final product in time and space. Glenn Adamson describes the prototype as 'the quintessential future-facing object,'⁴¹ as the earliest utterance of the object that embodies the inventiveness and purpose of the final product; it is the 'projective' content of the object.⁴² The prototype mediates the intentions of the

³⁸ Jencks and Silver, *Adhocism*, p. viii.

³⁹ Glithero, 'Les French', <<http://www.glithero.com/les-french>> [accessed 15 July 2016].

⁴⁰ Ibid.

⁴¹ Glenn Adamson, 'Preface', in *Prototype: Design and Craft in the 21st Century*, ed. by Louise Valentine (London; New York: Bloomsbury, 2013), pp. xi-xv (p. xi).

⁴² Adamson, 'Preface', p. xi.

designer with the practicalities of making, as well as the future encounter with the client. The prototype is charged with potential. However, art historian Frederic J. Schwartz nuances Adamson's theorisation suggesting that the prototype is, in fact, the embodiment of 'craft in the future perfect tense.'⁴³ It is with recourse to Schwartz's proposition that I understand that the prototype *already* embodies the future, or "expected" form of the object in the before then of *this*, the first model; that is, the prototype represents *simultaneously* the soon-to-be realised, as well as the immediate, and never-to-be-realised form of the object. This time complexity of the prototype is, of course, the defining characteristic of Glithero's *Les French*. We have, *simultaneously*, the sketchy first model, the patinated finish – itself an impression of an unrealised, or simulated past – and the future potential to modify the bamboo-and-string structure in multiple ways to 'entertain a variety of principles for lifting volumes from the ground.'⁴⁴ *Les French* is a series in progress; each new piece in the series remodels, or reframes, this 'family' of furniture.⁴⁵ In this way, *Les French* is typically prototypical, yet with the added contradiction of being a fully realised product.

Schwartz justifies the temporal complexity of the prototype with recourse to craft. First, he argues, the prototype necessitates a set of craft skills that are historical; that is, despite the "future-facing" ambitions of the prototype, the past endures in the techniques used to construct it, which are timeworn.⁴⁶ Second, craft happens in the 'present tense';⁴⁷ it is a process of doing, – whether *making*, *carving*, *moulding*, etc. – and therefore situates the prototype in the here-and-now. Yet, he argues, in the process of making the object, the maker also 'brings the future into the equation,'⁴⁸ in the sense that the encounter constitutes a learning process; the maker learns *with* the object, and the finished object embodies the things learned. This future time of things learned is

⁴³ Frederic J. Schwartz, 'Prototopia: Craft, Type and Utopia in Historical Perspective', in *Prototype*, pp. 115-24 (p. 120).

⁴⁴ Gallery FUMI, 'FUMI presents *Les French* by Studio Glithero'.

⁴⁵ Glithero, 'Les French – Extended Family' <<http://www.glithero.com/Les-french-extended-family>> [accessed 20 July 2016]. On the possibility of 'renewal' of the collection, see Walter Benjamin, 'Unpacking My Library', in *Illuminations*, ed. by Hannah Arendt, trans. by Harry Zohn (London: Pimlico, 1999), pp. 61-69.

⁴⁶ Schwartz, 'Prototopia', p. 115.

⁴⁷ *Ibid.*, p. 117.

⁴⁸ *Ibid.*, p. 117.

present in the prototype. It is for this reason, argues Schwartz, that it represents a more complex multiplicity of times.

Schwartz goes on to discuss the modernist notion of the ‘type’⁴⁹ – drawing specifically from the writings of modernist architect Le Corbusier – to argue that the type represents the rationalised form of the object: it is ‘a state of perfection of form and purpose.’⁵⁰ Following a similar logic, the prototype is the earliest in the series of attempts to streamline the object: It is *prospective*. Yet, being able to identify the development of the object from its earliest prototypical form presupposes a retrospective vantage point, a looking back. Hence, Schwartz skilfully draws attention to an inherent contradiction in the proto-type. It is *simultaneously* future-facing and backward-looking. He writes: ‘Thus for me, the very notion of the “prototype,” driving toward the future but caught in a fundamentally retrospective logic, is deeply problematic, utterly contradictory, an aporia.’⁵¹ Rather than being future-facing, it is multi-facing, or – faceted. In effect, the word “proto-type” should ‘keep its hyphens advertised,’⁵² much like Jencks’s ad-hoc object. It exists somewhere between proto- and –type, between the first sketch and the final product.

As we have seen with Glithero’s *Les French*, the proto-type constitutes just one facet of its being. It is also the finished thing. It is the skeuomorph that allows for this contradiction, which emerges in the transformation of bamboo-and-string to bronze, and holds fast to the traces of the proto-type’s manufacture, as well as to its ‘structural and permanent’ capacity as furniture.⁵³ Arguably, then, *Les French* encapsulates more than ‘the logical and temporal conundrum of the [Schwartz’s] prototype.’⁵⁴ It is proto-, retro-, present, iterative, *and* durable. It is in the transformation from sketch to product

⁴⁹ Ibid., pp. 118-19.

⁵⁰ Ibid., p. 118.

⁵¹ Ibid., p. 120.

⁵² Jencks and Silver, *Adhocism*, p. viii.

⁵³ Gallery FUMI, ‘FUMI presents *Les French* by Studio Glithero’.

⁵⁴ Schwartz, ‘Prototopia’, p. 120.

that the more-than-this-ness of the skeuomorph can be most carefully intuited, that is, in its making.

4.4. The Transformative Process of Casting

It is the novel configuration of bamboo, string, and cardboard – the imaginative, and characterful nature of the proto-type – that appealed to Glithero. Yet, their ad-hoc construction needed to be rendered permanent. As van Gameren explains: ‘We wanted simply to lift a functional volume off the ground. We used some string and bamboo, and we lifted a cardboard box up — it was the most simple and impulsive thing we could think of.’⁵⁵ The next task was to make the object ‘structural and permanent’.⁵⁶ I will now examine how Glithero achieved this via lost-material casting, and how the skeuomorph emerges in the process. As a bamboo-and-string construction, *Les French* is not-yet skeuomorphic: It is in firing and casting stage that this transformation takes place. I should add that the focus of this section is the casting of the bronze legs, rather than the cardboard to wood-and-gum paper volumes. While this is an integral part of the object’s construction, it comes later in the design process, back in the studio in London. In addition, it is the cast-bronze knot, in particular, that tells the tale of the construction of *Les French*. The box volumes constitute an altogether different process of making, which is approximate rather than *transformative*.

Interestingly, Glithero had not imagined that this first model, the bamboo-and-string sketch, would so adequately fulfil the client’s expectations. van Gameren admitted to their working on the assumption that this first model would need to be modified; however, the client’s response was favourable. Therefore, Glithero decided, in consultation with the client, to attempt to retain the original idea, the charm of the

⁵⁵ van Gameren cited in Lloyd-Jones, ‘Performance-Related Play’, p. 40.

⁵⁶ Gallery FUMI, ‘FUMI presents *Les French* by Studio Glithero’. Notably, when discussing the making of *Les French*, van Gameren referred to a contemporaneous project by Studio Wieki Somers, in which the designers purchased a selection of ‘customised seats’ encountered on the streets of Beijing, China – ad-hoc objects that enabled the citizens of Beijing to seat themselves within the city. Studio Wieki Somers returned to their studio in Rotterdam, The Netherlands, to cast the seats in aluminium, in order ‘pay homage to’ their use. Studio Wieki Somers’s project may have provided the catalyst for thinking about *Les French*. Wieki Somers Studio, ‘Chinese Stools – Made in Chine, Copied by the Dutch 2007’ <<http://www.wiekisomers.com/#>> [accessed 16 July 2016].

sketch, in the final product. van Gameren describes their decision to capture the ‘elixir’ of naivety in the original.⁵⁷ The process most suited to this endeavour is casting, in which there is little loss of detail between the original “pattern” and the cast, and, because of the use of organic materials in the preliminary model, lost-material casting emerged as the ideal method of manufacture. Lost-material casting involves constructing, in this instance, a fine-grained ‘plaster-like’ mould around the bamboo-and-string model, which is then initially fired to “burn out” the organic materials, as well as ‘bonding’ the plaster mould, creating a ‘mould cavity’ within it.⁵⁸ This hollow plaster mould is then filled with molten metal – in this instance, bronze – before being left to cool and solidify. The whole process takes several days. Investment casting is particularly well suited to casting smaller pieces, such as jewellery, rather than mass-produced pieces, as well as unique, one-off pieces such as this.⁵⁹ Glithero works with Flassh, a bronze foundry in Balk, The Netherlands, as well as Bronze Age, a sculpture-casting foundry in London, who assists in ‘chasing,’ or finishing the cast to Glithero’s exact specifications. Given that Flassh is located overseas, the first phase in preparing the model for casting is the careful construction of a wooden jig to hold the bamboo-and-string construction in place; this assists in its secure transportation, as well as providing a framework, or ‘template,’ that determines the accuracy of the final cast (fig. 19). As van Gameren demonstrated, bronze casting involves a certain degree of ‘shrinkage,’ owing to the increase in density and reduction in volume of the molten bronze during casting.⁶⁰ While it is an inevitable aspect of the process, it is particularly noticeable in Flassh’s casts. This is why they call on Bronze Age in London; the particular strength of the London foundry is in chasing, finishing, and patinating the casting surface.⁶¹

⁵⁷ Personal conversation with van Gameren (20 April 2016).

⁵⁸ Ibid. (20 April 2016).

⁵⁹ *Foundry Technology*, ed. by Peter Beeley, 2nd edn (Oxford: Butterworth-Heinemann, 2001), p. 567.

⁶⁰ Richard Rome and Hamish Young, *Fine Art Metal Casting: An Illustrated Guide to Mould Making and Lost Wax Processes* (London: Robert Hale Limited, 2003), p. 166. In the book’s ‘Foreword’, Sir Christopher Frayling commends Rome’s involvement as principal technician in the setting up of the Royal College of Art’s Foundry at their Battersea site in 1995–96; as well as the comprehensive success of *Fine Art Metal Casting* as the definitive source for practitioners interested in learning about mould-making and lost-wax casting techniques. It is for this reason that I draw primarily from *Fine Art Metal Casting* in this section.

⁶¹ Personal conversation with van Gameren (20 April 2016).



Figure 19.
Wooden jig
holding a newly
cast-bronze
Rendez-Vous;
the casting has
just arrived at the
studio from Flassh,
NL.

(Photo: Kimberley
Chandler)

Lost-material casting works on the same principles as lost-wax casting (*cire perdue*) except that, where a wax pattern is used in the former, the latter relies on the combustion of ‘expendable pattern materials,’⁶² including organics such as wood or, as we will see with Gijs Bakker’s *Knitted Maria* (1997), textiles. The condition of the final casting depends on the careful preparation of the pattern. The fine-particle size and sculptability of wax allows for the production of a much more intricate pattern; however, the casting is then visibly wax-like, which is not what Glithero aspired to. The alternative, to produce a pattern in organic materials, while relatively straightforward, means that the proto-type *is* the pattern; there is little room for mistake. Glithero’s intern admitted that it is for this reason that parts of the pattern are prepared with a petroleum-based wax, in order to ensure the adherence of the bound-string knots; the tightness, and sticking-fast-ness of the knot ensured that its “knottiness” was retained in the final casting.⁶³ Likewise, the outer-stem cavities of the bamboo cane are filled with wax to prevent the plaster investment from breaching the stem cavities, which would translate, via the burning-out stage, into inverted cavities in the final casting. The details need to be exact.

As we know, with *Les French*, it is the preliminary sketch that forms the pattern for casting. Once constructed, and prepared with wax at its surfaces, the bamboo-and-string pattern is accurately positioned within the jig and sent to Flash.⁶⁴ The next phase of its making involves the application of a plaster investment, or what Richard Rome describes as the ‘refractory investment’.⁶⁵ This is a mould constructed from refractory materials – i.e. those that are resistant to heat –, that is also ‘porous [...] to ensure the rapid escape of gases from the mould cavity’ during the preliminary firing, or burn-out stage.⁶⁶ van Gameren described the investment as a ‘plaster-like material’ that could be

⁶² *Foundry Technology*, p. 566.

⁶³ Studio visit with Glithero, Finsbury Park, London (5 May 2016).

⁶⁴ *Foundry Technology*, p. 567.

⁶⁵ Rome and Young, *Fine Art Metal Casting*, p. 163.

⁶⁶ *Ibid.*, p. 163.

‘slushed on with the hands’.⁶⁷ While this is possible in the later stages of investment construction, I have since learned that the first application should be made using a brush to ensure the careful replication of detail in the final casting.⁶⁸ Also, while van Gameren was unsure about the exact make-up of the plaster investment, Bronze Age specified a characteristic mixture of sodium silicate, molochite granules, and a plaster-based mixture called ‘core’.⁶⁹ The grain size of the investment can be adjusted relative to its use as the first, or one of subsequent, coats. For example, a finer grain is needed to ensure an accurate reproduction of the pattern surface, whereas subsequent coats benefit a coarser grain.⁷⁰

Before building the multi-layer mould, however, Glithero’s bamboo-and-string pattern is fitted with a ‘sprue system,’ which is effectively a system of channels that enable the molten metal to flow evenly through the mould cavity.⁷¹ In lost-wax casting, this system of channels is attached using heat to the wax pattern using lengths of rolled wax, which, along with the wax pattern, melt out in the preliminary firing; however, since *Les French’s* pattern constitutes organic materials, I can only speculate that the sprue system is built up using wooden dowels, similar to those used in sand-mould construction, which would at least be materially, and “heat-resistively” congruous with bamboo.⁷² It is important that the sprue system and pattern have the same burnout temperature, in order to ensure the uniform solidification of the refractory investment. Despite this ambiguity, van Gameren related the importance of the ‘fettling process’ to cleaning up the final casting, which certainly intimates the removal of sprue ‘defects’, i.e. the sprue nubs that remain on the casting surface.⁷³ In addition to the sprue system, a ‘cup,’ or funnel, is fitted to the uppermost point of the mould cavity to allow for pouring in the

⁶⁷ Personal conversation with van Gameren (20 April 2016).

⁶⁸ Rome and Young, *Fine Art Metal Casting*, pp. 190-191.

⁶⁹ Personal conversation with Sue Triplow, Bronze Age (11 May 2016).

⁷⁰ Rome and Young, *Fine Art Metal Casting*, p. 176.

⁷¹ *Ibid.*, p. 161.

⁷² Rome and Young, *Fine Art Metal Casting*, p. 162. Unfortunately, the foundry workers at Flash do not speak English, so I have not been able to verify this.

⁷³ Studio visit with Glithero, Finsbury Park, London (5 May 2016).

molten metal.⁷⁴ Notably, Glithero's wound-string knots perform another technical function in the process of its manufacture. For the mould cavity also requires a 'vent system,' which, working in the opposite manner to the sprue system, 'allows gases to escape as the mould cavity fills with molten metal.'⁷⁵ Rome describes how these vents should be taken from 'the highest points on the pattern when orientated for metal pouring',⁷⁶ which *Les French* already provides for with its knotted joints. These are natural points of convergence for the flow of metal in the mould, as well as being potential air traps. Thus, what begins as a simple system for binding joints becomes a ready-made solution to the problem of vents in the casting process. The knot serves a practical, as well as an aesthetic function, performing a number of different tasks at each stage of its making. The knot is the definitive mechanism of the skeuomorph in this instance.

Returning to the casting process, the pattern is initially washed with a 'release agent,' such as 'liquid detergent or an alcohol,' to ensure that the plaster investment adheres to its surface.⁷⁷ The first application of a fine plaster investment using a brush ensures good coverage of the pattern and sprue system. Since the first application will determine the fidelity of the casting surface, it is important to avoid the introduction of bubbles to the investment, or other impurities. This first application is built to a thickness of roughly two centimetres, before being allowed to set. While this layer is still 'tacky,' a slightly coarser solution is applied to the investment, as a secondary, or 'back-up' coat. The investment is built up sequentially in this way to the required thickness, roughly eight centimetres.⁷⁸ The outer surface of the whole mould is then hand-smoothed to generate a workable 'profile' – i.e. one that can be easily lifted and manoeuvred into the kiln – and then a 'plaster and scrim jacket' is affixed to the whole mould to strengthen it.⁷⁹ The mould takes half-an-hour to air-dry and set, and is then ready for the preliminary firing,

⁷⁴ Rome and Young, *Fine Art Metal Casting*, p. 162.

⁷⁵ *Ibid.*, p. 161.

⁷⁶ *Ibid.*, p. 163.

⁷⁷ *Ibid.*, p. 178.

⁷⁸ *Ibid.*, pp. 190-191; *Foundry Technology*, p. 569.

⁷⁹ Rome and Young, *Fine Art Metal Casting*, p. 193.

during which the mould hardens – via a carefully monitored process of dehydration –, before the bamboo-and string pattern can be burnt out. The temperature in the kiln is maintained at 200°C for the first sixteen hours, to allow any residual moisture in the investment to evaporate, as well as to consolidate it. Next, the kiln temperature is gradually raised to complete the mould firing, as well as achieve the burnout of the organic materials; while it is unclear what temperature Flassh fire their kilns to, it cannot be more than 800°C, otherwise the plaster investment would break down.⁸⁰

At this point, Glithero's *Les French* has been transformed into a hollow mould cavity: a negative space that is, nonetheless, imbued with detail. However, it is the molten-metal stage that brings *Les French* into being. Bronze, the material used for casting, is primarily an alloy of copper and tin, with the potential addition of other metals. Owing to its composite nature, it has greater strength and resistance to corrosion than its constituent metals. Rome explains that, on account of its composition as an alloy, bronze melts and solidifies over a broad range of temperatures, which is useful for casting, as it enables the metal alloy to remain fluid for longer. On melting, the “grain,” or ‘crystalline structure’ of the bronze breaks down, only to reform on cooling.⁸¹ In order to achieve the high level of detail intended for *Les French*, Flassh would need to quickly cool the bronze within the mould. This is because the longer the bronze is allowed to remain liquid, the more likely it is that there will be visible inconsistencies, such as ‘flow marks’ or ‘misrun patterns’ in the final casting.⁸² These are due to the different rates of cooling of the bronze within the mould. In addition, bronze cools fastest at the mould-cavity walls, which causes shrinkage as the density of the metal increases. With the thin, bamboo-like channels of Glithero's mould cavity, and its complex of knotted joints, it is important to ensure that the molten bronze reaches a large surface area fast. To achieve this, the mould is likely filled both through the cup (known as ‘gravity casting’) and a method of ‘assisted pouring’ via the sprue system, which is particularly suited to intricate

⁸⁰ *Ibid.*, p. 226.

⁸¹ *Ibid.*, p. 238.

⁸² *Foundry Technology*, p. 566.

castings.⁸³ The recommended pouring temperature for bronze is, according to Rome, 1100°C-1250°C.⁸⁴ The bronze eddies and flows within the mould, before realigning to form crystals.⁸⁵ It is at this precise moment of pouring that Glithero's *Les French* begins to take on form. The filled mould is then left to cool overnight within a sand pit. It is only on the removal of the plaster investment via 'water blast cleaning'⁸⁶ that the success of the casting reveals itself.

van Gameren describes the often '-erroneous' nature of the casting process, and that, to counter this, Glithero tries to build 'tolerances' into the bamboo-and-string model,⁸⁷ although many of the defects can also be remedied in the patination stage. It is the internal friction of the mould, as well as the different rates of cooling, that make themselves known in the cast surface. When I visited Glithero's studio, I encountered a recently cast bronze of *Rendez-Vous* (2012),⁸⁸ a desk in the *Les French* series, which had just arrived back from Flassh (fig. 20). van Gameren pointed to the various defects in the cast surface, primarily due to the contraction of the casting, but also on account of the complexity of their pattern. These included 'positive defects,' such as visible sprue remains on the casting surface, which can be removed using a metal file; as well as slight fissures and cracks known as 'negative defects' on the bamboo-like legs, which are often due to shrinkage cracking in the first application of the fine plaster investment.⁸⁹ There is, in addition, a degree of porosity to the bronze, which results in tiny holes on the casting surface that need welding, or rebuilding, using welding rod referred to as 'glue'.⁹⁰ "Misruns" happen when the molten bronze flows inconsistently through the mould, and, where these metal flows fail to connect, a part of the casting will be missing.⁹¹ This was a particular problem for *Les French*. The most conspicuous of the defects, however,

⁸³ *Ibid.*, p. 575.

⁸⁴ Rome and Young, *Fine Art Metal Casting*, p. 239.

⁸⁵ *Ibid.*, p. 166.

⁸⁶ Personal conversation with Triplow (11 May 2016).

⁸⁷ Studio visit with Glithero, Finsbury Park, London (5 May 2016).

⁸⁸ Glithero describe *Rendez-Vous* as 'a desk with bronze legs, walnut drawers and a gum-paper top'. Glithero, 'Rendez-Vous' <<http://www.glithero.com/Rendez-vous>> [accessed 20 July 2016].

⁸⁹ *Foundry Technology*, p. 574; Rome and Young, *Fine Art Metal Casting*, p. 263.

⁹⁰ Personal conversation with Triplow (11 May 2016).

⁹¹ Rome and Young, *Fine Art Metal Casting*, p. 268.



Figure 20.
(Above) **New cast-bronze iteration of Glithero's *Rendez-Vous***; the casting has just arrived back in the studio from Flashh, NL.

(Below) **Visible "defects" in new cast-bronze iteration of Glithero's *Rendez-Vous***.

(Photos: Kimberley Chandler)



was in the knot. In several instances, the casting surface of the fibrous, knotty string is abbreviated; instead of being thread-like, the knots appeared worn out. It was this exposure of the knot that led me to conceive of it as the definitive “tell-the-tale” detail for the making, and material-transformative success, of *Les French*. It is also the motif that gestured towards its initial purpose as a joint; its mediating purpose as a point of convergence for the flow of metal in the mould, as well as its use as a vent; and its subsequent purpose as an aesthetic principle. I propose that the knot is a skeuomorphic “tactic” in the making of *Les French*.

I will now briefly describe the making of the functional volumes. Initially fashioned from cardboard sheets, stuck together with masking tape, the slightly askew volumes are specifically designed to contrast with the fixedness of the cast-bronze legs. van Gameren explains how the cardboard ‘templates’ are then sent to Titus Davies, a bespoke furniture maker in Dalston, east London, who skilfully translates the designs into birch ply, and to the exact dimensions.⁹² However, it is the mode of finishing that translates the birch-ply volumes into parquetted surfaces. This particular process involves carefully laying strips of gum paper across each volume, at right angles to one another, with a leading edge of 45°. The layered-gum-paper strips are then treated with a coat of ebony wood stain, primed, and varnished.⁹³ The result is a faceted, light-reflective surface, which approximates to leather. Rather than being a transformative-qua-skeuomorphic process, like lost-material casting, it is a simulative one. It replicates the unsteadiness of the cardboard volumes, but the cardboard does not have a direct influence in the process of its making, bar the taking of measurements. This is a partial *translation*, rather than a full material *transformation*.⁹⁴

⁹² ‘Titus Davies | Bespoke Furniture Maker’ <<http://titusdavies.co.uk>> [accessed 22 July 2016].

⁹³ This is the case with *this* particular furniture piece; however, others are left untreated, i.e. remain buff coloured instead of black.

⁹⁴ Notably, in a recent furniture series that continues along the same lines as *Les French*, titled *Les French – Extended Family*, Glithero appears to have resolved this split in processes. Instead of being fashioned in birch ply, the functional surfaces are also cast in bronze. Glithero, ‘Les French – Extended Family’ <<http://www.glithero.com/Les-french-extended-family>> [accessed 22 July 2016].

4.5. The Telling Knot

The only bamboo-and-string model that is kept in Glithero's studio is helpfully positioned alongside a bronze-cast version,⁹⁵ so it is possible to intuit the differences between the sketch and its product. While the shrinkage of the bronze is, on the whole, negligible, it is particularly acute at the knotted joints. This, as I proposed earlier, is what Frascari would define as the “tell-the-tale” detail. It is the discrete detail that tells of the making of *Les French* (fig. 21): it is ‘the place of the meeting of the mental construing and of the actual construction.’⁹⁶ The cast-bronze knot gives structural legitimacy to an otherwise friction-less object, and it is also the detail that tells of its method of making: it performs a twofold function. This statement is a direct response to the second strand of my critique of *Les French*, which is Glithero's decision to utilise “wound-string” joints in its initial production phase, and to retain those joints in the cast-bronze version. To make sense of the motive principle of the wound-string joints, I call on Semper's theories on the technical emergence of decorative form, alongside Frascari's widely known essay, ‘The Tell-the-Tale Detail’ (1981), in which – in line with Semper – he acknowledges the particular agency of the ‘tectonic’, or structural motive in architecture, as well as drawing attention to the joint as the site of interpretation. He writes: ‘the detail expresses the process of signification; that is, the attaching of meanings to man-produced objects’,⁹⁷ and evidently with *Les French*, the wound-string joint is the detail that presences the ‘impulsive gesture we see in the first sketch’⁹⁸ despite its transformation into cast bronze. It gives friction to an otherwise “seamless” construction, and is revealing of the interchangeability of materials that the skeuomorph facilitates. In order to emphasise the material-transformative potential of the skeuomorph through the example of Glithero's knot, I will draw comparisons with two other designer-made furniture pieces, Jerszy Seymour's *Workshop Chair* (2009) and FRONT's *Materialized Sketch* chair (2005), both of which represent, instead, the non-

⁹⁵ Although, where the model corresponds to *Rendez-Vous*, the latter resembles the structural legs of a set of smaller stacked drawers.

⁹⁶ Frascari, ‘The Tell-the-Tale Detail’, p. 503.

⁹⁷ *Ibid.*, p. 498.

⁹⁸ Glithero, ‘Les French’ <<http://www.glithero.com/les-french>> [accessed 15 July 2016].



Figure 21.
(Above)
Glithero – *Coup de Grâce*, patinated bronze and birch plywood, dimensions variable, 2009.

Courtesy Gallery FUMI

(Below) **Patinated cast-bronze knot in previous iteration of Glithero's *Rendez-Vous*.**

(Photo: Kimberley Chandler)



resistance, or “fluidity,” of materials, and, in doing, remove all trace of what Alice A. Donohue calls their ‘formal histories.’⁹⁹

That Semper’s thinking is appropriate to a critique of *Les French* owes to Glithero’s particular choice of materials: bamboo and twisted fibres. There is, in the first instance, a remarkable formal resemblance between it and the Caribbean hut that Semper encountered at The Great London Exhibition in 1851, which provided the impetus for his theories on the technical basis of form in architecture.¹⁰⁰ Both utilise bamboo and twisted fibres in the construction of a simple, lightweight, but substantial framework; both emphasise the overhang of bamboo elements at the joints;¹⁰¹ and both utilise the ‘oldest technical symbol,’¹⁰² the knot, to bind the joints fast. In both instances, it is the techniques of joinery that determine the finished form; there is purposefulness to both. It is this resemblance that first brought *Les French* to my attention, and prompted me to think about the revealing knot motif, which integrates the multiple phases of its making in one, telling gesture. Without it, the method of *Les French*’s manufacture, of its peculiar origin and materiality, would be more obscure. It is also the knot that is telling of its skeuomorphic capacities as an object.

In addition, Semper identifies two principal uses for textile materials, including twisted fibres: first, ‘to cover, to protect, and to enclose’, and second, ‘to string and to bind’,¹⁰³

⁹⁹ Alice A. Donohue, ‘Material, Technique, and Form’, in *Greek Sculpture and the Problem of Description* (Cambridge: Cambridge University Press, 2005), pp. 62-87 (p. 80).

¹⁰⁰ It was the Caribbean hut that initiated Semper’s thinking about the four fundamental elements of architecture – the mound, the hearth, the enclosure, and the roof –, which he set out in *The Four Elements of Architecture: A Contribution to the Comparative Study of Architecture* (1851). Gottfried Semper, *The Four Elements of Architecture and Other Writings*, trans. by Harry Francis Mallgrave and Wolfgang Hermann (Cambridge; New York: Cambridge University Press, 1989).

¹⁰¹ The emphasis on the joints in the construction of *Les French* also corresponds with an historical precedent of the skeuomorph: the dentils found in architecture, which are a series of tooth-like projections, often in stone, that jut out from beneath the cornice of buildings (fig. 4). Dentils are the replication in stone of the ends of timber beams that, in traditional, low-tech timber framing, are visible beneath the roof. The structural order of the projecting beams is often reimagined in stone, much like the string bindings that are recast in bronze in *Les French*. For more on skeuomorphic dentils, see Colley March, ‘The Meaning of Ornament’, pp. 160-92; Henry Balfour, *The Evolution of Decorative Art: An Essay Upon Its Origin and Development as Illustrated by the Art of Modern Races and Mankind* (London: Percival and Co., 1893); and Philip Steadman, *The Evolution of Designs: Biological Analogy in Architecture and the Applied Arts*, 2nd edn (New York: Routledge, 2008), p. 110.

¹⁰² Joseph Rykwert, ‘Semper and the Conception of Style’, in Joseph Rykwert, *The Necessity of Artifice* (London: Academy Editions, 1982), pp. 123-30 (pp. 123-24).

¹⁰³ Semper, *Style*, p. 113.

with the knot the preeminent motif of the activity of binding. Notably, Semper makes the distinction between the unifying activity of the cover, and the multiplicity of the binding, writing that: ‘everything bound reveals itself as articulated, a plurality.’¹⁰⁴ That is that, while the binding *binds*, it also manages to retain the particularity of its elements. There are dialectic peculiarities to the binding such that it *simultaneously* unites and keeps separate. It is this peculiar quality of the knot that, I would argue, attests to the cross-purposeful nature of *Les French*, to its material and temporal multiplicity, and that renders it skeuomorphic.

It is via Semper that we can understand this formal language of materials. Semper believed that the techniques used for working a material – in this instance, string – engender ‘specific forms’ that encode, or ‘make visible’¹⁰⁵ their methods of manufacture. The repetition of these technical forms over time, and across material contexts, has, he argues, fundamentally influenced the development of architectural form. While architecture is not the focus of this thesis, it is the sensitivity towards material transformation in Semper’s thesis that resonates with this research. In other words, there is a relationship between the emergence of form in one material context, and its “symbolic” transference to another.¹⁰⁶ It becomes symbolic because it retains something of its original method of manufacture in an altogether-different material context. This aspect of Semper’s thinking is what Alina describes as the ‘memory of manufacture’ that pertains to form.¹⁰⁷ With Glithero’s *Les French*, it is the knot that retains the memory of its manufacture – of its bamboo legs being bound with string – in the bronze cast. The cast-bronze knot is telling of its wound-string origin. The form remains, while the materials differ. It is the accuracy of the casting process that facilitates the transference of the knot form across material, and temporal contexts.

¹⁰⁴ Ibid., p. 123.

¹⁰⁵ Ibid., p. 247.

¹⁰⁶ This “symbolic” transference is evident in both Silo Studio’s *Textile-Moulded Glass* (2012) and Arline Fisch’s *Lace Ascot* (1980); see Chapters 5 & 6.

¹⁰⁷ Alina Payne, *From Ornament to Object: Genealogies of Architectural Modernism* (New Haven: Yale University Press, 2012), pp. 59-60.

In 'The Tell-the-Tale Detail' (1981), Frascari takes up Semper's thesis to examine the architectural production of Carlo Scarpa via an interpretation of the various details that he utilises in his construction. Frascari argues that architectural detail manifests in the 'joints' of a structure, such as the moulded capitals of columns or covered porches, and that these details represent 'the mediate or immediate expression of the structure and the use of buildings.'¹⁰⁸ In other words, it is the joint that articulates the 'task' of a building, i.e. its intentions, as well as intermediating between its practical, formal, and aesthetic concerns. 'The detail,' writes Frascari, is 'the minimal unit of signification in the architectural production of meanings':¹⁰⁹ It is integral to the building's content. Frascari's emphasis on the significance of detail has enabled me to comprehend the significance of the bound knot in Glithero's *Les French*. It is the binding that announces the pre-existence of the first model – of the bamboo-and-string proto-type – as well as the methods of its manufacture; for the proto-type to be at all legible, and in such explicit detail, necessitates the activities of mould making and casting. The bound knot tells the tale. Without it, the 'impulsive gesture we see in the first sketch' would be indecipherable.¹¹⁰ It is possible to gain support for this idea through a comparison with two contemporaneous furniture systems, the first being Jerszy Seymour's *Workshop Chair* (2009), and the second, FRONT's *Materialized Sketch* chair (2005). In both of these examples, as with Glithero's *Les French*, it is the "joints" – or lack thereof – that tell the tale, and that help to illuminate the particularity of *Les French*.

4.6. The Workshop Chair and "Amateur Glue"

Jerszy Seymour is a designer who continually questions the 'repetitive habits' and principles of industrial design, through the use of unorthodox materials and seemingly "amateurish" techniques.¹¹¹ *Workshop Chair* comprises a number of standardised cubic-plywood battens, as well as a simple square-cut seat, which are affixed together using a

¹⁰⁸ Frascari, 'The Tell-the-Tale Detail', p. 501.

¹⁰⁹ *Ibid.*, p. 498, n. 4.

¹¹⁰ Glithero, 'Les French' <<http://www.glithero.com/les-french>> [accessed 15 July 2016].

¹¹¹ Nick Currie, 'Love in the Time of Agita', *I.D.*, 56: 52 (2009), pp. 38-43 (p. 40). For a more acute review of the role of the amateur in craft practice, see Stephen Knott, *Amateur Craft: History and Theory* (London: Bloomsbury, 2015).

putty-like, bright red modelling wax, known as polycaprolactone (PCL) wax, at the joints (fig. 22). A photograph of the *Workshop Chair* on Seymour's website makes explicit the formal resemblance between it and furniture designer Enzo Mari's *Autoprogettazione* (1974), a series of furniture designed by the architect for the distinct purpose of democratising furniture-building in the 1970s (fig. 23).¹¹² There is a political edge to Seymour's skewed rendition of Mari's furniture, beyond its distinctly radical proposition. Mari's initial designs were intended 'for making easy-to-assemble furniture using rough boards and nails', with the purpose of 'teach[ing] anyone to look at present production with a critical eye.'¹¹³ In re-imagining *Autoprogettazione* using a crude modelling wax, Seymour undermines the "democratic" pretence of Mari's architect-designed furniture, which, despite its emphasis on 'making-do,' was nonetheless aesthetic.¹¹⁴ Mari's *Autoprogettazione* furniture was 'self-design' tinged with technical and aesthetic considerations, most notably in the construction of the joints, which, as Catharine Rossi has pointed out, borrowed from the techniques used by joiners for their workbenches.¹¹⁵ In other words, there is a method, or structural logic to Mari's production – a theoretical logic – that Seymour's substitution with wax contradicts.¹¹⁶ With its unsophisticated, glob-like joints, it appears even more impulsive.

The critical aspect of Seymour's design that not only approximates to Mari's *Autoprogettazione*, but also nuances the tale-telling detail of Glithero's *Les French*, is the use of red polycaprolactone wax at the joints – an easily softened, re-mouldable polyester that readily adheres to different material surfaces, and is often used as an amateur modelling material.¹¹⁷ I would argue that Seymour's PCL wax is the antithesis

¹¹² For a more nuanced discussion of Enzo Mari's *Autoprogettazione* series of furniture, see Catharine Rossi, 'Crafting Modern Design in Italy, from Post-War to Postmodernism' (doctoral thesis, Royal College of Art, 2011), pp. 359-73.

¹¹³ Enzo Mari cited in Rossi, 'Crafting Modern Design in Italy', p. 362.

¹¹⁴ Rossi, 'Crafting Modern Design in Italy', p. 362.

¹¹⁵ *Ibid.*, p. 369.

¹¹⁶ This relates to Mieke Bal's notion of the 'theoretical object', that is, an object that should be looked at, experienced, and dwelled on in order to decipher its meaning. I discuss Bal's ideas in more detail in section 3.3.4. See Mieke Bal, *Louise Bourgeois' Spider: The Architecture of Art-Writing* (Chicago: University of Chicago Press, 2001).

¹¹⁷ Seymour describes how his "'amateur glue" [...] turns pliable when warmed to 140 degrees Fahrenheit [60°C], and can then be used 'to build furniture from the scraps'. Seymour cited in Currie, 'Love in the Time of Agita', p. 40.



Figure 22.
Jerszy Seymour
– *Workshop Chair*,
plywood batons,
polycaprolactone
wax, dimensions
variable, 2009.

Courtesy Jerszy
Seymour Design
Workshop

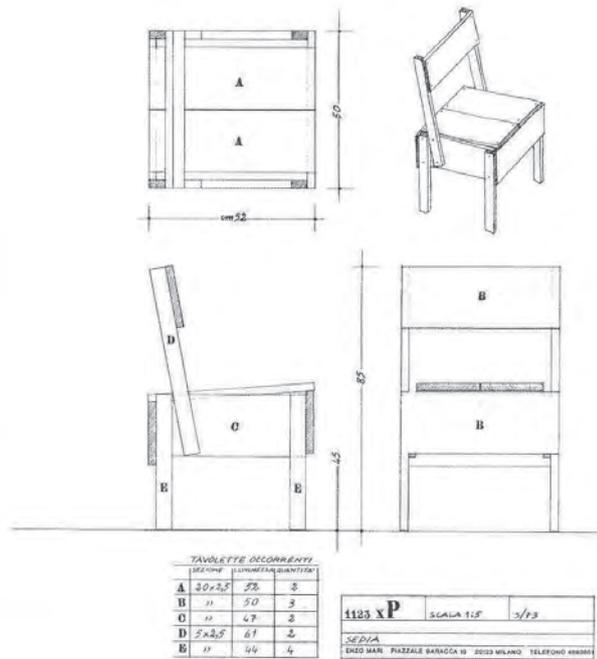


Figure 23.
Page from Enzo
Mari's *Proposta Per*
Un'Autoprogettazione
catalogue, 1974.

Courtesy
Blockprojekt

of Glithero's bound knot: it is indefinite, shapeless, and "frictionless". It reveals little about the strength and solidity of the *Workshop Chair*; its joints are concealed under a thick coating of bright-red 'amateur glue'.¹¹⁸ It is the undifferentiated nature of Seymour's 'gunk' that, as the direct inverse of the knot that binds, calls attention to the articulation of Glithero's wound-string joints;¹¹⁹ and, by extension, to the structural proposition of the skeuomorph. In its capacity as joint, the cast-bronze knot not only articulates the multiple phases of making that gave rise to *Les French*, but also explicitly communicates its construction. It is not at all ambiguous, but rather demonstrative of its origins. Despite the material homogeneity of *Les French*, there is contrariety and contradiction to it. This, I argue, is the peculiar tactic of the skeuomorph. It gives 'grain' to the object and *conventionality* to *invention*. It the "graininess" of the skeuomorph, its tangible material and temporal values that communicates the making of *Les French*.

Where Seymour's intention for his formless "amateur glue" is to 'rethink things from scratch',¹²⁰ a *tabula rasa* from which to work with materials, without the burden of tradition, Glithero achieves a much more sophisticated level of invention, drawing on the technical, and conceptual, modality of the knot that binds not only different materials, but also timeframes, and objectives. With *Les French*, Glithero demonstrates that invention entails successive phases of making, rather than a radical break with the norm.¹²¹ Returning to Frascari, he describes the skill and knowledge that is embodied in the making of details, as the locus of refinement in architectural production.¹²² I relate this dexterity to the careful attention bestowed on the bound knot in *Les French*. As Glithero's intern explained, the knot is the real locus of skill in the bronze casting: it is

¹¹⁸ Currie, 'Love in the Time of Agita', p. 40.

¹¹⁹ Gean Moreno, 'The Promises in Design's Soft Core: Jerszy Seymour's Uncontainable Scum', *Art Papers*, 33: 4 (2009), pp. 22-27 (p. 24).

¹²⁰ Moreno, 'The Promises in Design's Soft Core', p. 25.

¹²¹ Charles Jencks cites architect Antoni Gaudí as saying that: 'originality is returning to the origin,' that is, that being novel, or inventive, is not necessarily about being radical, but rather, in Jencks's own words, about being 'radically traditional'. Jencks, 'Adhocism' (13 July 2016); and Jencks and Silver, *Adhocism*, p. 39.

¹²² Frascari, 'The Tell-the-Tale Detail', p. 503.

the detail that distinguishes between the capabilities of Flash and those of Bronze Age; and it is the motif that determines the overall success of the piece.¹²³

4.7. Materialising the Freehand Sketch

Swedish design studio FRONT's *Materialized Sketch* chair works on a similar premise to Seymour's *Workshop Chair*, in that it comprises alternative methods of joining (fig. 24). Although where the *Workshop Chair* is fabricated from wooden battens and wax – that is, two distinct materials: one fibrous and structural, the other formless and mouldable – *Materialized Sketch* chair is formed of 3D-printed Acrylonitrile Butadiene Styrene (ABS) thermoplastic resin, mixed with ceramic filler and coated with automotive paint;¹²⁴ it is a homogenised, “frictionless” object, without any visible joints. FRONT explicitly describes the chair as a ‘sketch,’ much like Glithero's *Les French*, but where Glithero proposes to retain the ‘impulsive gesture,’¹²⁵ *Materialized Sketch* chair aims ‘to compress the normally lengthy process of moving from a design idea to a finished product.’¹²⁶ Its objective is to abbreviate the multiple phases of its making into one, fluid gesture, rather than retaining the before, after, and all that is in-between *in* that gesture. There is a temporal “grain” to Glithero's furniture that is lacking in FRONT's.

The *Materialized Sketch* chair uses Motion Capture software integrated into a digital pen, as well as advanced camera technology, to record a freehand sketch of a chair that is converted into a digital file. The captured drawing is then fabricated using laser sintering, an additive manufacturing technique, in which lasers are used to fuse ABS plastic powder, strengthened with ceramic filler, into layers, slowly building the object in three dimensions. Unlike Glithero's *Les French*, there is no previous model for the

¹²³ Studio visit with Glithero, Finsbury Park, London (5 May 2016).

¹²⁴ 'Front Design, "Materialized Sketch", 2005', Victoria and Albert Museum: Search the Collections <<http://collections.vam.ac.uk/item/O1299501/materialized-sketch-chair-front-design/>> [accessed 19 July 2016].

¹²⁵ Glithero, 'Les French' <<http://www.glithero.com/les-french>> [accessed 15 July 2016].

¹²⁶ 'Front Design, "Materialized Sketch", 2005', Victoria and Albert Museum: Search the Collections <<http://collections.vam.ac.uk/item/O1299501/materialized-sketch-chair-front-design/>> [accessed 19 July 2016].



Figure 24.
(Above) **FRONT Design** –
Materialized Sketch chair, 3D-printed
ABS resin with
ceramic filler,
coated with
automotive paint;
'drawn' using
specially-designed
instrument,
motion-capture
software and
cameras, H 76.5
cm, 2005.



(Below) **FRONT Design** – *Sketch Furniture*, 2007,
press image.

Courtesy
FRONT Design

Materialized Sketch chair; it directly translates the movement of the sketcher's hand into a finished product.

Most notably, the *Materialized Sketch* chair is devoid of joints, or rather, its structure depends on the careful positioning of folds, and on reinforcing the outline of the sketched object with doubled-back 'strokes'.¹²⁷ It constitutes one fluid line, repeated in places, and it lacks the material friction that leaves traces of its making. While it may be possible to follow the forward movement of the sketch – from lower-left leg to seat, for example – there is neither obvious direction to the object, nor resistance. In that sense, it resembles an injection-moulded plastic chair; it is textureless and timeless.¹²⁸

Glithero's *Les French* more accurately performs the function of the sketch, owing to its material stops, starts, and movements. It is possible to deduce, from the careful observation of its "structure-form", the methods of its manufacture: In order for the bamboo legs to stand, they would need to be fastened together; in order for the structure to endure, it would need to be reimagined in a stronger material: bronze.

There is an evident sequence of events to the making of *Les French*, which is gathered up, and articulated, in the knot. Frascari asserts that: 'The joint, that is, the detail, is the place of the meeting of the mental construing and of the actual construction.'¹²⁹

Glithero's knot integrates the functioning of the object as furniture; the historical and technical dimensions of the knot as the motif that binds, both materially and conceptually; as well as being the key, aesthetic element of the piece. The skeuomorphic knot tells the tale.

¹²⁷ FRONT, 'Sketch Furniture Performance Design' <<http://www.frontdesign.se/sketch-furniture-performance-design-project>> [accessed 19 July 2016].

¹²⁸ Roland Barthes wonderfully describes the versatility of plastics in *Mythologies* (1972): 'So, more than a substance, plastic is the very idea of its infinite transformation; as its everyday name indicates, it is ubiquity made visible.' Roland Barthes, 'Plastic' in *Mythologies*, trans. by Annette Lavers (New York: Hill and Wang, 1972), pp. 97-99 (p. 97). See also, Susanne Küchler and Peter Oakley, 'New materials and their impact on the material world', in *Objects and Materials: A Routledge Companion*, ed. by Penelope Harvey (London; New York: Routledge, 2014), pp. 82-91 (p. 83).

¹²⁹ Frascari, 'The Tell-the-Tale Detail', p. 503.

5. THE TACTICS OF MAKING SILO STUDIO'S TEXTILE-MOULDED GLASS (2012)

We have a little tag line for how we will approach this project, and how we will approach future projects. We say: “handmade, high-tech.” The material is high-tech; it does most of the work for us. We just drive it in the right direction. So, that’s “handmade, high-tech”. (Silo Studio, 2015)

Silo Studio is a London-based design studio set up by Attua Aparicio and Oscar Lessing¹ in 2011, both of whom are graduates of the Design Products MA programme at the Royal College of Art (RCA), London (2009-2011). Silo experiments with the raw materials of industry, expanding on their application in a manufacturing context to explore their innovative potential, while also developing a distinct language of making. Silo’s aim is to reinstate craftsmanship in the making process through the direct, handcrafted modification of industrial processes, an approach they term “handmade high-tech.” Silo’s conscious merging of the handmade with cutting-edge technologies, of artisanal with industrial production – a dialectic method of skill and experimentation – is representative of contemporary making, and positions them at the centre of this research into the inventive potential of the skeuomorph for material practice. Silo’s extensive range of projects includes: colourful textile-moulded glassware (tumblers, carafes, and “*botijos*” or, “water containers”);² jewellery modelled from their Not So Expanded Polystyrene (NSEPS), which is a modified form of expanded polystyrene (EPS) with a ‘noisy pixelated quality’;³ and furniture made from compression-moulded ForMi, a thermoplastic reinforced with wood fibres (fig. 25). What seems to unite their

¹ Oscar Lessing, né Wanless, changed his surname in November 2015 following the birth of his first child. The literature pre-2016 refers to him by his previous surname, Wanless.

² Silo’s *botijo* is an inventive take on the Spanish *botijo*, or water container, commonly made in clay, which is designed to keep water cool in warm weather through a process of evaporation. See Silo Studio, ‘Shop’ <<http://www.silostudio.net/shop>> [accessed 30 August 2016].

³ ‘Silo Studio’, dir. by Dan Gianini and LS:N Global (2013) <<https://vimeo.com/55602615>> [accessed 8 April 2015].



Figure 25.
 (From top to bottom) **Silo Studio**
 – *Tela* glassware,
 coloured soda
 glass, 2013.

Courtesy Silo
 Studio

Silo Studio – *Table,
 Tray and Bowl*, UPM
 ForMi, 2013.

(Photo: *Wallpaper**
Handmade 2013)

Silo Studio
 – *Bangle*, Not
 So Expanded
 Polystyrene
 (NSEPS), 2011.

Courtesy Silo
 Studio



production, however, is experimentation with materials, which reveals the skeuomorph as an inventive tactic of making.

I argue that the skeuomorph, as a mode of making, enables materials to perform in unexpected, and often innovative, ways. Rather than privilege the finished form, Silo focus on modifying materials that are otherwise allied to a particular industrial process, encouraging them to perform in new ways. While Tim Ingold has argued that this approach is representative of responsive makers, Silo seem particularly attuned to ‘the drawing out or bringing forth of potentials’.⁴ Through a close examination of Silo’s making processes, I argue that form – whether achieved using a textile mould, or the centrifugal force of a rotating bucket⁵ – is actually secondary to the materials used; or more precisely, that experimenting with materials determines the form.⁶ Silo’s efforts to liberate materials from their more conventional applications is consistent with the current interest in “process” among contemporary makers, which is, in part, a reaction against the perfection of industrial production, as well as symptomatic of a broader interest among users to actively engage in the conception and production of made things.⁷ In a move that corresponds with craft theorist David Pye’s distinction between the ‘free’ workmanship of risk and the ‘regulated’ workmanship of certainty,⁸ makers demonstrate ambitions to foreground the messy, unpredictable nature of materials, rather than the predetermined, even anodyne, forms of mass production.⁹ Silo adapts

⁴ Tim Ingold, *Making: Anthropology, Archaeology, Art and Architecture* (Abingdon, Oxon: Routledge, 2013), p. 31.

⁵ See, for example, Silo Studio’s project *Newton’s Bucket* (2014), in which they adapt Newton’s laws of rotational motion to produce a concave vessel from different coloured resins within a hollow bucket-form. ‘Newton’s Bucket’, dir. by Silo Studio (2014) < <https://vimeo.com/96064901> > [accessed 9 April 2015].

⁶ Ceramist Ewen Henderson gives voice to the influence of materials on form: ‘Whenever you tie something down and it works, the next step is to try something opposite – and that’s the creative procedure. I think that the origin of form, what you refer to to make form, can come from anything, from an elephant’s tusk down to a crumpled stocking. Every beginning has an infinite number of endings and more excitingly, every ending has a number of new beginnings, and it’s just that really.’ Ewen Henderson cited in *Pandora’s Box* (exhibition catalogue) (London: Crafts Council, 1995), p. 6.

⁷ Catharine Rossi, ‘Thinking About Making’ (Institute of Contemporary Arts, London, 4 March 2015).

⁸ David Pye, ‘The Nature and Art of Workmanship’, in *The Craft Reader*, ed. by Glenn Adamson (Oxford: Berg, 2010), pp. 341-53.

⁹ For a definitive example of this approach to making, see Thomas Thwaites’s ‘The Toaster Project’, in which the designer attempts to build (or, ‘reverse-engineer’) an electric toaster from scratch. Thomas Thwaites ‘How I built a toaster – from scratch’, TED < http://www.ted.com/talks/thomas_thwaites_how_i_built_a_toaster_from_scratch/transcript?language=en > [accessed 9 April 2015]. This approach is evident in the work of countless other makers, whose work is published

the 'shape-determining systems' of industry identified by Pye, such as templates, jigs, and machines,¹⁰ often riffing on the automated process to alter the outcome. For example, with their NSEPS process, Silo abandons the pre-expansion and curing stages that are vital to EPS manufacturing, and instead subjects the polystyrene beads to steam (at 100°C) in handmade textile moulds (fig. 26). Aparicio has hinted at their tongue-in-cheek appropriation of EPS manufacturing, which is evident in their annexing 'Not So' to the material's nomenclature.¹¹ Furthermore, Silo take a cross-disciplinary approach to material practice, exchanging tools, techniques, and ideas across contexts, as a means to expand on the competencies of materials; for example, developing textile moulds, rather than those of cast-iron common to industry, to delimit the expansion of polystyrene. Yet, Silo's simplified approach to plastics manufacture is, in fact, where their ingenuity lies. Crucially, it is through their 'reactive' approach to making that Silo is able to innovate.¹²

This approach challenges the Aristotelian form-matter principle, in which form is believed to *inform* matter, with the skeuomorph emerging as a tactic for exploring the intrinsic qualities of materials. Indeed, Silo actively engineer their materials to behave differently, to engender form – whether through expansion and fusion, or vitrification – yet in a 'more expressive way'.¹³ The skeuomorphic mode is, in this instance, a *facilitating* activity; it mobilises the frame-like capacities of form to assist the performance of materials. The focus here is the mediation between form and matter in the making process, in-and-of-itself, and posits the skeuomorphic mode as a dialectical activity that redirects the static nature of form to the task of performing matter.¹⁴ It

in *Crafts* (1973-present); *ICON Magazine* (2003-present); *Disegno: The Quarterly Journal of Design* (2011-present), among others.

¹⁰ Pye, 'The Nature and Art of Workmanship', p. 343.

¹¹ Personal communication with Silo Studio (1 April 2015).

¹² Oscar Lessing cited in 'The Why Question?' (Royal College of Art, Battersea, 22 June 2016).

¹³ Silo Studio cited in *Composite* (exhibition leaflet) (Two Columbia Road, London, 21-25 September 2011).

¹⁴ Art historian Monika Wagner argues that form and matter are engaged in a 'reciprocal relationship' in artistic production; that the 'performance', or potential, of the object is reliant on their working together. This view challenges the privileging of form over material, and attributes agency to matter. See Monika Wagner, 'Material', in *MATERIALITY*, ed. Petra Lange-Berndt (London: Whitechapel Gallery; Cambridge, MA: MIT Press, 2015), pp. 26-30 (p. 26).

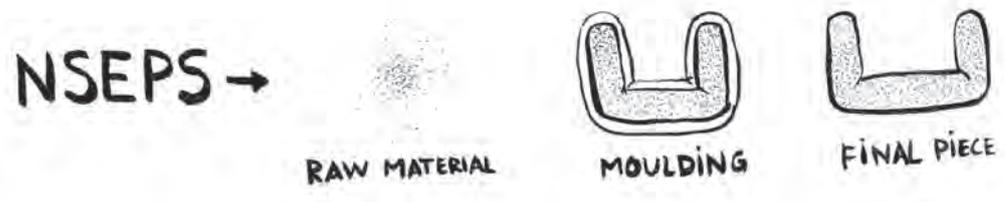
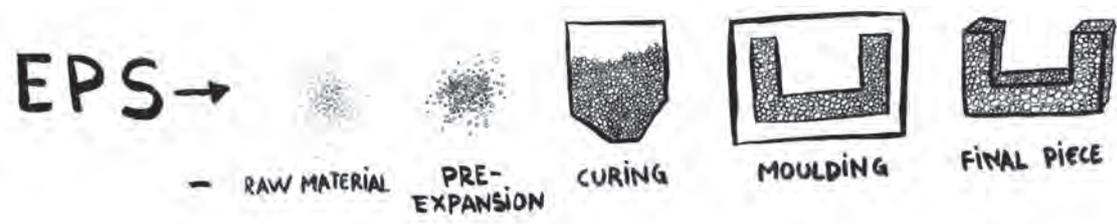


Figure 26.
NSEPS process.

Courtesy Silo
Studio

shifts the focus to the influence of materials on form: it is the facilitative nature of the skeuomorph that fascinates Silo.

5.1. The Alchemy of Making

Silo's concern for the individuating potential of materials embodies the spirit of 'the new arcanists' identified by Glenn Adamson. With reference to the 'complexity and secretiveness' of early craftsmanship – for example, in the production of porcelain –, Adamson describes a situation whereby contemporary makers increasingly innovate and experiment with craft-based knowledge. 'The arcanist,' he writes, 'operates in an imaginative register, working on what might be rather than exploring what already exists';¹⁵ and this predisposition to trial and error is evident in Silo's practice. Yet, where the 'arcane' is often read as 'mysterious or secret,' Silo works with craft-intensive processes in an explicit attempt to destabilise the routine practices of industry. As Lessing explains: 'People don't really understand what happens in factories; we want to make sure that people understand the [...] materiality of things. There's a lot of [...] alchemy involved in making plastics.'¹⁶ While their approach is not explicitly concerned with economies of production, Silo understands the restricted conditions of industrial manufacture: by working with materials, such as EPS and borosilicate glass, on a much smaller scale, and often at a slower pace, Silo are able to expand on the intrinsic – and often retracted – capacities of materials, and in doing so, challenge the conventions of materials knowledge.¹⁷

It is this expansive approach to materials that sets Silo apart from other studios; Silo willingly engineer mistakes to discover new things, acquiring skills as-and-when needed. Lessing describes them as 'reactive, not proactive',¹⁸ and it is this propensity for

¹⁵ Glenn Adamson, *The Invention of Craft* (London: Bloomsbury, 2013), pp. 53-126 (p. 105).

¹⁶ 'Extraordinary Stories about Ordinary Things: Silo Studio', dir. by Alice Masters (2013) <<http://www.silostudio.net/video>> [accessed 29 August 2016].

¹⁷ This notion finds support in Mike Ashby and Kara Johnson's *Materials and Design* (2002), in which the authors explore the different methods available to designers to expand on the functionality of materials. Mike Ashby and Kara Johnson, *Materials and Design: The Art and Science of Material Selection in Product Design* (Oxford; Boston: Butterworth-Heinemann, 2002).

¹⁸ Lessing cited in 'The Why Question?'

experimentation that warrants attention with regard to the skeuomorph. I am not suggesting that Silo *consciously* adopts the skeuomorphic mode, but rather that, in embracing the different competencies of materials, they are able to depart from any standardised approach to manufacturing and, in doing, widen the possibilities for ‘material solutions’.¹⁹ Lessing sees this as a generative process, one that ultimately benefits both makers and industry: ‘Our mission is to continue to look at industrial processes, and we develop them, and then the main goal is to offer them back—so, we close the loop. We [...] take from industry and then we bring it back to them.’²⁰ In other words, Silo aims to engender a broader range of applications for raw materials. These young designers, and others like them, are at the forefront of material practice, and their interactions with industry have the ability to influence manufacturing from the bottom-up.

Silo’s specific intention ‘to find new potential in a familiar material’²¹ resonates with what Susanne Küchler has identified as the increased specificity of materials in contemporary design, with designers and manufacturers adapting and remodelling materials to suit a particular application – what she calls ‘materials by design’. Küchler describes a situation in which materials are no longer secondary in the design process, but rather the starting point; in other words, materials have agency in the activity of making *over and above* form and functionality: ‘The thriving economy in new materials revolves around highly mobile and complex materials, moving from institution to institution as they are adopted, transformed, and manufactured into products to suit a number of distinct functions.’²² Küchler cites rubber as the definitive example of a material, whose technical function, plasticity, and elasticity has produced a variety of artefacts from a diver’s suit to a raincoat. ‘The rediscovery of known materials,’ she argues, ‘shows that all materials are potentially new’;²³ in other words, the material

¹⁹ Ashby and Johnson, *Materials and Design*, p. 127.

²⁰ ‘Silo Studio’, dir. by Dan Gianini and LS:N Global (2013) <<https://vimeo.com/55602615>> [accessed 8 April 2015].

²¹ Jablite: Intelligent Insulation, ‘Jablite Insulation appoints Designers-in-Residence’ (2012) <<http://jablite.co.uk/news/2012/feb/6/jablite-insulation-appoints-designers-in-residence>> [accessed 10 April 2015].

²² Susanne Küchler, ‘Materials and Design’ in *Design Anthropology: Object Culture in the 21st Century*, ed. by Alison Clarke (Wien; New York: Springer, 2010), pp. 124-35 (p. 129).

²³ Küchler, ‘Materials and Design’, p. 127.

drives the innovation. In the same way, Silo has engineered their own variant of EPS to suit their fabrication needs; the designers were looking to create a more durable, rigid plastic material that could be moulded using handmade textile moulds.²⁴ NSEPS is the result of months of trials and experimentation.²⁵ Küchler's thesis centres on the radical rethinking of materials in the modern world, the implication being that Silo's materials experimentation is the epitome of contemporary practice.

Crucial to this research is Silo's implementation of the skeuomorph, either in their NSEPS process, or their textile-moulded glass. In each case, their aim is to 'change perceptions of the material,'²⁶ yet the question is whether it is skeuomorphism that provides them with the means to do this effectively. Thus, I examine two corresponding works in detail: first, Silo's *Textile-Moulded Glass*, which they introduced at their first solo exhibition at Marsden Woo, London, in autumn 2012; and second, their *Tela* glassware, a commercial interpretation of their textile-moulded glass produced, in collaboration with Danish furniture company HAY, at Denizli, a small glass manufacture in Turkey. It is the textile imprint on Silo's glassware that corresponds to the historical skeuomorph. In 'Photographs, Skeuomorphs and Marionettes' (2002), Carl Knappett cites the common example of a basket skeuomorph, in which 'the clay is *physically forced* to take the appearance of a basket because it is pressed into a mould bearing relief basket patterns.'²⁷ He describes how the 'method of production is quite conspicuous in the product,'²⁸ which is also true of Silo's *Textile-Moulded Glass* with its visible warp-and-weft imprint. Yet, where Knappett emphasises the coercion of the clay into the basket mould, I am interested in the correspondence between glass and textile mould in Silo's case.

²⁴ 'Jablite Insulation appoints Designers-in-Residence' (2012).

²⁵ Silo's radical transformation of EPS is recognised by Philip Howes and Zoe Laughlin in their book *Material Matters: New Materials in Design*, in which their Not So Expanded Polystyrene (NSEPS) is described as 'a solid and structurally sound new material'. Philip Howes and Zoe Laughlin, *Material Matters: New Materials in Design* (London: Black Dog Publishing, 2012), p. 144.

²⁶ Silo Studio, 'About' <<http://www.silostudio.net/about>> [accessed 27 January 2015].

²⁷ Carl Knappett, 'Photographs, Skeuomorphs And Marionettes: Some Thoughts on Mind, Agency and Object', *Journal of Material Culture*, 7: 1 (2002), pp. 97-117 (p. 110) [emphasis mine].

²⁸ Knappett, 'Photographs, Skeuomorphs And Marionettes', p. 110.

The focus of this chapter is the integrative role of the mould-making process, as well as the shaping of glass in two discrete contexts. The methods developed by Silo reveal the ambiguity and transformation of materials through the merging of techniques associated with particular materials. From the adaptation of glassblowing techniques to form the warp and weft of textile to the precision of cast-iron moulds in industry, I examine the skeuomorphic agency of Silo's materials, and argue that, in each instance, the skeuomorph plays a *facilitative* role in material practice.

5.2. The Search for Form

The method used by the contemporary artist is a constant probing and questioning of the standards of the past and the definitions of the present to find an opening for *new form statements in the material and the process*. It is even said that this search is the end in itself.²⁹

In the autumn of 2012, Silo were invited by then curator of Marsden Woo's Project Space, Tessa Peters, to exhibit 'the outcomes of their most recent experiments with materials and techniques'³⁰ in the lower gallery at their former site in Clerkenwell, London. *Form Follows Function: Experiments in Textile Moulding* featured the full panoply of Silo's studio output to date in a variety of materials, including a brightly coloured borosilicate glass mobile; distended bangles made from coloured NSEPS beads; and shelves with skewed, moulded-aluminium brackets. Arguably, calling the exhibition *Form Follows Function* was a misnomer: Consciously associating Silo's practice with the modernist dictum denies it of its foundation in experimentation.³¹ Silo delight in the unknown and uncontrollable, preferring to respond to their materials, rather than control them.³² *Form Follows Materials* would seem a more appropriate

²⁹ Harvey K. Littleton, *Glassblowing: A Search for Form* (New York: Van Nostrand Reinhold, 1980), p. 13 [emphasis mine].

³⁰ Marsden Woo Gallery, 'Silo Studio' (press release) (Marsden Woo Project Space, London, 13 September-27 October 2012).

³¹ Silo Studio is concerned with expanding on the capacities of materials, rather than working with those deemed "appropriate" to them.

³² Lessing cited in 'The Why Question?'

title.³³ Principally, it is the capacity of textiles to be hand-stitched to create moulds in different scales and configurations that facilitates Silo's experimentation in this context; yet, conversely, it is also the adoption of materials that 'record the textural quality and stitching of the fabric mould'³⁴ that enables them to innovate (fig. 27). The textile moulds influence the casting, although this is not a one-way process. Rather, it involves the interaction *between* mould *and* casting material. It is the synergy between the textile mould and fluidity of glass, or plastics, involving the transference of form across both, that reveals the skeuomorphic agency of Silo's objects.

This activity is particularly noticeable in the recent adaptation of Silo's textile-moulded glass for industry. In 2013 designer Sebastian Wrong, who, at that time, was teaching on the RCA's Design Products programme, encouraged Silo to collaborate with Danish furniture company HAY, under his leadership, to manufacture their textile-moulded glass. Described in HAY's online catalogue as 'a collection of glassware with the outer surface texture of stitched textile,'³⁵ *Tela* glassware (2013), which includes tumblers, bowls, and carafes, certainly resembles the textile-moulded ware produced in the studio (fig. 28). Yet, there is a noticeable abbreviation, or shortcut, in their material performance.

Tela exhibits the symmetry and competence secured by Pye's 'workmanship of certainty,'³⁶ while, at the same time, relying on the more conventional application of soda glass, rather than pushing its aesthetic and tactile qualities, as Silo does. *Tela* glassware becomes an "abstract" representation, or "symbolic," of the textile-moulded glass.³⁷ The serially produced variant of Silo's glassware is visibly truncated, and I propose that this difference is largely due to the conditions of the mould, which has

³³ Mike Ashby has coined the phrase 'Form Follows Materials' to emphasise contemporary makers' predilection for experimenting with materials, rather than fulfilling function, in the design process. Ashby and Johnson, *Materials and Design*, p. 114.

³⁴ Howes and Laughlin, *Material Matters: New Materials in Design*, p. 144.

³⁵ HAY, 'TELA: Designed By Silo Studio' <<http://www.hayminimarket.com/en/hay/accessories/kitchen--dining/tela>> [accessed 21 September 2016].

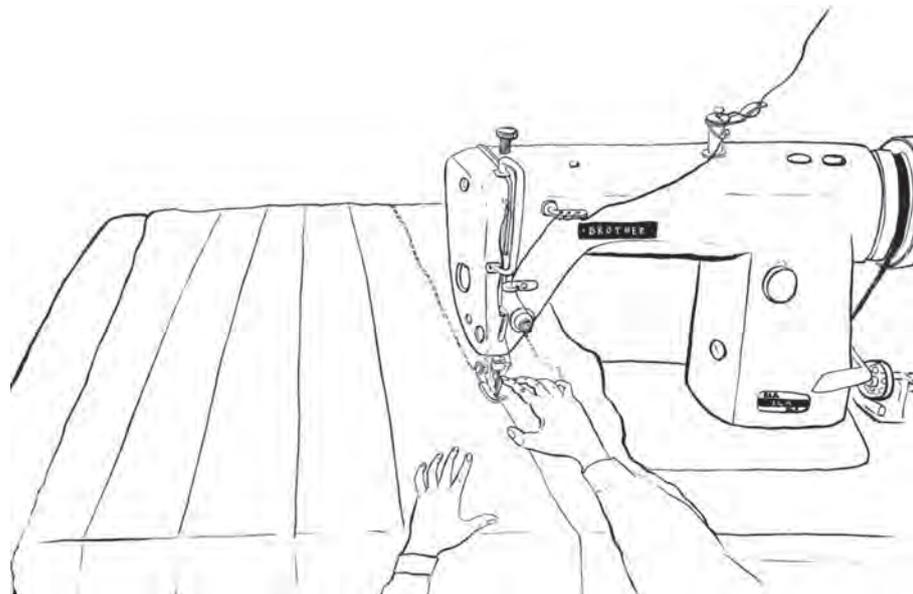
³⁶ Pye, 'The Nature and Art of Workmanship', p. 341.

³⁷ I discuss the notion of the "icon" in more detail in section 3.2.4; and "abstraction", as an idea that does not necessarily materialise, via Gilbert Simondon, in relation to Arline Fisch's *Lace Ascot* (1980) in Chapter 6.



Figure 27.
(Above) **Silo Studio's Brother sewing machine,** Stratford, 2015.

(Photo: Kimberley Chandler)



(Below)
Illustration of Silo Studio's machine-made textile moulds.

(Illustration: Sae Aparicio)



Figure 28.
Silo Studio
– *Tela* tumblers,
carafes, and *bowls*
(clear and smoke),
soda glass, various
sizes, 2013.

Courtesy HAY

been modified for serial manufacture. In the glassblowing process, it is the exhalation of air that initiates the formation of the glass, although this process is compromised within different material contexts. In *Notes on the Synthesis of Form* (1971), architectural theorist Christopher Alexander writes that ‘the context [...] puts demands on form,’³⁸ meaning that there is an appropriate context for the emergence of form. This appropriateness is evident in the qualitative difference between Silo’s *Textile-Moulded Glass* and their *Tela* glassware: In the textile mould, the glass takes form comparatively freely; in the industrial context, the glass is constrained by the alloy-steel mould. While both iterations are undoubtedly skeuomorphic, their variation in “grain” – one artisanal, the other industrial – points to different scales of skeuomorphic production.³⁹ My emphasis on the handmade mould is not a submission to nostalgia for pre-modern craftsmanship, but rather a method used to expose the subtle nuances of the skeuomorph in Silo’s production.

I draw from Gilbert Simondon’s detailed exposition of the correspondence between clay – an equally plastic material – and mould in the forming of a clay brick, and Giuseppe Penone’s *Breaths* series (1978), in which the artist makes tangible the influence of his own breath in different materials; as well as comparable instances in which contemporary makers have tested, and adapted, their materials, in order to contextualise Silo’s particular approach, and the peculiarities of the skeuomorphic mode.

5.3. Unusual Pairings: The skeuomorph at work

In order to understand the making of Silo’s textile-moulded glass, I examine the process in three stages. First, I describe the making of a glass tumbler as demonstrated in their video, *Textile-Moulded Glass* (2014). This descriptive method tends towards the rhetoric of handbooks, which, in the present context, is often manifested visually in short maker, or ‘process’ videos on YouTube and Vimeo that, as Elizabeth Glickfeld has argued,

³⁸ Christopher Alexander, *Notes on the Synthesis of Form* (Cambridge, Massachusetts: Harvard University Press, 1971), pp. 18-19.

³⁹ I discuss the notion of an object’s “grain”, via Kristen Kreider, in section 3.1.2.

‘theatricalize bespoke methods of production,’⁴⁰ rather than through textual sources. This interpretation is supplemented by notes made during two consecutive visits to Silo’s studios in east London.⁴¹ Second, I examine the textile-moulded process in line with Simondon’s analysis of the ‘technical operation’ of a clay brick in his *The Physico-biological Genesis of the Individual* (1964),⁴² drawing on texts written by glassblowers and materials scientists alike, to explore the glassblowing process on a micro-level. Finally, with this knitted explanation of the glass-blowing process, I theorise the agency of skeuomorph in the making of Silo’s textile-moulded glass, drawing a comparison between their hand-blown productions, and the mass-manufactured *Tela* glassware for HAY, to reveal the nuanced behaviour of materials in the transference of form.

5.4. Arresting the Process

In order to witness the making of an object, which often happens prior to the research process, researchers often have recourse to documentation. Video, or what is referred to here as ‘process video,’ is an important medium for documenting that process. This is due, primarily, to the activity of making: it is a temporal, emergent, and dialogic process between maker and material that involves a ‘correspondence,’⁴³ to borrow from Ingold, and an element of unpredictability. Glitches, mistakes, and “happy accidents” rest in the

⁴⁰ Elizabeth Glickfeld, ‘Film Studio: Theatricalizing the design process online’, *frieze.com*, 157, 9 September 2013 <<https://frieze.com/article/film-studio/>> [accessed 22 September 2016]. There is very little literature available on the increased exposure of the making process in films made by contemporary designers. Glickfeld’s is a notable exception, as well as Ann-Sophie Lehmann’s article ‘Showing Making’ (2012), in which the author discusses the ways in which to approach visual representations of practice with explicit reference to Japanese photographer Enami Nobukuni’s photographs. See Ann-Sophie Lehmann, ‘Showing Making: On Visual Documentation and Creative Practice’, *The Journal of Modern Craft*, Vol. 5, Issue 1, March 2012, 9-24. See also, Peter Lloyd, ‘Making a drama out of a process: how television represents designing’, *Design Studies*, 23: 2 (2002), pp. 113-33 <[http://doi.org/10.1016/S0142-694X\(01\)00024-2](http://doi.org/10.1016/S0142-694X(01)00024-2)>; and Gareth Williams, ‘Towards a Theory of Performative Design’, *Design and Time: Design History Society Conference 2016* (Middlesex University, London, 8-10 September 2016) <<http://designandtime2016.co.uk/author/designandtime2016/>> [accessed 22 September 2016].

⁴¹ Silo works out of two studios: one in Leyton, and the other in Stratford, both in east London.

⁴² Taylor Adkins, ‘Translation: Simondon and the Physico-Biological Genesis of the Individual: Chapter One: Form and Matter: Section I—Foundations of the Hylemorphic Model: Technology of the Capture of Form’ (3 October 2007) <<https://fractalontology.wordpress.com/2007/10/03/translation-simondon-and-the-physico-biological-genesis-of-the-individual/>> [accessed 21 September 2016]. Few of Simondon’s works were published during his lifetime, and, given the scarcity of English translations, I draw specifically on three translated works throughout this chapter. Alongside Adkins’s translation of ‘The Physico-biological Genesis of the Individual’ that is available online, these are: Gilbert Simondon, ‘The Genesis of the Individual,’ in *Incorporations*, ed. by Jonathan Crary and Sanford Kwinter (New York: Zone, 1992), pp. 296-319; and Gilbert Simondon, ‘Technical Mentality,’ trans. by Arne de Boever, in *Gilbert Simondon: Being and Technology*, ed. by Arne de Boever, Alex Murray, Jon Roffe, and Ashley Woodward (Edinburgh: Edinburgh University Press, 2012), pp. 1-15.

⁴³ Ingold, *Making*, p. 7.

final form but are not necessarily visible. Thus there is remarkable symmetry between film, as a time-based medium that emerges frame-by-frame, and the flow of making. As the film unfolds, so too does the object. Added to this is the recent shift in engagement with social media platforms like YouTube, Instagram, and Vimeo, and the relative ease with which film can be captured (either on a smartphone, or digital camera), edited, and uploaded – all of which sets the conditions for the advent of maker videos.⁴⁴ Certainly, the emergence of process videos corresponds with the turn towards process by contemporary makers under the rubric of ‘performance design.’⁴⁵ Yet, film also has the advantage of being easily modified and reworked. As Lev Manovich concedes, what appeals about new media is that ‘time is mapped onto two-dimensional space, where it can be managed, analysed, and manipulated more easily’;⁴⁶ simply put, the continuous nature of making can be divided up, and examined, as discrete data.⁴⁷ This data can be revisited and re-examined; film has the capacity to expand on, and effectively slow down, the making process, which is beneficial to makers, online users, and researchers.⁴⁸ Seconds become minutes in a slow-motion sequence, and, for the purposes of research, film facilitates access to an exhaustive account of the making process. Yet, it is the ability to edit film that, at the same time, undermines its value as source material: film is an inherently conflicted medium.

While process videos, or visual representation of any kind, should be approached with caution, as a highly structured and mediated form of documentation, its potential as a research source cannot be overlooked. Silo purposefully cite YouTube as their default

⁴⁴ See, for example, Larissa Hjorth and Sarah Pink, ‘New visualities and the digital wayfarer: Reconceptualizing camera phone photography and locative media’, *Mobile Media & Communication*, 2: 1 (2014), pp. 40-57 <<http://doi.org/10.1177/2050157913505257>>; and *The Routledge Mobile Media Companion*, ed. by Cynthia Carter, Linda Steiner, and Lisa McLaughlin (New York: Routledge, 2014).

⁴⁵ Catharine Rossi suggests the phrase ‘performance design’ to describe those makers who foreground making over conception, or realisation. Catharine Rossi, ‘Thinking About Making’ (Institute of Contemporary Arts, London, 4 March 2015).

⁴⁶ Lev Manovich, *The Language of New Media* (Cambridge, MA: MIT Press, 2001), p. 51.

⁴⁷ This approach corresponds with the rationale behind Edward Barber and Jay Osgerby’s exhibition *In the Making* (2014) for London’s Design Museum, in which the designers ‘captured over twenty objects mid-manufacture, putting the aesthetic of the unfinished centre stage.’ Design Museum, ‘Edward Barber & Jay Osgerby: In The Making’ <<http://barberosgerby.com/projects/view/in-the-making/>> [accessed 29 July 2016].

⁴⁸ London’s Crafts Council recently launched *Real to Reel: The Craft Film Festival* with the aim of exploring ‘our relationship with materials and making in different ways’ via the medium of film. See, Crafts Council, ‘Real to Reel: The Craft Film Festival, Picturehouse Central, London, 4-5 May 2016’ <<http://www.craftscouncil.org.uk/what-we-do/real-to-reel-the-craft-film-festival/>> [accessed 29 July 2016].

resource for researching into alternative processes, production techniques, and materials knowledge⁴⁹ – drawing on what Ann-Sophie Lehmann describes as the ‘instructional function’ of images;⁵⁰ and their approach is reflective of a broader interest among makers to document, as well as circulate, images and videos of their making processes. Yet, despite its popularity, process video has largely been overlooked in an academic context.⁵¹ In her brief account of the history of documentation of art practice, Lehmann recognises that ‘visual representation of practice has multiplied in online tutorials, photo-sharing platforms, and YouTube videos that demonstrate “how to” make every artifact imaginable,’ which she calls ‘showing making’.⁵² Notably, Lehmann identifies four main functions of visual documentation as a genre, which are useful in this context: first, their ‘archival function,’ which concerns the role of film to record the making process as an archival source; second, their ‘instructional function,’ that is, their ability to instruct in place of other textual, visual, or aural sources; third, their ‘participatory function,’ which implicates the viewer as observer, or potential collaborator; and finally, their ‘display function,’ or the ways in which makers edit their videos to partially document the process, retaining a certain degree of authorship.⁵³ Yet, despite Lehmann’s explicit intention to ‘acknowledge how the complex interaction between humans, materials, tools, and technologies shapes the [...] resulting artifact,’⁵⁴ the documentation process is reduced to a set of functions that is chiefly one-directional and human-centred, and that, more significantly, overlooks the two-way process of making. To my mind, Lehmann’s categories fail to observe the performance of the materials themselves. Thus I propose an additional function of showing making: that of *exchange*. Rather than focus on the static forms of (human) production, process video exposes the

⁴⁹ Personal communication with Silo Studio (8 March 2015).

⁵⁰ Lehmann, ‘Showing Making’, p. 9.

⁵¹ Lehmann makes this salient point in ‘Showing Making’. Lehmann does, however, note the proliferation of ‘artists’ documentaries,’ as well as “‘making-of” features in film’. I would add to this the film reconstructions of artists’ studios, for example, the Francis Bacon Studio at Dublin City Gallery The Hugh Lane, and Lucie Rie’s studio at the Victoria & Albert Museum, London; rare documentary footage of craftsmen at work, such as *Potters at Work*, dir. by Marty Gross (1976) and *The Leach Pottery*, dir. by Marty Gross (1952); and more recent documentary films such as *Manufactured Landscapes*, dir. by Jennifer Baichwal (2006) about the work of photographer Edward Burtynsky.

⁵² Lehmann, ‘Showing Making’, p. 13.

⁵³ *Ibid.*, p. 9.

⁵⁴ *Ibid.*, p. 14.

dynamic exchange between maker and material throughout the making process. It is through film, as an index of the production process, that we can more fully apprehend the performance of materials: in this instance glass.

In addition, Silo's adoption of the process-video format proves particularly useful, since there is limited evidence of their textile-mould-making process. Furthermore, Silo engages with its materials as co-collaborators; they are mindful of the "performativity" of materials, their aim being to activate responses – whether 'physical, mechanical, electrical, [or] optical' – that are intrinsic to them.⁵⁵ Arguably, this complex performance is best captured through a time-based medium. Silo's sensitivity to materials is evident in their video *Textile Moulded Glass* (2014), in which the designers are all but absent; it documents the performance of glass under the influence of textiles, as well as the influence of 'energy conditions,' to borrow from Simondon.⁵⁶ That is, forces that influence the making process, whether human or non-human, such as the glassworker's flame, and the rotational movement of the "claw grabber," that directs the forming process.

5.5. Activating Forms of Exchange

On the 'Videos' page of Silo's website is a one-and-a-half-minute video by Aparicio and Lessing that presents their textile-moulding process.⁵⁷ Shot in

⁵⁵ Silo Studio cited in 'The Why Question?'; and Ashby and Johnson, *Materials and Design*, p. 51. Many thinkers corroborate this notion of material as being "performative", that is, that it demonstrates specific behaviours and is, therefore, agentic. Notable examples include: Gilbert Simondon, 'The Genesis of the Individual,' in *Incorporations*, ed. by Jonathan Crary and Sanford Kwinter (New York: Zone, 1992), pp. 296-319; Bruno Latour, *We Have Never Been Modern*, trans. by Catherine Porter (New York; London: Harvester Wheatsheaf, 1993); Elizabeth Grosz, *Volatile Bodies: Toward a corporeal feminism* (Bloomington, Indiana: Indiana University Press, 1994); Gilles Deleuze and Félix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia*, trans. by Brian Massumi (Minneapolis; London: University of Minnesota Press, 2005); *Material Agency: Towards a Non-Anthropocentric Approach*, ed. by Carl Knappett and Lambros Malafouris (New York: Springer, 2008); Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (Durham: Duke University Press, 2010); *New Materialisms: Ontology, Agency and Politics*, ed. by Diana Coole and Samantha Frost (Durham; London: Duke University Press, 2010); and Maurizia Boscagli, *Stuff Theory: Everyday Objects, Radical Materialism* (New York: Bloomsbury, 2014).

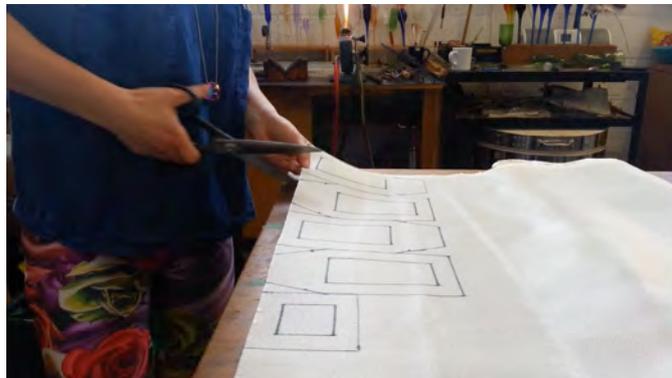
⁵⁶ Simondon, trans. by Adkins, 'The Physico-biological Genesis of the Individual' (para. 11 of 11).

⁵⁷ 'Textile Moulded Glass', dir. by Silo Studio (2014) <<http://www.silostudio.net/video>> [accessed 29 July 2016]. Throughout this section, I have inserted images into the main body of the text, in an attempt to re-enact the narrative of Silo's film. This method is an ode to John Berger's book *Ways of Seeing* (1972), designed by Richard Hollis. In his review of *Ways of Seeing*, designer Peter Bilak describes its unconventional layout: 'The images are inserted into the running text, precisely in the positions where the images become self-explanatory, so they become part of the story, and do not break the flow of reading.' See John Berger, *Ways of Seeing* (London: British

their Stratford studio, London, which is shared with glass artist Jochen Holz, the video opens with a view of a workbench, onto which a large, block of silica fibre fabric is placed, and subsequently unfolded.



(00:08) A pair of hands, presumably Aparicio's, proceeds to draw around a card template with a blue felt-tip pen, which provides the guide for cutting out the mould (or, "negative") from the fabric. The pattern comprises five mould pieces: four pentagonal surfaces that will form the sides of the mould, and one square surface for the base, each of which has a seam allowance of roughly two centimetres.



(00:13) Using a large pair of scissors, Aparicio carefully cuts the mould pieces out of the fabric, and, using a large needle and silica fibre thread, hand stitches the pieces together to form a container-shaped, flexible mould. The design of the mould includes a collar at its opening, which allows for a drawstring closure. The mould is then positioned in a bench vice ready to be blow moulded, with the silica-wire drawstring fed through a plastic tube at some distance from it. This enables the "mouth" of the mould to be swiftly closed without actually touching it.

Broadcasting Corporation and Penguin Books, 1972); and Peter Bilak, 'Ways of Seeing, book review', *Typotheque*, 5 June 2008 <https://www.typotheque.com/articles/ways_of_seeing_book_review> [accessed 29 July 2016].

The video pans out to show Holz readying the mould, making sure that the frayed ends of the cut fabric do not obstruct its mouth (00:26).

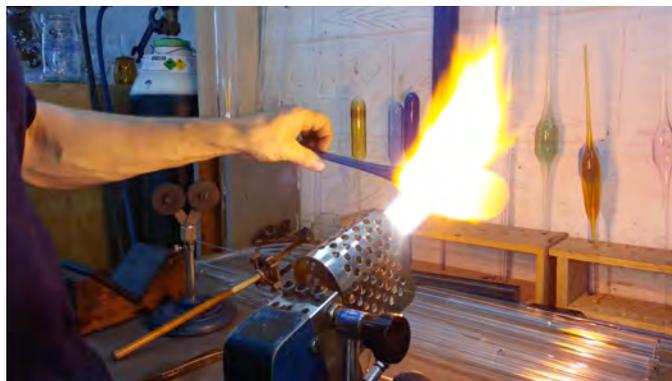


Holz is positioned stage left, and in front of him is the workbench littered with tools and materials, on which a bench burner is alight with a vertical yellow flame. To the right-hand side of the bench burner is a number of glassblowing tools ready for use: carbon paddles, files of various sizes, tweezers (known as 'Italian tools'), and jacks (or 'pucellas').⁵⁸ Towards the back of the workbench is a bench stand that holds a number of differently sized borosilicate glass 'spears' (in amber, blue, dark green, purple, clear, smoke, and pink) that are already formed. Both ends of the borosilicate glass tubing have been drawn out to serve as handle and mouthpiece for blowing (a method known as 'pulling a point'), while maintaining the original diameter of the tubing at its middle. Several clear, borosilicate glass tubes of different diameters, which are not yet pointed, lie in front of the bench stand. Conversely, in the foreground stands a clear glass spear, which has already been blow moulded. The blow-moulded glass-and-mould is visibly distended, and a container-form is clearly visible (although upside-down). In front of this pre-blown moulded glass, is a collection of blue, textile-moulded tumblers, also positioned upside-down, but free of their fabric mould casings.

⁵⁸ Littleton, *Glassblowing*, pp. 53-76. Unless otherwise stated, all the technical terms associated with glassblowing that are used in the section are learned from Littleton.



(00:28) Next, we see Holz reach for the narrow end of a blue spear with his left hand, which acts as a temporary handle for rotating and positioning the glass, and, in a matter of seconds, he turns a black valve to the right-hand side of the bench burner that sharply releases a flow of compressed air and oxygen ('oxidising agents') into the yellow propane flame ('fuel'). This creates a broad white flame that extends sharply from the nozzle of the bench burner; and, while carefully adjusting the flow of air with his right hand, Holz holds the glass spear, or 'preform,' towards the outer edge of the flame cone with his left hand, continually rotating it in a process known as 'bathing' (00:32).



The preform glows a brilliant white in the intense flame. This is the preheating stage.

Next, we see the bench vice with the fabric mould positioned in readiness (00:33).



Holz carefully guides the heated preform into the mould and, with a short, sharp blow of air in the mouthpiece of the tubing, he inflates the glass (00:35).



Keeping his mouth on the tubing, Holz pulls the drawstring tight, and the glass quickly takes shape within the textile mould. There is a slight hiss as steam is released from the mould (00:37), and the textile is seen to tighten around the red-hot glass form and inflate slightly.



As he releases his mouth from the hollow tubing, Holz carefully swivels the newly blow-moulded glass from the vice, releasing the silica-wire drawstring from its guide, and placing the blown-mould glass vertically in the bench stand (00:42).



This intermediary pause allows the glass to cool gradually to room temperature, reducing any internal stresses in the material, as well as strengthening it.



(00:44) At this point, the video flickers instantaneously between pre- and post-annealing: there is a shift in camera angle (as well as noticeable change in light and the clinking of tools off-camera), as Aparicio reaches for the cooled, moulded glass form. Aparicio pulls the textile mould cleanly from the blow-moulded glass form, revealing the criss-cross imprint of the textile warp and weft on the surface of the glass, followed by a close-up in which Aparicio carefully turns the moulded-glass form in her right hand, mimicking the rotational movement of the glassblower (00:46).



The smooth, featureless surface of the borosilicate glass tubing has been transformed into a tensile, woven-glass fabric with tight, structured seams, and the wholesale imprint of fibres is visible around the glass surface. At the neck of the form, the glass appears to collapse into fabric folds, whereas towards the base, the seams maintain its rigidity. Aparicio returns the blow-moulded glass to the bench stand.

Next, Holz collects the blow-moulded glass from the stand, and, with the quick flick of the black handle on the bench burner, ignites an absorbing bright white flame (00:52).



With his left hand, Holz centres and turns the blow-moulded glass in the flame; with his right hand, he carefully adjusts the flow of compressed air. The soft, white annealing flame consumes the whole of the glass form. The camera then cuts to show Holz repeat the action at the bench burner, continually rotating the blow-moulded glass, this time concentrating on the base of the form, and using a sharper flame.



(00:54) Next, Holz removes the glass from the flame, and uses a hardwood paddle to flatten the base, which glows red-hot.



(00:56) The video cuts to show Holz, with the cool end of the glass handle transferred to his right hand, using a claw grabber in his left hand to grip the container-form towards its centre. With a “clink” it is in place. The blow-moulded glass form is now reversed, with the container-form to the left and the narrow handle to the right. Holz positions the grabber-and-glass in the flame at the point where the handle meets the container-form, and proceeds to detach the handle from the glass body using a back-and-forth motion, a process known as ‘tearing,’ while continually rotating it in the grabber (01:00).



The flame burns yellow. Holz uses the now-swollen head of the handle to smooth the opening that has been created with its removal, detaching it fully and placing it to one side. The blow-moulded glass now resembles a container: it is no longer a closed form.



(01:01) Holz rotates the grabber-and-glass, so that only the opening of the blow-moulded glass is in contact with the yellow flame. In his right hand, he holds a smaller paddle steady against the opening (01:02).



The bench-burner flame is sharp and intense (with a crisp, hissing sound), and Holz's rotations more frequent.



(01:03) A close-up reveals the intense heat used to work the glass: the opening to the blow-moulded glass is accentuated as a thick band of yellow, in contrast to the swathe of black that surrounds it. Holz concentrates the intense blue flame on the opening to the blow-moulded glass, while continually rotating it in his left hand. He positions the paddle

lengthways inside the opening, gently touching the inside of the rim to 'flare' the opening; its diameter gradually increases (01:04).



This work continues for several seconds, until the blow-moulded glass closely resembles a container-form, and the opening has the same diameter as the body.



A softened hiss of the flame (01:06) signifies a change in intensity. Holz no longer uses the paddle to flare the opening, but continues to rotate the blow-moulded glass (using the grabber) in a rhizomatic, white flame; this is a cooler flame used to slowly 'fire-polish' the glass of any irregularities, or blemishes. The blow-moulded glass now resembles a tumbler: its sides are even, and it has a wide mouth. With a drop in the flow of compressed air, Holz removes the blow-moulded glass from the flame, which returns to its vertical position; it is now at rest. He then places the grabber-and glass on its side on the workbench to cool (01:10).



The textile-moulding process is now complete, and the textile finish is 'frozen-in'.

Finally, Aparicio releases the textile-moulded glass from the grabber, and places it centre frame on the studio table; this is the 'big reveal'.⁵⁹



(01:11) We return to the workbench, where the flexible textile mould is positioned to the left; the lampworking bench, burner, and tools, and borosilicate glass tubing to the back; and the block of silica fibre fabric, card template, and scissors to the right. In the background, the vertical flame of the bench burner gently flickers, while, with each subsequent frame, a differently coloured textile-moulded tumbler appears on the workbench: in blue, turquoise, pink, amber, black, smoke, dark green, purple, and clear (01:17).

⁵⁹ Glickfeld, 'Film Studio'.



The tumbler is then replaced with a *botijo*, which is larger in size, with two openings, one at each corner. As the *botijo* rotates in consecutive frames, it too shifts in size and colour.



(01:21) In the closing shot, Aparicio pours water from a clear-glass *botijo* into two glass tumblers (one pink, one turquoise), then places it back on the table.

5.6. Gilbert Simondon and the Forming of Artisanal Glass

Precisely, in the technical operation, it is *the mediation itself*, which should be considered [...].⁶⁰

Silo's short video about textile-moulded glass demonstrates something of the complexity of the lampworking process. Yet, it also emphasises the tacit nature of making that cannot be accessed through visual sources alone. Here, I will flesh out the skeuomorphic intricacies of Silo's textile-moulded process, drawing on Simondon's example of the 'technical operation' that generates a clay brick in *The Physico-biological Genesis of the Individual* (1964). This is not to suggest that Simondon's clay brick is itself a skeuomorph, but rather to draw from Simondon's writing about materiality to describe an analogous moulding technique. Simondon's 'principle of individuation' is embedded in all processes of becoming; it is simply that there are explicit parallels to be drawn between the genesis of a clay brick and the forming of glass, both of which, in this instance, utilise a mould. I propose that, in Silo's case, it is the imprint of the seam in the glass that not only *materially* indexes the interaction between two distinct materials, but also *conceptually* points to the heterogeneity of the skeuomorph. The "seam" is both a technical index: 'A line where two pieces of fabric are sewn together in a garment or other article'; and a conceptual index: 'A trace or presence of something.'⁶¹ Like the knot for Glithero, the seam presents one of the most unambiguous motifs of the skeuomorph.

Simondon was critical of Aristotle's hylomorphic model,⁶² in which form is considered to be the determining principle of matter, which he felt abstracted the 'taking form' of things: 'Instead of having a true paradigmatic value,' concedes Simondon, 'it is nothing

⁶⁰ Simondon, trans. by Adkins, 'The Physico-biological Genesis of the Individual' (para. 6 of 11).

⁶¹ 'Seam, n.', OED Online (Oxford University Press, September 2016)

<<http://www.oxforddictionaries.com/definition/english/seam>> [accessed 29 July 2016].

⁶² Anne Fagot-Largeault goes so far as to describe Simondon as 'an anti-Aristotelian'. Thierry Bardini, 'Simondon, Individuation and the Life Sciences: Interview with Anne Fagot-Largeault', *Theory, Culture & Society*, 31: 4 (2014), p. 141-61 (p. 143).

more than a comparison.⁶³ Rather, Simondon focused attention on the intermediary stage, on the encounter *between* matter and form, in which a ‘new form statement’ is achieved.⁶⁴ Certainly, Aristotle’s idea pays no attention to the shifting, and fluid exchange visible in the making process, and openly contradicts its variable nature. The example of a clay brick provided Simondon with substantive evidence for his claim: in his exhaustive account of the brick-making process, he describes in detail the dynamism between the ‘indefinite plasticity’ of the clay, and the ‘imposable geometrical form’ of the brick mould.⁶⁵ Most striking is Simondon’s insistence on the pre-existence of potential energies – what he terms the ‘pre-individual’ – at both ends of the technical operation: it is not simply that form and matter *communicate* in the process, but that they have latent, and corresponding, tendencies that enable them to ‘converge toward a common operation’. This is evident in Silo’s heated borosilicate glass and textile mould: the glass achieves what I call its textile-likeness, or ‘textility’,⁶⁶ in correspondence with the conditions of the mould. As Pascal Chabot has argued, Simondon, in fact, perceived the transformation of both matter and form in the process of becoming, such that ‘formed matter and materialised form’ replace substantive being.⁶⁷ In other words, there is a merging of properties, rather than matter as distinct from form. The clay used to fashion Simondon’s brick was initially sourced from the earth, ‘dried, crushed, sifted, [and] shaped,’ before becoming potters’ clay: it is *worked on*. Similarly, the brick mould is ‘prepared in *such a* fashion, with *such a* species of material,’ as to be made into a container that shapes.⁶⁸ It, too, undergoes a significant transformation before communicating with the mould.

⁶³ Simondon, trans. by Adkins, ‘The Physico-biological Genesis of the Individual’ (para. 4 of 11).

⁶⁴ Littleton, *Glassblowing*, p. 13.

⁶⁵ Simondon, trans. by Adkins, ‘The Physico-biological Genesis of the Individual’ (para. 6 of 11).

⁶⁶ The term ‘textility’ is borrowed from Tim Ingold, who uses it to describe a process whereby makers find their way through the making of things, in correspondence with their materials, rather than imposing a static form on an indeterminate material. Textility suggests a fluid, and adjustable process, much like the weave in textiles, and is a term that, for the purposes of this research, adequately sums up the textile-like nature of glass. Tim Ingold, ‘The textility of making’, *Cambridge Journal of Economics*, 34 (2010), pp. 91-102.

⁶⁷ Pascal Chabot, *The Philosophy of Simondon: Between Technology and Individuation* (London: Bloomsbury, 2003), p. 76.

⁶⁸ This activity resonates with Martin Heidegger’s jug as ‘container-form’, which I discuss in section 3.2.2.

With this, Simondon touches on the wider complex of being, in which things develop in synergy with their environment: this is his ‘principle of individuation’.⁶⁹ Given the relative complexity of Simondon’s thinking, Anne Fagot-Largeault’s account of individuation is instructive in this context:

The process of individuation is not the process of development of a thing which was there, like some imaginary homunculus, but is on the contrary *a process of dialogue between a being manifesting itself by consulting its program from time to time, and external events to which it has to react*, and to which all the beings in development do not react in exactly the same manner.⁷⁰

Individuation leads to the formation of the ‘individuated being,’⁷¹ and it is this emphasis on individuality that prompts a reading of Silo’s textile-moulding process via Simondon, since individuality is analogous to one-off production.⁷² Simondon’s insistence on the interaction between the materialised form – which, in this instance is Silo’s silica-fibre mould –, the formed matter, here borosilicate glass that is pre-formed as glass tubing, and “external events” – for example, the temperature of the flame, the preparation of the textile mould, and the rate of cooling – corresponds with the conditions in the studio. It is exactly *in* this taking form of matter that the warp and weft, which manifests at the surface, emerges in Silo’s textile-moulded glass – although, as I will demonstrate, this warp and weft originates within the glassy material itself. The skeuomorph plays a facilitative role in the making process.

⁶⁹ Gilbert Simondon, ‘The Genesis of the Individual’, in *Incorporations*, ed. by Jonathan Crary and Sanford Kwinter (New York: Zone, 1992), pp. 296-319 (p. 298).

⁷⁰ Bardini, ‘Simondon, Individuation and the Life Sciences’, p. 156 [emphasis mine].

⁷¹ Simondon, ‘The Genesis of the Individual,’ p. 299.

⁷² In *Collection Lab*, an experimental space at London’s Design Museum, one-off production is described thus: ‘This is used when a single product, often of high quality, is produced by a skilled workforce in small specialist companies.’ *Collection Lab* (Design Museum, London, 10 September 2014-28 August 2015) <http://www.designmuseum.org/exhibitions/collection-lab> [accessed 21 September 2016].

5.7. The Disorderliness of Glass

Glass is a variable material: it not only comprises varied compositions of silica, minerals, and oxides that variously influence its behaviour, but it also never achieves a traditional solid state: it is continually active. This tendency of glass is due to its ‘physical order’, to borrow from Simondon.⁷³ Glass exhibits contradictory behaviour due to its internal structure: it is formed of a disordered network of molecules, similar to a liquid, that nonetheless cohere into a rigid material (fig. 29). Added to this is glass’s inability to freeze. F. J. Terence Maloney describes how it ‘simply becomes more and more viscous until it is as “stiff” as an ordinary solid’ – also known as ‘supercooled’.⁷⁴ Glass, in fact, occupies its own ‘glassy state,’ in which its kinetic energy as a substance, and the cohesion between its molecules, is evenly balanced.⁷⁵ Glass has the fluidity of a liquid, while its molecules remain relatively inflexible. Indeed, Aparicio acknowledges its resemblance to ‘honey’,⁷⁶ a likeness that is most evident in the molten material – although not in Silo’s case, as the glass arrives at the studio already-formed –, as well as the swift expansion of the glass at the moment of solidifying in Silo’s textile mould. Silo uses borosilicate glass, commonly known as ‘Pyrex,’ which Holz commends as it is a ‘hard glass’; this, he explains, means that it is able to withstand temperatures of up to 1650°C,⁷⁷ making it an ideal glass for laboratory glassware, which is how, in fact, he sources it.⁷⁸

Borosilicate glass, known as ‘baking or laboratory glass,’ comprises approximately 80.5% silica, 3.8% soda, 0.4% potash, 2.2% alumina, and 12.9% boric oxide; all of which

⁷³ All of these terms are taken from Simondon’s enlightened analysis of a moulded clay brick. Simondon, trans. by Adkins, ‘The Physico-biological Genesis of the Individual’.

⁷⁴ F. J. Terence Maloney, *Glass in the Modern World: A Study in Materials Development* (London: Aldus Books, 1967), p. 10.

⁷⁵ Robert H. Brill, ‘A Note on the Scientist’s Definition of Glass’, *The Journal of Glass Studies*, 4 (1962), pp. 127-38 (p. 129).

⁷⁶ Unless otherwise stated, all quotations from Aparicio, Lessing, and Holz are from a studio visit to their Stratford studio (1 April 2015).

⁷⁷ Frank Kulasiewicz, *Glassblowing* (New York: Watson-Guption Publications, 1974), p. 86.

⁷⁸ Holz explains that the borosilicate glass tubing is either sourced from a laboratory supplier called Smith Scientific in Kent, or the coloured glass tubing, which is coloured using metal oxides similar to glazes, is sourced from China.

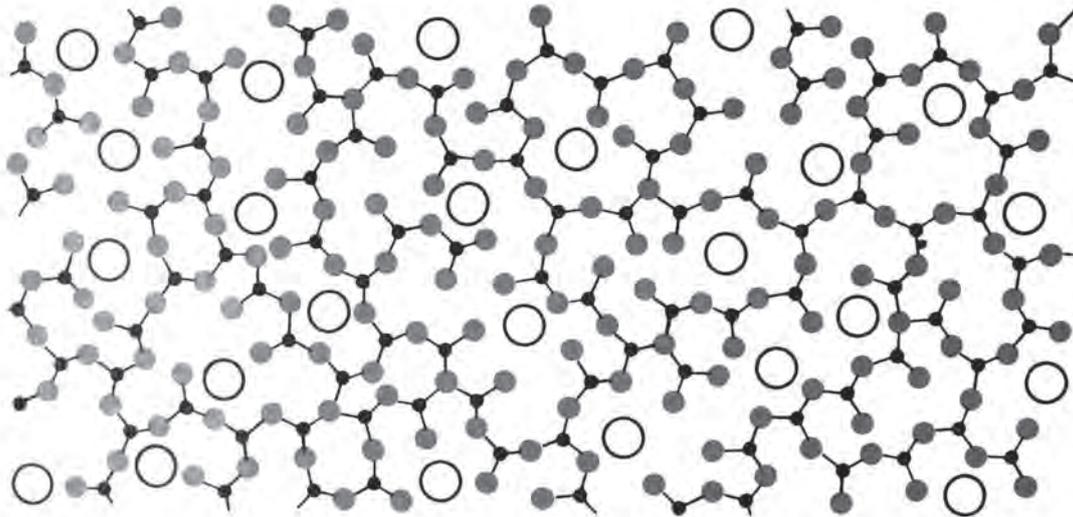
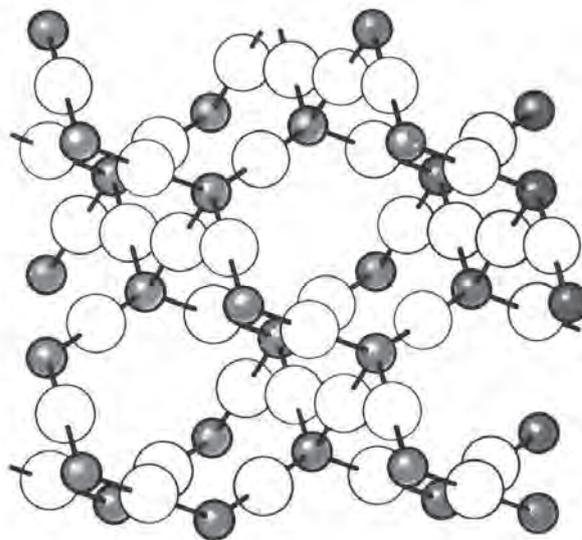


Figure 29.
 (Above)
 'Imaginary two-dimensional glass, modified by addition of metallic ions (large white circles).'



(Below) 'Regular crystalline assembly of tetrahedrons in one form of quartz.'

Both images from
 F. J. Terence
 Maloney, *Glass in
 the Modern World*
 (1967), pp. 19 & 21

synthesize in the melting process to form the ‘complicated molecular structure’ of glass.⁷⁹ The reason for its varied composition is that the basic unit of glass, silica (or sand), is relatively unreactive; thus, various other materials are added to it, referred to as ‘fluxes,’⁸⁰ to lower its melting temperature. The structure of glass is, therefore, inconsistent. In order to accommodate this, the melting process involves the gradual transition from what is termed ‘batch’ to glass, as molecules vibrate, reduce, and fuse into a unique chemical structure. Philip Howes and Zoe Laughlin describe glass as ‘amorphous,’⁸¹ which is a property that is closely linked with Simondon’s notion of ‘metastability’ that he felt was ignored in the hylomorphic model. For Simondon, metastability refers to the capacity for individuation in a system ‘rich in potentials’:⁸²

Individuation must therefore be thought of as a partial and relative resolution manifested in a system that contains latent potentials and harbors a certain incompatibility with itself, an incompatibility due at once to forces in tension as well as to the impossibility of interaction between terms of extremely disparate dimensions.⁸³

As an amorphous material, glass lacks any definable structure, or, to paraphrase Simondon, it is incompatible with itself, which, conversely, makes it susceptible to fluxes. For Simondon, metastability is a precondition of individuation, in materials science metastability refers to a situation in which no state of matter – solid, liquid, or gas – is prevalent, and, therefore, the material remains in an intermediate ‘metastable’ state: This is the normal state of glass. It needs just ‘a little more energy’ to initiate the process.⁸⁴ The metastability of glass is due to the manifold number of molecules it comprises, each of which exhibits different properties, and maintains a unique configuration with neighbouring chains. Because of its complex nature, the production of glass necessitates a very subtle alchemy.

⁷⁹ Table 1. Glass Compositions. *In Weight Percentages*, in Brill, ‘A Note on the Scientist’s Definition of Glass’, p. 134.

⁸⁰ Charles Bray, *Glass Blowing* (Sheffield: The Society of Glass Technology, 2003), p. 3.

⁸¹ Howes and Laughlin, *Material Matters: New Materials in Design*, p. 144.

⁸² Chabot, *The Philosophy of Simondon*, p. 83.

⁸³ Simondon, ‘The Genesis of the Individual’, p. 300.

⁸⁴ Maloney, *Glass in the Modern World*, p. 14.

The forming of glass from silica and other minerals happens at the micro-level; it is undetectable. Helpfully, product designer Markus Kysler amplifies the process in his video *Solar Sinter* (2011), in which we witness the transformation of sand into glass in the Sahara Desert, Egypt (fig. 30). Kysler uses a solar-powered laser to focus intense sunlight onto silica crystals, which then melt and fuse to form glass. *Solar Sinter* is a mobile interpretation of early alchemy: it comprises a vast metal armature that shoulders two photovoltaic panels, a 'sun tracker,' and a large Fresnel lens that concentrates the sun's rays onto the silica bed.⁸⁵ Sunlight and sand are his raw materials. A bright, white light materialises on the surface of the silica, producing an intense heat that precipitates a glassy liquid from the crystalline silica. A close-up reveals the recasting of sharp-edged silica crystals into a sticky, viscous mass with the steady release of carbon smoke. The bed of molten glass enfolds any remaining crystals, and the silica transforms into glass. The complex process that materialises in *Solar Sinter* often goes unseen in the glassblower's workshop, as it takes place within the extreme heat of the furnace. Yet, it is this initial transformation of matter into formed matter that Simondon was conscious of. The point is that, even before glass reaches the glassblower's workshop, it has undergone an intense formative process, just as Simondon describes.

The question arises as to whether, in Silo's case, the glass begins to form prior to its introduction to the mould, and, conversely, whether the textile mould is predisposed to the making of skeuomorphic objects. Simondon describes how the clay is prepared in readiness for the technical operation: 'There is,' he writes, 'in the rough clay an aptitude for becoming a plastic mass with the dimensions of a future brick'; in other words, through preparation – through pressing, kneading, and wedging – the clay readies itself at the micro-level; it is predisposed to the forces of the mould: 'the molecular reality of clay, and the water which it absorbs, organizes itself by the preparation so as to be able to direct itself during the individuation as a homogeneous totality to the stage of the brick *in a train of appearances*.'⁸⁶ The "train of appearances" Simondon refers to is the

⁸⁵ Markus Kayser, 'Solar Sinter, 2011' <<http://www.markuskayser.com/work/solarsinter/>> [accessed 15 April 2015].

⁸⁶ Simondon, trans. by Adkins, 'The Physico-biological Genesis of the Individual' (para. 6 of 11).

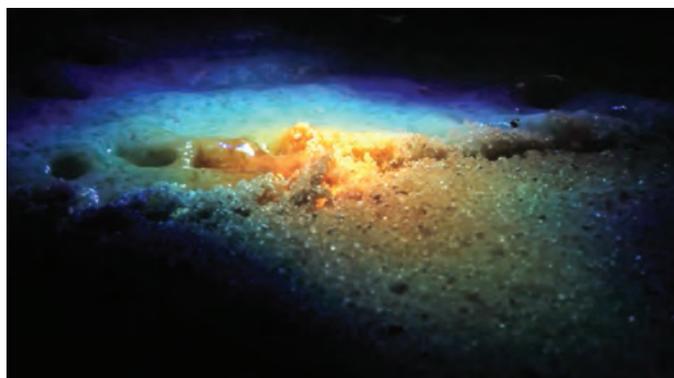
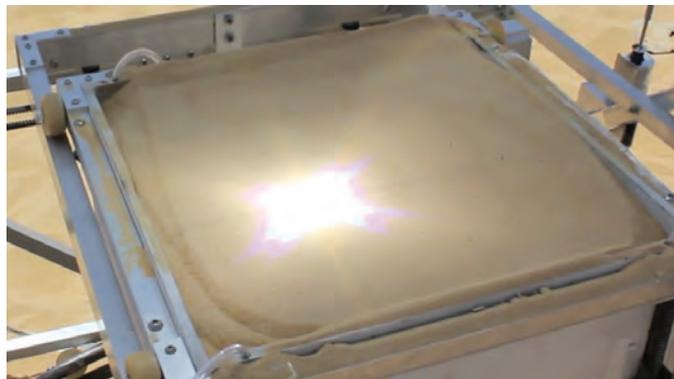


Figure 30.
Stills from *Solar Sinter*, dir. by Markus Kayser, manually operated solar-sintering machine, 2011.

Courtesy Markus Kayser

visible manifestation of clay-as-brick, although he stresses that this appearance is, in fact, the disclosure of the ‘molecular reality of the clay’.⁸⁷ That is, what happens *at* the surface is manifested *within* the material itself.

Similarly, Silo’s borosilicate glass has been modified and transformed.⁸⁸ Before it reaches Silo’s studio, it has undergone an infinite series of materials testing and analysis. The introduction of boron to the molecular composition of glass has ensured a material with a consistently low-thermal expansion, ideal for scientific glasses.⁸⁹ The trademark Pyrex alone indicates a remarkable degree of chemical consistency. Holz admits to sourcing the borosilicate tubing for Silo’s textile-moulded glass specifically because of its pre-established thermal properties.⁹⁰ Since boron is introduced to moderate the thermal expansion (or, internal vibrations) of the glass as it is heated, then, borosilicate glass is certainly formed matter; that is, it already embodies its future self. Like Simondon’s clay, it is the introduction of boron that, among a number of other chemical preparations, predisposes the glass to the technical operation. It is this modification of the glass at the micro-level that helps determine the even distribution of the glass molecules within the mould.⁹¹ Silo’s glassware only moderately swells prior to being introduced to the textile mould. It is, in fact, the sharp blow from Holz that initiates the process.

At the other end of Silo’s technical operation, we have the textile mould, which, as Simondon concedes, ‘is not only built; it is also prepared’ (fig. 31). Silo’s textile mould is the product of a prolonged period of trials, in which Silo searched for a mould-making material that could accommodate the gradual expansion of EPS. Initially, Silo had

⁸⁷ Simondon, trans. by Adkins, ‘The Physico-biological Genesis of the Individual’ (para. 6 of 11).

⁸⁸ In actual fact, glass has been gradually modified since the late-nineteenth century. For more on the history of glass, see Maloney, *Glass in the Modern World* (1967).

⁸⁹ German chemist and glass technologist Otto Schott first produced borosilicate glass in 1882. Corning Museum of Glass, ‘Finding the right recipe: Borosilicate glass’ <http://www.cmog.org/article/finding-right-recipe-borosilicate-glass> [accessed 16 April 2015].

⁹⁰ Personal communication with Silo Studio (1 April 2015).

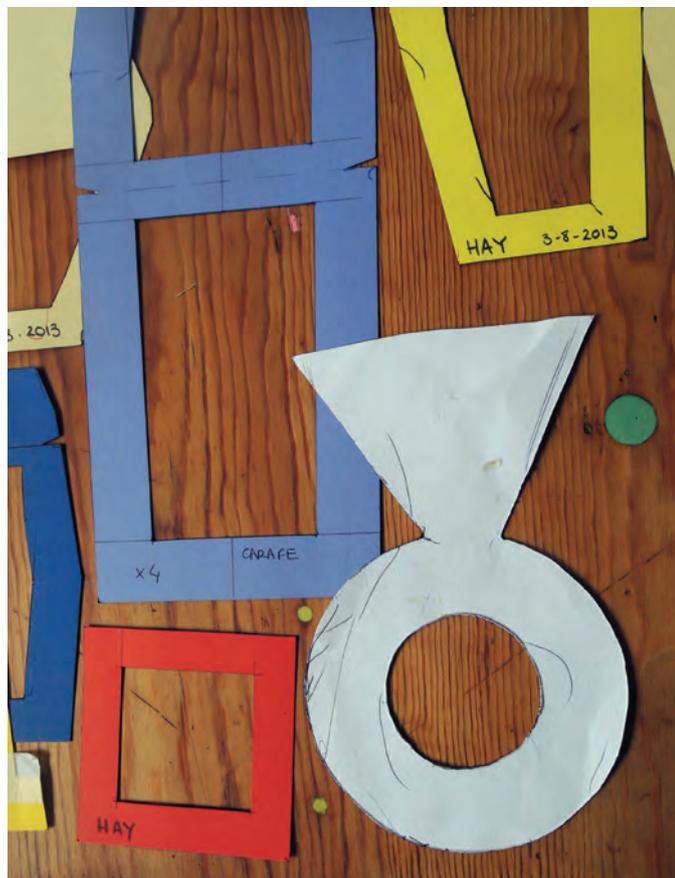
⁹¹ Mark Miodownik, ‘Bio-Inspired Materials’, *The Matter of Mimesis: Studies on mimesis and materials in nature, art and science* (Centre for Research in the Arts, Social Sciences and Humanities, University of Cambridge, 17-18 December 2015).



Figure 31.
(Above) **Silo Studio's textile moulds.**

(Below) **Variouly sized card templates for cutting the mould.**

(Photos: Kimberley Chandler)



wanted to use a metal mould, having been briefed to work with RoboFold, who fabricate architectural folded-metal components using robotic technology,⁹² while at the RCA, London.⁹³ But Silo soon realised the inhibitive properties of metal as a mould material, and decided to work instead with textiles. Given that EPS expands with steam at temperatures between 80-100°C, then textiles, which can also be subjected to steam at 100°C, became the ideal mould-making material.⁹⁴ Silo also had ready access to steam-heated vats in the Textiles department at the RCA.⁹⁵ Textiles allow for small-batch production, as well as moulds that are easily workable. Furthermore, Silo makes explicit their desire to generate ‘things that can’t be made using injection moulding,’⁹⁶ which the use of textiles facilitates (fig. 32). There is flexibility and latitude to textiles that is not available to injection moulds, which are commonly made from special alloy steels precisely because of their lack of give.⁹⁷ It is the marked contrast between textile and alloy moulds that demonstrably reveals the skeuomorphic potential of glass, as I will demonstrate with regard to Silo’s *Tela* glassware produced at Denizli, Turkey.

Whether natural or manufactured, textile fabrics consist of interlaced warp-and-weft fibres that ‘create a wave-like conformation’.⁹⁸ I examine the structure of textiles in close detail in regard to on Arline Fisch and Gijs Bakker, but suffice it to say here that there is flexibility and strength to textiles due to their construction. Their interwoven fibres form a relatively open structure that allows air to pass through. Silo’s textile moulds facilitate the release of steam – a necessary by-product of both the EPS and textile-moulded glass process – that would otherwise exert unwanted pressure on the interior of the mould. The openness of the weave enables steam to flow freely, while also acting as a ‘separator’ in the mould.⁹⁹ Silo uses a polyester fibre for its NSEPS process, and silica

⁹² For more on RoboFold, see <<http://www.robifold.com>> [accessed 21 September 2016].

⁹³ Personal communication with Silo Studio (1 April 2015).

⁹⁴ ‘Extraordinary Stories about Ordinary Things’ (2013).

⁹⁵ Lessing cited in ‘The Why Question?’. This manoeuvre only confirms Silo’s cross-disciplinary approach to material practice.

⁹⁶ Personal communication with Silo Studio (1 April 2015).

⁹⁷ Ronald D. Beck, *Plastic Product Design* (New York: Van Nostrand Reinhold Co., 1970), pp. 48-49.

⁹⁸ Anthony W. Smith, ‘An Introduction to Textile Materials: their structure, properties and deterioration’, *Journal of the Society of Archivists*, 20: 1 (1999), pp. 25-39 (pp. 28-29).

⁹⁹ Bray, *Glass Blowing*, p. 41.



Figure 32.
(Above) **Stills from**
Stories about
Ordinary Things:
Silo Studio, dir. by
Alice Masters, 2013.

Courtesy Silo
Studio

(Below)
Illustration
showing how Silo
Studio fills their
machine-made
textile moulds
with NSEPS.

(Illustration: Sae
Aparicio)



fibre (or 'sodium silicate') for its blow-moulded glass, which is chemically stable and heat resistant. The silica fibre moulds can be heated to a temperature of 1400°C without any noticeable degradation, Holz explains, which also makes them reusable.¹⁰⁰ Clearly, a material that can withstand such high temperatures is ideal for textile-moulded glass.

However, it is the exhalation of breath that is crucial to the blow-moulding process. Artist Giuseppe Penone's *Study for 'Breath of Clay'* (1978) helps to conceptualise the vital force of the exhaled breath, 'equivalent to the air the potter introduces into his vortex' (fig. 33).¹⁰¹ Using coffee as a temporal dye, the artist has materialised the flow of his breath on the paper surface; concentrated at first, it sweeps forward without constraint across a large expanse of paper; then slowly loses its potential energy as it draws up at the base in a spherical motion. This demonstrates the force of an exhaled breath, and it is the same breath that initiates the transformation in Silo's glass. In their video *Textile Moulded Glass* (2014), we see Holz place his mouth around the cooled end of the glass and blow steadily; the rush of breath exerts a force on the interior surface of the heated viscous glass, causing it to expand with the 'rearrangement of interatomic atoms' (fig. 34).¹⁰² This expansion is determined by several factors: for example, the density and rate of the breath; the temperature of the heated glass, and its relative viscosity; and the evenness of its surfaces; as well as the forces that the textile mould exerts in 'communication' with the glass.¹⁰³ There is a science to this breathy performance, with the glass and mould readied prior to this moment, enabling one short, sharp breath to initiate the process. It is a carefully choreographed activity, in which glass and mould correspond and 'a definite contour,' to borrow from Simondon, is actualised: the visible textility of the glass (fig. 35). Simondon describes how matter and form communicate in the moulding process, emphasising their compatibility, or

¹⁰⁰ Personal communication with Silo Studio (1 April 2015).

¹⁰¹ Germano Celant, *Giuseppe Penone* (exhibition catalogue) (Arnolfini Gallery, Bristol, 1989), pp. 90-91. Piero Manzoni's *Artist's Breath* (1960) involves the self-same process of materialising the breath. For each *Artist's Breath*, Piero inflated a red balloon, attached to a wooden base, before allowing it to gradually deflate. For more on this see, TATE: Art & Artists, 'Piero Manzoni: Artist's Breath, 1960' <<http://www.tate.org.uk/art/artworks/manzoni-artists-breath-t07589/text-summary>> [accessed 29 July 2016].

¹⁰² Maloney, *Glass in the Modern World*, p. 24.

¹⁰³ Simondon describes the 'interactive communication' between mould and clay, imparting a sense of reciprocity in the 'technical operation', as distinct from the imposition of form on matter via the hylomorphic model. Simondon, trans. by Adkins, 'The Physico-biological Genesis of the Individual' (para. 6 of 11; and n. 3).



Figure 33.
Giuseppe Penone
– Study for 'Breath
of Clay' (Study for
'Soffio di Creta'),
coffee, graphite,
and ink on paper
support: H 760
mm x W 568 mm,
frame: H 958 mm
x W 751 mm x D 31
mm, 1978.

Courtesy Tate
Archives

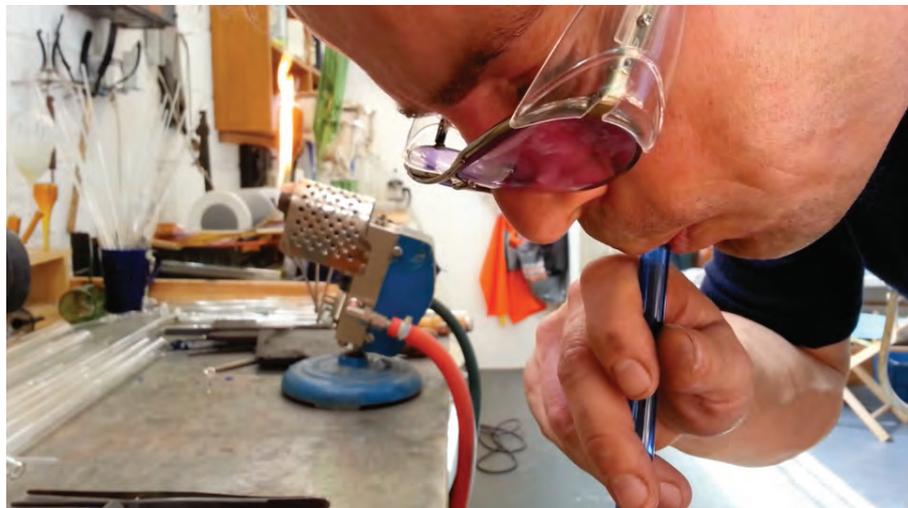
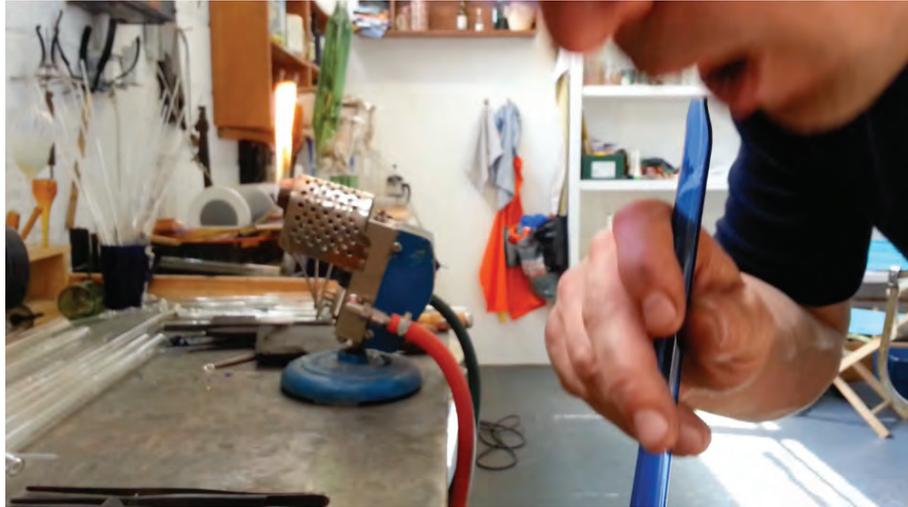


Figure 34.
Stills from *Textile Moulded Glass*,
dir. by Silo Studio,
2014.

Courtesy Silo
Studio



Figure 35.
Silo Studio
– *Tela tumbler*
(close-up), soda
glass, various sizes,
2013.

Courtesy HAY

what I call their “like-for-likeness,” which relies on their careful preparation: “The pure form already contains gestures, and the primary matter has the capacity to become; the gestures contained in the form meet the becoming of the matter and modulate it.”¹⁰⁴

Silo’s glass achieves these ready gestures in stages. In *Textile Moulded Glass* (2014), the borosilicate glass tubing is slowly heated to encourage the flow of the melt. The mould, likewise, is fashioned from a textile with the innate ability to “displace,” that is, deform in contact with the moveable energy achieved by the molten glass. It is *exactly* this moment, when the continually repositioning molecules of glass meet the displaceable weave of the textile mould that this transference of form happens. It is the silica-fibre mould’s ability to delimit the movement of the glass molecules that actualises the textile-moulded glass; the borosilicate glass shifts and holds in correspondence with the textile’s tendency to warp. This correspondence between the glassy structure of the borosilicate and the interwoven structure of the silica fibre fabric, between the *glassiness* of the textile and the *textility* of the glass, is clearly visible. Simondon calls this ‘compatibility’ (fig. 36).¹⁰⁵ I propose that it is the like-for-likeness of materials in the making – such as glassiness and textility – that predisposes them to the skeuomorph. This like-for-likeness is compromised in the serially produced version of *Tela* glassware, calling attention to the subtle nuances of the skeuomorphic mode.

This exchange also involves a third material: the exhalation of breath. Breath is the activating influence, or what Simondon calls ‘information’.¹⁰⁶ Information is informing and informed at once; ‘it must be seized within the activity of being that individuates’.¹⁰⁷ Information unsettles the metastability of a system and motivates the transformation. The invisible breath of the maker is the potential energy that, much like Simondon’s brick modeller’s hands, incites the interaction between the intermolecular activity of the glass and the equal force of the textile mould; yet, it is also an ensemble that already has within it the capacity to be modified. Whereas Simondon refers to ‘the system mold-

¹⁰⁴ Simondon, trans. by Adkins, ‘The Physico-biological Genesis of the Individual’ (para. 9 of 11).

¹⁰⁵ Simondon, trans. by Adkins, ‘The Physico-biological Genesis of the Individual’ (para. 8 of 11).

¹⁰⁶ Simondon, ‘The Genesis of the Individual’, p. 311.

¹⁰⁷ Simondon cited in Esra Atamer, ‘Dissipative Individuation’, *Parrhesia*, 12 (2011), pp. 57-70 (p. 61).



Figure 36.
(Above) **Silo Studio**
– *Textile-Moulded Glass*, borosilicate glass, 2012.

(Below) **Stills from *Textile Moulded Glass***, dir. by Silo Studio, 2014.

Courtesy Silo Studio

hand-clay,' here it is the system mould-breath-glass. The breath is a material gesture that breathes life into glass as it is introduced into the mould. Ingold describes the generative activity of breath as 'a rotational gathering, or *breath in*, and a propulsion, or *breath out*':¹⁰⁸ *Breath is energy. All three materials converge towards the becoming of the textile-moulded glass. It is the activating gesture of the breath that helps to realise the affinity between borosilicate glass and textile mould.*

That said, the obvious compatibility of glass and mould in Silo's one-off productions is compromised in their *Tela* glass tumblers for HAY. While the 'outer surface texture of stitched textile' is still visible,¹⁰⁹ there is a distinct lack of dynamism in the textility of the glass (fig. 37). This difference, Aparicio reveals, is due to the altered method of production. I would add that it owes to the negation of the maker's breath in correspondence with the textile. While the *Tela* glass tumbler is also blow-moulded, it is produced under different conditions in a small glass manufacture, Denizli, Turkey, in which the glassblowing process is subdivided between a series of discrete tasks, or what Denizli describes as a 'well-knit chain,'¹¹⁰ and the mould is constrained by being made of cast-iron. As Holz explained, the silica fibre moulds are prone to degradation, so, in order to produce their glassware on an industrial scale, a more permanent mould was needed. I will examine the manufacture of Silo's *Tela* glassware for HAY to expose the nuances of the skeuomorph in both artisanal and industrial production. More specifically, it is the seam that betrays the difference between material contexts. The seam of Silo's *Tela* glassware is not active, but passive. That is, it does not intermediate between the glass and the mould, but rather precludes it. It is the seam that reveals the tactical advantage of using a textile mould in the studio; in the context of industry, with its immobile moulds, this tactic of making is somewhat compromised.

¹⁰⁸ Tim Ingold, 'The Line and the Whorl', V&A Research Institute (V&A Museum, London, 18 April 2015).

¹⁰⁹ HAY, 'TELA: Designed By Silo Studio' <<http://www.hayminimarket.com/en/hay/accessories/kitchen--dining/tela>> [accessed 21 September 2016].

¹¹⁰ 'Every member in the well-knit chain, in superb coordination with one another, each tactfully mastering their own set of skills' [emphasis mine]. 'Denizli Hand Made Glass Factory', dir. by Li & Fung (2010) <<http://www.youtube.com/watch?v=KQxD8jbriGc>> [accessed 22 April 2015].



Figure 37.
(Above) **Silo Studio**
– *Tela tumbler*
(smoke), soda glass,
2013.

Courtesy
twentytwentyone

(Below) **Silo Studio**
– *Textile-moulded*
glass, borosilicate
glass, 2012.

Courtesy Silo
Studio



5.8. The Intransigence of Glass in Industrial Production

When Silo was initially approached by Denizli to manufacture their textile-moulded glass, the designers provided them with what was effectively a prototype: one of a series of textile-moulded tumblers – similar to those discussed here – produced by Holz in the workshop. This was to provide the original pattern, or “positive,” for the manufacture of a permanent mould; the textile fabric mould needed to somehow be translated into a reusable, cast-iron mould that could facilitate multiple casts. Using 3D laser scanning software, Denizli attempted to generate a digital model of Silo’s hand-blown glass, which could then be machined from and etched into cast iron. However, because of the transparency of glass, the laser scanner could not recognise the intricacies of the textile-moulded form, despite using talcum powder to dull out the reflections. Instead, the 3D scanner produced a *partial* representation of the textile-moulded glass; in areas where the 3D scanner had been unable to gather the surface detail as a series of “points,” and to compensate for this lack, the scanner software had filled the blanks using a pre-set textile pattern that lacked the variance of its hand-blown counterpart (fig. 38).

Geoffrey Mann’s *Shine* series (2010), in which the designer experimented with the idea of a “correct” reproduction,¹¹¹ is instructive in this instance (fig. 39). Mann attempted to reproduce a highly reflective Victorian candelabrum using a planar 3D scanner to gather data about its formal structure; this was to be cast in bronze and silver-plated. What resulted was a distorted, misshapen object due to the inherent incompatibility between an intense, monochromatic light and reflective metal. ‘When scanning a metallic object,’ admits Mann, ‘the laser beam is unable to distinguish between the surface and the reflection’.¹¹² The candelabrum reflected, or cast back, the emitted light, distorting the geometry of the scan.

¹¹¹ Geoffrey Mann, ‘Shine’, <<http://www.mrmann.co.uk/natural-occurrence-series-shine>> [accessed 21 April 2015].

¹¹² *Ibid.*



Figure 38.
Denizli's first attempt at *Tela* blow-moulded glass with noticeable gaps in the textile-moulded surface.

(Photo: Kimberley Chandler)



Figure 39.
Geoffrey Mann
– *Shine*, (from
Natural Occurrence
series), bronze
investment cast,
silver-plated, L 30
cm x W 30 cm x H
30 cm, 2010.

Courtesy Crafts
Council Collection
(Photo: Todd-White
Art Photography)

While Mann's *Shine* series exploits the incompatibility of scanning software and reflective metal, in Silo's case this discordance was a limitation: without the translation of the textile into a cast-iron mould their *Tela* glass tumbler could not easily be manufactured. In response to this, Silo proposed that the textile-moulding process be repeated using Jesmonite, a water-based acrylic alternative to polyester resins,¹¹³ in place of the borosilicate glass. Although many casting materials are interchangeable, glasses and polyester resins seem less so. This is due to the "curing" process of polyester resin, which sets the material fast. Aparicio described how the textile mould was positioned in a bench vice, as if to be blow-moulded, but instead the mould was filled with liquid Jesmonite, a rapid-setting composite of gypsum and acrylic resin. Presumably, the mould had been prepared prior to this with a 'release agent' such as Vaseline.¹¹⁴ The opening to the mould became a pouring hole and, as a relatively dense liquid, the Jesmonite compound filled all the empty space within the mould detained by its edges, in a process akin to Glithero's 'gravity casting'. The mould could also be agitated to release entrapped air. This gesture was facilitated by the relatively open structure of the silica-fibre mould, and also allowed for the release of heat, since Jesmonite involves an exothermic reaction as well as a small amount of expansion on curing. In addition to this, Aparicio describes how the textile-moulded Jesmonite was positioned on a board rather than hung in the vice, to encourage a flat surface at its base. Jesmonite cures relatively quickly: certainly, within twenty-four hours the textile-moulded Jesmonite would have set with a hard, acrylic finish. It is easy to intuit the difference in process: There is a lack of correspondence between the Jesmonite and the mould, with Jesmonite fluid and heavy, rather than highly viscous and "breathable." The Jesmonite cast was then peeled free of the textile mould, and any excess cut back to shape the container-form at its neck.

The textile-moulded Jesmonite, then, becomes the "pattern" for permanent mould casting, not the *original* textile-moulded glass. As an opaque, rigid, plaster-like material

¹¹³ Nick Brooks, *Mouldmaking and Casting* (Marlborough: The Crowood Press, 2005), p. 169.

¹¹⁴ Unless otherwise stated, all quotations about the alternative mould-making process are from notes taken during two workshops held in the 3D Design and Craft workshop, University of Brighton: 'Polymers and Composites: Silicone Moulds' (15 January 2015), and 'Polyester Resins and Fibreglass Casting' (23 January 2015).

it can easily be 3D-scanned. The top-poured, fast-setting Jesmonite takes the place of the blown glass. Crucially, it is the maker's breath that is absent, the activating gesture that *actualises* the forming process. More precisely, the system mould-breath-glass is compromised by the indirectness of the permanent mould casting process, with the transference of form across several different materials in place of the direct mould-breath-glass system. This is not a direct mediation between matter and form, but rather a hybrid translation. In this way, Silo's *Tela* glassware bears some resemblance to Fisch's *Lace Ascot* (1980) in that it is a purposeful rendition of Silo's *Textile-Moulded Glass*, but produced under altogether-different conditions. Fisch's silver-wire interpretation of Grinling Gibbons seventeenth-century carved lime wood cravat, itself a reinterpretation of Venetian needlepoint lace, is a skeuomorphic object *at one remove*.¹¹⁵ That is, there is an interval of time between the makings of both. Silo's *Tela* glassware replicates the performance of Jesmonite that *stands in for* borosilicate glass. This is not the immediate interaction of materials, but rather the simulation of that process for industry. This absorption of the artisanal in industrial production is nothing new: It is evident in the manufacture of the rubber Wellington boot,¹¹⁶ as well as board-formed concrete. The point is that there is a qualitative difference between skeuomorphic objects, a difference that is attributable to its methods of production. By examining Silo's *Tela* glassware alongside its studio-made counterpart, I am able to recognise the diversity of skeuomorphic production, from the studio space to the factory floor, and can account for the qualitative difference between them.

Although Denizli does use the blow-moulding process, it forcibly introduces soda glass into cast-iron mould, a combination of blowing and moulding on an industrial scale (fig. 40). Maloney recounts the proficient functioning of the commercial glass process with its linear relationship between parts: 'The mold is filled, an energetic blow of air expands the glass into a thin balloon, the mold is opened, and the jar removed and

¹¹⁵ Gottfried Semper would call this a 'composite form', 'one that expresses the primeval type and all the stages preceding the latest form.' Gottfried Semper, *Style in the Technical and Tectonic Arts; or, Practical Aesthetics*, trans. by Harry Francis Mallgrave and Michael Robinson (Los Angeles: Getty Research Institute, 2004), p. 250.

¹¹⁶ Susanne Küchler identifies the Wellington boot as skeuomorphic in her essay, 'Materials and Design', p. 133.



Figure 40.
Glass workers
at Denizli Glass
Manufacture,
Turkey.

(Photo: Attua
Aparicio)

finished.’¹¹⁷ This is not simply the certainty of workshop production identified by Pye,¹¹⁸ but rather the partial reconstruction of Silo’s textile-moulding process. The absence of Silo’s mould-breath-glass system is visible in the glass cast made using Denizli’s cast-iron mould. There is a discernible lack of movement in the mould, or ‘displacement’ to cite Simondon,¹¹⁹ given the density and bulk of cast iron. Within the cast-iron mould, the ‘forces of reaction’ of the cast-iron is not *equal to* the pressure of the molten glass, but *more than*, forcing the glass to adopt an ostensibly disciplined form, despite its textile ambitions. The *Tela* glassware has been visibly modified in order to be stacked: it is undeviating and rational: it has lost its textility (fig. 41). That is not to say that *Tela* glassware negates the skeuomorph altogether, but that the glass’s capacity to be textile-like is reduced due to the relative incompatibility of materials in the successive stages of its making. Silo’s inventive approach to textile-moulded glass rests, primarily, on the compatibility, or *like-for-likeness*, of the materials they choose to experiment with. The skeuomorph plays a facilitative role in that correspondence.

5.9. The Seam as Tactic

The qualitative differences between Silo’s hand-blown glass and *Tela* glassware for manufacture are not simply a consequence of workmanship. Simondon’s notion of compatibility, in which material and form ‘come into contact with one other and reunite,’¹²⁰ has helped to emphasise the affinity between materials under favourable conditions. It is in the *exact* moment when the heated, mobile molecules of glass meet the flexible weave of the textile mould that a communication of form happens. It is precisely *in* this like-for-likeness of materials – of glassiness and textility – that the skeuomorph emerges. This peculiarity of the skeuomorph is especially evident when conditions are modified to limit the uncertainty of the making process. The close examination of *Tela* glassware has shown that the substitution of mould-breath-glass for

¹¹⁷ Maloney, *Glass in the Modern World*, p. 80.

¹¹⁸ Pye, ‘The Nature and Art of Workmanship’, pp. 341-53.

¹¹⁹ Simondon, trans. by Adkins, ‘The Physico-biological Genesis of the Individual’ (para. 9 of 11).

¹²⁰ Simondon, trans. by Adkins, ‘The Physico-biological Genesis of the Individual’ (para. 10 of 11).



Figure 41.
Silo Studio
– *Tela tumblers*
(clear), soda glass,
various sizes, 2013.

Courtesy HAY

a protracted mould-gravity-Jesmonite <-> mould-breath-glass, with little margin for error, results in a partial skeuomorphic object.

What also comes to light is that there are several factors that condition skeuomorphic form, including material, technical, and scalar. In the scaling-up of manufacture of Silo's *Textile-Moulded Glass* for *Tela*, material and technical constraints have impacted on the textile-like nature of glass. I propose that it is the seam that makes explicit this transfer between making contexts, and it is the seam that is most revealing of Silo's experimental approach to making. In stitching the mould pieces together to form a container, it is the seam that transforms the planar surface of the silica fibre fabric into a usable, three-dimensional mould volume; it is the construction of the fabric that guides the forming of glass. The visible imprint of Aparicio's handmade seam on the surface of *Textile-Moulded Glass* articulates the merging of two distinct materials, borosilicate glass and textiles, and the unpredictability of that interaction. Each of Silo's tumblers tells the story of its making: of the rigidity of the textile mould; the particular intensity of the bench burner flame; of the viscosity of the molten glass; and the force of Holz's breath. This complex interaction can be traced at the seams. It is the seam, as both a technical, and aesthetic motif, that oversees this transference of material forces, and also contains it.¹²¹ The seam mediates the form-taking process.

With *Tela* glassware, however, the seam stands in for the preceding performance; it repeats the form, but without the content. Its seams are vertical, rather than varied, supplemental rather than integral, and there is little differentiation between pieces. This is glass interacting with textiles, through the prism of precision moulds: a hybrid transformation. That said, Silo's *Tela* glassware is undoubtedly skeuomorphic, owing to its contradictory form, but it helpfully distinguishes between handmade and serially produced skeuomorphs, between those made experimentally, and those that emerge as a result of trial and error, standardisation, and high-precision machining. We can extrapolate from Silo's example to other serially manufactured objects that the

¹²¹ This is not always the case, however, as the seam also betrays any glitches in the process, which are registered as "beads" or tears at the seam.

skeuomorph emerges in multiple ways, and at several removes from its initial material context.

6. MATERIALISED TIME IN SKEUOMORPHIC PRACTICE ARLINE FISCH'S *LACE ASCOT* (1980) & GIJS BAKKER *KNITTED MARIA* (1997)

The contradictory nature of the skeuomorph extends to its temporality. Often described as anachronistic, it is thought to occupy an ambivalent position in relation to time, or rather, to exist at the interface between different times: it is neither of the past, nor the future, but synchronous in both.¹ Yet, this estrangement of the skeuomorph from the disorderliness of time imposes a stasis on it that, I argue, contrasts with its material reality. The skeuomorph is not interminably outmoded, but rather fluid, emergent, and, temporally mixed.

Here I will problematise the over-simplistic interpretation of the skeuomorph as anachronistic, using the textile techniques evident in both Arline Fisch's *Lace Ascot* (1980) (fig. 42) and Gijs Bakker's *Knitted Maria* (1997) (fig. 43) to expand on the notion of "materialised time" set out in section 3.2.4, and to demonstrate the temporal complexity of the skeuomorph. To do this, I relate the "structure-form" of the skeuomorph to the construction of textiles, and, drawing on the practical knowledge gained during the 'Contemporary Basketry' course at Morley College, London, as well as critical texts on the textile process – primarily, Anni Albers's *On Weaving* (1965), Irene Emery's *The Primary Structures of Fabrics* (1966) and Annemarie Seiler-Baldinger's *Textiles: A Classification of Techniques* (1994)² – I invoke a much more complicated picture than anachronism allows for.

¹ N. Katherine Hayles evokes a certain degree of passivity in the skeuomorph, in that it 'is no longer functional in itself but [...] refers back to a feature that was functional at an earlier time.' N. Katherine Hayles, *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics* (Chicago: University of Chicago Press, 1999), p. 17. For an extended analysis of the "anachronism" of the skeuomorph, see section 2.2 of this thesis.

² There is good reason for selecting these three titles. Anni Albers was a Bauhaus-educated textile designer and writer, who experimented with the medium of textiles, taught widely on the subject, and wrote many authoritative texts on textile design. Irene Emery's *The Primary Structure of Fabrics* (1966) is the definitive printed work on the structure of fabrics, often-cited by makers and academics, including Annemarie Seiler-Baldinger,



Figure 42.
Arline Fisch
– *Lace Ascot*,
knitted silver wire,
H 28 cm, 1980.

Courtesy Victoria
and Albert
Museum, London



Figure 43.
Gijs Bakker
– *Knitted Maria*,
porcelain and
vanished cotton,
prototype, 1997.

Courtesy Droog

Historically, Fisch's *Lace Ascot* and Bakker's *Knitted Maria* manifest what archaeologist John Linton Myres would describe as a "textiles-style." Despite their differing materials – silver wire in Fisch's case, and porcelain in Bakker's – both objects are united in their adoption of textile techniques. Myres identifies a form of 'artistic development in an imitative style' in Greek pottery, 'which is wholly modelled on vessels of basketry and wood'.³ The craftswoman first approached clay with a textiles-based knowledge, since that was her *métier*, and proceeded to manipulate the clay as if it were textiles. This transference of skills was fundamental to the development of craft traditions, argues Myres, and initiated a 'fresh [...] means of [material] expression.'⁴ Myres draws attention to the inventiveness of this type of making; that what started out as an attempt to work with an unknown material, introduces a whole new set of forms 'derived from,' in this instance, 'the repertory of basketry' to it.⁵ In other words, the skeuomorph owes its emergence to the experimental bias of its makers. This is the case with *Lace Ascot* and *Knitted Maria*: both objects owe their success to the assimilation of textile techniques into silver wire and clay, respectively. It is the novelty of this introduction that distinguishes them. Moreover, it is the peculiar capacity of textiles to record the time of their making that links the *Knitted Maria* and *Lace Ascot*. The aim of this chapter is to elaborate on the concept of materialised time, which I map out theoretically in the next section, through a comparative study of both objects *in the making*.

6.1. Generating a Theory of Materialised Time

As no account of what I refer to as materialised time, or the *taking form of time*, exists, to my knowledge, in craft and design discourse,⁶ I open with a close reading of philosopher

whose *Textiles: A Classification of Techniques* (1994) was devised to complement Emery's work. Her focus is on technique rather than structure.

³ John Linton Myres, *Who Were the Greeks?* (Berkeley, California: University of California Press, 1930), pp. 228-29.

⁴ Myres, *Who Were the Greeks?* (Berkeley, California: University of California Press, 1930), p. 229.

⁵ *Ibid.*, pp. 231-32.

⁶ The only exception is Mole Leigh's notion of 'chronomane craft,' which she defines as 'the relationship between human labour and relative time' in craft practice. However, where Leigh is concerned with the time taken to do a particular thing, i.e. time investment, I am concerned *specifically* with the embodiment of time in the making process, i.e. how time *materialises* in the finished form. Adrian and Inge Konik invoke 'materialised

Henri Bergson's seminal work *Time and Free Will* (1910), in which he differentiates between time as "duration" and time as "space".⁷ I propose that materialised time takes shape in-between the two, as it is both qualitative and spatial. To do this, I link Bergson's theories on time with the distinct, and, at times, chaotic phases of making that constitute the individual, drawing on philosopher Gilbert Simondon's principle of individuation; as well as speech and drama specialist Elsie Fogerty's treatise on rhythm (1937), or the repeated patterns of making.⁸ While the phases of making, these discrete and sequential "presents," are hard to decipher in some materials, in textiles they are laid bare. This is due to the intrinsic visibility of the textile process, which recounts each making gesture in the successive positions of the weave elements that constitute the textile structure. This enables me to theorise the materialised time of the skeuomorph, which, I argue, is dense and multifaceted, but that tends to be abstracted as either past- or future-oriented. I propose that reading time at an object's outer surface is only ever superficial, and confines it to the constraints of normal chronology. Just as a textile designer can unravel a garment to decipher how it is made, I deduce the inner workings and contrasting temporalities of the skeuomorph from the textile techniques utilised by

time' in the title of their paper on patinated artefacts; however, at no point in the text do they elaborate on what this actually means. More recently, Niels Peter Skou proposes to discuss the productive uses of time in design at the *Design History Society Conference 2016*; that is, objects that are deliberately designed to evidence the time of their making. However, at the time of writing this doctoral thesis, Skou's paper has not yet been published. Finally, in his lecture titled 'The Speed of Craft' (2010), Glenn Adamson argues that our mistrust of Minimalist artworks, such as Martin Creed's *Work No. 88* (1995), is based on the relative speed of their making. See Mole Leigh, 'Chronomaneu Craft: Time Investment as a Value in Contemporary Western Craft', *Journal of Design History*, 15: 1 (2002), pp. 33-45; Adrian and Inge Konik, 'The political significance of patina as materialised time', *South African Journal of Art History*, 28: 2 (2013), pp. 133-55; and Niels Peter Skou, 'Materialising time: Craft, patina and the symbolic consumption of time through designed objects', *Design and Time: Design History Society Conference 2016* (Middlesex University, London, 8-10 September 2016) <<http://designandtime2016.co.uk/heritage-and-symbolic-time/>> [accessed 25 July 2016]; Glenn Adamson, 'The Speed of Craft', *Collect* (Saatchi Gallery, London, 14 May 2010) <<https://www.youtube.com/watch?v=m62nm7bfB2I>> [accessed 16 January 2015]; and Lucy Lippard, 'Time: A Panel Discussion', *Art International*, 9 (1969), pp. 20-23 & 39.

⁷ Bergson's concept of duration has been central to my understanding of time as it relates to making, due to its emphasis on the different phases, or the 'constant succession' of times that constitute duration. My decision to draw from Bergson's *Time and Free Will* finds support in architect Jonathan Hale's essay on Gottfried Semper's primitive hut, in which Hale likens Bergson's process of becoming, described as 'the relentless unfolding of present events', to the process of constructing a building. Hale relates the technical emergence and *endurance* of form in Semper's theories to the Bergsonian concept of continuation: the idea that the past continues on into the future. See Jonathan A. Hale, 'Gottfried Semper's primitive hut as an act of self-creation', *Arq: Architectural Research Quarterly*, 9: 1 (2005), pp. 45-50.

⁸ Taylor Adkins, 'Translation: Simondon and the Physico-Biological Genesis of the Individual: Chapter One: Form and Matter: Section I—Foundations of the Hylemorphic Model: Technology of the Capture of Form' (3 October 2007) <<https://fractalontology.wordpress.com/2007/10/03/translation-simondon-and-the-physico-biological-genesis-of-the-individual/>> [accessed 21 September 2016]; Elsie Fogerty, *Rhythm* (London: George Allen & Unwin Ltd., 1937).

Fisch and Bakker, through a process akin to reverse archaeology, or what could be called a theoretical “unpicking”.

6.1.1. A Structural Relationship

While basketry may seem an odd choice of discipline through which to discern the ins-and-outs of the weaving process,⁹ “basketry” is a term used in the field of textiles to refer to both the process and product, the doing and the thing made; this is the same for the term “weaving”.¹⁰ Thus basketry entails techniques as diverse as twining (fig. 44), wrapping, and stake-and-strand, while the materials used can be as varied as jute, centre cane, willow rods, and plastic wire. In actual fact, the term basketry serves to differentiate between notions of structure and construction, to the principle of organisation of a thing, and the method of making it, which pertain to all forms of making. As structure is integral to the skeuomorph, I will briefly explore this kinship here, as well as how it led to my decision to learn basketry techniques.

In her definitive account of the ‘structural make-up’ of fabrics, textiles curator Irene Emery makes the salient point that, given the wide variety of ‘textile fibres’ available to makers, it is their structure of fabrics that distinguishes them: ‘Structure is never absent; it is, with negligible exceptions, determinable; it can be objectively observed; [...] Although the details of structure (and element make-up) do not in themselves give a complete picture of a fabric, they provide a sound factual basis for more comprehensive description [...].’¹¹ Emery goes on to differentiate between structure and process, writing that ‘*structure* inheres in the fabric and its elements and is most invariably ascertainable; whereas evidence of *process* is seldom retained.’¹² The integration of multiple textile elements is the main determinant of structure, while process is the method of generating it. If we think in these terms, then there is also a spatio-temporal

⁹ Following Irene Emery in *The Primary Structures of Fabrics*, I use the terms “basketry,” “weaving,” and “textiles” interchangeably throughout this chapter to refer to ‘woven (i.e. *interlaced* warp-weft) fabrics.’ Irene Emery, *The Primary Structures of Fabrics: An Illustrated Classification* (London: Thames & Hudson, 1994), p. xvi.

¹⁰ Emery, *The Primary Structures of Fabrics*, p. 208.

¹¹ *Ibid.*, pp. xi & 1.

¹² *Ibid.*, p. xv.

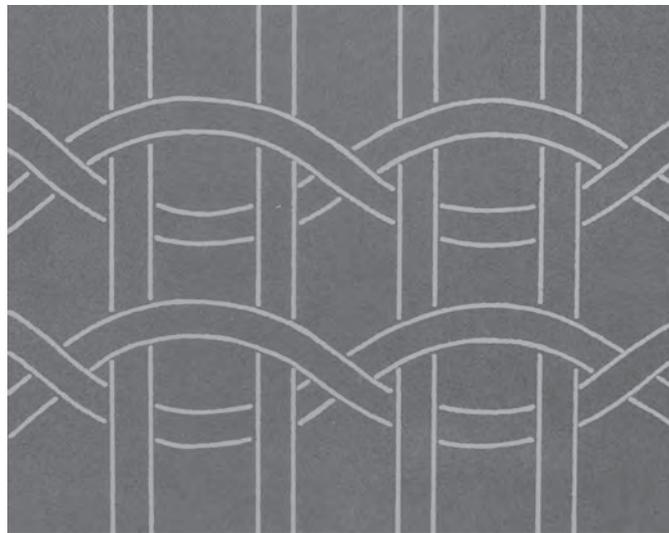
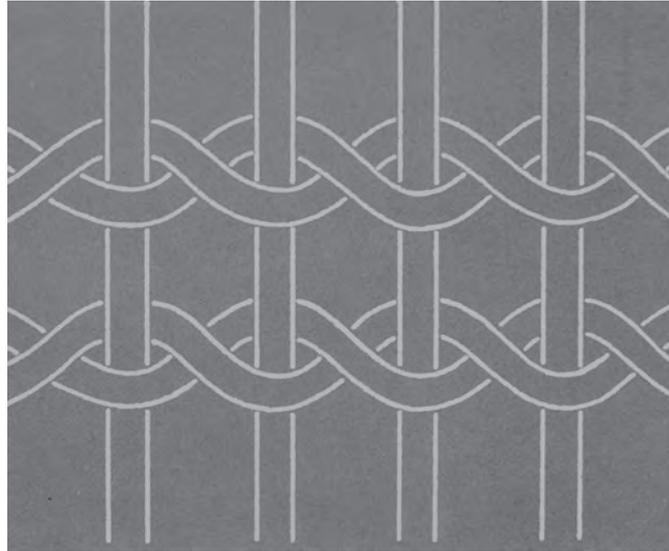


Figure 44.
'Twining.'
Reproduced from
Annemarie Seiler-
Baldinger, *Textiles:*
A Classification of
Techniques (1994),
p. 61.

aspect to structure: it takes time and takes shape in space. Structure is the materialisation of successive forces at work in the material. We can see this at play with the skeuomorph, for which structure is the directive principle. We only have to think back to the example of the shoe that is manufactured from leather, plastic, or cast steel, and through processes as diverse as leatherwork, injection moulding, and casting. Leatherwork is a relatively slow process, while injection moulding is almost instantaneous: the difference is in the degree of manipulation and type of the material, in their spatio-temporality.

In an attempt to understand the relationship between the “structure-form” of the skeuomorph and the construction of textiles, and what the latter can reveal about the former, I turn to design theorist György Kepes’s definition of structure: ‘Structure, in its basic sense, is the created unity of the parts and joints of entities. It is a pattern of dynamic cohesion in which noun and verb, *form* and *to form*, are coexistent and interchangeable; of interacting forces perceived as a single spatio-temporal entity.’¹³ Kepes’s definition supports the idea that structure constitutes oneness and difference; it emerges *as* form and *is* formed in response to interacting forces in the process of making. Kepes’s statement also suggests that structure cannot simply be observed, but needs to be *performed*. Thus, throughout this chapter, I draw on my experience of basketry at Morley College, in order to flesh out some of the more theoretical strands of materialised time. To begin, I explore this notion of structure as a “spatio-temporal entity” via Bergson’s theories on time.

6.1.2. Henri Bergson and the Time-Space Problematic

In *Time and Free Will* (1910), Bergson contends that it is our inability to distinguish between time as ‘space’ and time as ‘duration’ that hinders our capacity to act voluntarily. Bergson describes spatialised time as ‘extensive and measurable’ – that which is externalised in space can be measured – while duration is ‘intensive and not

¹³ Gyorgy Kepes, ‘Introduction,’ in *Structure in Art and in Science*, ed. by Gyorgy Kepes (London: Studio Vista, 1965), pp. i-vii (p. ii).

admitting of measure': it is continuous.¹⁴ Bergson differentiates between our lived experience of 'states of consciousness, sensations, feelings, passions, [and] efforts,'¹⁵ which alter continuously, and our tendency to consign them to space in order to describe them, thereby bounding them in size, or extent: 'We picture to ourselves [...] a greater intensity of effort as a greater length of thread rolled up, or as a spring which, in unwinding, will occupy a greater space'.¹⁶ In other words, we visualise these intensities in space in order to perceive them, but in doing so, we give them a temporal dimension: we spatialise time.

Bergson argues that it is because time is so often parcelled out to neatly bound units that it is misunderstood. Rather than experience the successive moments of duration within our own bodies, we carve it up into seconds, hours, and minutes, into objects and situations, that can be measured, counted, and quantified. This renders us accountable to clock time, or abstract mathematical time, rather than our own, lived time; and, more specifically in the context of this research, to the "experience" of making. It is in this way, argues Bergson, that we renounce our free will. He writes that 'by invading the series of our psychic states, by introducing space into our perception of duration, it corrupts at its very source our feeling of outer and inner change, of movement, and of freedom [...] hence the problem of free will.'¹⁷ While I am not concerned here with the notion of free will, in particular as it relates to political liberty,¹⁸ I draw from Bergson's work the idea that materialised time, the time of making and of things made, constitutes both qualitative and quantitative aspects that complicate the bifurcation of time as duration and space. Materialised time is a spatial concept, as it involves the taking form of discrete gestures of making *through* time, yet it is also durational in the sense that, at every stage in the making process, the different phases of making

¹⁴ Henri Bergson, *Time and Free Will: An Essay on the Immediate Data of Consciousness*, trans. by F. L. Pogson (London: Swan Sonnenschein & Co.; New York: The Macmillan Co., 1910), p. 3.

¹⁵ Bergson, *Time and Free Will*, p. 1.

¹⁶ *Ibid.*, p. 4.

¹⁷ *Ibid.*, p. 74.

¹⁸ There is, however, a perceptible symmetry between Bergson's notion of free will, and Jane Bennett's theories on the vibrancy, or "free will" of matter. See Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (Durham: Duke University Press, 2010).

permeate one another. The form grows through the accumulated phases of making, as well as endures through wear and use. Any object is a composite of these different phases – expanding, reacting, crystallising, and binding – each of which adjusts the outward form. Taking on form is an emergent process, hence a durational one.¹⁹

Bergson expatiates on the distinction between time and duration, or what he calls distinct ‘multiplicities,’²⁰ using the fruitful example of number, which can be helpfully transposed to the context of textiles. There is, in the simple correspondence between Bergson’s numbers and the draft notation that describes the construction of a textile,²¹ the opportunity to expand on what textiles reveal about materialised time. He writes: ‘Number may be defined in general as a collection of units, [...] as the synthesis of the one and the many.’²² With this statement, Bergson acknowledges the exactitude of number, as well as its multiplicity. For example, the number 3 is the representation of three parts as one number, 3, and the sum of 1 + 1 + 1. It is easy to visualise a weave structure functioning in the same way: it is a composite structure, as well as any number of interworked warp and weft elements.²³ There is, he continues, ‘unity and multiplicity’ in number, oneness and difference.²⁴ He argues that, in order to recount oneness and difference, there needs to be juxtaposition in space; in other words, to count is to externalise. He concludes that ‘time, understood in the sense of a medium in which we make distinctions and count, is nothing but space.’²⁵ For Bergson, time is spatial and homogeneous.

¹⁹ While I am not proposing that Bergson would disagree with this statement, his focus in *Time and Free Will* is the mind as separate from matter, whereas mine is matter in-and-of-itself. I simply draw on his theories in an attempt to introduce the concept of materialised time.

²⁰ Bergson, *Time and Free Will*, p. 4.

²¹ I explore the method of “draft notation” in more detail in the next section.

²² Bergson, *Time and Free Will*, p. 75.

²³ This idea of the oneness and difference in number can also be found in philosopher Henri Lefebvre’s *Rhythmanalysis* (2004), in which he theorises rhythm and ritual in everyday life. He writes: ‘Absolute repetition is only a fiction of logical and mathematical thought, in the symbol of identity: A = A (the sign reading “identical” and not “equal”). It serves as a point of departure for logical thought, with an immediate correction. The second A differs from the first by the fact that it is second. The repetition of unity, one (1), gives birth to the sequence of numbers.’ Henri Lefebvre, *Rhythmanalysis: Space, Time and Everyday Life*, trans. by Stuart Elden and Gerald Moore (London; New York: Continuum, 2004), p. 7.

²⁴ *Ibid.*, p. 76.

²⁵ *Ibid.*, p. 91.

I will expand on this idea of counting, which is integral to the construction of textiles.²⁶ Textiles include: single-element structures, such as knitting and crocheting; two-single-element structures, for example lace, or macramé; while for weaving, there need to be at least two sets of elements that interlace at right angles.²⁷ So, this idea of spatialised time as something to be counted is fundamental to textiles. In weaving, each weft, or “transverse” element, is interworked with each warp, or “longitudinal” element,²⁸ and I extrapolate from this the idea that each successive moment, or “present,” in the act of making is materialised in the composite structure. It is through Bergson’s idea of time as a ‘quantitative multiplicity’ that I recognise that textiles maintain the successive gestures of making in the interlacement of warp and weft.²⁹

6.1.3. Where Henri Bergson Meets Anni Albers

In the basic constructions of textiles there is difference, and this difference is closely linked to number. Thinking through textiles gets us closer to understanding the contrasting nature of time.

I associate Bergson’s example of number to the standard method used to indicate the warp-and-weft construction of textiles, referred to already as the draft notation (fig. 45).³⁰ In *On Weaving* (1965), German textile designer Anni Albers describes how draft notation, a simple series of black-and-white squares on a grid that denotes the performance of warp and weft, reveals the composition and formal structure of a weave

²⁶ This, of course, does not include felting, which is a process whereby a large number of disconnected fibres are amassed in one coherent structure, without being twisted into individual threads. For more on this, see Irene Emery, ‘Agglomerated Fibres’, in *The Primary Structures of Fabrics: An Illustrated Classification* (London: Thames & Hudson, 1994), pp. 22-23; and Gilles Deleuze and Félix Guattari, ‘1440: The Smooth and the Striated,’ in *A Thousand Plateaus: Capitalism and Schizophrenia*, trans. by Brian Massumi (Minneapolis; London: University of Minnesota Press, 2005), pp. 474-500 (pp. 475-76).

²⁷ Anni Albers, *On Weaving* (Middletown, Connecticut: Wesleyan University Press, 1965), p. 38.

²⁸ Emery, *The Primary Structures of Fabrics*, p. 74.

²⁹ Gilles Deleuze expands on Bergson’s ‘quantitative multiplicity’ to include the notion of ‘material multiplicity,’ which is a subtle nuance of Bergson’s theories that has helped me to think through materialised time. See Gilles Deleuze, ‘Theory of Multiplicities in Bergson’, *Lectures by Gilles Deleuze* <<http://deleuzelectures.blogspot.co.uk/2007/02/theory-of-multiplicities-in-bergson.html>> [accessed 29 June 2016].

³⁰ Albers, *On Weaving*, pp. 44-46.

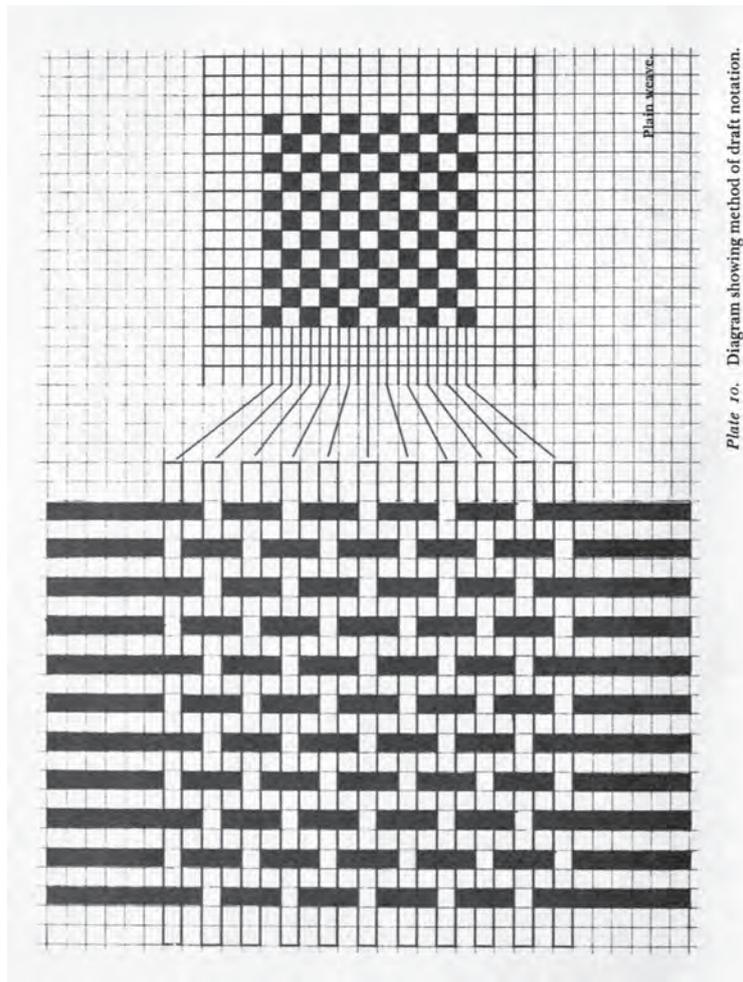


Plate 10. Diagram showing method of draft notation.

Figure 45.
'Diagram
showing method
of draft notation:
Plain weave.'
 Reproduced from
 Anni Albers, *On*
Weaving (1965),
 Plate 10.

and ‘is all that is needed to give an accurate account of [its] construction’.³¹ The advantage of this shorthand is that it can be read instantaneously. Yet, within the patterning of black-and-white squares on a grid is the texture, the tactile quality of the weave structure, which is determined by the positioning and thickness of the warp and weft elements. Weave structures can be described as “balanced” or “compact,” depending on the diameter of both warp and weft relative to each other, and the weave structure as a whole. ‘Every fabric,’ writes Albers, ‘is the result of two elements: the character of the fibers used in the thread construction, [...] and the construction or weave itself.’³² It is a dialogue between parts that are *not* alike that constitutes the whole. Draft notation virtualises the succession of gestures that construct the weave. There is, in Albers’s draft notation, a succession of presents that condition those that follow, and that work in succession *and* simultaneously to constitute the weave. Each of these presents takes form in the weave, and their qualitative difference denotes pattern and depth. In other words, within quantity there is quality; there is, I would argue, a materialisation of number. Albers concurs with this view, writing that, despite its assistance in “reading” the construction of a weave, the draft notation is propositional.³³ I propose that objects, like textiles, are composite structures of multiple and varied modes, or gestures, and that in order to get at this complexity, we need to understand the processes of their making, rather than depend on formal analysis alone.

6.1.4. Counting Sixty Seconds in Time and Textiles

The “thread count” is the number of warp and weft elements in a specific measure of fabric and it forms the ‘basic unit construction’ of the fabric’s make-up. ‘This [unit],’ explains Albers, ‘is all that is needed to give an accurate account of the construction of a weave, although [...] it does not give a *naturalistic representation* of it.’³⁴ The “representational” measure of Albers’s weave unit corresponds with Bergson’s description of the basic unit of time: the second. By counting one minute, Bergson

³¹ *Ibid.*, p. 44.

³² *Ibid.*, p. 59.

³³ *Ibid.*, p. 44.

³⁴ *Ibid.*, p. 38 [emphasis mine].

claims that time becomes space in order to be measured, and in doing, is denied difference: ‘If I picture these sixty oscillations to myself all at once by a single mental perception, I exclude by hypothesis the idea of a succession.’³⁵ With this, Bergson suggests that the actual difference between seconds is surrendered to the idea of the minute as one, to the mental image of the minute as one. Likewise, the representational nature of the thread count precludes the texture, or “grain,” of its weave elements: it simply becomes *number*. It becomes a proposition.

This numerical multiplicity is the crux of designer Mole Leigh’s notion of the ‘chronomaneal,’ or ‘the equation of time invested in handmade objects’,³⁶ which she maintains is crucial to the relationship between time and craft. Leigh focuses on the time invested in making, which she considers to be ‘a tangible aesthetic value of craft’³⁷ that is evident in, for example, the scale, or level of detail of a hand-crafted object: ‘In its most literal sense, [...] each knot might suggest a minute and each line of work an hour, thus *time reverberates rhythmically around* – that is, not *within* – ‘the work to create the harmonious sum of human endeavour expressed as an aesthetic value.’³⁸ While, in theory, Leigh’s account sympathises with the ambitions of materialised time in its allusion to process, in practice it slips in-and-out of an abstract notion of time as something to be recorded incrementally as a “knot” or a “line,” that is, as formal units, rather than variegated *within* and *across* matter, and in doing so, denies the qualitative nature of multiplicity. I argue, as do many makers, that time takes form variously within different materials, and that to count “knot-by-knot” is to presuppose that the time of making is uniform across materials.³⁹ Furthermore, time stops, or can be stopped intermittently, once the action is complete. This act of formalising the knot as a unit of measure precludes differences in the knot structure, owing to the method of interlacing,

³⁵ Bergson, *Time and Free Will*, p. 104.

³⁶ Leigh, ‘Chronomaneal Craft’, p. 34.

³⁷ Leigh, ‘Chronomaneal Craft’, p. 37.

³⁸ *Ibid.*, p. 37 [emphasis mine].

³⁹ A good example is Spanish sculptor Eduardo Chillida, who famously distinguishes between the form-taking capacities of stone, clay, and iron, stating that: ‘The connection of my idea with a new material produces a new result, *because of his [sic] internal laws*. I accept, also, the reaction of the material and adapt my idea in relation with the material I am working.’ *Chillida*, dir. by Laurence Boulting (1985) [emphasis mine]. See also Bennett, *Vibrant Matter*, pp. 57-58.

the thickness of the material, or its tightness; in other words, Leigh's time is oneness without difference. By contrast, I maintain that, in order to examine the temporality of the skeuomorph, it is crucial to take account of its making, as well as its specific material properties. There is a qualitative difference to materialised time.

If we return to Bergson's sixty-second example, he argues that one way to counter the contraction of time in space is to 'preserve [a] trace of it'.⁴⁰ This, he argues, is an either-or situation: either we count the seconds simultaneously in space, one by one, or we 'perceive one in the other, each permeating the other and organising themselves like the notes of a tune, so as to form what we shall call a continuous or qualitative multiplicity,' a sequence without form. For Bergson, time can be either-or quantitative or qualitative, not both. Like Bergson, I understand this tracing in space to be materialised (or spatialised) time, although I would argue that it is a continuous and cumulative process, as well as a sequential one. Making involves different material forces that emerge in the present and gather in the final form of the object. While Leigh's simple knot-by-knot account of the making process touches on the quantitative aspect of materialised time, its qualitative aspect needs to be more carefully understood.

Bergson does, in fact, allude to the qualitative aspect of spatialised qua materialised time in his brief example of an anvil, 'which [...] if it could feel, would realise a series of blows from a hammer'.⁴¹ This ability of the anvil to "feel" identifies the continuous and cumulative qualities of materialised time. What I have already referred to as the peculiar "readiness" of materials to interact in the process of manufacture extends to their receptivity to, in this instance, the "blows from a hammer". Materialised time comprises qualitative multiplicity, understood as 'a pure heterogeneity within which there are no distinct qualities'.⁴² In relation to textiles, this heterogeneity can be read in the pulls, pleats, knots, and holes that constitute the fabric: here tight and contracted, there unravelled and worn.

⁴⁰ Bergson, *Time and Free Will*, p. 104.

⁴¹ *Ibid.*, p. 123.

⁴² *Ibid.*, p. 226.

6.1.5. Introducing Force to the Time-Space Problematic

I propose that the broken thread in Bergson's time-space is *force* – what I understand as “gesture” – which is a changeable attribute of the making process. If we consider time to be inconsistent, and space to be homogeneous, then force is the agent of making that differs relative to the techniques and materials used. It is force that materialises the multiplicity of making presents as form, and it is force that connects time with space. Re-introducing Simondon's thinking with respect to time in the making of a clay brick is helpful here.⁴³ Simondon identifies the many ‘gestures’ that bring about form; it is not, he argues, a communication between ‘an unspecified matter and an arbitrary form’ – the simple, and immediate, sum of parts – but rather a continuous process that begins prior to the preparation of the clay and the mould. The future object is latent in the prepared materials, as well as in all preceding presents of the object. I associate Simondon's “gestures” with the repeated and continual acts of making, to the ‘kneading, stretching, shaping’ that modulate the structure of the material: at times rushed and energetic, at times slow, precise. These forces, which are manifest in the material prior to making something with it, as well as being re-worked in the making, continuously transform it; all of these material forces merge in the potentiality of the object. That is, there is multiplicity in oneness. This is the crux of Simondon's theories on individuation: That each individual is the mediation of a multiplicity of forces and processes, and that ‘matter is multiformed,’⁴⁴ or has the potential to take on multiple forms.

With textiles, this “capacity to become” depends primarily on the fibre structure. In *Physical Properties of Textile Fibres* (1993) it is stated that: “The properties of a textile structure such as a yarn or a fabric depend on a complex interrelation between fibre

⁴³ I discuss Simondon's analysis of the ‘technical operation’ of a clay brick in more detail in Chapter 5 on Silo Studio. Simondon, trans. by Adkins, ‘The Physico-biological Genesis of the Individual’.

⁴⁴ Elizabeth Grosz, ‘Identity and Individuation: Some Feminist Reflections’, in *Gilbert Simondon: Being and Technology*, ed. by Arne De Boever, Alex Murray, Jon Roffe and Ashley Woodward (Edinburgh: Edinburgh University Press, 2012), pp. 37-56 (p. 45).

arrangement and fibre properties.⁴⁵ A thread constitutes the most basic fibre structure, as it needs a minimum of “processing” in order to be worked, whereas a yarn is a spun thread; it constitutes a number of fibres that are either twisted, or spun, together as to act as a thread (fig. 46).⁴⁶ Furthermore, friction is identified as the binding force of textiles: ‘In order to make [...] a yarn, we must cause the fibres to line up more or less parallel to one another and then insert a twist, which leads to a lateral compression in the yarn and so causes frictional forces to hold the parallel fibres together.’⁴⁷

This liveliness of materials can be intuited in practice. There is a noticeable tension to the weave elements, even before the weaving begins, as well as a working tension that determines the direction, and temperament, of the textile structure. Thus, tension is a condition of spatialised time.⁴⁸ Much like Simondon’s clay, for which ‘the setting into form is already commenced at the time when the craftsman stirs the paste,’ with textiles it is the direction and angle of the twist that begins to potentialise the form.

Simondon further complicates this notion of material agency, suggesting that there is, within the material being worked, an “already-ness” of the object, a future time. He establishes a relationship of futurity between the two ‘technical half-chains’ of the making process, between the clay and the ‘parallelepiped form’. ‘There is,’ he writes, ‘in the rough clay an aptitude for becoming a plastic mass with the dimensions of a future brick.’⁴⁹ The future brick is latent in the clay; it is what the craftswoman is working *towards*. Yet, the future brick is also latent in the three-dimensional parallelepiped, although it differs in that ‘it already contains a certain schematic which can direct the construction of the mold [sic], which is an ensemble of coherent operations contained

⁴⁵ W. E. Morton and J. W. S. Hearle, *Physical Properties of Textile Fibres* (Manchester: The Textile Institute, 1993), p. 265.

⁴⁶ Annemarie Seiler-Baldinger, *Textiles: A Classification of Techniques* (Washington, D.C.: Smithsonian Institution Press, 1994), p. 2.

⁴⁷ Morton and Hearle, *Physical Properties of Textile Fibres*, pp. 22-23.

⁴⁸ This tension is most profoundly felt in the latter stages of the weft-twining process using a natural fibre, such as jute.

⁴⁹ Simondon, trans. by Adkins, ‘The Physico-biological Genesis of the Individual’ (para. 6 of 11).

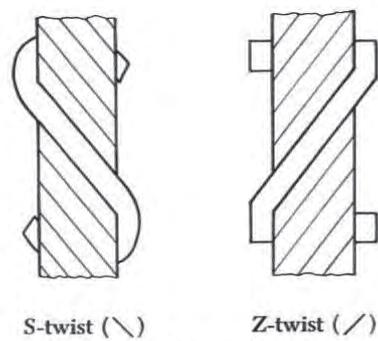


Diagram 1

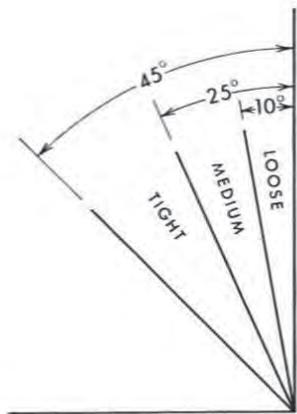


Diagram 3 Designation of angle of twist.

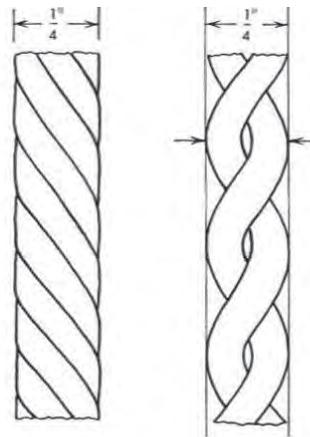


Diagram 4 Determination of 'over-all' diameter of yarn in cases of exaggerated 'waisting.'

Figure 46.
'Description and Measurement.'

Reproduced from Irene Emery, *The Primary Structures of Fabrics* (1994), pp. 11-12.

in an implicit state.⁵⁰ We can think of the mould as the “towards now,” as the virtual form of the brick. This is what I understand Simondon to mean by the ‘implicit state’ of the parallelepiped: the as-yet-unrealised potential of the brick. This potential is “coherent,” because it is a parallelepiped rather than a cuboid or sphere, for instance. There is a certainty to it. He goes on to say that the mould ‘descends towards the future individual’. I understand this action of “descending towards” as owing to the macro-scale of the brick mould relative to the micro-scale of the clay matter, and the progressive transference of form *between* the implicit state of the parallelepiped and the “as-yet-ness” of the clay brick. The futurity of the brick is already there at the macro level – there is a certain degree of inevitability, or a pattern, to the making of bricks – but is yet to emerge at the micro level. Between the “already-now” of the parallelepiped and the “not-yet” of the clay is a succession of presents: a qualitative multiplicity. I understand via Simondon that the clay brick, or ‘future individual,’ materialises in a succession of presents, each of which merges with those that precede it, and conditions those that follow. Between the latent brick-form and the materialised brick is a “patchwork” of happenings; there is succession *and* simultaneity.

6.1.6. Giving Texture to Time

Bergson’s notion of “unity and multiplicity” relates to the composite nature of materialised time, to the temporal complexity of making. Yet, between the two “timescapes” of textiles described in this section, the draft notation and the weave structure itself, there remains another aspect of materialised time that Bergson cannot help with: that of “texture”.⁵¹ Bergson was careful to distinguish between the ‘multiplicity of juxtaposition’ and that of ‘interpenetration,’ yet I argue that materialised

⁵⁰ Simondon, trans. by Adkins, ‘The Physico-biological Genesis of the Individual’ (para. 7 of 11).

⁵¹ I use the term “texture” purposefully here, given its connection to the Latin word *textura*, meaning ‘weaving’ from the verb *texere*; there is a texture to weaving, just as there is a texture to materialised time.

time assimilates both.⁵² Here, I will nuance materialised time with recourse to sociologist Benedikte Zitouni's theory of the 'thick present' (2015).⁵³

In an attempt to problematise linear time, Zitouni proposes a mode of 'shuffling times,' which she explains as 'letting a plural and potential "now" take over and substitute itself to the linear and irreversible past-present-future thinking [...] we're used to.'⁵⁴ Zitouni's 'thick present' is one facet of shuffling times, in which there is a qualitative thickening owing to the ways in which we recount, or embellish, events. In particular, she explains, it can be found in archives, where description and storytelling abound.⁵⁵ There is, without doubt, a 'rhizomatic' aspect to the archive,⁵⁶ in which events gain in volume and become disproportionate, owing to their indiscriminate retelling. I envisage this thickening in the drawn-out narrative, or the anecdote, in the detail that lengthens, or that adds texture.

I also recognise this thickening of the present in two interrelated textiles processes, "increasing" and "decreasing," in which time is effectively introduced, or otherwise extracted, in the weave structure (fig. 47). There is, with twined basketry in particular, the option to "increase" the workable surface of the weave structure, using "hairpins," or lengths of yarn folded back on themselves.⁵⁷ These are introduced to the structure at judicious intervals, becoming additional warp elements, thus altering the overall construction of the weave. This gesture effectively opens out the form, due to the greater number of warp elements that need to be interworked. "Decreasing" is the reverse process, whereby the weft elements twist around a group of warp-elements-as-

⁵² Bergson, *Time and Free Will*, p. 75, n. 1.

⁵³ Benedikte Zitouni in discussion with Valérie Pihet, 'Shuffling Times', *First PARSE Biennial Research Conference on TIME* (University of Gothenburg, Sweden, 4-6 November 2015).

⁵⁴ Zitouni, 'Shuffling Times'.

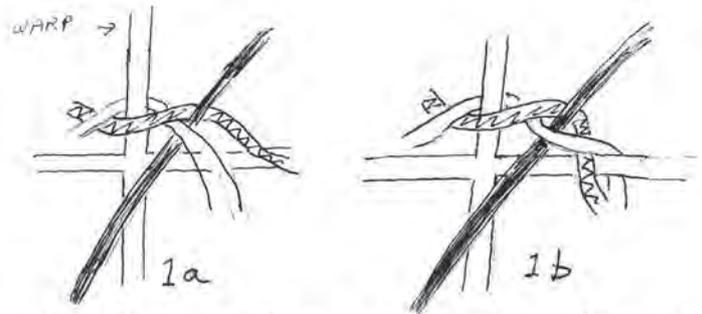
⁵⁵ Zitouni, 'Shuffling Times'. The interrelation between time and storytelling is something that Esther Leslie detects in the crafted motifs in Walter Benjamin's writings on time and memory. Esther Leslie, 'Walter Benjamin: Traces of Craft', *Journal of Design History*, 11: 1 (1998), pp. 5-13.

⁵⁶ The idea of the rhizome is borrowed directly from Gilles Deleuze and Félix Guattari to describe the iterative relation between reality and the representation, as distinct from the index: the rhizome facilitates the reproduction of the real, though in a completely novel way. Gilles Deleuze and Félix Guattari, *On the Line*, trans. by John Johnston (New York: Semiotext(e), 1983), p. 19.

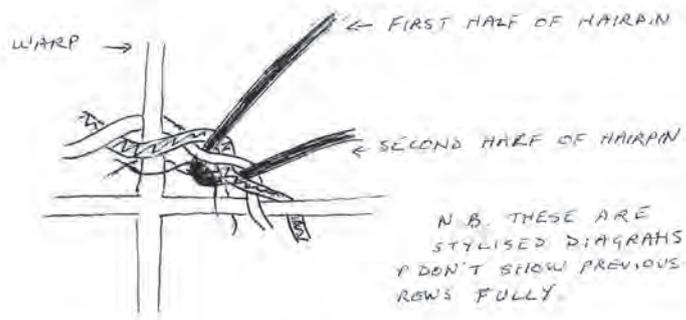
⁵⁷ Stella Harding and Shane Waltener, *Practical Basketry Techniques* (London: A&C Black, 2012), p. 61.

- TWINING - INCREASING WARPS

ADDING 'HAIR PINS'



1. On the first round make a half twist and lay the hairpin in at its midpoint (1a). Make another half twist before the next warp to secure it in place (1b)



2. On the second round bend the hairpin up and make a half twist before and after it. These extra twists will also help to increase the circumference of the form.
S.H. NICK

Figure 47.
'Twining -
Increasing
Warps.' Handout,
'Contemporary
Basketry', Morley
College, London.

one, creating visible spaces in the weave construction; it effectively thins time. It is this practical knowledge of what in basketry terms is called ‘spacing’,⁵⁸ that lead me towards the spatial *and* qualitative aspects of materialised time. Spacing is the most explicit means of deciphering materialised time, as distinct from Bergson’s time as space. There is a sequence of units to be “counted” – the warp elements – as well as the potential to thicken the present with the addition of hairpins that expand the perimeter of the basket and *prolong* the weaving process – that is, duration. The unenclosed warps represent intervals or pauses, blank spaces, or gaps in time. Spacing introduces a different tempo or momentum, in other words, difference, in much the same way that Zitouni conceives of a thickening of time. With this action of spacing, time materialises in the weaving process in multiple ways that are consecutive and qualitative.

Weaving affords the potential to ‘gather together’ time,⁵⁹ to turn it over or inside out, to thin or thicken it. It is subject to the rhythms of making. In her treatise on rhythm, Elsie Fogerty recognises the difference and repetition that constitutes rhythm across a diversity of art forms, from poetry to music and embroidery. Drawing on the writing of architect Charles Berry, she differentiates between the ‘lasting, uniform, and inorganic’ nature of symmetry, and the changeable nature of rhythm, stating that ‘rhythm is a plastic idea’.⁶⁰ Fogerty draws on ‘the frieze of the Parthenon with its infinite variety’ to evoke the tangible effects of rhythm on matter, which is not the same as ‘pattern’ that is restrained through symmetry.⁶¹ While draft notation could feasibly be understood as pattern, I relate the adaptability of weaving to the “plasticity” of rhythm, to difference in repetition, and to the inconsistencies of materialised time. Fogerty identifies three constitutive aspects of rhythm, each of which is integral to the making process: ‘*The Factor of Time*, present in measured recurrence, that is to say, in the temporal interval between maximum and minimum force [...] Second, *The Element of Force*, without which the temporal spacing could not exist. And third, *The Element of Space* itself,

⁵⁸ Personal conversation with Stella Harding (8 October 2015).

⁵⁹ Michel Serres and Bruno Latour, ‘Second Conversation: Method’, in *Conversations on Science, Culture, and Time*, trans. by Roxanne Lapidus (Ann Arbor: University of Michigan Press, 1995), pp. 43-76 (p. 60).

⁶⁰ Fogerty, *Rhythm*, pp. 15-16.

⁶¹ *Ibid.*, p. 15.

without which the application of force is unthinkable...'⁶² Fogerty's notion of time as "measured recurrence" corresponds with the successive presents that are tangible in the weave construction. Each discrete making gesture, in concert with the material forces, orientates the weave in its "descent towards" the future form, without which the material remains unvaried. Instead it takes shape in distinctive, time-bound ways. The manipulation of materials necessarily alters the form of the composite structure. It is rhythm, or the recurrence of gestures in making, that determine structure.

Thus materials maintain every gesture, those preceding and those present, as well as conditioning any future gesture. Material – be it textiles, clay, or glass – gathers up all these gestures in one heterogeneous whole, which is the object itself. Materialised time is, therefore, akin to a variegated woven structure with dropped stitches, holes, and pleats: it embodies a multiplicity of times. It is this expanded notion of materialised time that can help to illuminate the temporal multiplicity of the skeuomorph.

6.2. Object Study #1 – Metal as Wood as Lace

Arline Fisch is primarily a jewellery artist, who began working with precious metal elements as quasi-threads in the 1960s, forming complex woven structures that dispense with the notion of material appropriateness (fig. 48).⁶³ It was on the invitation of Van Nostrand, the New York City publishers, to research and write a book about textile techniques in metal in 1975 that Fisch's burgeoning interest intensified.⁶⁴ In an oral history interview for the Archives of American Art, Smithsonian Institution, Fisch admits that the research was the most interesting aspect of the book project: 'I kept finding examples, historical examples – never a place where you could say, ah, in this

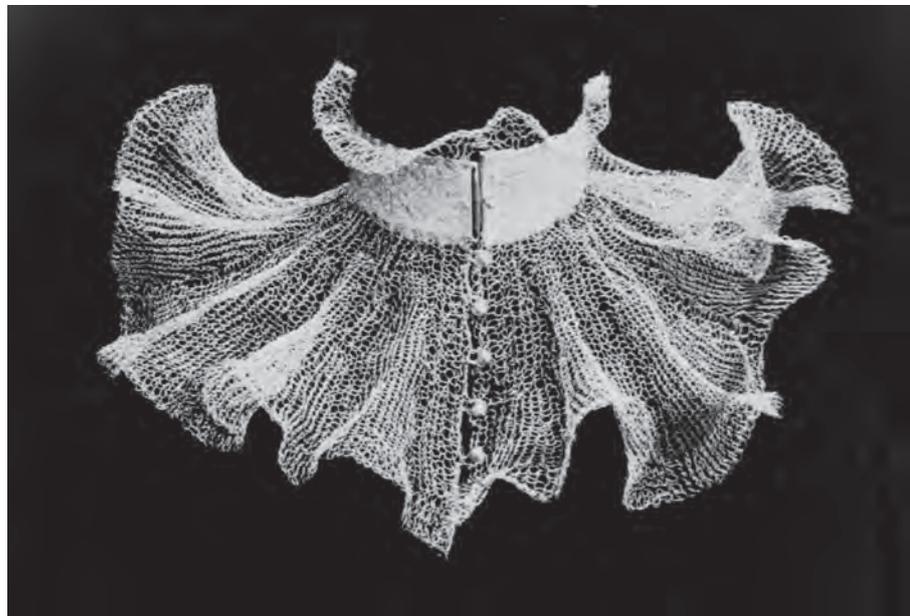
⁶² Ibid., pp. 17-18.

⁶³ Wendy Ramshaw, 'Ornamenting the Body', *American Craft* (April/May 1986), pp. 10-14 (p. 10).

⁶⁴ See Arline M. Fisch, *Textile Techniques in Metal for Jewelers, Sculptors, and Textile Artists* (New York: Van Nostrand Reinhold, 1975). Fisch has also published a volume on crocheted wire jewellery, this time with Sterling Publishing. *Crocheted Wire Jewelry: Innovative Designs & Projects By Leading Artists*, ed. by Arline M. Fisch (New York: Sterling Publishing, 2009). See also, 'Arline M. Fisch papers, 1950-2003' (Smithsonian Archives of American Art, Washington D. C., US). Fisch was Professor of Art at San Diego State University, US, from 1961-1996, where she set up the Jewelry and Metalsmithing program, and has lectured extensively throughout the US and overseas.



Figure 48.
(Above) **Arline Fisch**
– *Owl Eyes* (open view), bracelet in 30-gauge fine silver wire, sewn to a chased silver clasp with a separate piece of wire. The band is knitted horizontally in a lace pattern.



(Below) **Arline Fisch**
– *Ruffle Collar*, hand-knit on double pointed #3 knitting needles in 30-gauge silver and 18-carat gold wires, 1975.

Courtesy Arline Fisch

culture or this period was everybody doing textile techniques in metal.⁶⁵ It is this particular aspect of Fisch's practice that warrants attention: her textile method is, in fact, timeworn, and has endured across multiple timeframes and contexts.

Fisch's approach embodies what archaeologist Myres has described as 'the symptom of a fresh relation between the craftsman and his work,'⁶⁶ that is, that material invention often takes place when a maker, with a particular set of skills, transfers those skills to an altogether different material context, while *simultaneously* interacting with the past. This is a form of problem solving – tactical, rather than imitative – and one that is prevalent in contemporary making. This is why Fisch's jewellery piece, although made in 1980, is entirely relevant to this research.

Early on in her metal textiles practice, Fisch realised that it was structure that determined the efficacy of knit, rather than a specific material: 'Gradually [...] it occurred to me that neither the fabric nor the yarn structures were necessary, and that the same textural and structural effects could be accomplished either directly in metal, particularly wire.'⁶⁷ With this statement, Fisch positions herself firmly within the realm of this research into the skeuomorph. It is the "added dimensionality" of Fisch's jewellery that manifests the temporal multiplicity of the skeuomorph, which I will demonstrate specifically in relation to her *Lace Ascot* (1980), on display in the Victoria & Albert (V&A) Museum's Jewellery Galleries, London; it exemplifies the skeuomorphic potential of materials. Fisch openly acknowledges the equivalence between metals and textiles on account of the ability to thread metal wire, thus *Lace Ascot* utilises the language of weaving to impart the logic of lace to precious metal. This language is both structural, to do the formal arrangement of silver-wire-as-cravat, and constructional, to do with the active handling of the silver wire in its making.

⁶⁵ Arline M. Fisch, 'Oral history interview with Arline M. Fisch, 2001 July 29-30', Archives of American Art, Smithsonian Institution, 2001, Archives of American Art, Smithsonian Institution <<http://www.aaa.si.edu/collections/interviews/oral-history-interview-arline-m-fisch-12589>> [accessed 23 October 2015].

⁶⁶ Myres, *Who Were the Greeks?*, p. 229.

⁶⁷ Fisch, *Textile Techniques in Metal*, p. 10.

There is also a third strand to Fisch's woven language: that of narrative. This accords with the writing of Mieke Bal, who describes narrative as a function of form infused with memory.⁶⁸ Yet Bal also sees narrative, specifically as it relates to architectural or sculptural works, as an active concept, stating that 'narrative becomes a tool, not a meaning; a mediator, not a solution; a participant, not an outsider.'⁶⁹ I argue, in line with Bal, that it is narrative that subtends Fisch's *Lace Ascot*, but it is a time-based narrative that links to process, or craft, rather than a straightforward narrative of imitation.⁷⁰ Imitation presupposes the existence of an 'anterior narrative',⁷¹ a before-now that can be imitated, and in so doing, positions the skeuomorph as second-hand, or uninventive, as a thing without its own rationale. By contrast, as I have argued throughout this thesis, the skeuomorph is much more temporally complex, and it is only in the making that we can get closer to understanding this complexity.

Fisch makes no attempt to hide her motivation for making *Lace Ascot*. She was fascinated by the 'surrealism' of Grinling Gibbons's carved limewood cravat (1690), which she encountered while on sabbatical in London in 1979 (fig. 49).⁷² In retelling the story of Gibbons's carved cravat, *Lace Ascot* relieves itself of its 'anterior narrative'⁷³ through the textile process; in other words, her conscious reimagining of the cravat, which itself is a reinterpretation of Venetian needlepoint lace,⁷⁴ frees itself from the past through the presentness of craft. Knitting, in particular, is a continuous process of interlooping that sets down the time of making in each successive row; there is a

⁶⁸ Mieke Bal, *Louise Bourgeois' Spider: The Architecture of Art-Writing* (Chicago: University of Chicago Press, 2001), p. 2.

⁶⁹ Bal, *Louise Bourgeois' Spider*, p. 3.

⁷⁰ Craft objects are encountered in much the same way as the architecture that Bal describes. Take, for example, the tacit assumption that you can handle ceramics in an exhibition. This is how I have come to recognise the "narrativity" in Fisch's *Lace Ascot*.

⁷¹ Bal argues that "anteriority" is the conventional form of narrative, writing that: 'The most common narrative modes can be characterised by their positioning as *anterior* stories. In the sharpest formulation, a visual work is thus considered an *illustration* of the narrative that precedes it and to which it is subordinated, its success being measured in terms of the degree to which it matches the story.' I understand Grinling Gibbons's *Lace Cravat* to be the anterior story in this instance. Bal, *Louise Bourgeois' Spider*, p. 31.

⁷² Personal communication with Arline Fisch (3 November 2015).

⁷³ This notion of 'anteriority' refers specifically to Bal's writing on narrative in relation to Louise Bourgeois's *Spider*. Drawing on Walter Benjamin's notion of '*Jetztzeit*', Bal argues that, rather than rehearse a sequence of anterior narratives, Bourgeois's *Spider* revises narrative, since any encounter with the artwork is bodily and spatial: 'the viewer [...] "builds" a home for old stories in the *now*.' Bal, *Louise Bourgeois' Spider*, p. 34.

⁷⁴ John Russell Taylor, 'Woodman with the magic touch', *The Times*, 27 October 1998, (unnumbered).



Figure 49.
Grinling Gibbons
– *Carved wooden cravat*, limewood,
H 24.1 cm, c. 1690.

Courtesy Victoria
and Albert
Museum, London

progressive motion to knitting that posits each present as a loop (fig. 50). It forms a trail in the silver wire, much like a line drawn in the dirt. In *Textile Techniques in Metal* (1975), Fisch describes knitting as: ‘A continuous single-element technique in which a series of loops are interlocked *vertically* through the repetition of knitting stitches [...] The new stitches are constantly interlooped into *the already existing structure* to extend, expand, or compress it.’⁷⁵ With knitting, “verticality” is the embodiment of the continuous present; verticality assumes the successive stages of making, the successive presents, which are assembled in the finished form (fig. 51). It is a process that can be read loop to loop, as well as crosswise, loop *within* loop, in *Lace Ascot*, and it is a process that actively foregoes the “anterior narrative” of Gibbons’s carved wood on account of its variously ‘taking effect’ in each discrete moment.⁷⁶ Fisch alludes to this with the comment: ‘Wire has no stretch quality at all, and must therefore be handled in a slightly different manner to keep the loops consistent in size and shape.’⁷⁷ There is liveliness to the silver wire that counteracts any attempt to regulate it. It takes form in the present.

Philosopher George Herbert Mead’s illustration of the ‘flash of the meteor’⁷⁸ – a sequence of photographic images that ascertain the meteor’s position at each moment – has helped me to visualise textiles’ ability to register a succession of presents. It is the (photographic) material that makes this possible: this is materialised time. By literally drawing out the present as a succession of loops, Fisch’s ascot materialises each moment of its making. But unlike Leigh’s chronomanuality cited earlier, there is a qualitative difference to the loops, which is as much to do with material tension and handling, as it is with the size of the tool used,⁷⁹ which affords its own distinct timescape. It is no longer an imitative object, but an inventive one. Fisch has transformed the logic of lace,

⁷⁵ Fisch, *Textile Techniques in Metal*, p. 80 [emphasis mine].

⁷⁶ Gilbert Simondon describes the making process as the ‘taking effect of the relation’ between materials, which owes to the singular ‘potential’ of the materials, rather than the maker’s intentions. With this statement, Simondon returns a degree of autonomy to the materials themselves. See “‘Technical Mentality’ Revisited: Brian Massumi on Gilbert Simondon,” in *Gilbert Simondon: Being and Technology*, ed. by Arne De Boever, Alex Murray, Jon Roffe and Ashley Woodward (Edinburgh: Edinburgh University Press, 2012), pp. 19-36 (p. 26).

⁷⁷ Fisch, *Textile Techniques in Metal*, p. 80.

⁷⁸ George Herbert Mead, *The Philosophy of the Present* (Chicago; London: Open Court Publishing Company, 1932), p. 1.

⁷⁹ Fisch, *Textile Techniques in Metal*, p. 80.

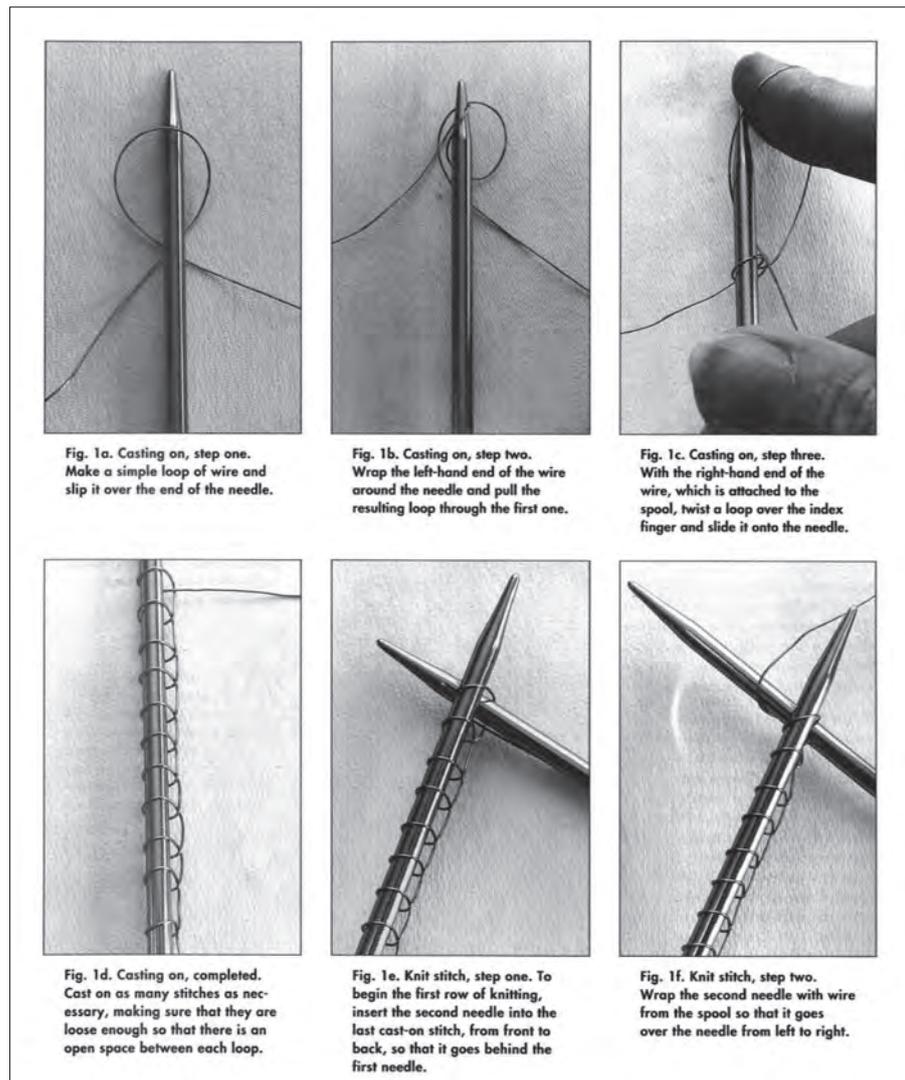


Figure 50.
'Needle Knitting.'
 Reproduced from
 Arline Fisch, *Textile
 Techniques in Metal*
 (1975), p. 57.

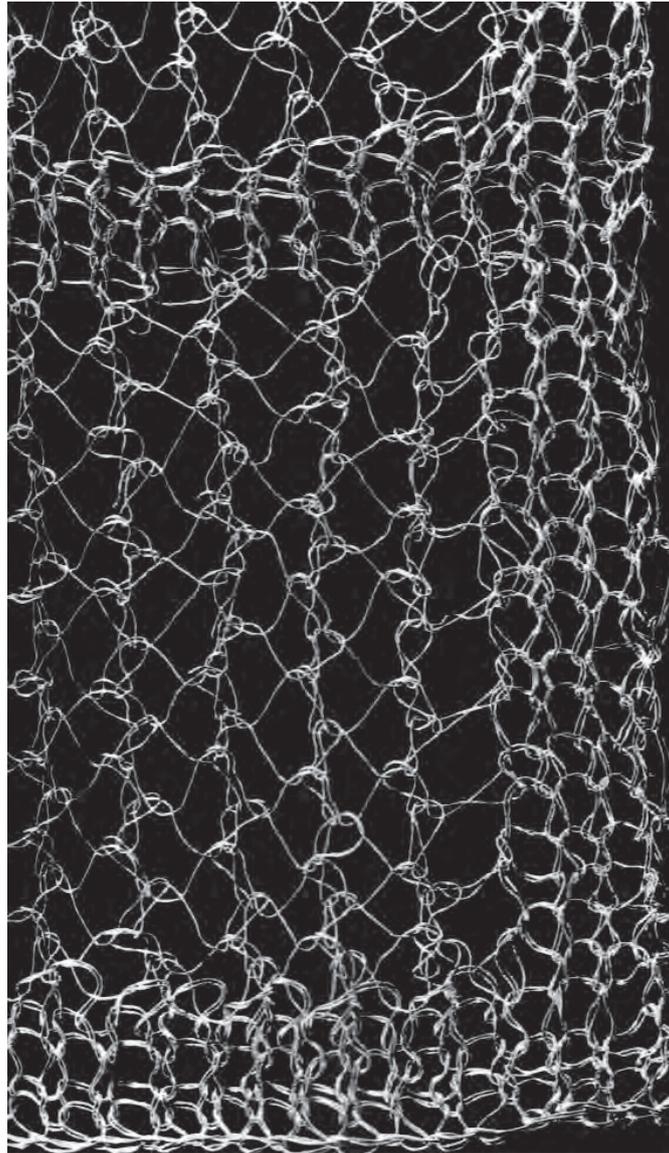


Figure 51.
'A section of
a rectangular
bracelet panel
knitted in
30-gauge fine
silver wire on #2
straight needles.'
Reproduced from
Arline Fisch, *Textile*
Techniques in Metal
(1975), p. 61.

via the solemnity of wood, into the whimsy of metal textiles, and it is the immediacy of the textile process, which is discernible in the tracery of metal, in our encounter with it, that establishes *Lace Ascot* as multi-temporal and “contemporary”. To extend this insight, I start with a close reading of it *in situ* in the V&A Galleries (fig. 42), in an attempt to access the phenomenological aspects of the object without recourse to the rehearsed narratives of design discourse.⁸⁰

6.2.1. A Jewellery Encounter, Room 91

Large brooch of loosely knitted silver wire in the shape of a cravat. A pin fastening is concealed behind the bow at the top of the brooch. Metalwork Collection, V&A Museum, London.⁸¹

On first sight, the delicate network of filigree metalwork resembles the folded form of a necktie. It is about the height and width of a sheet of A4 paper. The fine silver lacework comprises a single-element structure of continuous loops interworked with one another. There is a visible difference between the top of the work and the base, on account of the density of the looping, as well as across the knitted lace and in-between folds. The loops, each of which is roughly circular in shape, are connected successively between rows, i.e. above and below.

The structure constitutes three sections. At the top, the silver lacework resembles a piece of ribbon, roughly one-eighth the height of the object, which is gathered and folded back on itself

⁸⁰ In the process of researching these objects, I have become aware of the repetitive nature of much design writing; the same descriptions and anecdotes are retold in different instances, owing to the circulation and citation of press releases. There is, in a sense, a “skeuomorphic” tendency to design writing that I hope to avoid through direct observation.

⁸¹ In both instances in which I introduce an object in this chapter, I start by citing ***in bold italics*** the formal description of the object exactly as it appears on the V&A Museum’s website, before initiating a more subjective examination of it in letter case. I do so purposefully, in an attempt to access the phenomenological aspects of the object, those that are tangible, rather than presupposed or imagined. This, in turn, enables me to more carefully ascertain the skeuomorphic aspects of the object. This method follows Meike Bal’s example in *Louise Bourgeois’ Spider* (2001).

several times. As the lacework is folded, the width of the ribbon decreases, forming a two-piece knot at the centre. The centre of the knotted silver wire is folded perpendicular to the two sides of the bow, similar to a bow tie. The knot is more densely knitted than in the remainder of the structure, and appears to be stiff; the “neck” of the two-piece knot is relatively straight, while the two sides of the bow, with multiple folds, bends downwards slightly. This section of ribbon-like silver lacework runs latitudinally across the width of the piece, and appears to be attached to a metal plate at the back.

The remainder of the lacework falls outwards in seven folds beneath the two-piece knot. Its width is smaller at the top than at the base. In this section, the direction of the silver lacework is downward, or perpendicular to that of the knot above. There is a degree of movement in the knitted lace. This gesture is echoed in the variegated colours of the silver wire, which shifts from bronze through to yellow. The folds in the silverwork comprise a series of small, closely compacted loops, whereas the non-folded sections comprise relatively open loops. The loops themselves resemble twisted paperclips with straight sides and tight turns, rather than bending round smoothly. At the base of the structure, the folds finish in seven rounded edges that lend it the illusion of weight.

There is a degree of contrast to the three-dimensional lacework: On the whole, the silver-wire loops are lightweight and delicate, although at the edges the wire forms an irregular contour, which suggests the relative inflexibility of the material. There is also a rhythm to it, which can be observed in the continuous movement of the looping stitch across the surface of the work, as well as in the intransigence of the wire that lends it stasis. There are visible intervals, flows and pauses, fluctuations.

This formal description of *Lace Ascot* reveals a number of material conditions that render it skeuomorphic, as well as textile-modal devices that articulate its multiple

temporalities. These are the pleat (or fold), the abstract cravat-form, and the brooch “finding”.⁸² I will expand on these ideas drawing particular attention to its process of making, and with recourse to the expanded notion of materialised time, in order to complicate the more conventional interpretation of the skeuomorph as “residual,” or temporally dragging.⁸³ As already stated, it is Dino Franco Felluga who conceived of the notion of “skeuomorphic drag,” which he sees as an effective, but nonetheless complicated facet of the skeuomorph.⁸⁴ Felluga analogises the skeuomorph with the notion of the ‘residual’ in cultural theorist Raymond Williams’s writing, citing one particular passage from Williams’s *Marxism and Literature* (1977), which I repeat in full here, as it summarises much of what burdens the skeuomorph:

The residual, by definition, *has been effectively formed in the past*, but it is still active in the cultural process, not only and often not at all as an element of the past, but as an effective element of the present. Thus certain experiences, meanings, and values which cannot be expressed or substantially verified in terms of the dominant culture, are nevertheless lived and practised *on the basis of the residue* – cultural as well as social – of some previous social and cultural institution or formation.⁸⁵

This notion of the residual empties the skeuomorph of its own vitality. The residue is what remains after all other processes have passed. While *Lace Ascot* is clearly a work of contrasts, it lacks the “residual” qualities that Felluga describes on account of its newness. Fisch makes plain her ambitions for newness in her application for a Fulbright scholarship in 1966: ‘It is my purpose,’ she writes, ‘to extend this [jewellery] tradition

⁸² I use the terms “pleat” and “fold” interchangeably, here, simply because the pleat is the recognised textile term, although it is more precisely a fold in this instance. Fisch corroborates this usage, saying: ‘I don’t differentiate between “pleats” and “folds,” but I expect that “folds” would be the most accurate term to use.’ Personal communication with Arline Fisch (24 January 2016).

⁸³ Drawing on the work of cultural theorist Raymond Williams, critical theorist Dino Franco Felluga describes the skeuomorph as a ‘residual element in culture,’ as something that is persistent and oppositional. I discuss Felluga’s theories in more detail in section 2.1. See Dino Franco Felluga, ‘The Victorian Archive and the Disappearance of the Book’, *Victorian Studies*, 48: 2 (2006), 305-19 <<http://doi.org/10.2307/3830254>>. For more on Williams’s original concept of the “residual” as it relates to culture, see Raymond Williams, *Marxism and Literature* (Oxford: Oxford University Press, 1977).

⁸⁴ Felluga, ‘The Victorian Archive and the Disappearance of the Book’, p. 316.

⁸⁵ Williams cited in Felluga, ‘The Victorian Archive and the Disappearance of the Book’, p. 316 [emphasis mine].

into the contemporary mode without reverting to a mere translation of earlier styles.⁸⁶ This newness is knitted into the structure of *Lace Ascot*, and it is through textile techniques, which make explicit the succession of presents in the work, that we can intuit this newness. Therefore, I prefer to speak of an “abstraction,” which I do with reference to Simondon, as an idea of something that does not necessarily materialise. Gibbons’s cravat is *abstractly* present in *Lace Ascot*, rather than a material reality, as I discuss below.

6.2.2. The Abstract Cravat

This reference to “abstraction” is a direct response to Simondon’s characterisation of the ‘abstract model [...] in the mind of the designer’ when making, which he recognises as being ‘secondary’ to the ‘taking effect’ of materials.⁸⁷ Invention happens, writes Simondon, when the different ‘potentials’ of the constituent materials ‘click together’ in the ‘technical operation’: it does not take effect at the drawing board.⁸⁸ I deduce from Simondon that Fisch’s ascot emerged in the continuous exchange between hand, tool, and wire, and not *a priori*, in the decision to ‘knit a similar lace ascot in fine silver.’⁸⁹ Each knitted loop in *Lace Ascot* is formed in the present; each loop is the materialisation of a precise, and purposive, response to the material in *that* moment. The cravat-form exists abstractly, *theoretically*, in the folds of *Lace Ascot*, although it never truly materialises. Fisch admits to having ‘made some drawings for the ascot, but no models’, and describes how she calculated some aspects of the design in advance, but relied on prior experience to develop the shape as it was being knitted.⁹⁰ The abstract cravat resembles Bal’s narrative anteriority: it draws attention to the *Lace Ascot*, but it is through craft, in continuous dialogue with her materials, that Fisch invents her metal-knitted lace.

⁸⁶ Arline M. Fisch, ‘Fulbright Proposal Research Grant, 1966-1967’ (Smithsonian Archives of American Art, Washington D. C., US).

⁸⁷ “‘Technical Mentality’ Revisited”, p. 26.

⁸⁸ *Ibid.*, p. 26.

⁸⁹ Personal communication with Arline Fisch (3 November 2015).

⁹⁰ *Ibid.*

This immediacy of the making process is something that many makers describe, owing to the particularity of their materials. In her ethnographic study of Scottish vernacular basket making, Stephanie Bunn argues that basketry is a ‘reciprocal’ process, observing that ‘strokes, materials, and techniques are continually adjusted as the maker monitors the unfolding task at hand.’⁹¹ It is through craft that we can discern the skeuomorph qua cravat, acting *in the capacity of* the cravat, as multi-temporal and “contemporary,” rather than re-enacting an anterior time. *Lace Ascot* inventively resists the “drag” that Felluga describes.

6.2.3. The Paradox of Knitting

My encounter with *Lace Ascot* in the Jewellery Galleries reveals the complexity of its making. While, on first glance, the loops appear to be connected across each row, they are in fact interlooped vertically through a process known as “plain knitting,” which comprises two different knitting stitches: knit and purl (fig. 52). The knit is the basic stitch, in which the wire is twisted in a series of loops all facing the same way, whereas the purl stitch ‘inverts’ the knit stitch, albeit without altering the structure of the fabric.⁹² In other words, there is oneness and difference in vertical interlooping. Irene Emery offers this instructive account of knitting:

Knitting in its simplest form consists of successive rows of ‘running’ open loops, each loop engaging the corresponding one in the previous row and being in turn engaged by the corresponding one in the following row. The alignment of loops and their interconnection is vertical; and if one loop is released, the previous loops in the same

⁹¹ Stephanie Bunn, ‘Weaving Solutions to Woven Problems’, in *Craftwork as Problem Solving: Ethnographic Studies of Design and Making*, ed. by Trevor H. J. Marchand (Farnham: Ashgate Publishing Limited, 2016), pp. 133-49 (pp. 137-38). This is the central premise of Tim Ingold’s *Making* (2013): ‘that making is a correspondence between maker and material’. Tim Ingold, ‘Preface,’ in *Making: Anthropology, Archaeology, Art and Architecture* (Abingdon, Oxon: Routledge, 2013). This is certainly what I encountered at Morley College when asked to “sketch” an idea for a basket that could form the basis of a self-initiated project. While several of the students proceeded to draw their designs, I submitted to its emergence in process; it seemed futile to impose form at the outset.

⁹² Emery, *The Primary Structures of Fabrics*, p. 41.

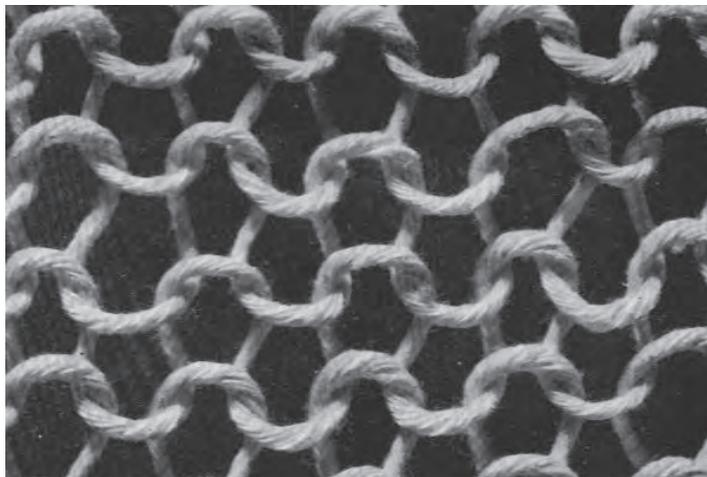
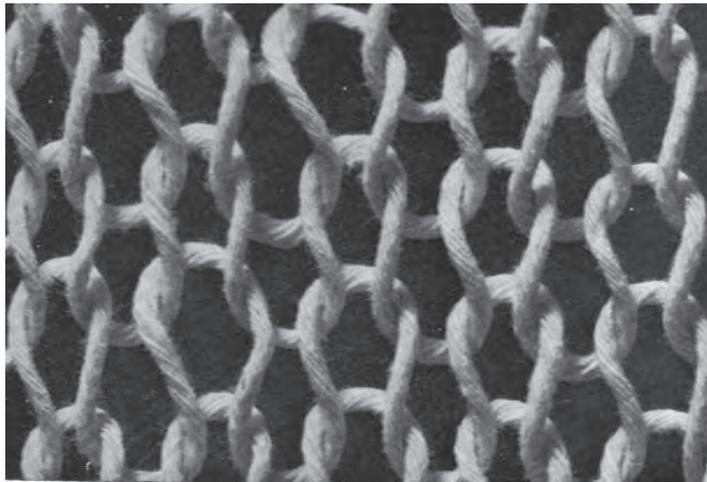


Figure 52.
**'Loosely worked
construction;
front and back.'**
Reproduced from
Irene Emery, *The
Primary Structures
of Fabrics* (1994),
p. 40.

vertical ‘wale’ will be released one after the other, although none in the same horizontal row will be affected.⁹³

With this description, Emery implies a much more complex materialisation of time than a simple loop ∞ loop ∞ loop account. Instead, each loop, each successive present is looped *between* a present that either *has* happened, or *will* happen, at some distance from it; there are intervals, or gaps, in the time of the knitted lace.⁹⁴ In this way, each loop, or present, is connected to each successive loop, or present – that which comes directly *before* and *after* it in time, 1 + 1 + 1 – but is more forcibly interlooped with a present that precedes those closest to it in time – i.e. in a preceding row – as well as conditioning the future present, or future loop, in the subsequent row. As Emery states, the vertical “wales” are unstable, whereas there is consistency across rows;⁹⁵ in other words, materialised time is continuous *and* discontinuous.

There is an obvious incongruity in *Lace Ascot* on account of it being knitted. While it is a simple knitted-silver structure, it is, on the other hand, a tangled object that makes explicit its temporal complexities. This chaotic quality of time is what I understand to be the crux of Michel Serres’s statement that ‘time makes contradiction possible’:

Time does not always flow according to a line... nor according to a plan but, rather, according to an extraordinarily complex mixture, as though it reflected stopping points, ruptures, [...] rendings, gaps – all sown at random, at least in a visible disorder. [...] Time is paradoxical; it folds or twists; it is as various as the dance of the flames in a brazier – here interrupted, there vertical, mobile, and unexpected.⁹⁶

There are qualities to Serres’s notion of time that can be identified in the *Lace Ascot*. ‘Time does not always flow according to a line,’ a thread, or silver wire; ‘it folds’ as do the many folds that constitute the silver lacework; and it is ‘here interrupted, there

⁹³ Ibid., p. 40.

⁹⁴ These are the same gaps that materialised in the “spacing” technique of basketry, which I learned at Morley College, London. See section 6.1.6 for more on this.

⁹⁵ Emery, *The Primary Structures of Fabrics*, p. 40.

⁹⁶ Serres and Latour, ‘Second Conversation: Method’, pp. 50, 57 & 58.

vertical'. This Fisch achieves through the purposeful modification of the knitted lace at each stage. She writes of the knitted lace pattern that it constitutes 'alternations of increases and decreases, combined with stitches which are passed from one needle to the other without being knitted to create a series of holes and elongated loops which cross and interlock in endless variations.'⁹⁷ This is oneness and multiplicity, a design with difference (fig. 53). Fisch's *Lace Ascot* demonstrates that the skeuomorph is far more temporally muddled than it is given credit for.

6.2.4. The Pleat

Rather than being a flat structure, the main body of *Lace Ascot* comprises seven pleats, or folds, the loops of which appear more compacted than in-between the folds. The folds sit proud of the textile surface and introduce volume. In *Textile Techniques in Metal* (1975), Fisch briefly explains how to achieve this effect, what she refers to as 'ribbing,' although not for the *Lace Ascot*, but for a similarly 'ruffled collar'. As the ruffled collar resembles the *Lace Ascot*, in that it comprises a series of gathered folds, I glean from this the method of construction of the ascot: 'The basic pattern is ribbing, which is increased by one stitch in each rib section in every other row to produce the ruffled shape. The form is as flexible as fabric.'⁹⁸ While plain knitting usually involves alternate rows of knit and purl stitches, so that the fabric appears the same front of back, the decision to "increase" a stitch in every other row adds horizontal volume to the textile that, in effect, expands the surface of the textile widthways.⁹⁹ Ribbing is, therefore, the material effect of altering the more conventional alignment of stitches, raising and lowering – i.e., adding texture to – the surface of the knitted lace. Fisch mentions the potential integration of a 'stockinette stitch' with ribbing to introduce variation to the knitted lace.¹⁰⁰ Stockinette, or stocking stitch, is the term used to describe a structure that has different faces – i.e. one rough surface and one smooth surface – owing to the

⁹⁷ Fisch, *Textile Techniques in Metal*, p. 87.

⁹⁸ *Ibid.*, p. 81.

⁹⁹ "Decreasing" is the inverse of increasing in that it reduces the number of knit stitches, thereby reducing the width of the structure.

¹⁰⁰ Fisch, *Textile Techniques in Metal*, p. 87.

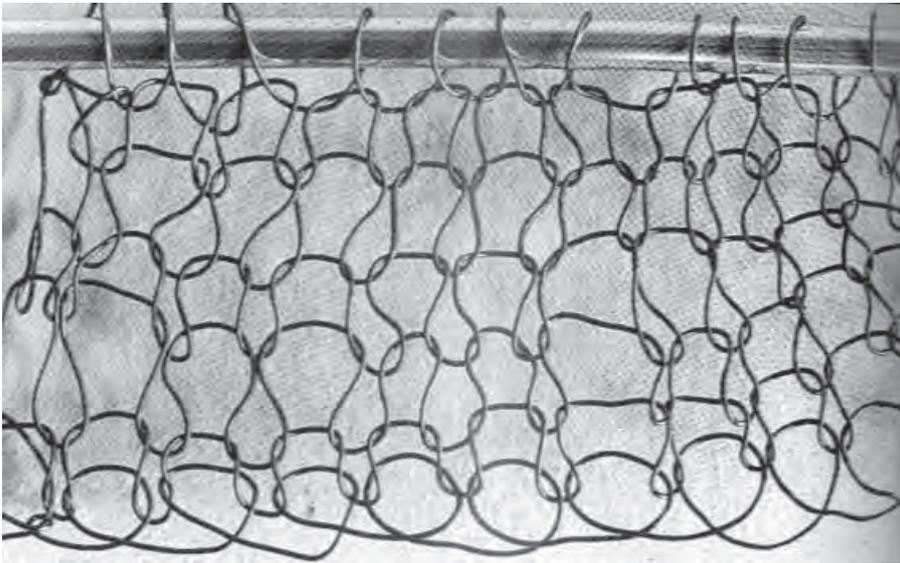


Figure 53.
'A sample of
knitting in
24-gauge wire,
done on #8
needles in the
stockinette stitch,
which alternates
one row of knit
stitches with
one row of
purl stitches.'
Reproduced from
Arline Fisch, *Textile*
Techniques in Metal
(1975), p. 60.

predominance of vertical interlooping on one side, while on the reverse, the horizontal rows of loops are emphasised (fig. 54).¹⁰¹ This differentiation in the knitted lace is amplified in the contrast between areas of relative openness, the ‘holes’ in-between,¹⁰² and the compacted folds. It is the patterning of folds and holes that gives form to the *Lace Ascot*, and it is the folds and holes that engender the qualitative difference of materialised time.

The fold is a common motif in textile studies that has the conceptual capacity to integrate difference, whether in approach, ideas, or function.¹⁰³ In textiles, the pleat is a form of fold that allows for a larger expanse of fabric to take up less space; however, in doubling back the fabric to reduce its width, the number of “faces” in the fabric increases. The fold also adds depth to the fabric face, which is visible in *Lace Ascot*. The “fullness,” or volume of the fabric, therefore, refers to this folded excess, to the lengthening and stretching that the fold provides. Conceptually, the fold affords expansion and compression, multiplication and contraction, oneness and difference; or what theorist Pennina Barnett characterises as ‘and/and’.¹⁰⁴ Drawing specifically on Gilles Deleuze theorisation of the fold as ‘a space of encounter,’¹⁰⁵ Barnett enthuses about the versatility of the fold motif, and what it offers as a mode of thought: ‘The Deleuzian fold is a virtual, even cinematic image—of “points... referrals, spaces”; an infinity of folds always in motion, composing and recomposing without inside or outside, beginning or end. And in this movement disparate elements encounter and separate, continuous and discontinuous, a relation of difference with itself.’¹⁰⁶

¹⁰¹ Emery, *The Primary Structures of Fabrics*, p. 40.

¹⁰² Fisch, *Textile Techniques in Metal*, p. 87.

¹⁰³ See, for example, Pennina Barnett and Janis Jefferies, ‘Letter from the Editors’, *Textile: The Journal of Cloth & Culture*, 1: 1 (2003), pp. 1-7; Claire Pajaczowska, ‘On Stuff and Nonsense: The Complexity of Cloth’, *Textile*, 3: 3 (2005), pp. 220-49; Tim Ingold, ‘Transformations of the Line: Traces, Threads and Surfaces’, *Textile*, 8: 1 (2010), pp. 10-35; and *The Textile Reader*, ed. by Jessica Hemmings (New York: Berg, 2012).

¹⁰⁴ Pennina Barnett, ‘Folds, Fragments, Surfaces: Towards a Poetics of Cloth’, in *The Textile Reader*, pp. 182-90 (p. 183).

¹⁰⁵ Gilles Deleuze, cited in Barnett, ‘Folds, Fragments, Surfaces’, p. 183.

¹⁰⁶ Barnett, ‘Folds, Fragments, Surfaces’, p. 184.



Figure 54.
'A large ruffled
collar in two
colours of
28-gauge
copper wire,
knitted on #2
straight needles.'
Reproduced from
Arline Fisch, *Textile*
Techniques in Metal
(1975), p. 81.

Barnett associates the fold with the encounter between contrasting possibilities, as a textile device that affords variability and difference, much like Derrida's *parergon*.¹⁰⁷ The “and/and” of the fold, its structural all-together-ness, can be analogised to the “gathering” of multiple times in the object, a sequence of presents, the material traces of the act of making. In Fisch's own words, a series of loops are inter-looped into the knitted lace “to extend, expand, or compress it”; thus, we can think of time as being extended and compressed in the facture of the *Lace Ascot*. The continuous present of making merges in the fold, taking effect in the finished form. This is not an object that ‘looks to past and future’ as Hayles describes,¹⁰⁸ as a two-dimensional thing set apart from time, but rather an object that is embedded in, and embodies multiple times; what Zitouni acknowledges as ‘their own time-making, their own temporality.’¹⁰⁹ It is through craft that I am able to nuance the complex temporal spectrum of the skeuomorph.

6.2.5. A Process in Three Parts

There is good reason for initiating an examination of the *Lace Ascot* in situ. Images of the knitted object, either online or within related literature, present a two-dimensional, inanimate silver-wire structure, whereas, in reality, it is a three-part structure that integrates a brooch finding. This discontinuity in the design of the ascot is discernible in the direction of the knit stitches: in the bow, the interlooping is horizontal, while in the main body of the cravat, the interconnected loops gesture downwards (fig. 42). It is also possible to differentiate a band of interconnected loops, roughly one-inch high, that evidence a different handling of the material: conceivably, this heavier section constitutes a join using a different stitch, or size of needle.¹¹⁰ Fisch admits to having knitted a rectangular section of wire for the bow, which she folded into shape before attaching it to a sterling silver sheet, on which the brooch findings are mounted: ‘I almost certainly riveted the silver-wire bow to the sterling sheet [...] although

¹⁰⁷ I discuss Jacques Derrida's notion of ‘*parergon*’ in close detail in section 2.3.

¹⁰⁸ For an extended analysis of Hayles's temporal interpretation of the skeuomorph, see section 2.2 of this thesis.

¹⁰⁹ Zitouni, ‘Shuffling Times’.

¹¹⁰ Fisch, *Textile Techniques in Metal*, p. 86.

sometimes I drill holes in the sheet and sew the silver-wire element to the base.’¹¹¹ The ascot constitutes multiple parts.

We can theorise the brooch finding as a material interruption, or disjuncture, in the temporal and material continuity of the silverwork: as a supplement to the main structure that, in fact, assists in it becoming jewellery. Fisch integrated the brooch finding into the knitted lace in order for it to be worn, stating that: ‘I wanted the piece to have several wearable possibilities, unlike the Gibbons cravat.’¹¹² This is an important point. While *Lace Ascot* attends to Gibbons’s limewood rendering, it also expands on its capacity to be worn. It acquires its own distinct narrative, as suggested at the outset, on account of its structural flexibility, lightness, and particular wearability. The brooch finding is supplemental to the knitted-wire structure, although it also points to a gap, or disruption, in its assembly; the silver-wire cravat could not perform as brooch without the aid of the finding.¹¹³ The brooch finding is essential to the structure of *Lace Ascot*, yet it also punctures the time-based narrative that is embedded in it. The finding forcibly reveals the discontinuous present of materialised time: the forced intervals, the change in handling, in material force; and, ultimately, is “anti-fabric”. This term directly references Deleuze and Guattari’s theorisation of textiles in ‘1440: The Smooth and the Striated’ (1988), and specifically their characterisation of felt as an ‘anti-fabric’ on account of it not being woven. Yet, the implication is also that felt, which is ‘in principle infinite, open, and unlimited in every direction,’¹¹⁴ is indifferent to materialised time. Felt does not materialise the continuous present in the same way that Fisch’s metal textiles do, as it lacks any structural logic. I relate this opposition in the materials to the discontinuity of materialised time that the brooch finding represents. It is a preformed element that it simply “riveted” on to the knitted lace, thereby interrupting its spatio-

¹¹¹ Personal communication with Arline Fisch (3 November 2015).

¹¹² Ibid.

¹¹³ This notion of the supplemental draws on Glenn Adamson’s reading of Derrida’s concept of the supplement as it applies to contemporary craft. Derrida writes: ‘A supplement is that which provides something necessary to another, “original” entity, but which is nonetheless considered to be extraneous to that original.’ It is possible to deduce from the relationship between the frame and the artwork in Adamson’s example to the brooch finding and jewellery piece in this instance. See Glenn Adamson, *Thinking Through Craft* (Oxford; New York: Berg, 2007), pp. 3-4.

¹¹⁴ Deleuze and Guattari, ‘1440: The Smooth and the Striated’, p. 475.

temporal patterning. It is the brooch finding that complicates the flow of materialised time, and that reveals the complex temporal and skeuomorphic mode of Fisch's *Lace Ascot*.

6.3. Object Study #2 – A Mixed Maria

The disjunctive brooch finding in Fisch's *Lace Ascot* establishes a neat connection with the second object in this chapter, Gijs Bakker's *Knitted Maria* coffee pot (1997), which, I argue, is skeuomorphic on account of its contradictory composition (fig. 43). At first glance, Bakker's coffee pot embodies the textile integrity of Fisch's *Lace Ascot* given that it, too, comprises an interlooped structure, although, in reality, it is what Deleuze and Guattari would describe as a 'mixture,' that is, it is intrinsically variable.¹¹⁵ That is, while ostensibly it comprises a looped, and multiple-timed structure, one stitch followed by another, it is also mono-temporal on account of its distinct facture. *Knitted Maria* is a white porcelain coffee pot fitted with a blue crocheted cosy that is also manufactured from porcelain. The slip-saturated crochet has been affixed to the surface of the coffee pot through a process of lost-material casting, akin to that of Glithero's *Les French*. Here textiles become ceramic, rather than emerging from wire. I assign the prefix "exo-", or external, to the techniques of silver performing as lace in *Lace Ascot*, since the 30-gauge silver wire outwardly structures the form; the structure is achieved through the vertical interlooping of the silver wire.¹¹⁶ Contrastingly, I used the prefix "intra-", or among, to describe the textile techniques employed in *Knitted Maria*, calling attention to the distinct method of structuring the cosy. The crochet is formed *inside out* during firing, rather than from interlacing textiles.

My specific interest in *Knitted Maria* relates to what I see as the direct inversion of the materialised time of the skeuomorph explored thus far, thereby complicating its temporal ambiguity. *Knitted Maria* is a crocheted cover fused to the surface of the

¹¹⁵ Ibid.

¹¹⁶ Personal communication with Arline Fisch (3 November 2015).

ceramic form, that is at once knit and glaze.¹¹⁷ With its hollow ceramic “fibres,” *Knitted Maria* compromises the “knot-by-knot” account of time in relation to craft, as well as the belief that time materialises, or unfolds, *across* a form in any one direction. In contrast to the distinct verticality of Fisch’s *Lace Ascot*, the *Knitted Maria* is as much emptied of spatial direction, as it is of time.

Bakker trained as a jeweller and designer at the Gerrit Rietveld Academie in Amsterdam, The Netherlands, and at Konstfack in Stockholm, Sweden. For many years, he designed contemporary jewellery with his partner, Emmy van Leersum, using new materials such as ‘aluminium, steel, polyester, and plastics’ to experiment with form,¹¹⁸ and in 1993 he co-founded Droog Design with Renny Ramakers. Droog set out to convey the ‘new spirit’ of contemporary Dutch design in a direct challenge to the ‘tradition of clarity, restraint and straightforwardness’ that had prevailed in the Dutch context before then.¹¹⁹ Droog intended to showcase a much more playful, ‘craftsmanly,’¹²⁰ and unconventional approach to making, through a regular programme of exhibitions put on by the group’s young designers. Droog’s objects are skilfully made, often emerging from collaboration with industry. Although Bakker often works alone, he admits to the virtues of collaborating with industry, choosing to work as an independent advisor on the development of specific products.¹²¹ So it is with *Knitted Maria*, which was designed specifically to revise ‘a classic piece of the Rosenthal collection,’ which Bakker reimagined with ‘a cap, knitted around it, [...] glazed onto the porcelain.’¹²² It is a contrary object that fuses an archetypal design with a knitted-cum-ceramic tea cosy, and it is, to my mind, skeuomorphic in its methods. It is the language

¹¹⁷ Ida van Zijl, *Gijs Bakker: Objects to Use* (Rotterdam: 010 Publishers, 2000), p. 156.

¹¹⁸ Electrum Gallery, ‘Objects to Wear: Experimental Clothing and New Jewellery; Emmy van Leersum and Gijs Bakker’ (press release) (Electrum Gallery, London, 15 March-15 April 1972).

¹¹⁹ *Droog Design: Spirit of the Nineties*, ed. by Renny Remakers and Gijs Bakker (Rotterdam: 010 Publishers, 1998), pp. 33 & 49.

¹²⁰ Timo de Rijk, ‘So-called Craft: The Formative Years of Droog Design, 1992-1998’, *The Journal of Modern Craft*, 3: 2 (2010), pp. 161-78 (pp. 173-74).

¹²¹ Crafts Advisory Committee, ‘The Industrial Art of Gijs Bakker: A Dutch Production’ (press release) (Crafts Advisory Committee Gallery, 13 September-4 November 1978).

¹²² Droog, ‘Droog Detail: Knitted Maria coffeepot by Gijs Bakker’ <<https://www.droog.com/droog/all/droog-for-rosenthal/knitted-maria-coffeepot-by-gijs-bakker/>> [accessed 22 July 2016].

of textiles, in particular, that brings into sharp relief the contrasting temporalities of the *Knitted Maria*, and that draws comparison with Fisch's *Lace Ascot*.

Unlike Fisch's *Lace Ascot*, however, I have only encountered *Knitted Maria* in documentation: a selection of press images of the coffee pot from the Droog archives, and the self-same images re-published in design literature (fig. 55). *Knitted Maria* emerged from *Experiments in Porcelain*, a collaboration between Droog and the German porcelain manufacture Rosenthal in 1996-1997 (fig. 56), and although a compelling output for Droog in their early years, it has not been examined in any depth.¹²³ Owing to the lack of material for *Knitted Maria*,¹²⁴ or rather, in response to the marked repetition of images, I met with Bakker himself at his studio in Amsterdam, The Netherlands, to discuss *Knitted Maria*. As I am acutely aware of the problematic of the interview method,¹²⁵ I would prefer to describe this as a "studio visit". The decision to approach Bakker was a conscious attempt to overcome the gaps in the documentation, and to trust in Bakker's tacit knowledge of making *Knitted Maria*, having been directly involved in the process. Bakker makes known his preference for working collaboratively with industry: it affords him a two-fold agency, as autonomous maker as well as industry "insider".¹²⁶ It is for this reason that Bakker represents a viable research source; he is the "site" and "sight" of production in this instance.¹²⁷

¹²³ Reference to Bakker's *Knitted Maria* is certainly limited, and is almost always carried out via images, rather than text. Examples include: Crafts Advisory Committee, 'The Industrial Art of Gijs Bakker: A Dutch Production' (press release) (Crafts Advisory Committee Gallery, London, 13 September-4 November 1978); Renny Ramakers, *Less + More: Droog Design in context* (Rotterdam: 010 Publishers, 2002), p. 207; and van Zijl, *Gijs Bakker: Objects to Use*, p. 155.

¹²⁴ Rosenthal became insolvent in 2009. Material from the Rosenthal design studio has since been sent to Die Neue Sammlung, Munich. However, I have not been successful in contacting the curators or librarians there.

¹²⁵ See, for example, Alessandro Portelli, 'The Peculiarities of Oral History', *History Workshop Journal*, 12: 1 (1981), pp. 96-107; Liza Kirwin, 'Speaking of Craft: The Nanette L. Laitman Documentation Project for Craft and Decorative Arts in America', in *Oral History in the Visual Arts*, ed. by Matthew Partington and Linda Sandino (London; New York: Bloomsbury, 2013), pp. 85-94; and Joan W. Scott, 'The Evidence of Experience', *Critical Inquiry*, 17: 4 (1991), pp. 773-97.

¹²⁶ Gijs Bakker cited in 'The Industrial Art of Gijs Bakker: A Dutch Production' (1978).

¹²⁷ This conversation with Bakker is not used to extract a personal narrative, but rather to acquire knowledge of the making process that otherwise remains undocumented.

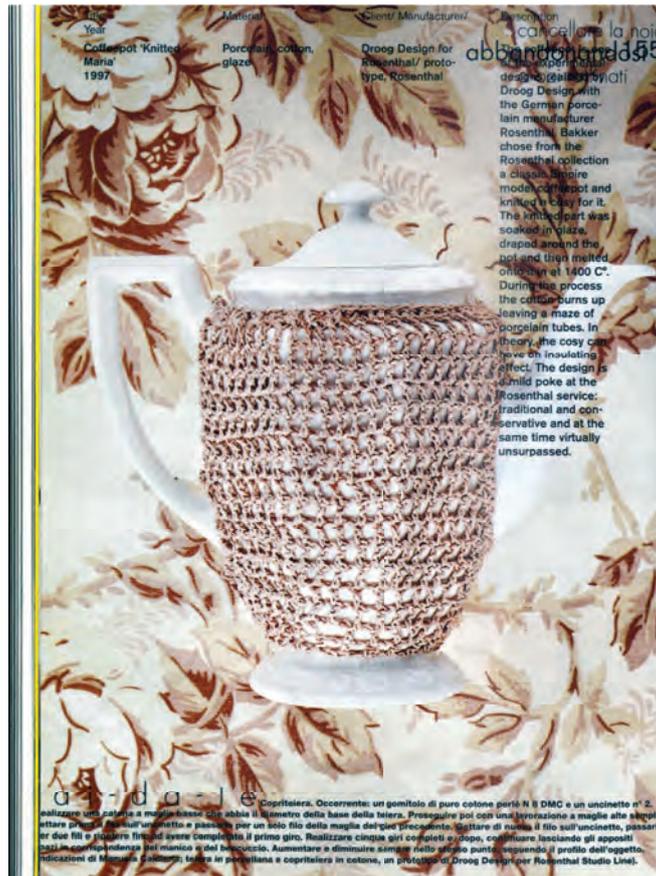


Figure 55.
 (Above) 'Coffeepot
 "Knitted Maria"
 1997, porcelain,
 cotton, glaze,
 Droog Design
 for Rosenthal
 / prototype
 Rosenthal'. Ida
 van Zijl, *Gijs Bakker:
 Objects to use*
 (2000), p. 155.

(Below)
 'Experiments
 in Porcelain,
 Droog Design for
 Rosenthal', press
 literature, 1997.

Courtesy Gijs
 Bakker



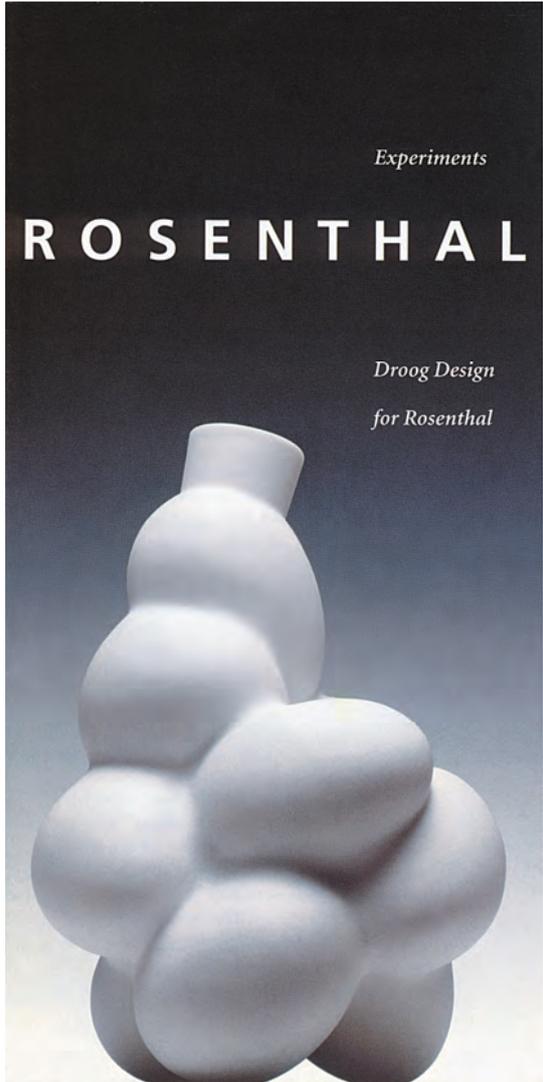


Figure 56.
'Droog Design for Rosenthal', press literature, 1997.

Courtesy Droog

6.3.1. A Mediated Encounter with a Coffee Pot

Coffee pot 'Maria' is a classic piece of the Rosenthal collection (German porcelain manufacturer). A cap, knitted around it, is glazed onto the porcelain.¹²⁸

The *Knitted Maria* comprises a white porcelain coffee pot with a domed lid. Its body is clothed in a crocheted blue cosy comprising rows of interlooped, open stitches. The coffee pot has been photographed in a studio; it is positioned at a slant with the spout angled towards the camera lens.

The coffee pot rises from a circular base, which is decorated with relief moulding of berries. The lip of the coffee pot moderately extends outwards from the main body, and is decorated with the same relief moulding as the base. The lid of the coffee pot is domed with a semicircular knob, also with relief decoration. The elongated shape of the coffee pot is echoed in the rectilinear lines of its handle and spout, the tops of which are aligned with the base of the lid where it meets the lip. The coffee pot appears taller than it is wide; it is roughly egg-shaped with gently curving sides. The precision and symmetry of the form suggests that it has been slip-cast from a mould. The opaque surface of the porcelain absorbs the light.

The spout and the handle face each other either side of the main body of the coffee pot. The diameter of the spout is widest at the base; the "pouring section," or top of the spout is slightly flared. The spout is not curvilinear, but faceted. The same effect can be seen on the handle: It is square at the top, and descends towards the main body of the coffee pot in a curve. The handle appears thin in comparison to the width of the spout opposite.

¹²⁸ See fn. 81 above with regard to the formatting of this section.

The crocheted cosy is a simple mesh of interlooped lateral and vertical stitches fabricated using thick yarn. The yarn appears to have been twisted as it was looped. It also sits flat against the body of the coffee pot, as if press-moulded on to it. There is a pattern to the crochet, with visible “zigzagging” in the vertical direction, as well as a certain degree of stasis. Where the cosy meets the base of the spout, the crochet stitches are densely packed, whereas there is more space between stitches on the main body. The cosy slips just below the rim of the coffee pot on the left-hand side, whereas on the right-hand side it interfaces with the rim. There is a distinct contrast between the uneven crocheted structure and the clean lines of the porcelain body.

This detailed description of *Knitted Maria* draws attention to the peculiarity of the crocheted cosy in relation to the Art Nouveau style of Rosenthal’s *Maria* coffee pot (c. 1914), which is itself an interpretation of an early-nineteenth century English tea set (fig. 57).¹²⁹ In contrast to the singularity of *Lace Ascot*, *Knitted Maria* is a serially manufactured form (fig. 58).¹³⁰ The longevity of the design can be intuited in the low-relief decoration at the base, which is manufactured using a mould.¹³¹ It is conceivable that the *Maria* coffee pot is slip-cast in a four- or five-piece plaster mould, which is then reused in Rosenthal’s manufacture (fig. 59).¹³² With each repeat casting, the level of detail diminishes.¹³³ However, it is the language of textiles, and of crochet in particular, that brings into sharp relief the contrasting temporality of the *Knitted Maria*.

¹²⁹ Rosenthal Porcelain Online Shop, ‘Maria – Rosenthal Selection: the classic set for generations’ <<http://www.rosenthal.de/en/shop/brands/selection-1-en/dining-collections-1-en/maria-1-en/coffee-pot-3-43/>> [accessed 27 January 2016].

¹³⁰ Fisch’s *Lace Ascot* is a one-off production housed in the V&A Museum Collections, London. *Knitted Maria*, on the other hand, was produced in collaboration with Rosenthal’s porcelain manufacture in Selb, Germany, with ‘a large number’ put into production over the 12-month period. Personal conversation with Gijs Bakker (7 December 2015).

¹³¹ *Rosenthal: A Century of Porcelain* (exhibition catalogue) (London: V&A Museum, 1983), p. 5.

¹³² For an excellent, and detailed, account of the mould-making process in industrial ceramics, see *The Workshop Guide to Ceramics*, ed. by Duncan Hooson and Anthony Quinn (London: Thames & Hudson, 2012), especially ‘Mould Making: The Sequence’, pp. 142-61.

¹³³ I discuss the mould-making process in more detail in the context of Silo Studio’s work in Chapter 5.

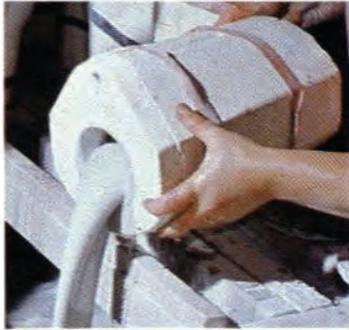


Figure 57.
'Jugendstil and
Postjugendstil,
1899-1918:
Kaffeesevice
>>Maria'.
Rosenthal Hundert
Jahre Porzellan
(1982), p. 47.



Figure 58.
Gijs Bakker
– *Knitted Marias*,
exhibited as part of
Rosenthal Studio-
Haus, Salone del
Mobile, Milan, 9-14
April 1997.

Courtesy Droog



Ausgießen des überschüssigen Schlickers



Öffnen der Arbeitsform

Einfahrt in den Tunnelofen
(Abb. links)



Formling und gebrannte
Kaffeekanne im Größenvergleich

Figure 59.
(1) 'Pouring the slurry.' (2) 'Open the mould.' (3) 'Comparing the size of the mould and fired coffeepot.'
Reproduced from
Rosenthal Hundert Jahre Porzellan
(1982), p. 151.

6.3.2. The (Dis)continuity of Textiles

In *Textiles: A Classification of Techniques* (1994), anthropologist Annemarie Seiler-Baldinger draws attention to the primacy of knitting and crochet as continuous-element techniques; both methods can produce “meshes” of infinite length and dimension.¹³⁴ The principal difference between them is to do with the interlooping. Unlike knitting, which constitutes vertical interlooping, crocheting also establishes a lateral connection between loops (fig. 60). Seiler-Baldinger describes how ‘new meshes are formed by drawing the position of the working element through one or more of the preceding meshes,’ thereby attaching the loops vertically and laterally. This taking effect of lateral and vertical stitches is evident in *Knitted Maria*. The crocheted cosy resembles a criss-cross, or grid of stitches, all of which are relatively uniform across the structure. In contrast to the visible spontaneity of *Lace Ascot*, there is fluency and resolve to the crocheting of *Knitted Maria*. The simplicity of the crochet stitch resembles the ‘plain crochet stitch’ delineated in Seiler-Baldinger’s book, in which ‘the thread is drawn through an upper stitch of the previous row and through the stitch last formed’.¹³⁵ The uniformity of the plain crochet stitch, therefore, imparts only modest variations to the materialised time of the *Knitted Maria*. It is relatively repetitive and orderly. Qualitatively, then, *Knitted Maria* has a different temporal register, at least in part, to that of *Lace Ascot*. It very distinctly incorporates the durational nature of making in that each stitch is a correlative of the former, and a correlative to the subsequent, stitch. Each stitch, each present, emerges, continues, and disappears, in the course of crocheting. To cite Mead, each stitch ‘becomes a history and a prophecy’,¹³⁶ and this seamless emergence of the present in the past, which, at the same stroke, conditions the future, is tangible in the comparable regularity of the crocheted structure. A “chaining” effect, which entails a sequence of presents of roughly the same nature, is often attributed to crocheting. Emery writes that: ‘A simple progressive chaining of the

¹³⁴ Seiler-Baldinger, *Textiles: A Classification of Techniques*, p. 23. This sentiment is reiterated by Deleuze and Guattari when they describe the infinitude of crochet: ‘Crochet [...] draws an open space in all directions, a space that is prolongable in all directions—but still has a center.’ Deleuze and Guattari, ‘1440: The Smooth and the Striated’, p. 476.

¹³⁵ Seiler-Baldinger, *Textiles: A Classification of Techniques*, p. 24.

¹³⁶ Mead, *The Philosophy of the Present*, p. 23.



Figure 60.
'Starting chain
with part of the
next row worked
into it in plain
crochet stitch
(working face).'
Irene Emery, *The*
Primary Structures
of Fabrics (1994),
pp. 40 & 43.

element forms the first row, and each successive row is a similar chaining which progresses horizontally and interworks vertically and horizontally at the same time.¹³⁷ There is a flatness of the present in the emergence of form.

I equate this regularity to the even-handedness of the material forces at work in the crochet; that is, tension. In *Lace Ascot*, it is the variation in tension at points in the structure that contributes to the qualitative differentiation in the metal textiles. As the *Lace Ascot* is “extempore” – in that Fisch only made, and *learned through* making, one – her handling of the material is tentative and experimental. Fisch admits that, although she would often make a copper-wire sample of a knitted structure to work as a model, with the *Lace Ascot* she relied on memory.¹³⁸ There is a tangible liveliness to its structure. Conversely, with the *Knitted Maria*, the process is altogether different. The standardised form of Rosenthal’s *Maria* coffee pot, 1.08 litre volume,¹³⁹ necessitates a standardised crochet cover, with a fixed number of stitches and rows in order to fit the body of the coffee pot; in other words, in obedience to a pattern. In *Wild Knitting* (1979), the consequence of working to a pattern is made clear: ‘if you are to end up with the garment intended in the size desired, it is essential to have stitches and rows working to the same measurements as the designer’s.’¹⁴⁰ This accounts for the regularity in the crochet: it is a purposeful design adjusted to fit a preformed Rosenthal coffee pot. A dropped stitch, or overzealous handling of the materials, would render it unusable.

6.3.3. A Ceramic Subtexture

There is a subtexture to the crocheting in *Knitted Maria*, which is noticeable in the cohesion of fibres in the yarn, and especially at the openings that accommodate the spout, lid, and handle. Here, the crocheting resembles a soaked textile; the yarn’s structure is muddied. In addition, at the upper-right-hand edge of the cosy, where it

¹³⁷ Emery, *The Primary Structures of Fabrics*, p. 43.

¹³⁸ Personal communication with Arline Fisch (24 January 2016).

¹³⁹ Rosenthal Porcelain Online Shop, ‘Maria – Rosenthal Selection: the classic set for generations’ <<http://www.rosenthal.de/en/shop/brands/selection-1-en/dining-collections-1-en/maria-1-en/coffee-pot-3-43/>> [accessed 27 January 2016].

¹⁴⁰ Mitchell Beazley, *Wild Knitting* (London: Mitchell Beazley Publishers Ltd., 1979), p. 16.

meets the rim of the coffee pot, there is a tangible antagonism between the taut nature of the crochet stitches and the broken, or “sintered” stitch at the upper-front edge of the cosy. The rigidity and positioning of the cosy defies the logic of the material forces at work across the crocheted structure, and it is a resistance that is revealed in two, minute smudges of blue on the spout and handle of the coffee pot. In *Droog Design: Spirit of the Nineties* (1998), the familiar image of *Knitted Maria* is coupled with a caption that reads: ‘A cosy has been knitted around the Maria coffeepot, [...] The knitted part integrated with the porcelain during the glazing process.’¹⁴¹ *Knitted Maria* is not so much a textile object, but a *ceramic-textile* object. This difference is crucial to the materialised time of *Knitted Maria*, as it turns the facture of the crochet inside out. It is no longer a “progressive chaining” of presents, but an “all-at-onceness” that re-materialises in the firing of combustible fibres. I use the term “re-materialises” to emphasise how the multiplicity of presents in the crochet are materialised anew as one, unbroken whole. It becomes a cavity structure, in place of a fibrous one.

6.3.4. In Conversation with the Maker

The process of integrating two seemingly antithetical materials, porcelain clay and cotton yarn, constitutes several phases. First, the cosy needs to be crocheted, then submerged in porcelain slip: this is relatively straightforward. However, the decision to fire this combustible “addition” to the porcelain clay is more complicated, as it involves the skilful transferral of the slip-coated cosy onto the already-fired – and pristine white – *Maria* coffee pot, as well as carefully controlling the temperature in the kiln. Given the paucity of information about the making of *Knitted Maria*, I met with Bakker at his studio in Amsterdam, The Netherlands, to discuss the process of its facture. I draw on an extract from this conversation below in order to foreground the ‘improvisational’ nature of the encounter.¹⁴²

¹⁴¹ *Droog Design: Spirit of the Nineties*, p. 133.

¹⁴² James A. Holstein and Jaber F. Gubrium’s concept of ‘the active interview’ is instructive in this context. They argue that interviews – or what are, properly speaking, “studio visits” in this context – are social productions. Both the interviewer and respondent actively construct them. Holstein and Gubrium openly criticise the ambition – often in the social sciences – to standardise the interview process; instead they embrace its inherent fluidity, liveness, and fabrication. Holstein and Gubrium’s emphasis on the emergence of knowledge has influenced my

Kimberley Chandler: Can you tell me about how *Knitted Maria* was made? As far as I understand it, you soak a tea cosy in slip, and then you fire that onto the outside...

Gijs Bakker: Yes. There was a woman in the laboratory at Rosenthal [...] and she was very clever in... It's not knitting, actually. It is crochet. But "knitted" sounds nicer: teapots of the *Knitted Maria*.

And where does "Maria" come from?

Oh. "Maria" is the official name of this product of Rosenthal's.

Is that why you chose this particular line?

Yes. I forgot to mention that: I never invented it. I only invented the "Knitted," and the "Maria" and the pot is all theirs. [...] So, what that woman had to do was crochet the cosy—many of them. Do you have any knowledge of porcelain?

Yes.

You need to fire porcelain to 1200°C—with some porcelains, it's even higher, maybe 1400°C, but with this it was 1200°C. This means that any material you add to it will [burn] away. [...] That [pointing to Bakker's *High-Tech Accent* teapot] is the other product, which we'll discuss later.¹⁴³ So, the teapot was already glazed and finished.

understanding of what an interview *can be*, and allows me to safely sidestep the criticism of my decision to interview makers first-hand. James A. Holstein and Jaber F. Gubrium, *The Active Interview: Qualitative Research Methods* (Thousand Oaks; London: SAGE, 1995).

¹⁴³ Bakker's *High-Tech 'Accent'* (1997) is similar in design to the *Knitted Maria*, although the Rosenthal *Accent* teapot has a rounded shape, and it is the handle that, in place of the knitted cosy, is composed of heat-resistant fibres that are burnt out during firing. Both products were developed in collaboration with Rosenthal porcelain manufacture, 1996-1997. See *Droog Design: Spirit of the Nineties*, p. 136.

Is it slip-cast?

Yes. It's slip-cast. [...] So, [the Rosenthal technicians] have the knitted tea cosy, which is actually made of cotton. I asked them to put it in—in the literature, it is always described as glaze, but it's not glaze. It's clay slip. But then the clay slip, the porcelain, has a colour, because I wanted it to have a colour. This coloured clay is like yoghurt. And they take the knitted tea cosy out [of the clay slip], [...] which is very difficult because they then have to put it over the [coffee] pot. [...] They can tighten it at the neck with a [drawstring]. And there you have it. There is some [variance], can you see? That means that the coloured slip has run over, and they have to take that away before firing. And then it goes into the kiln. Then [sigh] when they open the kiln, you see the mistakes!

And so presumably the coffee pot was biscuit-fired beforehand?

No. It was already made. Glazed and all. It was a readymade product, just finished; I simply fired it again [laughs].¹⁴⁴

This short extract discloses the re-materialised time of the *Knitted Maria*, which I will explain in discrete stages. The crocheted cosy is integral to the coffee pot-form, as well as being a combustible material that is burnt out in the firing process: it is both material and method. Ceramists often experiment with adding combustible materials to their clay bodies, so that 'all that is left after firing is a cavity where the organics have burnt out.'¹⁴⁵ It is described as adding "texture" to clay, which is particularly provocative in the context of this research; there is a texture to materials, just as there is a texture to materialised time.

¹⁴⁴ This conversation was recorded using Voice Recorder Pro on a Nokia Lumia 635. However, as discussed in section 3.3.3, I have chosen not to transcribe this conversation in full within this thesis. Furthermore, as Bakker's native language is Dutch, I have sensitively edited his response to aid fluency.

¹⁴⁵ Kathleen Standen, *The New Ceramics: Additions to Clay Bodies* (London: Bloomsbury, 2013), p. 45.

6.3.5. The Discrete Phases of Making

First, Bakker's admission that the crocheting material is cotton – a fibrous, absorbent substance spun into workable fibres – accounts for the visible “zigzagging” of the crocheted ceramic-fibres in *Knitted Maria*. As spinning fibres into continuous strands involves a process of twisting, the cotton fibres have a natural “S-twist” or “Z-twist,” much like the direction of the twining-twist in basketry (fig. 61).¹⁴⁶ As the cotton is interwoven in loops round and round to construct the openwork form, there is a continual re-adjustment of tension. This tension is accentuated in the fused ceramic-fibres on account of their expansion and contraction in the process of firing. Emery also points out that, in contrast to knitting, which has the potential to be unravelled at any stage, with crocheting ‘each stitch is secure as soon as it is completed,’¹⁴⁷ which interweaves finality into the continuous process. It is for this reason that, initially at least, the crocheted cosy can be understood as “episodic,” that is, intermittent and periodic, in a way that *Lace Ascot* is not. It is a series of what are effectively knots that bind time (fig. 62). However, these visible “episodes” in the making of the crocheted cosy are emptied, or burnt, out in the firing, drawing attention to the complex nature of materialised time. The integrated textile fibres become hollow ceramic-fibres; the once-crocheted, and emergent structure of *Knitted Maria* is now fused and crystallised.

In order to achieve the smooth, even surface of the Maria coffee pot, Rosenthal would have applied a porcelain glaze to the slip-cast, biscuit-fired form, before a second, or “glost,” firing in which the porcelain glaze forms a vitreous, transparent surface.¹⁴⁸ High-firing the porcelain renders it non-porous, and ensures that the second application of a lower-firing, coloured slip (1200°C) would not affect the glazed surface. Bakker's admission that the crocheted cosy was carefully slipped onto the pre-fired, and

¹⁴⁶ Certainly, the photographic documentation of a series of preliminary tests for the *Knitted Maria* indicate that the cotton used is fairly crude plied yarn, similar to garden twine.

¹⁴⁷ Emery, *The Primary Structures of Fabrics*, p. 44.

¹⁴⁸ Biscuit firing is the first, low-temperature firing of clay ware, in order to release moisture from within the clay so that it becomes porous and ready to accept the glaze. Biscuit firing is usually around 1000°C. “Glost” firing is the second firing at a higher temperature, up to 1280°C, that fuses the glaze with the body. *The Workshop Guide to Ceramics*, pp. 257 & 308.



Figure 61.
Making of *Knitted*
***Maria*, 1997.**

Courtesy Droog

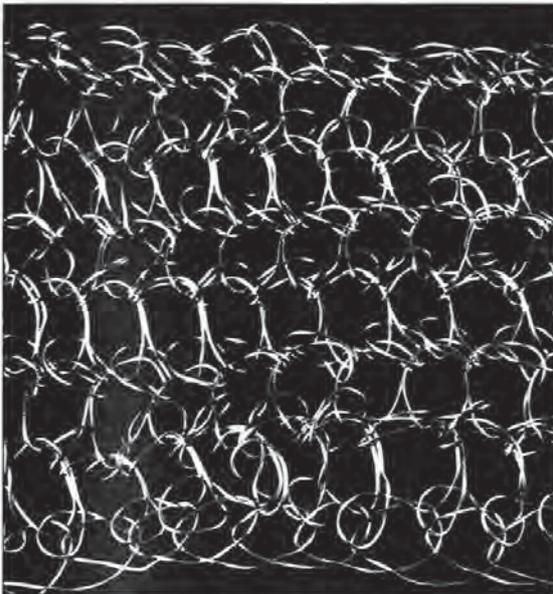


Fig. 7. Sample of single crochet in 25-gauge coated copper wire, done on a #J hook.

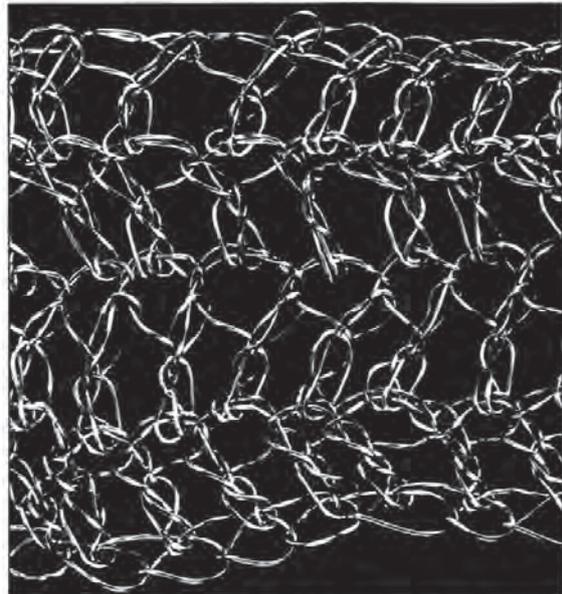


Fig. 8. Sample of double crochet in 26-gauge coated copper wire, done on a #9 hook. Note that each row of

Figure 62.
Examples of
crocheted copper
wire that show
its “knottiness”.
Reproduced from
Arline Fisch, *Textile*
Techniques in Metal
(1975), p. 77.

glazed Maria discloses the level of technical skill involved in this next stage.¹⁴⁹ Any residual marks or smudges of blue slip, therefore, fuse on to the white base glaze, and blemish the smooth finish. Certainly, it is common practice when applying glaze to ceramic ware to clean areas of the surface using a sponge, especially where the glaze has run over or made a mark. Yet, the intention to pull a slip-saturated crocheted cosy onto the pre-fired coffee pot without smearing glaze across its surface adds to its complexity. Notably, he confesses to using a drawstring to secure the slip-soaked mesh to the coffee pot, enabling the adjustment of the fibrous structure in situ. Even so, positioning a slip-saturated, and heavily textured, crochet on to a glassy high-fired ceramic coffee pot is messy work. In a press image from the Droog archive, we see the technician holding the *Maria* coffee pot upside-down at its base, which is already fitted with the slip-saturated cosy, with a sponge in her hand to wipe off any residue (fig. 63). Holding the form in this way allows any excess glaze in the crocheted cotton to seep from the fibres, ready to be wiped clean; however, too much glaze in the first instance would result in a discoloured, wet mess. Bakker admits to making repeat visits to Rosenthal over the course of the twelve months, in order to supervise and tinker with the process,¹⁵⁰ but small flaws are still visible. That said, these blemishes, or what Bakker describes as “variances,” are the glitches that expose the intricacies of, not only the technical process, but also the materialised time of the object, much like Fisch’s brooch finding. The run-over slip documents the distinct process of making the *Knitted Maria*.

Finally, in the process of firing, the blue-coloured slip releases water as steam, around 100°C, and expands slightly as it does so. As the temperature rises, the organic materials in the porcelain start to oxidise and eventually burn out. This includes the cotton fibres, which begin to ignite at around 120°C forming hollow cavities in the clay body. Gradually, as the temperature increases, the semi-molten porcelain clay “vitrifies,” or transforms into a glass-like substance; its particles fuse together. This fusion involves movement and expansion, and inevitably, the slight distortion of the now-ceramic

¹⁴⁹ This admission may explain the number of “failed” *Marias*, almost seventy percent of the production. Personal conversation with Gijs Bakker (7 December 2015).

¹⁵⁰ Personal conversation with Gijs Bakker (7 December 2015).



Figure 63.
Making of Knitted
***Maria*, 1997.**

Courtesy Droog

fibres. This, in effect, is how the crocheted textile becomes ceramic, and how the “progressive chaining” of presents in the crocheted fibres become an all-at-onceness in the satin-smooth, fired ceramic. In effect, a glaze firing over several hours reduces the materialised time of the crocheted cosy to a crystallised, glassy form. The firm bond between the ceramic crystals obscures, point-by-point, the qualitative nature of multiplicity, of the textural and temporal difference in crocheting.

6.3.6. The Flickering of Fossilised Time

The materialised time of the crocheted fabric is reduced to crystals when fired in the kiln at 1200°C, becoming “fossilised.” Ceramist Kathleen Standen writes that: ‘If an absorbent, organic material such as cotton fibre or woven fabric is dipped into slip (liquid clay) and then fired in a kiln, the organics burn away, but what is left can still resemble the original in shape and texture.’¹⁵¹ This takes effect as an inside-out imprint of the crocheted cotton fibres, the flatness of which is due to the inevitability of shrinkage in firing.¹⁵² In sociologists Elizabeth Shove and Mika Pantzar’s brief essay on the potential for re-thinking ‘defunct social practices’ in terms of fossilisation – which I relate, in part, to Williams’s notion of the “residual” cited earlier – they point out that, like materials, ‘ideas and types of know-how can also be dislocated and left behind as practices evolve.’¹⁵³ Shove and Pantzar characterise these fading social practices as ‘the soft parts,’ for which only the ‘material remains’ endure.¹⁵⁴ Yet, with the *Knitted Maria*, the “soft parts” *are* the “material remains”. The cotton fibres are both method and material. The distinctive “chaining” of the crocheted cosy simultaneously discloses *and* discounts the time of its making; there is a constant flickering in its fibres that denotes the coincidental and contradictory temporalities of the skeuomorph; of an all-at-onceness and a not at all, much like a fossil. It is with one, singular gesture that *Knitted Maria* complicates the workings of materialised time, and, by means of an action not

¹⁵¹ Standen, *The New Ceramics*, p. 65.

¹⁵² *The Workshop Guide to Ceramics*, p. 25.

¹⁵³ Elizabeth Shove and Mika Pantzar, ‘Fossilisation’, *Ethnologia Europaea: Journal of European Ethnology*, 35: 1-2 (2007), pp. 59-62 (p. 59).

¹⁵⁴ Shove and Pantzar, ‘Fossilisation’, p. 60.

too dissimilar from Glithero's *Les French*, relates the before-now and enduring methods of its making, while *simultaneously* mediating that temporal relation.

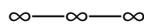
These two seemingly different objects, Fisch's *Lace Ascot* and Bakker's *Knitted Maria*, share one thing in common: their complicated 'time-making'.¹⁵⁵ Both objects utilise textile techniques as a means of assembling different times and making histories into one, homogeneous material: silver wire in Fisch's case, and ceramics in Bakker's. *Lace Ascot*, with its brooch finding and complement of pleats, maintains an "abstract" resemblance to Gibbons's carved lace cravat, while also revising it. With its disjunctive detail and multiple parts, the *Lace Ascot* embodies the temporal complexity of the skeuomorph, and it wears that complexity at its surface. *Knitted Maria* manifests an altogether-different temporality, on account of merging the "progressive chaining" of crochet with the "all-at-once-ness" of fired porcelain. *Knitted Maria* is serially manufactured and handmade, smooth and textured, flawless and flawed. There is contrariety and contradiction to it, in its capacity as a skeuomorph, and, unlike the *Lace Ascot*, its peculiar temporality remains obscured. However, by focussing on the discrete phases of its making, its temporal ambiguity is revealed.

Textiles is critical to both objects. In its ability to gather up multiple times, making contexts, and ideas, textiles share a modal affinity with the skeuomorph, by which I mean its mode of *taking effect*. Both textiles and the skeuomorph are concerned with structure and construction. Textiles index the time and space of their making, much like the skeuomorph; as it takes effect in different materials, the skeuomorph synthesises a multiplicity of times. And finally, where textiles allow, *conceptually*, for the interweaving of different elements, so does the skeuomorph. As the *Lace Ascot* and *Knitted Maria* have helped to demonstrate, the skeuomorph is simultaneously consistent and contrasting, (materially) homogeneous *and* (temporally) heterogeneous.

¹⁵⁵ Zitouni, 'Shuffling Times'.

7. TOOLKIT FOR THE SKEUOMORPH(IC)

In response to the evident inadequacy, or inappropriateness, of the technical terms presently available to describe the workings of the skeuomorph, I propose a glossary of words that may help to reinscribe the concept within the current discourses on making – which include academic, curatorial, critical, and material – in order to reframe our understanding of concepts as diverse as “contemporariness,” “imitation,” and “multiplicity” that skeuomorphic objects engender. This glossary assembles the carefully nuanced terms that have emerged throughout the course of the research, and that give the skeuomorph sufficient conceptual latitude for use across material practice – from critical engagement with a particular object, to a strategy of making, and design education. This is not to make the concept itself more diffuse, but to allow for it to permeate the gaps between thinking and making, critique and practice, industry and academe across the different contexts that it infiltrates. While the material ambiguity of the skeuomorph is its greatest virtue, this selection of terms may help to weave the skeuomorph into current debates and criticism within material practice; it cannot hurt to extend, and fine-tune, the prevailing lexicon.



Conditional *adj.*

Refers to the possibility of the skeuomorph emerging in a diverse range of materials, from plastics through ceramics to cast bronze.

Grain *n.*

Refers to the peculiar character of a material. The grain is an index of the materiality and temporality of an object or artwork.

Graininess *n.*

Refers to the specific material and temporal qualities of an object or artwork, those that are contradictory, or incongruous.

Hinge-like *adj.*

A hinge is a mechanism that connects linked objects (OED). The term “hinge-like” describes the conceptual versatility of the skeuomorph. It is this aspect of the skeuomorph that allows for the linking together of disparate ideas, timeframes, or technical know-how.

Knotty *adj.*

Denotes the productive complexity of the skeuomorph – to its peculiar ability to interweave different visual, tactile, or material qualities, or strands of thought.

Like-for-likeness *n.*

Describes the “like-for-like” nature of materials, and their capacity for exchange in the process of making.

Mode *n.*

As in “skeuomorphic mode”. Denotes the methodological capacity of the skeuomorph. It is interchangeably an object, and a method for making (and conceptualising) objects.

Resemblancing *n.*

Refers to the initial means of identifying the skeuomorph, however diffuse, although it belies the more complex “like-for-likeness” (see above) of its constituent materials.

Seam *n.*

A revealing mechanism of the skeuomorph. Materially, it evidences the conformation of material and technique; conceptually, it connects diverse materials, ideas, and making contexts.

Supplemental *adj.*

Borrowed from Jacques Derrida, “supplemental” relates to the skeuomorph’s innate capacity to extend the manifest qualities of an object.

Tactical *adj.*

Prioritises the usefulness of the skeuomorph. It is an inventive and problem-solving mode of making, rather than an imitative one.

CONCLUSION

This conclusion is, in truth, an introduction: to a revitalised critical concept that opens up new possibilities for material practice, to its theoretical proposition for objects, and to its significance in relation to interpreting making. It has been my intention to restore the inventiveness of the skeuomorph to contemporary material practice, in line with current preoccupations with experimentation, cross-disciplinarity, and the innovative potential of materials. I have argued that, since its inception, the skeuomorph has been emptied of material thinking, and, more recently, unthinkingly assimilated into the digital context, a move that abandons it to criticism on account of its dragging the material world in with it. Design writer Alice Rawsthorn's recent denunciation of the 'superfluous' digital skeuomorph is a case in point: 'Designers now need to develop different approaches. One problem is that we are so adept at decoding some of the old ones, they are becoming less effective.'¹ The aim of this thesis has been to challenge the simplicity of Rawsthorn's contention (and others like it) that the skeuomorph is outdated, and the claim that unless we submit to the radical newness of technologies that include the digital, we remain entangled in the past. On the contrary, as I have demonstrated, it is *exactly* this ability of the skeuomorph to reconcile *convention* with *invention*, material specificity with cross-disciplinarity, oneness with difference and multiplicity, and the intrinsic qualities of materials with their expansion that befits the contemporary mode. I believe that the skeuomorph is ingrained in the transformative potential of materials; it marks a material encounter that is temporally complex and multi-layered, and is not always intended. It also serves to bring craft and materiality to the fore when thinking critically about objects.

¹ Alice Rawsthorn, 'By Design: How technological developments are changing our relationship to control', *frieze.com*, 10 June 2016 <<https://frieze.com/article/design-12>> [accessed 5 September 2016].

I intuited this inventiveness of the skeuomorph from the outset. It is there in Adrian Forty's admission that it ruffled the modernists, who considered it 'as preventing objects from being truly modern';² and in Carl Knappett's enlightened essay, in which the skeuomorph complicates the fidelity of Antony Gormley's casts of his own body, translating into the 'collective figure' of artist's body and partial reproduction.³ I argued that it is the skeuomorph that muddies things, that "gives grain" to these objects, but that recognition of the skeuomorph's critical richness is almost always short-lived. It rarely finds its way into contemporary discourses on making. As I set out to revitalise the concept, my aim became threefold: to ascertain the reasons for its diminution in the contemporary context; to bring material thinking to bear on it in practice in order to expand on its unrealised potential; and to substantiate its worth to contemporary material practice.

By bringing to light the germinative influence of ornament on its misconception in the late-nineteenth century, I demonstrated that it is, in fact, possible to re-think the potential of ornament in such a way that the skeuomorph gains from this inauspicious relation. Critically, its structural complexity accommodates difference – in materials, techniques, and intention. I argued that the differential qualities of the skeuomorph owe, primarily, to the vitality and agency of materials, and to its potential to take form across materials, contexts, and timeframes. While Colley March prioritised the psychological motives for the skeuomorph, I contend that what is still absent is material knowledge, which is vital to understanding all forms of making, and that the skeuomorph must be viewed in this light. The material absence in the narrative of the skeuomorph still troubles its role in traditional and contemporary practice, and imputes to it the claims of immateriality, anachronism, and imitation in current discourse. I am also sceptical about its digital manifestation, which is its most publicised, and suggest that we question its "digital existence". I believe that the imagistic, or "aesthetic"

² Adrian Forty, 'Of Cars, Clothes and Carpets: Design Metaphors in Architectural Thought', *Journal of Design History*, 2: 1 (1989), pp. 1-14 (p. 13).

³ Carl Knappett, 'Photographs, Skeuomorphs and Marionettes: Some Thoughts on Mind, Agency and Object', *Journal of Material Culture*, 7: 1 (2002), pp. 97-117 (pp. 112-13).

likeness of digital to actual objects is being mistaken for performativity. This misuse of the concept is not restricted to the digital. It surfaced only recently in *Frieze*, with artist Helen Marten using it to describe the graphic representation of an I-beam on a temporary plastic hoarding outside London's King's Cross station.⁴ To my mind, this is creative appropriation, rather than the activity of the skeuomorph. Yet regrettably, since contemporary art practice often gets more critical exposure than material practice, the skeuomorph ricochets around within the visual realm, with little attention paid to its messy materiality. As a result of my extensive research, I conclude that it is the materiality of the skeuomorph that discloses its particularity, and that brings a unique perspective to this incongruous object. In addition, this thesis demonstrates that we need to probe into its making in order to gauge its distinction, rather than respond to it superficially.

I argue that there is much to gain, materially *and* conceptually, from adopting the skeuomorph as a tool for critical reflection. It helpfully complicates the proposition of objects that may appear, on the surface, to be muddled or inscrutable. The unlikely alliance of bamboo and bronze in Glithero's *Les French* is, in fact, a proactive response to the challenge of designing a versatile series of furniture without compromising the ingenuity of the first sketch. The tolerance in Silo's textile-informed glass enables it to be adapted to industry; it is a design that can accommodate both artisanal and industrial applications. The constructed textiles in Fisch's *Lace Ascot* and Bakker's *Knitted Maria*, considered *skeuomorphically*, co-opt surface and structure, oneness and multiplicity, duration and discontinuity into their fibres. As well as being skeuomorphic, both objects manifest the continuity, repetition, and difference of materialised time, showing our temporal interpretations of objects to be rather one-dimensional.

Throughout the course of this research, I have sought the cause of the far-reaching misapprehension of the skeuomorph, arguing that, although it is theoretically knowable, it is an experiential concept – or rather, a *mode* of making – and can be best understood

⁴ Helen Marten, 'My Influences', *frieze.com*, 17 May 2013 <<https://frieze.com/article/helen-marten-my-influences>> [accessed 10 September 2016].

in practice. More broadly, I am convinced that material thinking has the capacity to fine-tune, or disturb, our theoretical interpretation of objects – to give texture to them. By understanding the making processes involved in an object’s production, we can gain insight into its intrinsic qualities, its singularity, and potential. This principle of “opening up making” has been crucial to revising the skeuomorph, yielding vital insights into its material and temporal complexity. By penetrating beneath the surface of things, we encounter the messiness and variability of materials that can help to restore agency to objects.

In addition, the material practices that are so deeply embedded in the narrative of the skeuomorph are constantly changing: we therefore need to modify our terms in response. Rather than emphasising the ‘necessities of the mind’ as distinct from the body,⁵ the predominance of ornament, and human agency in relation to the skeuomorph – as was the case in the late-nineteenth century – we need to take account of the influence of new materials, cross-disciplinary approaches to making, and material agency. These are the conditions that define contemporary material practice and that can help to recontextualise the skeuomorph in the discourses on making. Only when these differences are acknowledged can we begin to understand its significance.

⁵ Henry Colley March, ‘The Meaning of Ornament; or its Archaeology and its Psychology’, *Transactions of the Lancashire and Cheshire Antiquarian Society*, VII (1889), pp. 160-92 (p. 161).

BIBLIOGRAPHY

Adam, Robert, 'Tin Gods, Technology and Contemporary Architecture', *Architectural Design*, 59 (1989), viii-xvi.

Adamson, Glenn, 'From Sketch to Product (2009 – 2011)' <<http://www.vam.ac.uk/blog/section/sketch-product>> [accessed 20 July 2016].

———, 'Sleight of Hand: Craft, Design, and the Fine Art of Manipulation' (Henry Moore Institute Online Papers and Proceedings, 2010) <www.henry-moore.org/hmi> [accessed 19 June 2014].

———, ed., *The Craft Reader* (Oxford: Berg, 2010).

———, 'The Fiber Game', *Textile: The Journal of Cloth and Culture*, 5 (2007), 154-76.

———, *The Invention of Craft* (London: Bloomsbury, 2013).

———, 'The Speed of Craft', Collect (Saatchi Gallery, London, 14 May 2010) <<https://www.youtube.com/watch?v=m62nm7bfB2I>> [accessed 16 January 2015].

———, *Thinking Through Craft* (Oxford; New York: Berg, 2007).

———, 'The Fiber Game', *Textile: The Journal of Cloth and Culture*, 5 (2007), 154-76.

Adamson, Glenn, and Bryan-Wilson, Julia, *Art in the Making: Artists and their Materials from the Studio to Crowdsourcing* (London: Thames & Hudson, 2016).

Adamson, Glenn, and Jane Pavitt, eds., *Postmodernism: Style and Subversion, 1970-1990* (London: V&A Publishing, 2011).

Adamson, Glenn, and Victoria Kelley, eds., *Surface Tensions: Surface, finish and the meaning of objects* (Manchester: Manchester University Press, 2013).

Adkins, Taylor, 'Translation: Simondon and the Physico-Biological Genesis of the Individual: Chapter One: Form and Matter: Section I—Foundations of the Hylemorphic Model: Technology of the Capture of Form', trans. by Taylor Adkins (3 October 2007) <<https://fractalontology.wordpress.com/2007/10/03/translation->

simondon-and-the-physico-biological-genesis-of-the-individual/> [accessed 21 September 2016].

Agamben, Giorgio, *'What Is an Apparatus?' and Other Essays*, trans. by David Kishik and Stefan Pedatella (Redwood City, CA: Stanford University Press, 2009).

———, 'What is the Contemporary?' (2009) in Amelia Groom, ed., *TIME* (London: Whitechapel Gallery; MIT Press: Cambridge, MA, 2013), 82-89.

Albers, Anni, *On Weaving* (Middletown, Connecticut: Wesleyan University Press, 1965).

———, 'On Weaving', in Glenn Adamson, ed., *The Craft Reader*, (Oxford: Berg, 2010), 29-33.

Alberti, Benjamin, Andrew Jones, and Joshua Pollard, eds., *Archaeology After Interpretation: Returning Materials to Archaeological Theory* (Walnut Creek, California: Left Coast Press, Inc., 2013).

Alexander, Christopher, *Notes on the Synthesis of Form* (Cambridge, Massachusetts: Harvard University Press, 1971).

Alfoldy, Sandra, ed., *NeoCraft: Modernity and the Crafts* (Halifax, N.S: Press of the Nova Scotia College of Art and Design, 2007).

Antonelli, Paola, and Museum of Modern Art, New York, *Mutant Materials in Contemporary Design* (New York: Museum of Modern Art, 1995)

Araujo, Ana Paola Oliveira, 'Patterning: Envisioning Strategies for Thinking and Fabricating Architecture through the Textile-Inspired Procedures of Repeating, Masking and Scaling' (doctoral thesis, Bartlett School of Architecture, UCL, 2009).

Ashby, Mike, and Johnson, Kara, *Materials and Design: The Art and Science of Material Selection in Product Design* (Oxford; Boston: Butterworth-Heinemann, 2002).

Atamer, Esra, 'Dissipative Individuation', *Parrhesia*, 12 (2011), 57-70.

Attfield, Judy, *Wild Things: The Material Culture of Everyday Life* (Oxford; New York: Berg, 2000).

Avery, Jack, *Injection Molding Alternatives: A Guide for Designers and Product Engineers* (Munich: Hanser Publishers, 1998).

Aynsley, Jeremy, and Harriet Atkinson, eds., *The Banham Lectures: Essays on Designing the Future*, English edn (Oxford; New York: Berg, 2009).

Baichwal, Jennifer, dir., *Manufactured Landscapes* (2006).

Balfour, Henry, *The Evolution of Decorative Art: An Essay Upon Its Origin and Development as Illustrated by the Art of Modern Races and Mankind* (London: Percival and Co., 1893).

Bal, Mieke, *Louise Bourgeois' Spider: The Architecture of Art-Writing* (Chicago: University of Chicago Press, 2001).

Baraniuk, Chris, 'How We Started Calling Visual Metaphors "Skeuomorphs" and Why the Debate over Apple's Interface Design is a Mess', *The Machine Starts*, 13 November 2012 <<http://www.themachinestarts.com/read/2012-11-how-we-started-calling-visual-metaphors-skeuomorphs-why-apple-design-debate-mess>> [accessed 14 April 2014].

Barbour, Robert, *Glassblowing for Laboratory Technicians: Including Vacuum Line Accessories and Their Applications*, 2nd edn (Oxford; New York: Pergamon Press, 1978).

Bardini, Thierry, 'Simondon, Individuation and the Life Sciences: Interview with Anne Fagot-Largeault', *Theory, Culture & Society*, 31: 4 (2014), 141-61.

Barnett, Pennina, and Jefferies, Janis, 'Letter from the Editors', *Textile: The Journal of Cloth & Culture*, 1: 1 (2003), 1-7.

Barthes, Roland, 'Plastic' in *Mythologies*, trans. by Annette Lavers (New York: Hill and Wang, 1972), 97-99.

Basalla, George, *The Evolution of Technology* (Cambridge: Cambridge University Press, 1988).

Beazley, Mitchell, *Wild Knitting* (London: Mitchell Beazley Publishers Ltd., 1979).

Beck, Ronald D., *Plastic Product Design* (New York: Van Nostrand Reinhold Co., 1970).

Beeley, Peter, ed., *Foundry Technology*, 2nd edn (Oxford: Butterworth-Heinemann, 2001).

Bell, Judith, 'Life on the Edge: Hella Jongerius' Design Work', *The World & I*, 18: 9 (2003), 78-85.

Belting, Hans, 'Image, Medium, Body: A New Approach to Iconology', *Critical Inquiry*, 31 (2005), 302-19.

Benjamin, Walter, 'Theses on the Philosophy of History', in Hannah Arendt, ed. *Illuminations*, trans. by Harry Zorn (London: Pimlico, 1970), 245-55.

———, 'Unpacking My Library', in Hannah Arendt, ed., *Illuminations*, trans. by Harry Zohn (London: Pimlico, 1999), 61-69.

Bennett, Jane, *Vibrant Matter: A Political Ecology of Things* (Durham: Duke University Press, 2010).

Bennett, Madeline, 'iOS 7 vs iOS 6 head-to-head review', *V3*, 25 October 2013
<<http://www.v3.co.uk/v3-uk/review/2295962/ios-7-vs-ios-6-head-to-head-review>>
[accessed 15 April 2014].

Bennett, Tony, and John Frow, eds., *The SAGE Handbook of Cultural Analysis* (Los Angeles, CA: SAGE, 2008).

Benton, Tim, Charlotte Benton, and Dennis Sharp, eds., *Form and Function: A Source Book for the History of Architecture and Design, 1890-1939* (London: Crosby Lockwood Staples, 1975).

Berger, John, *Ways of Seeing* (London: British Broadcasting Corporation and Penguin Books, 1972).

Bergson, Henri, *Time and Free Will: An Essay on the Immediate Data of Consciousness*, trans. by F. L. Pogson (London: Swan Sonnenschein & Co.; New York: The Macmillan Co., 1910).

Berry, David M., *The Philosophy of Software: Code and Mediation in the Digital Age* (Basingstoke, Hampshire; New York: Palgrave Macmillan, 2011).

———, 'The Social Epistemologies of Software', *Social Epistemology*, 26 (2012), 379-98.

Bilak, Peter, 'Ways of Seeing, book review', *Typotheque*, 5 June 2008
<https://www.typotheque.com/articles/ways_of_seeing_book_review> [accessed 29 July 2016].

Birth, Kevin K., *Objects of Time: How Things Shape Temporality, Culture, Mind, and Society* (New York: Palgrave Macmillan, 2012).

Blamey, David, ed., *Specialism* (London: Open Editions, 2016).

Blanchette, Jean-François, 'A Material History of Bits', *Journal of the American Society for Information Science and Technology*, 62: 6 (2011), 1042-57.

Blitz, John H., 'Skeuomorphs, Pottery, and Technological Change', *American Anthropologist*, 117: 4 (2015), 665-78.

- De Boever, Arne, Alex Murray, Jon Roffe, and Ashley Woodward, eds., *Gilbert Simondon: Being and Technology* (Edinburgh: Edinburgh University Press, 2012).
- Bolter, Jay David, and Grusin, Richard, *Remediation: Understanding New Media* (Cambridge, MA: MIT Press, 1999).
- Bonanos, Christopher, *Instant: The Story of Polaroid* (New York: Princeton Architectural Press, 2012).
- Boulting, Laurence, dir., *Chillida* (1985), Tate Library & Archives.
- Boscagli, Maurizia, *Stuff Theory: Everyday Objects, Radical Materialism* (New York: Bloomsbury, 2014).
- Boumeester, Marc, '8 Avatars of Time', *First PARSE Biennial Research Conference on TIME* (University of Gothenburg, Sweden, 4-6 November 2015).
- Bray, Charles, *Glass Blowing* (Sheffield: The Society of Glass Technology, 2003).
- Breitbach, Julia, 'The Photo-as-Thing: Photography and Thing Theory', *European Journal of English Studies*, 15 (2011), 31-43
<<http://doi.org/10.1080/13825577.2011.553895>>.
- Brill, Robert H., 'A Note on the Scientist's Definition of Glass', *The Journal of Glass Studies*, 4 (1962), 127-38.
- Brooks, Nick., *Mouldmaking and Casting* (Marlborough: The Crowood Press, 2005).
- Brough, L. S., *Plastics* (London: Hutchinson Educational Ltd, 1973).
- Brown, Bill, 'Thing Theory', *Critical Inquiry: Things*, 28: 1 (2001), 1-22.
- , 'Thing Theory', in Bill Brown, ed., *Things* (Chicago: University of Chicago Press, 2004).
- Bunn, Stephanie, 'Weaving Solutions to Woven Problems', in Trevor H. J. Marchand, ed., *Craftwork as Problem Solving: Ethnographic Studies of Design and Making* (Farnham: Ashgate Publishing Limited, 2016), 133-49.
- Buono, Amy J., 'Historicity, Achronicity, and the Materiality of Cultures in Colonial Brazil', *Getty Research Journal*, 7 (2015), 19-34.
- Burns, Carol J., and Andrea Kahn, eds., 'Why Site Matters', in *Site Matters: Design Concepts, Histories, and Strategies* (Abingdon, Oxon: Taylor & Francis, 2005), vii-xxix.

Buse, Peter, 'The Polaroid Image as Photo-Object', *Journal of Visual Culture*, 9 (2010), 189-207 <<http://doi.org/10.1177/1470412910372754>>.

Cadava, Eduardo, *Words of Light: Theses on the Photography of History* (Princeton, New Jersey: Princeton University Press, 1997).

Wollen, Peter, 'Time In Video and Film Art', in Amy Cappellazzo, ed., *Making Time: Considering Time as a Material in Contemporary Video & Film* (Lake Worth: Palm Beach Institute of Contemporary Art, 2000), 7-13.

Cardwell, Simon, Bob Cather, and Steven Groák, 'New Materials for Construction', *The Arup Journal*, 3 (1997), 18-20.

Cass, Kimberly, and Lauer, Thomas W., 'Media Transitions: The cases of digital imagery and email', *Information Technology & People*, 17: 3 (2004), 252-67.

Celant, Germano, *Giuseppe Penone* (exhibition catalogue) (Arnolfini Gallery, Bristol, 1989).

Chabot, Pascal, *The Philosophy of Simondon: Between Technology and Individuation* (London: Bloomsbury, 2013).

Cheatle, Emma, 'Part-Architecture: The Maison de Verre through the Large Glass' (doctoral thesis, The Barlett School of Architecture, UCL, 2013).

Childe, V. Gordon, *Piecing Together the Past: The Interpretation of Archaeological Data* (London: Routledge & Kegan Paul, 1956).

Chua, Liana, and Mark Elliott, eds., *Distributed Objects: Meaning and Mattering after Alfred Gell* (New York: Berghahn, 2013).

Cixous, Hélène, *Three Steps on the Ladder of Writing*, trans. by Sarah Cornell and Susan Sellers (New York: Columbia University Press, 1993).

Clark, Andrew, 'Real Life Methods Working Papers: Anonymising Research Data', ESRC National Centre for Research Methods, NCRM Working Paper Series (December 2006), 1-21 <http://eprints.ncrm.ac.uk/480/1/0706_anonymising_research_data.pdf> [accessed 30 March 2017].

Clarke, Alison J., ed., *Design Anthropology: Object Culture in the 21st Century*, 1st edn (Wien; New York: Springer, 2011).

Collection Lab (Design Museum, London, 10 September 2014-28 August 2015) <http://www.designmuseum.org/exhibitions/collection-lab> [accessed 21 September 2016].

Colley March, Henry, 'The Meaning of Ornament; or its Archaeology and its Psychology', *Transactions of the Lancashire and Cheshire Antiquarian Society*, VII (1889), 160-92.

Combes, Muriel, *Gilbert Simondon and the Philosophy of the Transindividual*, trans. by Thomas LaMarre (Cambridge, MA: MIT Press, 2012).

Composite (exhibition leaflet) (Two Columbia Road, London, 21-25 September 2011).

Computer Graphics: Proceedings of ACM SIGGRAPH 93 (Anaheim, CA: Association for Computing Machinery, 2-6 August 1993).

Coole, Diana, and Frost, Samantha, *New Materialisms: Ontology, Agency, and Politics* (Durham; London: Duke University Press, 2010).

Comrie, Bernard, *Aspect: An Introduction to the Study of Verbal Aspect and Related Problems* (Cambridge: Cambridge University Press, 1976).

Conneller, Chantal, 'Deception and (Mis)representation: Skeuomorphs, Materials, and Form', in Alberti, Benjamin, Andrew Jones, and Joshua Pollard, eds., *Archaeology After Interpretation: Returning Materials to Archaeological Theory* (Walnut Creek, California: Left Coast Press, Inc., 2013), 119-34.

'Corning Museum of Glass: Finding the right recipe: Borosilicate glass'
<http://www.cmog.org/article/finding-right-recipe-borosilicate-glass> [accessed 16 April 2015].

Corse, Sandra, *Craft Objects, Aesthetic Contexts: Kant, Heidegger, and Adorno on Craft* (Lanham, Maryland: University Press of America, 2009).

Crafts Advisory Committee, 'The Industrial Art of Gijs Bakker: A Dutch Production' (press release) (Crafts Advisory Committee Gallery, 13 September-4 November 1978).

'Crafts Council: Real to Reel: The Craft Film Festival, Picturehouse Central, London, 4-5 May 2016' <<http://www.craftscouncil.org.uk/what-we-do/real-to-reel-the-craft-film-festival/>> [accessed 29 July 2016].

Simondon, Gilbert, 'The Genesis of the Individual', in Jonathan Crary and Sanford Kwinter, eds., *Incorporations* (New York: Zone, 1992), 296-319.

Currie, Nick, 'Love in the Time of Agita', *I.D.*, 56: 52 (2009), 38-43.

Daston, Lorraine, ed., *Things That Talk: Object Lessons from Art and Science* (New York; Cambridge, MA: Zone Books; MIT Press, 2004).

Deleuze, Gilles, 'On Gilbert Simondon', in *Desert Islands and Other Texts 1953-1974* (Los Angeles, CA: Semiotext(e), 2004), 86-89.

———, 'Theory of Multiplicities in Bergson', *Lectures by Gilles Deleuze* <<http://deleuzelectures.blogspot.co.uk/2007/02/theory-of-multiplicities-in-bergson.html>> [accessed 29 June 2016].

Deleuze, Gilles, and Guattari, Félix, *On the Line*, trans. by John Johnston (New York: Semiotext(e), 1983).

———, '1440: The Smooth and the Striated,' in *A Thousand Plateaus: Capitalism and Schizophrenia*, trans. by Brian Massumi (Minneapolis; London: University of Minnesota Press, 2005), 474-500.

'Denizli Hand Made Glass Factory', dir. by Li & Fung (2010) <<http://www.youtube.com/watch?v=KQxD8jbriGc>> [accessed 22 April 2015].

Derrida, Jacques, 'The Parergon', *October*, 9 (1979), 3-41.

'Design Museum: Edward Barber & Jay Osgerby: In The Making' <<http://barberosgerby.com/projects/view/in-the-making/>> [accessed 29 July 2016].

'Design World 2000' (exhibition catalogue) (Museum of Art and Design: Helsinki, 2000).

De Vries, Marc J., 'Gilbert Simondon and the Dual Nature of Technical Artifacts', *Techné*, 12 (2008) <<http://scholar.lib.vt.edu/ejournals/SPT/v12n1/devries.html>> [accessed 8 January 2015].

Dombrow, Bernard A., *Polyurethanes* (New York: Reinhold Publishing Corporation, 1957).

Donohue, Alice A., 'Material, Technique, and Form', in *Greek Sculpture and the Problem of Description* (Cambridge: Cambridge University Press, 2005), 62-87.

'Do Normal: Recent Dutch Design' (exhibition catalogue) (San Francisco Museum of Modern Art, 1998).

Dormer, Peter, 'Wishful Thinking: A Thesis on Skill and the Studio Crafts' (doctoral thesis, Royal College of Art, 1992).

Dostal, Robert J., 'Time and phenomenology in Husserl and Heidegger', in Charles Guignon, ed., *The Cambridge Companion to Heidegger* (Cambridge: Cambridge University Press, 2006), 141-69.

'Droog' <www.droog.com> [accessed 18 January 2016].

'Droog Design for Rosenthal: "Experiments in Porcelain"', Droog <www.droog.com> [accessed 18 January 2016].

'Droog: Droog Detail: Knitted Maria coffeepot by Gijs Bakker'
<<https://www.droog.com/droog/all/droog-for-roenthal/knitted-maria-coffeepot-by-gijs-bakker/>> [accessed 22 July 2016].

Eco, Umberto, *How To Write a Thesis*, trans. by Caterina Mongiat Farina and Geoff Farina (Cambridge, MA: MIT Press, 2015).

'Editorial', *Journal of Textile Design Research and Practice*, 1: 1 (2013), 5-8
<<http://doi.org/10.2752/175183513X13772670830994>> [accessed 30 September 2016].

Electrum Gallery, 'Objects to Wear: Experimental Clothing and New Jewellery; Emmy van Leersum and Gijs Bakker' (press release) (Electrum Gallery, London, 15 March-15 April 1972).

Eloise Hawser: Lives on Wire (exhibition) (Institute of Contemporary Arts, London, 1 July 2015-6 September 2015) <<https://www.ica.org.uk/whats-on/eloise-hawser-lives-wire>> [accessed 22 September 2016].

Emery, Irene, *The Primary Structures of Fabrics: An Illustrated Classification* (London: Thames & Hudson, 1994).

Emmison, Michael, Philip Smith, and Margery Mayall, eds., *Researching the Visual*, 2nd edn (Los Angeles: Sage, 2012).

Ernst, Wolfgang, 'Translation of Photographic Archive into Algorithmic Time', *EITHER/AND*, 2013 <<http://eitherand.org>> [accessed 4 February 2015].

Evans, Christopher, and Caroline Humphrey, 'After-Lives of the Mongolian Yurt: The "Archaeology" of a Chinese Tourist Camp', *Journal of Material Culture*, 7: 2 (2002), 189-210 <<http://doi.org/10.1177/1359183502007002639>> [accessed 30 September 2016].

'Extraordinary Stories about Ordinary Things: Silo Studio', dir. by Masters, Alice (2013) <<http://www.silostudio.net/video>> [accessed 29 August 2016].

Fabian, Johannes, *Time and the Other: How anthropology makes its object*, 2nd edn (New York: Columbia University Press, 2002).

Farmer, Dan, and Venema, Wietse, *Forensic Discovery* (Upper Saddle River, NJ: Addison-Wesley, 2005).

Felluga, Dino Franco, 'The Eventuality of the Digital', *Interdisciplinary Studies in the Long Nineteenth Century*, 21 (2015) <<http://doi.org/10.16995/ntn.742>>.

———, 'The Victorian Archive and the Disappearance of the Book', *Victorian Studies*, 48: 2 (2006), 305-19 <<http://doi.org/10.2307/3830254>>.

First PARSE Biennial Research Conference on TIME (conference) (University of Gothenburg, Sweden, 4-6 November 2015).

Fisch, Arline M., 'Oral history interview with Arline M. Fisch, 2001 July 29-30', Archives of American Art, Smithsonian Institution, 2001, Archives of American Art, Smithsonian Institution <<http://www.aaa.si.edu/collections/interviews/oral-history-interview-arline-m-fisch-12589>> [accessed 23 October 2015].

———, ed., *Crocheted Wire Jewelry: Innovative Designs & Projects By Leading Artists* (New York: Sterling Publishing, 2009).

———, 'Fulbright Proposal Research Grant, 1966-1967' (Smithsonian Archives of American Art, Washington D. C., US).

———, *Textile Techniques in Metal for Jewelers, Sculptors, and Textile Artists* (New York: Van Nostrand Reinhold, 1975).

'Arline M. Fisch papers, 1950-2003' (Smithsonian Archives of American Art, Washington D. C., US).

'Flashh' <<http://flashh.nl/>> [accessed 21 September 2016].

Fleck, H. Ronald, *Whither Plastics? The Possible Uses of Plastics in Industry, Science and Art*, 1st edn (London: Temple Press Ltd., 1944).

Fleming, David H., and William Brown, 'FCJ-176 A Skeuomorphic Cinema: Film Form, Content and Criticism in the "Post-Analogue" Era', *The Fibreculture Journal*, 24 (2015), 81-104.

Focillon, Henri, *The Life of Forms in Art* (New York: Zone Books, 1992).

Fogerty, Elsie, *Rhythm* (London: George Allen & Unwin Ltd., 1937).

———, 'Rhythm', in Glenn Adamson, ed., *The Craft Reader* (Oxford: Berg, 2010), 366-71.

Follett, Georgina, and Louise Valentine, eds., *New Craft Future Voices: Proceedings of the Dundee Conference, 4-6 July, 2007* (Dundee: Duncan of Jordanstone College of Art & Design, University of Dundee, 2007).

Forty, Adrian, 'Of Cars, Clothes and Carpets: Design Metaphors in Architectural Thought', *Journal of Design History*, 2 (1989), 1-14.

Frank, Isabelle, ed., *The Theory of Decorative Art: An Anthology of European & American Writings, 1750-1940*, trans. by David Britt (New Haven and London: Yale University Press, 2000).

Frasconi, Marco, 'The Tell-the-Tale Detail', in Kate Nesbitt, ed., *Theorizing a New Agenda for Architecture: An Anthology of Architectural Theory 1965-1995* (New York: Princeton Architectural Press, 1996), 500-14.

———, 'The Tell-the-Tale Detail', *VLA 7: The Building of Architecture* (1984), 23-37.

Frieman, Catherine, 'Imitation, Identity and Communication: The presence and problems of skeuomorphs in the Metal Ages,' in Berit Valentin Eriksen, ed., *Lithic technology in metal using societies: Proceedings of a UISPP Workshop* (Aarhus: Jutland Archaeological Society, 2010), 33-44.

———, 'Skeuomorphs And Stone-Working: Elaborate Lithics From The Early Metal-Using Era In Coastal, Northwest Europe' (doctoral thesis, University of Oxford, 2010).

FRONT, 'Sketch Furniture Performance Design' <<http://www.frontdesign.se/sketch-furniture-performance-design-project>> [accessed 19 July 2016].

Fuller, Matthew, *Behind the Blip: Essays on the Culture of Software* (Brooklyn, NY: Autonomedia, 2003).

———, *Software Studies: A Lexicon* (Cambridge, MA: MIT Press, 2008).

Fusco, Maria, 'Experiential and Creative Writing Co-Production', *Arts Research ENrichment Activities* (Emerson College, Sussex, 10-12 June 2015).

Gallery FUMI, 'FUMI presents Les French by Studio Glithero' (press release) (Gallery FUMI, London, 3 April 2009).

Garvey, Greg, 'The Automatic Confession Machine: A Catholic Turing Test', *Leonardo Electronic Almanac*, 2: 7 (1994), 2-8.

Gell, Alfred, *Art and Agency: Towards a New Anthropological Theory* (Oxford: Clarendon Press, 1998).

———, *The Anthropology of Time: Cultural Constructions of Temporal Maps and Images*, Explorations in Anthropology (Oxford: Berg, 1992).

———, 'The Technology of Enchantment and the Enchantment of Technology', in Coote, Jeremy, and Anthony Shelton, eds., *Anthropology, Art and Aesthetics* (Oxford: Clarendon Press, 1992), 40-67.

———, 'Vogel's Net: Traps as Artworks and Artworks as Traps', *Journal of Material Culture*, 1 (1996), 15-38.

Gessler, Nicholas, 'Skeuomorphs and Cultural Algorithms', *Proceedings of the 7th International Conference on Evolutionary Programming VII* (London: Springer-Verlag, 1998), 229-38.

Giesen, Bernhard, 'Noncontemporaneity, Asynchronicity and Divided Memories', *Time & Society*, 13: 1 (2004), 27-40.

Glickfeld, Elizabeth, 'Film Studio: Theatricalizing the design process online', *frieze.com*, 157, 9 September 2013 <<https://frieze.com/article/film-studio/>> [accessed 22 September 2016].

'Glithero', <<http://www.glithero.com/>> [accessed 14 July 2016].

Gould, Claudia, 'Hella Jongerius and Jurgen Bey' (Institute for Contemporary Art, University of Pennsylvania, 2000).

Greatrex, Tom, 'Soft Touch', *Modern Carpets + Textiles* (2007), 66-71.

Green, Robb, 'Design jargon explained: Skeuomorphism', *Creative Bloq*, 20 August 2012 <<http://www.creativebloq.com/app-design/jargon-skeuomorphism-812538>> [accessed 8 June 2016].

Greenhalgh, Paul, ed., *The Persistence of Craft: The Applied Arts Today* (London: A & C Black, 2002).

Groom, Amelia, ed., *TIME* (London: Whitechapel Gallery; MIT Press: Cambridge, MA, 2013).

Gross, Shad, Bardzell, Jeffrey, and Bardzell, Shaowen, 'Skeu the Evolution: Skeuomorphs, Style, and the Material of Tangible Interactions', *Proceedings of TEI 2014: 8th International Conference on Tangible, Embedded and Embodied Interaction* (Ludwig Maximilian University of Munich, Munich, 16-19 February 2014), 53-60.

Grosz, Elizabeth, *Volatile Bodies: Toward a corporeal feminism* (Bloomington, Indiana: Indiana University Press, 1994).

Guérin, Sarah, and Herman, Nicholas, 'Skeuomorphic: The Skeuomorph from the Acropolis to iOS', *College Art Association: 103rd Annual Conference* (New York Hilton, New York, 11-14 February 2015).

Guerlac, Suzanne, *Thinking in Time: An Introduction to Henri Bergson* (Ithaca, NY: Cornell University Press, 2006).

Gunning, Tom, 'What's the Point of an Index? Or, Faking Photographs', in K. Beckman and J. Ma, Eds., *Still Moving: Between Cinema and Photography* (Durham, NC; and London: Duke University Press, 2008), 39-49.

Haddon, Alfred C., *Evolution in Art: As Illustrated by the Life-Histories of Designs* (London: Walter Scott, 1895).

Hale, Jonathan A., 'Gottfried Semper's primitive hut as an act of self-creation', *Arq: Architectural Research Quarterly*, 9: 1 (2005), 45-50.

Hamer, Frank, and Janet Hamer, *The Potter's Dictionary of Materials and Techniques*, 6th edn (London; New York: Bloomsbury, 2015).

Harding, Stella, and Waltener, Shane, *Practical Basketry Techniques* (London: A&C Black, 2012).

Hargadon, Andrew B., and Yellowlees, Douglas, 'When Innovations Meet Institutions: Edison and the Design of the Electric Light', *Administrative Science Quarterly*, 46: 3 (2001), 476-501.

Harper, Charles A., ed., *Modern Plastics Handbook* (New York: McGraw-Hill, 2000).

Harris, Jane, "'Crafting" Computer Graphics—A Convergence of Traditional and "New" Media', *Textile: The Journal of Cloth and Culture*, 3 (2005), 20-35 <<http://doi.org/10.2752/147597505778052666>>.

Harrison, Rodney, "'The Magical Virtue of These Sharp Things": Colonialism, Mimesis and Knapped Bottle Glass Artefacts in Australia', *Journal of Material Culture*, 8: 3 (2003), 311-36 <<http://doi.org/10.1177/13591835030083007>> [accessed 30 September 2016].

Harrod, Tanya, 'Inside No. 10', *The Spectator* (19 May 2012) <<http://www.spectator.co.uk/2012/05/inside-no-10/>> [accessed 14 July 2016].

Harrod, Tanya, *The Real Thing: Essays on Making in the Modern World* (London: Hyphen Press, 2015).

Harvey, Penelope, ed., *Objects and Materials: A Routledge Companion* (London; New York: Routledge, 2014).

'HAY: TELA: Designed By Silo Studio'

<<http://www.hayminimarket.com/en/hay/accessories/kitchen--dining/tela>>
[accessed 21 September 2016].

Hayles, N. Katherine, 'Boundary Disputes: Homeostasis, Reflexivity, and the Foundations of Cybernetics', in Robert Markley, ed., *Virtual Realities and Their Discontents* (Baltimore: Johns Hopkins University Press, 1996), 11-38.

———, *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics* (Chicago: University of Chicago Press, 1999).

———, 'Print Is Flat, Code Is Deep: The Importance of Media-Specific Analysis', *Poetics Today*, 25: 1 (2004), 67-90.

Heath, Christian, Jon Hindmarsh, and Paul Luff, eds., *Video in Qualitative Research: Analysing Social Interaction in Everyday Life* (Los Angeles: SAGE, 2010).

Heidegger, Martin, *Being and Time*, trans. by John Macquarrie and Edward Robinson (London: Blackwell Publishing, 2000).

———, 'The Origin of the Work of Art', in David Farrell Krell, ed., *Martin Heidegger: Basic Writings from Being and Time (1927) to The Task of Thinking (1964)* (London and New York: Routledge, 1993), 89-139.

———, *The Question Concerning Technology and Other Essays* (New York: Harper Colophon Books, 1977).

———, 'The Thing', in Glenn Adamson, ed., *The Craft Reader* (Oxford: Berg, 2010), 404-08.

———, *What Is a Thing?*, trans. by William Bryan Barton and Vera Deutsch (Chicago: Henry Regnery Co., 1967).

Heim, Michael, *The Metaphysics of Virtual Reality* (New York: Oxford University Press, 1993).

Hein, Buster, 'Jony Ive Explains Why He Decided To Gut Skeuomorphism From iOS 7', *Cult of Mac*, 19 September 2013 <<http://www.cultofmac.com/246312/jony-ive-explains-why-he-decided-to-gut-skeuomorphism-out-of-ios/#6FVf8Mmb15vk8T6W.99>> [accessed 15 April 2014].

'Hella Jongerius and Jurgen Bey' (exhibition catalogue) (Institute of Contemporary Art, University of Pennsylvania, Philadelphia: 2000).

Hemmings, Jessica, ed., *The Textile Reader* (New York: Berg, 2012).

Herman, Judith B., '17 Skeuomorphs That Show Retro Is Always In', *Mental Floss*, 3 June 2014 <<http://mentalfloss.com/article/56619/17-skeuomorphs-show-retro-always>>. [accessed 3 June 2016].

Hicks, Dan, 'The Material-Cultural Turn: Event and Effect', in Dan Hicks and Mary C. Beaudry, eds., *The Oxford Handbook of Material Culture Studies* (Oxford: Oxford University Press, 2010), 25-98.

Hinte, Ed van, *Eternally Yours: Visions on Product Endurance* (Rotterdam: 010 Publishers, 1997).

Hjorth, Larissa, and Pink, Sarah, 'New visualities and the digital wayfarer: Reconceptualizing camera phone photography and locative media', *Mobile Media & Communication*, 2: 1 (2014), 40-57 <<http://doi.org/10.1177/2050157913505257>>. Holstein, James A., and Jaber F. Gubrium, *The Active Interview, Qualitative Research Methods* (Thousand Oaks: SAGE Publications, 1995).

Hooson, Duncan, and Anthony Quinn, eds., *The Workshop Guide to Ceramics* (London: Thames & Hudson, 2012).

Horsham, Michael, 'What Is Droog?', *Blueprint*, 323 (1996), 3-6.

Horst, Heather A., and Miller, Daniel, *Digital Anthropology* (London: Berg, 2012).

Houston, Stephen D., *The Life Within: Classic Maya and the Matter of Permanence* (New Haven: Yale University Press, 2014).

Howes, Philip, and Laughlin, Zoe, *Material Matters: New Materials in Design* (London: Black Dog Publishing, 2012).

Howey, Meghan C. L., 'Colonial Encounters, European Kettles, and the Magic of Mimesis in the Late Sixteenth and Early Seventeenth Century Indigenous Northeast and Great Lakes', *International Journal of Historical Archaeology*, 15 (2011), 329-57 <<http://doi.org/10.1017/S1380203807002127>>.

Hui, Yuk, 'On The Existence of Digital Objects' (doctoral thesis, Goldsmiths College, University of London, 2012).

Hunt, Nathan, 'This isn't your Dad's skeuomorphism', *The Dressler Blog*, 15 December 2014 <<http://dressler.io/digital-trends-12152014.html>> [accessed 12 June 2016].

Hunter, Matthew C., and Francesco Lucchini, eds., *The Clever Object* (Hoboken: John Wiley & Sons Inc., 2014).

Hurcombe, Linda M., 'Translation, transformation and transience: issues in skeuomorphic phenomena', *WAC 6: Sixth World Archaeological Congress* (University

College Dublin, Ireland, 29 June-4 July 2008) <<http://www.ucd.ie/wac-6/>> [accessed 22 September 2016].

———, *Archaeological Artefacts as Material Culture* (London; New York: Routledge, 2007).

———, *Perishable Material Culture in Prehistory: Investigating the Missing Majority* (London; New York: Routledge, 2014).

Hutchinson, John, ed., *Giuseppe Penone: To Breathe* (Dublin: The Douglas Hyde Gallery, 1999).

In The Making: touring exhibition (Design Museum, London, 22 January-4 May 2014) <<https://designmuseum.org/exhibitions/touring-exhibitions/exhibitions-for-hire/in-the-making-touring-exhibition>> [accessed 22 September 2016].

Ingold, Tim, 'Bringing Things to Life: Creative Entanglements in a World of Materials', *Vital Signs: Researching Real Life* (University of Manchester, Manchester, 9 September 2008) <http://eprints.ncrm.ac.uk/1306/1/0510_creative_entanglements.pdf>.

———, *Making and Growing: Anthropological Studies of Organisms and Artefacts* (Farnham: Ashgate Publishing, 2014) <<http://public.eblib.com/choice/publicfullrecord.aspx?p=1610002>> [accessed 30 March 2015].

———, *Making: Anthropology, Archaeology, Art and Architecture* (Abingdon, Oxon: Routledge, 2013).

———, 'Materials Against Materiality', *Archaeological Dialogues*, 14: 1 (2007), 1-16 <<http://doi.org/10.1017/S1380203807002127>>.

———, 'On weaving a basket,' in *The Perception of the Environment: Essays on livelihood, dwelling and skill* (London: Routledge, 2000), 339-48.

———, 'Rethinking the Animate, Re-Animating Thought', *Ethnos: Journal of Anthropology*, 71 (2006), 9-20.

———, *The Life of Lines* (Abingdon, Oxon; New York: Routledge, 2015).

———, 'The Line and the Whorl', *V&A Research Institute Workshop* (V&A Museum, London, 18 April 2015).

———, 'The textility of making', *Cambridge Journal of Economics*, 34 (2010), 91-102.

———, 'Transformations of the Line: Traces, Threads and Surfaces', *Textile: The Journal of Cloth & Culture*, 8: 1 (2010), 10-35.

'Jablite: Intelligent Insulation: Jablite Insulation appoints Designers-in-Residence' (2012) <<http://jablite.co.uk/news/2012/feb/6/jablite-insulation-appoints-designers-in-residence>> [accessed 10 April 2015].

Jalas, Mikko, 'Making Time: The Art of Loving Wooden Boats', *Time & Society*, 15 (2006), 343-63.

Jefferies, Janis, Diana Wood Conroy, and Hazel Clark, eds., *The Handbook of Textile Culture* (London: Bloomsbury, 2016).

Jencks, Charles, 'Adhocism' (seminar) (Institute of Contemporary Arts, London, 13 July 2016).

Jencks, Charles, and Nathan Silver, *Adhocism: The Case for Improvisation*, 1st edn (London: Secker and Warburg, 1972).

———, *Adhocism: The Case for Improvisation*, expanded and updated edition (Cambridge, MA: MIT Press, 2013).

Jerwood Makers Open (Jerwood Visual Arts, London).

Jewitt, Carey, ed., *The Routledge Handbook of Multimodal Analysis* (London; New York: Routledge, 2009).

Johnson, Pamela, ed., *Ideas in the Making: Practice in Theory* (London: Crafts Council, 1998).

Jones, Denna, 'Loomy Tunes', *Cover: Carpets & Textiles for Modern Interiors*, 2013, 84-87.

Joris, Yvonne, and Ida van Zijl, Gijs Bakker and Jewelry (Stuttgart: Arnoldsche, 2005).

Julius, Corinne, 'Design's debt too far?', *Crafts*, 223 (2010), 47.

Kaplan, David M., ed., *Readings in the Philosophy of Technology* (Lanham: Rowman & Littlefield, 2004).

Karana, Elvin, Owain Pedgley, and Valentina Rognoli, *Materials Experience: Fundamentals of Materials and Design* (Oxford: Elsevier, 2014) <<http://www.sciencedirect.com/science/book/9780080993591>> [accessed 17 November 2014].

Karpf, David, 'Social Science Research Methods in Internet Time', *Information, Communication & Society*, 15 (2012), 639-61 <<http://doi.org/10.1080/1369118X.2012.665468>>.

Kemske, Bonnie, 'Evoking Intimacy: Touch and the Thoughtful Body in Sculptural Ceramics' (doctoral thesis, Royal College of Art, 2007).

Kepes, Gyorgy, 'Introduction,' in Gyorgy Kepes, ed., *Structure in Art and in Science* (London: Studio Vista, 1965), i-vii.

Kermode, Frank, *The Sense of an Ending: Studies in the Theory of Fiction*; The Mary Flexner Lectures, 1965 (New York: Oxford University Press, 1967).

Kettle, Alice, Helen Felcey, and Amanda Ravetz, eds., *Collaboration Through Craft* (New York and London: Bloomsbury, 2013).

Kirschenbaum, Matthew G., *Mechanisms: New Media and the Forensic Imagination* (Cambridge, MA: MIT Press, 2008).

Knappett, Carl, 'Photographs, Skeuomorphs and Marionettes: Some Thoughts on Mind, Agency and Object', *Journal of Material Culture*, 7: 1 (2002), 97-117.

Knappett, Carl, and Lambros Malafouris, eds., *Material Agency: Towards a Non-Anthropocentric Approach* (New York: Springer, 2008).

Knoblauch, Hubert, Bernt Schnettler, Jürgen Raab, and Hans-Georg Soeffner, eds., *Video Analysis: Methodology and Methods* (Frankfurt am Main; New York: Peter Lang, 2006).

Knott, Stephen, 'Amateur Craft as a Differential Practice' (doctoral thesis, Royal College of Art, 2011).

———, *Amateur Craft: History and Theory* (London: Bloomsbury, 2015).

———, 'Jerwood Encounters: Formed Thoughts', *Ceramic Review*, 255 (2012), 25.

Konik, Adrian, and Konik, Inge, 'The political significance of patina as materialised time', *South African Journal of Art History*, 28: 2 (2013), 133-55.

Kracauer, Siegfried, *History: The Last Things Before The Last* (Princeton: Markus Wiener Publishers, 1995).

———, 'Photography', trans. by Thomas Levin, *Critical Inquiry*, 19 (1993), 421-36.

———, *Theory of Film: The Redemption of Physical Reality* (Princeton, NJ: Princeton University Press, 1965).

Kraft, Kerstin, 'Textile Patterns and Their Epistemological Functions', *Textile: The Journal of Cloth and Culture: Special Issue: Digital Dialogues 1: Textiles and Technology*, 2 (2004), 274-89.

Kreider, Kristen, 'Toward a Material Poetics: Sign, Subject, Site' (doctoral thesis, University College London, 2007).

———, *Poetics and Place: The Architecture of Sign, Subjects and Site* (London: I. B. Tauris, 2014).

Kubler, George, *The Shape of Time: Remarks on the History of Things* (New Haven and London: Yale University Press).

Küchler, Susanne, 'Materials and Design', in Alison Clarke, ed., *Design Anthropology: Object Culture in the 21st Century* (Wien: Springer, 2011), 124-35.

———, 'The Prototype in 20th-Century Art', *Visual Communication*, 9 (2010), 301-12 <<http://doi.org/10.1177/1470357210372723>>.

———, 'The String of Art and Science: Rediscovering the Material Mind', *Textile: The Journal of Cloth and Culture*, 5 (2007), 124-38.

———, 'Why Knot? A Theory of Art and Mathematics', in Christopher Pinney and Nicholas Thomas, eds., *Beyond Aesthetics: Art and the Technologies of Enchantment* (Oxford; New York: Berg, 2001), 57-78.

Küchler, Susanne, and Oakley, Peter, 'New materials and their impact on the material world', in Penelope Harvey, ed., *Objects and Materials: A Routledge Companion* (London; New York: Routledge, 2014), 82-91.

Kulasiewicz, Frank, *Glassblowing* (New York: Watson-Guption Publications, 1974).

Kvale, Steinar, *InterViews: Learning the Craft of Qualitative Research Interviewing*, 2nd edn (Los Angeles: Sage Publications, 2009).

Lakoff, George, and Johnson, Mark, *Metaphors We Live By* (Chicago: University of Chicago Press, 2003).

Land, Edwin H., 'Absolute One-Step Photography', *The Photographic Journal*, 114 (1974), 338-45.

Lange-Berndt, Petra, ed., *MATERIALITY* (London: Whitechapel Gallery; Cambridge, MA: MIT Press, 2015).

Langley, Patrick, 'Review: Eloise Hawser: Institute of Contemporary Arts, London, UK', *frieze.com*, 25 September 2015 <<https://frieze.com/article/eloise-hawser>> [accessed 10 September 2015].

Latour, Bruno, 'The Berlin Key or How To Do Words With Things', in Paul Graves-Brown, ed., *Matter, Materiality and Modern Culture* (London: Routledge, 2000), 10-21.

———, *We Have Never Been Modern*, trans. by Catherine Porter (New York; London: Harvester Wheatsheaf, 1993).

———, "'Where Are the Missing Masses? The Sociology of a Few Mundane Artifacts'", in Bijker, Wiebe E., and Law, John, *Shaping Technology/Building Society: Studies in Sociotechnical Change* (Cambridge, MA: MIT Press, 1992), 225-58.

Laughlin, Zoe, 'Beyond the Swatch: How Can the Science of Materials be Represented by the Materials Themselves in a Materials Library?' (doctoral thesis, King's College London, University of London, 2010).

Lees-Maffei, Grace, ed., *Writing Design: Words and Objects* (London; New York: Berg, 2012), 23-32.

Lefebvre, Henri, *Rhythmanalysis: Space, Time and Everyday Life*, trans. by Stuart Elden and Gerald Moore (London; New York: Continuum, 2004).

Lehmann, Ann-Sophie, 'How Materials Make Meaning', in Ann-Sophie Lehmann, Frits Scholten, and H. Perry Chapman, eds., *Meaning in Materials, 1400-1800, Netherlands Yearbook for History of Art*, 62 (2012), 6-27.

———, 'Showing Making: On Visual Documentation and Creative Practice', *The Journal of Modern Craft*, 5: 1 (2012), 9-24.

Leigh, Mole, 'Chronomaterial Craft: Time Investment as a Value in Contemporary Western Craft', *Journal of Design History*, 15: 1 (2002), 33-45.

Leslie, Esther, 'Walter Benjamin: Traces of Craft', *Journal of Design History*, 11: 1 (1998), 5-13.

Lévy, Pierre, *Becoming Virtual: Reality in the Digital Age*, trans. by Robert Bononno (New York and London: Plenum Trade, 1998).

Lewis, Frank A., and Robert Bolton, eds., *Form, Matter, and Mixture in Aristotle* (Oxford: Blackwell, 1996).

Lichtman, Sarah A., 'Sarah A. Lichtman in conversation with Hella Jongerius', *The Journal of Modern Craft*, 8: 2 (2015), 225-34.

Lippard, Lucy, 'Time: A Panel Discussion', *Art International*, 9 (1969), 20-23 & 39.

Lister, Martin, ed., *The Photographic Image in Digital Culture* (London; New York: Routledge, 1995).

Littleton, Harvey K., *Glassblowing: A Search for Form* (New York: Van Nostrand Reinhold, 1980).

Lloyd-Jones, Teleri, 'Performance Related Play', *Crafts*, 223 (2010), 36-41.

Lloyd, Peter, 'Making a drama out of a process: how television represents designing,' *Design Studies*, 23: 2 (2002), 113-133 <[http://doi.org/10.1016/S0142-694X\(01\)00024-2](http://doi.org/10.1016/S0142-694X(01)00024-2)>.

Lloyd Thomas, Katie, 'Building Materials: Conceptualising Materials via the Architectural Specification' (doctoral thesis, Centre for Research in Modern European Philosophy, Middlesex University, 2010).

———, 'Going into the Mould: Materials and Process in the Architectural Specification', *Radical Philosophy*, 144 (2007), 16-25.

Lombino, Mary-Kay, *The Polaroid Years: Instant Photography and Experimentation* (Munich: DelMonico Books, Prestel, 2013).

Loos, Adolf, 'Ornament and Crime' (1908), in Ulrich Conrads, ed., *Programs and Manifestoes on 20th-century Architecture* (London: Lund Humphries, 1970) 19-24.

Mackenzie, Adrian, 'The Technicity of Time: From 1.00 Oscillations/sec to 9,192,631,770 Hz', *Time & Society*, 10 (2001), 235-57.

———, *Transductions: Bodies and Machines at Speed, Technologies* (London; New York: Continuum, 2002).

Maeda, John, 'The Future of Design Is More Than Making Apple iOS Flat', *Wired Online*, 6 December 2013 <<https://www.wired.com/2013/06/the-future-of-design-is-more-than-making-apple-ios-flat/>> [accessed 22 September 2016].

Make:Shift 2014 (conference) (Ravensbourne, London, 20-21 November 2014).

Make:Shift 2016 (conference) (Museum of Science and Industry, Manchester, 10-11 November 2016).

Maloney, F. J. Terence, *Glass in the Modern World: A Study in Materials Development* (London: Aldus Books, 1967).

Manovich, Lev, 'Software Is the Message', *Journal of Visual Culture*, 13 (2014), 79-81 <<http://doi.org/10.1177/1470412913509459>>.

———, 'Inside Photoshop', *Computational Culture*, 2011 <<http://computationalculture.net/article/inside-photoshop>> [accessed 20 August 2014].

———, *Software Takes Command: Extending the Language of New Media* (New York; London: Bloomsbury, 2013).

———, *The Language of New Media* (Cambridge, MA: MIT Press, 2001).

Manzini, Ezio, *The Material of Invention: Materials and Design* (Cambridge, MA: MIT Press, 1989).

Margolin, Victor, 'Design History of Design Studies: Subject Matter and Methods', *Design Issues*, 11 (1995), 4-15.

Margolis, Eric, and Luc Pauwels, *The SAGE Handbook of Visual Research Methods* (Los Angeles: SAGE, 2011).

Marten, Helen, 'My Influences', *frieze.com*, 17 May 2013 <<https://frieze.com/article/helen-marten-my-influences>> [accessed 10 September 2016].

Massey, Heath, *The Origin of Time: Heidegger and Bergson* (New York: State University of New York Press, 2015).

McCullough, Malcolm, *Abstracting Craft: The Practiced Digital Hand* (Cambridge, MA: MIT Press, 1998).

McGough, Oliver, 'The Skeuomorph is Dead, Long Live the Skeuomorph', *Usabilla*, 12 December 2013 <<http://blog.usabilla.com/skeuomorph-dead-long-live-skeuomorph/>> [accessed 7 June 2016].

McGovern, Patrick E., 'Ceramics and Craft Interaction: A Theoretical Framework, With Prefatory Remarks', in Patrick E. McGovern and M. D. Notis, eds., *Cross-Craft and Cross-Cultural Interactions in Ceramics* (Westerville, Ohio: The American Ceramic Society, 1989), iv, 1-11.

McGuirk, Justin, 'Lapse In Time', *ICON*, 11 (2009), 99.

Mead, George Herbet, 'The Nature of the Past', in *Selected Writings: George Herbert Mead* (New York: The Bobbs-Merrill Company, Inc., 1964), 345-54.

———, *The Philosophy of the Present* (Chicago; London: Open Court Publishing Company, 1932).

Miller, Daniel, ed., *Materiality* (Durham, NC: Duke University Press: 2005).

Mills, John W., *The Techniques of Sculpture*, new edn (London: Batsford, 1976).

Miner, Colin E., 'A Photographic Ontology: Being Haunted Within The Blue Hour And Expanding Field' (doctoral thesis, University of Western Ontario, 2014) <<http://ir.lib.uwo.ca/cgi/viewcontent.cgi?article=3688&context=etd>> [accessed 5 May 2015].

Miodownik, Mark, 'Bio-Inspired Materials', *The Matter of Mimesis: Studies on mimesis and materials in nature, art and science* (Centre for Research in the Arts, Social Sciences and Humanities, University of Cambridge, 17-18 December 2015).

———, *Stuff Matters: The Strange Stories of the Marvellous Materials that Shape Our Man-made World* (London: Penguin, 2014).

Mitchell, Mark T., *Michael Polanyi: The Art of Knowing* (Wilmington, Delaware: ISI Books, 2006).

Mitchell, Victoria, 'Drawing Threads from Sight to Site', *Textile*, 4: 3 (2006), 340-61 <<http://dx.doi.org/10.2752/147597506778691459>> [accessed 30 September 2016].

Moon, Jessica, 'A Showcase of 50 Skeuomorphic Designs', *Digital Telepathy*, [n.d.] <<http://www.dtelepathy.com/blog/inspiration/50-skeuomorphic-designs>> [accessed 3 June 2016].

Moreno, Gean, 'The Promises in Design's Soft Core: Jerszy Seymour's Uncontainable Scum', *Art Papers*, 33: 4 (2009), 22-27.

Morton, W. E., and Hearle, J. W. S., *Physical Properties of Textile Fibres* (Manchester: The Textile Institute, 1993).

Moser, Jeffrey, 'Molding as Cognitive Conditioning in Premodern China', *College Art Association: 103rd Annual Conference* (New York Hilton, New York, 11-14 February 2015).

'Museum of Design in Plastics' <<http://www.modip.ac.uk/>> [accessed 16 September 2016].

Myres, John Linton, *Who Were the Greeks?* (Berkeley, California: University of California Press, 1930).

'Newton's Bucket', dir. by Silo Studio (2014) < <https://vimeo.com/96064901> > [accessed 9 April 2015].

Niels Peter Skou, 'Materialising time: Craft, patina and the symbolic consumption of time through designed objects', *Design and Time: Design History Society Conference 2016* (Middlesex University, London, 8-10 September 2016) <<http://designandtime2016.co.uk/heritage-and-symbolic-time/>> [accessed 25 July 2016].

O'Connor, Erin, 'Embodied knowledge: The experience of meaning and the struggle towards proficiency in glassblowing', *Ethnography*, 6: 2 (2005), 183-204 <<http://doi.org/10.1177/1466138105057551>>.

———, 'Glassblowing Tools: Extending the Body Towards Practical Knowledge and Informing a Social World', *Qualitative Sociology*, 29: 2 (2006), 177-93.

O'Hara, Dan, 'Skeuomorphology and Quotation', *Morphomata*, 2 (2012), 281-94 <<http://danohara.co.uk/OHara%20-%20Skeuomorphology%20and%20Quotation.pdf>> [accessed 21 September 2016].

Page, Tom, 'Skeuomorphism or at design: Future directions in mobile device user interface (UI) design education', *International Journal of Mobile Learning and Organisation*, 8: 2 (2014), 130-42.

Pajczkowska, Claire, 'On Stuff and Nonsense: The Complexity of Cloth', *Textile: The Journal of Cloth & Culture*, 3: 3 (2005), 220-49.

Pandora's Box (exhibition catalogue) (London: Crafts Council, 1995).

Papapetros, Spyros, 'Ornament and object—ornament as object', *Journal of Art Historiography*, 7 (2012), 1-12.

Partington, Matthew, 'Can British ceramics education survive?' *NCECA Journal* (2010), 104-05.

Partington, Matthew, and Linda Sandino, eds., *Oral History in the Visual Arts* (London; New York: Bloomsbury, 2013).

Payne, Alina, *From Ornament to Object: Genealogies of Architectural Modernism* (New Haven: Yale University Press, 2012).

Peach, Andrea, 'Thinking Through Craft', *Journal of Design History*, 22 (2009), 82-84 <<http://doi.org/10.1093/jdh/epn044>>

Pickering, Andrew, *The Mangle of Practice: Time, Agency, and Science* (Chicago: University of Chicago Press, 1995).

Pinney, Christopher, 'Things Happen: Or, From Which Moment Does That Object Come?' in *Materiality*, ed. by Daniel Miller (Durham, NC: Duke University Press: 2005), 256-72.

Plant, Sadie, *Zeros + Ones: Digital Women + The New Technoculture* (London: Fourth Estate, 1997).

Pogue, David, 'Out With the Real', *Scientific American*, 308: 2 (2013), 29.

Polanyi, Michael, *The Tacit Dimension* (London: Routledge & Kegan Paul Ltd, 1967).

Polaroid SX-70, Charles and Ray Eames (film) (1972).

'Polymers and Composites: Silicone Moulds', 3D Design and Craft workshop, University of Brighton (15 January 2015).

'Polyester Resins and Fibreglass Casting', 3D Design and Craft workshop, University of Brighton (23 January 2015).

Portelli, Alessandro, 'The Peculiarities of Oral History', *History Workshop Journal*, 12: 1 (1981), 96-107.

Powers of Ten: A Film Dealing with the Relative Size of Things in the Universe and the Effect of Adding Another Zero, Charles and Ray Eames (film) (1977).

Powilleit, Inga, and Tatjana Quax, *How They Work: The Hidden World of Dutch Design* (Rotterdam: 010 Publishers, 2008).

Preda, Alex, 'The Turn to Things: Arguments for a Sociological Theory of Things', *The Sociological Quarterly*, 40: 2 (1999), 347-66.

Proceedings of ACM SIGGRAPH 2007 (San Diego, CA: Association for Computing Machinery, 3-4 August 2007).

'PROCESS: Making – And How Craft Makes the Difference', *Clerkenwell Design Week* (The Goldsmiths' Centre, London, 26 May 2016).

Project Space at *COLLECT: The International Art Fair for Contemporary Objects* (Saatchi Gallery, London).

Prown, Jules, 'Mind in Matter: An Introduction to Material Culture Theory and Method', *Winterthur Portfolio*, 17: 1 (Spring 1982), 1-19.

Pye, David, 'The Nature and Art of Workmanship', in Glenn Adamson, ed., *The Craft Reader* (Oxford: Berg, 2010), 341-53.

Rachel Levine: Material Anxiety (exhibition) (Hayward Gallery, London, 21 April-14 June 2015) <<http://www.southbankcentre.co.uk/whatson/rachel-levine-material-anxiety-1000949>> [accessed 24 September 2016].

Rahm, Louis F., *Plastic Moulding: An Introduction to the Materials, Equipment and Methods Used in the Fabrication of Plastic Products*, 1st edn (New York; London: McGraw-Hill Book Company, Inc., 1933).

Ramakers, Renny, *Less + More: Droog Design in Context* (Rotterdam: 010 Publishers, 2002).

Ramakers, Renny, and Gijs Bakker, eds., *Droog Design: Spirit of the Nineties* (Rotterdam: 010 Publishers, 1998).

Ramshaw, Wendy, 'Ornamenting the Body', *American Craft* (April/May 1986), 10-14.

'Raw Craft: Fine Thinking in Contemporary Furniture' (exhibition catalogue) (Crafts Council, London, 2010).

Rawson, Philip, *Ceramics* (Philadelphia: University of Pennsylvania Press, 1984) <<http://capitadiscovery.co.uk/brighton-ac/items/767>>.

Rawsthorn, Alice, 'By Design: How technological developments are changing our relationship to control', *frieze.com*, 10 June 2016 <<https://frieze.com/article/design-12>> [accessed 5 September 2016].

Rendell, Jane, *Site-Writing: The Architecture of Art Criticism* (London: I. B. Tauris, 2010).

Rescher, Nicholas, *Process Metaphysics: An Introduction to Process Philosophy* (New York: State University of New York Press, 1996).

Rice, Paul, *British Studio Ceramics* (Marlborough: Crowood, 2002) <<http://capitadiscovery.co.uk/brighton-ac/items/912487>>.

Ricoeur, Paul, *Memory, History, Forgetting* (Chicago: University of Chicago Press, 2004).

de Rijk, Timo, 'So-called Craft: The Formative Years of Droog Design, 1992-1998', *The Journal of Modern Craft*, 3: 2 (2010), 161-78.

Risatti, Howard, *A Theory of Craft: Function and Aesthetic Expression* (Chapel Hill: University of North Carolina Press, 2007).

'RoboFold' <<http://www.robofold.com>> [accessed 21 September 2016].

Rome, Richard, and Young, Hamish, *Fine Art Metal Casting: An Illustrated Guide to Mould Making and Lost Wax Processes* (London: Robert Hale Limited, 2003).

Rose, Gillian, ed., *Visuality/Materiality: Images, Objects and Practices* (Farnham: Ashgate Publishing, 2012).

Rose, Steve, 'Why Apple ditched its skeuomorphic design for iOS7', *The Guardian*, 12 June 2013
<<http://www.theguardian.com/technology/shortcuts/2013/jun/12/skeuomorphism-apple-ditched-ios7>> [accessed 15 April 2014].

Rosenthal: A Century of Porcelain (exhibition catalogue) (London: V&A Museum, 1983).

Rosenthal Hundert Jahre Porzellan (exhibition catalogue) (Hannover: Kestner-Museum Hannover, 1982).

'Rosenthal Porcelain Online Shop: Maria – Rosenthal Selection: the classic set for generations' <<http://www.rosenthal.de/en/shop/brands/selection-1-en/dining-collections-1-en/maria-1-en/coffee-pot-3-43/>> [accessed 27 January 2016].

Rosler, Martha, Caroline Walker Bynum, Natasha Eaton, Michael Ann Holly, Amelia Jones, Michael Kelly, Robin Kelsey, Alisa LaGamma, Monika Wagner, Oliver Watson, and Tristan Weddigen, 'Notes from the Field: Materiality', *The Art Bulletin*, 95:1 (2013), 10-37 <<http://10.1080/00043079.2013.10786104>>.

Rossi, Catharine, 'Crafting Modern Design in Italy, from Post-War to Postmodernism' (doctoral thesis, Royal College of Art, 2011).

———, 'Thinking About Making' (Institute of Contemporary Arts, London, 4 March 2015).

Rubber and Footwear: Being A Short Account of the Preparation and Properties of Rubber with Particular Reference to Its Uses in the Boot and Shoe Industry, The Rubber Growers' Association, Inc. (London and Beccles: William Clowes & Sons, Ltd., 1926).

Rubber in Footwear Working Party, *Rubber in Modern Footwear*, 2nd edn (London: Rubber in Footwear Working Party, 1970).

Rykwert, Joseph, 'Semper and the Conception of Style', in *The Necessity of Artifice* (London: Academy Editions, 1982), 123-30.

Samuel, Raphael, 'Perils of the Transcript', *Oral History*, 1 (1972), 19-22.

Sandino, Linda, 'Introduction: Oral Histories and Design: Objects and Subjects', *Journal of Design History*, 19 (2006), 275-82.

Schatzki, Theodore R., K. Knorr-Cetina, and Eike von Savigny, eds., *The Practice Turn in Contemporary Theory* (New York: Routledge, 2001).

Scholes, Samuel, *Modern Glass Practice* (Chicago: Industrial Productions, Inc., 1935).

Schouwenberg, Louise, *Hella Jongerius* (London; New York: Phaidon, 2003).

———, *Hella Jongerius: Misfit* (London; New York: Phaidon, 2010).

———, *Timeless Necessity* (Rotterdam: Episode Publishers, 2009).

Schrader, Paul, 'Poetry of Ideas: The Films of Charles and Ray Eames', *Film Quarterly*, 23 (1970), 2-19.

Scott, Joan W., 'The Evidence of Experience', *Critical Inquiry*, 17: 4 (1991), 773-97.

Seago, Alex, and Anthony Dunne, 'New Methodologies in Art and Design Research: The Object as Discourse' *No Guru, No Method International Conference on Art and Design Research* (University of Art and Design, Helsinki, Finland: Royal College of Art Research Papers, 1996), 1-5.

Seattle, G. F., 'User Interfaces: Skeu You', *The Economist*, 8 November 2012
<<http://www.economist.com/blogs/babbage/2012/11/user-interfaces>> [accessed 1 June 2016].

Seiler-Baldinger, Annemarie, *Textiles: A Classification of Techniques* (Washington, D.C.: Smithsonian Institution Press, 1994).

Self, Will, 'Madness of Crowds', *New Statesman*, 142: 5178 (2013), 54
<<http://search.proquest.com.ezproxy.brighton.ac.uk/docview/1440333915?accountid=9727>> [accessed 30 September 2016].

Semper, Gottfried, *The Four Elements of Architecture and Other Writings*, trans. by Harry Francis Mallgrave and Wolfgang Hermann (Cambridge; New York: Cambridge University Press, 1989).

———, *Style in the Technical and Tectonic Arts; or, Practical Aesthetics*, trans. by Harry Francis Mallgrave and Michael Robinson (Los Angeles: Getty Research Institute, 2004).

Serres, Michel, 'The Algebra of Literature: The Wolf's Game', in Josué V. Harari, ed., *Textual Strategies: Perspectives on Post-Structuralist Criticism* (Ithaca, NY: Cornell University Press, 1979), 260-76.

———, 'The Past Is No Longer Out-of-Date', in Ben Highmore, ed., *The Design Culture Reader* (London; New York: Routledge, 2009), 307-16.

Serres, Michel, and Latour, Bruno, *Conversations on Science, Culture, and Time*, trans. by Roxanne Lapidus (Ann Arbor: University of Michigan Press, 1995).

Shepherd, Rupert, and Robert Maniura, eds., *Presence: The Inherence of the Prototype within Images and Other Objects* (Aldershot, England; Burlington, VT: Ashgate, 2006).

Shields, Rob, *The Virtual* (New York: Routledge, 2003).

'Shine', dir. by Geoffrey Mann <<http://www.mrmann.co.uk/natural-occurrence-series-shine>> [accessed 21 April 2015].

Shove, Elizabeth, and Pantzar, Mika, 'Fossilisation', *Ethnologia Europaea: Journal of European Ethnology*, 35: 1-2 (2007), 59-62.

Shove, Elizabeth, Mika Pantzar, and Matt Watson, eds., *The Dynamics of Social Practice: Everyday Life and How It Changes* (Los Angeles: SAGE, 2012).

'Silo Studio', <<http://www.silostudio.net/>> [accessed 30 August 2016].

'Silo Studio', dir. by Gianini, Dan, and LS:N Global (2013) <<https://vimeo.com/55602615>> [accessed 8 April 2015].

Silverman, David, ed., *Qualitative Research: Issues of Theory, Method, and Practice*, 3rd edn (Los Angeles: Sage, 2011).

Simondon, Gilbert, *L'individu et Sa Genèse Physico-Biologique*, trans. by Taylor Adkins (Paris: Presses Universitaires de France, 1964).

———, 'On the Mode of Existence of Technical Objects', trans. by Ninian Mellamphy, Dan Mellamphy, and Nandita Biswas Mellamphy, *Deleuze Studies*, 5.3 (2011), 407-24.

Simpson, Tim, and van Gameren, Sarah, *Miracle Machines and the Lost Industries* (London: self-published, 2007).

Smith, Anthony W., 'An Introduction to Textile Materials: their structure, properties and deterioration', *Journal of the Society of Archivists*, 20: 1 (1999), 25-39.

Smith, Pamela H., Amy R. Meyers, and Harold J. Cook, eds., *Ways of Making and Knowing: The Material Culture of Empirical Knowledge* (Ann Arbor: University of Michigan Press, 2014).

Smith, T'ai, 'Architectonic: Thought on the Loom', *The Journal of Modern Craft*, 4 (2011), 269-94.

———, *Bauhaus Weaving Theory: From Feminine Craft to Mode of Design* (Minneapolis; London: University of Minnesota Press, 2014).

'Solar Sinter, 2011', dir. by Markus Kayser
<<http://www.markuskayser.com/work/solarsinter/>> [accessed 15 April 2015].

Sooke, Alastair, 'Digital Revolution, Barbican Centre, review: "gimmicky"', *The Telegraph*, 30 June 2014 <<http://www.telegraph.co.uk/culture/art/art-reviews/10935600/Digital-Revolution-Barbican-Centre-review-gimmicky.html>> [accessed 25 September 2014].

Spiekermann, Erik, 'Achtung', *Blueprint*, 328 (2013), 37.

Standen, Kathleen, *The New Ceramics: Additions to Clay Bodies* (London: Bloomsbury, 2013).

Star, Susan Leigh, and Griesemer, James R., 'Institutional Ecology, "Translations" and Boundary Objects: Amateurs and Professionals in Berkeley's Museum of Vertebrate Zoology, 1907-39', *Social Studies of Science*, 19: 3 (1989), 387-420.

Steadman, Philip, *The Evolution of Designs: Biological Analogy in Architecture and the Applied Arts*, 2nd edn (New York: Routledge, 2008).

Steedman, Carolyn, *Dust: The Archive and Cultural History* (New Brunswick, NJ: Rutgers University Press, 2002).

'TATE: Art & Artists: Piero Manzoni: Artist's Breath, 1960'
<<http://www.tate.org.uk/art/artworks/manzoni-artists-breath-t07589/text-summary>> [accessed 29 July 2016].

Taussig, Michael, *Mimesis and Alterity: A Particular History of the Senses* (New York; London: Routledge, 1993).

Taylor, Damon, 'After a Broken Leg: Jurgen Bey's Do Add Chair and the Everyday Life of Performative Things', *Design and Culture*, 5 (2013), 357-74
<<http://doi.org/10.2752/175470813X13705953612246>>.

Taylor, John Russell, 'Woodman with the magic touch', *The Times*, 27 October 1998, (unnumbered).

Terstiege, Gerrit, ed., *The Making of Design: From the First Sketches to the Final Product*, revised edn (Basel, Switzerland: Birkhaeuser, 2010).

'Textile Moulded Glass', dir. by Silo Studio (2014) <<http://www.silostudio.net/video>> [accessed 29 July 2016].

The Languages of Making: Learning and Craft in Dialogue (Stanley Picker Gallery, Kingston University, February 2014).

The Production of Ornament: Reassessing the Decorative in History and Practice (conference) (University of Leeds, 21-22 March 2014).

The University of Edinburgh: Edinburgh College of Art, 'Material Practice – MSc' <<http://www.eca.ed.ac.uk/architecture-landscape-architecture/postgraduate/taught-degrees/material-practice-msc>> [accessed 1 June 2016].

The Uses and Abuses of Time: Anachronism/Achronicity in the Premodern Era (conference) (University of North Carolina, Chapel Hill, NC, 21-23 March 2013) <<http://achronicity.web.unc.edu/about/>> [accessed 8 June 2016].

'The Why Question?' (debate) (Royal College of Art, Battersea, 22 June 2016).

Thibodeau, Kenneth, 'Overview of Technological Approaches to Digital Preservation and Challenges in Coming Years', in Documentation Abstracts, Inc, and Council on Library and Information Resources, *The State of Digital Preservation: An International Perspective: Conference Proceedings: Documentation Abstracts, Inc., Institutes for Information Science, Washington, D.C., 24-25 April 2002* (Washington, D.C: Council on Library and Information Resources, 2002), 4-31 <<https://www.clir.org/pubs/reports/reports/pub107/pub107.pdf>> [accessed 22 September 2016].

Things to Remember: Materializing Memories in Art and Culture, International Conference (Radboud University, Nijmegen, 5-6 June 2014).

Thompson, Clive, 'Out With The Old', *Wired*, 20: 2 (2012), 42.

Thompson, Henrietta, 'Do You like to Watch?', *Wallpaper*, 2011, 40-44.

Thwaites, Thomas, 'How I built a toaster – from scratch', TED <http://www.ted.com/talks/thomas_thwaites_how_i_built_a_toaster_from_scratch/transcript?language=en> [accessed 9 April 2015].

'Titus Davies | Bespoke Furniture Maker' <<http://titusdavies.co.uk>> [accessed 22 July 2016].

Toccata for Toy Trains, Charles and Ray Eames (film) (1957).

Tooley, Fay V., ed., *The Handbook of Glass Manufacture: A Book of Reference for the Plant Executive, Technologist, and Engineer*, 3rd edn (New York, NY: Books for the Glass Industry Division, Ashlee Publishing Co., 1984).

Tufte, Edward R., *Envisioning Information* (Cheshire, Connecticut: Graphics Press, 1990).

———, *The Visual Display of Quantitative Information* (Cheshire, Connecticut: Graphics Press, 1983).

Turkle, Sherry., *Evocative Objects: Things We Think With* (Cambridge, MA: MIT Press, 2007).

Valentine, Louise, ed., *Prototype: Design and Craft in the 21st Century* (London; New York: Bloomsbury, 2013).

Vickers, Michael, and Gill, David, *Artful Crafts: Ancient Greek Silverware and Pottery* (Oxford: Clarendon Press, 1996).

Victoria and Albert Museum: Search the Collections <<http://collections.vam.ac.uk>>.

Walker, John A., *Design History and the History of Design* (London: Pluto Press, 1989).

Walker Phillips, Mary, *Creative Knitting: A New Art Form* (New York: Van Nostrand Reinhold, 1971).

Wenger-Trayner, Etienne, Mark Fenton-O’Creevy, Steven Hutchinson, Chris Kubiak, and Beverly Wenger-Trayner, eds., *Learning in Landscapes of Practice: Boundaries, Identity, and Knowledgeability in Practice-Based Learning* (Abingdon: Routledge, 2015).

Wiberg, Mikael, ‘Methodology for Materiality: Interaction Design Research through a Material Lens’, *Personal and Ubiquitous Computing*, 18 (2014), 625-36
<<http://doi.org/10.1007/s00779-013-0686-7>>.

Wieki Somers Studio, ‘Chinese Stools – Made in Chine, Copied by the Dutch 2007’
<<http://www.wiekisomers.com/#>> [accessed 16 July 2016].

Williams, Gareth, ‘Towards a Theory of Performative Design’, *Design and Time: Design History Society Conference 2016* (Middlesex University, London, 8-10 September 2016)
<<http://designandtime2016.co.uk/author/designandtime2016/>> [accessed 22 September 2016].

———, *21 Twenty One: 21 Designers for Twenty-First Century Britain* (London: V&A Publishing, 2012).

Williams, Rhiannon, ‘Sewing Proust: Patchwork as Critical Practice’, *Journal of Textile Design Research and Practice*, 1 (2013), 43-55.

‘Working with Hot Glass: International Conference and Workshop’ (Crafts Advisory Committee and Royal College of Arts, London, 1976).

Wosk, Julie, 'Mutant Materials in Contemporary Design', *Design Issues*, 12: 1 (1996), 63-69.

Youngs, Gillian, ed., *Digital World: Connectivity, Creativity and Rights* (Abingdon, Oxon: Routledge, 2013).

Zijl, Ida van, *Droog Design, 1991-1996* (Utrecht: Centraal Museum, 1997).

———, *Gijs Bakker: Objects to Use* (Rotterdam: 010 Publishers, 2000).

Zitouni, Benedikte, 'Shuffling Times', *First PARSE Biennial Research Conference on TIME* (University of Gothenburg, Sweden, 2015).

APPENDIX

Dear Glithero,

I am writing to invite you to participate in a research project I am currently undertaking as a PhD student at the University of Brighton, UK.

The title of the research project is 'In the Making: An interdisciplinary revision of the concept of the skeuomorph for material practice' and the aim is to establish a wider understanding of the relevance of the skeuomorph to contemporary material practice. The term "skeuomorph", or "structure-form", denotes an object whose method of production corresponds to an altogether different material – such as basketry techniques assimilated into ceramics, or woodwork into masonry – and is described accordingly as "skeuomorphic". I have identified a number of design projects that, I believe, evidence this form of material transformation, and I hope to undertake a series of studio visits to understand whether, and indeed *how*, makers adopt the skeuomorph within their practice.

Many of the examples came to light after a period of concentrated research into different making practices through exhibitions catalogues, journals, and makers' monographs. As part of this research, I would like to undertake an interview with you and/or a studio visit, as I believe you to have mobilised the skeuomorph as a working method in *Les French* (2009). I would like to draw on your knowledge and insights into *Les French* in an attempt to understand the technical, material, and aesthetic decisions that informed the making of this work.

The interview and/or studio visit will be very informal, and I would like permission to photograph you and/or your work during the course of the visit.

You are welcome to contact me via email or telephone (as detailed below) with any questions you might have.

Many thanks, and I look forward to hearing from you.

Kind wishes,



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INFORMATION SHEET

Title of Research Project

In the Making: An interdisciplinary revision of the concept of the skeuomorph for material practice

I would like to invite you to participate in my PhD research. Before you decide to take part it is important that you understand why the research is being done, and what it will involve. Please read the following information carefully, and discuss it with others if you wish. If anything is unclear, or you would like more information, I am willing to answer any questions. You should take your time to decide whether or not you wish to take part. Thank you.

Summary and aims of the study

This research project is about the relevance of the skeuomorph to contemporary material practice. Skeuomorphs are objects that have been fashioned in one material, yet share some formal qualities with objects made from another; they are often mobilised in processes of making, whether consciously or not. The skeuomorph presents rich possibilities for the study of craft, materiality, and temporality, yet its potential as a design methodology remains relatively misunderstood. This project seeks to examine the ways in which the skeuomorph is mobilised within a broad spectrum of material practices. The research is being undertaken as part of a three-year AHRC-funded PhD studentship at the University of Brighton, entitled 'Design Agency: Activism, Innovation, Transformation' (2013-16).

Why have I been invited to participate?

A diverse range of projects that evidence the skeuomorph have been chosen as case studies for the research. Many of the examples came to light after a period of concentrated research into contemporary practice through exhibitions catalogues, journals, and makers' monographs – of which yours is one. The aim is to undertake interviews and/or studio visits in an attempt to understand the technical, theoretical, and material questions that informed the making process.

Do I have to take part?

Participation in this study is voluntary and you are not obliged to agree to be visited.

What is expected from participants?

The researcher will undertake an interview with you and/or visit your studio to discuss your practice. It is anticipated that discussions will centre on: a preselected object, or objects; a particular making process, or form of activity; tools and tooling; materials and techniques; practical constraints; and the context for the work. I would also like permission to photograph you and/or your work during the course of the interview.

Expenses and payments?

There is no payment for taking part in the research. However, you will be fully credited in any publications, seminars, or conference papers in which your material is cited.

What will I have to do?

I will contact you to discuss the possibility of arranging an interview and/or studio visit, and to answer any questions you might have before you decide to participate. This conversation will either be via email, or telephone. On the agreed date, I will visit you in your studio, as you will have ready access to the material under discussion, as well as provide the opportunity for photography, where appropriate. At the close of the interview and/or studio visit you will be asked to sign a consent form, confirming you agree to the use of any information gathered as part of this research. You may also be asked to fact check information relating to this visit in the analysis stage.

What are the potential disadvantages or risks of taking part?

There is little potential risk in being involved in the project. At the close of the interview and/or studio visit, you will have the opportunity to ask questions about the future use(s) of the material gathered, before signing the consent form. Any material that, on reflection, you feel uncomfortable about being included in the study can be discussed at this stage. You are not under any obligation to consent to the material being used.

What are the potential benefits of taking part?

While there are no immediate benefits for those who participate in the project, it is hoped that this work will open up the discussion about the skeuomorph in the contemporary context; you will have played a key part in this discussion. You will be given the opportunity to discuss, and critically reflect, on your work, and to actively participate in the analysis of your work in the context of the study.

What happens when the research project stops?

The material gathered from the studio visit will be analysed alongside other participants' material, and in the context of the study as a whole. The final thesis will be submitted in October 2016, and will likely become available internationally through the British Library's EthOS online doctoral theses catalogue in 2017. The interview material may also be drawn from in the preparation and delivery of conference papers, seminars, and journal articles.

What if there is a problem?

You will be asked to give your consent to use the material at the close of the studio visit. You will have the opportunity to discuss any concerns that you may have with regards to any confidential issues that were discussed.

If you wish to make a complaint about the way the research has been undertaken, or raise any concerns related to the project, you can contact me directly:

Kimberley Chandler
T +44 (0)7909 528 880
E K.J.Chandler@brighton.ac.uk

Alternatively, you can contact the Research Supervisor, Prof Paul Jobling, through the University of Brighton Centre for Research and Development:

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Will my taking part in the research be kept confidential?

No, it will not be kept confidential. As a participant in the study, you will be named within the analysis and final written thesis; as well as in any photographs taken during the interview.

What will happen to the results of the project?

The material gathered forms part of the research for the final doctoral thesis, which is due to be submitted in October 2016. On completion, the final thesis will likely become available

internationally through the British Library's EthOS online doctoral theses catalogue in 2017. Any material that has been analysed and written up as part of the research may be consulted and/or utilised in the presentation of future conference papers, seminars, and journal articles.

What will happen to the collected material?

Any notes and photographs will only be used for analysis and for illustration in conference presentations and lectures. No other use will be made of the material without your written permission, and no one outside the project will be allowed to access to the material. All of the collated material will remain in my possession, and will be stored on a password-protected laptop computer; in print as working documents; and saved on a password-protected personal hard drive. This material will not be circulated or otherwise distributed via email or institutional networks.

Who has reviewed the study?

This study has been reviewed and passed by the University of Brighton Arts & Humanities Research Ethics and Governance Committee; as well as three Research Supervisors, Prof Jonathan Woodham, Prof Paul Jobling, and Dr Ivana Wingham.

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Title of Research Project

In the Making: An interdisciplinary revision of the concept of the skeuomorph for material practice

Consent to use Information and Artwork

Photography and Artwork

I agree for photographs to be taken of my artwork.

Yes No

I agree for photographs to be taken of me within my studio space.

Yes No

I agree for photographs of me to be used that will be seen by other people and the public. This might include in conference seminars, presentations, journal articles, and the final thesis.

Yes No

I agree for photographs of my artwork to be used that will be seen by other people and the public. This might include in conference seminars, presentations, journal articles, and the final thesis.

Yes No

Names

I agree to my full name being used in conference seminars, presentations, journal articles, and the final thesis.

Yes No

As long as these are conferences, presentations, journal articles and the thesis for a theoretical purpose, so no lifestyle or design magazines or lectures to a general design audience.

Signed (participant)

Sarah van Ameren

Print name

S van Ameren

Date

Olithero

Witnessed by (researcher)

K. Chandler

Print name

Kimberley Chandler

Date

5 May 2016

Title of Research Project

In the Making: An interdisciplinary revision of the concept of the skeuomorph for material practice

Post-Studio Visit Consent Form

Having participated in the studio visit, I agree to the following:

Any questions were clear and fully explained to me.

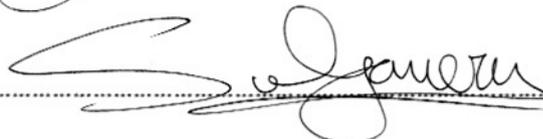
I was given the opportunity to ask questions.

The answers I gave were entirely voluntary, and have not been influenced or coerced by the researcher in any way.

The researcher explained the ways in which the information gathered would be used, and has explained that it will be used, either in whole or in part, as part of the study. The results of this study will be published as a PhD thesis and be made publically available through online libraries. Further publications may also result from this study.

I therefore agree to the use of this material for the research project in question, and release the contents to the researcher.

I agree to take part in this study Yes No

Signed (participant) 

Print name SARAH VAN GAMEREN

Date 09/05/16

I have explained my project to the participant and given clear answers to any questions.

Signed (researcher) 

Print name Kimberley Chandler

Date 5 May 2016

Dear Silo Studio,

I am writing to invite you to participate in a research project I am currently undertaking as a PhD student at the University of Brighton, UK.

The title of the research project is 'In the Making: An interdisciplinary revision of the concept of the skeuomorph for material practice' and the aim is to establish a wider understanding of the relevance of the skeuomorph to contemporary material practice. The term "skeuomorph", or "structure-form", denotes an object whose method of production corresponds to an altogether different material – such as basketry techniques assimilated into ceramics, or woodwork into masonry – and is described accordingly as "skeuomorphic". I have identified a number of design projects that, I believe, evidence this form of material transformation, and I hope to undertake a series of studio visits to understand whether, and indeed *how*, makers adopt the skeuomorph within their practice.

Many of the examples came to light after a period of concentrated research into different making practices through exhibitions catalogues, journals, and makers' monographs. As part of this research, I would like to undertake an interview with you and/or a studio visit, as I believe you to have mobilised the skeuomorph as a working method in *Textile-Moulded Glass* (2012). I would like to draw on your knowledge and insights into *Textile-Moulded Glass* in an attempt to understand the technical, material, and aesthetic decisions that informed the making of this work.

The interview and/or studio visit will be very informal, and I would like permission to photograph you and/or your work during the course of the visit.

You are welcome to contact me via email or telephone (as detailed below) with any questions you might have.

Many thanks, and I look forward to hearing from you.

Kind wishes,



Kimberley Chandler

College of Arts and Humanities Office
University of Brighton
Grand Parade
Brighton
BN2 0JY
United Kingdom
T +44 (0)7909 528 880
E K.J.Chandler@brighton.ac.uk

Title of Research Project

In the Making: An interdisciplinary revision of the concept of the skeuomorph for material practice

Post-Studio Visit Consent Form

Having participated in the studio visit, I agree to the following:

Any questions were clear and fully explained to me.

I was given the opportunity to ask questions.

The answers I gave were entirely voluntary, and have not been influenced or coerced by the researcher in any way.

The researcher explained the ways in which the information gathered would be used, and has explained that it will be used, either in whole or in part, as part of the study. The results of this study will be published as a PhD thesis and be made publically available through online libraries. Further publications may also result from this study.

I therefore agree to the use of this material for the research project in question, and release the contents to the researcher.

I agree to take part in this study Yes

Signed (participant)



Print name

Attua Aparicio

Oscar Lessing

Date

1st April 2015

I have explained my project to the participant and given clear answers to any questions.

Signed (researcher)



Print name

Kimberley Chandler

Date

1 April 2015

Title of Research Project

In the Making: An interdisciplinary revision of the concept of the skeuomorph for material practice

Consent to use Information and Artwork

Photography and Artwork

I agree for photographs to be taken of my artwork.

Yes

I agree for photographs to be taken of me within my studio space.

Yes

I agree for photographs of me to be used that will be seen by other people and the public. This might include in conference seminars, presentations, journal articles, and the final thesis.

Yes

I agree for photographs of my artwork to be used that will be seen by other people and the public. This might include in conference seminars, presentations, journal articles, and the final thesis.

Yes

Names

I agree to my full name being used in conference seminars, presentations, journal articles, and the final thesis.

Yes

Signed (participant)



Print name

Attua Aparicio

Oscar Lessing

Date

1st April 2015

Witnessed by (researcher)

Signed



Print name

Kimberley Chandler

Date

1 April 2015

Dear Arline Fisch,

I am writing to invite you to participate in a research project I am currently undertaking as a PhD student at the University of Brighton, UK.

The title of the research project is 'In the Making: An interdisciplinary revision of the concept of the skeuomorph for material practice' and the aim is to establish a wider understanding of the relevance of the skeuomorph to contemporary material practice. The term "skeuomorph", or "structure-form", denotes an object whose method of production corresponds to an altogether different material – such as basketry techniques assimilated into ceramics, or woodwork into masonry – and is described accordingly as "skeuomorphic". I have identified a number of design projects that, I believe, evidence this form of material transformation, and I hope to undertake a series of studio visits to understand whether, and indeed *how*, makers adopt the skeuomorph within their practice.

Many of the examples came to light after a period of concentrated research into different making practices through exhibitions catalogues, journals, and makers' monographs. As part of this research, I would like to undertake an interview with you and/or a studio visit, as I believe you to have mobilised the skeuomorph as a working method in *Lace Ascot* (1980). I would like to draw on your knowledge and insights into *Lace Ascot* in an attempt to understand the technical, material, and aesthetic decisions that informed the making of this work.

The interview and/or studio visit will be very informal, and I would like permission to photograph you and/or your work during the course of the visit.

You are welcome to contact me via email or telephone (as detailed below) with any questions you might have.

Many thanks, and I look forward to hearing from you.

Kind wishes,



Kimberley Chandler

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BN2 0JY
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T +44 (0)7909 528 880
E K.J.Chandler@brighton.ac.uk

Title of Research Project

In the Making: An interdisciplinary revision of the concept of the skeuomorph for material practice

Post-Interview Consent Form

Having participated in the studio visit, I agree to the following:

The questions were clear and fully explained to me.

I was given the opportunity to ask questions.

The answers I gave were entirely voluntary, and have not been influenced or coerced by the researcher in any way.

The researcher explained the ways in which the information gathered would be used, and has explained that it will be used, either in whole or in part, as part of the study. The results of this study will be published as a PhD thesis and be made publically available through online libraries. Further publications may also result from this study.

I therefore agree to the use of this material for the research project in question, and release the contents to the researcher.

I agree to take part in this study Yes No

Signed (participant)

Arline M Fisch

Print name

ARLINE M. FISCH

Date

24 JANUARY 2016

I have explained my project to the participant and given clear answers to any questions.

Signed (researcher)

K. Chandler

Print name

Kimberley Chandler

Date

24 January 2016

Title of Research Project

In the Making: An interdisciplinary revision of the concept of the skeuomorph for material practice

Consent to use Information and Artwork

Photography and Artwork

I agree for photographs of me to be used that will be seen by other people and the public. This might include in conference seminars, presentations, journal articles, and the final thesis.

Yes No

I agree for photographs of my artwork to be used that will be seen by other people and the public. This might include in conference seminars, presentations, journal articles, and the final thesis.

Yes No

Names

I agree to my full name being used in conference seminars, presentations, journal articles, and the final thesis.

Yes No

Signed (participant) *Arline M Fisch*

Print name ARLINE M. FISCH

Date 24 JANUARY 2016

Witnessed by (researcher)

Signed *K. Chandler*

Print name Kimberley Chandler

Date 24 January 2016

Dear Gijs Bakker,

I am writing to invite you to participate in a research project I am currently undertaking as a PhD student at the University of Brighton, UK.

The title of the research project is 'In the Making: An interdisciplinary revision of the concept of the skeuomorph for material practice' and the aim is to establish a wider understanding of the relevance of the skeuomorph to contemporary material practice. The term "skeuomorph", or "structure-form", denotes an object whose method of production corresponds to an altogether different material – such as basketry techniques assimilated into ceramics, or woodwork into masonry – and is described accordingly as "skeuomorphic". I have identified a number of design projects that, I believe, evidence this form of material transformation, and I hope to undertake a series of studio visits to understand whether, and indeed *how*, makers adopt the skeuomorph within their practice.

Many of the examples came to light after a period of concentrated research into different making practices through exhibitions catalogues, journals, and makers' monographs. As part of this research, I would like to undertake an interview with you and/or a studio visit, as I believe you to have mobilised the skeuomorph as a working method in *Knitted Maria* (1997). I would like to draw on your knowledge and insights into *Knitted Maria* in an attempt to understand the technical, material, and aesthetic decisions that informed the making of this work.

The interview and/or studio visit will be very informal, and I would like permission to photograph you and/or your work during the course of the visit.

You are welcome to contact me via email or telephone (as detailed below) with any questions you might have.

Many thanks, and I look forward to hearing from you.

Kind wishes,



Kimberley Chandler

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Title of Research Project

In the Making: An interdisciplinary revision of the concept of the skeuomorph for material practice

Post-Interview Consent Form

Having participated in the studio visit, I agree to the following:

The questions were clear and fully explained to me.

I was given the opportunity to ask questions.

The answers I gave were entirely voluntary, and have not been influenced or coerced by the researcher in any way.

The researcher explained the ways in which the information gathered would be used, and has explained that it will be used, either in whole or in part, as part of the study. The results of this study will be published as a PhD thesis and be made publically available through online libraries. Further publications may also result from this study.

I therefore agree to the use of this material for the research project in question, and release the contents to the researcher.

I agree to take part in this study Yes No

Signed (participant)



Print name

Gijs Bakker

Date

19 May 2016

I have explained my project to the participant and given clear answers to any questions.

Signed (researcher)



Print name

Kimberley Chandler

Date

7 December 2015

Title of Research Project

In the Making: An interdisciplinary revision of the concept of the skeuomorph for material practice

Consent to use Information and Artwork

Photography and Artwork

I agree for photographs to be taken of my artwork.

Yes No

I agree for photographs to be taken of me within my studio space.

Yes No

I agree for photographs of me to be used that will be seen by other people and the public. This might include in conference seminars, presentations, journal articles, and the final thesis.

Yes No

I agree for photographs of my artwork to be used that will be seen by other people and the public. This might include in conference seminars, presentations, journal articles, and the final thesis.

Yes No

Names

I agree to my full name being used in conference seminars, presentations, journal articles, and the final thesis.

Yes No

Signed (participant)



Print name

Gijs Bakker

Date

19 May 2016

Witnessed by (researcher)

Signed

K. Chandler.

Print name

Kimberley Chandler

Date

7 December 2015